DRAINAGE AND EROSION REPORT

PREPARED FOR:
Summit Chase HOA
Reston, VA 20194

DATE: July 5, 2017

PREPARED BY;
Dick Ratcliff
Earthman Design Group, LLC

4607 Holly Ridge Road, Rockville, Maryland 20853 Ph. 240-778-9549
Email: dick@EarthmanDesignGroup.com

BACKGROUND: I was retained by Summit Chase HOA in Reston Virginia to inspect common grounds for erosion and drainage problem areas. Site analysis was performed in February and March of 2017 where field measurement were made, spot elevations obtained and photos taken as needed. Areas of concern were drafted on the scaled base plans with call outs for specific recommendations for mitigation.

DISCUSSION: Discovered areas of concern ranged from places lacking in vegetation cover due to shade, steep slopes with soil loss and lacking in vegetation cover, daylighted drainage pipes resulting in erosion, and areas with excessive surface runoff from multiple sources resulting in excessive erosion and retaining wall failure. Mitigation varies depending on the issues and ranges from trimming trees to increase light penetration to establish turf, importing topsoil to establish ground cover, extending daylighted drainage pipes, and extensive drainage systems to capture and redirect water. Liriope spicata is the recommended ground cover for shady, steep slope areas and turf in areas of level or moderate slopes where light penetration is improved. Specific areas as follows.

1523 to 1527 - rear: Install rock to mitigate erosion from daylighted pipe and extend it to the natural area. Install pathway to reduce wear from foot traffic, and import topsoil to establish ground cover in bare area.

1529 to 1541 – rear: Extend pipe to natural area, install pathway to reduce wear from foot traffic, and import topsoil to establish ground cover in bare area.

1549 to 1557 – rear: Extend pipes to natural area, install pathway to reduce wear from foot traffic, and import topsoil to establish ground cover in bare area.

Between 1557 and 1559: Install filter fabric and rock in eroded swale.

1559 to 1565 – rear: Extend pipes to natural area, install pathway to reduce wear from foot traffic, and import topsoil to establish ground cover in bare area.

1569 to 1573 - rear and side: Extend pipes to natural area, and import topsoil to establish turf in bare area.

1577 - rear: Install pathway to reduce wear from foot traffic, and import topsoil to establish turf in bare area.

1585 – rear: Extend pipe to natural area, and import topsoil to establish ground cover in bare area.

1595 and 1597 – rear: Install pathway to reduce wear from foot traffic, and import topsoil to establish ground cover in bare area.

1605 – rear: Remove trees and import topsoil to establish turf.

1481 side and rear: Grading, drainage system, filter fabric with rock, steppers and ground cover to hold soil and redirect water.

1487 to 1491 – rear: Trim trees for light penetration, import topsoil and establish turf.

1519 – rear: Trim trees for light penetration, import topsoil and establish turf.

1520 to 1524 – rear: Extend retaining wall. Install filter fabric and rock in swale.

1502 to 1510 – rear: Grade for positive surface water flow, install pathway and filter fabric and rock.

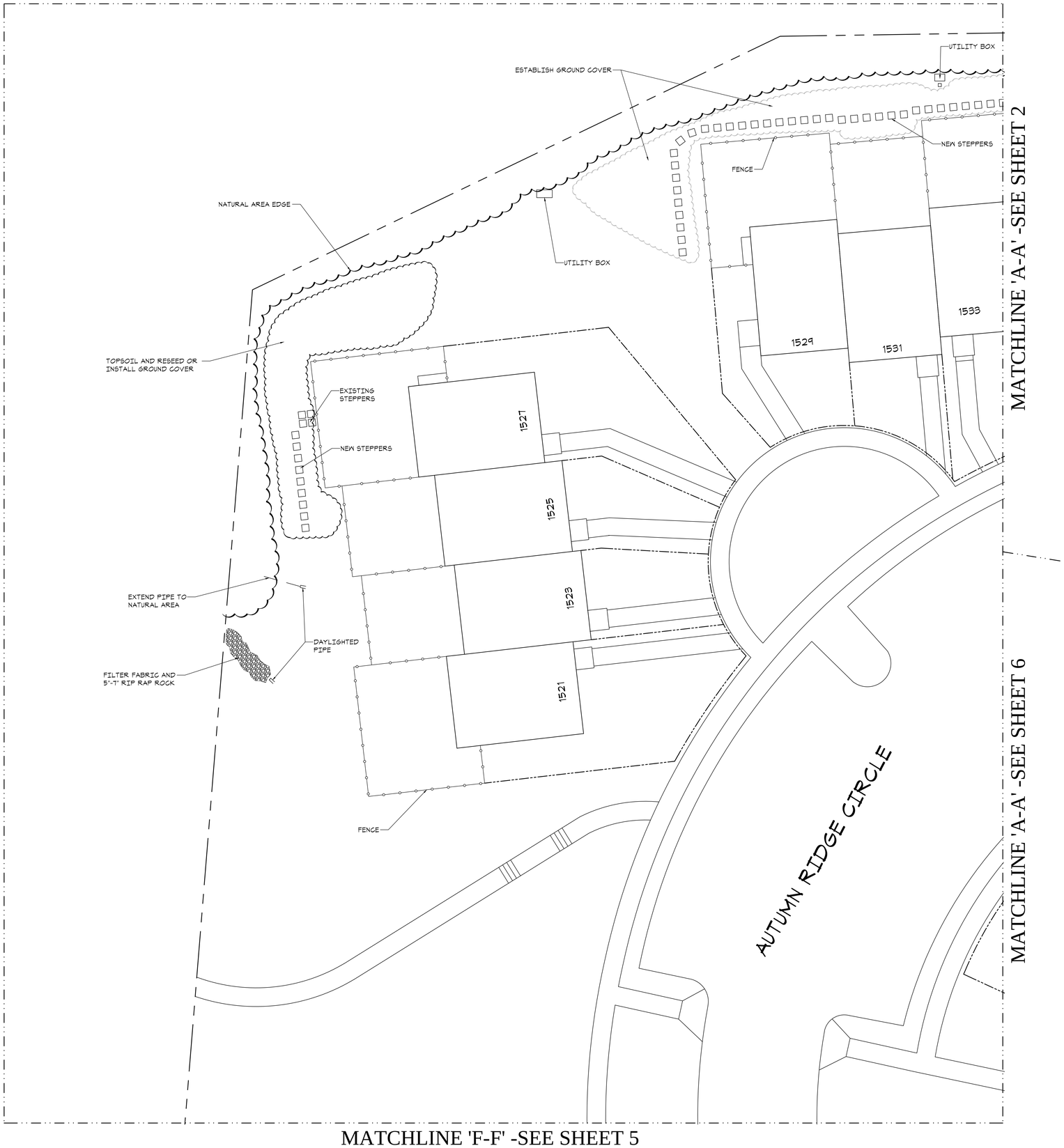
1494 to 1500 and 1502 to 1510 and 1486 to 1492 – front, sides and rear: Remove trees, install drainage systems, rebuild retaining wall, grade for positive surface water flow, install filter fabric and rock, import topsoil and establish turf.

