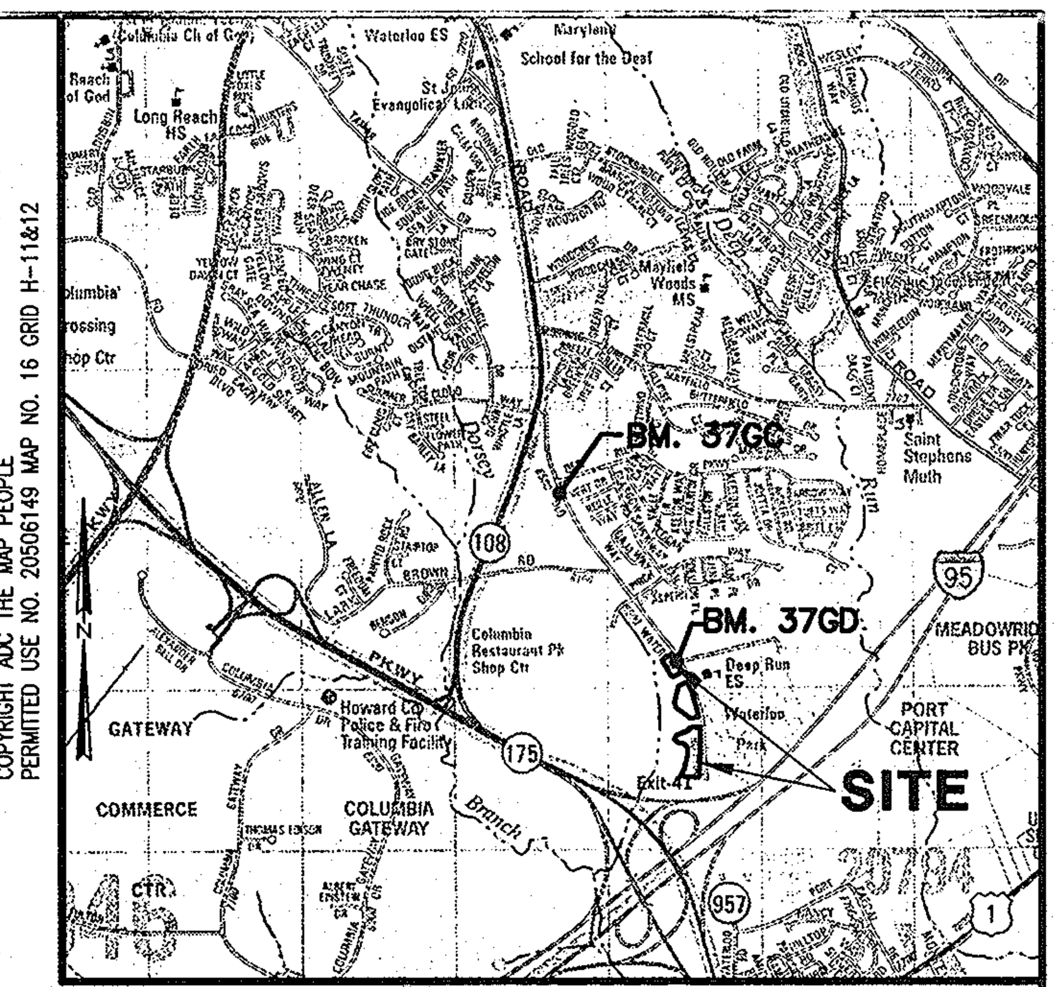
FINAL PLAN
OLD WATERLOO ROAD EXTENSION
GATEWAY OVERLOOK AT BENSON EAST

6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
F-06-203

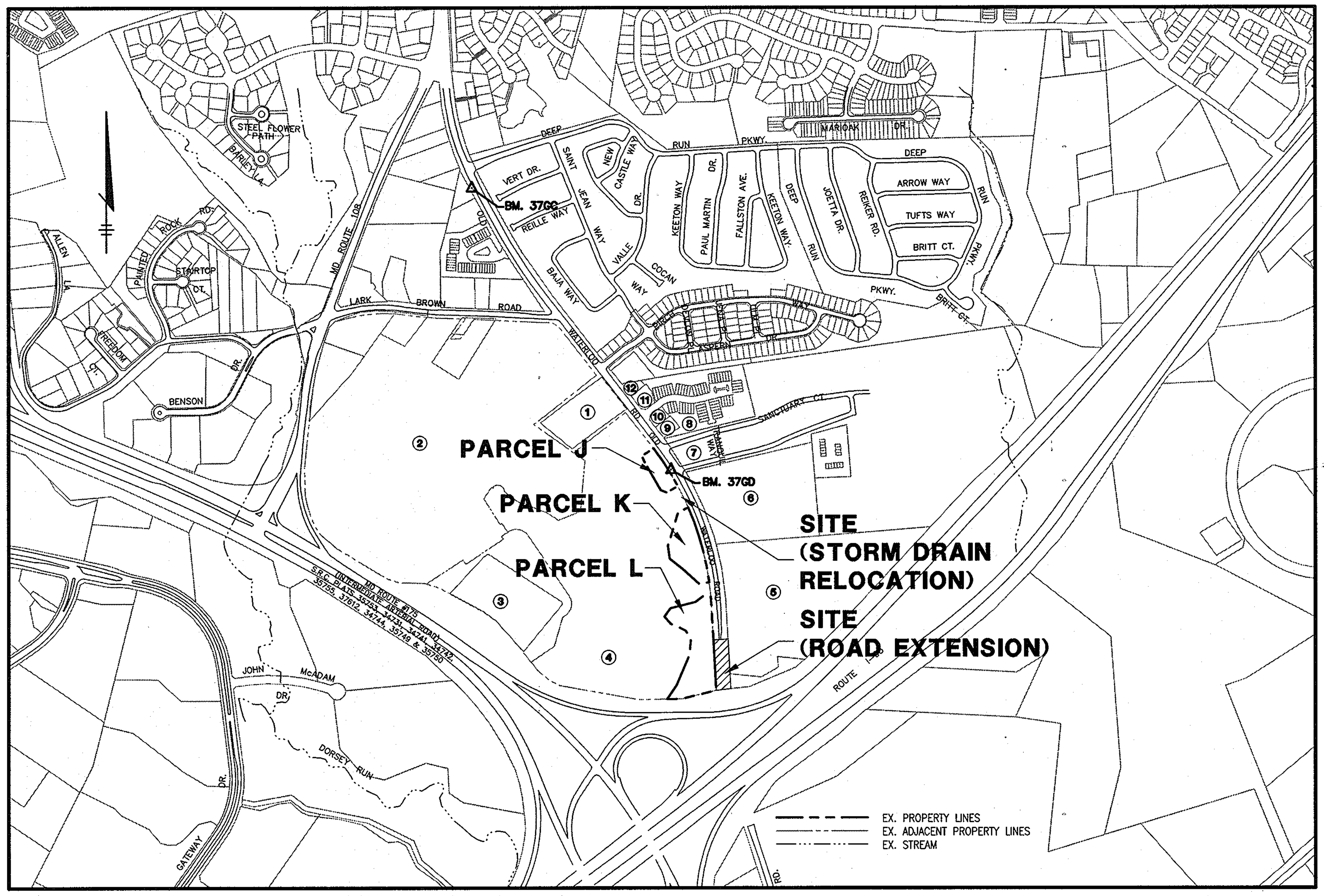


VICINITY MAP

SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DEISNG MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND TREE.
6. THE EXISTING SITE TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH 2' CONTOUR INTERVALS PREPARED BY MORRIS & RITCHIE ASSOCIATES, INC. DATED JANUARY 21, 2006.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 37GD & 37GC WERE USED FOR THIS PROJECT.
8. WATER IS PUBLIC.
9. SEWER IS PUBLIC.
10. THERE IS NO STORM WATER MANAGEMENT REQUIRED FOR THIS ROAD EXTENSION.
11. EXISTING UTILITIES ARE BASED ON CONTRACT DRAWINGS FOR WATER & SEWER (CONTRACT #24-4284-D) AND CAD DRAWINGS FROM PATTON, HARRIS, RUST & ASSOCIATES, PC.
12. THE 100-YEAR FLOODPLAIN LIMITS WERE ESTABLISHED USING A REVISED FLOODPLAIN STUDY BY MORRIS & RITCHIE ASSOICATES, INC., DATED JULY 31, 2006 AND SHOWN ON F-07-119.
13. THE WETLANDS AND STREAMS FOR THIS PROJECT WERE TAKEN FROM PATTON, HARRIS, RUST & ASSOCIATES, PC FINAL PLAN F-05-058, DATED DECEMBER 12, 2005.
14. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY WELLS & ASSOCIATES, LLC, DATED OCTOBER 7, 2002, LAST REVISED APRIL 13, 2005.
15. CONTRACTOR IS RESPONSIBLE FOR ALL SITE CONDITIONS, CONSTRUCTION REQUIREMENTS, AND SHALL CONFORM TO ALL STATE, FEDERAL, AND COUNTY CONSTRUCTION REGULATIONS. THE CONTRACTOR IS NOT RELIEVED OF RESPONSIBILITY SHOULD ANY REQUIRED ITEMS PERTAINING TO SITE CONSTRUCTION NOT BE INCLUDED ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS NECESSARY TO COMPLETE THE SITE IMPROVEMENTS AS SHOWN ON THESE PLANS.
16. ANY DAMAGE TO EXISTING UTILITIES, PAVEMENT, OR CURB AND GUTTER DUE TO CONSTRUCTION ACTIVITY OUTSIDE THE LIMITS OF DISTURBANCE IS TO BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE.
17. WHERE NECESSARY, THE CONTRACTOR SHALL TEST PIT ALL EXISTING UTILITIES AT LEAST FIVE (5) DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE DRAWINGS.
18. CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY PROPERTY MONUMENTS, MARKERS, SIGNS, LIGHTS, OR ANY OTHER EXISTING SITE FEATURES DISTURBED DURING CONSTRUCTION.
19. ALL WORK SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE "1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROLS" PUBLISHED JOINTLY BY THE WATER RESOURCES ADMINISTRATION, SOIL CONSERVATION SERVICE, AND STATE SOIL CONSERVATION COMMITTEE.
20. THE SUBJECT PROPERTY IS ZONED NT PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN.
21. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, WETLAND BUFFERS, STREAMS OR STREAM BUFFERS AND FLOODPLAINS. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.
22. THIS PROJECT IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE THE PROPERTY IS ZONED NT AND HAS PRELIMINARY PLAN APPROVAL PRIOR TO DECEMBER 31, 1992 PER SECTION 16.1201(b)(1)(iv).
23. A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY THE MARS GROUP, DATED APRIL, 2006.
24. A GEO-TECHNICAL STUDY WAS CONDUCTED FOR THIS PROJECT BY GEO-TECHNOLOGY ASSOCIATES, INC. DATED NOVEMBER, 2005 & MARCH, 2006.
25. TRENCH COMPACTION FOR STORM DRAINS WITHIN ROADWAYS AND PARKING AREAS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOL. IV, STANDARD NO. G-2.01.
26. ALL COMPACTED FILL SHALL BE IN ACCORDANCE WITH AASHTO T-180 REQUIREMENTS.
27. ALL EXTERIOR LIGHTING SHALL COMPLY WITH ZONING REGULATIONS SECTION 134.
28. SEE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONTRACT DRAWING NO. 24-4376-D FOR PUBLIC WATER & SANITARY SEWER DESIGN.
29. SEE SITE DEVELOPMENT PLAN SDP-06-128 FOR ALL PROPOSED IMPROVEMENTS ON ADJACENT PARCELS J, K, L AND Q.
30. WAIVER PETITION WP-06-110 FOR WAIVERS ASSOCIATED WITH SDP-06-128 HAS BEEN WITHDRAWN.
31. CURRENT IMPROVEMENTS BEING DONE TO WATERLOO ROAD FOR ROAD WIDENING, NEW CURB & GUTTER, STORM DRAIN, LANDSCAPING AND SIDEWALKS ARE BEING DONE UNDER F-05-058 ARE SHOWN ON OUR PLAN AS EXISTING.
32. THERE ARE NO STEEP SLOPES (25% OR >), WITHIN OUR LOD.
33. MINIMUM BUILDING SETBACK RESTRICTIONS FROM PROPERTY LINES AND THE PUBLIC RIGHT OF-WAY LINES TO BE IN ACCORDANCE WITH FDP-240 CRITERIA.
34. DPZ FILE REFERENCES: F-05-058, FDP-240, PB-360, 24-4284-D, S-03-05, WP-04-113, WP-04-135, SDP-04-163, WP-06-110, 24-4376-D, SDP-06-128, F-06-102, F-07-119.
35. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) -3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
36. THERE ARE NO EXISTING STRUCTURES ON PARCELS J, K, L OR Q.
37. ALL DIMENSIONS ARE TO FACE OF CURB. ALL SPOT GRADES ARE TO FLOWLINE UNLESS OTHERWISE NOTED.
38. FINANCIAL SURETY FOR THE REQUIRED INSTALLATION OF STREET TREES WILL BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR ROAD CONSTRUCTION IN THE AMOUNT OF $6,750.00 (17 SHADE TREES @ $300.00 EA., 11 FLOWERING TREES @150.00 EA.). THIS AMOUNT REPRESENTS THE REQUIRED STREET TREE PLANTINGS FOR THE EXTENSION OF OLD WATERLOO ROAD. THE DEVELOPER/BUILDER WILL BE RESPONSIBLE FOR THE STREET TREE INSTALLATION. SEE SHEETS 4 & 5 OF 9 FOR PLANTING DETAIL AND NOTES FOR THE STREET TREE INSTALLATION.



LOCATION MAP

SCALE: 1" = 600'

△ BENCHMARKS

GEODETIC SURVEY CONTROL: 37GD
N 553,237,.204
E 1,372,353.605
ELEVATION: 290.931
LOCATED 30' EAST OF FIRE HYDRANT ACROSS FROM DEEP RUN ELEMENTARY SCHOOL

GEODETIC SURVEY CONTROL: 37GC
N 555,250.791
E 1,370,946.348
ELEVATION: 331.855
LOCATED 30' EAST ON THE SOUTH SIDE OF OLD WATERLOO ROAD ACROSS FROM DEEP RUN PARKWAY

AS-BUILT PLAN

BY MRA 07/2010

7/7/10

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION SHOWN ON THIS PLAN IS CORRECT AND THE PUBLIC IMPROVEMENTS WERE CONSTRUCTED AS SHOWN ON THE APPROVED PLANS AND SPECIFICATIONS.

