SITE DATA

1. OWNER — LIFESPIRE OF VIRGINIA
3961 STILLMAN PKWY
GLEN ALLEN, VA 23060
CONTACT: DEREK MEYER
PHONE: (804) 521-9155
EMAIL: DMEYER@LIFESPIRELIVING.ORG

   OTHER — LAKEWOOD MANOR BAPTIST RETIREMENT COMMUNITY, INC.
1900 LAUDERDALE DRIVE
RICHMOND, VA 23238
PHONE: (804) 740-2900

2. DEVELOPER — LIFESPIRE OF VIRGINIA
3961 STILLMAN PKWY
GLEN ALLEN, VA 23060
CONTACT: DEREK MEYER
PHONE: (804) 521-9155
EMAIL: DMEYER@LIFESPIRELIVING.ORG

3. ENGINEER — TIMMONS GROUP
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VA 23225
CONTACT: JASON MULLINS, PE
PHONE: 804.200.6466
FAX: 804.560.1016
EMAIL: JASON.MULLINS@TIMMONS.COM

4. ARCHITECT — N/A

5. GPIN # — 733-745-8147, 734-744-4554

6. ADDRESS — 1900 LAUDERDALE DRIVE
RICHMOND, VA 23238

7. ACREAGE — GPIN 733-745-8147 = 48.62 ACRES
GPIN 734-744-4554 = 47.274 ACRES

8. ZONING — C-1, R-6C, A1

9. PROPOSED USE — RETIREMENT COMMUNITY - OVERFLOW PARKING

10. PREVIOUS APPROVAL
   A. POD # 2017-00183, 2020-00233
   B. ADMINISTRATIVE #
   C. ZONING CASE # C-75C-00
   D. VARIANCE (BZA) CASE #
   E. PROVISIONAL USE PERMIT # P-14-00
   F. SPECIAL EXCEPTION (CONDITIONAL USE) # C-17C-00

11. UTILITIES

	YES	NO
COUNTY WATER	☒	☐
COUNTY SEWER	☒	☐
WELL	☐	☒
SEPTIC	☐	☒
OTHER	☐	☒

12. PARKING SCHEDULE
   A. # SPACES REQUIRED N/A
   B. BASIS FOR PARKING CALCULATIONS
   N/A GENERAL OVERFLOW PARKING
   C. # SPACES PROVIDED 101 SPACES
   D. # ACCESSIBLE SPACES PROVIDED _____ INCLUDING _____ VAN ACCESSIBLE
   E. INTERIOR GREENSPACE CALCULATIONS
   _____ SF. REQUIRED
   _____ SF. PROVIDED

13. SPECIAL FLOOD HAZARD AREA INFORMATION
   SPECIAL FLOOD HAZARD AREA (FLOODPLAIN)
   YES ☒ NO ☐

14. BUILDING INFORMATION
   A. SQ. FOOTAGE OF BUILDING _____
   B. NUMBER OF STORIES _____
   C. NUMBER OF UNITS _____
   D. CONSTRUCTION TYPE _____
   E. SPRINKLERED: YES ☐ NO ☐
   F. USE GROUP(S) _____
   G. MEDICAL OFFICE: YES ☐ NO ☐

15. TREE CANOPY CALCULATIONS

GROSS SITE AREA (LOD)	=	80,501 SF
BUILDING AREA	=	0 SF
PARKING AREA	=	18,630 SF
EASEMENT AREA	=	0 SF
ADJUSTED SITE GROSS AREA	=	61,871 SF
TREE COVER FOR R-6C	=	10%
MINIMUM TREE COVER REQUIRED	=	6,187 SF
PRESERVED VEGETATION COVER	=	0 SF
10-YEAR GROWTH FACTOR (x1.25)	=	0 SF
REQUIRED TREE COVER	=	0 SF
PROPOSED TREE COVER	=	7,000 SF
TOTAL TREE COVER	=	7,000 SF

16. OTHER MISCELLANEOUS CALCULATIONS/NOTES
- HYDROLOGIC UNIT CODE (VAHU6): JM84
- SPA IMPACT - 15,682 SF, 0.36 AC
- WOUS IMPACT - 98 LF

SHEET INDEX

Sheet List Table

TOTAL SHEETS: 34

TRAFFIC IMPACT STUDY

☒ DOES NOT REQUIRE SUBMISSION OF A TRAFFIC STUDY FOR THIS PROPOSED PLAN.

1. AM PEAK HOUR WEEKDAY TRIP GENERATION: _____ (ENTER/EXIT)
2. PM PEAK HOUR WEEKDAY TRIP GENERATION: _____ (ENTER/EXIT)
3. VEHICLE TRIPS PER WEEKDAY: _____

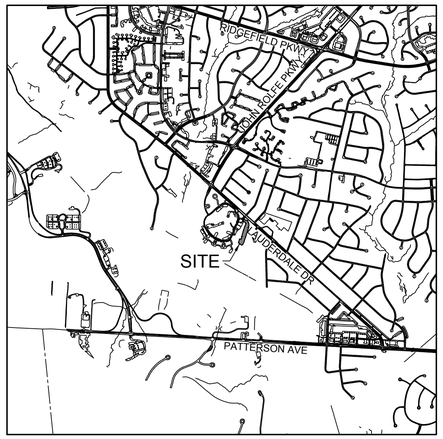
☐ DOES REQUIRE SUBMISSION OF A TRAFFIC STUDY FOR THIS PROPOSED PLAN PER TRAFFIC ENGINEERING.

LAKEWOOD MANOR SATELLITE PARKING

LAYOUT, UTILITY, & LIGHTING PLAN

TUCKAHOE MAGISTERIAL DISTRICT

HENRICO COUNTY, VIRGINIA



VICINITY MAP
SCALE: 1" = 2,000'

ENGINEER'S MATERIALS ESTIMATE			
PUBLIC SANITARY SEWER	SIZE	QUANTITY	UNIT
DUCTILE IRON PIPE	10"	187	LF
DOGHOUSE MANHOLE	48"	3	EA

TOPOGRAPHY

SOURCE: ACTUAL GROUND RUN SURVEY:HORIZONTAL DATUM NAD 83 (VA SOUTH) AND VERTICAL DATUM NAVD 88

SURVEY DATE: 4/10/2020

RESPONSIBLE PARTY: TIMMONS GROUP, W.M. NAULTY, LS

EXCEPTIONS GRANTED

DATE	DEPT(S)	DESCRIPTION

EROSION CONTROL QUANTITIES
(FOR BOND PURPOSES ONLY)

CONSTRUCTION ENTRANCE	1 EA
SUPER SILT FENCE	±2,062 LF
SAFETY FENCE	±2,421 LF
TREE PROTECTION	±2161 LF
WETLAND TAPE	±1043 LF
INLET PROTECTION PHASE I	1 EA
SILT FENCE BREAK	2 EA
UTILITY STREAM CROSSING	1 EA
CULVERT INLET PROTECTION	1 EA
OUTLET PROTECTION	1 EA
BLANKET & MATTING	±0.38 AC
PERMANENT SEEDING	±0.44 AC
PRELIM. LIMITS OF DISTURBANCE	±1.34 AC
LIMITS OF DISTURBANCE	±1.91 AC

UNDERGROUND UTILITIES MAY BE IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL CALL "MISS UTILITY" AT 811 AT LEAST 48 HOURS PRIOR TO THE START OF EXCAVATION. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES IN AREA OF CONSTRUCTION PRIOR TO STARTING WORK.

ENGINEER'S CERTIFICATION

TO THE BEST OF MY KNOWLEDGE, THIS PLAN SATISFIES ALL ZONING CODE REQUIREMENTS, CONDITIONS OF APPROVAL, AND PROFFERS.

SIGNATURE

IN ACCORDANCE WITH SEC. 10-36 OF THE CODE OF THE COUNTY OF HENRICO, I HEREBY CERTIFY THAT I AM THE RESPONSIBLE LAND DISTURBER FOR THIS PROJECT AND THAT I HAVE A VALID CERTIFICATION FROM THE STATE OF VIRGINIA.

SIGNATURE

NAME (PRINT)

REVISIONS TO APPROVED PLANS

NO.	DATE	DESCRIPTION

DEPARTMENT OF PLANNING APPROVAL BLOCK

APPROVED BY THE COUNTY OF HENRICO
BOARD OF SUPERVISORS

DATE _____ COUNTY MANAGER _____

APPROVED BY: THE HENRICO COUNTY PLANNING COMMISSION
P.C. DATE _____ ☐ ACTING SECRETARY
DATE _____

APPROVED BY: THE HENRICO COUNTY PLANNING DEPARTMENT
DATE _____
☐ COUNTY PLANNER
☐ PRINCIPAL PLANNER
☐ DIRECTOR

☐ THIS APPROVAL ENCOMPASSES ONLY THOSE REVISIONS NOTED IN THE LETTER OF APPROVAL.

☐ AS INDICATED IN RED

YES ☐ NO ☐ 10 DAY EXPEDITED SIGNATURE PROCESS

DEPARTMENT OF PUBLIC UTILITIES POD APPROVAL

FOR WATER AND SANITARY SEWER ONLY, SUBJECT TO COUNTY SPECIFICATIONS.

APPROVED BY: _____ DATE: _____

APPROVAL FOR WATER AND SEWER EXPIRES: _____

THESE PLANS ARE NOT APPROVED FOR WATER AND SANITARY SEWER CONSTRUCTION UNTIL THIS BLOCK IS SIGNED.

NOTE:
WATER AND SEWER SYSTEMS FOR THIS PROJECT WILL BE ACCEPTED AND WATER METERS WILL BE SET AFTER ADJACENT UTILITIES TO WHICH THEY CONNECT HAVE BEEN ACCEPTED BY THE COUNTY FOR OPERATION.

D.P.U. #

DEPARTMENT OF PUBLIC WORKS APPROVAL BLOCK

DIRECTOR OF PUBLIC WORKS

DATE

DATE	DESIGN ENGINEER
DATE	ENVIRONMENTAL ENGINEER
DATE	SENIOR ENGINEER
DATE	TRAFFIC ENGINEER
DATE	ENVIRONMENTAL INSPECTOR
☐	AS INDICATED IN RED

D.P.W. # _____
DATE

DISTRIBUTION BY DPW:
_____ PUBLIC UTILITIES (5) _____ ENGINEER
_____ PERMIT CENTER _____ FIRE
_____ EASTERN GOVERNMENT CENTER

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE **CORPORATE OFFICE**
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN
JOB NO. 45692
SHEET NO. C0.0

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
COVER SHEET

POD2020-00355

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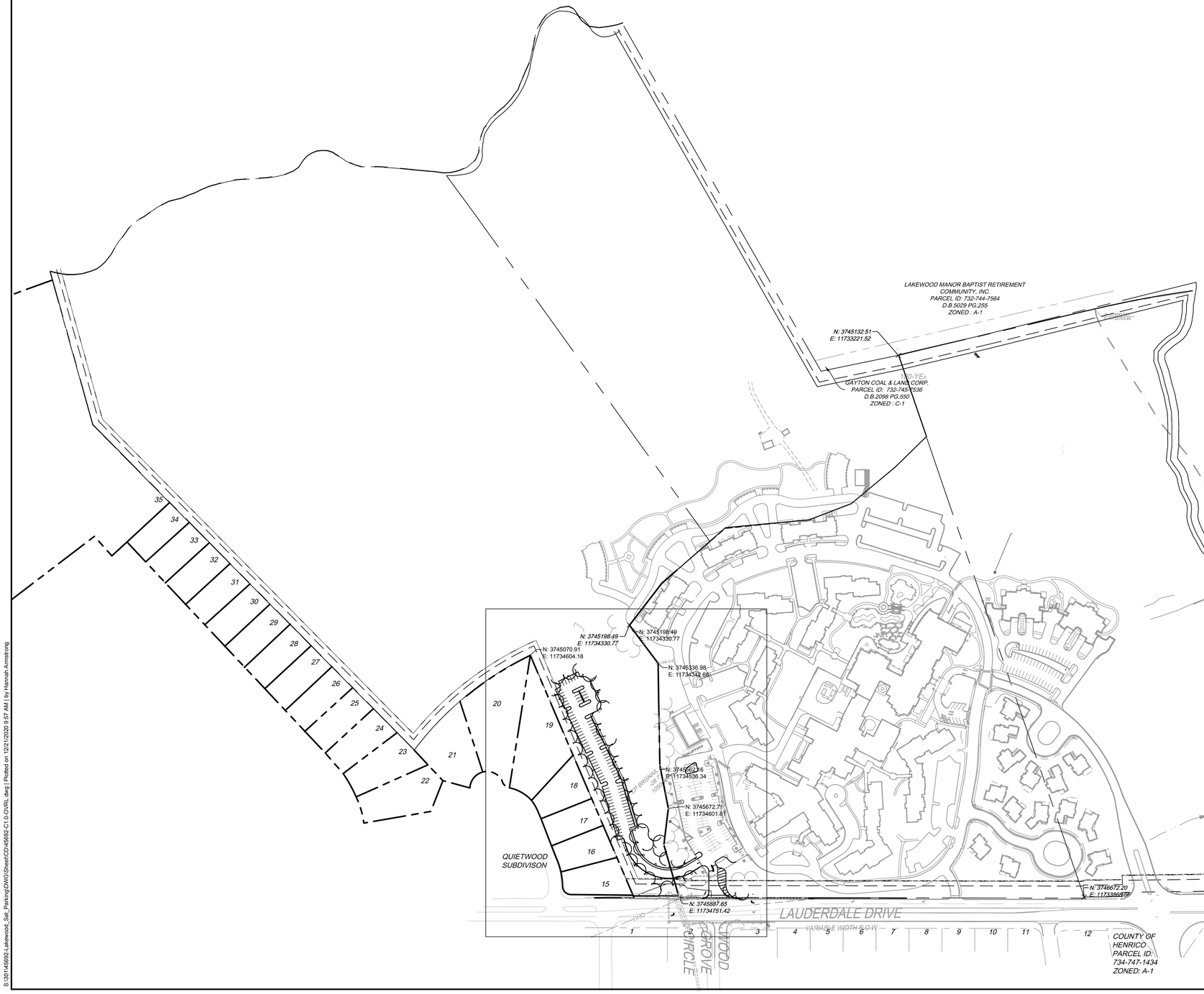

QUIETWOOD SUBDIVISION
ADJACENT PROPERTY OWNER INFORMATION

1	REID MARY SUE PARCEL ID: 734-745-9292 D.B.2463 PG.440 ZONED: R-2A RESIDENTIAL USE
2	JACOBSON RICHARD K & S S PARCEL ID: 734-746-8200 D.B.2418 PG.1107 ZONED: R-2A RESIDENTIAL USE
3	UNOWITZ BENJAMIN D & ALLISON J PARCEL ID: 734-746-6912 D.B.3478 PG.1994 ZONED: R-2A RESIDENTIAL USE

QUEEN'S POINT SUBDIVISION
ADJACENT PROPERTY OWNER INFORMATION

4	ANDRAKO JOHN D PARCEL ID: 734-746-6122 D.B.2285 PG.2149 ZONED: R-TH RESIDENTIAL USE
5	DOLBEC BRADLEY P & SPRING PARCEL ID: 734-746-5429 D.B.2897 PG. 2503 ZONED: R-TH RESIDENTIAL USE
6	GAUNT STEPHEN C & LAURA C PARCEL ID: 734-746-4735 D.B.3388 PG.2017 ZONED: R-TH RESIDENTIAL USE
7	GIVENS MEGAN K & ANDREW PARCEL ID: 734-746-4042 D.B.5111 PG.346 ZONED: R-TH RESIDENTIAL USE
8	IYER SATISH P & PREETI J PARCEL ID: 734-746-3348 D.B.4351 PG.523 ZONED: R-TH RESIDENTIAL USE
9	TATE DONALD W & ANNE J PARCEL ID: 734-746-2554 D.B.2108 PG.846 ZONED: R-TH RESIDENTIAL USE
10	WALLMEYER FRANK J & MARY B PARCEL ID: 734-746-1860 D.B.5489 PG.1957 ZONED: R-TH RESIDENTIAL USE
11	SHARIGIAN LINDA TRUST PARCEL ID: 734-746-1067 D.B.5018 PG.1248 ZONED: R-TH RESIDENTIAL USE
12	INON KENNEDY & EDEN PARCEL ID: 733-746-9777 D.B.3336 PG.187 ZONED:R-TH RESIDENTIAL USE

N/F BETH SHALOM
ADJACENT PROPERTY OWNER INFORMATION

13	BETH SHOLOM ASSISTED LIVING PARCEL ID: 733-747-7221 D.B.2929 PG.2348 ZONED: R-6C RESIDENTIAL USE
14	BETH SHOLOM HOUSING CORP PARCEL ID: 733-747-4863 D.B.1789 PG.464 ZONED: C-1C & R-6C RESIDENTIAL/COMMERCIAL USE

QUIETWOOD SUBDIVISION
ADJACENT PROPERTY OWNER INFORMATION

15	ERIN GAINES PARCEL ID: 734-745-9168 ZONED: R-3 RESIDENTIAL USE
16	CHRIS & KAREN HOLLOMON PARCEL ID: 734-745-8760 ZONED: R-3 RESIDENTIAL USE
17	GARY & SUSAN BAILEY PARCEL ID: 734-745-8452 ZONED: R-3 RESIDENTIAL USE
18	CURTIS & LAUREN WEST PARCEL ID: 734-745-8143 ZONED: R-3 RESIDENTIAL USE
19	JAMES CALVIN & TAYNE FRYE PARCEL ID: 734-745-7627 ZONED: R-3 RESIDENTIAL USE
20	RONALD & SUZANNE KAMINSKI PARCEL ID: 734-745-8318 ZONED: R-3 RESIDENTIAL USE
21	MARC D FINE PARCEL ID: 734-745-9616 ZONED: R-3 RESIDENTIAL USE
22	DANIEL & CHERYL PETERSEN PARCEL ID: 735-745-1613 ZONED: R-2 RESIDENTIAL USE
23	EARL & JOY HERNDON PARCEL ID: 735-745-1403 ZONED: R-3 RESIDENTIAL USE
24	RICHARDO ATIENZA PARCEL ID: 735-744-1594 ZONED: R-2 RESIDENTIAL USE
25	BARBARA MALONEY PARCEL ID: 735-744-1484 ZONED: R-2 RESIDENTIAL USE
26	RICHARD & TAMIA GALLAGHER PARCEL ID: 735-744-1476 ZONED: R-2 RESIDENTIAL USE
27	RYAN & ALYSSA PAULETTE PARCEL ID: 735-744-1567 ZONED: R-2 RESIDENTIAL USE
28	JOYCE FETTEROLF PARCEL ID: 735-744-1559 ZONED: R-2 RESIDENTIAL USE
29	GREGORY LYAKER PARCEL ID: 735-744-1551 ZONED: R-2 RESIDENTIAL USE
30	CRAIG & ASHLEY STEWART PARCEL ID: 735-744-1542 ZONED: R-2 RESIDENTIAL USE
31	BRADFORD & DENISE KELLY PARCEL ID: 735-744-1543 ZONED: R-2 RESIDENTIAL USE
32	LESLEY READ PARCEL ID: 735-744-1525 ZONED: R-2 RESIDENTIAL USE
33	CAROLYN WILKINS PARCEL ID: 735-744-1517 ZONED: R-2 RESIDENTIAL USE
34	CHRIS & ANNE BROWN PARCEL ID: 735-744-1708 ZONED: R-2 RESIDENTIAL USE
35	COUNTY OF HENRICO PARCEL ID: 735-743-7461 ZONED: C-1 VACANT

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE
CORPORATE OFFICE
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TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

POD2020-00355

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

OVERALL PLAN

JOB NO. 45692
SHEET NO. C1.0

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GENERAL NOTES

1. All construction and materials shall be in accordance with the current Virginia Department of Transportation Road and Bridge Specifications, Virginia Department of Transportation Road and Bridge Standards, and Henrico County Specifications and Standards where applicable.
2. Incidental concrete must be Class A3 in accordance with VDOT specifications.
3. A permit must be secured from the Henrico County Department of Public Works before any work is performed within an existing County right-of-way or easement.
4. The Department of Public Works must be notified at least 24 hours prior to beginning any construction work.
5. The contractor shall notify the Henrico County Department of Public Utilities prior to doing any utility work.
6. The location of existing utilities, as shown, is approximate. The contractor shall verify the location of existing utilities prior to any construction work.
7. A permit must be obtained from the Virginia Department of Transportation for any work performed within the State right-of-way.
8. The contractor shall notify "Miss Utility" at 1-800-552-7001 prior to any construction work in this area.
9. When it appears that the proposed work may have some impact to adjacent private or commercial properties, the applicant must inform the property owners of the proposed work and keep them apprised of time schedules, delays, impacts, changes in pedestrian and vehicle access or traffic patterns, and final restoration plans.
10. When a temporary cul-de-sac is no longer required due to a road extension, the developer of the road being extended is responsible for removing the temporary cul-de-sac and extending the road and property components (curb and gutter, gravel driveways, paved driveways, sidewalks, mailboxes, etc.) to the new road section and re-grading areas to finished contours acceptable to the adjacent property owners and to Henrico County.
11. No driveway access points shall be allowed within the radius of a public road intersection.
12. When driveways are located within roll face curb and gutter, transitions to a drop inlet, curb cuts and aprons are required.
13. Prior to the issuance of any building permits, all signs and barricades for dead end stub roads must be in place.

CURB AND GUTTER

1. All curb and gutter and storm sewer/inlets located within the existing County right-of-way shall be staked by the County upon written request being made to the County Engineer or by calling 501-4619.
2. All curb and gutter shall be Henrico County standard curb and gutter, except as noted.
3. This plan establishes curb and gutter elevations along the public right-of-way. The County reserves the right to modify the proposed grades, if necessary.
4. All curb and gutter in the County right-of-way must be wet curb and gutter. The use of dry curb and gutter is prohibited in the right-of-way.
5. The transition from standard six (6) inch curb to roll-faced curb shall be at intersections at the point of curvature (PC) of curb returns.
6. Where sidewalks are present or proposed, all driveways must be concrete from the back of curb to at least the rear of the sidewalk.
7. Class 57 stone must be placed under all curb and gutter and must extend one foot beyond the back of the curb.
8. CG-12's must be installed at curb returns where there is existing or proposed sidewalks. In locations where there is no sidewalk being proposed, the curb must be depressed for the future location of a CG-12.

CONDITIONS FOR GUARDRAIL

Guardrail is typically required on sections of roadway when any of the following conditions exist within the clear zone:

1. A roadside parallel embankment (fill slope) of 3:1 or steeper and a depth of four feet or more.
2. A water hazard with a depth of two feet or more.
3. A ditch section with a depth of three feet or more (as measured from the near edge of pavement.
4. A fixed object (such as a culvert, pipe, headwall, retaining wall, bridge pier, or abutment).
5. Other hazards as determined by the Traffic Engineer.
6. Additional right-of-way or permanent easements may be required to accommodate the guardrail in its entirety.

All guardrail must be approved by the Department of Public Works and shown on the plans, including any necessary details, type, and lengths of rail.

PAVEMENT

1. The pavement section is subject to change based on soil conditions at the time of construction, as determined by the Construction Engineer for Henrico County.
2. Any necessary pavement widening between the existing pavement and the proposed improvements is the responsibility of the developer.
3. All medians for turn lanes must be VDOT Std. MS-1. For turn lanes being constructed on existing roads, the old median must be removed entirely and the solid raised median poured on the asphalt base course in accordance with the standards for MS-1 Median. Standard MS-1A or variations of the same will not be permitted.
4. Pavement sections for through lanes and turn lanes must be the same as the existing pavement section. These turn lanes must have underdrains.
5. No pavement open cuts are allowed on existing County maintained roads unless specifically approved by the Construction Engineer for Henrico County.
6. If utility connections are located outside of the pavement and right-of-way, no pavement disturbance is required and all utility crossings must be bored.
7. Soil tests and CBR information, with an appropriate pavement design, must be performed and made available to the Construction Engineer prior to subgrade approval

DRAINAGE

1. All storm sewer within the County right-of-way and easements must be ASTM C-76, Class III or better, reinforced concrete pipe with sealed joints in accordance with VDOT specifications.
2. Precast drop inlets are not permitted at locations where the grade of the adjacent curb and gutter is less than 1.5%. Precast drop inlets with flat inverts are not permitted in sag locations when the total length of the required throat opening exceeds six (6) feet.
3. All storm sewer within a County easement or right-of-way must have a minimum of four (4) inches of aggregate bedding material and must be backfilled in accordance with the detail on this sheet.
4. All drop inlets must have Type B noses.
5. Drop inlets on grade must be poured with the throat on the same grade as the adjoining curb and gutter.
6. #4 x 8" dowels must be placed at approximately 12" c-c in all areas adjacent to abutting concrete to prevent settlement
7. When using non-concrete pipe for private areas, the connection to the structure in the County easement or right-of-way must be concrete. Non-concrete pipe must terminate in a concrete structure and continue concrete to the point where it ties into the County easement or right-of-way. All manholes and inlets must be concrete.
8. UD-4 underdrains are required along the entire length of all proposed roads and/or road widening within the public right-of-way unless waived by the Director of Public Works.
9. Irrigation is not permitted in the shoulder area within the County right-of-way unless specifically approved by the County Engineer.
10. CD-1 underdrains are required on all vertical sags.
11. UD-2 underdrains are required in all raised grass medians and islands within the public right-of-way.
12. The outlet end of all underdrains must terminate in drainage structures or daylight out of fill slopes with a standard EW-12 endwall placed at the outlet end of the underdrain.

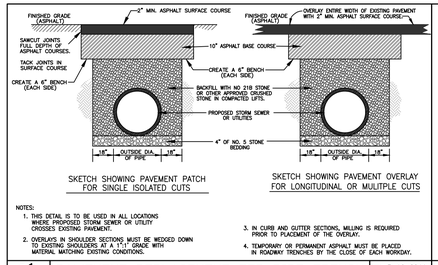
GRADING

1. The subgrade area shall be scarified to a depth of eight inches for a minimum of two feet beyond the proposed edges of the pavement on both sides (or from the curb and gutter) and compacted to a density of not less than 95 percent.
2. When materials which are unsuitable for foundation, subgrade, or other roadway purposes occur within the roadway limits, such materials must be excavated below the grade shown on the plans as directed by the geotechnical engineer or as approved by the Henrico County Construction Engineer and the areas must be backfilled with suitable material.
3. All solid rock or boulders found in the roadway shall be excavated to the full roadway width to a depth of one foot below subgrade and then backfilled to the proper grade with suitable materials.
4. A six (6) feet wide pedestrian shelf is required behind all curb and gutter in the County right-of-way. The shelf must be cleared/constructed at the time of road construction, including the relocation of all power poles and other above ground obstacles.
5. All graded islands must be graded to ¼":1' rise to minimize sight distance problems.
6. All areas to be filled within the buildable area (ponds, sediment basins, sediment traps, wetlands, etc.) must be backfilled with structural fill and compacted to 95% compaction.
7. All grading shown on lots must be done prior to building permit issuance.
8. The design and construction of basins must in compliance with the general requirements for dams in the *Virginia Stormwater Management Program Manual*. A geotechnical engineer must certify that the construction compaction requirements have been achieved. BMPs for subdivisions will not be accepted for County maintenance until the geotechnical certification is provided and accepted by the Department of Public Works.

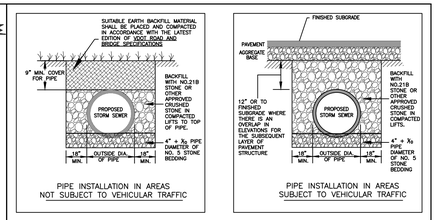
SURVEY

1. All roadways must be cleared in the area of proposed construction prior to requesting staking from the County.
2. All utility poles, fire hydrants, and other above ground obstacles located within the public right-of-way and in conflict with the proposed sidewalk shelf, curb and gutter, and/or the pavement widening shall be relocated at the developer's expense prior to Henrico County staking the curb and gutter.
3. This plan approval establishes the curb and gutter and storm sewer/inlet elevations along the public right-of-way. These elevations (located within the existing County right-of-way) shall be staked by Henrico County upon written request being made to the County Engineer or by calling 501-4619. The County reserves the right to modify the proposed grades, if necessary.
4. Prior to requesting County stakeout, all appropriate information necessary for stakeout must be provided to the Henrico County Survey Department.
5. Right-of-way and baseline information must be established in the field and clearly tied to monuments/benchmarks prior to requesting stakeout by the County.