SUMMARY: If left unchecked some areas will continue to deteriorate causing additional damage making it more difficult to mitigate in the future. Identified areas can be mitigated in phases and it is recommended that the most severe areas be addressed first.

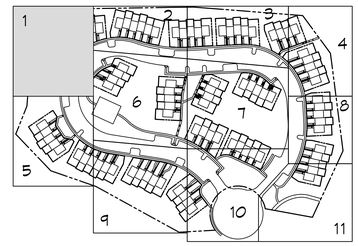
CERTIFICATION: I certify that all the statements of fact in this report and appraisal are true, complete and correct to the best of my knowledge and belief, and that they are made in good faith.

Respectfully submitted,

Dick Ratcliff



SITE MAP
N.T.S.



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Revisions:
Date:

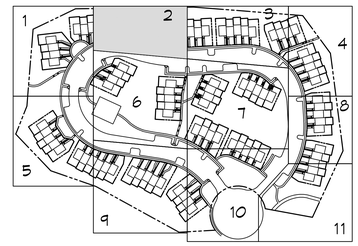
DRAINAGE PLAN

SUMMIT CHASE
RESTON, VA 20194

Earthman Design Group, LLC

Date: 04.17.17
Scale: 1/8"=1'-0"
Drawn By: JR
Design By: DR
Sheet: 1 of 11

SITE MAP
N.T.S.