SIGNATURE ENGINEER-IN-CHARGE — DATE 7/7/10 — MD. PE SEAL AND NO. 29203

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 3-8-07

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/12/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/07

DATE	NO.	REVISION

OWNER / DEVELOPER

THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE **COVER SHEET**

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07
DATE

STATE OF MARYLAND — KERRI SUZANNE — 20135 — PROFESSIONAL ENGINEER

DRAWN BY:	MSP/MDC
DESIGNED BY :	MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	AS SHOWN
DRAWING NO.	1 OF 9

SHEET INDEX

1	COVER SHEET
2	ROAD & PUBLIC STORM DRAIN LAYOUT
3	ROAD & PUBLIC STORM DRAIN LAYOUT
4	STREET TREE PLAN
5	STREET TREE PLAN
6	ROAD & PUBLIC STORM DRAIN PROFILES
7	DETAILS
8	EROSION & SEDIMENT CONTROL DETAILS
9	SIGNAGE, STRIPING AND MOT PLANS

PURPOSE & INTENT STATEMENT

THE PURPOSE OF THIS F-PLAN IS THE EXTENSION OF OLD WATERLOO ROAD 350'± AND STORM DRAIN IMPROVEMENTS.

RESERVATION OF PUBLIC UTILITY & FOREST CONSERVATION EASEMENTS

DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA"), LOCATED IN, ON, OVER AND THROUGH LOTS/ PARCELS, ANY CONVEYANCES OF THE AFORESAID LOTS/ PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOTS/ PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA. UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATIONS UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT. THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.

(#) ADJACENT PROPERTY CHART

NO.:	OWNER:	TAX MAP:	PARCEL:	PREMISES ADDRESS:
1	FRANK E. RHODES & WIFE	37	487	6686 WATERLOO ROAD, ELKRIDGE, MD 21075
2	HOWARD RESEARCH & DEVELOPMENT	37	382-F	LARK BROWN ROAD ELKRIDGE, MD 21075
3	HOWARD RESEARCH & DEVELOPMENT	37	382-I	RT 175 ELKRIDGE, MD 21075
4	HOWARD RESEARCH & DEVELOPMENT	37	382-Q	OLD WATERLOO RD ELKRIDGE, MD 21075
5	HOWARD COUNTY MD PUBLIC RECREATION	43	1	6951 WATERLOO RD ELKRIDGE, MD 21075
6	WATERLOO MIDDLE SCHOOL C/O HOWARD COUNTY BOARD OF EDUCATION	37	168	6925 E OLD WATERLOO ROAD ELKRIDGE, MD 21075
7	SHERWOOD CROSSING APARTMENTS LLC	37	637	E OLD WATERLOO ROAD ELKRIDGE, MD 21075
8	SANCTUARY HOMEOWNERS ASSOCIATION, INC.	37	700-59	S SANCTUARY COURT ELKRIDGE, MD 21075
9	PATRICK ALEY	37	700-58	6719 OLD WATERLOO ROAD ELKRIDGE, MD 21075
10	CHARLOTTE POWELL & JARED HEALY	37	700-57	6715 OLD WATERLOO ROAD ELKRIDGE, MD 21075
11	LINDA BELLOFATTO SOPER	37	700-2	6693 OLD WATERLOO ROAD ELKRIDGE, MD 21075
12	GLENN & CHERYL HAYES	37	700-1	6691 OLD WATERLOO ROAD ELKRIDGE, MD 21075

F-06-203

LEGEND

- 258 — EX. 2' CONTOUR
- 260 — EX. 10' CONTOUR
- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- X — X — EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- N41°08'00"E 598.31' — EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- Ex. 8" S. / Ex. 27" RCCP — EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. TREE LINE
- Ex. 10" W — EX. WATERLINE
- EX. WETLAND
- EX. WETLAND BUFFER
- 258 — PROP. 2' CONTOURS
- 260 — PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SWALE
- X — X — PROP. 6' CHAINLINK FENCE
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PUBLIC SANITARY SEWER LINE
- 8" W — PROP. PUBLIC WATER LINE
- 15" SD — PROP. PRIVATE STORM DRAIN LINE
- PUB. 15" SD — PROP. PUBLIC STORM DRAIN LINE
- PROP. PUBLIC SD & UTILITY ESMT
- LITTL — EX. 20' PUBLIC SD & UTILITY EASEMENT
- SSF — SSF — PROP. SUPER SILT FENCE
- EX. 2025 65 dBA LINE
- PROP. MILL & OVERLAY
- PROP. SITE LIGHTING
- CIP — PROP. CURB INLET PROTECTION
- SOIL BOUNDARY
- RsB — SOIL TYPE

RAMP FROM I-95 SOUTH TO RT. 175 (VARIABLE WIDTH ROW)
APPROXIMATE WIDTH ACROSS RT. 175 = 1,800'
APPROXIMATE WIDTH ACROSS RT. 95 = 700'

MATCHLINE - SEE SHEET 3 FOR CONTINUATION

- ① STANDARD CURB & GUTTER HOWARD CO STD. DETAIL R-3.01.
- ② REVERSE CURB & GUTTER HOWARD CO STD. DETAIL R-3.01.
- ③ 4' CONC. SIDEWALK HOWARD CO STD. DETAIL R-3.05.
- ④ CONC. HC RAMP HOWARD CO STD. DETAIL R-4.01.
- ⑤ TEE TURN-AROUND HOWARD CO STD. DETAIL R-5.05.
- ⑥ 3' MILL & OVERLAY.
- ⑦ REMOVE/ REPLACE EX. DEAD END BARRICADE HOWARD CO. STD. DETAIL R-7.12.
- ⑧ STREET LIGHT 150 WATT PREMIER.
- ⑨ REMOVE/ REPLACE EX. CURB & PAVEMENT AS NECESSARY FOR STORM DRAIN INSTALLATION.

SOILS LEGEND		
SYMBOL	NAME/DESCRIPTION	SOIL TYPE
RsB	RUSSETT, FINE SANDY LOAM, 2-5% SLOPES	C
Fa	FALLSINGTON, SANDY LOAM, 0-2% SLOPES	C
RsC	RUSSETT, FINE SANDY LOAM, 5-10% SLOPES	C
UrD	URBAN LAND, UDORTHENTS COMPLEX, 0-15% SLOPES	C
UaF	UDORTHENTS, HIGHWAY 0-65% SLOPES	C

SPECIMEN	SPECIMEN SPECIES	DBH	CONDITION
A	LIRIODENDRON TULIPIFERA - TULIPTREE	40"	POOR

AS-BUILT PLAN BY MRA 07/2010

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — DATE 2/27/07
KERRI S. KNIGHTEN, PE MD LICENSE 201135

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 2/22/07
BRIAN KNAUFF

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/6/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 3/6/07

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 3-8-07

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/12/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/07

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE
ROAD & PUBLIC STORM DRAIN PLAN

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07 DATE

STATE OF MARYLAND — KERRI S. KNIGHTEN — No. 21135 — PROFESSIONAL ENGINEER

DRAWN BY:	MSP/MDC
DESIGNED BY :	LFB/MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	1" = 50'
DRAWING NO.	2 OF 9

F-06-203

LEGEND

258	EX. 2' CONTOUR
260	EX. 10' CONTOUR
	EX. BUILDING
	EX. CURB
	EX. EASEMENT
—x—x—	EX. FENCE
	EX. FLOODPLAIN
	EX. GAS
	EX. PAVEMENT
N41°08'00"E 598.31'	EX. PROPERTY LINE
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260	PROP. 10' CONTOURS
	PROP. CENTERLINE OF DRAINAGE SWALE
—x—x—	PROP. 6' CHAINLINK FENCE
	PROP. CURB
RCG	PROP. REVERSE CURB & GUTTER
SCG	PROP. STANDARD CURB & GUTTER
	PROP. TREE LINE
	PROP. LIMIT OF DISTURBANCE
	PROP. PAVEMENT
	PROP. BUILDING
	PROP. BUILDING SETBACK
	PROP. PUBLIC SANITARY SEWER LINE
8" W	PROP. PUBLIC WATER LINE
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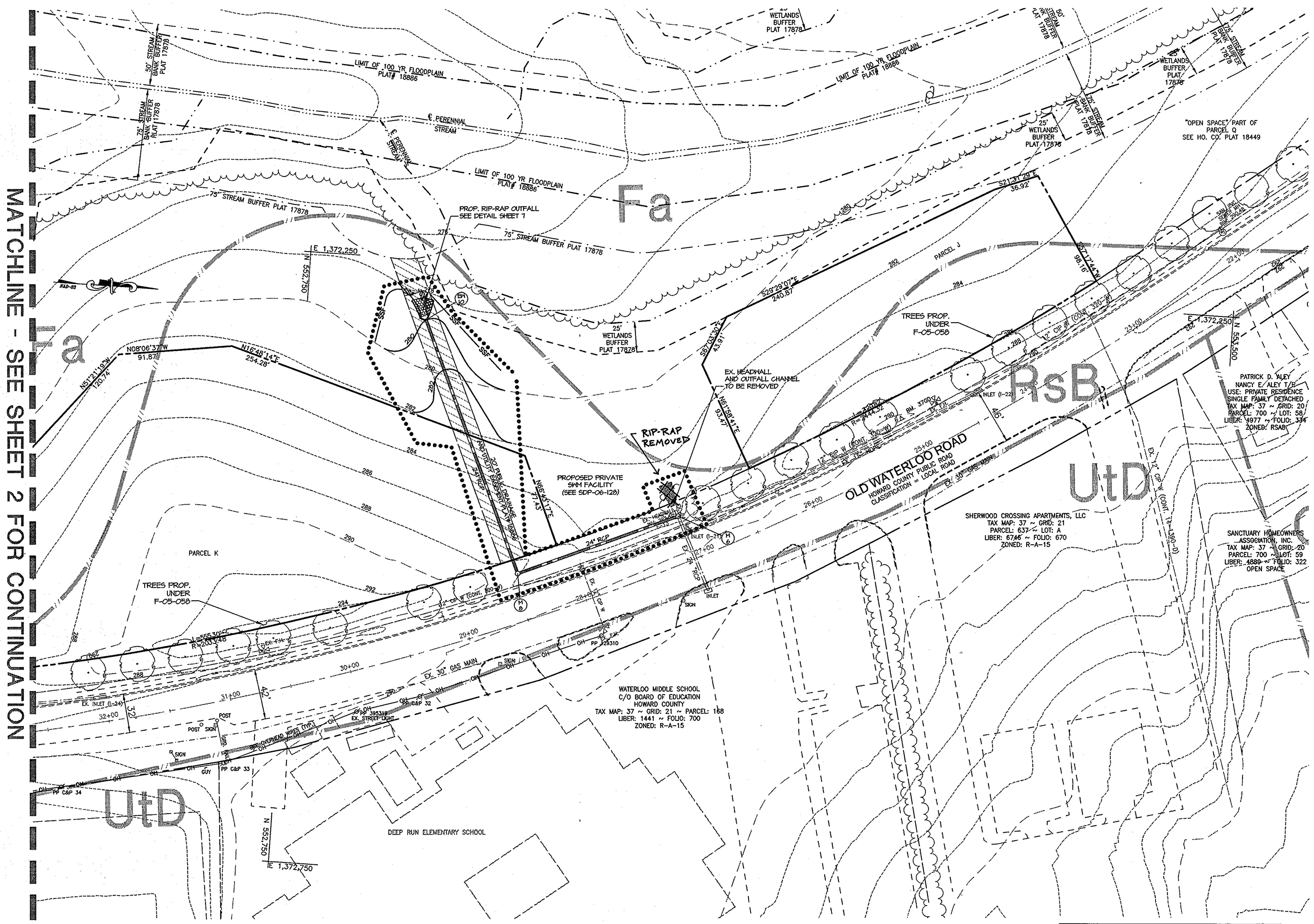

AS-BUILT PLAN
BY MRA
07/2010

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2/27/07
SIGNATURE OF ENGINEER — DATE
KERRI S. KNIGHTEN, PE MD LICENSE 201135

DEVELOPER'S CERTIFICATE

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

2/27/07
SIGNATURE OF DEVELOPER — DATE
BRIAN KNAUFF

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

3/5/07
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

3/5/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

3-8-07
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

3/12/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

3/12/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
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PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

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LAUREL, MARYLAND 20707
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2/27/07
DATE

STATE OF MARYLAND
KERRI SUZANNE KNIGHTEN
201135
PROFESSIONAL ENGINEER

DRAWN BY:	MSP/MDC
DESIGNED BY :	JCW/MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
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LEGEND

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	EX. BUILDING
	EX. CURB
	EX. EASEMENT
x	EX. FENCE
	EX. FLOODPLAIN
	EX. GAS
	EX. PAVEMENT
N41°08'00"E 598.31'	EX. PROPERTY LINE
	EX. ROAD CENTERLINE
EX. 8" S	EX. SANITARY SEWER
EX. 27" RCCP	EX. STORM DRAIN
	EX. TREE LINE
EX. 10" W	EX. WATERLINE
	EX. WETLAND
	EX. WETLAND BUFFER
258	PROP. 2' CONTOURS
260	PROP. 10' CONTOURS
	PROP. CENTERLINE OF DRAINAGE SWALE
x	PROP. 6' CHAINLINK FENCE
	PROP. CURB
RCG	PROP. REVERSE CURB & GUTTER
SCG	PROP. STANDARD CURB & GUTTER
	PROP. TREE LINE
	PROP. LIMIT OF DISTURBANCE
	PROP. PAVEMENT
	PROP. BUILDING
	PROP. BUILDING SETBACK
	PROP. PUBLIC SANITARY SEWER LINE
8" W	PROP. PUBLIC WATER LINE
15" SD	PROP. PRIVATE STORM DRAIN LINE
	PROP. PUBLIC STORM DRAIN LINE
PUB. 15" SD	PROP. PUBLIC SD & UTILITY ESMT
	EX. 20' PUBLIC SD & UTILITY EASMENT
SSF	PROP. SUPER SILT FENCE
	EX. 2025 65 dBA LINE
	PROP. MILL & OVERLAY
	PROP. SITE LIGHTING
CIP	PROP. CURB INLET PROTECTION
	SOIL BOUNDARY
RsB	SOIL TYPE