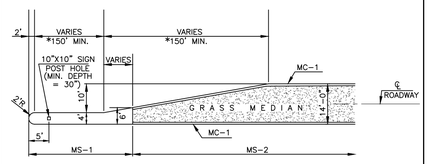
WHERE CONFLICTS EXIST, THE NOTES AND DETAILS ON THIS SHEET SUPERCEDE THE CURRENT VERSION OF THE HENRICO COUNTY DESIGN MANUAL.



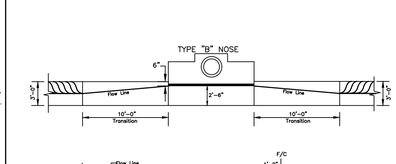
PAVEMENT REPLACEMENT FOR PIPE TRENCH — County of Henrico, Department of Public Works — Rev. 5-16-2011 — JANUARY 1, 2002 — PVTREPLA.DWG



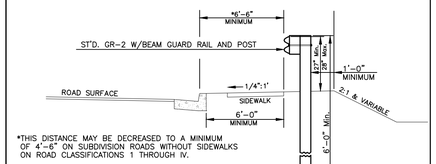
PIPE BEDDING & BACKFILL (For New Development & New Road Construction) — County of Henrico, Department of Public Works — REVISED 6/1/04 — JANUARY 1, 2002 — PIPE-INSTALL.DWG



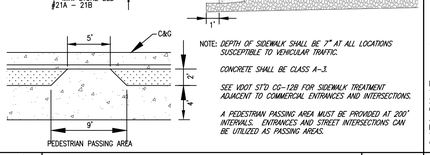
RAISED 14' MEDIAN w/LEFT TURN LANE — County of Henrico, Department of Public Works — JANUARY 1, 2002 — MED-LT-14.DWG



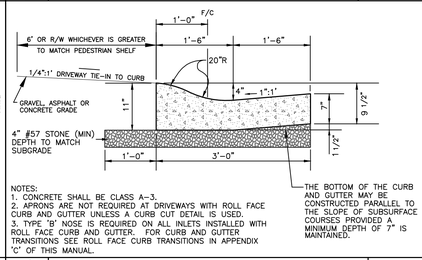
ROLL FACE CURB TRANSITIONS — County of Henrico, Department of Public Works — REVISED 6/1/04 — JANUARY 1, 2002 — RFCG3.0-TRANS.DWG



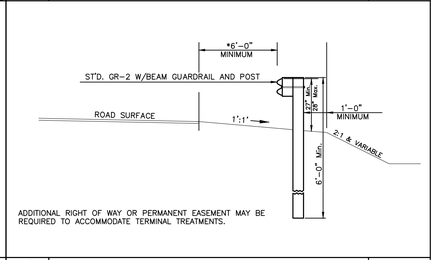
GUARDRAIL DETAIL WITH CURB & GUTTER — County of Henrico, Department of Public Works — JANUARY 1, 2002 — GR-2-CG.DWG



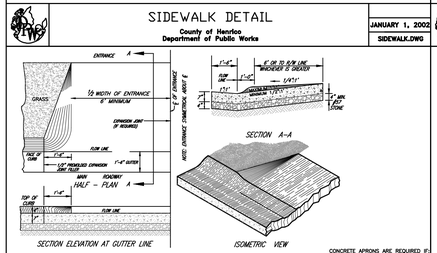
SIDEWALK DETAIL — County of Henrico, Department of Public Works — JANUARY 1, 2002 — SIDEWALK.DWG



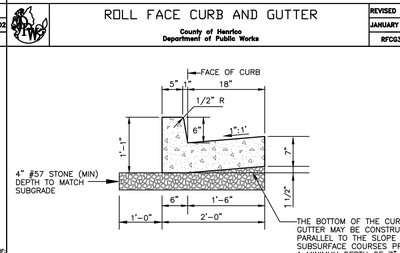
ROLL FACE CURB AND GUTTER — County of Henrico, Department of Public Works — REVISED 6/1/04 — JANUARY 1, 2002 — RFCG3.DWG



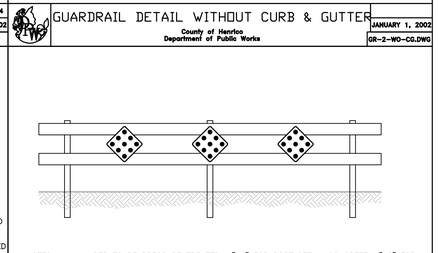
GUARDRAIL DETAIL WITHOUT CURB & GUTTER — County of Henrico, Department of Public Works — JANUARY 1, 2002 — GR-2-WO-CG.DWG



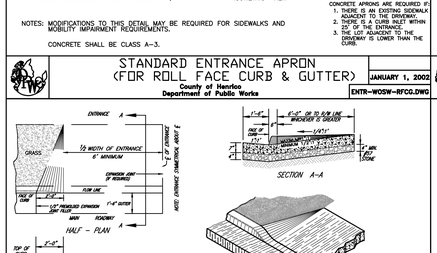
STANDARD ENTRANCE APRON (FOR ROLL FACE CURB & GUTTER) — County of Henrico, Department of Public Works — JANUARY 1, 2002 — ENTR-WOSW-RFCG.DWG



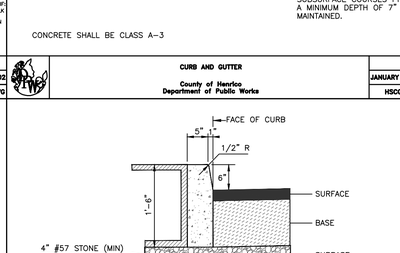
CURB AND GUTTER — County of Henrico, Department of Public Works — JANUARY 1, 2002 — HSCG.DWG



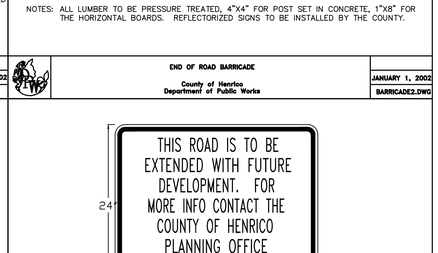
END OF ROAD BARRICADE — County of Henrico, Department of Public Works — JANUARY 1, 2002 — BARRICADE2.DWG



STANDARD ENTRANCE APRON (FOR RESIDENTIAL USE ONLY) — County of Henrico, Department of Public Works — JANUARY 1, 2002 — ENTR-WOSW.DWG



INDEPENDENT CURB — County of Henrico, Department of Public Works — REVISED 6/1/04 — JANUARY 1, 2002 — HSCG-2.DWG



ROAD EXTENSION SIGN — County of Henrico, Department of Public Works — REVISED 6/1/04 — JANUARY 1, 2002 — ROAD_EXTEND_SIGN.DWG

County Of Henrico
Department of Public Works

STANDARD CONSTRUCTION NOTES AND DETAILS

REFER TO HENRICO COUNTY DESIGN MANUAL FOR ADDITIONAL DETAILS

COMMONWEALTH OF VIRGINIA — JASON WAYNE MULLINS — Lic. No. 044373 — 12/18/20 — PROFESSIONAL ENGINEER

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POD2020-00355

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS
DATE	8/6/2020
DRAWN BY	H. ARMSTRONG
DESIGNED BY	D. O'BOYLE
CHECKED BY	J. MULLINS
SCALE	AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
HENRICO COUNTY CONSTRUCTION NOTES & DETAILS

JOB NO. 45692
SHEET NO. C1.1

S:\301\45692\Lakewood_Sat_Parking\DWG\Sheet\CD\45692-C1.1-NTDT.dwg | Plotted on 12/21/2020 9:58 AM | by Hannah Armstrong

CIVIL SYMBOL LEGEND

- DETAIL SECTION BUBBLE
- DRAINAGE AREA LABEL
- CALLOUT BUBBLE
- REVISION TRIANGLE
- NORTH ARROW AND DATUM
- PLAN VIEW GRAPHIC SCALE
- PROFILE VIEW GRAPHIC SCALE
- ADA PARKING SPACE
- PARKING SPACE COUNT
- CONCRETE WHEELSTOP
- BOLLARD
- SIGN
- DOUBLE POST SIGN
- FLAG POLE
- AERIAL UTILITY POLE
- CABLE TELEVISION MANHOLE
- CABLE TELEVISION PEDESTAL
- SATELLITE DISH
- TELECOMM MANHOLE
- TELECOMM PEDESTAL
- LIGHT POLE
- ELECTRIC METER
- ELECTRIC MANHOLE
- GUY POLE
- GUY ANCHOR
- ELECTRIC PEDESTAL
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- SANITARY MANHOLE IDENTIFICATION
- WATERLINE PLUG
- DOUBLE DETECTOR CHECK ASSEMBLY
- FITTING
- FIRE HYDRANT ASSEMBLY
- WATER MANHOLE
- WATER METER
- POST INDICATOR VALVE
- REDUCER
- FIRE DEPARTMENT CONNECTION
- SPIGOT
- WATER VALVE
- WELL
- NATURAL GAS VALVE
- STORM SEWER CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER IDENTIFICATION
- STORM SEWER ENDWALL
- STORM SEWER WINGWALL
- STORM SEWER END SECTION
- DOWNSPOUT / ROOF DRAIN
- DROP INLET / GRATE TOP INLET
- CURB INLET
- STORM PIPE
- TREE (SYMBOL VARIES)
- SLOPE % TAG
- GRADE TAG
- SPOT DESCRIPTION / SPOT ELEVATION

- *SURVEY BENCHMARK LOCATION*
- *SURVEY CONTROL POINT*
- *SOIL BORING IDENTIFICATION*
- *EXISTING ADA PARKING*
- *EXISTING SIGN*
- *EXISTING DOUBLE POST SIGN*
- *EXISTING AIR CONDITIONING UNIT*
- *EXISTING BOLLARD*
- *EXISTING DUMPSTER*
- *EXISTING FLAG POLE*
- *EXISTING HEADSTONE*
- *EXISTING MAILBOX*
- *EXISTING LIGHTED BOLLARD*
- *EXISTING TRAFFIC SIGNAL POLE*
- *EXISTING TRAFFIC SIGNAL BOX*
- *EXISTING AERIAL UTILITY POLE*
- *EXISTING UTILITY MANHOLE*
- *EXISTING UTILITY VAULT*
- *EXISTING CABLE TELEVISION MANHOLE*
- *EXISTING CABLE TELEVISION PEDESTAL*
- *EXISTING SATELLITE DISH*
- *EXISTING TELECOMM MANHOLE*
- *EXISTING TELECOMM PEDESTAL*
- *EXISTING YARD LIGHT*
- *EXISTING GROUND LIGHT*
- *EXISTING LIGHT POLE*
- *EXISTING ELECTRIC METER*
- *EXISTING ELECTRIC MANHOLE*
- *EXISTING GUY POLE*
- *EXISTING GUY ANCHOR*
- *EXISTING ELECTRIC BOX*
- *EXISTING SANITARY MANHOLE*
- *EXISTING SANITARY CLEANOUT*
- *EXISTING SANITARY FLOW DIRECTION*
- *EXISTING FIRE HYDRANT*
- *EXISTING FIRE DEPARTMENT CONNECTION*
- *EXISTING SPIGOT*
- *EXISTING WATER METER*
- *EXISTING WATER MANHOLE*
- *EXISTING WATER VALVE*
- *EXISTING POST INDICATOR VALVE*
- *EXISTING WELL*
- *EXISTING GAS METER*
- *EXISTING DRIP VALVE*
- *EXISTING GAS VALVE*
- *EXISTING SPRINKLER BOX*
- *EXISTING SPRINKLER VALVE*
- *EXISTING SPRINKLER HEAD*
- *EXISTING STORM MANHOLE*
- *EXISTING STORM CATCH BASIN*
- *EXISTING DOWNSPOUT / ROOF DRAIN*
- *EXISTING STORM FLOW DIRECTION*
- *EXISTING TREE (SYMBOL VARIES)*
- *EXISTING SHRUB*
- *EXISTING GRADE SPOT ELEVATION*

CIVIL LINETYPE LEGEND

- REVISION CLOUD
- CREEK/STREAM CENTERLINE
- CREAK/STREAM EDGE OF WATER
- RESOURCE CONSERVATION AREA
- RESOURCE PROTECTION AREA
- DITCH CENTERLINE
- POND EDGE OF WATER
- MAJOR CONTOUR
- MINOR CONTOUR
- STORM SEWER UNDERDRAIN
- WETLANDS BOUNDARY
- MAJOR DRAINAGE AREA BOUNDARY
- MINOR DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION
- FLOODPLAIN
- FENCE
- SECURITY FENCE
- PROPERTY LINE
- PROPERTY SETBACKS
- PROPERTY ZONE
- RAILWAY
- ROAD CENTERLINE
- GUARDRAIL
- EDGE OF GRAVEL
- SIGHT DISTANCE
- EDGE OF UNPAVED SURFACE
- EDGE OF SHRUB
- EDGE OF TREES
- COLUMN GRID AND IDENTIFICATION [REFER TO ARCHITECTURAL DRAWINGS]
- OVERHEAD CABLE TV
- UNDERGROUND CABLE TV
- OVERHEAD FIBER OPTIC
- UNDERGROUND FIBER OPTIC
- OVERHEAD TELECOMM
- UNDERGROUND TELECOMM
- BUILDING AUTOMATION SYSTEM
- NATURAL GAS SERVICE
- OVERHEAD POWER
- UNDERGROUND POWER
- OVERHEAD POWER + CABLE
- OVERHEAD POWER + TELECOMM + CABLE
- OVERHEAD POWER + TELECOMM
- OVERHEAD TELECOMM + CABLE
- UNDERGROUND POWER + CABLE
- UNDERGROUND POWER + TELECOMM + CABLE
- UNDERGROUND POWER + TELECOMM
- UNDERGROUND TELECOMM + CABLE
- SANITARY SEWER FORCE MAIN
- SANITARY SEWER PIPE
- SANITARY SEWER PIPE WITH SIZE
- WATER SERVICE
- FIRE PROTECTION SERVICE
- WATER SERVICE WITH SIZE
- FIRE PROTECTION SERVICE WITH SIZE
- LIMITS OF DISTURBANCE

- *CHILLED/HOT WATER RETURN*
- *CHILLED/HOT WATER SERVICE*
- *CHILLED WATER RETURN*
- *CHILLED WATER SERVICE*
- *HOT WATER RETURN*
- *HOT WATER SERVICE*
- *EXISTING CREEK/STREAM CENTERLINE*
- *EXISTING DITCH CENTERLINE*
- *EXISTING FLOODPLAIN*
- *EXISTING INUNDATION ZONE*
- *EXISTING POND EDGE OF WATER*
- *EXISTING STORM SEWER PIPE*
- *EXISTING MAJOR CONTOUR*
- *EXISTING MINOR CONTOUR*
- *EXISTING FENCE*
- *EXISTING EDGE OF SHRUB*
- *EXISTING EDGE OF TREES*
- *EXISTING ADJOINING PROPERTY LINE*
- *EXISTING PROPERTY LINE*
- *EXISTING PROPERTY LOTS*
- *EXISTING PROPERTY SETBACKS*
- *EXISTING RAILWAY*
- *EXISTING RIGHT-OF-WAY*
- *EXISTING EDGE OF ASPHALT*
- *EXISTING ROAD CENTERLINE*
- *EXISTING GUARDRAIL*
- *EXISTING EDGE OF GRAVEL*
- *EXISTING EDGE OF UNPAVED SURFACE*
- *FIBER OPTIC PAINT MARKING*
- *EXISTING OVERHEAD FIBER OPTIC*
- *TELECOMM PAINT MARKING*
- *EXISTING OVERHEAD TELECOMM*
- *NATURAL GAS SERVICE PAINT MARKING*
- *POWER PAINT MARKING*
- *EXISTING OVERHEAD POWER*
- *SANITARY SEWER PAINT MARKING*
- *EXISTING SANITARY SEWER PIPE WITH SIZE*
- *UNKNOWN UTILITY PAINT MARKING*
- *WATER SERVICE PAINT MARKING*
- *EXISTING WATER SERVICE WITH SIZE*

CIVIL ABBREVIATIONS

A
A/C UNIT AIR CONDITIONING UNIT
AASHTO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AC ACRE
ACP ASBESTOS CONCRETE PIPE
ADA AMERICANS WITH DISABILITIES ACT
ADJ ADJACENT
ADV ADVANCE
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
APPR APPROXIMATE
APPROX APPROXIMATE
ARCH ARCHITECT or ARCHITECTURAL
ASSY ASSEMBLY
ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATFP ANTI-TERRORISM / FORCE PROTECTION
AVO AUTHORIZED VEHICLES ONLY
AWWA AMERICAN WATER WORKS ASSOCIATION

B
BC BACK OF CURB
BFF BELOW FINISHED FLOOR
BFG BELOW FINISHED GRADE
BFP BACKFLOW PREVENTOR
BL BASE LINE
BLDG BUILDING
BM BENCHMARK
BMP BEST MANAGEMENT PRACTICE
BOS BOTTOM OF SLOPE
BOV BLOW OFF VALVE
BV BUTTERFLY VALVE
BW BOTTOM OF WALL

C
CATV CABLE TELEVISION
CBR CALIFORNIA BEARING RATIO
CF CUBIC FEET
CG CURB AND GUTTER
CHH COMMUNICATION HANDHOLE
CI CAST IRON
CL CLASS
CLF CHAINLINK FENCE
CLS CENTERLINE SWALE
CMP CORRUGATED METAL PIPE
CO CLEAN OUT
COE CORPS OF ENGINEERS
COMM COMMUNICATIONS
CONC CONCRETE
CONN CONNECTION
CY CUBIC YARD

D
DB DEED BOOK
DEPT DEPARTMENT
DET DETAIL
DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
DI DROP INLET
DIA DIAMETER
DIP DUCTILE IRON PIPE
DIR DIRECTION
DMH DOGHOUSE MANHOLE
DNE DO NOT ENTER
DOM DOMINION VIRGINIA POWER
DR DRIVE
DS DOWNSPOUT
DVP DOMINION VIRGINIA POWER
DWG DRAWING

E
E ELECTRIC
EA EACH
EG EXISTING GRADE
EHH ELECTRIC HANDHOLE
EL ELEVATION
ELEC ELECTRIC
ELEV ELEVATION
EMH ELECTRIC MANHOLE
EOI END OF INFORMATION
EORI END OF RECORD/MAP INFORMATION
EP EDGE OF PAVEMENT
EPA UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ES END SECTION
ESMT EASEMENT
EUE EXISTING UNDERGROUND ELECTRIC
EUT EXISTING UNDERGROUND TELEPHONE
EW ENDWALL
EW EXISTING WATER
EVO EMERGENCY VEHICLES ONLY
EX EXISTING
E&SC EROSION AND SEDIMENT CONTROL

F
FC FACE OF CURB
FDC FIRE DEPARTMENT CONNECTION
FEV FUEL EFFICIENT VEHICLES
FFE FINISHED FLOOR ELEVATION
FG FINISHED GRADE
FH FIRE HYDRANT
FIG FIGURE
FL FIRE LANE
FL FLOW LINE
FM FORCE MAIN
FOMKR FIBER OPTIC MARKER
FT FOOT
FVO FIRE VEHICLES ONLY

G
G GAS
GIS GEOGRAPHIC INFORMATION SYSTEM
GM GAS METER
GND GROUND
GPIN GEOGRAPHIC PARCEL IDENTIFICATION NUMBER
GPS GLOBAL POSITION SYSTEM
GRVL GRAVEL
GSA GENERAL SERVICES ADMINISTRATION
GTI GRATE TOP INLET
GTS GAS TEST STATION
GV GATE VALVE

H
HD HEAVY DUTY
HDPE HIGH DENSITY POLYETHYLENE
HH HANDHOLE
HORIZ HORIZONTAL
HOV HIGH OCCUPANCY VEHICLES
HP HIGH POINT

I
IBC INTERNATIONAL BUILDING CODE
ID INSIDE DIAMETER
IFC INTERNATIONAL FIRE CODE
INV INVERT
IPC INTERNATIONAL PLUMBING CODE
IPF IRON PIPE FOUND
IRF IRON ROD FOUND
ISO INSURANCE SERVICES OFFICE, INC

L
LD LIGHT DUTY
LEV LOW EMISSION VEHICLES
LF LINEAR FEET
LOC LOCATION
LOC LIMITS OF CONSTRUCTION
LOD LIMITS OF DISTURBANCE
LOW LIMITS OF WORK
LP LIGHT POLE
LP LOW POINT
LS LUMP SUM

M
MAX MAXIMUM
MB MAILBOX
MDE MARYLAND DEPARTMENT OF THE ENVIRONMENT
MECH MECHANICAL
MG MATCH GRADE
MH MANHOLE
MIN MINIMUM
MJ MECHANICAL JOINT
MUTCD MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

N
NAD NORTH AMERICAN DATUM
NAVD NORTH AMERICAN VERTICAL DATUM
NAVFAC NAVAL FACILITIES ENGINEERING COMMAND
N/F NOW OR FORMERLY
NFF NEEDED FIRE FLOW
NGS NATIONAL GEODETIC SURVEY
NIC NOT IN CONTRACT
NO NUMBER
NPZ NO PARKING ZONE
NTS NOT TO SCALE
NWI NATIONAL WETLANDS INVENTORY

O
OC ON CENTER
OD OUTSIDE DIAMETER
OHE OVERHEAD ELECTRIC
OHP OVERHEAD POWER
OHT OVERHEAD TELEPHONE
OS&Y OUTSIDE STEM AND YOKE
OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVHD OVERHEAD

P
PB PLAT BOOK
PC POINT OF CURVATURE
PCC POINT OF COMPOUND CURVATURE
PCC PORTLAND CEMENT CONCRETE
PED PEDESTAL
PG PAGE
PH PHASE
PI POINT OF INTERSECTION
PIV POST INDICATOR VALVE
PL PROPERTY LINE
POA POINT OF ANALYSIS
POI POINT OF INTEREST
PP POWER POLE
PRC POINT OF REVERSE CURVATURE
PRV PRESSURE REDUCING VALVE
PT POINT OF TANGENT
PVC POLYVINYL CHLORIDE PIPE
PVMT PAVEMENT
PVO POLICE VEHICLES ONLY
PWR POWER

Q
QLD QUALITY LEVEL D FOR S.U.E. INFORMATION / LINEWORK SHOWN APPROXIMATELY IN DRAWING BASED ONLY ON REFERENCE MAP INFORMATION.

R
R/W RIGHT-OF-WAY
RCA RESOURCE CONSERVATION AREA
RCP REINFORCED CONCRETE PIPE
RD ROOF DRAIN
REQ REQUIRED
RJ RESTRAINED JOINT
RMA RESOURCE MANAGEMENT AREA
ROW RIGHT-OF-WAY
RPA RESOURCE PROTECTION AREA
RPZ REDUCED PRESSURE ZONE

S
S SLOPE
SAN SANITARY SEWER
SCH SCHEDULE
SDR STANDARD DIMENSION RATIO
SF SILT FENCE
SF SQUARE FEET
SMH STANDARD MANHOLE
SPT SPOT GRADE
SRF SPLIT RAIL FENCE
SSMH SANITARY SEWER MANHOLE
STA STATION
STD STANDARD
STM STORM
STMH STORM SEWER MANHOLE
SUE SUBSURFACE UTILITY EXPLORATION
SWK SIDEWALK
SWL SWALE
SY SQUARE YARDS

T
T TELEPHONE / TELECOMM
TB TOP OF BOX
TBD TO BE DETERMINED
TBM TELEPHONE BENCHMARK
TC TOP OF CURB
TCM TELECOMMUNICATIONS MANHOLE
TCP TERRACOTTA CLAY PIPE
TEL TELEPHONE
TEMP TEMPORARY
THH TELEPHONE HANDHOLE
TMH TELEPHONE MANHOLE
TMKR TELEPHONE MARKER
TOB TOP OF BANK
TOS TOE OF SLOPE
TP TREE PROTECTION
TRANS TRANSFORMER
TW TOP OF WALL
TYP TYPICAL

U
UFO UNDERGROUND FIBER OPTIC
UG UNDERGROUND
UGE UNDERGROUND ELECTRIC
UGP UNDERGROUND POWER
UGT UNDERGROUND TELECOMM
UNK UNKNOWN
UNO UNLESS NOTED (INDICATED) OTHERWISE
USACE UNITED STATES ARMY CORP OF ENGINEERS
USGS UNITED STATES GEOLOGICAL SURVEY
UTL UTILITY

V
VA VIRGINIA
VAR VARIABLE
VCP VITRIFIED CLAY PIPE
VDH VIRGINIA DEPARTMENT OF HEALTH
VDOT VIRGINIA DEPARTMENT OF TRANSPORTATION
VEPCO VIRGINIA ELECTRIC POWER COMPANY
VERT VERTICAL
VESCH VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK

W
W WATER
W/ WITH
W/L WATERLINE
W/O WITHOUT
WAT WATER'
WB WILL BOOK
WLK WALKWAY
WM WATER METER
WUS WATERS OF THE US
WV WATER VALVE

X
X-ING CROSSING
XSEC CROSS SECTION

SYMBOLS
Ø DIAMETER
≈ APPROXIMATELY EQUAL
≠ NOT EQUAL
± PLUS/MINUS
℄ CENTERLINE
℄ PROPERTY LINE
℄ BASE LINE
Δ DELTA (DIFFERENCE)
@ AT

COMMONWEALTH OF VIRGINIA
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12/18/20
PROFESSIONAL ENGINEER

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TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
GENERAL NOTES & DETAILS

JOB NO. 45692
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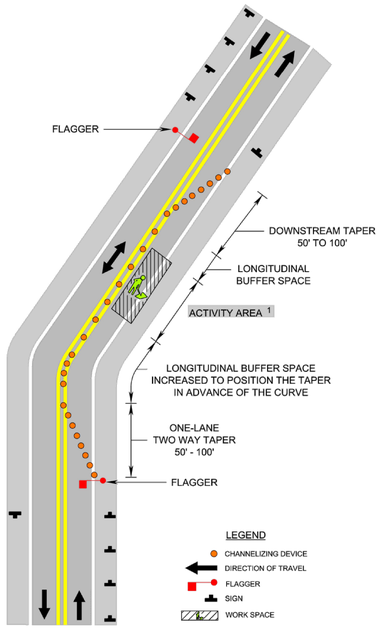
Figure 6C-3, Example of a One-Lane, Two-Way Taper



1: Revision 1 – 4/1/2015

Section 6C.11 One-Lane, Two-Way Traffic Control

Standard:

01 **When traffic in both directions must use a single lane for a limited distance, movements from each end shall be coordinated.**

Guidance:

02 *Provisions should be made for alternate one-way movement through the constricted section via methods such as flagger control, a flag transfer, a pilot car, traffic control signals, or stop or yield control.*

03 *Control points at each end should be chosen to permit easy passing of opposing lanes of vehicles.*

04 *If traffic on the affected one-lane roadway is not visible from one end to the other, then flagging procedures, a pilot car with a flagger used as described in Sections 6C.14 and 6F.63, or a traffic control signal should be used to control opposing traffic flows.*

Option:

05 If the work space on a low-volume (less than 500 vpd) street or road is short and road users from both directions are able to see the traffic approaching from the opposite direction through and beyond the worksite, the movement of traffic through a one-lane, two-way constriction may be self-regulating.

06 On roadways 20 foot or less in width, cones for channelization may be eliminated due to limited room for vehicles to pass activities and equipment in the remaining travel lane.