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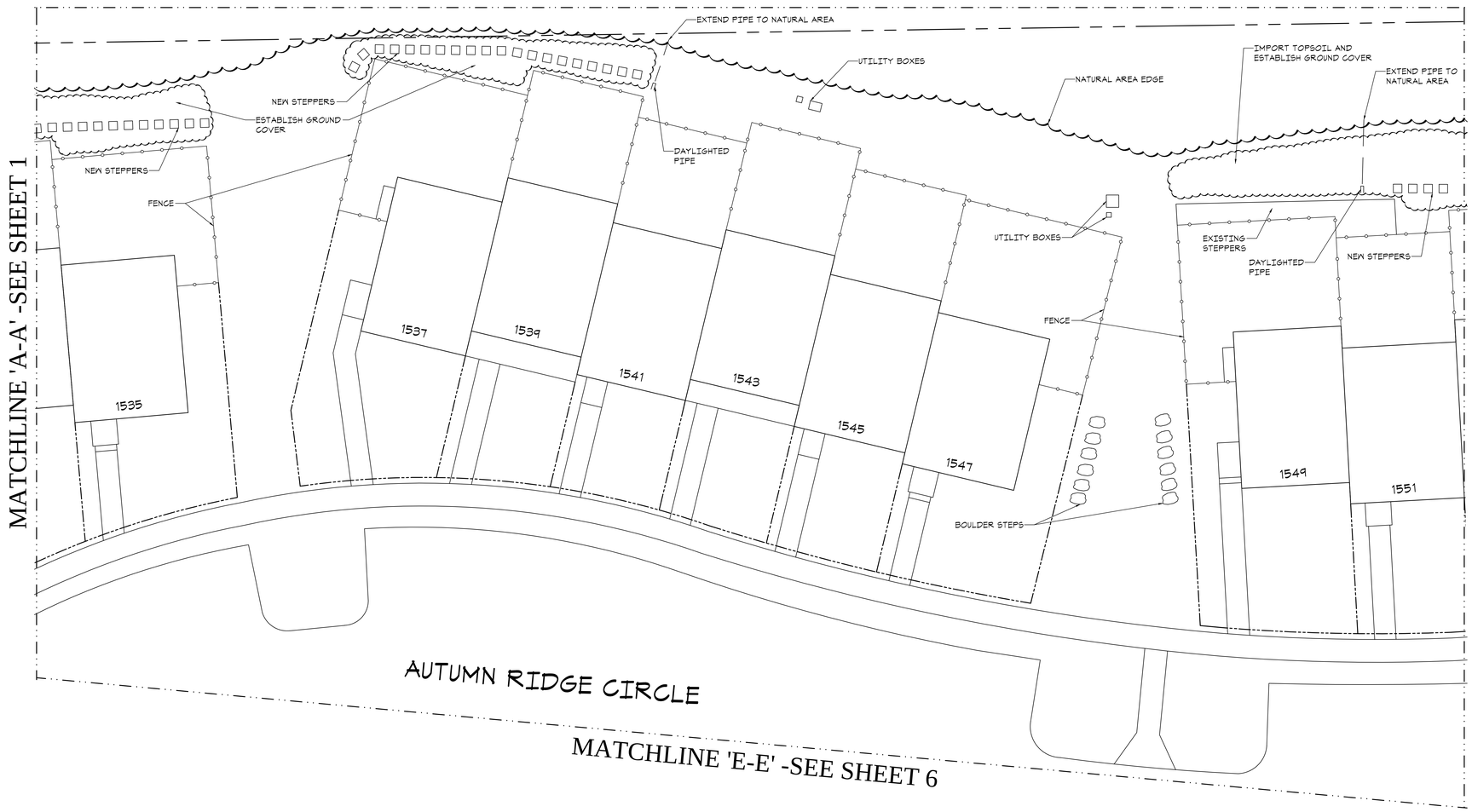

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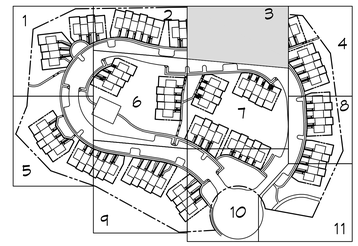

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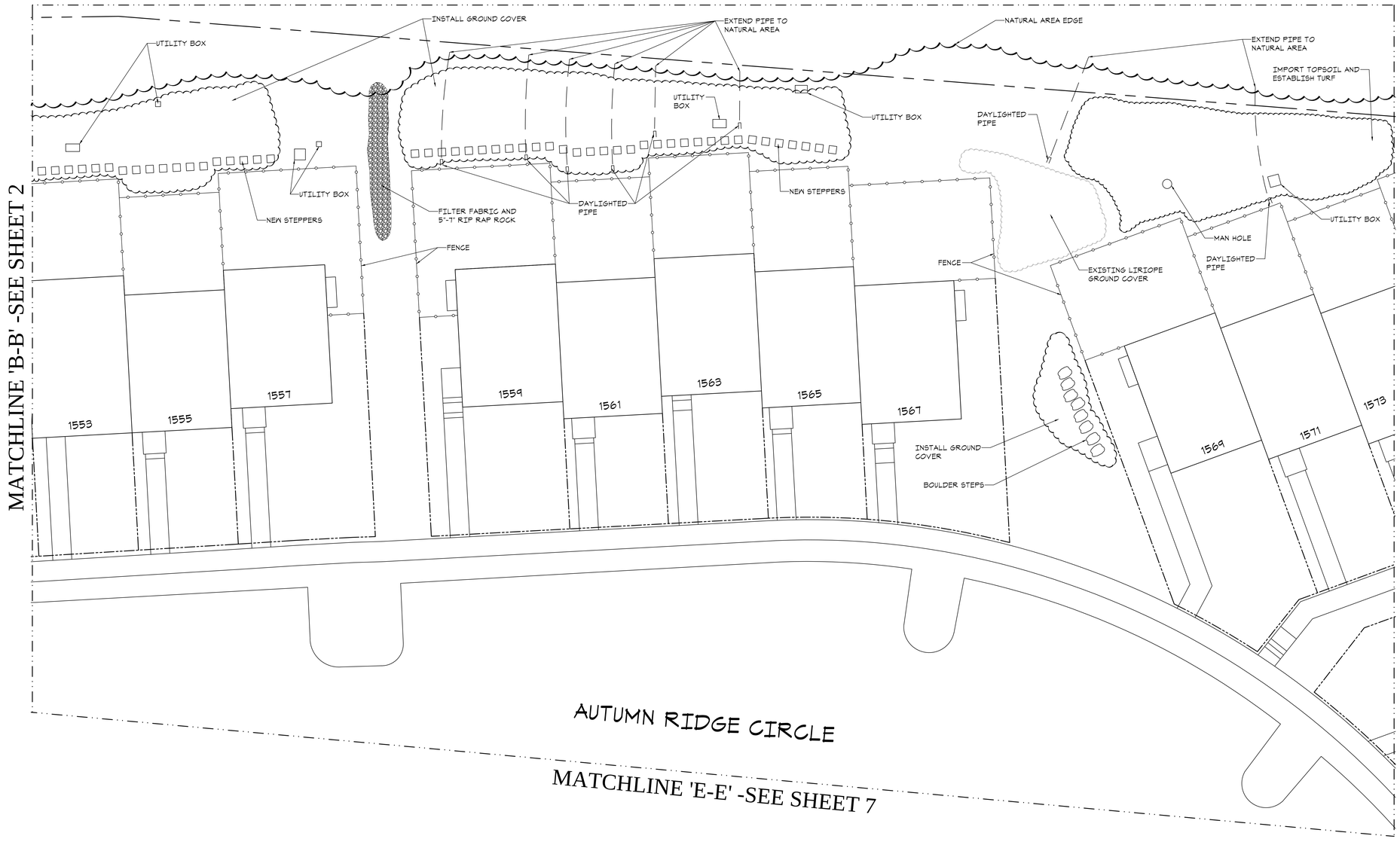