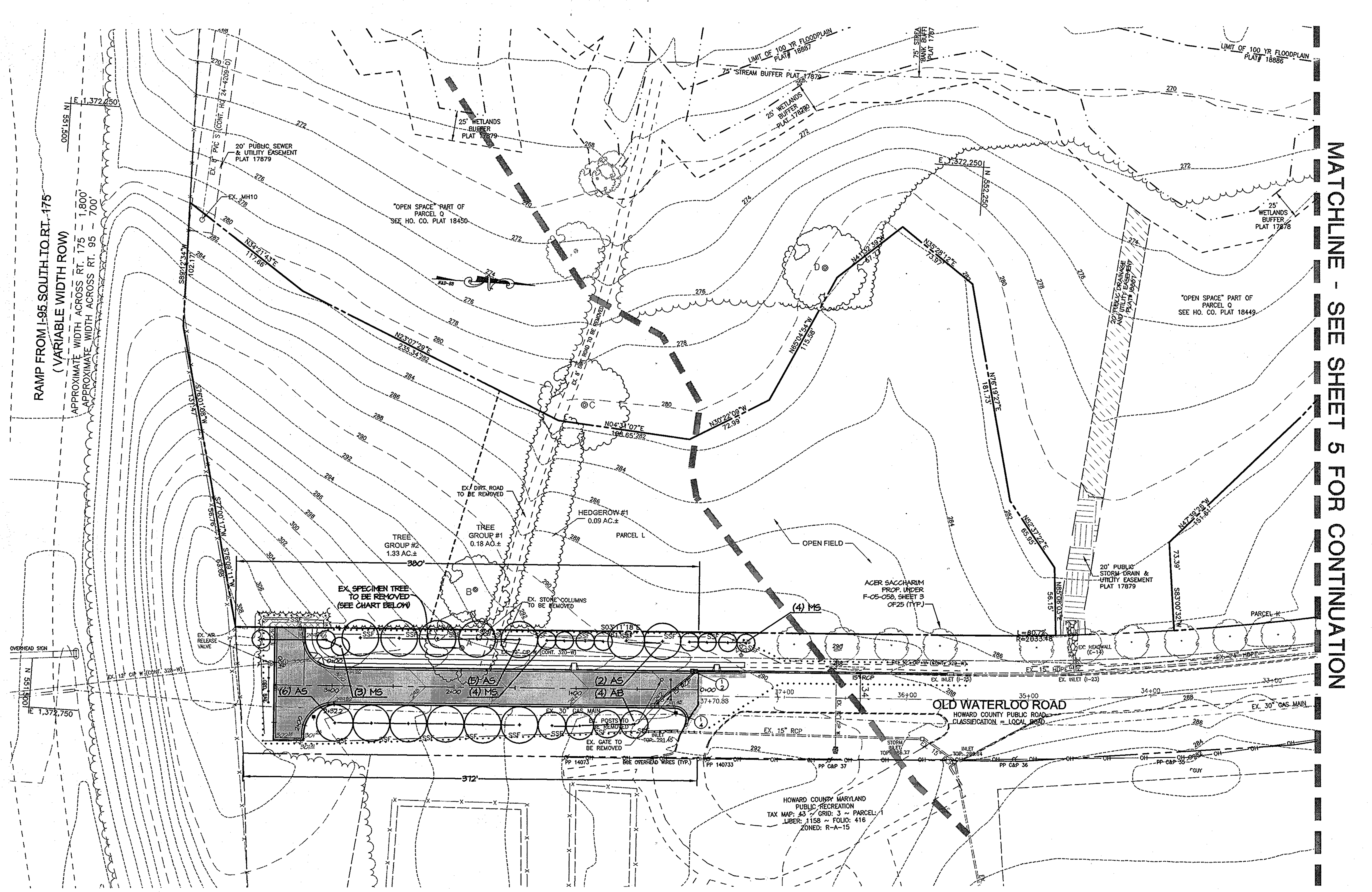
PLANT LEGEND

- EX. TREE
- PROP. TREE UNDER F-05-058
- PROP. STREET TREE
- PROP. ORNAMENTAL TREE

NOTE:

1. FINANCIAL SURETY FOR THE REQUIRED INSTALLATION OF STREET TREES WILL BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR ROAD CONSTRUCTION IN THE AMOUNT OF $6,750.00 (17 SHADE TREES @ $300.00 EA., 11 FLOWERING TREES @150.00 EA.). THIS AMOUNT REPRESENTS THE REQUIRED STREET TREE PLANTINGS FOR THE EXTENTION OF OLD WATERLOO ROAD.
2. THE DEVELOPER/BUILDER WILL BE RESPONSIBLE FOR THE STREET TREE INSTALLATION.
3. SEE SHEETS 4 & 5 OF 9 FOR PLANTING DETAIL AND NOTES FOR THE STREET TREE INSTALLATION.

SPECIMEN	SPECIMEN SPECIES	DBH	CONDITION
A	LIRIODENDRON TULIPIFERA - TULIPTREE	40"	POOR



GENERAL LANDSCAPE NOTES:

1. CONTRACTOR SHALL CONTACT 'MISS UTILITY' & SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT PRIOR TO INSTALLATION.
2. TREES SHALL BE LOCATED A MINIMUM OF 5' FROM SEWER/WATER CONNECTIONS. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO ANY AND ALL PUBLIC AND PRIVATE UTILITIES, WATER AND SEWER LINES.
3. CONTRACTOR SHALL SLIGHTLY ADJUST PLANT LOCATIONS IN THE FIELD AS NECESSARY TO BE CLEAR OF DRAINAGE SWALES AND UTILITIES. FINISHED PLANTING BEDS SHALL BE GRADED SO AS NOT TO IMPEDE DRAINAGE.
4. ALL TREE PITS ARE TO BE COMPLETELY EXCAVATED IN ACCORDANCE WITH THE PLANTING DETAILS.
5. CONTRACTOR MUST CONTACT THE OWNER AT LEAST TEN WORKING DAYS IN ADVANCE TO SCHEDULE ACCEPTANCE INSPECTION(S). CONTRACTOR MUST REPLACE ALL DEAD & UNACCEPTABLE PLANTINGS DURING THE FOLLOWING RECOMMENDED PLANTING SEASON.
6. TREES SHALL BE PLANTED DURING ACCEPTABLE PLANTING SEASONS - BETWEEN MARCH 15 AND MAY 15 AND BETWEEN AUGUST 15 AND NOVEMBER 15 OR AS APPROVED BY OWNERS' REPRESENTATIVE.
7. SEEDED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDED.
8. QUANTITIES SHOWN ON THE PLANT LIST ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY AND ARE NOT GUARANTEED TO BE ACCURATE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLAN AND QUANTITIES SHOWN IN THE PLANT LIST, THE QUANTITIES SHOWN ON THE PLAN SHALL APPLY.

SUBSTITUTIONS:
NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE PERMITTED WITHOUT WRITTEN AUTHORIZATION OF THE LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE. THIS SHALL APPLY TO SUBSTITUTIONS OF SPECIES, SIZE AND QUANTITY.

PLANT QUALITY ASSURANCE:
1. ALL PLANT MATERIAL AND ROOT BALLS SHALL CONFORM TO THE STANDARDS OF NURSERY STOCK AND THE AMERICAN ASSOCIATION OF NURSERYMEN.
2. TREES SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, HAVE NORMAL GROWTH HABITS, WELL DEVELOPED, DENSELY FOLIATED BRANCHES, AND VIGOROUS, FIBROUS ROOT SYSTEMS.
3. TREES SHALL BE FRESHLY DUG AND NURSERY GROWN. THEY SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT OR PROPERLY ACCLIMATED TO CONDITIONS OF THE LOCALITY OF THE PROJECT.
4. ALL PLANT MATERIAL SHALL BE FREE FROM DEFECTS AND INJURIES AND CERTIFIED BY APPROPRIATE FEDERAL AND STATE AUTHORITIES TO BE FREE OF DISEASE AND INSECT.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) FULL YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION AGAINST DEFECTS, UNSATISFACTORY GROWTH, DISEASE OR DEATH. UNSATISFACTORY, UNHEALTHY, DYING OR DEAD PLANT MATERIAL (IN THE OPINION OF THE LANDSCAPE ARCHITECT) SHALL BE REPLACED WITH THE SAME SIZE AND SPECIES.
6. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO ADEQUATELY AND PROPERLY MAINTAIN THE LANDSCAPED AREAS, WHICH SHALL INCLUDE WATERING, CLEANING OF WEEDS AND DEBRIS, PRUNING AND TRIMMING, REPLACEMENT OF DEAD OR DISEASED PLANTINGS AND FERTILIZING TO MAINTAIN HEALTHY GROWTH.

PLANTING LAYOUT APPROVAL:
THE LANDSCAPE CONTRACTOR SHALL PROVIDE STAKES AND STAKEOUT PLANT LOCATIONS IN THE FIELD. THE LANDSCAPE ARCHITECT OR HIS REPRESENTATIVE SHALL OBSERVE THESE LOCATIONS PRIOR TO COMMENCING PLANT PIT EXCAVATION. THE LANDSCAPE CONTRACTOR SHALL MAKE ANY ADJUSTMENTS AS REQUESTED BY THE LANDSCAPE ARCHITECT.

TREE & SHRUB PLANTING:
1. TREE STAKING AND GUYING SHALL BE DONE PER DETAILS. CONTRACTOR SHALL ENSURE THAT TREES REMAIN PLUMB AND UPRIGHT FOR THE DURATION OF THE GUARANTEED PERIOD. STAKING TO BE REMOVED BY CONTRACTOR.
2. BALLED AND BURLAPPED ROOTS - BURLAP TO BE LOOSENED AND SPREAD AWAY OR CUT FROM ENTIRE TOP OF PLANT BALL. FOLD DOWN WIRE BASKETS OR CUT TOP OF BASKET BELOW SOIL LEVEL. ROOTS OF BARE ROOT PLANTS SHALL BE SPREAD CAREFULLY IN NATURAL POSITION. AMENDED SOIL SHALL BE WORKED AROUND ROOTS.
3. FERTILIZER FOR TREES SHALL BE ADDED TO THE PLANTING SOIL PRIOR TO MIXING. FERTILIZER SHALL BE SLOW RELEASE PACKETS OR TABLETS TO BE ADDED DEPENDING ON PLANT SIZE AND GROWER'S RECOMMENDATIONS. THOROUGHLY MIX ALL AMENDMENTS AND EXISTING SOIL PRIOR TO PLACEMENT.
4. PACK SOIL MIX FIRMLY AROUND THE ROOTS TO ELIMINATE AIR POCKETS. WHEN HOLE IS 3/4 FULL WITH SOIL MIX, FLOOD THE HOLE WITH WATER. AFTER DRAINING, FILL HOLE TO THE SURFACE WITH SOIL.

PLANTING STORAGE AND HANDLING:
BALLED AND BURLAPPED - KEEP ROOT BALLS MOIST AT ALL TIMES. IF NOT PLANTED WITHIN SEVEN DAYS AFTER DELIVERY COVER THE BALL WITH MULCH/STRAW AND KEEP WATERED UNTIL PLANTED.

MULCHING:
THE LANDSCAPE CONTRACTOR SHALL INSTALL DOUBLE SHREDDED HARDWOOD BARK MULCH TO A DEPTH OF 3" UNDER AND SURROUNDING ALL NEW LANDSCAPED MASS PLATING AREAS TO PROVIDE A UNIFORM AND CONTINUOUS SURFACE AND APPEARANCE BETWEEN AND AROUND ALL PLANT MATERIAL, BUILDING LINES AND PAVED AREAS. IN GENERAL, THIS PERTAINS TO ALL PLANT MATERIAL THAT IS PLANTED CLOSER THAN SIX FEET CENTER TO CENTER.

EDGING OF BEDS:
UPON COMPLETION OF PLANTING, MULCH BEDS SHALL BE NEATLY EDGED TO A DEPTH OF 3 INCHES WITH A VERTICAL CUT TAPERED BACK TO THE MULCH AREA.

CLEAN-UP/RESTORATION:
1. DURING THE COURSE OF PLANTING, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED, ALL SITE AREAS KEPT CLEAN AND ALL REASONABLE PRECAUTIONS TAKEN TO AVOID DAMAGE TO EXISTING LAWNS, PAVING, ETC.
2. THE LANDSCAPE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITIONS ALL PAVEMENTS, SODDED AND PLANTED AREAS, NOT SPECIFICALLY PROVIDED FOR IN THE CONTRACT, WHICH ARE DISTURBED BY THE LANDSCAPE CONTRACTOR DURING PLANTING OPERATIONS. THE ENTIRE AREA SHALL BE LEFT NEAT AND CLEAN. SUCH RESTORATIONS SHALL BE IN A MANNER SATISFACTORY TO THE OWNER OR THE OWNER'S REPRESENTATIVE AND AT NO ADDITIONAL COST TO THE OWNER.
3. DEBRIS, RUBBISH AND SUBSOIL SHALL BE CLEANED AND REMOVED FROM THE SITE UPON COMPLETION OF PLANTING.

STREET TREE PLANT LIST (THIS SHEET ONLY)

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENT
TREE						
AB	4	Acer beugerianum	Trident Maple	2" Cal.	B&B	Full & Uniform
AS	13	Acer saccharum 'Green Mountain'	'Green Mountain' Sugar Maple	21/2-3" Cal.	B&B	Full & Uniform
MS	11	Magnolia x soulangiana	Saucer Magnolia	8-10' Ht.	B&B	Full & Uniform

STREET TREE CALCULATIONS

1. PROP. STREET EXTENSION: 752'
   (380' WEST SIDE & 372' EAST SIDE)
   REQUIRED STREET TREES (1 TREE/40') - 19 STREET TREES
   PROVIDED STREET TREES 17 STREET TREES
   11 ORNAMENTAL TREES
2. ALL PROPOSED TREES SHOWN MEET COUNTY STREET TREE REQUIREMENTS & ARE NOT PART OF THE ONSITE LANDSCAPE REQUIREMENTS.

ADDITIONAL NOTES:

1. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
2. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[signature] 3-8-07
CHIEF, BUREAU OF HIGHWAYS — DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

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

[signature] 2/27/07
NAME — DATE
BRIAN KNAUFF

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

[signature] 3/12/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 3/12/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE

STREET TREE PLAN

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07
STATE OF MARYLAND — DANIEL RICHARD BARTOLO — 3920 — LANDSCAPE ARCHITECT

DRAWN BY:	MSP/MDC
DESIGNED BY :	DRB/CMG
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	1" = 50'
DRAWING NO.	4 OF 9