Standard:

07 **A one-lane, two-way taper shall be used to close the lane with work activities for conditions described in Paragraph 6.**

Section 6C.12 Flagger Method of One-Lane, Two-Way Traffic Control

Option:

01 When a one-lane, two-way TTC zone is short enough to allow a flagger to see from one end of the zone to the other, traffic may be controlled by either a single flagger or by a flagger at each end of the section.

Guidance:

02 *When a single flagger is used, the flagger should be stationed on the shoulder opposite the constriction or work space, or in a position where good visibility and traffic control can be maintained at all times. When good visibility and traffic control cannot be maintained by one flagger station, traffic should be controlled by a flagger at each end of the section. One of the flaggers should be designated as the coordinator or lead flagger. Flaggers should be able to communicate with each other orally, electronically, or with manual signals. These manual signals should not be mistaken for flagging signals.*

Section 6C.13 Flag Transfer Method of One-Lane, Two-Way Traffic Control

Support:

01 The driver of the last vehicle proceeding into the one-lane section is given a red flag (or other token) and instructed to deliver it to the flagger at the other end. The opposite flagger, upon receipt of the flag, then knows that it is reasonably safe to allow traffic to move in the other direction. A variation of this method is to replace the use of a flag with an official pilot car that always follows the last road user vehicle proceeding through the section.

Guidance:

02 *The flag transfer method should be employed only where the one-way traffic is confined to a relatively short length of a road, usually not more than 1 mile in length.*

Section 6C.14 Pilot Car Method of One-Lane, Two-Way Traffic Control

Option:

01 A pilot car may be used to guide a queue of vehicles through the TTC zone or detour.

Guidance:

02 *The operation of the pilot vehicle should be coordinated with flagging operations or other controls at each end of the one-lane section.*

Standard:

03 **The PILOT CAR FOLLOW ME (G20-4) sign shall be mounted at a conspicuous location on the rear of the vehicle. The pilot car shall have the name of the contractor or contracting authority prominently displayed.**

04 **A flagger shall be stationed on the approach to the activity area to control vehicular traffic until the pilot vehicle is available.**

Section 6C.15 Temporary Traffic Control Signal Method of One-Lane, Two-Way Traffic Control

Option:

01 Traffic control signals may be used to control vehicular traffic movements in one-lane, two-way TTC zones as approved by the Regional Traffic Engineer (see Figure TTC-25, Chapter 4H of the 2009 MUTCD and Standard TS-1 of the Road and Bridge Standards).

Section 6C.16 Stop or Yield Control Method of One-Lane, Two-Way Traffic Control

Option:

01 STOP or YIELD signs may be used to control traffic on low-volume roads at a one-lane, two-way TTC zone when drivers are able to see the other end of the one-lane, two-way operation and have sufficient visibility of approaching vehicles.

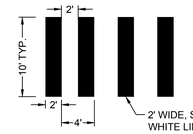
Guidance:

02 *The use of STOP or YIELD signs for traffic control on low-volume roads at a one-lane, two-way work zone should have written approval from the Regional Traffic Engineer. See warrants for No-Passing Zones at Curves in Chapter 3B of the 2009 MUTCD.*

03 *If the STOP or YIELD sign is installed for only one direction, then the STOP or YIELD sign should face road users who are driving on the side of the roadway that is closed for the work activity area.*

SIGNAGE NOTES

1. ALL SIGNING AND PAVEMENT MARKING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF EACH OF THE FOLLOWING AND ANY REVISION THERETO:
   A. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
   B. THE VIRGINIA SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
   C. THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
2. SIGN LOCATIONS ARE APPROXIMATE AND ARE TO BE MODIFIED IN THE FIELD TO AVOID CONFLICT WITH UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS, AND TO COMPLY WITH STANDARDS REFERENCED IN NOTE 1 ABOVE.
3. ALL SIGNS AND PAVEMENT MARKINGS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. ALL SIGNS OUTSIDE OF VDOT ROW SHALL BE INSTALLED ON STEEL POST 1.5" DIA. GALVANIZED SET IN MIN. 2' OF CONCRETE DEPTH AND 1' DIA. OF CONCRETE.



CROSSWALK DETAIL

VDOT STD.
MUTCD: R1-1
STOP SIGN

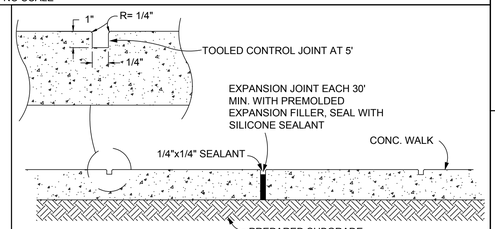
R5-1
(24"x24")

12"x24" ALUMINUM SIGN
RED & WHITE W/ ARROW OUTLINED IN BLACK REFLECTIVE VINYL
CORNERS CUT AT 1.5" RADIUS

FL

STRIPING & SIGNAGE NOTES & DETAILS

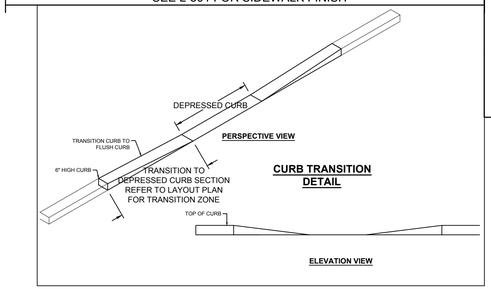
NO SCALE



SIDEWALK AND CONTROL JOINT

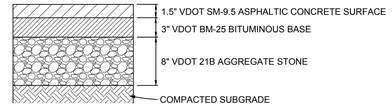
NO SCALE

* SEE L-301 FOR SIDEWALK FINISH



CURB TRANSITION DETAIL

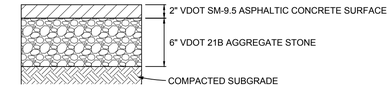
PAVEMENT SECTIONS



HEAVY DUTY ASPHALT PAVEMENT SECTION

NO SCALE

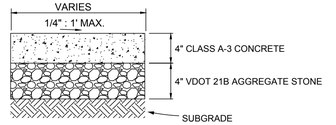
DENOTES HEAVY DUTY ASPHALT PAVEMENT ON PLANS



LIGHT DUTY ASPHALT PAVEMENT SECTION

NO SCALE

DENOTES LIGHT DUTY ASPHALT PAVEMENT ON PLANS

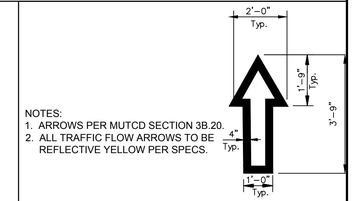


CONCRETE SIDEWALK PAVEMENT SECTION

NO SCALE

NOTE: MAXIMUM 2% CROSS SLOPE, MAXIMUM 5% LONGITUDINAL SLOPE ON ALL SIDEWALKS

DENOTES CONCRETE PAVEMENT ON PLANS



NOTES:
1. ARROWS PER MUTCD SECTION 3B.20.
2. ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE YELLOW PER SPECS.

TRAFFIC FLOW ARROW

NO SCALE

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE
CORPORATE OFFICE
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

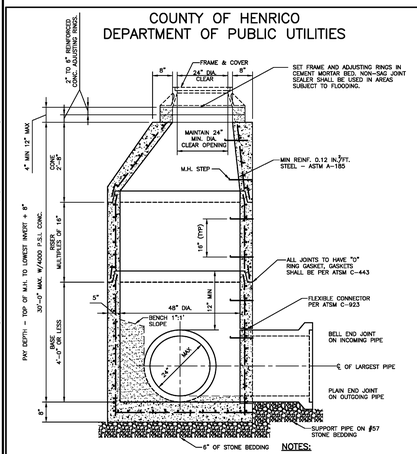
YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

POD2020-00355

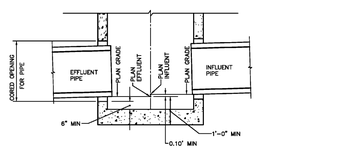
COUNTY OF HENRICO
DEPARTMENT OF PUBLIC UTILITIES



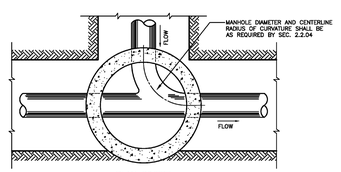
NOTES:
1. BENCH MAY BE CONCRETE OR BRICK AND MORTAR.
2. STEPS SHOULD BE PLACED ON THE DOWNSTREAM SIDE OF THE MANHOLE.
3. MANHOLE CONSTRUCTION SHALL CONFORM TO ASTM SPEC C-913 OR C-478.
4. MIN CONCRETE STRENGTH AT 28 DAYS – 4000 P.S.I.

REVISIONS	PRECAST CONCRETE MANHOLE SEWERS 8" TO 24"	DRWG. NO.
06/20/2014		D–100

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC UTILITIES



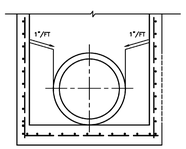
NOTE:
1. THE EFFLUENT ELEVATION SHOWN AT A MANHOLE IS ESTABLISHED FROM THE INFLUENT ELEVATION OF THE MANHOLE IMMEDIATELY DOWNSTREAM. ELEVATIONS SHOWN APPLY AT THE CENTERLINE OF MANHOLES AND ARE BASED ON THE HORIZONTAL DISTANCE, C.L. TO C.L. OF M.H., USING PERCENT OF GRADE INDICATED.

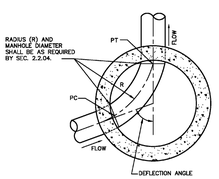


PLAN INVERT

REVISIONS	MANHOLE INVERT DETAILS	DRWG. NO.
06/20/2014		D–135

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC UTILITIES

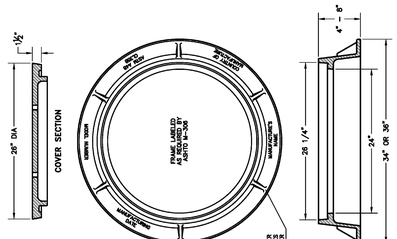




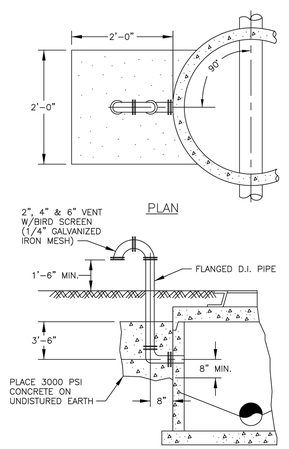
NOTES:
1. PCs AND PTs ARE TO BE WITHIN THE MANHOLE.
2. ALL INVERTS TO BE U-SHAPED CHANNEL EQUAL TO PIPE ID AND SHALL BE CONSTRUCTED WITH SWEEPS.
3. A MINIMUM RADIUS (R) OF 2.5 TIMES THE ID OF THE UPSTREAM PIPE IS REQUIRED FOR ALL SWEEPS. IF THIS REQUIREMENT CANNOT BE MET, A LARGER DIAMETER MANHOLE SHALL BE REQUIRED.
4. MANHOLE PIPE CONNECTOR SHALL BE A RESILIENT WATER TIGHT SEAL.

REVISIONS	MANHOLE INVERT DESIGN	DRWG. NO.
06/20/2014		D–140

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC UTILITIES



REVISIONS	STANDARD MANHOLE FRAME & COVER	DRWG. NO.
06/20/2014		D–150



NOTES:
1. PAINT EXPOSED PORTION OF PIPE WITH GREEN RUST INHIBITIVE PAINT.
2. WHERE MANHOLE IS LOCATED IN FLOOD PLAIN, AIR VENT SHALL BE SET AT LEAST 1'–0" ABOVE 100 YEAR FLOOD ELEVATION.

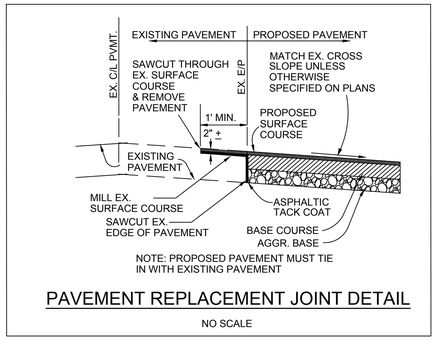
DATE: JAN. 1996	AIR VENT FOR WATERTIGHT MANHOLE	DWG. NO.
REVISION: MAY 2020		SEW–2

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
GENERAL NOTES & DETAILS

JOB NO. 45692
SHEET NO. C1.3

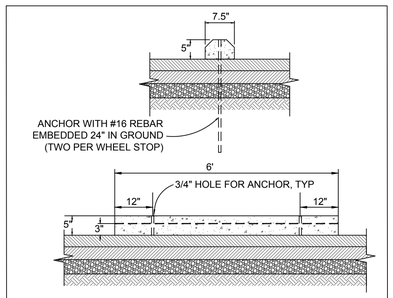
S:\001\45692-Lakewood_Sat_Parking\DWG\Sheet\CD\45692-C1.1-NTDT.dwg | Plotted on 12/21/2020 8:59 AM | by Hannah Armstrong



NOTE: PROPOSED PAVEMENT MUST TIE IN WITH EXISTING PAVEMENT

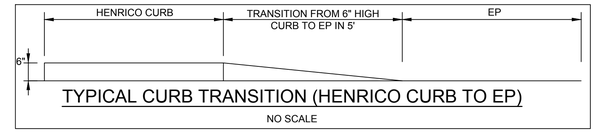
PAVEMENT REPLACEMENT JOINT DETAIL

NO SCALE



PRECAST WHEELSTOP DETAIL

NO SCALE



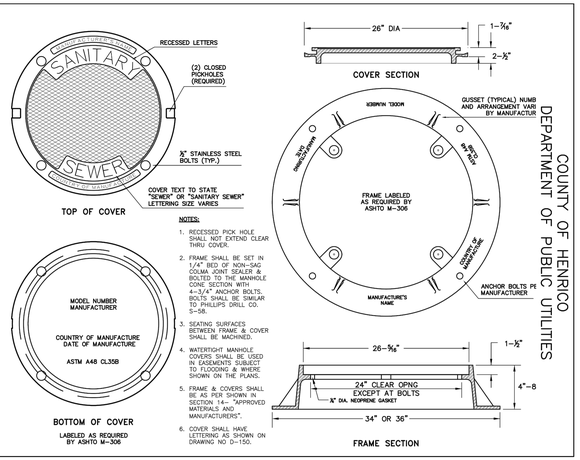
TYPICAL CURB TRANSITION (HENRICO CURB TO EP)

NO SCALE

REVISIONS 06/20/2014

VANDALPROOF/ WATER TIGHT MANHOLE FRAME & COVER (TRAFFIC RATED)

DRWG. NO. D-155



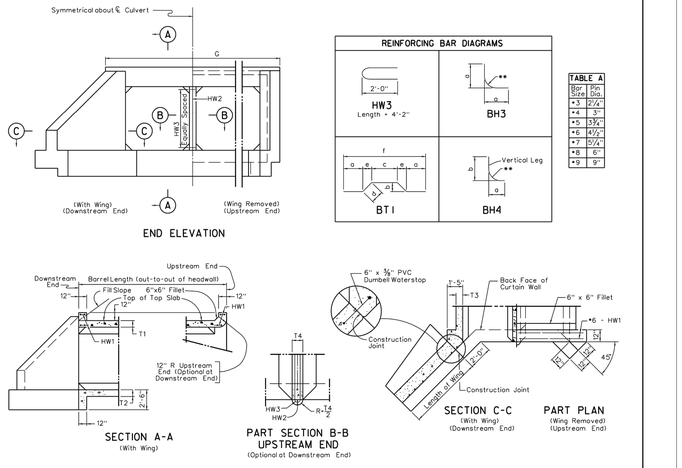
NOTES:

1. RECESSED PICK HOLE SHALL NOT EXTEND CLEAR THRU COVER.
2. FRAME SHALL BE SET IN 1/4" BED OF NON-SAG COLMA JOINT SEALER & BOLTED TO THE MANHOLE CONE SECTION WITH 4-3/4" ANCHOR BOLTS. BOLTS SHALL BE SIMILAR TO PHILLIPS DRILL CO. S-58.
3. SEATING SURFACES BETWEEN FRAME & COVER SHALL BE MACHINED.
4. WATERTIGHT MANHOLE COVERS SHALL BE USED IN EASEMENTS SUBJECT TO FLOODING & WHERE SHOWN ON THE PLANS.
5. FRAME & COVERS SHALL BE AS PICK SHOWN IN SECTION 3 "APPROVED MATERIALS AND MANUFACTURERS".
6. COVER SHALL HAVE LETTERING AS SHOWN ON DRAWING NO D-150.

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC UTILITIES

2016 ROAD & BRIDGE STANDARDS

BCD-DT



VDOT ROAD AND BRIDGE STANDARDS

SHEET 3 OF 3 | REVISION DATE 07/11 | 1003.03

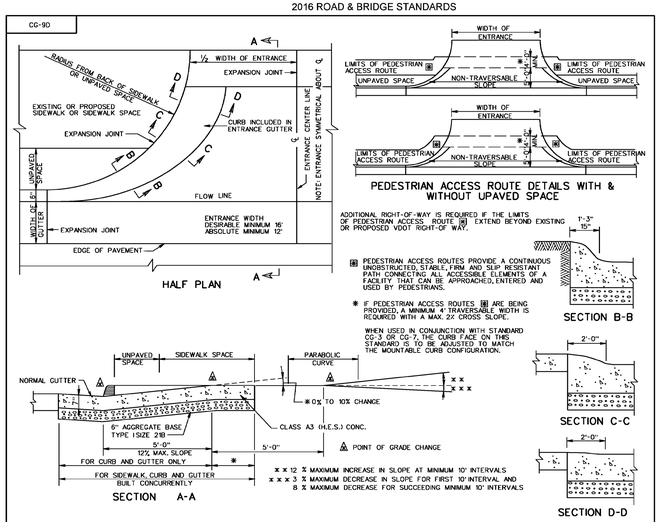
DOUBLE BOX CULVERTS
STANDARD DETAILS
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

CG-9D



ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF PEDESTRIAN ACCESS ROUTE [#] EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF WAY.

[#] PEDESTRIAN ACCESS ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.

[*] IF PEDESTRIAN ACCESS ROUTES [#] ARE BEING PROVIDED, A MINIMUM 4' TRAVERSABLE WIDTH IS REQUIRED WITH A MAX 2% CROSS SLOPE.

WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.

x x 12 % MAXIMUM INCREASE IN SLOPE AT MINIMUM 10' INTERVALS
x x x 3 % MAXIMUM DECREASE IN SLOPE FOR FIRST 10' INTERVAL AND
8 % MAXIMUM DECREASE FOR SUCCEEDING MINIMUM 10' INTERVALS

VDOT ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1 | REVISION DATE 07/15 | 203.03

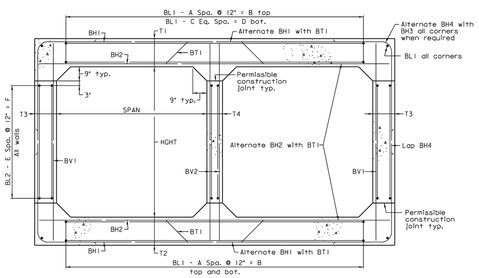
STANDARD ENTRANCE GUTTER
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 502

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

BCD-DT



TYPICAL SECTION

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

VDOT ROAD AND BRIDGE STANDARDS

SHEET 1 OF 3 | REVISION DATE 07/11 | 1003.01

DOUBLE BOX CULVERTS
STANDARD DETAILS
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

BCD-20

FOR TYPICAL SECTION, NOTES AND OTHER DETAILS, REFER TO STANDARD BCD-DT.

SPAN (FT.)	HGHT (FT.)	REINFORCING STEEL: BT1 SIZE	SPACING c-c	a	b	c	d	e	f	g	LENGTH	NO. BL1 #4 BARS	NO. BL2 #4 BARS	QUAN./LF: REINFORCING (LBS/LIN. FT.)	CONCRETE (CU.YD./LIN. FT.)	HEADWALLS: REINFORCING STEEL (LBS)	HW1 SIZE	HW1 LENGTH	NO. HW2 BARS	INLET CONCRETE (CU. YD.)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE (CU. YD.)	OUTLET REINFORCING STEEL (LBS)	MARK
3	3	4	12"	2'- 7"	0'- 4"	1'- 10"	0'- 5½"	0'- 3¼"	7'- 8"	-----	7'-10"	32	12	30.956	0.695	78.691	9'- 6"	6	9'- 2"	1	4	1.433	67.988	1.425	55.073	A
3	4	4	12"	2'- 7"	0'- 4"	1'- 10"	0'- 5½"	0'- 3¼"	7'- 8"	-----	7'-10"	32	18	33.065	0.768	84.955	9'- 6"	6	9'- 2"	1	5	1.531	71.439	1.517	55.073	A
4	3	4	12"	3'- 5"	0'- 4"	2'- 3"	0'- 5½"	0'- 3¼"	9'- 8"	-----	9'-10"	40	12	37.636	0.782	92.051	11'- 6"	6	11'- 2"	1	4	1.635	80.004	1.634	67.089	A
4	4	4	12"	3'- 5"	0'- 4"	2'- 3"	0'- 5½"	0'- 3¼"	9'- 8"	-----	9'-10"	40	18	39.745	0.866	98.315	11'- 6"	6	11'- 2"	1	5	1.734	83.455	1.726	67.089	C
4	5	4	12"	3'- 5"	0'- 4"	2'- 3"	0'- 5½"	0'- 3¼"	9'- 8"	-----	9'-10"	40	24	41.860	0.940	104.579	11'- 6"	6	11'- 2"	1	6	1.833	86.907	1.819	67.089	E
4	6	4	12"	3'- 5"	0'- 4"	2'- 3"	0'- 5½"	0'- 3¼"	9'- 8"	-----	9'-10"	40	30	43.975	1.013	110.843	11'- 6"	6	11'- 2"	1	7	1.932	90.358	1.912	67.089	G
5	3	4	12"	4'- 2"	0'- 4"	2'- 8"	0'- 5½"	0'- 3¼"	11'- 8"	-----	11'-10"	48	12	44.310	0.891	98.023	13'- 6"	6	13'- 2"	1	4	1.837	92.020	1.843	79.105	A
5	4	4	12"	4'- 2"	0'- 4"	2'- 8"	0'- 5½"	0'- 3¼"	11'- 8"	-----	11'-10"	48	18	46.425	0.965	98.856	13'- 6"	6	13'- 2"	1	5	1.936	95.471	1.935	79.105	C
5	5	4	12"	4'- 2"	0'- 4"	2'- 8"	0'- 5½"	0'- 3¼"	11'- 8"	-----	11'-10"	48	24	48.540	1.038	105.120	13'- 6"	6	13'- 2"	1	6	2.035	98.923	2.028	79.105	E
5	6	4	12"	4'- 2"	0'- 4"	2'- 8"	0'- 5½"	0'- 3¼"	11'- 8"	-----	11'-10"	48	30	50.655	1.112	111.986	13'- 6"	6	13'- 2"	1	7	2.134	102.374	2.121	79.105	G
5	7	4	12"	4'- 2"	0'- 4"	2'- 8"	0'- 5½"	0'- 3¼"	11'- 8"	-----	11'-10"	48	36	52.770	1.185	131.216	13'- 6"	6	13'- 2"	1	8	2.233	105.825	2.214	79.105	I
6	4	4	12"	4'- 11"	0'- 5½"	3'- 0"	0'- 7"	0'- 4¾"	13'- 8"	-----	13'-11"	56	18	53.105	1.168	139.704	15'- 6"	6	15'- 2"	1	5	2.127	107.487	2.133	91.121	D
6	5	4	12"	4'- 11"	0'- 5½"	3'- 0"	0'- 7¼"	0'- 4¾"	13'- 8"	-----	13'-11"	56	24	55.220	1.264	146.158	15'- 6"	6	15'- 2"	1	6	2.220	110.939	2.220	91.121	F
6	6	4	12"	4'- 11"	0'- 5½"	3'- 0"	0'- 7¼"	0'- 4¾"	13'- 8"	-----	13'-11"	56	30	57.335	1.337	153.090	15'- 6"	6	15'- 2"	1	7	2.319	114.390	2.313	91.121	H
6	7	4	12"	4'- 11"	0'- 5½"	3'- 0"	0'- 7¼"	0'- 4¾"	13'- 8"	-----	13'-11"	56	36	59.450	1.410	166.611	15'- 6"	6	15'- 2"	1	8	2.418	117.841	2.406	91.121	J
6	8	4	12"	4'- 10"	0'- 5¾"	3'- 0"	0'- 7⅝"	0'- 5"	13'- 8"	-----	14'- 0"	56	42	61.586	1.505	175.026	15'- 6"	6	15'- 2"	1	9	2.511	121.293	2.492	91.121	L
7	4	4	10"	5'- 7"	0'- 6½"	3'- 5"	0'- 8¾"	0'- 5¾"	15'- 8"	-----	16'- 0"	64	18	59.785	1.404	165.663	17'- 6"	6	17'- 2"	1	5	2.285	119.503	2.297	103.137	D
7	6	4	10"	5'- 7"	0'- 6¾"	3'- 5"	0'- 9"	0'- 6"	15'- 8"	-----	16'- 0"	64	30	64.015	1.577	188.822	17'- 6"	6	17'- 2"	1	7	2.475	126.406	2.475	103.137	H
7	8	4	10"	5'- 7"	0'- 7"	3'- 5"	0'- 9⅝"	0'- 6¼"	15'- 8"	-----	16'- 1"	64	42	68.245	1.747	200.948	17'- 6"	6	17'- 2"	1	9	2.666	133.309	2.653	103.137	L
7	10	4	10"	5'- 6"	0'- 7½"	3'- 5"	0'- 9¾"	0'- 6½"	15'- 8"	-----	16'- 1"	64	54	72.475	1.916	248.796	17'- 6"	6	17'- 2"	1	11	2.856	140.211	2.831	103.137	P
8	4	4	9"	6'- 3"	0'- 8¼"	3'- 10"	0'- 10½"	0'- 7"	17'- 8"	-----	18'- 1"	72	18	66.465	1.669	212.942	19'- 6"	6	19'- 2"	1	5	2.427	131.519	2.446	115.153	D
8	6	4	9"	6'- 3"	0'- 8"	3'- 10"	0'-10⅝"	0'- 7¼"	17'- 8"	-----	18'- 1"	72	30	70.695	1.845	214.543	19'- 6"	6	19'- 2"	1	7	2.616	138.422	2.622	115.153	H
8	8	4	9"	6'- 3"	0'- 8¼"	3'- 10"	0'-11¼"	0'- 7½"	17'- 8"	-----	18'- 2"	72	42	74.925	2.018	248.913	19'- 6"	6	19'- 2"	1	9	2.804	145.325	2.799	115.153	L
8	10	4	9"	6'- 3"	0'- 8½"	3'- 10"	0'-11½"	0'- 7¾"	17'- 8"	-----	18'- 2"	72	54	79.155	2.191	294.788	19'- 6"	6	19'- 2"	1	11	2.993	152.227	2.975	115.153	P
9	4	4	9"	7'- 0"	0'- 9"	4'- 3"	1'- 1⅛"	0'- 8¼"	19'- 8"	-----	20'- 2"	80	18	73.145	1.964	273.054	21'- 6"	6	21'- 2"	1	5	2.553	143.535	2.579	127.169	D
9	6	5	9"	7'- 0"	0'- 9¼"	4'- 3"	1'- ½"	0'- 8⅝"	19'- 8"	-----	20'- 2"	80	30	77.375	2.143	273.531	21'- 6"	6	21'- 2"	1	7	2.740	150.438	2.754	127.169	H
9	8	5	9"	7'- 0"	0'- 9½"	4'- 3"	1'- ½"	0'- 8⅝"	19'- 8"	-----	20'- 2"	80	42	81.605	2.288	308.145	21'- 6"	6	21'- 2"	1	9	2.938	157.341	2.939	127.169	L
9	10	5	9"	6'- 11"	0'- 9½"	4'- 3"	1'- ⅞"	0'- 8⅝"	19'- 8"	-----	20'- 3"	80	54	85.835	2.464	358.625	21'- 6"	6	21'- 2"	1	11	3.126	164.243	3.114	127.169	P
9	12	5	9"	7'- 1"	0'- 9¾"	4'- 3"	1'- 1¼"	0'- 8⅞"	19'- 11"	-----	20'- 6"	80	66	90.065	2.769	439.648	21'- 6"	6	21'- 2"	1	13	3.313	171.146	3.289	127.169	T
10	4	5	9"	7'- 8"	0'-10⅞"	4'- 8"	1'- 2¼"	0'- 9⅝"	21'- 8"	-----	22'- 3"	88	18	79.825	2.324	323.981	23'- 6"	6	23'- 2"	1	5	2.652	155.551	2.685	139.185	D
10	6	5	9"	7'- 7"	0'-11"	4'- 8"	1'- 3"	0'-10⅞"	21'- 8"	-----	22'- 4"	88	30	84.055	2.539	337.513	23'- 6"	6	23'- 2"	1	7	2.850	162.454	2.870	139.185	H
10	8	5	9"	7'- 8"	0'-10⅞"	4'- 8"	1'- 2⅝"	0'- 9⅜"	21'- 8"	-----	22'- 4"	88	42	88.285	2.652	358.944	23'- 6"	6	23'- 2"	1	9	3.036	169.357	3.043	139.185	L
10	10	5	9"	7'- 7"	0'-11"	4'- 8"	1'- 3"	0'-10⅝"	21'- 8"	-----	22'- 4"	88	54	92.515	2.830	410.490	23'- 6"	6	23'- 2"	1	11	3.221	176.259	3.217	139.185	P
10	12	5	9"	7'- 9"	0'-11"	4'- 8"	1'- 3"	0'-10¾"	21'- 11"	-----	22'- 7"	88	66	96.745	3.106	492.783	23'- 6"	6	23'- 2"	1	13	3.419	183.162	3.402	139.185	T
12	6	6	8"	9'- 0"	1'- 1⅜"	5'- 5"	1'- 6¾"	1'- ¾"	25'- 8"	-----	26'- 6"	104	30	97.415	3.343	445.840	27'- 6"	6	27'- 2"	1	7	2.996	186.486	3.029	163.217	I
12	8	6	8"	9'- 0"	1'- 1⅜"	5'- 5"	1'- 6¾"	1'- ¾"	25'- 8"	-----	26'- 6"	104	42	101.645	3.489	467.673	27'- 6"	6	27'- 2"	1	9	3.194	193.389	3.215	163.217	M
12	10	6	8"	9'- 0"	1'- 2"	5'- 5"	1'- 7⅛"	1'- 1"	25'- 8"	-----	26'- 6"	104	54	105.875	3.672	535.887	27'- 6"	6	27'- 2"	1	11	3.376	200.291	3.385	163.217	Q
12	12	6	8"	9'- 2"	1'- 2"	5'- 5"	1'- 7⅛"	1'- 1"	25'-11"	-----	26'- 9"	104	66	110.105	3.954	615.152	27'- 6"	6	27'- 2"	1	13	3.574	207.194	3.570	163.217	U

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

SPECIFICATION REFERENCE

DOUBLE BOX CULVERTS
10 TO 20 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS

REVISION DATE 08/14 | SHEET 2 OF 2 | 1003.12

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

BCD-DT

GENERAL NOTE

Capacity: AASHTO HI-93 Loading.