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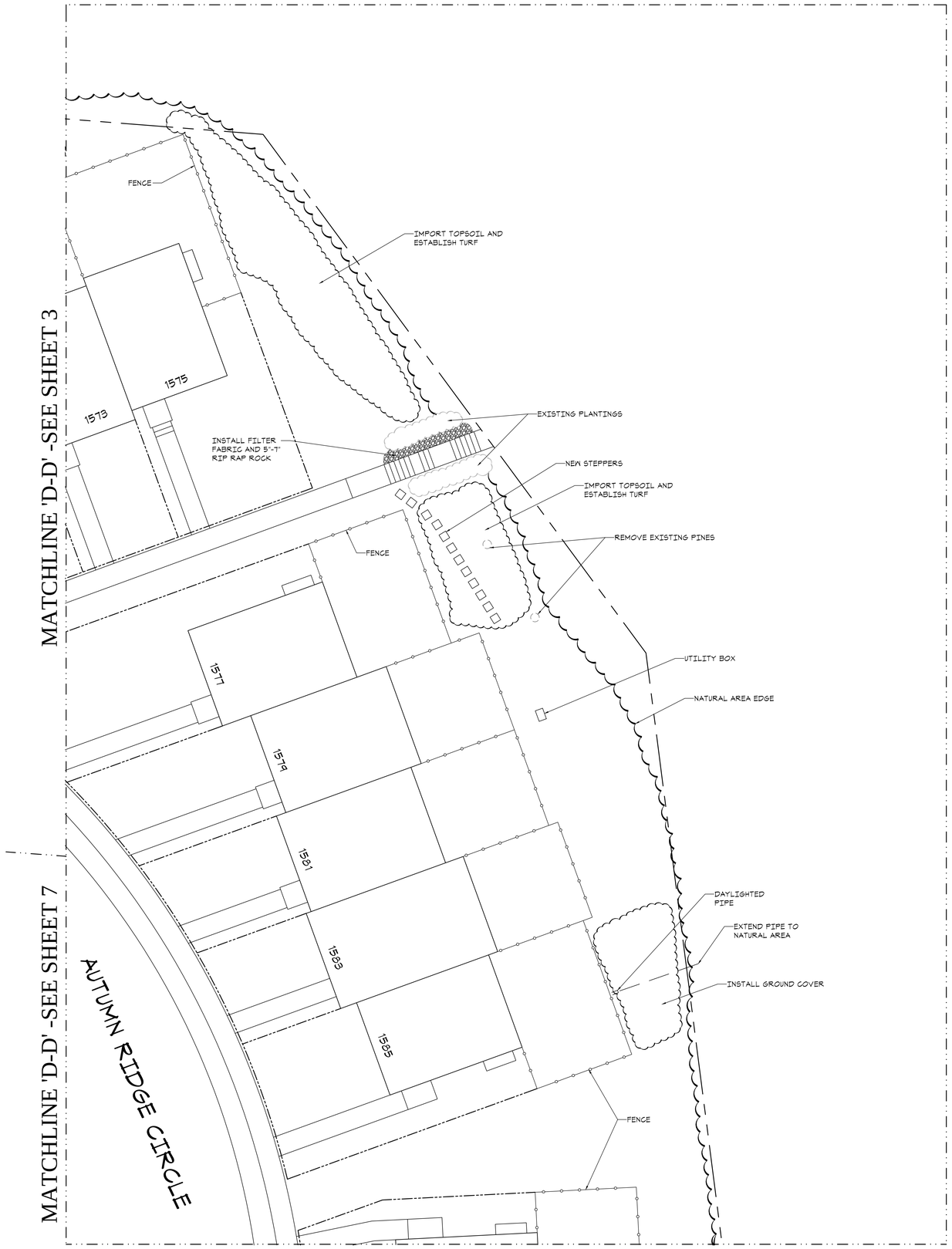

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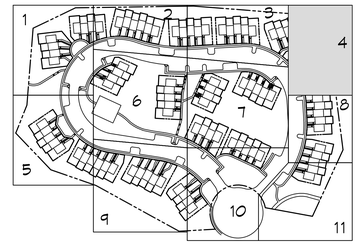