F-06-203

LEGEND

- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. TREE LINE
- EX. WATERLINE
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. 6' CHAINLINK FENCE
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
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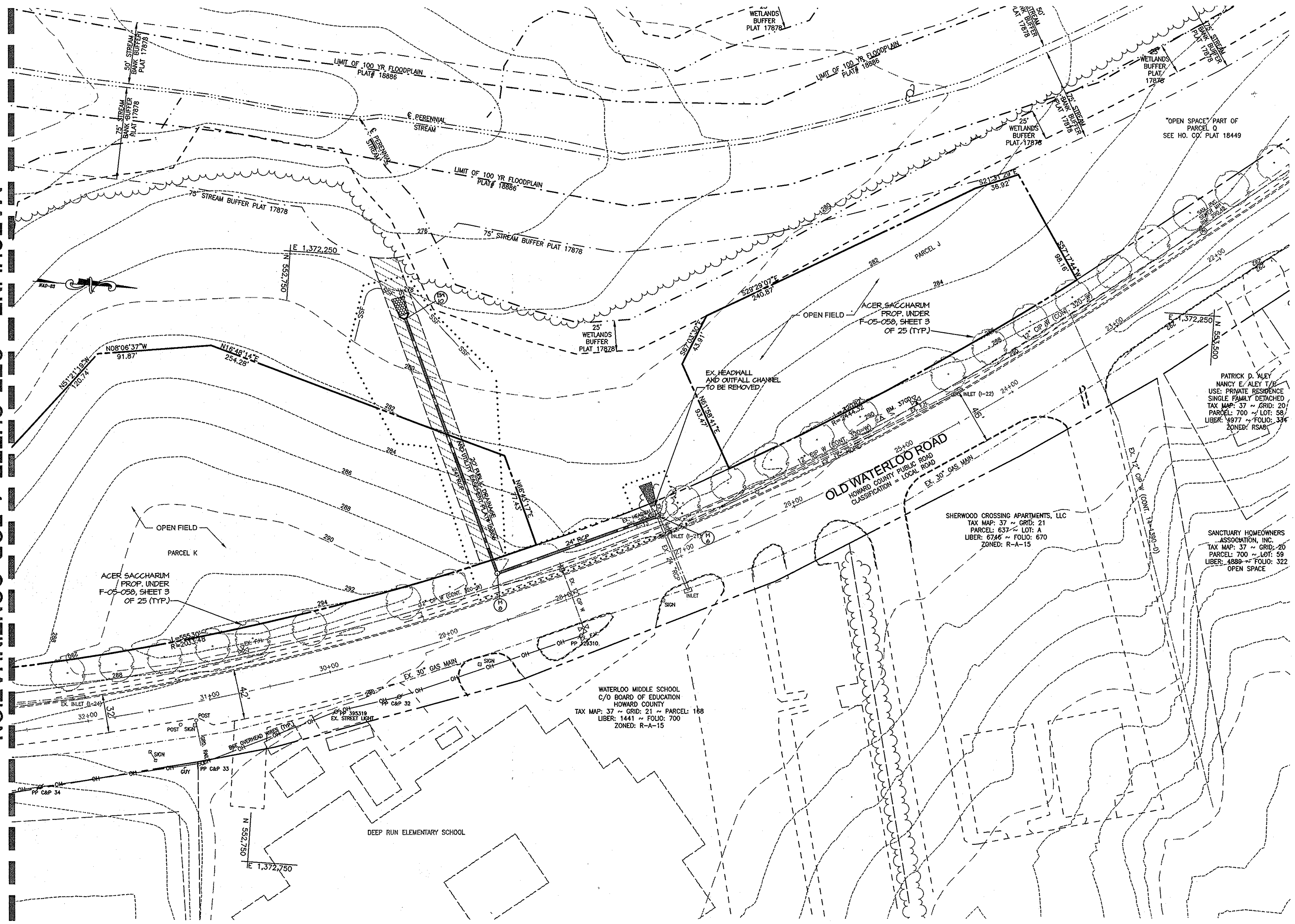
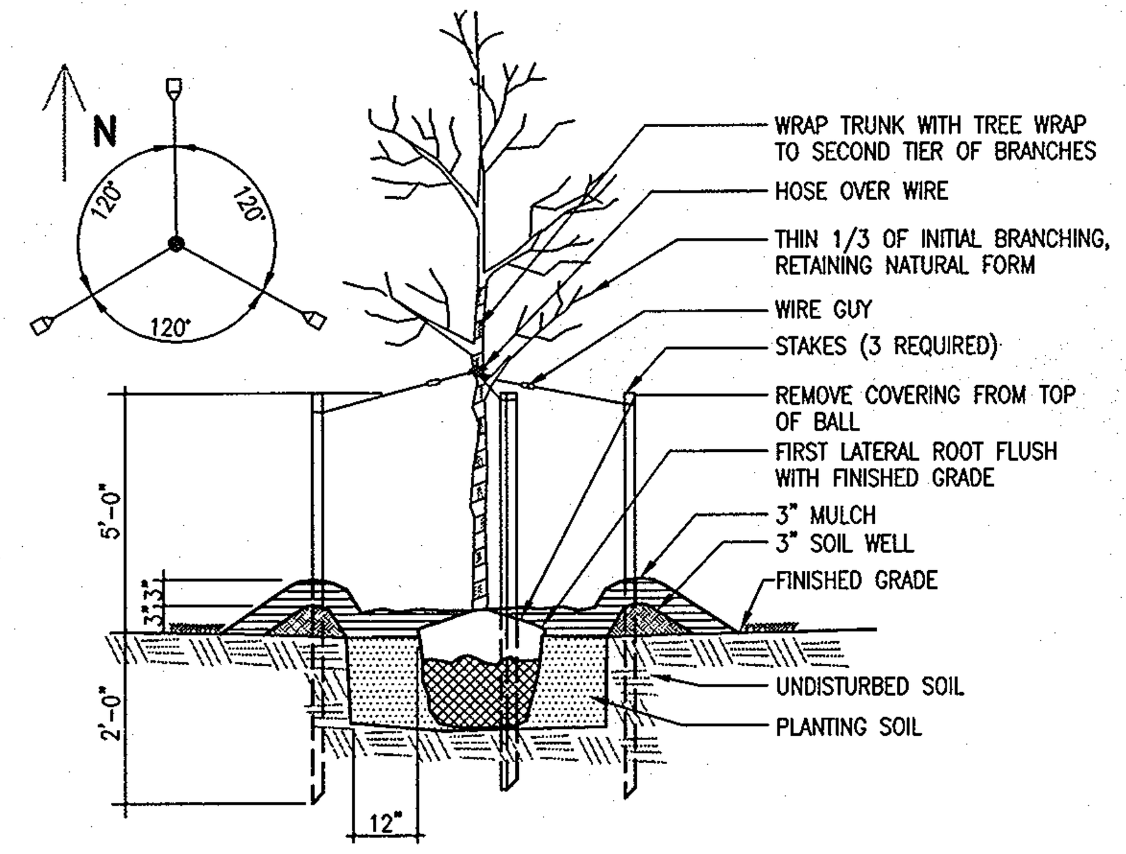
- PROP. PUBLIC STORM DRAIN LINE
- PROP. PUBLIC SD & UTILITY ESMT
- EX. 20' PUBLIC SD & UTILITY EASMENT
- PROP. SUPER SILT FENCE
- EX. 2025 65 dBA LINE
- PROP. MILL & OVERLAY
- PROP. SITE LIGHTING
- PROP. CURB INLET PROTECTION
- SOIL BOUNDARY
- RsB SOIL TYPE

PLANT LEGEND

PROP. TREE UNDER F-05-058

NOTE: THERE ARE NO PROPOSED TREES ON THIS SHEET.





DECIDUOUS TREE DETAIL

NOT TO SCALE

SEE SHEET 4 FOR LANDSCAPING NOTES

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 3-8-07

DEVELOPER'S/BUILDER'S CERTIFICATE

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NAME BRIAN KNAUFF — DATE 2/27/07

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/12/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/07

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

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ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
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(410) 792-9792 or (301) 776-1690
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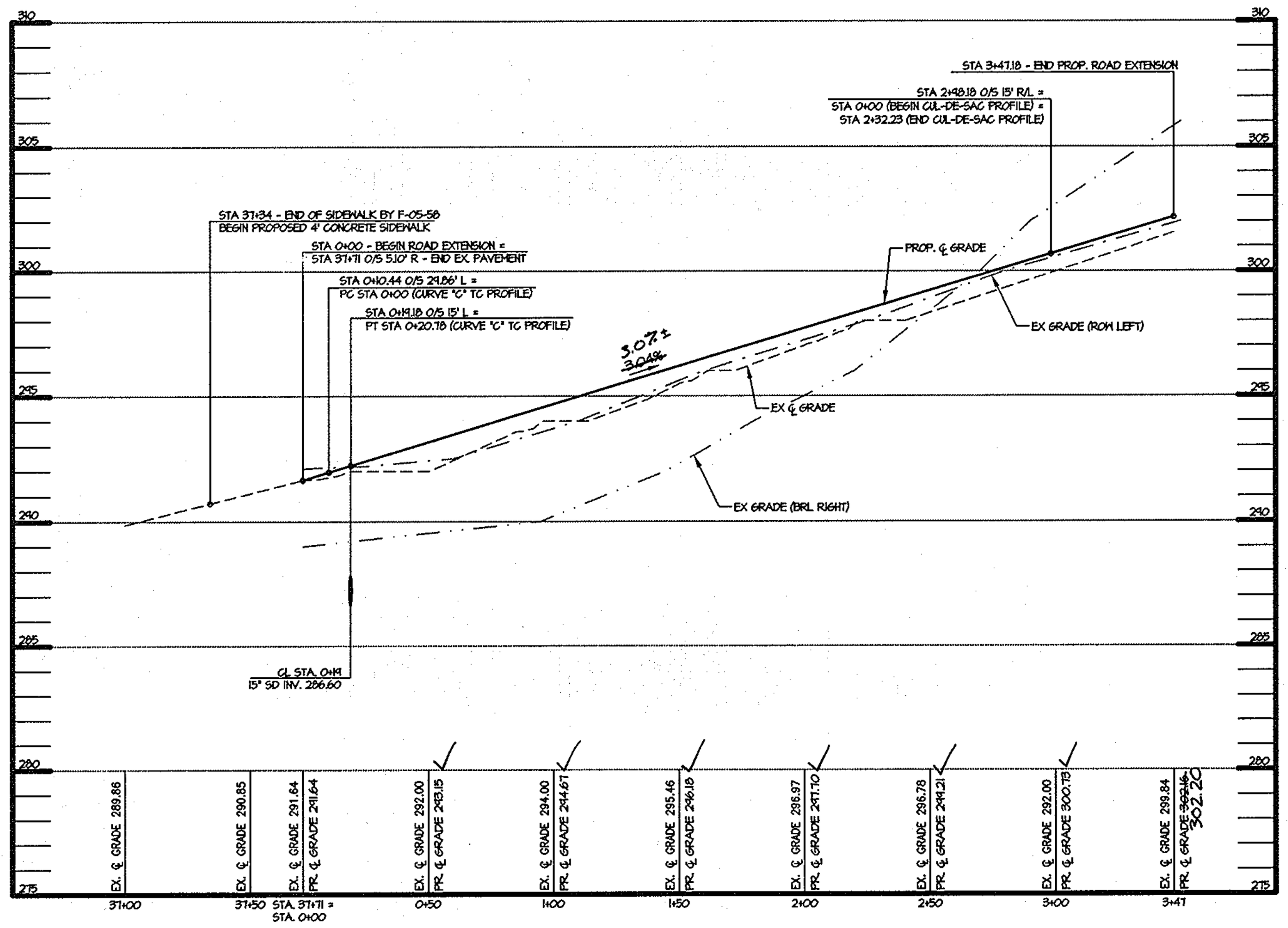
2/27/07 DATE

DRAWN BY:	MSP/MDC
DESIGNED BY :	DRB/CMG
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	1" = 50'
DRAWING NO.	5 OF 9