Specifications:

Construction - Va. Department of Transportation Road and Bridge Specifications.

Design - AASHTO LRFD Bridge Design Specifications, 5th Edition (2010) 2011 Interim Specifications and VDOT Modifications.

All concrete shall be Class A4.

Deformed reinforcing bars shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

Construction joints shall be constructed and bonded in accordance with the current Road and Bridge Specifications.

Barrels more than 35' in length shall be poured in sections by providing vertical construction joints, not exceeding 25' between joints nor more than 30' from ends of barrels.

** All bends shall be made with a pin diameter as listed in TABLE A except for Bars BH3 and BH4 which shall have a pin diameter of 24 bar diameters.

Dimensions on bar diagrams are out-to-out of bars. Bars are straight and #4 size unless otherwise shown. BL2 shall be #3 size.

The number of BL1 and BL2 bars shown in the table is the number of longitudinal bars shown in the Typical Section and may not equal the total number of bars required. BL1 and BL2 shall have a lap of 30 bar diameters at splices. At construction joints, first placed bars shall project 30 bar diameters beyond the joint. Estimated QUAN./LF. shown for reinforcing steel does not include quantity for laps of BL1 and BL2 bars. The additional weight per longitudinal lap is shown in the table.

The minimum cover of main reinforcing bars shall be 2½" from the face of the concrete for culverts under 0 to 2 foot fills and shall be 2" from the face of concrete for all other culverts.

All reinforcing steel for culverts under 0 to 2 foot fills shall be Low Carbon/Chromium Reinforcing Steel conforming to ASTM A1035.

At the Contractor's option, BV1 and BV2 bars may be spliced at the permissible construction joint in order to facilitate construction. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

Bar HW2 shall be 4" less than culvert height in length.

Headwall quantities shown assume wingwalls are to be built at a 45° angle to the headwall.

The designs are applicable to the fill height and other conditions indicated. Any change in the conditions invalidates these designs.

Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series BCW for the appropriate fill slope.

For details of extending existing boxes, refer to Standard BCE-01.

For modification of details for skewed culverts, see the skewed box details included in the road plans.

This standard shall be used with the BCD standard series.

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

SPECIFICATION REFERENCE

DOUBLE BOX CULVERTS
STANDARD DETAILS
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS

REVISION DATE 07/12 | SHEET 2 OF 3 | 1003.02

2016 ROAD & BRIDGE STANDARDS

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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POD2020-00355

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS
DATE	
8/6/2020	

DRAWN BY: H. ARMSTRONG
DESIGNED BY: D. O'BOYLE
CHECKED BY: J. MULLINS
SCALE: AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
GENERAL NOTES & DETAILS

JOB NO. 45692
SHEET NO. C1.4

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MATERIAL NOTES

Sanitary Sewer Line

1. PVC plastic pipe shall meet requirements of ASTM D-3034 type PSM SDR-35 for sizes 4-inch through 15-inch and ASTM F-679 for pipe sized 18-inch through 27-inch with elastomeric gasket joints meeting requirements of ASTM D3212.
2. Ductile iron pipe (D.I.) shall meet the requirements of AWWA C-151 for the pressure and thickness classes shown on the Drawings. Pipe shall have a cement-mortar lining and an asphaltic seal coat. Thickness classes shall meet the requirements of AWWA C-150, Class 50.
3. Pipe bedding for gravity sewer lines shall be in accordance with D-710-1, D-710-2, D-720, or D-730 as required for the pipe material.

Water Line

1. PVC plastic pipe shall meet the requirement of AWWA C900, Table 2, (Cast Iron OD) Class 150 except that all connections shall be made using elastomeric gasket joints. No PVC pipe larger than 8" shall be used for water lines.
2. Ductile iron pipe shall be AWWA C-151 for pressure and thickness class shown on the Drawings. Thickness classes shall meet the requirements of AWWA C-150. All pipe shall have a cement-mortar lining on the interior and an asphaltic seal coat on the exterior. Minimum thickness shall be Class 52 for 12-inch and smaller, and Class 51 for 16-inch and larger.
3. Pipe bedding for pressure lines shall be in accordance with D-710-1, D-710-2, D-720, or D-730 as required for the pipe material.

6/14 Form F-6

WATER AND SEWER NOTES

1. All construction materials and installation shall conform to the latest edition of "Standards, Department of Public Utilities" (DPU), County of Henrico, Virginia.
2. Contractor shall be responsible for notifying the DPU Construction Division to schedule a pre-construction meeting at least 48 hours prior to starting any work on this project. Contractor shall obtain all necessary permits.
3. Contractor shall include in applicable bid price, cost of locating and uncovering all sewer manholes and valve boxes after completion of all paving and to adjust them to the final road grades. Contractor shall also be responsible for cleaning out sewer mains for final inspection, if necessary.
4. Existing utilities across or along the line of the proposed work are shown only in an approximate location on the plans. Contractor shall, on his own initiative and no additional cost, locate all underground lines and structures as necessary. Contractor shall call "Miss Utility" at 811 prior to construction. Contractor will be responsible for any damage to underground lines or structures.
5. Datum for all elevations shown is National Geodetic Survey NAVD 88.
6. Minimum cover over top of water pipe must be 3.50 feet.
7. Service saddles must be used on water connections to PVC mains less than 6" in diameter.
8. Fire hydrants shall be installed in accordance with DPU Standard Drawing D-495-1 and D-495-2.
9. Engineer shall certify that unpaved streets are to subgrade prior to Contractor installing water system. Curb and gutter, if required, shall be installed prior to acceptance of water system by County.
10. No structures or planting of trees shall be permitted in utility easements.
11. Vandal proof/watertight covers shall be used on all manholes in easements and in flood plains. The manhole covers shall be in accordance with DPU Standard Drawings D-150, D-155, and D-160.
12. Final Acceptance by County shall not be made until all work shown on approved utility plans is completed including paving, grading, and all required adjustments.
13. A Wetlands Permit may be required from the U.S. Army Corps of Engineers for this project. For information concerning such requirement, contact the Corps at (804) 462-5382
14. DPU will inspect all water and sanitary sewer mains, connections, and appurtenances thereto, as shown on the approved utility plans, located within dedicated easements and/or Public Rights-of-Way. Furthermore, DPU will inspect all private sewer mains through the last manhole. All other lines to be installed on site to serve roof drainage, water supply, and sanitary sewers shall be approved by the Department of Building Inspections prior to installation and shall be inspected by Building Inspections before covering.
15. Concurrent inspections by Building Inspections and DPU will be performed for the following: Mainline backflow preventers; monitoring manholes; grease traps; exclusion meters; irrigation meters. DPU will inspect to insure that the proper type facility, as shown on the approved utility plans, has been installed and tested in accordance with DPU Standards.

06/14 Form F-11

STEVEN J. YOB, P.E.
DIRECTOR OF PUBLIC WORKS
COUNTY ENGINEER
(804) 501-4393

COMMONWEALTH OF VIRGINIA
COUNTY OF HENRICO

July 3, 2020

Mr. Jason Mullens, P.E.
Timmons Group
1001 Boulders Parkway, Suite 300
Richmond, VA 23225

RE: Lakewood Manor Satellite Parking
POD 2020-00233
Exception Request – Curb and Gutter Policy

Dear Mr. Mullens:

We have reviewed your request for an exception to Henrico County's requirement that all stormwater be collected on-site in curb drop inlets. You have requested an exception to this policy that would allow you to discharge sheetflow from a parking lot to an adjacent conserved open space (SPA) in lieu of installing curb and gutter to collect stormwater.

Eliminating the requirement to collect all stormwater on-site in curb drop inlets makes it easier for the site to comply with Henrico County Environmental Compliance Manual section 9.4.2 regarding Sheetflow to Conserved Open Space. This section states "If all runoff from a point of discharge is converted to sheetflow by using the Sheetflow to Vegetated Filter or Conserved Open Space practice identified in Section 9.4.2 of this Manual and the conditions of this section are met for that point of discharge, no further water quantity controls are required at that point of discharge." By allowing sheetflow directly from the parking lot to the conserved open space, the site will not need to concentrate stormwater with curb and gutter and then return it to sheetflow before discharging to the adjacent conserved open space.

Due to the reasons outlined above the Department of Public Works has agreed to allow a one-time exception whereby the Lakewood Manor Satellite Parking site will not be required to collect stormwater on-site in curb drop inlets to allow stormwater to sheetflow directly off the parking lot to a conserved open space.

If you have any questions, or if I can be of further assistance, please let me know.

Sincerely,

Jamie Massey
Assistant Director of Public Works

pc: Doug Young, DPW

P.O. BOX 90775 / HENRICO, VIRGINIA 23273-0775
FAX (804) 501-7470

TERRELL HUGHES, P.E.
DIRECTOR OF PUBLIC WORKS
COUNTY ENGINEER
(804) 501-4393

COMMONWEALTH OF VIRGINIA
COUNTY OF HENRICO

October 27, 2020

Mr. Jason Mullins, P.E.
TIMMONS GROUP
1001 Boulders Parkway, Suite 300
Richmond, Virginia 23225

RE: Lakewood Manor Satellite Parking - POD2020-00233 – Sidewalk Waiver Request

Dear Mr. Mullins:

Reference is made to your letter dated September 30, 2020 concerning the above-referenced project.

We have reviewed your request for a waiver of the County policy regarding sidewalk along Lauderdale Drive for the proposed Satellite Parking at Lakewood Manor. The Public Works Design Manual *Section 2-25 Sidewalk* states that a sidewalk shall be constructed on one side of all collector and arterial roadways located within one mile of an existing school.

With your latest plan, your request is to waive this requirement for a sidewalk on the Lakewood Manor side of Lauderdale Drive as a sidewalk exists today on the other side that serves the area. As Carver Elementary School is within one mile of said property and; confirming site conditions, an adequate sidewalk does exist along the northern side of Lauderdale Drive, this waiver request can be supported and approved.

With this letter, your request for a waiver requiring sidewalk along your frontage of Lauderdale Drive is granted. This approval is tied to your latest site plan submitted to the County for POD2020-00233.

Should you have any questions or require additional information, please contact this office.

Sincerely yours,

Terrell Hughes, P.E.
Director of Public Works

pc: Gary DuVal, Traffic Engineering
Brandon House, Traffic Engineering

P.O. BOX 90775/HENRICO, VIRGINIA 23273-0775
FAX (804) 501-7470

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JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
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DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

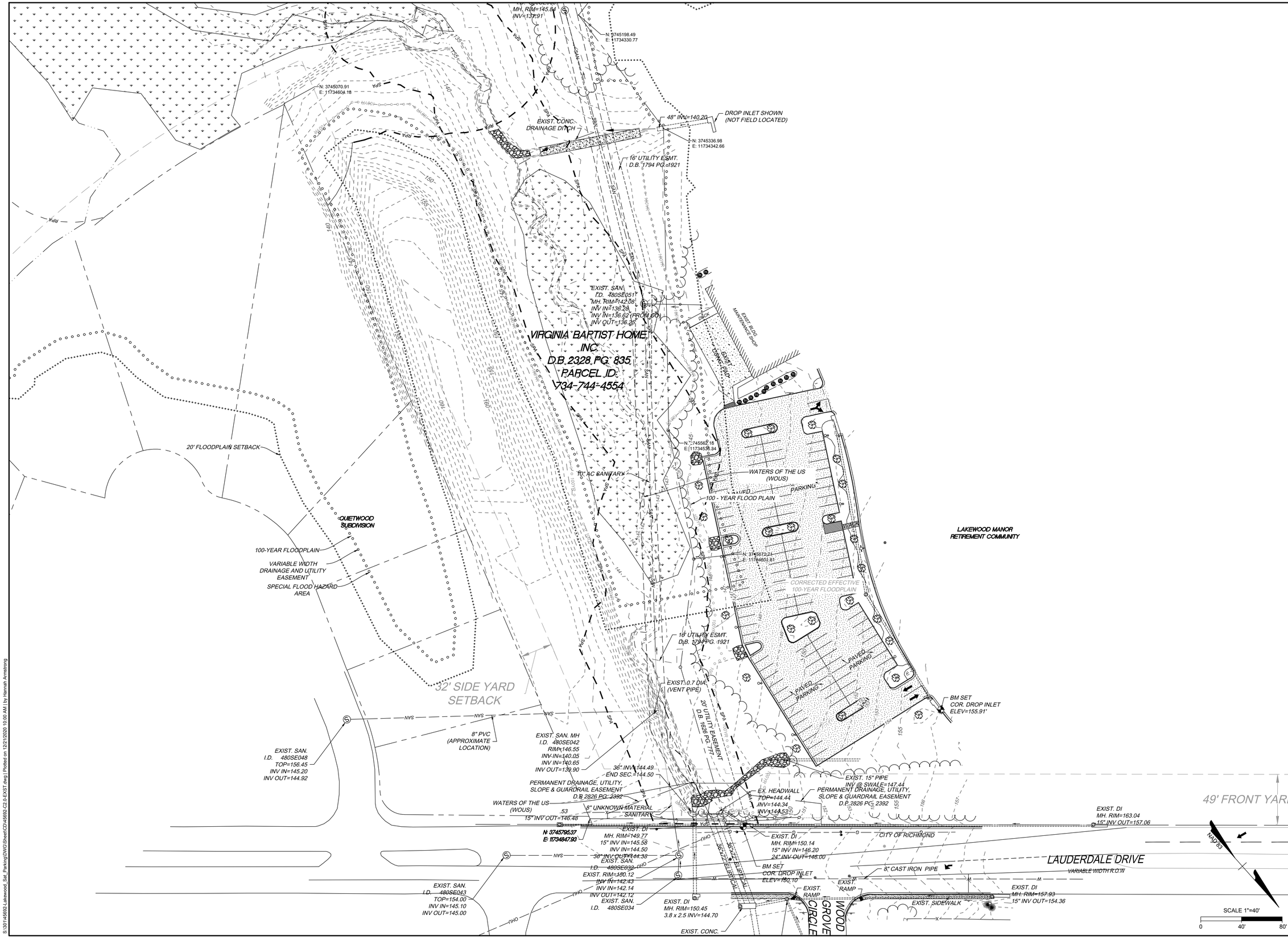
LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

GENERAL NOTES & DETAILS

JOB NO. 45692
SHEET NO. C1.5

POD2020-00355



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LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

EXISTING CONDITIONS

JOB NO. 45692
SHEET NO. C2.0

POD2020-00355

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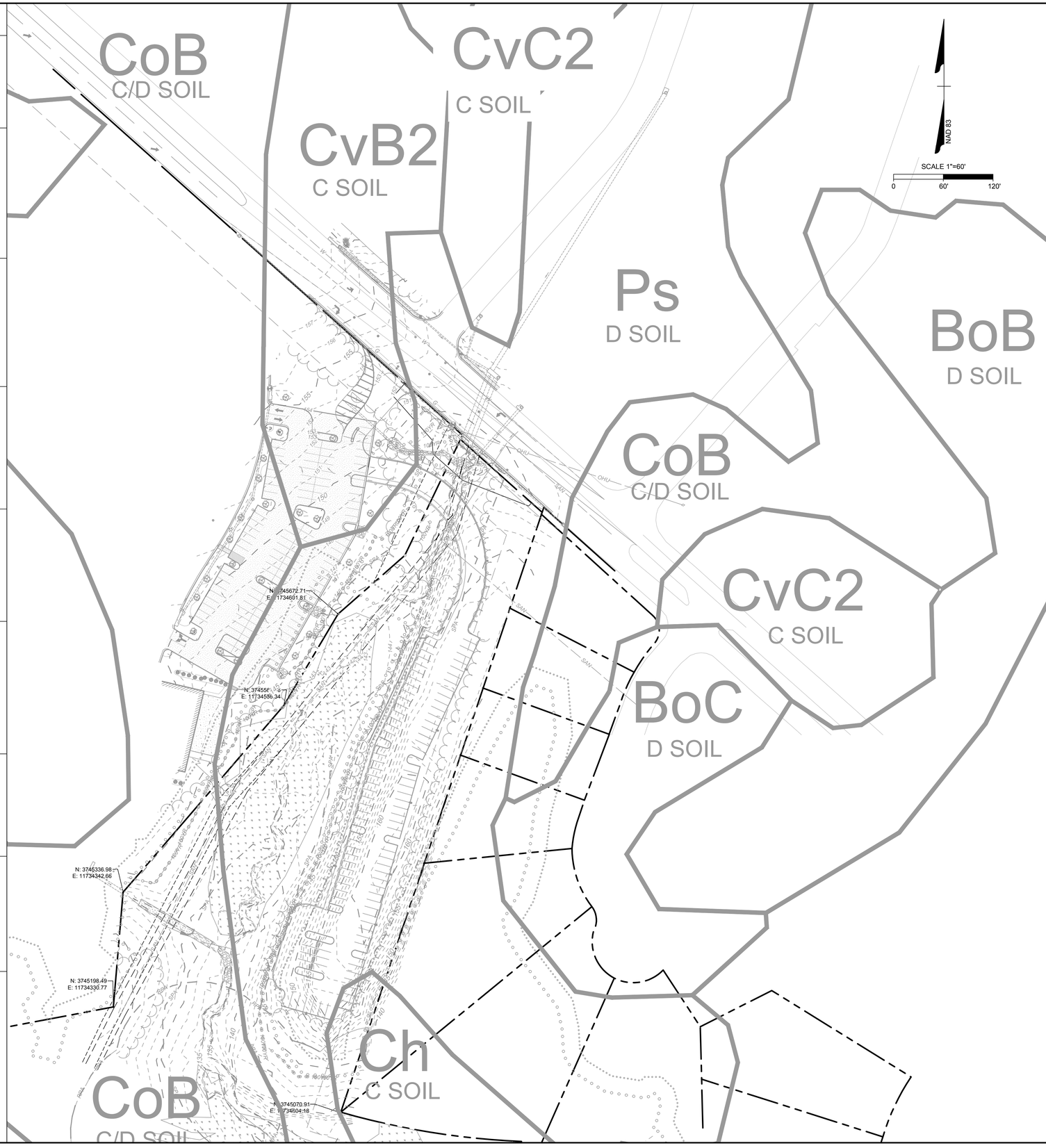
SOILS SUMMARY

MAPPING UNIT	HYDROLOGIC GROUP	K VALUE	SLOPE	MAPPING UNIT NAME	SOIL CHARACTERISTICS
CoB	C/D	0.24	0-6%	COLFAX FINE SANDY LOAM	**Component:** Colfax Fine Sandy Loam (85%) The Colfax component makes up 85 percent of the map unit. Slopes are 0 to 6 percent. This component is on hillslopes. The parent material consists of residuum weather from granite and gneiss. Depth to a root restrictive layer is greater than 40 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 18 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is occasionally ponded. Nonirrigated land capability classification is 3w. This soil does not meets hydric criteria.
BoB	D	0.24	2-6%	BOURNE FINE SANDY LOAM	**Component:** BOURNE FINE SANDY LOAM (85%) The Bourne component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on marine terraces. The parent material consists of loamy marine deposits. Depth to a root restrictive layer is 12 to 24 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 30 inches (or restricted depth) is moderate. Shrink-swell potential is very low. This soil is not flooded. It is not ponded. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.
CvB	C	0.28	2-6%	CREEDMOOR SANDY LOAM	**Component:** Creedmoor (85%) The Creedmoor component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on hillslopes on piedmonts. The parent material consists of Triassic residuum. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 30 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.
CvB2	C	0.28	2-6%	CREEDMOOR SANDY LOAM	**Component:** Creedmoor (85%) The Creedmoor component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on hillslopes on piedmonts. The parent material consists of Triassic residuum. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 30 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.
CvC2	C	0.28	6-10%	CREEDMOOR SANDY LOAM	**Component:** Creedmoor (90%) The Creedmoor component makes up 90 percent of the map unit. Slopes are 6 to 10 percent. This component is on hillslopes on piedmonts. The parent material consists of Triassic residuum and loamy marine deposits. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 30 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.
Ps	D	0.28	0-2%	POUNCEY SANDY LOAM	**Component:** Pouncey (95%) The Pouncey component makes up 95 percent of the map unit. Slopes are 0 to 2 percent. This component is in depressions. The parent material consists of loamy marine deposits. Depth to a root restrictive layer is 20 to 40 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 12 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.
BoC	D	0.28	6-10%	BOURNE FINE SANDY LOAM	**Component:** BOURNE FINE SANDY LOAM (85%) The Bourne component makes up 85 percent of the map unit. Slopes are 2 to 6 percent. This component is on marine terraces. The parent material consists of marine terraces. Depth to a root restrictive layer is 12 to 24 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderate. Available water to a depth of 30 inches (or restricted depth) is moderate. Shrink-swell potential is very low. This soil is not flooded. It is not ponded. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.
Ch	C	0.28	0-2%	CHEWACLA SILTY LOAM	**Component:** Chewacla (85%) The Chewacla component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 30 inches (or restricted depth) is high. Shrink-swell potential is moderately high. This soil is frequently flooded. It is not ponded. Nonirrigated land capability classification is 4w. This soil does meet hydric criteria.



COMMONWEALTH OF VIRGINIA
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12/18/20
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DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
SOILS MAP

JOB NO. 45692
SHEET NO. C2.1

POD2020-00355

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DEMOLITION PLAN LEGEND

- REMOVE EXISTING SITE FEATURE
- REMOVE EXISTING UTILITY
- SAWCUT
- REMOVE EXISTING ASPHALT / CONCRETE / GRAVEL / RIP-RAP
- CLEAR AND GRUB EXISTING WOODED AREA

DEMOLITION NOTES

1. CONTRACTOR REPRESENTS THAT THEY HAVE VISITED THE SITE AND DEMOLITION INCLUDES REMOVAL OF ALL EXISTING MATERIALS, SHOWN AND UN-SHOWN, REQUIRED TO PERFORM THE WORK.
2. CONTRACTOR SHALL HIRE AN INDEPENDENT UTILITY LOCATOR TO FIELD LOCATE ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.
3. ANY EXISTING UTILITIES CUT DURING CONSTRUCTION ACTIVITIES ARE TO BE REPAIRED, COORDINATED, AND RESTORED TO SERVICE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
4. ALL EXISTING UTILITIES INDICATED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY UNLESS OTHERWISE NOTED.
5. SAWCUT ALL DEMOLISHED ASPHALT AND SIDEWALK EDGES.
6. ALL EXISTING UTILITIES SHALL MAINTAIN MINIMUM COVER DURING CONSTRUCTION. ALL EXISTING VALVES AND MANHOLES TO REMAIN SHALL BE FLUSHED TO FINISHED GRADE.
7. COORDINATE THE REMOVAL / RELOCATION OF ALL POLES AND UNDERGROUND UTILITIES WITH OWNER, INSPECTOR, AND UTILITY PROVIDER.
8. CONTRACTOR TO REPLACE THE EXISTING PIPE FROM MANHOLE TO MANHOLE IF THE PIPE IS DAMAGED DURING THE TIE IN

N: 3745198.49
E: 11734330.77

N: 3745070.91
E: 11734604.18

N: 3745336.98
E: 11734342.66

16' UTILITY ESMT.
D.B. 1794 PG. 1921

CLEAR AND GRUB EXISTING TREES

EXIST. BLDG. MAINTENANCE SHOP

REMOVE TREE AND REPLACE IN NEW ISLAND

SAWCUT AND REMOVE EX ASPHALT PAVEMENT, ISLAND AND CURB

N: 3745562.16
E: 11734536.94

20' FLOODPLAIN SETBACK

WATERS OF THE US (WOUS)

100 - YEAR FLOOD PLAIN

QUIETWOOD SUBDIVISION

LAKEWOOD MANOR RETIREMENT COMMUNITY

N: 3745672.71
E: 11734601.81

100-YEAR FLOODPLAIN

VARIABLE WIDTH DRAINAGE AND UTILITY EASEMENT

SPECIAL FLOOD HAZARD AREA

CORRECTED EFFECTIVE 100-YEAR FLOODPLAIN

10' UTILITY ESMT.
D.B. 1794 PG. d921

REMOVE PORTION OF EXISTING 10" AC SANITARY PIPE, MANHOLE, AND VENT MANHOLE/ PIPE

EXIST. 10.7 DIA. VENT PIPE

REMOVING EXISTING SHRUBS

32' SIDE YARD SETE

CLEAR AND GRUB EXISTING TREES

SAWCUT AND REMOVE EX ASPHALT PAVEMENT, CURB, AND GUTTER

REMOVE PORTION OF EXISTING 8" PVC SANITARY PIPE

INV IN= 140.05
INV IN= 140.65
INV OUT= 139.90

CLEAR AND GRUB EXISTING TREES

SAWCUT EX ASPHALT PAVEMENT AND REMOVE CURB AND GUTTER

PERMANENT DRAINAGE, UTILITY, SLOPE & GUARDRAIL EASEMENT D.B. 2926 PG. 2392

PERMAN SLOPE &

REMOVE PORTION OF EXISTING 8" UNKNOWN MATERIAL SANITARY PIPE

WATERS OF THE US (WOUS)

8" UNKNOWN MATERIAL SANITARY

49' FRONT YARD

REMOVE FENCE AS NECESSARY TO HAVE 10' OFFSET OF PROPOSED MANHOLE

N 3745795.37
E 1173484793

RELOCATE EXISTING POLE AND GUY WIRE, COORDINATE WITH OWNER AND UTILITY COMPANY

RELOCATE EXISTING SIGN

REMOVE SOLID WHITE LINE

REMOVE EXISTING BOLLARDS

REMOVE SOLID WHITE LINE

REMOVE SOLID WHITE LINE

REMOVE EXISTING BOLLARD

REMOVE SOLID DOUBLE YELLOW LINE

LAUDERDALE DRIVE

VARIABLE WIDTH R.O.W.