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Sheet: 4 of 11

MATCHLINE 'F-F' -SEE SHEET 1

MATCHLINE 'A-A' -SEE SHEET 6

MATCHLINE 'A-A' -SEE SHEET 9

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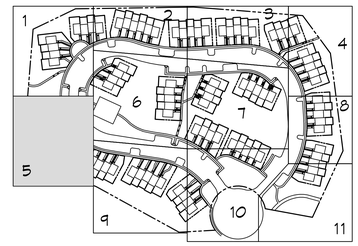

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Sheet: 5 of 11

MATCHLINE 'E-E' -SEE SHEET 2

AUTUMN RIDGE CIRCLE

MATCHLINE 'A-A' -SEE SHEET 1

MATCHLINE 'A-A' -SEE SHEET 5

MATCHLINE 'B-B' -SEE SHEET 7

MATCHLINE 'G-G' -SEE SHEET 9

AUTUMN RIDGE CIRCLE

1526

1524

1522

1520

DAYLIGHTED PIPE

EXISTING RETAINING WALL

UTILITY BOXES

EXTEND WALL 10'

FENCE

FILTER FABRIC AND 3'-5" RIP RAP ROCK

NATURAL AREA

TOT LOT

DRAIN INLET

DAYLIGHT PIPE AT DRAIN INLET

10" PVC PIPE SET MINIMUM 12" BELOW GRADE

UTILITY BOX

FILTER FABRIC AND 3'-5" RIP RAP ROCK

GRADE SWALE FOR POSITIVE SURFACE WATER FLOW

UTILITY BOXES

REMOVE (9) LEYLAND CYPRESS

IMPORT TOPSOIL AND ESTABLISH TURF

REMOVE EXISTING PINES

-138' EG

-140' ETW

STACK STONE WALL

-63' ETW

STACK STONE RETAINING WALL

-31' ES

1502

18" ADS DRAIN INLET SET 6" BELOW FINISH GRADE

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

-2' ES ??

NEW STEPPERS

1504

FILTER FABRIC AND 3'-5" RIP RAP ROCK

8" PVC PIPE SET MINIMUM 12" BELOW GRADE

GRADE FOR POSITIVE SURFACE WATER FLOW INTO INLET

1506

DAYLIGHTED PIPE

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

-0'- = BM

18" ADS DRAIN INLET SET 6" BELOW FINISH GRADE

MAN HOLE

FILTER FABRIC AND 3'-5" RIP RAP ROCK

1508

GRADE FOR POSITIVE SURFACE WATER FLOW INTO INLET

+2' ES

+16' ES

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

6" PVC PIPE SET MINIMUM 12" BELOW GRADE

MAN HOLE

GRADE FOR POSITIVE SURFACE WATER FLOW INTO INLET

1510

18" ADS DRAIN INLET SET 6" BELOW FINISH GRADE

+35' ES

FENCE

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

FILTER FABRIC AND 3'-5" RIP RAP ROCK

IMPORT TOPSOIL AND ESTABLISH TURF

SITE MAP
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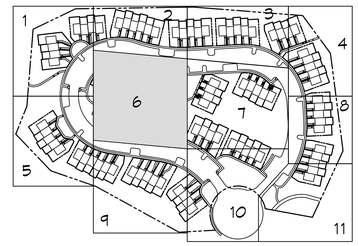

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GRADING KEY:

EG	EXISTING GRADE
FG	FINISHED GRADE
ES	EXISTING SURFACE
FS	FINISHED SURFACE
ETW	EXISTING TOP OF WALL
FTW	FINISHED TOP OF WALL
EBW	EXISTING BOTTOM OF WALL
FBW	FINISHED BOTTOM OF WALL
ETS	EXISTING TOP OF STEP
FTS	FINISHED TOP OF STEP
EBS	EXISTING BOTTOM OF STEP
FBS	FINISHED BOTTOM OF STEP
ETF	EXISTING TOP OF FOOTER
FTF	FINISHED TOP OF FOOTER
ETG	EXISTING TOP OF GRATE
FTG	FINISHED TOP OF GRATE
EBCB	EXISTING BOTTOM OF CATCH BASIN
FBCB	FINISHED BOTTOM OF CATCH BASIN
EIE	EXISTING INVERT ELEVATION
FIE	FINISHED INVERT ELEVATION
ERE	EXISTING RIM ELEVATION
FRE	FINISHED RIM ELEVATION
ETOS	EXISTING TOP OF SLOPE
EBOS	EXISTING BOTTOM OF SLOPE

APPROVED BY _____ DATE _____

0 4 8 16 24

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NORTH

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Scale: 1/8"=1'-0"
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Sheet: 6 of 11