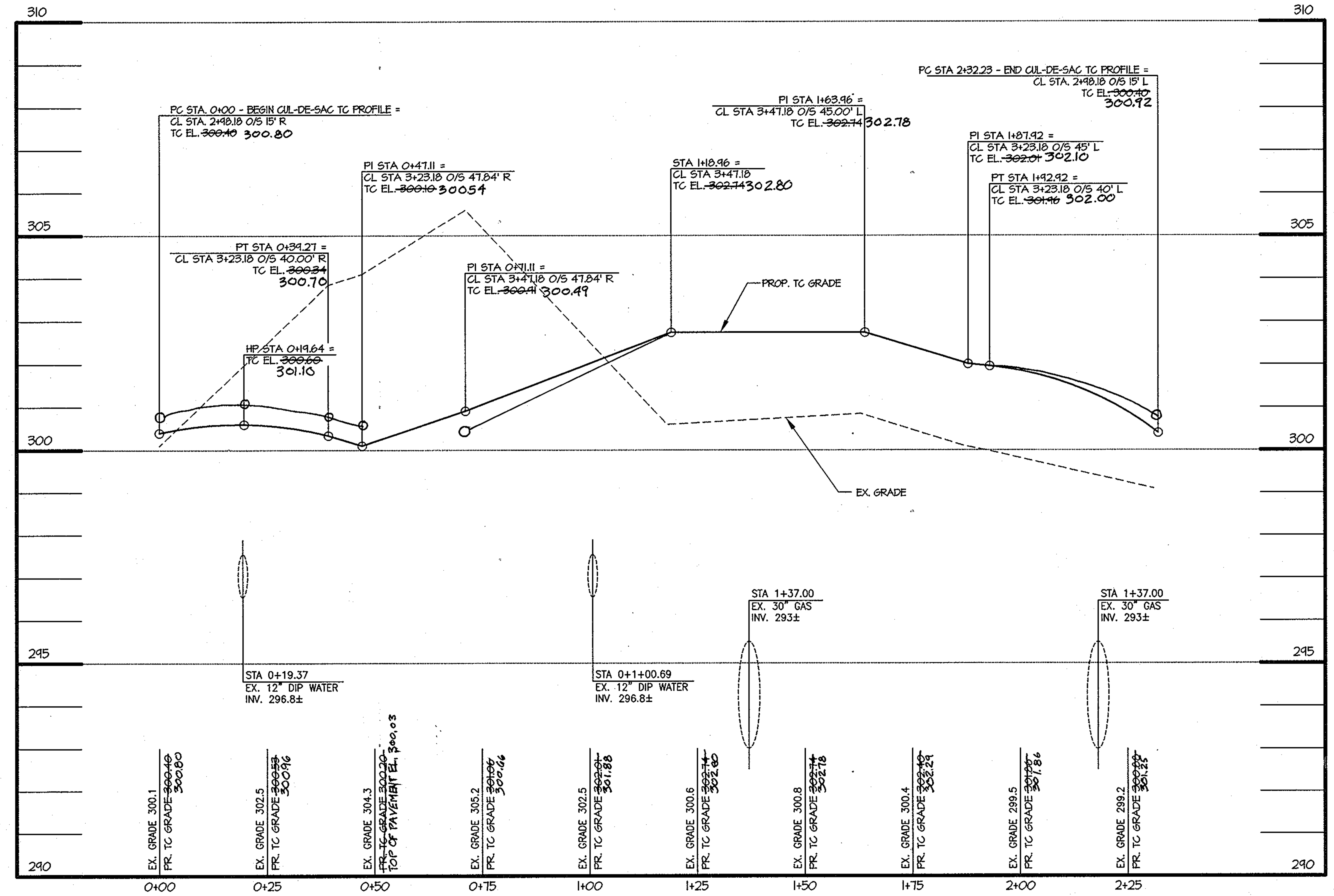
F-06-203



ROAD CENTERLINE PROFILE

OLD WATERLOO ROAD – PUBLIC LOCAL ROAD – DESIGN SPEED 35 MPH*

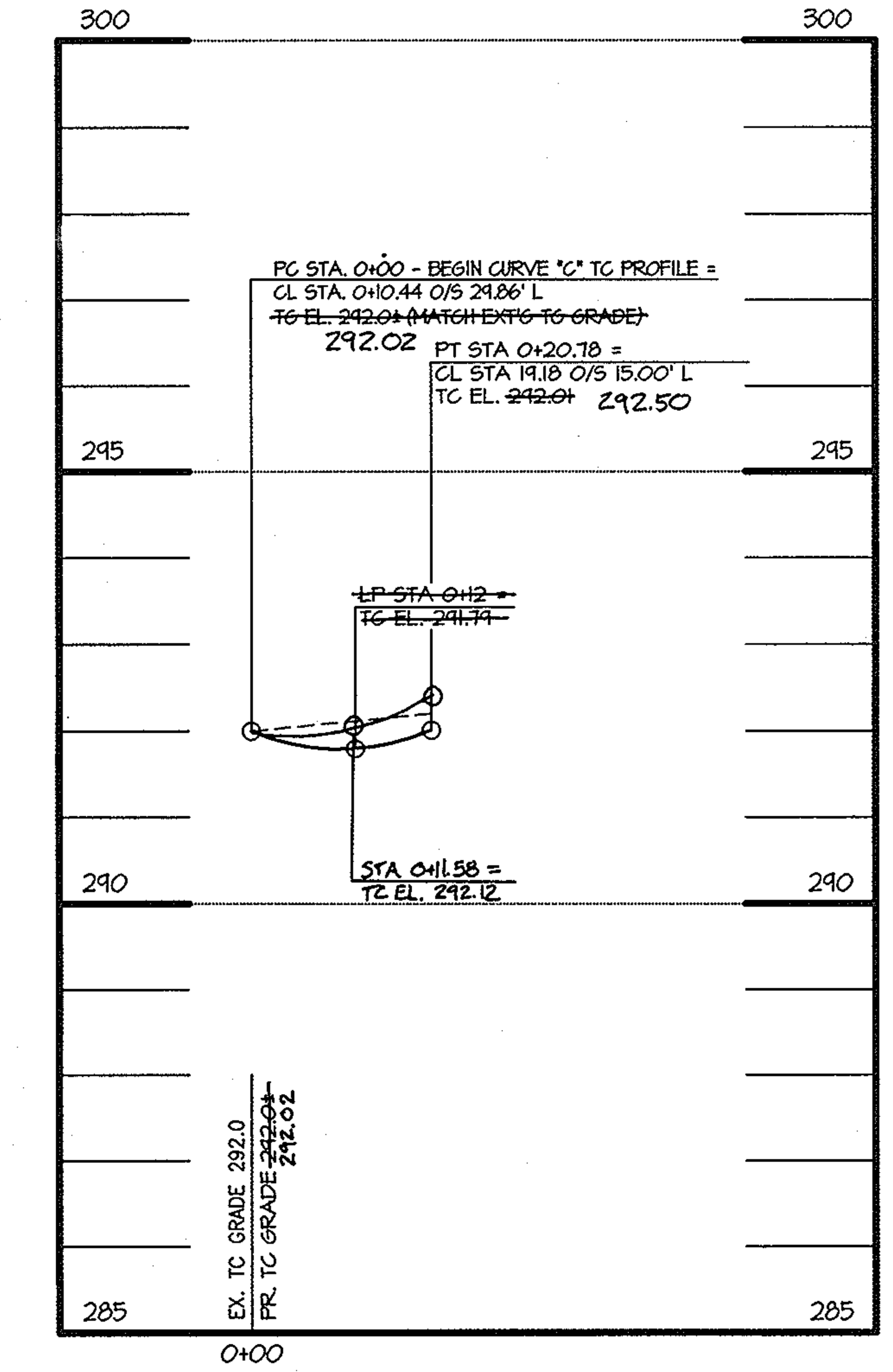
HOR. 1"= 50'
VERT. 1"= 5'



TEE-TURNAROUND CUL-DE-SAC TOP OF CURB PROFILE

OLD WATERLOO ROAD – PUBLIC LOCAL ROAD – DESIGN SPEED 35 MPH*

HOR. 1"= 20'
VERT. 1"= 2'



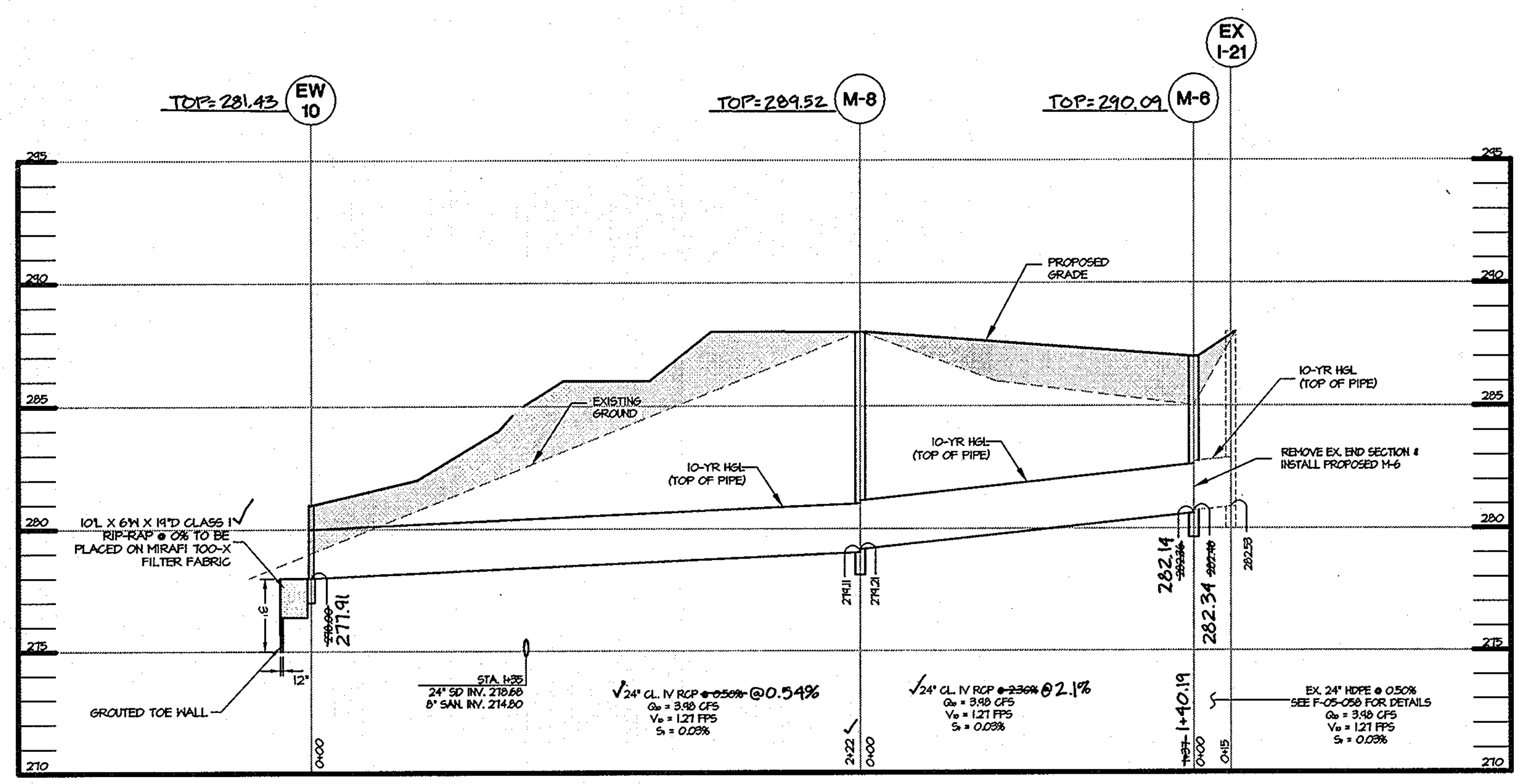
CURVE "C" TOP OF CURB PROFILE

OLD WATERLOO ROAD – PUBLIC LOCAL ROAD – DESIGN SPEED 35 MPH*

HOR. 1"= 20'
VERT. 1"= 2'

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.	
CHIEF, BUREAU OF HIGHWAYS	3-8-07 DATE

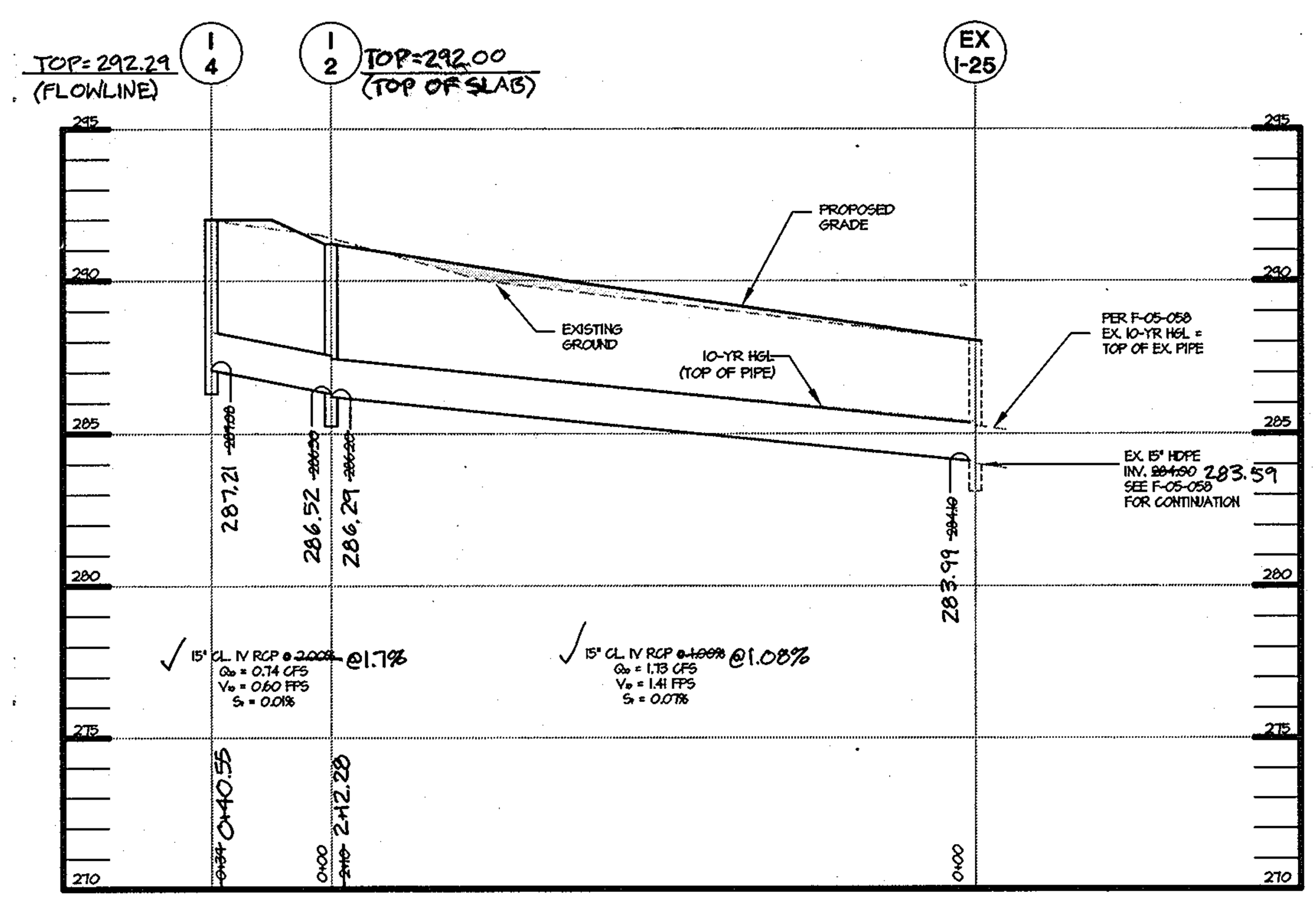
* DESIGN SPEED FROM "FREE FLOW SPEED DETERMINATION" BY MARS GROUP DATED JULY 2006



STORM DRAIN PROFILE (PUBLIC)

EX. CURB INLET NO. 21 TO EW-10 (DIVERSION AROUND PROP. PRIVATE SWM POND SDP-06-128)

HOR. 1"= 50'
VERT. 1"= 5'



STORM DRAIN PROFILE (PUBLIC)

I-4 TO EXISTING CURB INLET NO. 25

HOR. 1"= 50'
VERT. 1"= 5'

● COORDINATES TO CENTER OF STRUCTURE AT FLOWLINE FOR WR & CURB INLETS, CENTER OF STRUCTURE FOR YARD INLETS, CLEANOUTS & MANHOLES.
* TOP OF GRATE ELEVATION AT CENTER OF STRUCTURE AT FLOWLINE FOR WR INLETS & YARD INLETS.

PUBLIC STORM DRAIN STRUCTURE SCHEDULE

STR NO.	* TOP ELEV	INV IN	INV IN	INV OUT	TYPE	REMARKS	● LOCATION NORTHING	EASTING
I-2	292.00	286.52	---	286.29	TYPE 'A-5' INLET, HOWARD COUNTY STANDARD DETAIL SD-4.01		552,041.8100	1,372,684.2028
I-4	292.29	---	---	287.21	WR INLET HOWARD COUNTY STANDARD DETAIL SD 4.35		552,011.6533	1,372,714.7624
M-6	290.09	282.34	---	282.14	SHALLOW PRECAST MANHOLE, HOWARD COUNTY STANDARD DETAIL G-5.12		553,061.1519	1,372,446.6833
M-8	289.52	279.22	---	279.12	STANDARD PRECAST MANHOLE, HOWARD COUNTY STANDARD DETAIL G-5.12		552,935.5241	1,372,501.5975
EW-10	281.43	277.91	---	---	TYPE 'A' HEADWALL, HOWARD COUNTY STANDARD DETAIL SD-5.11		552,847.1140	1,372,299.2698

PUBLIC STORM DRAIN PIPE SCHEDULE		
SIZE	TYPE	LENGTH
15"	RCP, CL. IV	~~249 FT~~ 252 FT
24"	RCP, CL. IV	~~359 FT~~ 262 FT

AS-BUILT PLAN

BY MRA
07/2010

CONTROLLED AND COMPACTED FILL PER AASHTO T-180, TO BE CERTIFIED BY AN APPROVED ON-SITE GEOTECHINICAL ENGINEER

COMPACTED SPECIFICATIONS FOR UTILITIES IN FILL

WHERE UTILITY PIPES ARE TO BE PLACED ON COMPACTED FILL, THE FOLLOWING APPLIES:

A. PRIOR TO PLACEMENT OF COMPACTED FILL, ANY SOFT OR OTHERWISE UNSUITABLE SOILS ENCOUNTERED AT THE EXISTING RAVINE BOTTOM OR SLOPE, SHALL BE UNDERCUT AND REMOVED FROM THE CONSTRUCTION AREA.

B. ACCEPTABLE COMPACTED FILL SHALL BE PLACED IN SIX INCH THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 98 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY A.A.S.H.T.O. METHOD T-180.