GROVEWOOD CIRCLE

NAD 83

SCALE 1"=40'
0 40' 80'

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

DEMOLITION PLAN

JOB NO. 45692
SHEET NO. C2.2

POD2020-00355

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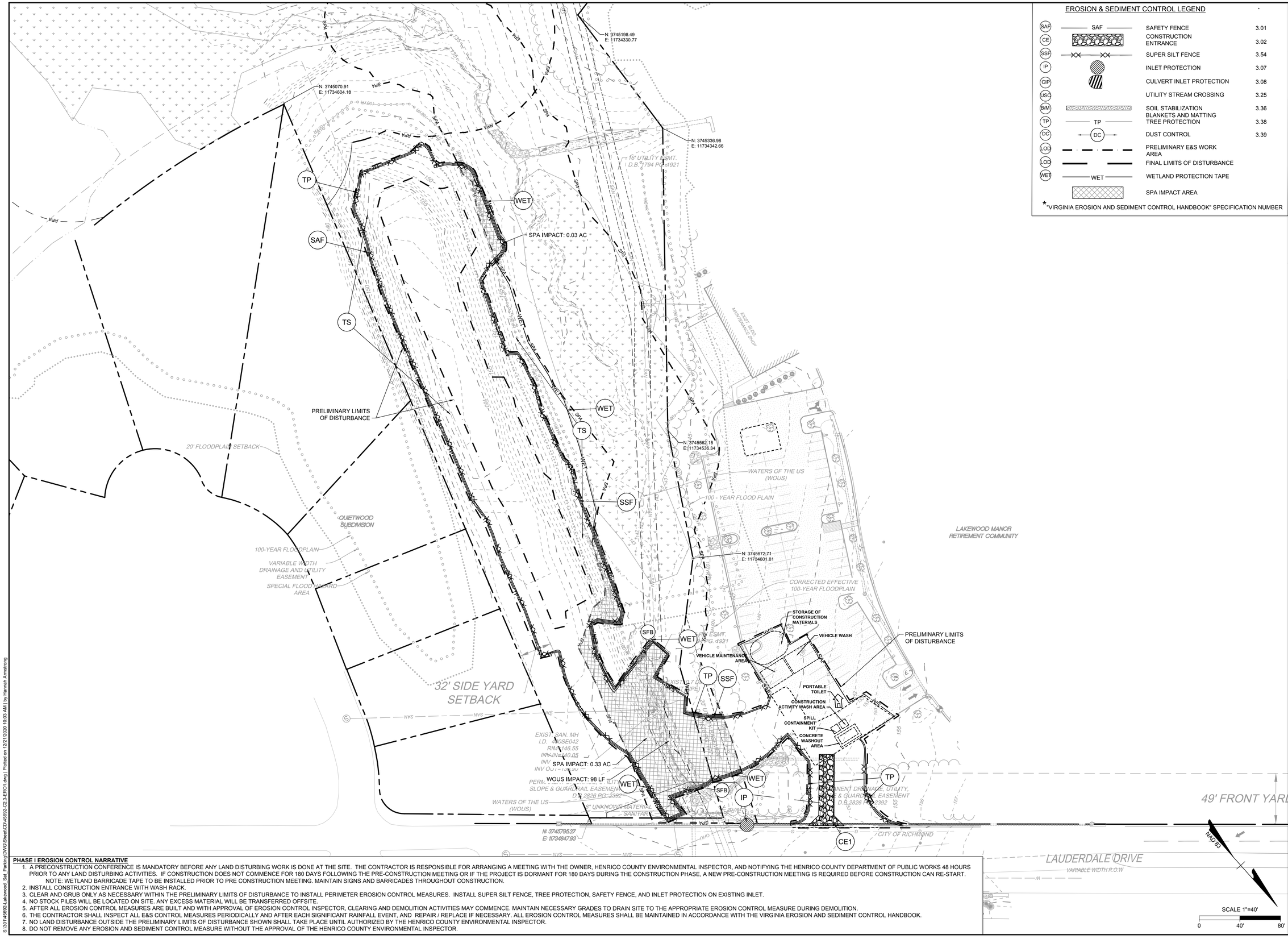

EROSION & SEDIMENT CONTROL LEGEND

SAF	SAFETY FENCE	3.01
CE	CONSTRUCTION ENTRANCE	3.02
SSF	SUPER SILT FENCE	3.54
IP	INLET PROTECTION	3.07
CIP	CULVERT INLET PROTECTION	3.08
USC	UTILITY STREAM CROSSING	3.25
B/M	SOIL STABILIZATION BLANKETS AND MATTING	3.36
TP	TREE PROTECTION	3.38
DC	DUST CONTROL	3.39
LOD	PRELIMINARY E&S WORK AREA	
LOD	FINAL LIMITS OF DISTURBANCE	
WET	WETLAND PROTECTION TAPE	
	SPA IMPACT AREA	

*"VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" SPECIFICATION NUMBER

PHASE I EROSION CONTROL NARRATIVE

1. A PRECONSTRUCTION CONFERENCE IS MANDATORY BEFORE ANY LAND DISTURBING WORK IS DONE AT THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING A MEETING WITH THE OWNER, HENRICO COUNTY ENVIRONMENTAL INSPECTOR, AND NOTIFYING THE HENRICO COUNTY DEPARTMENT OF PUBLIC WORKS 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITIES. IF CONSTRUCTION DOES NOT COMMENCE FOR 180 DAYS FOLLOWING THE PRE-CONSTRUCTION MEETING OR IF THE PROJECT IS DORMANT FOR 180 DAYS DURING THE CONSTRUCTION PHASE, A NEW PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE CONSTRUCTION CAN RE-START.
   NOTE: WETLAND BARRICADE TAPE TO BE INSTALLED PRIOR TO PRE CONSTRUCTION MEETING. MAINTAIN SIGNS AND BARRICADES THROUGHOUT CONSTRUCTION.
2. INSTALL CONSTRUCTION ENTRANCE WITH WASH RACK.
3. CLEAR AND GRUB ONLY AS NECESSARY WITHIN THE PRELIMINARY LIMITS OF DISTURBANCE TO INSTALL PERIMETER EROSION CONTROL MEASURES. INSTALL SUPER SILT FENCE, TREE PROTECTION, SAFETY FENCE, AND INLET PROTECTION ON EXISTING INLET.
4. NO STOCK PILES WILL BE LOCATED ON SITE. ANY EXCESS MATERIAL WILL BE TRANSFERRED OFFSITE.
5. AFTER ALL EROSION CONTROL MEASURES ARE BUILT AND WITH APPROVAL OF EROSION CONTROL INSPECTOR, CLEARING AND DEMOLITION ACTIVITIES MAY COMMENCE. MAINTAIN NECESSARY GRADES TO DRAIN SITE TO THE APPROPRIATE EROSION CONTROL MEASURE DURING DEMOLITION.
6. THE CONTRACTOR SHALL INSPECT ALL E&S CONTROL MEASURES PERIODICALLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT, AND REPAIR / REPLACE IF NECESSARY. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
7. NO LAND DISTURBANCE OUTSIDE THE PRELIMINARY LIMITS OF DISTURBANCE SHOWN SHALL TAKE PLACE UNTIL AUTHORIZED BY THE HENRICO COUNTY ENVIRONMENTAL INSPECTOR.
8. DO NOT REMOVE ANY EROSION AND SEDIMENT CONTROL MEASURE WITHOUT THE APPROVAL OF THE HENRICO COUNTY ENVIRONMENTAL INSPECTOR.

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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YOUR VISION ACHIEVED THROUGH OURS.

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12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
PHASE I EROSION & SEDIMENT CONTROL PLAN

JOB NO. 45692
SHEET NO. C2.3

POD2020-00355

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EROSION & SEDIMENT CONTROL LEGEND

SAF	SAFETY FENCE	3.01
CE	CONSTRUCTION ENTRANCE	3.02
SSF	SUPER SILT FENCE	3.54
IP	INLET PROTECTION	3.07
CIP	CULVERT INLET PROTECTION	3.08
OP	OUTLET PROTECTION	3.18
PS	PERMANENT SEEDING	3.32
B/M	SOIL STABILIZATION BLANKETS AND MATTING	3.36
TP	TREE PROTECTION	3.38
DC	DUST CONTROL	3.39
LOD	PRELIMINARY E&S WORK AREA	
LOD	FINAL LIMITS OF DISTURBANCE	
WET	WETLAND PROTECTION TAPE	

*"VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" SPECIFICATION NUMBER

PHASE II EROSION CONTROL NARRATIVE

1. THE PHASE I EROSION CONTROL MEASURES MUST REMAIN IN PLACE AND OPERATIONAL THROUGH OUT PHASE II.
2. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 9VAC 25-840-40.
3. ONCE ALL PERIMETER EROSION CONTROL MEASURES ARE INSTALLED, AND WITH PERMISSION FROM THE COUNTY INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE SITE AND COMPLETE DEMOLITION ACTIVITIES AS SHOWN.
4. COMMENCE ROUGH GRADING OF SITE AS SHOWN ON SHEET C4.0.
5. BEGIN GRADING OPERATIONS, INSTALL CURB, SITE UTILITY CONSTRUCTION AND ALL ASSOCIATED SITE WORK.
6. INSTALL CULVERT, CULVERT INLET PROTECTION, AND ROCK OUTLET PROTECTION AS INDICATED.
7. FOLLOWING EACH SIGNIFICANT STORM EVENT PERFORM INSPECT ALL PERIMETER CONTROLS AND MAINTAIN ALL EROSION AND SEDIMENT MEASURES BY REMOVING ACCUMULATED SEDIMENT AS DIRECTED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK OR BY THE COUNTY ENVIRONMENTAL INSPECTOR.
8. PLACE TOPSOIL ON GRASS AREAS AND SEED AREAS. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.
9. CLEAN OUT ANY ACCUMULATED SEDIMENT FROM THE OUTLET PROTECTION AND REDRESS RIP-RAP.
10. ONCE SITE IS STABILIZED, AND WITH THE PERMISSION OF THE COUNTY INSPECTOR, REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL MANUAL AFTER RECEIVING APPROVAL TO DO SO FROM THE COUNTY EROSION CONTROL INSPECTOR.

NOTE:

- DO NOT REMOVE ANY EROSION AND SEDIMENT CONTROL MEASURE WITHOUT THE APPROVAL OF THE HENRICO COUNTY ENVIRONMENTAL INSPECTOR.

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TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

PHASE II EROSION & SEDIMENT CONTROL PLAN

JOB NO. 45692
SHEET NO. C2.4

NAD 83

SCALE 1"=40'
0 40' 80'

MINIMUM STANDARDS FOR EROSION AND SEDIMENT CONTROL

MS-1 Any area that has reached final grade must receive temporary or permanent soil stabilization within seven days. Areas not at final grade that will remain dormant longer than 30 days must have temporary soil stabilization within seven days. Areas that will be dormant longer than one year must have permanent soil stabilization.

MS-2 All soil stockpiles and borrow areas must be stabilized or protected with sediment trapping measures. Temporary protection and permanent stabilization shall be applied to all on-site soil stockpiles and borrow areas and soil intentionally transported from the project site.

MS-3 Permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive, and will inhibit erosion.

MS-4 Sediment basins and traps, and perimeter ESC measures intended to trap sediment must be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

MS-5 Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately upon installation.

MS-6 Sediment basin and trap design information. **

MS-7 Cut and fill slopes must be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

MS-8 Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume, or slope drain structure.

MS-9 Whenever water seeps from a slope face, adequate drainage or other protection must be provided.

MS-10 Inlet protection is required for all storm inlets that will be made operable during construction

MS-11 Before newly constructed storm water conveyance systems are made operational, adequate outlet protection and any required channel lining must be installed in both the conveyance channel and receiving channel.

MS-12 When work in a live watercourse is performed, precautions must be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent during construction. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used if armored by non-erodible cover materials.

MS-13 When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of non-erodible material must be provided.

MS-14 All applicable federal, state, and local regulations related to working in or crossing live watercourses must be met.

MS-15 The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

MS-16 Underground utility lines shall be installed in accordance with the following standards in additions to other applicable criteria:

a. No more than 500 linear feet of trench may be opened at one time.

b. Excavated material shall be placed on the uphill side of trenches.

c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged so that it does not adversely affect flowing streams or off-site property.

d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

e. Re-stabilization shall be accomplished in accordance with these regulations.

f. Comply with all applicable safety regulations.

MS-17 Construction entrances are required at all access points to the construction site. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This applies to individual development lots as well as to larger land-disturbing activities.

MS-18 All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures must be permanently stabilized to prevent further erosion and sedimentation.

MS-19 Adequate outfall information **

** MS-6 and MS-19 deal with the design aspects of the plan. For further information, please consult the latest edition of the Virginia Erosion and Sediment Control Handbook. Also, refer to the sediment basin/trap design tables and the adequate outfall table located on the "Erosion and Sediment Control – Standard Details/Calcs." sheet.

Any variance to the above listed minimum standards must be requested and approved in writing.

UTILITY NOTES

All excavated material is to be placed on the uphill side of trench.

All storm and sanitary sewer lines not in streets are to be mulched and seeded within 7 days after backfill. No more than 500 feet of trench is to be open at one time.

Construction access roads shall be located on the uphill side of the trench or over the trench whenever possible.

All construction discharge water shall be adequately filtered to remove silt prior to discharge into waterways and wetlands.

Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

All work must be in compliance with applicable safety regulations.

All stream crossings and stream diversions require approval from the Environmental Engineer prior to any instream work (see STREAM CROSSINGS / DIVERSIONS / WORK IN STREAMS).

SILT FENCE NOTES

Silt fence and filter fabric must be entrenched.

Posts for silt fences shall be either 2-inch diameter oak, 4-inch diameter pine or 1.33 pounds per linear foot steel. Posts will be a minimum of 5 feet in length. Steel posts shall have projections for fastening wire to them.

Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

Post shall be spaced a maximum of 10 feet apart at the barrier location and driven securely into the ground (min. of 12 inches) when extra strength fabric is used. Without the wire support fence, post spacing shall not exceed 6 feet.

When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the post.

Sediment must be removed when deposits reach approximately one – half the height of the barrier.

Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared, and seeded.

Under no circumstances should silt fence be installed in live streams.

Silt fence shall be removed upon completion of the project.

STREAM CROSSINGS / DIVERSIONS / WORK IN STREAMS

When a live watercourse must be crossed by construction vehicles or temporarily diverted, a plan/sketch showing appropriate details of the crossing/diversion must be submitted for approval to Henrico County's Environmental Engineer prior to any work involving the stream. The plan shall include but is not limited to: all pipes, mats, channel details, erosion control devices, sequence for construction, etc. Guidelines for pipe diameters can be found in table 3.24-A of the Virginia Erosion and Sediment Control Handbook. Channel liners will be in accordance with Section 3.25 of the Handbook.

No motorized equipment will at any time be within a waterway unless supported by floatation equipment or a temporary construction pad composed of clean non-erodible material (rocks, rip-rap, mats).

Clearing and grubbing of wetland areas will be kept to a minimum. All wetlands temporarily disturbed during construction will be restored to their original elevation, by removing excess material, grading and seeding with a wetland seed mix. In no case shall wetland areas be reseeded with any species of fescue.

The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse has been completed.

SWM FACILITIES INSPECTIONS / CERTIFICATIONS

Inspections of proposed stormwater management (SWM) facilities must be conducted at two phases of construction – "rough grading" and "final conformance". County staff, the Developer or his/her representative, and the Developer's engineer should be present at the inspections.

The Developer or his/her representative is responsible for notifying the Environmental Inspector at the appropriate times during construction when the inspections should occur. Failure to request the inspections may result in delay of final acceptance of the SWM facility. Three inches of topsoil is required for areas of the SWM facility that will be stabilized with vegetation.

The Developer or his/her representative is responsible for having a professional registered in the Commonwealth of Virginia present during SWM facility construction (including, but not limited to: initial site preparation, excavation/grading, installation of the embankment, principal outlet structure, and emergency spillway, etc.) to certify that the SWM facility is constructed in accordance with the approved Environmental Compliance Plan and so that appropriate information can be gathered for the construction record drawing.

A construction record drawing prepared by a professional registered in the Commonwealth of Virginia is required for each permanent SWM facility and must be submitted to the Administrator for review and approval prior to termination of the General Construction Permit and/or release of the Environmental Compliance bond. (Section 9.6 – Henrico County Environmental Compliance Manual) The construction record drawing must accurately depict as-built details such as, but not limited to, inverts, lengths, depths, material types and sizes, grading, and the location of all required components.

RESPONSIBLE LAND DISTURBER (RLD) POLICY

As a prerequisite to engaging in the land-disturbing activities shown on this plan, the individual responsible for carrying out the plan and holding a certificate of competence shall be identified (the RLD).

The RLD will:

1. Attend the Pre-Construction meeting and sign the approved plans,
2. Inspect the ESC measures periodically at least once every two weeks, or within 48 hours of any runoff producing storm event,
3. For projects with site area of 1 acre or greater, submit inspection reports using a standard form supplied by the County to the Environmental Inspector listing all deficiencies or stating no deficiencies were found, and
4. Coordinate the implementation and maintenance of all erosion and sediment control measures in accordance with the approved plan.

MOSQUITO CONTROL NOTES

All construction sites and erosion and sediment control measures must be inspected and maintained to eliminate or minimize areas that promote mosquito breeding. Remove or empty all containers and trapped water in tarps. Fill and grade tire ruts or other imperfections in grade. Any standing water that remains for FIVE (5) days or more must be treated with an appropriate larvicide, including water in sediment basins and traps.

When a mosquito breeding area is found, removal or treatment of the area is required immediately. Inspection and treatment questions may be directed to Henrico County at (804) 501-7333. Other pesticide application questions should be directed to the Virginia Department of Agricultural & Consumer Services (VDACS) at (804) 371-6560.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

Henrico County's Environmental Inspector (804-727-8328) must be contacted at least 48 hours prior to any land disturbing activity.

All activities on the site must comply with Chapter I0 of the Henrico County Code.

All erosion and sediment control (ESC) measures must be placed prior to, or as the first step in grading. The preliminary limits of disturbance must be the minimum necessary to allow installation of the ESC measures and should include all areas necessary for installing the initial ESC measures, including stockpiles, borrow areas, staging areas, etc. Disturbance outside of the preliminary limits of land disturbance may not occur until the Environmental Inspector has approved the ESC measure installation.

If additional ESC devices are found necessary during construction, they must be installed as directed by the Environmental Inspector for Henrico County.

Unless otherwise approved by the Environmental Engineer, all runoff must drain to a sediment basin or trap during all phases of construction.

All ESC devices must be installed and maintained in accordance with the latest version of the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations.

A construction entrance must be constructed and properly maintained in accordance with Std. & Spec. 3.05 – Construction Entrance, in the latest version of the Virginia Erosion and Sediment Control Handbook. If mud tracking becomes a problem, the Environmental Inspector will require additional measures (i.e. wash rack).

If dust becomes a problem during construction, a water truck will be required on-site at all times, and dust must be controlled in accordance with Std. & Spec. 3.39 – Dust Control, in the latest version of the Virginia Erosion and Sediment Control Handbook.

Dewatering of footings, excavated trenches, sediment basins/traps, etc. must be done in accordance with Std. & Spec. 3.26 – Dewatering Structure, in the latest version of the Virginia Erosion and Sediment Control Handbook. The Environmental Inspector must approve the method prior to beginning dewatering.

All temporary stockpile locations must be shown on the plan. Stockpiles may remain in place one year from the final plan approval date, unless the Director of Public Works grants an extension in response to a written request.

Any soil or fill material intentionally transported from the project site must be taken to an approved location, such as an active landfill or other active site that is operating under an approved Erosion and Sediment Control Plan.

In subdivision developments, temporary sediment basins/traps must remain in place until at least 80% of homes that drain to the basins/traps are complete and the associated disturbed areas are stabilized. Sediment basins/traps cannot be removed without approval of the Environmental Inspector. Once the temporary sediment basin/traps have been removed, the developer, contractor, and/or homebuilder are responsible for erosion and sediment control on individual lots until stabilization is achieved.

In the event a contractor dumps, discharges or spills any oil or chemical that reaches or has the potential to reach a waterway, the contractor shall immediately notify all appropriate jurisdictional State, Federal, and County (501-5000) agencies and shall take immediate actions for containment and removal of the oil or chemical.

SEEDING NOTES

All stabilization/seeding will be accomplished in accordance with the Virginia Erosion and Sedimentation Control Handbook.

Any disturbed area not paved, sodded, or built upon, will have a vegetative cover prior to final inspection, and in the opinion of the Environmental Engineer will be mature enough to control soil erosion satisfactorily and survive severe weather conditions.

Stream diversion areas, waterways, banks, and related areas will be seeded and mulched immediately after work in watercourse is completed. In no case shall wetland areas be reseeded with any species of fescue.

Winterization – any disturbed area not paved, sodded, or built upon by October 15 is to be seeded and mulched on that date unless waived by the Environmental Engineer.

Permanent or temporary soil stabilization shall be applied to denuded areas with in seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade, but will remain dormant for longer than thirty (30) days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

Electric power, telephone, and gas supply trenches must be compacted, seeded, and mulched within 7 days after backfill.

All temporary earth berms, diversions, and silt dams are to be mulched and seeded for vegetative cover immediately after grading. Straw or hay mulch is required. The same applies to all stockpiles, on site as well as soil (intentionally) transported from the project site.

Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events.

RESOURCE PROTECTION AREAS, STREAM PROTECTION AREAS, WETLANDS, AND WATERS OF THE U.S.

Prior to beginning any land disturbing activity, all Resource Protection Areas (RPAs), Stream Protection Areas (SPAs), wetlands, and Waters of the U.S. (WOUS) not permitted for impact shall be delineated for protection with orange safety fence or non-tearable yellow and black barricade tape. This includes, but is not limited to, clearing limits associated with roadways, utilities, and buildings.

Additional restoration or replanting may be required for RPAs, SPAs, wetlands, and WOUS disturbed during construction.

ENVIRONMENTAL SITE ASSESSMENT INFORMATION

Plans must accurately show all RPA, SPA, and RMA features.

RESOURCE PROTECTION AREAS (RPA):

1. Is there a tributary stream located on the parcel? ..... **YES** NO
2. Are there any tidal wetlands present on the parcel? ..... YES **NO**
3. Are there any non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams? ..... **YES** NO
4. Are there any tidal shores on the parcel? ..... YES **NO**
5. Does the site lie within 100 feet of any of the above site characteristics designated as Resource Protection Areas (RPAs)? ..... **YES** NO

If the answer to any of the above questions is "YES", the parcel contains a Resource Protection Area (RPA).

RESOURCE MANAGEMENT AREAS (RMA):

6. Are there any special flood hazard areas (100-year floodplain) located on the parcel? ..... **YES** NO
7. Are highly erodible soils, including steep slopes, present on the parcel and contiguous to any of the above RPA features? ..... **YES** NO
8. Does the parcel contain any highly permeable soils contiguous to an RPA? ..... **YES** NO
9. Does any portion of the parcel lie within 100 feet of a Resource Protection Area? ..... **YES** NO
10. Does the entire site (outside of the RPA) lie within a Resource Management Area? ..... **YES** NO

STREAM PROTECTION AREAS (SPA):

11. Is there any non-perennial stream with greater than 100 acres of contributing drainage area located on the parcel? ..... **YES** NO
12. Does any of the site lie within 50 feet of the stream bank of a SPA stream? ..... **YES** NO

OTHER ENVIRONMENTAL SITE INFORMATION:

13. Are there any wetlands/waters of the United States located on the parcel? ..... **YES** NO
14. Is development or land disturbance proposed in any wetlands/waters of the United States? ..... **YES** NO

Parcels containing RPAs/RMAs/SPAs must satisfy all requirements of the Henrico County Code applicable to development within Chesapeake Bay Preservation Areas. Land disturbance in wetlands and/or waters of the United States requires either a evidence of U.S. Army Corps of Engineers/Virginia Department of Environmental Quality (DEQ) permits or a certification from a principal in the engineering firm that the proposed wetland impacts are authorized by law.

I hereby certify that the above information is based on a field visit at (project name)

LAKEWOOD MANOR RETIREMENT COMMUNITY

performed on MARCH 28, 2017
and that I have reviewed all maps and other documentation deemed necessary to certify the accuracy of this information.

Jason Mullins
Signature

JASON MULLINS
Name (please print)

APRIL 7, 2017
Date

My Virginia License or Certificate Number is: 044373

ACKNOWLEDGMENTS

I hereby acknowledge that prior to any land disturbing activity, all buffer areas and wetlands as defined in the Henrico County code shall be conspicuously flagged or otherwise identified and not disturbed unless authorized by law, and that the applicant shall notify the Engineering and Environmental Services Division (EESD) upon completion of flagging. (Contact the EESD at 727-8328 to arrange a pre-construction meeting to verify the limits of flagging.)

I hereby certify that no more land is being disturbed than is necessary to provide for the desired development use.

I hereby certify that all erosion and sediment control measures shall be maintained, and the owner and/or agent will inspect the erosion and sediment control measures at least once every two week period, and within 48 hours following rainstorm events during construction to ensure compliance with the approved plan. Records of self-inspection shall be maintained on the site and available for review by County Inspectors.

I hereby acknowledge that the U.S. Army Corps of Engineers and/or Virginia Department of Environmental Quality may have additional jurisdiction over wetlands not regulated by Henrico County.

I hereby acknowledge that a Virginia Pollutant Discharge Elimination System (VPDES) permit application [including a Virginia Stormwater Management Program (VSMP) permit application], if required, has been made for land disturbing activities of 2,500 square feet or greater.

Signature (Owner/Developer): Derek Meyer

Name (please print): DEREK MEYER

Date: 7/30/20

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC WORKS

EROSION AND SEDIMENT CONTROL - STANDARD NOTES

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE
CORPORATE OFFICE
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE: 8/6/2020
DRAWN BY: H. ARMSTRONG
DESIGNED BY: D. O'BOYLE
CHECKED BY: J. MULLINS
SCALE: AS SHOWN

TIMMONS GROUP

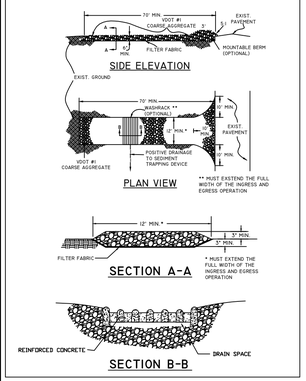
LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
SEDIMENT & EROSION CONTROL NOTES AND DETAILS

JOB NO. 45692
SHEET NO. C2.5

POD2020-00355

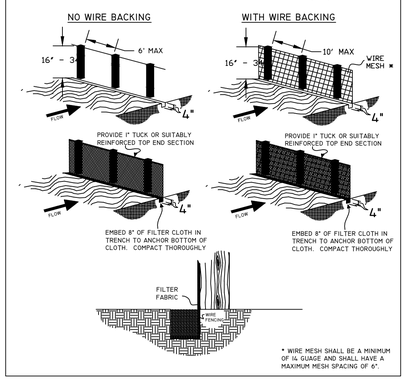
STONE CONSTRUCTION ENTRANCE

STD. & SPEC. 3.02 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



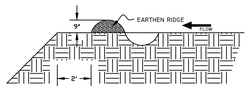
SILT FENCE

STD. & SPEC. 3.05 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



TEMPORARY FILL DIVERSION

STD. & SPEC. 3.10 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)

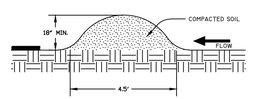


THE DIVERSION SHALL BE AT LEAST 2' INSIDE OF THE TOP EDGE OF FILL

THE SUPPORTING RIDGE SHALL BE CONSTRUCTED WITH A UNIFORM HEIGHT ALONG ITS ENTIRE LENGTH TO PREVENT BREACHING.