MATCHLINE 'E-E' -SEE SHEET 3

AUTUMN RIDGE CIRCLE

MATCHLINE 'B-B' -SEE SHEET 6

MATCHLINE 'H-H' -SEE SHEET 10

MATCHLINE 'D-D' -SEE SHEET 4

MATCHLINE 'D-D' -SEE SHEET 8

REBUILD STACK STONE WALLS WITH DRAINAGE SYSTEM

DAYLIGHTED PIPE

MAN HOLE

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

DRAIN INLET

DAYLIGHT PIPE AT DRAIN INLET

MAN HOLE

FENCE

DAYLIGHTED PIPE

8" PVC PIPE SET MINIMUM 12" BELOW GRADE

6" PVC PIPE SET MINIMUM 12" BELOW GRADE

UTILITY BOXES

INLET

GRADE FOR POSITIVE SURFACE FLOW TO INLET

REMOVE EXISTING INLETS

UTILITY BOXES

ESTABLISH GROUND COVER

18" ADS DRAIN INLET SET 8" BELOW SURROUNDING GRADE

3-5" RIVER ROCK ON FILTER FABRIC

NATURAL AREA

MAN HOLE

GRADE FOR POSITIVE SURFACE WATER FLOW INTO INLET

18" ADS DRAIN INLET SET 6" BELOW FINISH GRADE

FILTER FABRIC AND 3"-5" RIVER ROCK

18" ADS DRAIN INLET SET 6" BELOW FINISH GRADE

CREATE SWALE WITH POSITIVE SURFACE FLOW TO INLET

6" PVC PIPE SET MINIMUM 12" BELOW GRADE

REMOVE EXISTING PINES

FILTER FABRIC AND 3"-5" RIP RAP ROCK

6" PVC PIPE SET MINIMUM 12" BELOW GRADE

REMOVE EXISTING PINE

FENCE

REMOVE EXISTING PINES

IMPORT TOPSOIL AND ESTABLISH TURF

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

UTILITY BOXES

DAYLIGHTED PIPE

4" PVC PIPE SET MINIMUM 12" BELOW GRADE

UTILITY BOX

ESTABLISH GROUND COVER

UTILITY BOX

MAN HOLE

1500 1498 1496 1494 1492 1490 1488 1486 1484 1482 1480

1552 1554 1556 1558 1560

-113'-

-87' ETW

-82'

-85' ETW

-41' ES

-17' ES

+4' ES

-0' ES

-25' ES

+43' ES

+52' ES

+75' ES

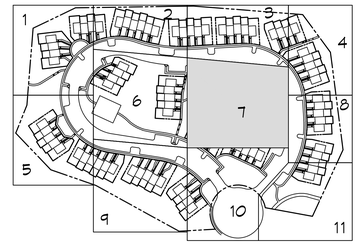
+81' ES

+81' ES

+83' ES

SITE MAP

N.T.S.



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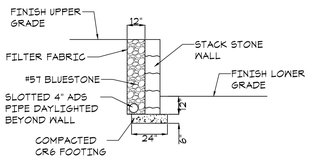

STACK STONE WALL DETAIL

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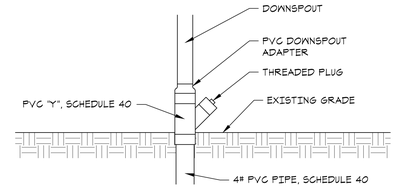

DOWNSPOUT CONNECTION DETAIL

SCALE: 1"= 1'-0"

GRADING KEY:

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ES	EXISTING SURFACE
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FBS	FINISHED BOTTOM OF STEP
ETF	EXISTING TOP OF FOOTER
FTF	FINISHED TOP OF FOOTER
ETG	EXISTING TOP OF GRATE
FTG	FINISHED TOP OF GRATE
EBGB	EXISTING BOTTOM OF GATCH BASIN
FBGB	FINISHED BOTTOM OF GATCH BASIN
EIE	EXISTING INVERT ELEVATION
FIE	FINISHED INVERT ELEVATION
ERE	EXISTING RIM ELEVATION
FRE	FINISHED RIM ELEVATION
ETOS	EXISTING TOP OF SLOPE
EBOS	EXISTING BOTTOM OF SLOPE

NOTES:

*MINIMUM FALL FOR ALL BURRIED PIPE 2" PER 10'
*INSTALL CLEANOUTS EVERY 50'