C. THE COMPACTED FILL SHALL BE BENCHED INTO THE EXISTING VIRGIN SLOPES WITH EACH LIFT PLACED TO A SMOOTH TRANSITION FROM VIRGIN TO FILL SOILS.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
CHIEF, DIVISION OF LAND DEVELOPMENT	3/12/07 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	3/12/07 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
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PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE
STORM DRAIN AND ROAD PROFILES

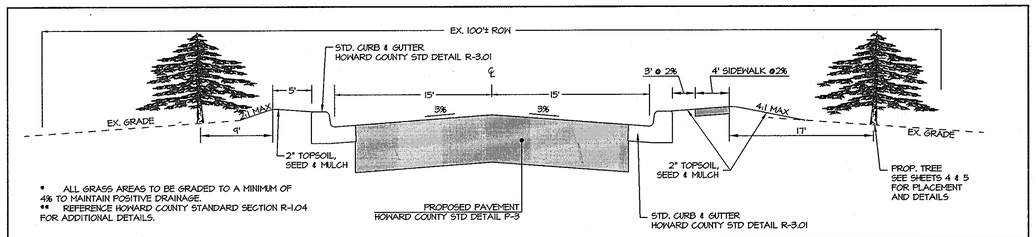
MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07 DATE

STATE OF MARYLAND — KERRI SUZANNE ANGSTEN — 20135 — PROFESSIONAL ENGINEER

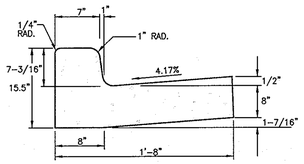
DRAWN BY:	MSP/MDC
DESIGNED BY :	MSP/KSK
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	AS SHOWN
DRAWING NO.	6 OF 9

F-06-203



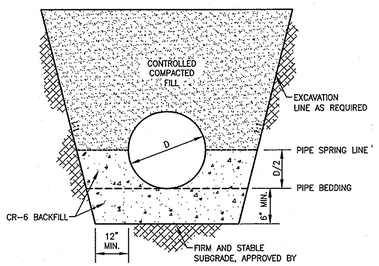
STANDARD CROSS SECTION "A" – OLD WATERLOO ROAD (STA 0+00 TO STA 3+12.18) | N.T.S.

NOTE: SEE PLAN & PROFILES FOR PROPOSED GRADES AT TEE TURNAROUND.

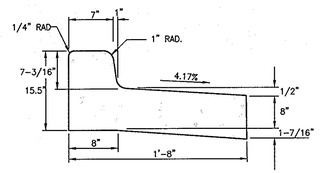


* SEE HOWARD COUNTY STD. DETAIL R-3.01 FOR FURTHER INFORMATION.

STANDARD 7" CURB AND GUTTER | N.T.S.

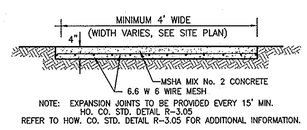


RCP STORM DRAIN PIPE BACKFILL DETAIL | N.T.S.



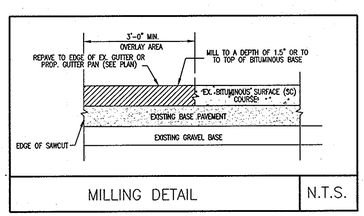
* SEE HOWARD COUNTY STD. DETAIL R-3.01 FOR FURTHER INFORMATION.

REVERSE 7" CURB AND GUTTER | N.T.S.

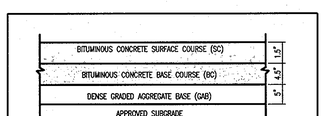


NOTE: EXPANSION JOINTS TO BE PROVIDED EVERY 15' MIN.
HO. CO. STD. DETAIL R-3.05
REFER TO HOW. CO. STD. DETAIL R-3.05 FOR ADDITIONAL INFORMATION.

SIDEWALK SECTION | N.T.S.



MILLING DETAIL | N.T.S.



SEE HOWARD COUNTY STD. DETAIL R-2.01 FOR ADDITIONAL INFORMATION.

P-3 PAVING SECTION | N.T.S.

I. Materials

A. Pipe Bedding Material – pipe bedding material shall consist of CR-6.

B. Backfill Materials – Use CR-6 as backfill material to the minimum extent shown on the plans. The backfill for the remainder of the trench shall consist of on-site or off-site soils conforming to the requirement of the geotechnical report and City/ County specifications. No stones larger than 2 inches should be allowed within 2 feet of the utility. Larger stone, up to 6 inches in the largest dimension can be used in lifts 2 feet above the utility. No organic material shall be allowed. For % passing #200 sieve), the soil moisture should granular soils (less than 35 be within 3 percentage points of optimum unless otherwise dictated by project engineer or County specifications. For fine-grained soils (greater than 35 % passing #200 sieve), the soil moisture should be within 0 to plus 4 percent of optimum unless otherwise dictated by engineer or County specifications.

The compaction requirement shall be 92 percent of the Modified Proctor (ASTM D-1557) maximum dry density for material placed below the top 12-inches of roadway subgrade. The top 12 inches should be compacted to 97% unless otherwise recommended by the geotechnical engineer. The top 12 to 24 inches of soil may be required to meet certain material properties for subgrade support for pavements.

II. Backfilling Procedures

A. Contractor shall place level lifts of soil adjacent to and above the utility. The lift thickness shall be dependent upon the type of equipment being used for compaction and the materials. The following shall be used as a guide:

1. Fine-Grained Materials – fine-grained materials (materials with more than 35 % passing #200 sieve) should be compacted with sheep's-foot type roller. The lift thickness should not exceed 4 inches if hand operated equipment is used. Hand equipment will be required for compaction around manholes, structures and adjacent to and over the utility. If heavy construction sheep's-foot compaction equipment is used, a maximum loose lift thickness should be no greater than the length of the sheeps-foot or a maximum of eight inches. Each lift should be uniformly compacted with a sufficient number of passes to obtain the required degree of compaction.

2. Granular Soils – granular soils (materials with less than 35% passing #200 sieve) should be compacted with a vibratory type compaction equipment. The loose lift thickness should not exceed 4 inches for hand operated equipment. Hand equipment will be required around manholes, structures and adjacent to and above the utility. If heavy vibratory compaction equipment is used, then the loose lift thickness can be increased to 8 inches. Each lift should be uniformly compacted with a sufficient number of passes to obtain the recommended degree of compaction.

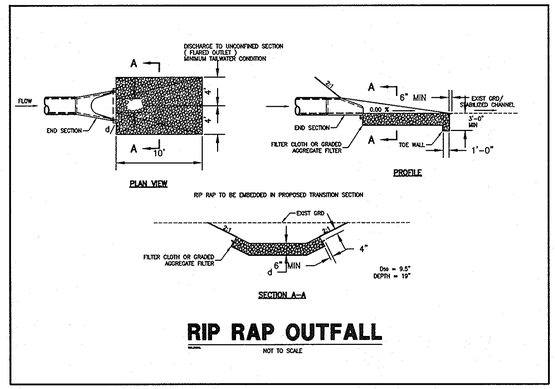
3. The backfill should be worked using hand tools around pipe haunch to provide uniform and firm support.

B. If a lift fails to meet the required compaction, then the lift shall be re-compacted and retested. If the material is too wet or too dry, the moisture should be adjusted to within the required range prior to re-compaction.

III. Testing

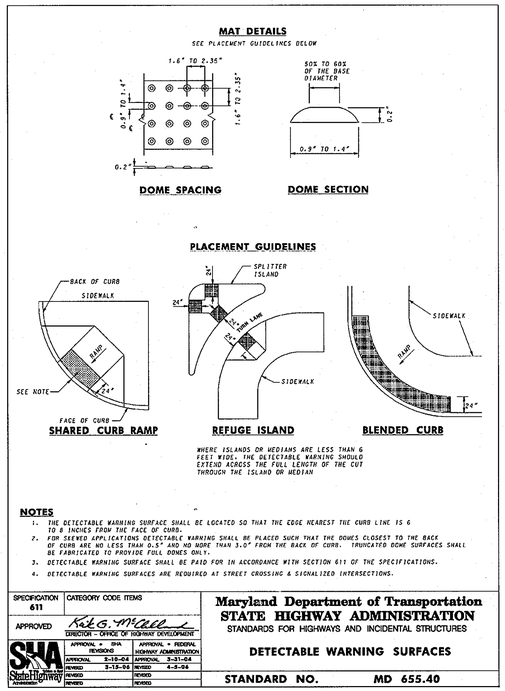
Each lift of fill should be monitored for stability, lift thickness and compactive effort. A density test should be performed for each lift of fill placed per every 150 feet of trench. This requirement includes the utility lateral connections. The test procedure should be the sand cone method (ASTM D-1556) or the nuclear gauge method (ASTM D-2922). The test results shall be made available to the contractor upon the completion of the test. For each test, the technician shall record the following: Date; test location; test elevation; material type; degree of compaction; one-point results; lift thickness; and moisture content.

UTILITY TRENCH NOTES



RIP RAP OUTFALL

NOT TO SCALE



SPECIFICATION 611	CATEGORY CODE ITEMS
APPROVED	Rick G. McCall, DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT

	APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVAL	3-10-04	APPROVAL 3-31-04
REVISED	5-15-06	REVISED 4-5-06
REVISED		REVISED
REVISED		REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

DETECTABLE WARNING SURFACES

STANDARD NO. MD 655.40

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS — DATE 3-8-07

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/12/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/07

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

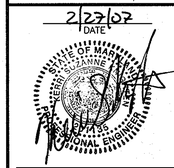
AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE

DETAILS

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07 DATE



DRAWN BY:	MSP/MDC
DESIGNED BY :	LFB/MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	AS SHOWN
DRAWING NO.	7 OF 9

F-06-203

VEGETATIVE STABILIZATION

PERMANENT AND TEMPORARY SEEDING, SODDING AND MULCHING

FOLLOWING ITITAL SOIL DISTRUBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN SEVEN CALENDAR DAY FOR THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHED, PERIMETER SLOPES, AND ALL SLOPES GREATER THAT 3 HORIZONTAL TO 1 VERTICAL (3:1) AND FOURTEEN DAYS FOR ALL OTHER DISTRUBED OR GRADED AREAS ON THE PROJECT SITE.

I. PERMANENT SEEDING

A. SOIL TEST: LIME FERTILIZATION WILL BE APPLIED PER SOIL TEST RESULTS FOR THE SITES GREATER THAN 5 ACRES. SOIL TESTS WILL BE DONE AT COMPLETION OF INITIAL ROUGH GRADING OR AS RECOMMENDED BY THE SEDILMENT CONTROL INSPECTOR. RATES AND ANALYSES WILL BE PROVIDED TO THE GRADING INSPECTOR AS WELL AS THE CONTRACTOR.

1. OCCURENCE OF ACID SULFATE SOILD (GRAYISH BLACK COLOR) WILL REQUIRE COVERING WITH A MINIMUM OF 12 INCHES OF CLEAN SOIL WITH 6 INCHES MINIMUM CAPPING OF TOP SOIL. NO STOCKPILING OF MATERIAL IS ALLOWED. IF NEEDED, SOIL TESTS SHOULD BE DONE BEFORE AND AFTER A 6-WEEK INCUBATION PERIOD TO ALLOW OXIDATION OF SULFATES.

THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
A. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
B. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
C. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (> 30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
D. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
E. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
F. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATIONS FOR TOPSOIL OR AMENDMENTS MADE AS RECOMMENDED BY A CERTIFIED AGRONOMIST.

B. SEED PREPARATION: AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF AT LEAST 3 INCHES. THE TOP LAYER SHALL BE LOOSENED BY RAKING, DISKING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING OCCURS. FOR SITES LESS THAN 5 ACRES, APPLY 100 POUNDS DOLOMITIC LIMESTONE AND 21 POUNDS OF 10-10-10 FERTILER PER 1,000 SQUARE FEET. HARROW OR DISK LIE AND FERTILIZER INTO THE SOIL TO A DEPTH OF AT LEAST 3 INCHES ON SLOPES FLATTER THAN 3:1.

C. SEEDING: APPLYING 5-6 POUNDS PER 1,000 SQUARE FEET OF TALL FESCUE BETWEEN FEBRUARY 1 AND APRL 30 OR BETWEEN AUGUST 15 AND OCTOBER 31. APLLY SEED UNIFORMLY ON A MOIST FIRM SEEDBED WITH A CYCLONE SEEDER, CULTIPACKER SEEER OR HYDROSEEER (SLURRY INCLUDES SEEDS AND FERTILIZER, RECOMMENED ON STEEP SLOPES ONLY.) MAXIMUM SEED DEPTH SHOULD BE ¼ INCH IN CLAYEY SOILS AND ½ INCH IN SANDY SOILS WHEN USING OTHER THAN THE HYDORSEEER METHOD. IRRIGATE WHERE NECESSARY TO SUPPORT ADEQUATE GROWTH UNTIL VEGETATION IS FIRMLY ESTABLISHED. IF OTHER SEED MIXES ARE TO BE USED, SELECT FROM TABLE 25, ENTITLED "PERMANENT SEEDING FOR LOW MAINTENANCE AREAS" FROM THE CURRENT STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL. MIXES SUITABLE FOR THIS ARE 1, 3, AND 5-7. MIXES 5-7 ARE SUITABLE IN NON-MOWABLE SITUATIONS.

D. MULCHING: MULCH SHALL BE APPLIED TO ALL SEEDED AREA IMMEDIATELY AFTER SEEDING. DURING THE TIME PERIOS WHEN SEEDING IS NOT PERMITTED, MULCH SHALL BE APPLIED IMMEDIATELY AFTER GRADING.

MULCH SHALL BE UNROTTED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OF 90 POUNDS PER 1,000 SQUARE FEET (2 BALES). IF A MULCH-ANCHORING TOOL IS USED, APPLY 2.5 TONS PER ACRES. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1-2 INCHES.

E. SECURING STRAW MULCH: STRAW MULCH SHALL BE SECURED IMMEDIATELY FOLLOWING MULCH APPLICATIONS TO MINIMIZE MOVEMENT BY WIND OR WATER. THE FOLLOWING METHODS ARE PERMITTED:

(i) USE A MULCH-ANCHORING TOOL WHICH IS DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE TO A MINIMUM DEPTH OF 2 INCHES. THIS IS THE MOST EFFECTIVE METHOD FOR SECURING MULCH, HOWEVER, IT IS LIMITED TO RELATIVELY FLAT AREAS WHERE EQUIPMENT CAN OPERATE SAFELY.

(ii) WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. IF MIXED WITH WATER, USE 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

(iii) LIQUID BINDERS MAY BE USED. APPLY AT HIGHER RATES AT THE EDGES, WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS FO SLOPES. THE REMAINDER O THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. BINDERS LISTED IN THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR APPROVED EQUAL SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURERS.

(iv) LIGHTWEIGHT PLASTIC NETTING MAY BE USED TO SECURE MULCH. THE NETTING WILL BE STAPLED TO THE GROUND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

II. TEMPORARY SEEDING

LIME:	100 POUNDS OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET.
FERTILIZER:	15 POUNDS OF 10-10-10 PER 1,000 SQUARE FEET.
SEED:	PERENNIAL RYE-0.92 POUNDS PER 1,000 SQUARE FEET (FEBRUARY 1 THROUGH APRIL 30 OR AUGUST 15 THROUGH NOVEMBER1). MILLET-0.92 POUNDS PER 1,000 SQUARE FEET (MAY 1 THROUGH AUGUST 15).
MULCH:	SAME AS I D AND E ABOVE.