TEMPORARY DIVERSION DIKE

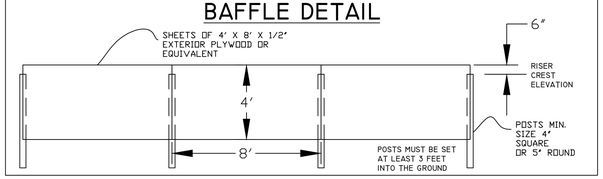
STD. & SPEC. 3.09 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



SIDE SLOPES MUST BE 1.5:1 OR FLATTER

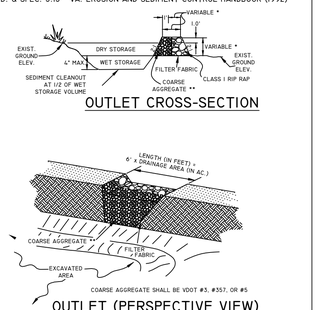
TEMPORARY OR PERMANENT SEEDING AND MULCH MUST BE APPLIED IMMEDIATELY UPON CONSTRUCTION

BAFFLE DETAIL



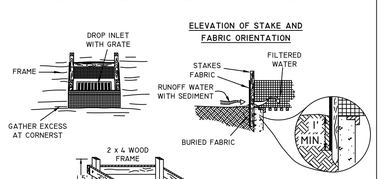
TEMPORARY SEDIMENT TRAP

STD. & SPEC. 3.13 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



SILT FENCE DROP INLET PROTECTION

STD. & SPEC. 3.07 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)

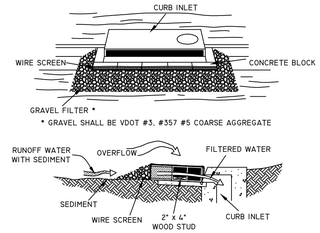


SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5%) WHERE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 cfs ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

STD. & SPEC. 3.07 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)

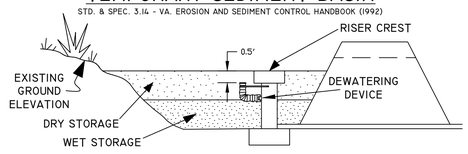


SPECIFIC APPLICATION

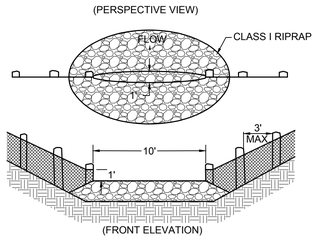
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

TEMPORARY SEDIMENT BASIN

STD. & SPEC. 3.14 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



(PERSPECTIVE VIEW)



NOTE: SILT FENCE BREAK TO BE PLACED AT LOW IN FENCE LINE.

SFB **SILT FENCE BREAK DETAIL**

NO SCALE

SEDIMENT TRAPS

Trap #	Drainage Area (acres)	Wet Storage			Dry Storage			Outlet Length (Feet)	Botton Elevation	Top of Berm Elevation	Top of Berm Width	Dimensions (L x W)
		Volume Required (Cu. Yd.)	Volume Provided (Cu. Yd.)	Elevation	Volume Required (Cu. Yd.)	Volume Provided (Cu. Yd.)	Elevation					

SEDIMENT BASINS

Basin #	Drainage Area (acres)	Wet Storage		Dry Storage		Botton Elevation	Riser Crest Elevation	Riser Diameter	Dewatering Device Elevation	Dewatering Device Diameter	25- Yr. Storm Elevation	Emergency Spillway Elevation	Anti-Vortex Device Diameter	Top of Dam Elevation	Top of Dam Width	BAFFLE			BARREL			
		Volume Required (Cu. Yd.)	Volume Provided (Cu. Yd.)	Volume Required (Cu. Yd.)	Volume Provided (Cu. Yd.)											Flowlength to Width Ratio	Baffle Length	Top of Baffle	Pipe Length	Pipe Diameter	Invert In	Invert Out

CHANNEL PROTECTION COMPLIANCE SUMMARY TABLE

Discharge Point	Conditions within Limits of Analysis	Applicable Channel Protection Criteria												
		Criteria A				Criteria B	Criteria C							
		Q_2	Q_{cap}	V_2	$V_{allowable}$	Project consistent with design of restored system	$Q_{developed}$	$RV_{developed}$	IF	$Q_{pre\text{-}developed}$	$RV_{pre\text{-}developed}$	$Q_{developed} \times RV_{developed}$	≤	IF × $Q_{pre\text{-}developed} \times RV_{pre\text{-}developed}$
	☐ Manmade ☐ Restored ☒ Natural	SHEET FLOW INTO FLOODPLAIN				☐ YES	SHEET FLOW INTO FLOODPLAIN							
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	
	☐ Manmade ☐ Restored ☐ Natural					☐ YES							≤	

Channel Protection Criteria

A. The stormwater conveyance system conveys the post-development peak flow rate from the two-year 24-hour storm event without causing erosion of the system (V_2 must be shown to be non-erosive)

B. The development project, in combination with other stormwater runoff, is consistent with the design parameters of the restored stormwater conveyance and the restored stormwater conveyance system is functioning as designed

C. The discharge from the development satisfies the Energy Balance requirement

$(Q_{developed} \times RV_{developed}) \leq IF \times (Q_{pre\text{-}developed} \times RV_{pre\text{-}developed})$

where:

$Q_{developed}$ = the peak flow rate of runoff from the developed site

$RV_{developed}$ = the volume of runoff from the site based on developed conditions

IF = an improvement factor (0.8 for sites > 1 acre, 0.9 for sites ≤ 1 acre)

$Q_{pre\text{-}developed}$ = the peak flow rate of runoff from the pre-developed site

$RV_{pre\text{-}developed}$ = the volume of runoff from the site based on pre-developed conditions

FLOOD PROTECTION COMPLIANCE SUMMARY TABLE

Discharge Point	Conditions within Limits of Analysis	*APPLICABLE FLOOD PROTECTION CRITERIA*				
		Criteria A		*Criteria B*		
		$Q_{10\text{-}post}$	$Q_{capacity}$	$Q_{10\text{-}post}$ *(Required for Criteria B.1 and B.2)*	$Q_{capacity}$ *(Required for Criteria B.1)*	$Q_{10\ pre\text{-}developed}$ *(Required for Criteria B.2)*
	☐ No Localized Flooding ☒ Existing Localized Flooding	SHEET FLOW INTO FLOODPLAIN		SHEET FLOW INTO FLOODPLAIN		
	☐ No Localized Flooding ☐ Existing Localized Flooding					
	☐ No Localized Flooding ☐ Existing Localized Flooding					
	☐ No Localized Flooding ☐ Existing Localized Flooding					
	☐ No Localized Flooding ☐ Existing Localized Flooding					
	☐ No Localized Flooding ☐ Existing Localized Flooding					

Flood Protection Criteria

A. Where localized flooding does not currently exist, the 10-year 24-hour storm event must be confined to the most restrictive stormwater conveyance system within the limits of analysis.

B. Where localized flooding exists within the limits of analysis, the 10-year 24-hour storm event must:
   1. be confined within the most restrictive stormwater conveyance system within the limits of analysis (detention or downstream improvements may be provided to meet this criterion), or
   2. be released at a rate that is less than the pre-development peak flow rate from the 10-year 24-storm event.

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE **CORPORATE OFFICE**
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
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YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

POD2020-00355

EROSION AND SEDIMENT CONTROL - STANDARD DETAILS/CALCS.

COUNTY OF HENRICO
DEPARTMENT OF PUBLIC WORKS

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
SEDIMENT & EROSION CONTROL NOTES AND DETAILS

JOB NO. 45692
SHEET NO. C2.6

S:\301\45692-Lakewood_Sat_Parking\DWG\Sheet\C2\45692-C2.5-ECND.dwg | Plotted on 12/21/2020 10:06 AM | by Hannah Armstrong

PURPOSE

4VAC50-60-54 of the Virginia Stormwater Management Program (VSMP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) be developed for all regulated land disturbing activities. The SWPPP must include, but not be limited to, an approved erosion and sediment control plan, an approved stormwater management plan, and this **Pollution Prevention Plan** (PPP) for regulated land disturbing activities, and a description of any additional control measures necessary to address a TMDL as applicable.

The plan for implementing pollution prevention measures during construction activities developed on this sheet must be implemented and updated as necessary. Any PPP requirements not included on this sheet must be incorporated into the SWPPP required by 4VAC50-60-54 that must be developed before land disturbance commences. This PPP identifies potential sources of pollutants that may reasonable be expected to affect the quality stormwater discharges from the construction site (both on- and off-site activities) and describes control measures that will be used to minimize pollutants in stormwater discharges from the construction site.

OTHER REFERENCED PLANS

SWPPP requirements may be fulfilled by incorporating, by reference, other plans. All plans incorporated by reference become enforceable under the VSMP Permit Regulations and General Permit VAR10 for Discharges of Stormwater from Construction Activities. If a plan incorporated by reference does not contain all of the required elements of the PPP, the operator must develop the missing elements and include them in the SWPPP.

Independent Plans Incorporated by Reference	Date Approved
Stormwater Management Plans (Regional or Master)	
Spill Prevention, Control, and Countermeasure Plans	
Off-Site Stockpile	
Off-Site Borrow Area	

POTENTIAL POLLUTANT SOURCES

The following sources of potential pollutants must be addressed in the Pollution Prevention Plan. Various controls and/or measures designed to prevent and/or minimize pollutants in stormwater discharges from the project site must be applied to the sources found on the site. Additional information concerning the following controls and/or measures may be found in the SWPPP. Deviations from the location criteria may be approved by the Henrico County Environmental Inspector.

LEAKS, SPILLS, AND OTHER RELEASES

- ✓ The operator(s) shall ensure procedures are in place to prevent and respond to all leaks, spills and other releases of pollutants.
- ✓ The operator(s) shall ensure all leaks, spills and other releases of pollutant are contained and cleaned immediately upon discovery. Any contaminated materials are to be disposed in accordance with federal, state, and/or local requirements.
- ✓ The operator(s) shall ensure spill containment kits containing appropriate materials (e.g., absorbent material and pads, brooms, gloves, sand, etc.) are available at appropriate locations, including, but not limited to: designated areas for vehicle and equipment maintenance; vehicle and equipment fueling; storage and disposal of construction materials, products, and waste; and storage and disposal of hazardous and toxic materials; and sanitary waste facilities.
- ✓ The locations of the spill containment kits are identified as described below:

Date	Shown on Plan Sheet #(s)	Location
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location	Operator(s) Initials

- ✓ The operator(s) shall notify the Department of Environmental Quality of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery.
- ✓ The operator(s) shall notify the Department of Environmental Quality (DEQ) of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery. Written notice of the discharge must be sent to DEQ and Henrico County Department of Public Works within five (5) days of the discovery.

EQUIPMENT / VEHICLE WASHING

- ✓ Washing must be conducted in a ***dedicated area*** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ All wash water used in vehicle wheel washing must be directed to a sediment basin/trap.
- ✓ All vehicle washing activities other than wheel washing must have secondary containment.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Activity	Location of ***Dedicated Area(s)***	Shown on Plan Sheet #(s)	Water Source Location
Wheel Wash	LAKEWOOD MANOR	C2.3	WATER TRUCK
Other Wash Areas			
REVISIONS TO LOCATIONS			
Activity	Location of ***Dedicated Area(s)***	Shown on Plan Sheet #(s)	Water Source Location	Operator's Initials

VEHICLE FUELING AND MAINTENANCE

- ✓ Conduct regular maintenance in a ***dedicated area*** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ If fueling is conducted at a ***dedicated area***, the location must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ The ***dedicated areas*** must be designed to eliminate the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities by providing secondary containment (spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available).
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	Operator's Initials

- ✓ If mobile fueling will be used, the fueling must be done in an area that located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ Spill kits must be readily available at all mobile fueling locations.
- ✓ On-site storage tanks must have a means of secondary containment (spill berms, decks, spill containment pallets, etc.) and must be covered where appropriate.
- ✓ All vehicles on site must be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE

- ✓ Storage of construction products, materials, and waste is to be conducted in ***dedicated areas***.
- ✓ The ***dedicated area*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials and wastes including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures; (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete and other trash or building products.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage of construction products and materials
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage of construction products and materials	Operator(s) Initials

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for waste from construction products and materials
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for waste from construction products and materials	Operator(s) Initials

- ✓ Follow all federal, state, and local requirements that apply to the use, handling and disposal of pesticides, herbicides, and fertilizers.
- ✓ Keep chemicals on-site in small quantities and in closed, well marked containers.
- ✓ Clean up solid waste, including building materials, garbage, and debris on a daily basis and deposit into covered dumpsters that are periodically emptied.
- ✓ Schedule waste collection to prevent exceeding the capacity of onsite containers. Additional containers may be necessary depending on the phase of construction (e.g., demolition, etc.)
- ✓ Dispose of all solid waste at an authorized disposal site.
- ✓ Ensure that containers have lids or are otherwise protected from exposure to precipitation.

DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES

- ✓ Discharges from other pollutant sources (e.g., water line flushing, storm sewer flushing, above ground storage tanks, etc.) not mentioned elsewhere must be addressed.

Other Potential Pollutant Sources	Location(s) of Potential Pollutant Sources

- ✓ Above ground oil storage tanks with a storage capacity exceeding 1,320 gallons and have a reasonable expectation of a discharge into or upon Waters of the United States are required to have a Spill Prevention Control and Countermeasure (SPCC) Plan.
- ✓ The discharge of contaminated flush water and material removed during flushing operations must be collected and disposed of in accordance with appropriate federal, state, and local requirements.

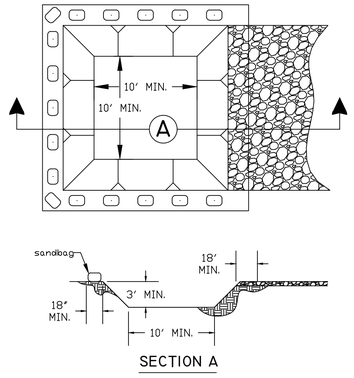
DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES

- ✓ Concrete trucks are not allowed to wash out or discharge surplus concrete or drum wash water on site except in a ***dedicated area(s)*** that is located to prevent discharge to storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- ✓ Each facility must have a stabilized access to prevent mud tracking into the street.
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location of ***Dedicated Area(s)***	Operator's Initials

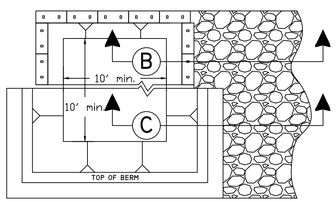
- ✓ Facilities must be cleaned, or new facilities constructed, once the washout area is two-thirds (2/3) full.

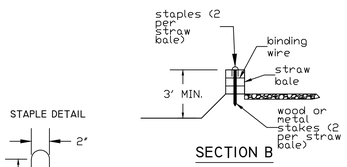
BELOW GRADE CONCRETE WASHOUT AREA



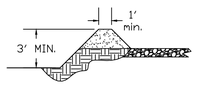
SECTION A

ABOVE GRADE CONCRETE WASHOUT AREA





SECTION B



SECTION C

CONCRETE WASHOUT AREA NOTES

- ✓ The facility must be lined with 10 mil plastic lining that is free from holes, tears, or other defects that might compromise the material's impermeability.
- ✓ The lining must be anchored with staples (2' spacing) or sandbags.
- ✓ Side slopes must be 1:1 (horizontal:vertical) or flatter.
- ✓ Stone access must be provided between the street and the concrete washout area.
- ✓ A "Concrete Washout" sign must be installed within 30 feet of the washout facility. The sign must be no smaller than 2' tall by 4' wide.

DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS

- ✓ Washing activities associated with construction activities other than vehicle and equipment washing, such as clean up of stucco, paint, form release oils, and curing compounds are to be conducted in a ***dedicated area***.
- ✓ The ***dedicated area*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to prevent the discharge of soaps, detergents, solvents, and wash water.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)***
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)***	Operator(s) Initials

- ✓ The ***dedicated area*** must be covered (e.g., plastic sheeting, temporary roof, etc.) to prevent contact with stormwater.
- ✓ The contaminated wastewater from the ***dedicated area*** must be collected for disposal by a waste hauler or discharged to the sanitary sewer.
- ✓ In situations where these pollutants are or could be generated at locations other than at the ***designated area*** (e.g., concrete pours, building washing, etc.), cover (e.g., plastic sheeting, temporary roof, etc.) must be provided to prevent contact with stormwater and the contaminated wastewater from the activity must be collected for disposal by a waste hauler or discharged to the sanitary sewer.

DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE

- ✓ Storage and disposal of hazardous, toxic and sanitary wastes are to be conducted in ***dedicated areas***.
- ✓ The ***dedicated areas*** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- ✓ The ***dedicated areas*** must be designed to prevent the discharge of hazardous, toxic and sanitary waste by avoiding contact with precipitation
- ✓ Each facility must have appropriate signage to inform users where the ***dedicated area(s)*** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage and disposal of hazardous and toxic wastes
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for storage and disposal of hazardous and toxic wastes	Operator(s) Initials

Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for portable toilets
Approved Plan	C2.3	ADJACENT TO CONSTRUCTION ENTRANCE IN EXISTING PARKING LOT
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet #(s)	Location(s) of ***Dedicated Area(s)*** for portable toilets	Operator(s) Initials

- ✓ Consult with local waste management authorities or private firms about the requirements for disposing of hazardous materials and/or soils that may be contaminated with hazardous materials.
- ✓ Never remove the original product label from the container. Follow the manufacturer's recommended method of disposal.
- ✓ Schedule periodic pumping of portable toilets and dispose of waste
- ✓ Dispose of all solid waste at an authorized disposal site.

SWPPP MODIFICATIONS AND REVISIONS

The operator(s) shall ensure the SWPPP is modified and/or revised to reflect:

- ✓ Changes in qualified personnel; delegated authorities or other personnel required as a condition of the General Construction Permit;
- ✓ Changes in site conditions;
- ✓ Changes in the design, construction, operation, or maintenance of the construction site that affect the potential for discharges of pollutants that are not addressed in the normal implementation of the plan; and
- ✓ Ineffective control measures identified during inspections or investigations conducted by the operator's qualified personnel or local, state or federal officials.

Modifications/revisions to the SWPPP shall include additional or modified control measures to address the identified deficiencies.

If the necessary modifications/revisions require approval by the Administrator or DEQ, the modifications/revisions must be implemented no later than seven (7) calendar days following approval.

If the necessary modifications/revisions do not require approval by the Administrator, the modifications/revisions must be implemented prior to the next anticipated storm event or as soon as practicable.

SWPPP UPDATES

The operator(s) shall update the SWPPP to include:

- ✓ A record of dates when 1) major grading activities occur, 2) construction activities temporarily or permanently cease on a portion of the site, and 3) stabilization measures are initiated;
- ✓ Documentation of modifications and revisions to the SWPPP;
- ✓ Areas that have reached final stabilization where no further SWPPP or inspection requirements apply;
- ✓ All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property; and
- ✓ The date, volume, and corrective/preventative actions implemented for any prohibited discharge.

The operator(s) shall update the SWPPP no later than seven (7) days following any of the situations identified above.

OPERATOR INSPECTIONS

The operator(s) identified below shall provide for inspections of the permitted land-disturbing activities by the qualified personnel identified below. The inspections will be conducted (select one the following options):

☐ at least once every four (4) business days; or
☐ at least once every five (5) business days *and* no later than 48 hours following any measurable storm event.

Where areas are in a stabilized condition or runoff is unlikely due to winter conditions, the inspection frequency may be reduced to once every 30 days while these conditions exist. Otherwise, the operator(s) shall resume the regular inspection frequency identified above.

The operator(s) shall provide for inspections of the permitted land-disturbing activity to ensure implementation and continued maintenance of all requirements of the Stormwater Pollution Prevention Plan (Erosion and Sediment Control Plan, Stormwater Management Plan, Pollution Prevention Plan, TMDL requirements, etc.).

Records of the required inspections must be maintained and included in the SWPPP binder. The qualified personnel are encouraged to use the Operator Inspection form provided in the SWPPP binder to document the required inspections. If inspections are conducted once every five (5) business days *and* no later than 48 hours following any measureable storm event, the location of the rain gauge used to determine the amount of rain must be included in the SWPPP and documented in the inspection report.

ACKNOWLEDGEMENTS

I certify under penalty of law that the qualified personnel identified below:

a. has been designated by the Operator to conduct inspections of the permitted site;
b. is knowledgeable in the principles and practices of erosion and sediment control and stormwater management;
c. possesses the skills to assess conditions at the permitted site for the Operator(s) that could impact stormwater quality and quantity;
d. will assess the effectiveness of any erosion and sediment control measures or stormwater management facilities selected to control the stormwater discharges from the permitted site; and
e. will conduct inspections in accordance with the frequency noted above in the OPERATOR INSPECTIONS section of this sheet.

QUALIFIED PERSONNEL	
Name (print)	
Phone	
Additional information is located in Tab 6 of the SWPPP Binder.	

As the Operator(s) or Delegated Authority, I/we understand that prior to initiating land disturbance, the potential pollutant sources, appropriate control measures, and all responsible parties (operator, qualified inspection personnel, contractors, etc.) required as a condition of the General Construction Permit (GCP) and the Stormwater Pollution Prevention Plan (SWPPP) must be identified. I also understand this information must be updated as necessary throughout all phases of construction until the GCP is terminated.

Furthermore,

I/we certify under penalty of law that I/we have read and understand all requirements of the SWPPP (erosion and sediment control plan, stormwater management plan, pollution prevention plan, TMDL provisions, administrative requirements, etc.) and GCP and that the information herein is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

I/we understand that I/we are ultimately responsible for compliance with all conditions and requirements of the SWPPP and GCP and for ensuring all contractors and subcontractors on the permitted site are aware of the conditions and requirements of the SWPPP and GCP.

I/we shall comply with all conditions and requirements of the SWPPP and shall at all times properly operate and maintain all measures and control (and related appurtenances) which are installed or used to achieve compliance with the conditions of the GCP. Proper opration and maintenance also includes adequate funding and adequate staffing.

I/we shall take all reasonable steps to minimize or prevent any discharge in violation of the SWPPP and/or GCP.

I/we understand that if it determined by the Department of Environmental Quality (DEQ) in consultation with the State Water Control Board at any time that stormwater discharges are causing, have reasonable potential to cause, or contribute to and excursion above any applicable water quality standard, the DEQ may, in consultation with the Administrator, take appropriate enforcement action and require:

a. Modification of control measures to adequately address water quality concerns;
b. Submission of valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or
c. Cessation of discharges of pollutants from construction activity and submit an individual permit application according to 4VAC25-870-410.

OPERATOR(S) / DELEGATED AUTHORITY		
Name (print)	Signature	Date
Additional contact information can be found in the SWPPP Binder.		

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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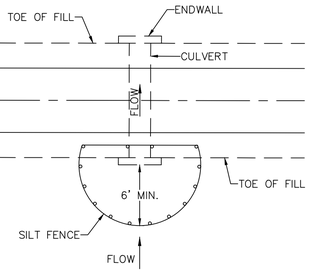
POD2020-00355

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020
	DATE 8/6/2020
	DRAWN BY H. ARMSTRONG
	DESIGNED BY D. O'BOYLE
	CHECKED BY J. MULLINS
	SCALE AS SHOWN

TIMMONS GROUP

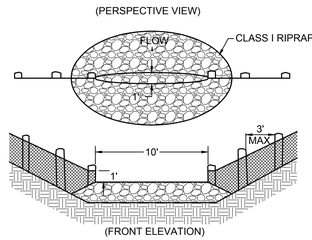
LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
SEDIMENT & EROSION CONTROL NOTES AND DETAILS

JOB NO. 45692
SHEET NO. C2.7



CIP SILT FENCE CULVERT INLET PROTECTION 3.08-1

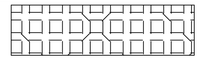
NO SCALE



NOTE: SILT FENCE BREAK TO BE PLACED AT LOW IN FENCE LINE.

SFB **SILT FENCE BREAK DETAIL**

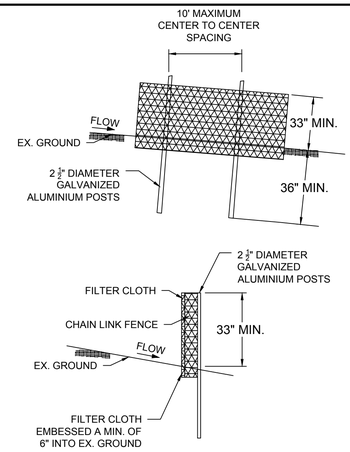
NO SCALE



STANDARD ORANGE VINYL OR PLASTIC CONSTRUCTION FENCE ATTACHED TO POSTS (PRE-WEATHERED WOOD, GALVANIZED STEEL, IRON OR THICK PVC PLASTIC), AT LEAST 40" ABOVE FINISH GRADE WITH SPAN BETWEEN POSTS NO GREATER THAN 6' ON CENTER. EVERY NINTH POST SHALL CONTAIN A WARNING SIGN THAT CLEARLY IDENTIFIES THE FENCE AS A TREE PROTECTION FENCE.

TP **TREE PROTECTION** 3.38

NO SCALE



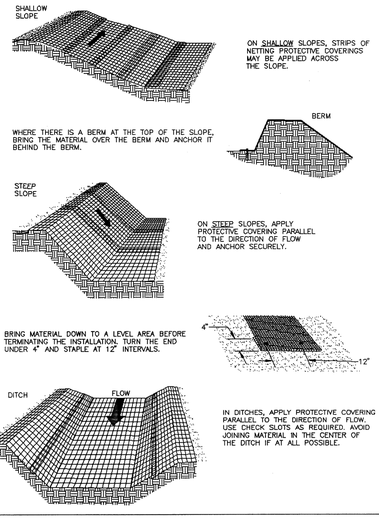
NOTES:
1. FASTEN CHAIN LINK FENCE SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FASTEN FILTER CLOTH SECURELY TO CHAIN LINK FENCE WITH TIES SPACED A MINIMUM OF 24" ALONG POST.
3. EMBED FILTER CLOTH A MINIMUM OF 6" INTO EXISTING GROUND.
4. OVERLAP AND FOLD ADJOINING SECTIONS OF FILTER CLOTH.