APPROVED BY _____ DATE _____

0 4 8 16 24

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Revisions:
Date:
08.02.17

DRAINAGE PLAN

NORTH

SUMMIT CHASE

RESTON, VA 20194

Earthman Design Group, LLC

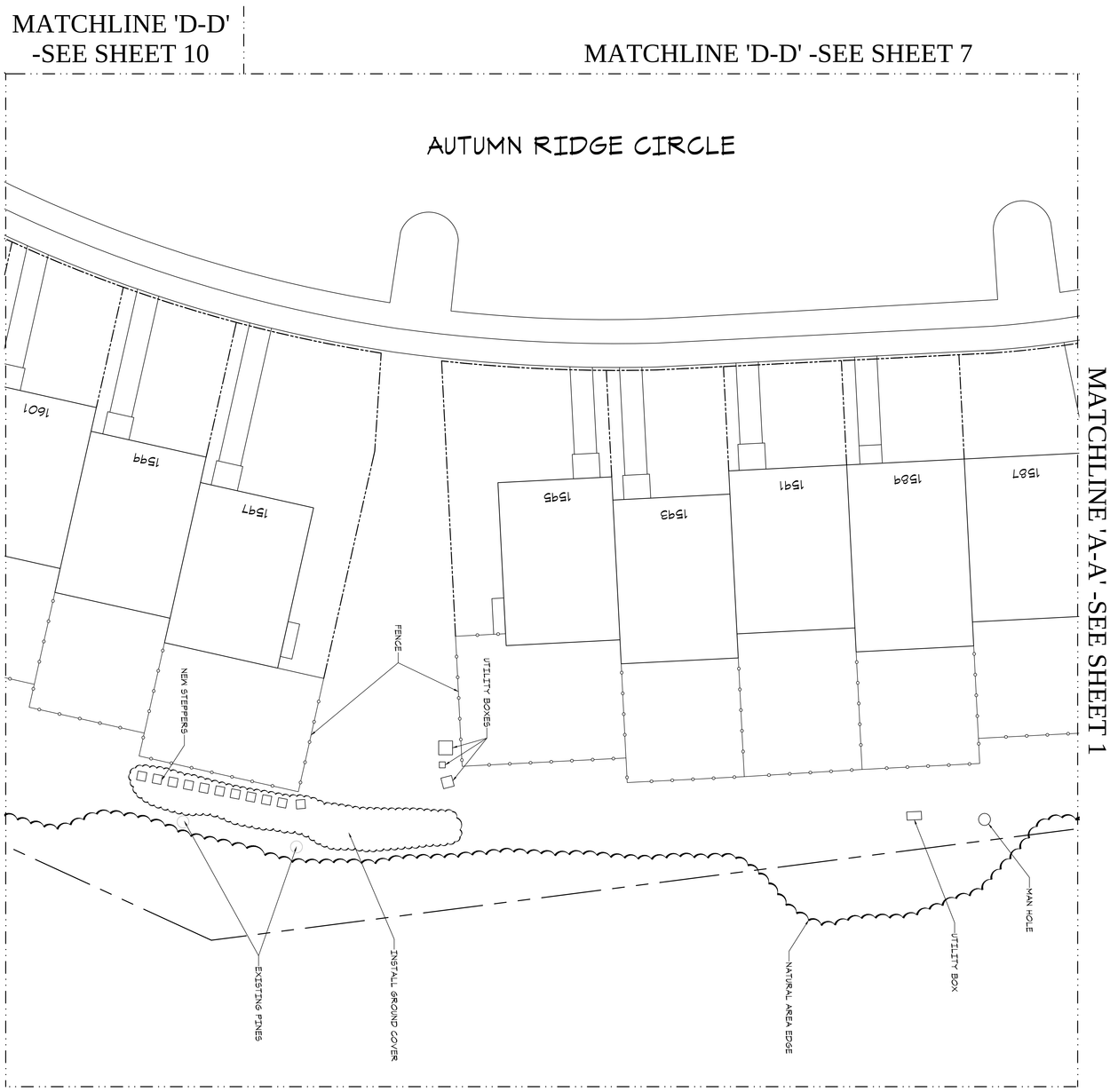
Date: 04.11.17
Scale: 1/8"=1'-0"
Drawn By: JR
Design By: DR
Sheet: 7 of 11

MATCHLINE 'D-D' -SEE SHEET 10

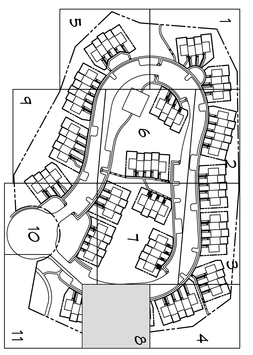
MATCHLINE 'D-D' -SEE SHEET 7

MATCHLINE 'I-I' -SEE SHEET 11

MATCHLINE 'A-A' -SEE SHEET 1



SITE MAP
N.T.S.



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Date: 04.17.17
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Drawn By: JR
Design By: DR
Sheet: 8 of 11

Earthman Design Group, LLC

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MATCHLINE 'G-G' -SEE SHEET 6

AUTUMN RIDGE CIRCLE

MATCHLINE 'A-A' -SEE SHEET 5

MATCHLINE 'B-B' -SEE SHEET 10

1503

1503

1501

1444

1447

1445

1443

1441

1484

1457

1455

DAYLIGHTED PIPE

FENCE

FENCE

MAN HOLE

UTILITY BOX

NATURAL AREA EDGE

IMPORT TOPSOIL AND ESTABLISH TURF

UTILITY BOX

TRIM TREES FOR MORE LIGHT PENETRATION

MAN HOLE

DAYLIGHT DRAIN PIPE

4" PVC UNDERGROUND PIPE

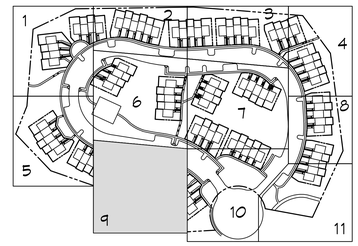
DAYLIGHTED PIPE

MAN HOLE

GRADE FOR POSITIVE SURFACE WATER FLOW AND INSTALL FILTER FABRIC 3'-5" RIP RAP ROCK

ESTABLISH GROUND COVER

SITE MAP
N.T.S.