IV. FILL

NO FILLS MAY BE PLACED ON FROZEN GROUND. ALL FILL TO BE PLACES IN APPROXIMATELY HORIZONTAL LAYER EACH LAYER HAVING ALOOSE THICKNESS OF NOT MORE THAN 8 INCHES. ALL FILL IN ROADWAYS AND PARKING AREA IS TO BE CLASSIFIED TYPE 2 AS PER ANNE ARUNDEL COUNDY CODE- ARTICLE 21, SECTION 2-308, AND COMPACTED TO 90% DENSITY; COMPACTION TO BE DETERMINED BY ASTM D-1557-66T (MODIFIED PROCTOR). ANY FILL WITHIN THE BUILDING AREA IS TO BE COMPACTED TO A MINIMUM OF 95 % DENSITY AS DETERMINED BY METHODS PREVIOUSLY MENTIONED. FILLS FOR POND EMBANKMENTS SHALL BE COMPACTED AS PER MD-378 CONSTRUCTION SPECIFICATIONS. ALL OTHER FILLS SHALL BE COMPACTED SUFFICIENTLY SO AS TO BE STABLE AND PREVEN EROSION AND SLIPPAGE.

V. PERMANENT SOD

INSTALLATION OF SO SHOULD FOLLOW PERMANENT SEEDING DATES. SEEDBED PREPARATION FOR SOD SHALL BE AS NOTED IN SECTION (B) ABOVE. PERMANENT SOD IS TO BE TALL FESCUE. STATE APPROVED SOD; LIME AND FERTILIZER PER PERMANENT SEEDING SPECIFICATINS AND LIGHTLY IRRIGATE SOIL PRIOR TO LAYING SOD. SOD IS TO BE LAID ON THE CONTOUR WITH ALL ENDS TIGHTLY ABUTTING. JOINTS ARE TO BE STAGGERED BETWEEN ROWS. WATER AND ROLL OR TAMP SOD TO INSURE POSITIVE ROOT CONTACT WITH THE SOIL. ALL SLOPES STEEPER THAN 3:1, AS SHOWN, ARE TO BE PERMANENTLY SODDED OR PROTECTED WITH AN APPROVED EROSION CONTROL NETTING. ADDITIONAL WATER FOR ESTABLISHMENT MY BE REQUIRED. SOD IS NOT TO BE INSTALLED ON FROZEN GROUND. SOD SHALL NOT BE TRANSPLANTED WHEN MOISTURE CONTENT (DRY OR WET) AND/OR EXTREME TEMPERTURE MAY BE ADVERSELY AFFECT ITS SURVIVAL. IN THE ABSENCE OF ADEQUATE RAINFALL, IRRIGATION SHOULD PERFORMED TO ENSURE ESTABLISHMENT OF SOD.

VI. MINING OPERATIONS

SEDIMENT CONTROL PLANS FOR MINING OPERATINS MUST INCLUDE THE FOLLOWING SEEDING DATES AND MIXTURES:

FOR SEEDING DATES OF:

FEBRUARY 1 THROUGH APRIL 30 AND AUGUST 15 THROUGH OCTOBER 31, UDE SEED MIXTURE OF TALL FESCUE AT THE RATE OF 2 POUNDS PER 1,000 SQUARE FEET AND SERICEA LESPEZA AT THE MINIMUM RATE OF 0.65 POUNDS PER 1,000 SQUARE FEET.

VII. TOPSOIL SHALL BE APPLIED AS PER THE STANDARD AND SPECIFICATINS FOR TOPSOIL FROM THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

NOTE: USE OF THIS INFORMATION PRECLUDE MEETING ALL OF THE REQUIREMENT OF THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT.

NOTE: PROJECTS WITHIN 4 MILES OF THE BWI AIRPORT WILL NEED TO ADHERE TO MARYLAND AVIATION ADMINISTRATION'S SEEDING SPECIFICATION RESTRICTIONS.

STANDARDS AND SPECIFICATION FOR TOPSOIL

DEFINITION

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

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

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

CONSTRUCTION AND MATERIAL SPECIFICATIONS

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

II. TOPSOIL SPECIFICATIONS-SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVELS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.

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

III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SF) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

II. FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRE

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

III. TOPSOIL APPLICATION

I. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

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

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

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

VI. ALTERNATIVE FOR PERMANENT SEEDING-INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:

I. COMPOSTED SLUDGE MATERIAL FOR USE A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRE 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 PHOSPHOROUS, AND 0.2 PERCENT POTASSIUM AND HAVE A pH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.

C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SF.

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

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA. PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTE.

REVISED 1973.

STANDARDS AND SPECIFICATIONS FOR LAND GRADING

DEFINITION

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

PURPOSE

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

DESIGN CRITERIA

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

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

I. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO INSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS.

II. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASSES SHALL NOT BE STEEPER THAN 2:1. (WHERE THE SLOPE IS TO BE MOWED THE SLOPE SHOULD BE NO STEEPER THAN 3:1, 4:1 IS PREFERRED BECAUSE OF SAFETY FACTORS RELATED TO MOWING STEEP SLOPES.) SLOPES EXCEEDING 2:1 SHALL REQUIRE SPECIAL DESIGN AND STABILIZATION CONSIDERATIONS THAT SHALL BE ADEQUATELY SHOWN ON THE PLANS.

III. REVERSE BENCHES SHALL BE PROVIDED WHENEVER THE VERTICAL INTERVAL (HEIGHT) OF ANY 2:1 SLOPE EXCEEDS 20 FEET; FOR 3:1 SLOPE IT SHALL BE INCREASED TO 30 FEET AND FOR 4:1 TO 40 FEET. BENCHES SHALL BE LOCATED TO DIVIDE THE SLOPE FACE AS EQUALLY AS POSSIBLE AND SHALL CONVEY THE WATER TO A STABLE OUTLET. SOILS, SEEPS, ROCK OUTCROPS, ETC., SHALL ALSO BE TAKEN INTO CONSIDERATION WHEN DESIGNING BENCHES.

A. BENCHES SHALL BE A MINIMUM OF SIX FEET WIDE TO PROVIDE FOR EASE OF MAINTENANCE.

B. BENCHES SHALL BE DESIGNED WITH A REVERSE SLOPE OF 6:1 OR FLATTER TO THE TOE OF THE UPPER SLOPE AND WITH A MINIMUM OF ONE FOOT IN DEPTH. BENCH GRADIENT TO THE OUTLET SHALL BE BETWEEN 2 PERCENT AND 3 PERCENT, UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS.

C. THE FLOW LENGTH WITHIN A BENCH SHALL NOT EXCEED 800' UNLESS ACCOMPANIED BY APPROPRIATE DESIGN AND COMPUTATIONS. FOR FLOW CHANNEL STABILIZATION SEE TEMPORARY SWALE.

IV. SURFACE WATER SHALL BE DIVERTED FROM THE FACE OF ALL CUT AND/OR FILL SLOPES BY THE USE OF EARTH DIKES, DITCHES AND SWALES OR CONVEYED DOWNSLOPE BY THE USE OF A DESIGNED STRUCTURE, EXCEPT WHERE:

A. THE FACE OF THE SLOPE IS OR SHALL BE STABILIZED AND THE FACE OF ALL GRADED SLOPES SHALL BE PROTECTED FORM SURFACE RUNOFF UNTIL THEY ARE STABILIZED.

B. THE FACE OF SLOPE SHALL NOT BE SUBJECT TO ANY CONCENTRATED FLOWS OF SURFACE WATER SUCH AS FROM NATURAL DRAINAGEWAYS, GRADED SWALES, DOWNSPOUTS, ETC.

C. THE FACE OF THE SLOPE WILL BE PROTECTED BY SPECIAL EROSION CONTROL MATERIALS, TO INCLUDE, BUT NOT LIMITED TO: APPROVED VEGETATIVE STABILIZATION PRACTICES (SEE SECTION G), RIP-RAP OR OTHER APPROVED STABILIZATION METHODS.

V. CUT SLOPES OCCURRING IN RIPABLE ROCK SHALL BE SERRATED AS SHOWN ON THE FOLLOWING DIAGRAM. THESE SERRATIONS SHALL BE MADE WITH CONVENTIONAL EQUIPMENT AS THE EXCAVATION IS MADE. EACH STEP OR SERRATION SHALL BE CONSTRUCTED ON THE CONTOUR AND WILL HAVE STEPS CUT AT NOMINAL TWO-FOOT INTERVALS WITH NOMINAL THREE-FOOT HORIZONTAL SHELVES. THESE STEPS WILL VARY DEPENDING ON THE SLOPE RATIO OR THE CUT SLOPE. THE NOMINAL SLOPE LINE IS 1:1. THESE STEPS WILL WEATHER AND ACT TO HOLD MOISTURE, LIME, FERTILIZER AND SEED THUS PRODUCING A MUCH QUICKER AND LONGER LIVED VEGETATIVE COVER AND BETTER SLOPE STABILIZATION. OVERLAND FLOW SHALL BE DIVERTED FROM THE TOP OF ALL SERRATED CUT SLOPES AND CARRIED TO A SUITABLE OUTLET.

VI. SUBSURFACE DRAINAGE SHALL BE PROVIDED WHERE NECESSARY TO INTERCEPT SEEPAGE THAT WOULD OTHERWISE ADVERSELY AFFECT SLOPE STABILITY OR CREATE EXCESSIVELY WET SITE CONDITIONS.

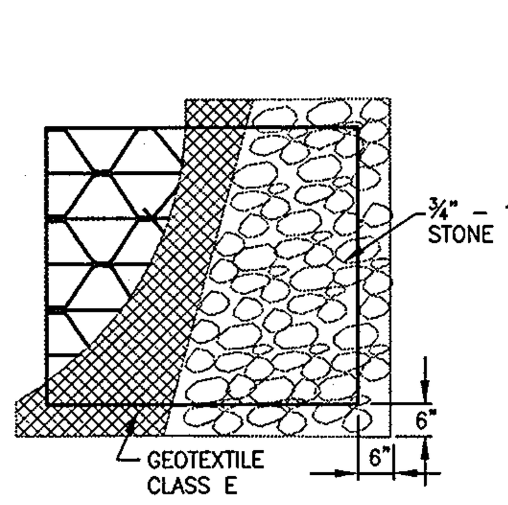
VII. SLOPES SHALL NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATELY PROTECTING SUCH PROPERTIES AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGES.

VIII. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIAL. IT SHOULD BE FREE OF STONES OVER TWO (2) INCHES IN DIAMETER WHERE COMPACTED BY HAND OR MECHANICAL TAMPERS OR OVER EIGHT (8) INCHES IN DIAMETER WHERE COMPACTED BY ROLLERS OR OTHER EQUIPMENT. FROZEN MATERIAL SHALL NOT BE PLACED IN THE FILL NOR SHALL THE FILL MATERIAL BE PLACED ON A FROZEN FOUNDATION.

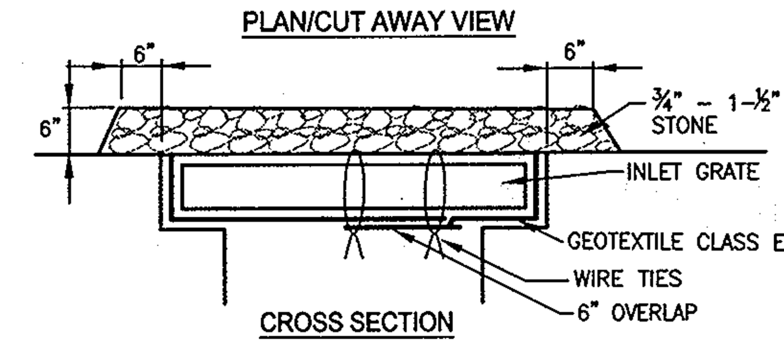
IX. STOCKPILES, BORROW AREAS AND SPOIL SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATIONS.

X. ALL DISTURBED AREAS SHALL BE STABILIZED STRUCTURALLY OR VEGETATIVELY IN COMPLIANCE WITH 20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION.

DETAIL 23B - AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



CROSS SECTION

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 1-1/2" STONE, 4"-6" THICK ON THE GRATE TO SECURE THE FABRIC AND PROVIDE ADDITIONAL FILTRATION.

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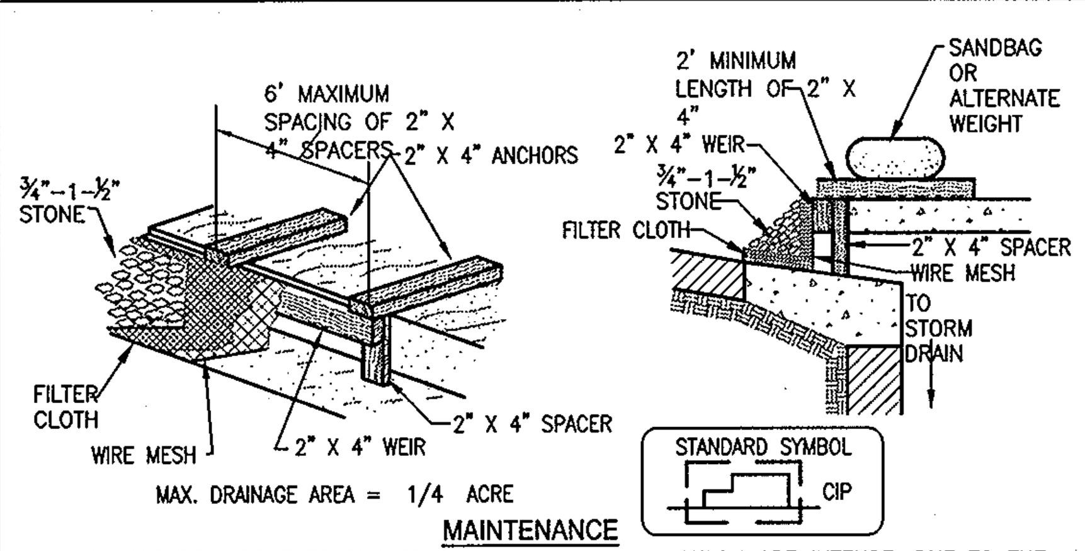
DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE — STANDARD SYMBOL: CIP

MAINTENANCE

MAINTENANCE REQUIREMENTS FOR STORM DRAIN INLET PROTECTION ARE INTENSE, DUE TO THE SUSCEPTIBILITY TO CLOGGING. WHEN THE STRUCTURE DOES NOT DRAIN COMPLETELY WITHIN 48 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, ACCUMULATED SEDIMENT MUST BE REMOVED AND THE GEOTEXTILE FABRIC AND STONE MUST BE CLEANED OR REPLACED.

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 & 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.

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HOWARD SOIL CONSERVATION DISTRICTS
STANDARD SEDIMENT CONTROL NOTES

1. A MIN. OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD CO. DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).