SSF **SUPER SILT FENCE DETAIL**

NO SCALE

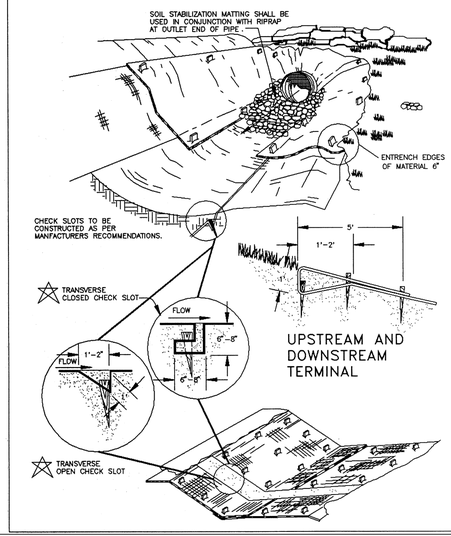
1992 3.36

TYPICAL ORIENTATION OF TREATMENT – 1 (SOIL STABILIZATION BLANKET)



1992 3.36

TYPICAL TREATMENT–2 SOIL STABILIZATION MATTING INSTALLATION



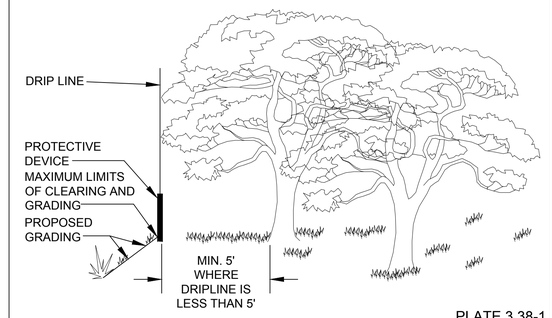


PLATE 3.38-1

TP TREE PRESERVATION AND PROTECTION

No Scale

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

SEED

APPLICATION DATES	SPECIES	APPLICATION RATES
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.32-D
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR PIEDMONT AREA

SEED[1]

LAND USE	SPECIES	APPLICATION PER ACRE
Minimum Care Lawn (Commercial or Residential)	Tall Fescue[1] Perennial Ryegrass Kentucky Bluegrass[1]	95-100% 0-5% 0-5% TOTAL: 175-200 lbs.
High-Maintenance Lawn	Tall Fescue[1]	TOTAL: 200-250 lbs.
General Slope (3:1 or less)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[2]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[2] Crownvetch[3]	108 lbs. 2 lbs. 20 lbs. 20 lbs. TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/Turf/turf/publications/publications2.html

2 - Use seasonal nurse crop in accordance with seeding dates as stated below:

February 16th - April	Annual Rye
May 1st - August 15th	Foxtail Millet
August 16th - October	Annual Rye
November - February 15th	Winter Rye

3 - Substitute Sericea lespedeza for Crownvetch east of Farmville, VA (May through September use hulled seed, all other periods, use unhulled Sericea). If Flatpea is used, increase rate to 30 lbs./acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40

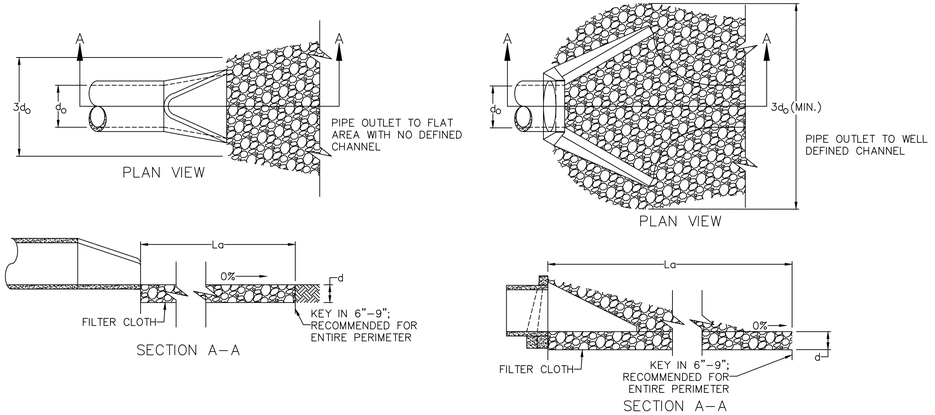
FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

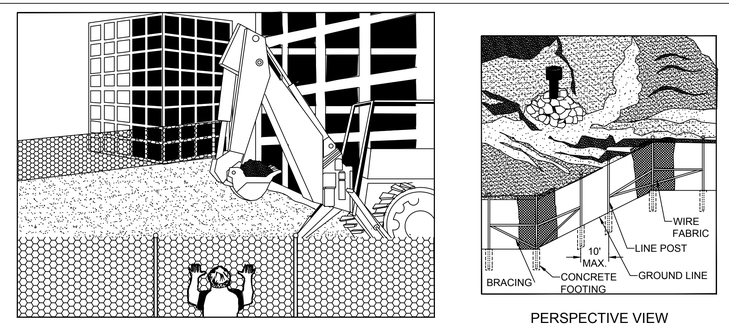
	La	d
OP1	16.5'	6"
OP2		

NOTE:
1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING PLATES 3.18–3 AND 3.18–4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAT 6 INCHES.



OP PIPE OUTLET CONDITIONS 3.18–1

NO SCALE



PERSPECTIVE VIEW

VDOT ROAD AND BRIDGE STANDARDS
VA. DSWC

SAF **SAFETY FENCE DETAIL**

NO SCALE

PERSPECTIVE VIEW METAL FENCE

NOTE: PROVIDE BLACK PRIVACY FENCE SCREEN ON SAFETY FENCE

PLATE. 3.1-1

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DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

POD2020-00355

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
SEDIMENT & EROSION CONTROL NOTES AND DETAILS

JOB NO. 45692
SHEET NO. C2.8

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NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL STOP SIGNS, DIRECTIONAL SIGNS, AND STRIPING SHOWN ON THE PLANS.
- IF THERE ARE ANY HENRICO COUNTY MAINTAINED SIGNS WITHIN THE CONSTRUCTION LIMITS THAT THE CONTRACTOR FEELS ARE IN THE WAY, PLEASE CONTACT TRAFFIC ENGINEERING AT (804)-727-8296 FOR REMOVAL AND RE-INSTALLATION.
- COORDINATE IN THE FIELD WITH HENRCIO COUNTY TRAFFIC ENGINEERING AT (804)-727-8296 REGARDING THE STRIPING AND ARROWS ON LAUDERDALE DR BEFORE INSTALLATION.

HATCH LEGEND

- CONCRETE SIDEWALK SECTION
- HEAVY DUTY CONCRETE SECTION
- LIGHT DUTY ASPHALT SECTION
- HEAVY DUTY ASPHALT SECTION

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12/18/2020	COUNTY COMMENTS

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

LAYOUT PLAN

JOB NO. 45692
SHEET NO. C3.0

POD2020-00355

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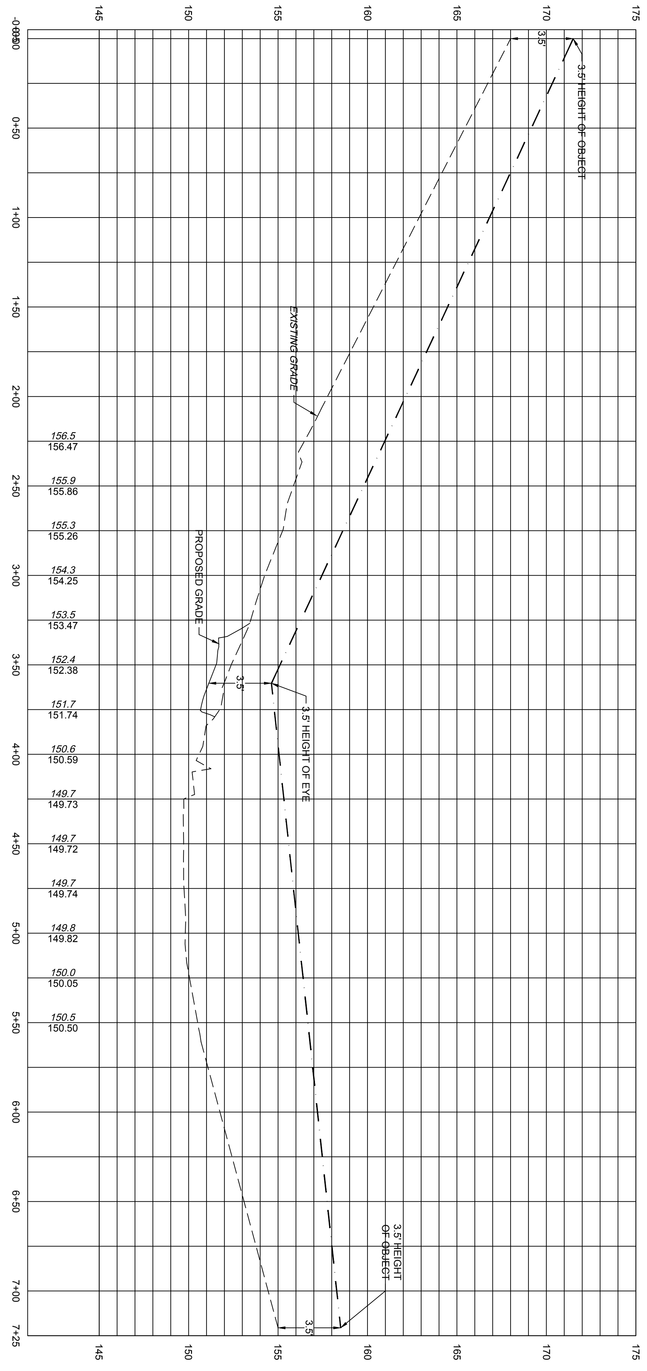
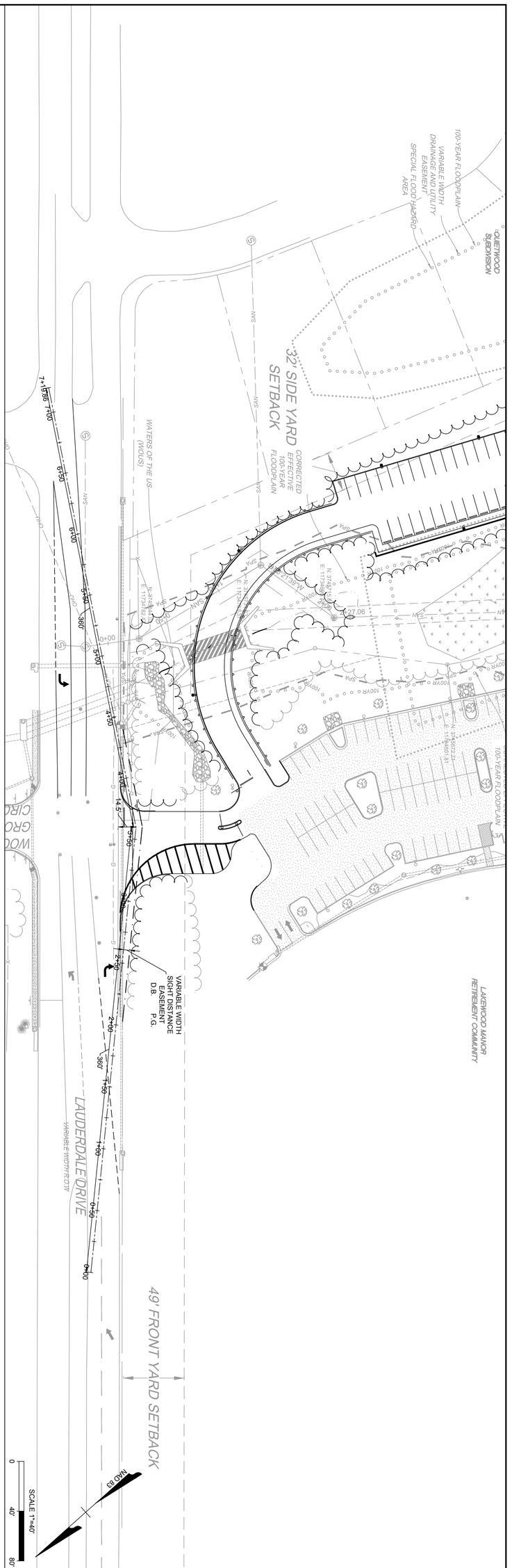
SCALE 1"=40'
0 40' 80'
NAD 83





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COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

SIGHT DISTANCE PLAN

JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
45692	AS SHOWN	J. MULLINS	D. O'BOYLE	H. ARMSTRONG	8/6/2020

SHEET NO. C3.1

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

POD2020-00355

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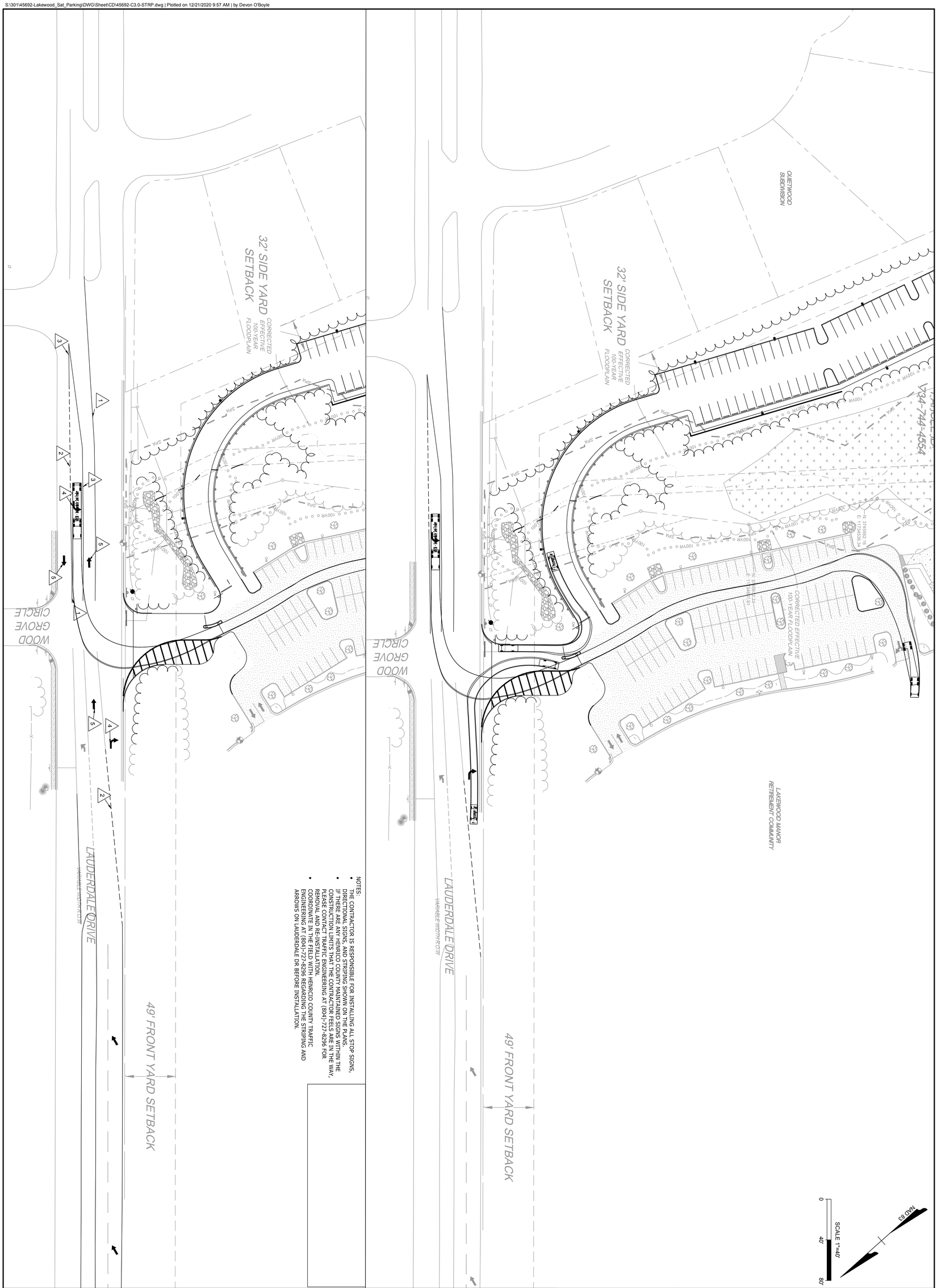

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JASON WAYNE MULLINS
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12/18/20

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

STRIPING PLAN

JOB NO.	SHEET NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
45692	C3.2	AS SHOWN	J. MULLINS	D. O'BOYLE	H. ARMSTRONG	8/6/2020

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

POD2020-00355

STORM PIPE TABLE

PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
A2	96"	A1 - A3	141.00	140.75	0.45%	56.10 LF	96 x 72 inch Concrete Box Culvert
A2 (1)	96"	-	141.00	140.75	0.45%	55.92 LF	96 x 72 inch Concrete Box Culvert

STORM STRUCTURE TABLE

STRUCTURE #	TOP	STRUCTURE HEIGHT	DESCRIPTION
A1	149.00		ES-1 FOR DOUBLE BOX CULVERT
A3	148.50		ES-1 FOR DOUBLE BOX CULVERT

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DATE	REVISION DESCRIPTION
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8/6/2020
DRAWN BY
H. ARMSTRONG
DESIGNED BY
D. O'BOYLE
CHECKED BY
J. MULLINS
SCALE
AS SHOWN

POD2020-00355

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

GRADING AND DRAINAGE PLAN

JOB NO.
45692
SHEET NO.
C4.0

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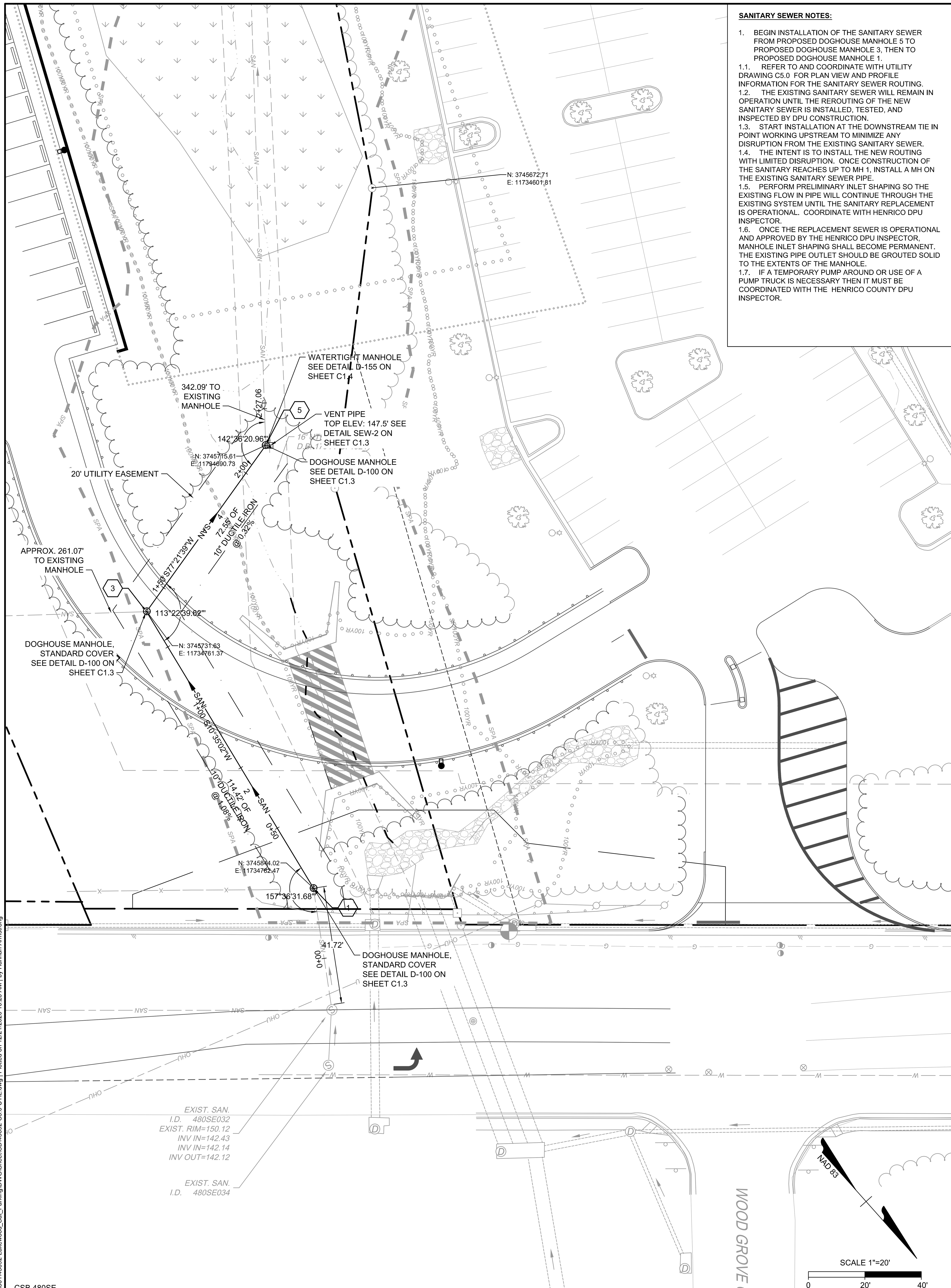


SANITARY SEWER NOTES:

1. BEGIN INSTALLATION OF THE SANITARY SEWER FROM PROPOSED DOGHOUSE MANHOLE 5 TO PROPOSED DOGHOUSE MANHOLE 3, THEN TO PROPOSED DOGHOUSE MANHOLE 1.

1.1. REFER TO AND COORDINATE WITH UTILITY DRAWING C5.0 FOR PLAN VIEW AND PROFILE INFORMATION FOR THE SANITARY SEWER ROUTING.

1.2. THE EXISTING SANITARY SEWER WILL REMAIN IN OPERATION UNTIL THE REROUTING OF THE NEW SANITARY SEWER IS INSTALLED, TESTED, AND INSPECTED BY DPU CONSTRUCTION.

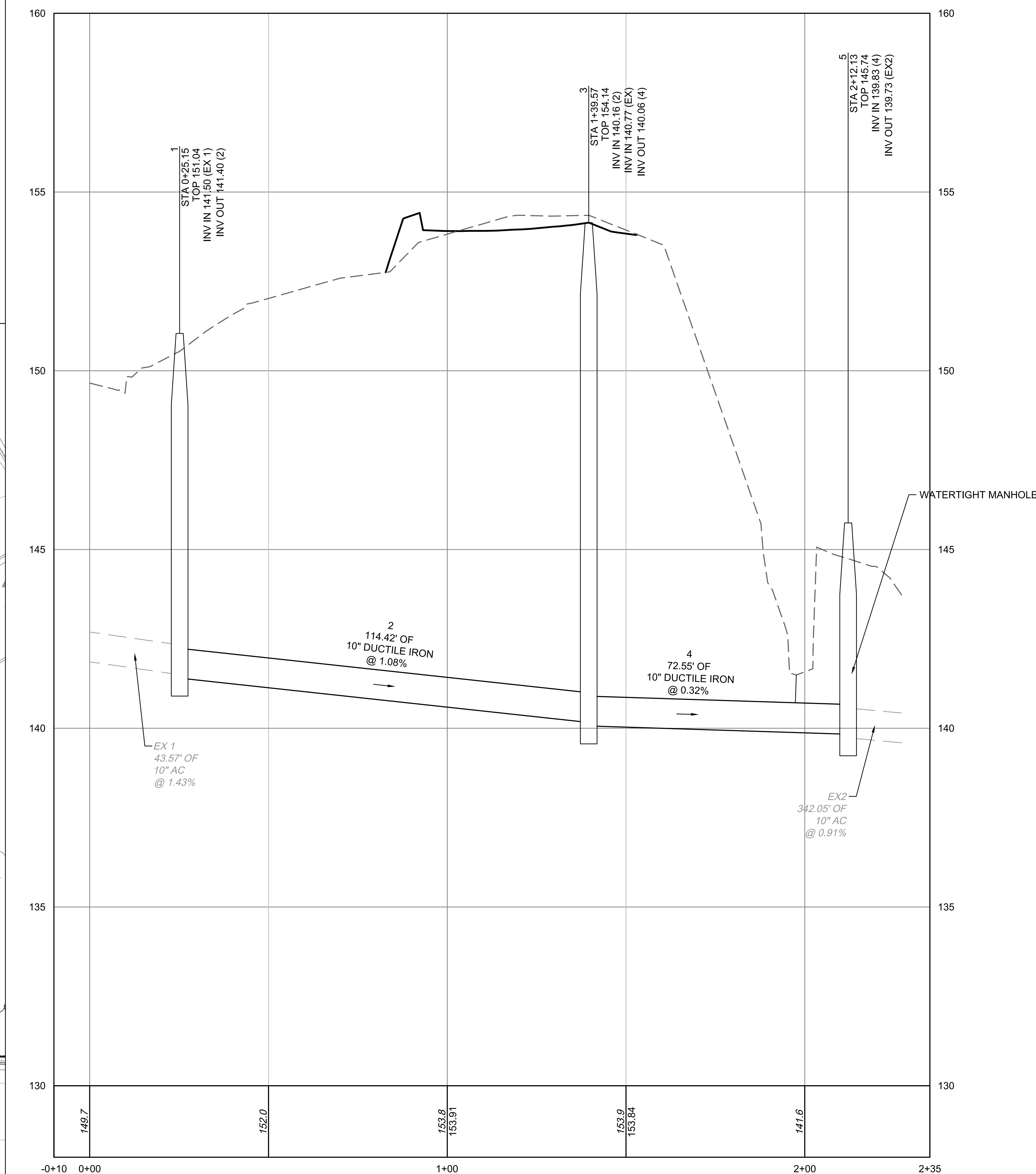
1.3. START INSTALLATION AT THE DOWNSTREAM TIE IN POINT WORKING UPSTREAM TO MINIMIZE ANY DISRUPTION FROM THE EXISTING SANITARY SEWER.

1.4. THE INTENT IS TO INSTALL THE NEW ROUTING WITH LIMITED DISRUPTION. ONCE CONSTRUCTION OF THE SANITARY REACHES UP TO MH 1, INSTALL A MH ON THE EXISTING SANITARY SEWER PIPE.

1.5. PERFORM PRELIMINARY INLET SHAPING SO THE EXISTING FLOW IN PIPE WILL CONTINUE THROUGH THE EXISTING SYSTEM UNTIL THE SANITARY REPLACEMENT IS OPERATIONAL. COORDINATE WITH HENRICO DPU INSPECTOR.

1.6. ONCE THE REPLACEMENT SEWER IS OPERATIONAL AND APPROVED BY THE HENRICO DPU INSPECTOR, MANHOLE INLET SHAPING SHALL BECOME PERMANENT. THE EXISTING PIPE OUTLET SHOULD BE GROUTED SOLID TO THE EXTENTS OF THE MANHOLE.

1.7. IF A TEMPORARY PUMP AROUND OR USE OF A PUMP TRUCK IS NECESSARY THEN IT MUST BE COORDINATED WITH THE HENRICO COUNTY DPU INSPECTOR.



SAN PROFILE

PROFILE SCALE 0 20 2

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

POD2020-00355

THIS DRAWING PREPARED AT THE
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1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

UTILITY PLAN AND PROFILE

DATE	8/6/2020
DRAWN BY	H. ARMSTRONG
DESIGNED BY	D. O'BOYLE
CHECKED BY	J. MULLINS
SCALE	AS SHOWN
JOB NO.	45692
SHEET NO.	C5.0

POST-DEVELOPMENT DRAINAGE TO POA 1
(SHEET FLOW TO CONSERVED OPEN SPACE)
DA = 1.50 ac
RCN = 93 (UNADJUSTED);
Tc = 5 min
Q_{10} = 10.30 cfs

STORMWATER MANAGEMENT - QUANTITY NARRATIVE

POA 1 SHEET FLOWS TO EXISTING NATURAL CONDITIONS. ALL SITE STORMWATER DRAINS VIA SHEET FLOW TO THE 100 YEAR FLOOD PLAIN. NO ADDITIONAL CALCULATIONS ON THE BASIS OF QUANTITY CONTROL ARE REQUIRED FOR POA 1.