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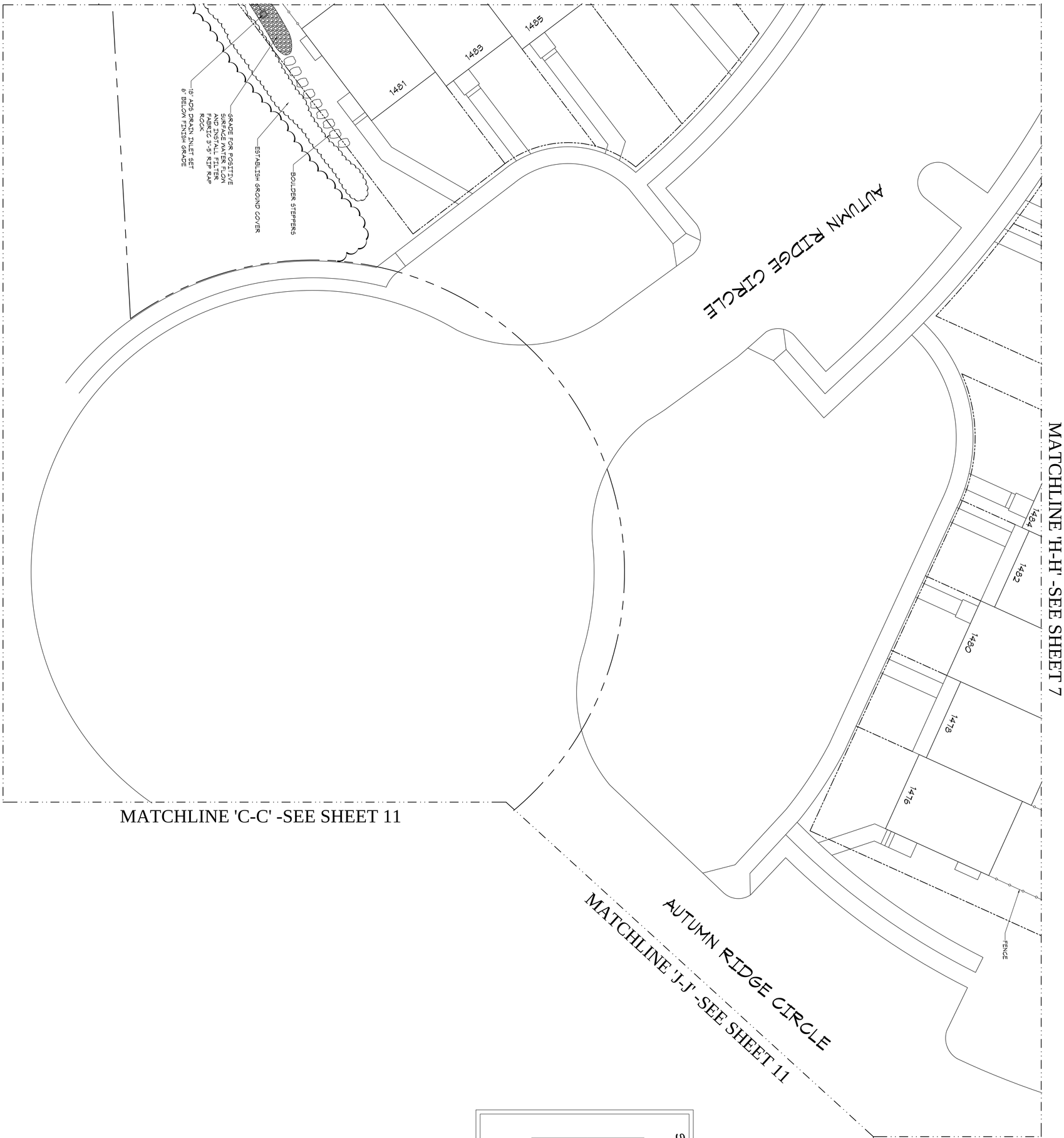
Date: 04.17.17
Scale: 1/8"=1'-0"
Drawn By: JR
Design By: DR
Sheet: 9 of 11

MATCHLINE 'B-B' -SEE SHEET 9

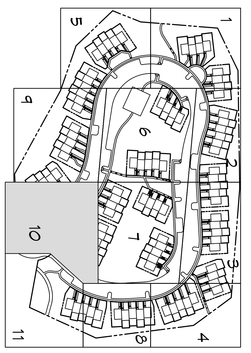


MATCHLINE 'H-H' -SEE SHEET 7

MATCHLINE 'C-C' -SEE SHEET 11

MATCHLINE 'D-D' -SEE SHEET 8

SITE MAP
N.T.S.



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Sheet: 10 of 11

Earthman Design Group, LLC

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MATCHLINE 'I-I' -SEE SHEET 8

MATCHLINE 'J-J' -SEE SHEET 10

AUTUMN RIDGE CIRCLE

1601

1603

1605

UTILITY BOX

NATURAL AREA EDGE

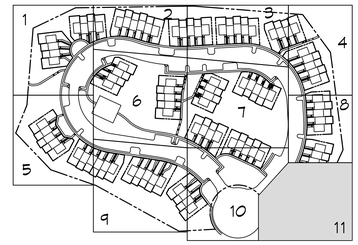
FENCE

REMOVE EXISTING
PEAR TREES

IMPORT TOPSOIL
AND ESTABLISH TURF

MATCHLINE 'C-C' -SEE SHEET 10

SITE MAP
N.T.S.



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