2. ALL VEGETATION AND STRUCTURAL 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: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. 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 HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA OF SITE	1.36 AC.
AREA DISTURBED	1.36 AC
AREA TO BE ROOFED OR PAVED	0.33 AC.
AREA TO BE VEGETATIVELY STABILIZED	1.33 AC.
TOTAL CUT	1500 CU. YDS.*
TOTAL FILL	1500 CU. YDS.*
TOTAL TOPSOIL	500 CU. YDS.*
OFF SITE WASTE/BORROW AREA LOCATION	NOT YET DETERMINED. WASTE/BORROW AREA TO BE A SITE WITH AN APPROVED SEDIMENT CONTROL PERMIT

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

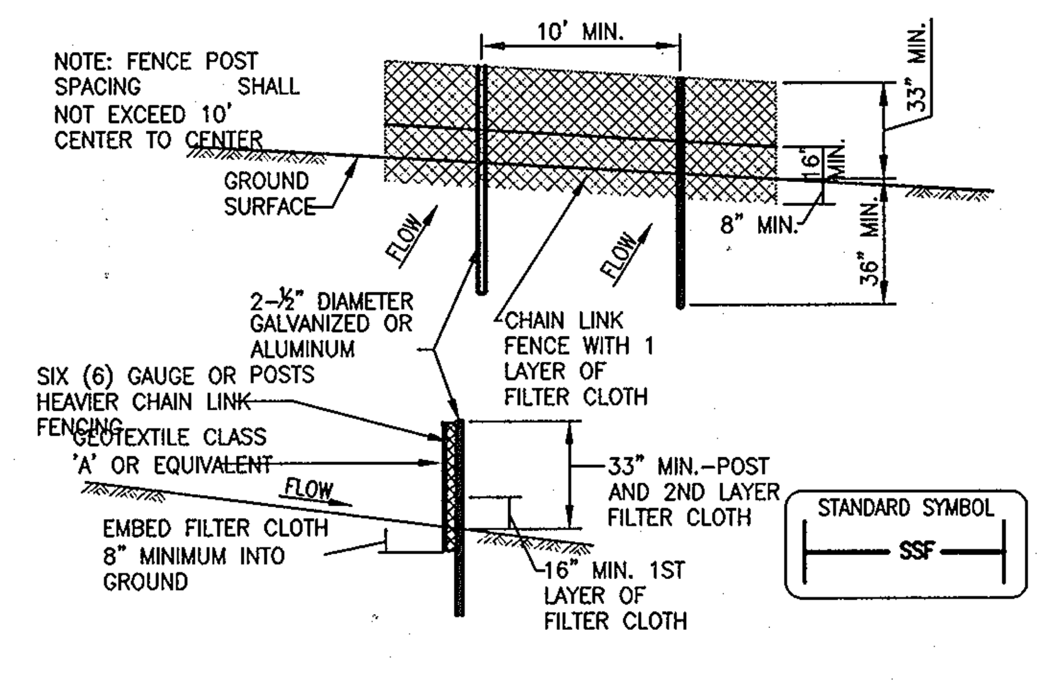
9. ADDITIONAL SEDIMENT MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. ON ALL SITES WITH DISTURBED AREAS IN ACCESS 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 UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

*THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. MRA MAKES NO GUARANTEE OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE DEVELOPER AND CONTRACTORS SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.

DETAIL -33 SUPER SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY (SHA) DETAILS FOR CHAIN LINK FENCING. THE (SHA) SPECIFICATIONS FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.
2. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.
4. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
5. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
6. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF THE FENCE HEIGHT.

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

DETAIL 33 - SUPER SILT FENCE

SUPER SILT FENCE DESIGN CRITERIA

SLOPE	SLOPE STEEPNESS	SLOPE LENGTH (MAX.)	SILT FENCE LENGTH (MAX.)
0 - 10%	0 - 10:1	UNLIMITED	UNLIMITED
10 - 20%	10:1 - 5:1	200 FEET	1500 FEET
20 - 33%	5:1 - 3:1	100 FEET	1000 FEET
33 - 50%	3:1 - 2:1	100 FEET	500 FEET
50% & HIGHER	2:1 & STEEPER	50 FEET	250 FEET

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

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.	1 DAY
2. CLEAR FOR AND INSTALL PERIMETER SEDIMENT CONTROLS, SILT FENCE AND INLET PROTECTION FOR EX I-25.	3 DAYS
3. CONSTRUCT PROPOSED STORM DRAIN SYSTEM, EX I-25 TO I-4 AND EW-10 TO EX 24" HDPE. INSTALL INLET PROTECTION AS STORM DRAIN CONSTRUCTION PROCEEDS.	2 WEEKS
4. FINE GRADE AND INSTALL CURB, GUTTER AND BASE PAVING.	1 WEEK
5. CONSTRUCT WALKWAYS, RAMPS, AND VEGETATIVELY STABILIZE REMAINING AREAS.	1 WEEK
6. FLUSH STORM DRAIN FOR ANY ACCUMULATED SEDIMENTATION.	1 DAY
7. WITH HOWARD COUNTY SEDIMENT CONTROL INSPECTOR'S PERMISSION, REMOVE ALL SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS.	1 WEEK

ENGINEER'S CERTIFICATE

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

SIGNATURE OF ENGINEER — DATE 2/27/07
KERRI S. KNIGHTEN, PE MD LICENSE 201135

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 2/27/07
BRIAN KNAUFF

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/6/07

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 3/5/07

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
CHIEF, BUREAU OF HIGHWAYS — DATE 3-8-07

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/13/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/12/07

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
6011 UNIVERSITY BOULEVARD, SUITE 260
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-480-2467
FAX: 410-480-0543

PROJECT **OLD WATERLOO ROAD EXTENSION GATEWAY OVERLOOK AT BENSON EAST**

AREA PLAT: 18885
ZONED: NT ~ TAX MAP: 37 AND 43 ~ GRID: 20, 21 AND 2, 3
PARCEL: 382 ~ LOTS: J, K & L
6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE **EROSION AND SEDIMENT CONTROL DETAILS**

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
LAUREL, MARYLAND 20707
(410) 792-9792 or (301) 776-1690
FAX (410) 792-7395

2/27/07
DATE

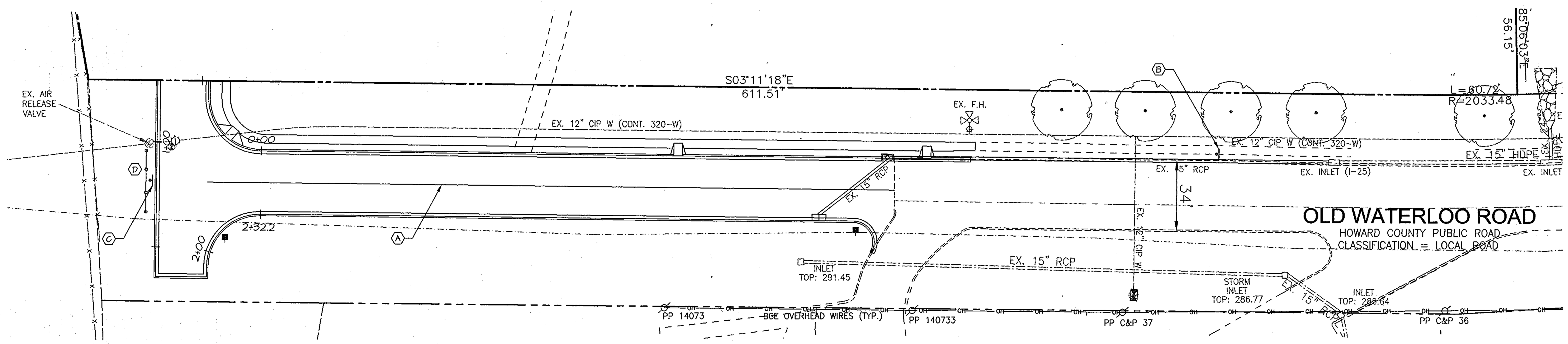
STATE OF MARYLAND — KERRI SUZANNE KNIGHTEN — 201135 — PROFESSIONAL ENGINEER

DRAWN BY:	MSP/MDC
DESIGNED BY :	LFB/MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	AS SHOWN
DRAWING NO.	8 OF 9

F-06-203

LEGEND

- EX. 20' PUBLIC SD & UTILITY EASMENT
- EX. 20' PUBLIC SD & UTILITY
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- EX. BUILDING
- EX. CURB
- EX. EASEMENT
- EX. FENCE
- EX. FLOODPLAIN
- EX. GAS
- EX. PAVEMENT
- EX. PROPERTY LINE
- EX. ROAD CENTERLINE
- EX. SANITARY SEWER
- EX. STORM DRAIN
- EX. TREE LINE
- EX. WATERLINE
- EX. WETLAND
- EX. WETLAND BUFFER
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CENTERLINE OF DRAINAGE SWALE
- PROP. 6' CHAINLINK FENCE
- PROP. CURB
- PROP. REVERSE CURB & GUTTER
- PROP. STANDARD CURB & GUTTER
- PROP. TREE LINE
- PROP. LIMIT OF DISTURBANCE
- PROP. PAVEMENT
- PROP. BUILDING
- PROP. BUILDING SETBACK
- PROP. PUBLIC SANITARY SEWER LINE
- PROP. PUBLIC WATER LINE
- PROP. PRIVATE STORM DRAIN LINE
- PROP. PUBLIC STORM DRAIN LINE
- PROP. SITE LIGHTING



SIGNAGE & STRIPING PLAN

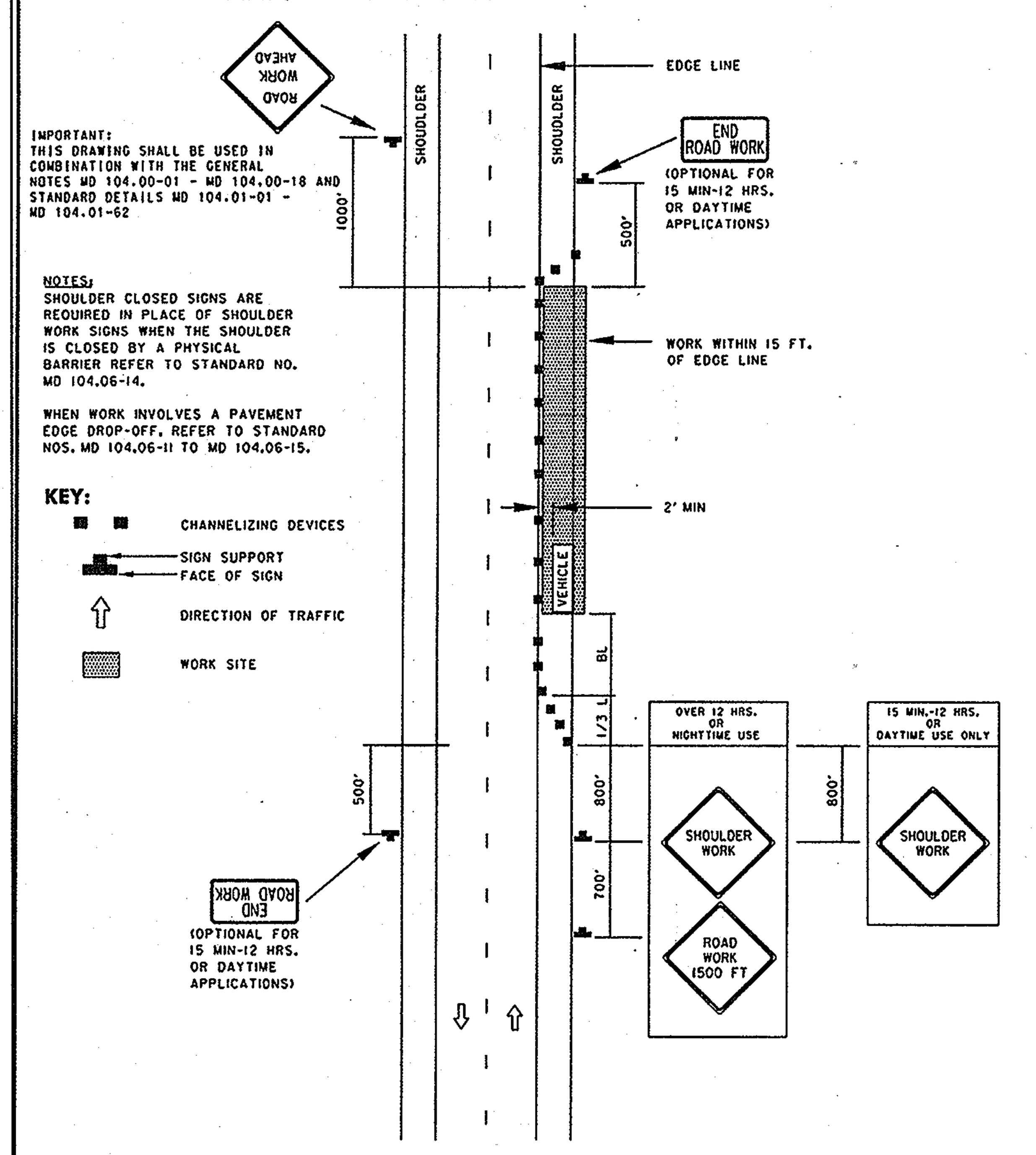
SCALE: 1" = 30'

- (A) 5" DOUBLE YELLOW LINE
- (B) SIGN – "ROAD ENDS 500 FT"
- (C) SIGN – "NO PARKING in TEE-TURNAROUND"
- (D) 4-18"x18" END-OF-ROAD MARKERS TO BE MOUNTED ON GUARD RAIL

NOTES

1. NEW PAVEMENT MARKINGS SHALL TIE INTO EXISTING PAVEMENT MARKINGS
2. MARKINGS AND SIGN LOCATIONS SHALL BE APPROVED BY THE TRAFFIC DIVISION PRIOR TO INSTALLATIONS (410-313-5752)

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION 104	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	DIRECTOR – OFFICE OF TRAFFIC AND SAFETY	SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
SHA State Highway Administration	APPROVAL – SHA REVISIONS; APPROVAL 8-20-03; REVISED; REVISED; REVISED / APPROVAL – FEDERAL HIGHWAY ADMINISTRATION; APPROVAL 9-23-03; REVISED; REVISED; REVISED	STANDARD NO. MD 104.02-02

MAINTENANCE OF TRAFFIC DETAIL FOR SHOULDER WORK ON A TWO-LANE ROAD

APPROVED : HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[signature] 3-8-07
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

[signature] 3/12/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 3/12/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
THE RYLAND GROUP
ATTN: MR. BRIAN KNAUFF
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6TH ELECTION DISTRICT ~ HOWARD COUNTY, MARYLAND

TITLE **SIGNAGE, STRIPING & MOT PLANS**

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
14280 PARK CENTER DRIVE, SUITE A
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2/27/07
DATE

STATE OF MARYLAND — KERRI SUZANNE KNUTTEN — 201135 — PROFESSIONAL ENGINEER

DRAWN BY:	MSP/MDC
DESIGNED BY :	LFB/MSP
REVIEWED BY:	KSK
PROJECT NO :	14719
DATE :	2/27/07
SCALE :	AS SHOWN
DRAWING NO.	9 OF 9

F-06-203