COMMONWEALTH OF VIRGINIA
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DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

PROPOSED HYDROLOGY PLAN

JOB NO. 45692
SHEET NO. C6.0

SCALE 1"=40'
0 40' 80'

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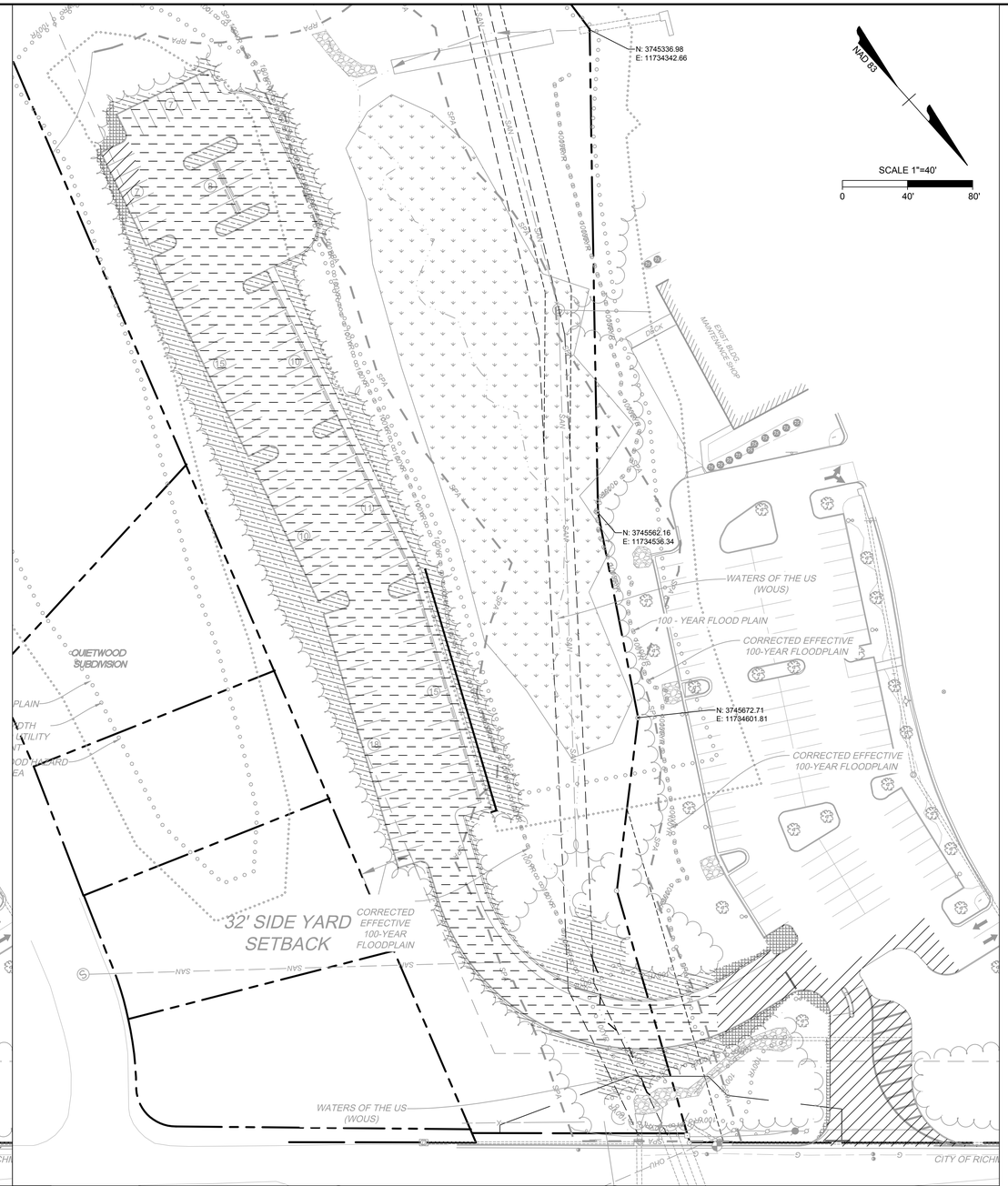

EXISTING LEGEND

	AREA
MANAGED TURF - C SOIL	0.03 AC.
IMPERVIOUS - C SOIL	0.04 AC.
FOREST - C SOIL	0.08 AC.
MANAGED TURF - D SOIL	0.00 AC.
IMPERVIOUS - D SOIL	0.01 AC.
FOREST - D SOIL	1.37 AC.

PROPOSED LEGEND

	AREA
MANAGED TURF - C SOIL	0.03 AC.
IMPERVIOUS - C SOIL	0.19 AC.
FOREST - C SOIL	0.00 AC.
MANAGED TURF - D SOIL	0.43 AC.
IMPERVIOUS - D SOIL	0.95 AC.
FOREST - D SOIL	0.00 AC.

STORMWATER MANAGEMENT - QUALITY NARRATIVE

THE VIRGINIA RUNOFF REDUCTION METHOD REQUIRES A TOTAL OF 1.93 LBS/YR OF PHOSPHORUS TO BE REMOVED. THE PROPOSED SITE IS DESIGNED TO SHEET FLOW STORMWATER TO CONSERVED OPEN SPACE. THE SHEET FLOW TO CONSERVATION AREA REMOVES 1.28 LBS/YR THEREFORE THE REMAINING 0.66 LBS/YR WILL BE PURCHASED FROM A LOCAL NUTRIENT BANK CONTAINING THE SAME HUC CODE.

COMMONWEALTH OF VIRGINIA
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12/18/20
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TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

STORMWATER COMPLIANCE PLAN

JOB NO. 45692
SHEET NO. C6.1

POD2020-00355

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: **2013 Draft Stds & Specs**

Update Summary Sheet | Print Preview | Print

Site Summary

Project Title: Lakewood Satelite Parking
Date: 44179

Total Rainfall = 43 inches

Site Land Cover Summary

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.03	0.43	0.46	29
Impervious Cover (acres)	0.00	0.00	0.19	0.95	1.14	71
					1.60	100

Site Tv and Land Cover Nutrient Loads

Site Rv	0.75
Treatment Volume (ft^3)	4,345
TP Load (lb/yr)	2.73
TN Load (lb/yr)	19.53

Total TP Load Reduction Required (lb/yr)	2.07

Site Compliance Summary

Total Runoff Volume Reduction (ft^3)	0
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	2.73
Remaining TP Load Reduction (lb/yr) Required	2.07

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Total Area (acres)	0.00	0.00	0.00	0.00	0.00	0.00

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Runoff Volume and CN Calculations

	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	0.00	0.00	0.00

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
CN		0	0	0	0	0
RR (ft^3)		0	0	0	0	0
1-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0
2-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0
10-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0

Project Name: **Lakewood Satelite Parking**
Date: **12/14/2020**

BMP Design Specifications List: 2013 Draft Stds & Specs

CLEAR ALL *(Ctrl+Shift+R)*

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested			0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be			0.03	0.43	0.46
Impervious Cover (acres)			0.19	0.95	1.14
					1.60

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	2.07

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary	
Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.46
Weighted Rv (turf)	0.25
% Managed Turf	29%
Impervious Cover (acres)	1.14
Rv (impervious)	0.95
% Impervious	71%
Site Area (acres)	**1.60**
Site Rv	**0.75**

Treatment Volume and Nutrient Loads	
Treatment Volume (acre-ft)	0.0998
Treatment Volume (cubic feet)	4,345
TP Load (lb/yr)	2.73
TN Load (lb/yr) (Informational Purposes Only)	19.53

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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REVISION DESCRIPTION
COUNTY COMMENTS
DATE 12/18/2020

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
STORMWATER CALCULATIONS

JOB NO. 45692
SHEET NO. C6.2

POD2020-00355

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Project Description

File Name ..... Lakewood Proposed.SPF

Project Options

Flow Units ..... CFS
Elevation Type ..... Elevation
Hydrology Method ..... SCS TR-20
Time of Concentration (TOC) Method ..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Enable Overflow Ponding at Nodes ..... YES
Skip Steady State Analysis Time Periods ..... YES

Analysis Options

Start Analysis On ..... Aug 03, 2020 07:00:00
End Analysis On ..... Aug 04, 2020 07:00:00
Start Reporting On ..... Aug 03, 2020 07:00:00
Antecedent Dry Days ..... 0 days
Runoff (Dry Weather) Time Step ..... 0 01:00:00 days hh:mm:ss
Runoff (Wet Weather) Time Step ..... 0 00:05:00 days hh:mm:ss
Reporting Time Step ..... 0 00:05:00 days hh:mm:ss
Routing Time Step ..... 30 seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins	1
Nodes	1
Junctions	0
Outfalls	1
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	0
Channels	0
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1		Time Series	TS-10	Cumulative	inches	Virginia	Henrico	10	5.50	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-POA1	1.50	92.88	5.50	4.68	7.01	10.30	0 00:05:00

Subbasin Hydrology

Subbasin : Sub-POA1

Input Data

Area (ac) 1.50
Weighted Curve Number 92.88
Rain Gage ID ..... Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
< 50% grass cover, Poor	0.04	C	86.00
> 75% grass cover, Good	0.40	D	80.00
Paved parking & roofs	1.06	C	98.00
Composite Area & Weighted CN	1.50		92.88

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where :

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's roughness

User-Defined TOC override (minutes): 5

Subbasin Runoff Results

Total Rainfall (in) 5.50
Total Runoff (in) 4.68
Peak Runoff (cfs) 10.30
Weighted Curve Number 92.88
Time of Concentration (days hh:mm:ss) 0 00:05:00

Subbasin : Sub-POA1

Rainfall Intensity Graph

Runoff Hydrograph

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

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DATE	COUNTY COMMENTS
12/18/2020	

REVISION DESCRIPTION

DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
STORMWATER CALCULATIONS

JOB NO. 45692
SHEET NO. C6.3

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Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

December 30, 2019

NONPOINT NUTRIENT CREDIT GENERATION CERTIFICATION
Certificate No. James-057

1. Project Name: Ampthill Nutrient Bank

2. Sponsor: Ampthill Nutrient Bank, LLC
2710 West Cary Street
Richmond, Virginia 23220

3. Authorized Nutrient Credit Broker: Ampthill Nutrient Bank, LLC
2710 West Cary Street
Richmond, Virginia 23220

4. Transmitted Electronically: iveyff@verizon.net

5. Location of Project Site: Approximately 0.5 miles southeast of Ampthill Road in Cumberland County, Virginia, adjacent to the James River (HUC 02080205).

6. Project Description:

The Sponsor (Ampthill Nutrient Bank, LLC) has initiated a land use conversion on approximately 39.19 acres of crop fields in accordance with the Nutrient Reduction Implementation Plan (NRIP) for the Ampthill Nutrient Bank (ANB) dated June 17, 2019. The land use conversion will generate 214.76 pounds of nitrogen and 47.81 pounds of phosphorus credits.

The nutrient reductions resulting from this activity will generate nonpoint source credits transferable to those entities requiring credits in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (VA Code § 62.1-44.19:15 et seq). These credits are also transferable in accordance with the Virginia stormwater offset program (VA Code § 62.1-44.15:35) and the Virginia Soil and Water Conservation Board's Guidance Document on Stormwater Nonpoint Nutrient Offsets approved on July 23, 2009, to those regulated entities qualifying for nutrient credits.

7. Findings:

NONPOINT NUTRIENT CREDIT GENERATION CERTIFICATION
Ampthill Nutrient Bank
December 30, 2019
Page 2 of 2

A site visit conducted November 20, 2018, found the 39.19-acre conversion area suitable for inclusion in the nutrient bank program. A follow-up visit on April 9, 2019, found the entire conversion area had been planted with loblolly pines at a density of 549 stems/acre. A 35-foot grass buffer along perennial streams, a planned home site, and existing forested areas were excluded from the credit generating area. A second follow-up inspection performed on December 5, 2019, found the seedlings were in good condition and expected to survive.

DEQ requires land conversion activities to be protected through an enforceable land use restriction during the life of a credit transfer. A Declaration of Restrictive Covenants on the property was recorded on August 15, 2019.

The bank sponsor requested the 25% credit release alternative included in the proposed regulation on the Certification of Nonpoint Source Nutrient Credits (9VAC25-900). This alternative is available for properties taken out of agricultural production prior to planting and/or survival of trees is established. The ANB was authorized to transfer 25% of the credits generated, 53.69 pounds of nitrogen and 11.95 pounds of phosphorus, on September 9, 2019.

Accordingly, the ANB is authorized to transfer the remaining 75% of credits, 161.07 pounds of nitrogen and 35.86 pounds of phosphorus, for sale. In the event that follow up inspections document that this condition is not being met, up to 75% of the credits initially released may be recalled by DEQ.

Future thinning of the stand is allowed with the condition that a tree basal area of 30 square feet per acre is maintained at a breast height of 4.5 feet. DEQ shall be notified at least 90 days prior to thinning. Future timber harvesting shall adhere to best management practice as set forth by the Virginia Department of Forestry and comply with applicable local, state, and federal laws. A copy of the timbering plan shall be submitted to DEQ at least 90 days prior to the activity.

Monitoring reports shall be submitted by July 1, summarizing plot sampling methodology, woody stem density, percent of invasive species, and any corrective actions needed to achieve 400 stems per acre and less than 5% invasive species stems. Affidavits of credit sales and the most current credit transfer ledgers shall be provided to DEQ within 30 days of credit transfer.

8. Agency Contact: Sara Felker, 804-698-4023

9. Approval by:

Melanie D. Davenport
Department of Environmental Quality
Water Permitting Division Director

Melanie D Davenport — Signature
Dec. 30, 2019 — Date

Eco-Cap

December 15, 2020

Hannah Armstrong
Project Engineer
TIMMONS GROUP
1001 Boulders Parkway, Suite 300
Richmond, VA 23225

Eco-Cap, LLC - Ampthill Nutrient Bank - Availability Letter

Project Reference: Lakewood Satellite Parking

This letter is to confirm the availability of Nutrient Credits sufficient to meet your project requirements at the Ampthill Nutrient Bank located in Cumberland County, Virginia HUC Code 02080205. The Ampthill Bank received its full release of Nutrient Credits on December 30th of 2019 with a release of 47.81 lbs. The nutrient reductions resulting from this activity generated nonpoint source Nutrient "Credits" which are transferable to those entities requiring nutrient reductions in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (VA Code § 62. 1-44. 19:14) and the Virginia Stormwater Credit Program (VA Code § 62. 1-44. 15:35).

Currently the facility has **23.59** pounds of Credits available and will be able to meet your removal requirement of up to **2.07** Credits.

Feel free to contact me if you require further assistance.

Casey J. Jensen
President
Eco-Cap, LLC

Credit Sales Manager
Ampthill Nutrient Bank

Phone: (804) 836-6636 **Email:** ecocapva@gmail.com **Website:** ecocapva.us

Eco-Cap

December 15, 2020

Hannah Armstrong
Project Engineer
TIMMONS GROUP
1001 Boulders Parkway, Suite 300
Richmond, VA 23225

Eco-Cap, LLC - Ampthill Nutrient Bank - Pricing Letter

Project Reference: Lakewood Satellite Parking

This letter serves to confirm Nutrient Credit pricing at Ampthill Nutrient Bank and is valid for Sixty (60) days as of the date of this correspondence.

Current Nutrient Credit base price is **$9,250** per pound of phosphorus.

The total purchase price extended to your project is:

- **2.07** pounds of Phosphorus Credits @ **$9,250** = **$19,147.5**

Feel free to contact me if you require further assistance.

Casey J. Jensen
President
Eco-Cap, LLC

Credit Sales Manager
Ampthill Nutrient Bank

Phone: (804) 836-6636 **Email:** ecocapva@gmail.com **Website:** ecocapva.us

EXHIBIT 12

Restrictive Covenant

DECLARATION OF RESTRICTIONS

THIS DECLARATION OF RESTRICTIVE COVENANTS, is made this 15 day of August 2019 By William R. Ivey, trustee for The William R. Ivey and Jane P. Ivey Revocable Trust.

WHEREAS, The William R. Ivey and Jane P. Ivey Revocable Trust, (the "Owner") is the owner of those certain tracts or parcels of real property consisting of 90.578 acres located in Cumberland County, Virginia, represented as one (1) parcel in as Tax Map 13-A-5 (90.578 acres), and recorded in Deed Book 224, page(s) 641-643 (the "Property").

WHEREAS, Owner desires to be party to and comply with the respective conditions and terms of the Ampthill Nutrient Bank, LLC "Ampthill Nutrient Bank" Nutrient Reduction Implementation Plan (the "Nutrient Reduction Implementation Plan") by imposing this Declaration of Restrictions upon those areas of the Property shown in Exhibit attached hereto and in the Nutrient Reduction Implementation Plan as "Land Conversion Areas" currently consisting of agricultural lands converted to forested conditions for the purpose of generating and transferring nutrient credits.

WHEREAS, Owner desires to impose on said Land Conversion Areas a Declaration of Restrictions expressing intent to preserve the Land Conversion Areas, consisting of a total of 39.19 acres, as shown in the area marked "Crops to Trees" in Exhibit 8 Map 14 attached hereto and as described in the Nutrient Reduction Implementation Plan for such period of time as to match the duration of nutrient credit generation and transference by Ampthill Nutrient Bank, LLC on behalf of the Owner of the Property. The Owner desires to comply with the respective conditions and terms of the Nutrient Reduction Implementation Plan by imposing this Declaration of Restrictions on the Land Conversion Areas located on the Property. These Restrictions are imposed by the Owner freely and voluntarily in order to provide operational and nutrient credits per the terms of the Nutrient Reduction Implementation Plan.

NOW THEREFORE THIS DECLARATION WITNESSETH: That for and in consideration of One Dollar ($1.00) cash in hand paid and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Owner does hereby declare, covenant and agree, for itself and its successors and assigns, that the Land Conversion Areas as shown in Exhibit 7 Map 14 and the Nutrient Reduction Implementation Plan and in any future amendments to the Plan shall be hereafter held, leased, transferred, and sold subject to the following conditions and restrictions which shall run with the land and be binding on all parties and persons claiming under them for any and all years nutrient credits are generated or transferred by Ampthill Nutrient Bank, LLC.

Prepared By: William R. Ivey
RETURNED TO: William R. Ivey

Covenants and Restrictions:

A. The Land Conversion Areas shall be preserved for a length of time to match the duration of nutrient credit generation and transfer according to the terms of the Nutrient Reduction Implementation Plan by prohibiting the following activities:

1. Destruction or alteration of the Land Conversion Areas except:

   (a) Alteration necessary to construct the Land Conversion Areas and associated improvements proposed to be built by Ampthill Nutrient Bank, LLC or its successors, and/or assigns;

   (b) Alteration necessary to implement the terms of the Nutrient Reduction Implementation Plan and ensure the success of the planned nutrient reductions and associated nutrient credits and in conjunction with the construction, reconstruction, enhancement or maintenance of the Land Conversion Areas;

   (c) Alteration to construct structures such as walkways, boardwalks, foot trails, wildlife observation or management structures, benches, observation decks, picnic tables, fence posts and, ecological, biological, hydrological or chemical monitoring, observation or management equipment including, without limitation, monitoring wells, water control weirs or interpretive stations, or other structures provided that such facilities are constructed and maintained in accordance with all applicable federal and states laws;

   (d) Addition of signs constructed in public right of ways by or on behalf of the Virginia Department of Transportation or other governmental agencies;

   (e) Removal of vegetation (where not precluded by federal or state law) when conducted for
   (i) removal of noxious or invasive plants or
   (ii) limited aesthetic modifications not involving clearing or removal of trees or limbs greater than three (3) inches in caliber unless dead, dying or diseased;

   (f) Planting of native species of plants by hand for aesthetic landscaping or screening purposes;

   (g) Alteration authorized by the Nutrient Reduction Implementation Plan and other activities pursuant to all applicable laws, regulations and guidance governing the generation and trading of nutrient credits within the Commonwealth of Virginia;

   (h) Alteration as reasonably necessary to comply with state or federal law or appropriate court order;

   (i) Maintenance and use of existing trails and access roads crossing the Land Conversion Areas as long as activities do not negatively affect the associated nutrient reductions;

   (j) Subsistence livestock for personal use will be limited to domestically raised animals on privately held portions of the Property outside the Land Conversion Areas. Any domestic livestock will be fenced from the Land Conversion Areas and access to stream watering locations or paddock crossing will be restricted to limited access points.

2. Construction, maintenance or placement of any structures or fills including but not limited to buildings, and mobile homes, other than those, which currently exist;

3. Ditching, draining, diking, damming, filling, excavating, grading, plowing, flooding/ponding, mining, drilling, placing of trash and yard debris or removing/adding topsoil, sand, or other materials (except as may be necessary on a case-by-case basis) other than any authorized under the Nutrient Reduction Implementation Plan;

4. Permitting livestock to graze, inhabit or otherwise enter the Land Conversion Areas place into this Declaration of Restrictions;

5. Harvesting, cutting, logging, and pruning of trees and plants, or using fertilizers and spraying with biocides other than what is authorized by the Nutrient Reduction Implementation Plan (except as may be necessary on a case-by-case basis).

B. The Trust hereby grants operational and nutrient credit transfer rights for the Land Conversion Areas under the terms of the Nutrient Reduction Implementation Plan to Ampthill Nutrient Bank, LLC. Ampthill Nutrient Bank, LLC agrees to manage said Land Conversion Areas according to the terms of this Declaration of Restrictions and the Ampthill Nutrient Bank Nutrient Reduction Implementation Plan.

Amendment:

The covenants contained herein shall not hereafter be altered in any respect without the express written approval and consent of the Owner or its successor in interest and Ampthill Nutrient Bank, LLC. After recording, the Owner or its successor may vacate or modify this Declaration by providing a document signed by Ampthill Nutrient Bank, LLC, and the Owner or its successor in interest. For portions of the Land Conversion Areas for which nutrient credits are not currently being generated and transferred: the Owner or its successor in interest may amend or vacate this Declaration by providing a document signed by the Owner or its successor and Ampthill Nutrient Bank, LLC provided the amendment or vacation of this Declaration does not negatively affect the areas within the Land Conversion Areas that continue to generate and transfer nutrient credits.

Additionally, the Declarant or its successor in interest does specifically reserve the right to seek approval from DEQ for the release or modification of the Land Conversion Areas by purchasing credits from an approved nutrient bank to offset any credits purchased from Ampthill Nutrient Bank. Such approval shall not unreasonably be withheld.

Compliance Inspections and Enforcement:

DEQ and their authorized agents shall have the right to enter and go on the Land conversion Areas to inspect and take actions necessary to verify compliance with this Declaration of Restrictions. For safety reasons, DEQ shall notify Ampthill Nutrient Bank, LLC in advance of on-site inspections. Each request for access by non-DEQ private parties will be evaluated on a case by case basis by Ampthill Nutrient Bank, LLC and the Owner. The restrictive covenants herein shall be enforceable by any proceeding at law or in equity or administrative proceeding by the DEQ. Failure by the DEQ or Owner to enforce any covenant or restriction contained herein shall in no event be deemed a waiver of the right to do so thereafter.

Separability Provision:

The provisions hereof shall be deemed individual and severable and the invalidity or partial invalidity or unenforceability of any one provision or any portion thereof shall not affect the validity or enforceability of any other provision thereof.

Consent of Lender and Trustee: (Not Applicable)

No Lien Held

Referenced Document:

Terms and Conditions of the Ampthill Nutrient Bank Nutrient Reduction Implementation Plan dated 8/15/19 between: Ampthill Nutrient Bank, LLC and the Virginia Department of Environmental Quality are available upon written request.

Document copies may be obtained with Ampthill Nutrient Bank, LLC or Owner permission from:
William R. Ivey
Ampthill Nutrient Bank, LLC
ATTN: Bill Ivey
2710 West Cary St.
Richmond, Virginia 23220

WITNESS the following signature the day and year first above written.

BY: William R. Ivey, President
Officer \ General Partner

BY: William R. Ivey
TITLE: President

Commonwealth of Virginia, County of Cumberland to wit:

I, Tina Mackenzie Tate, a notary public for the state and city aforesaid, do certify that William Ready Ivey, whose name was signed on 8/15/19, 2019 in his capacity on that date to the foregoing document has acknowledged said document and signature before me in the city aforesaid.

Given under my hand and notarial seal this 15 day of August, 2019.

Notary Public

Tina Mackenzie Tate
Commonwealth of Virginia
Notary Public
Commission No. 272349
My Commission Expires 2/28/2023

My commission expires _____.

COMMONWEALTH OF VIRGINIA
JASON WAYNE MULLINS
Lic. No. 044373
12/18/20
PROFESSIONAL ENGINEER

THIS DRAWING PREPARED AT THE
CORPORATE OFFICE
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION
COUNTY COMMENTS
DATE 12/18/2020
DATE 8/6/2020
DRAWN BY H. ARMSTRONG
DESIGNED BY D. O'BOYLE
CHECKED BY J. MULLINS
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
NUTRIENT OFFSET COMPLIANCE

JOB NO. 45692
SHEET NO. C6.4

POD2020-00355

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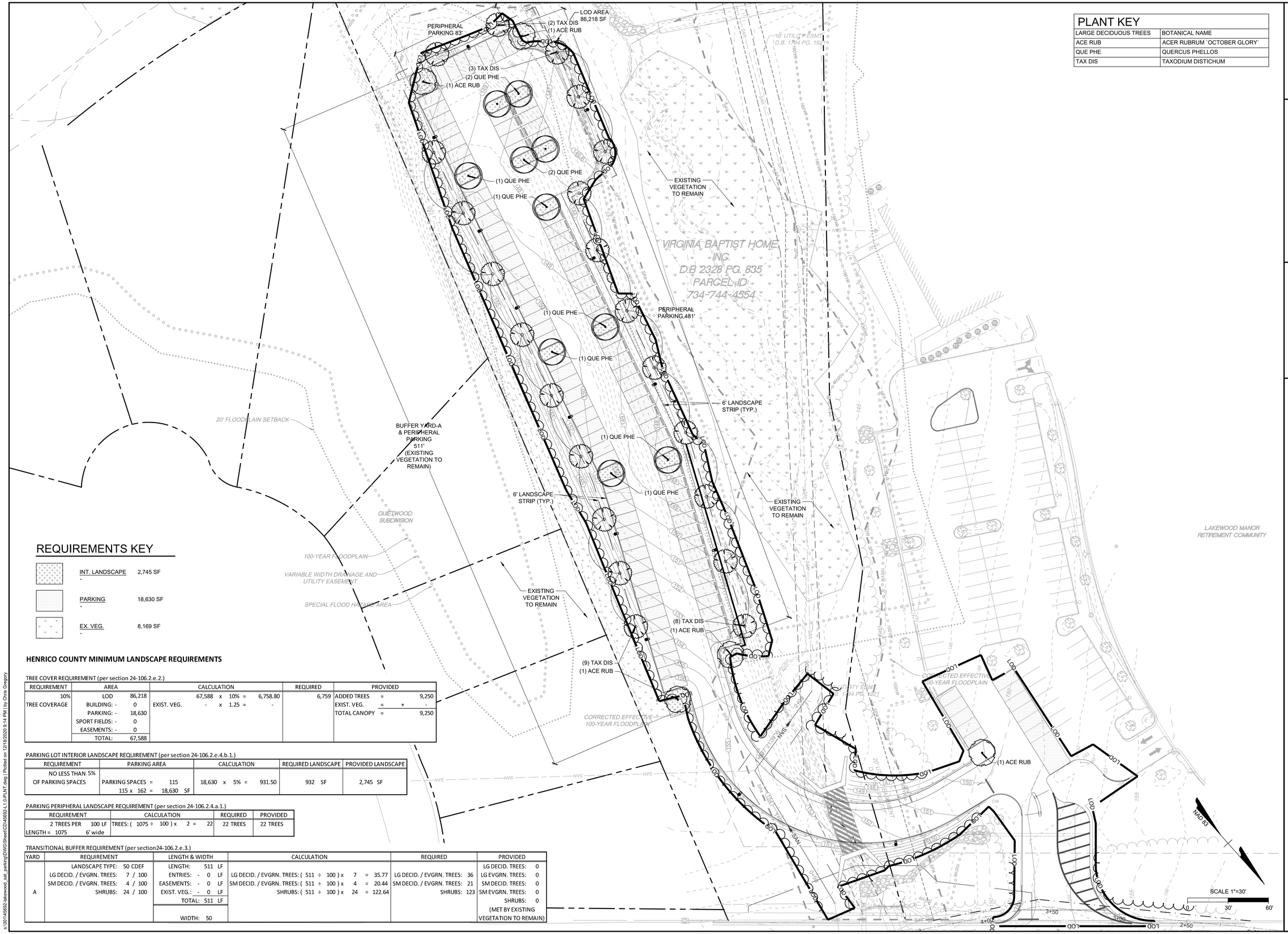
PLANT KEY	
LARGE DECIDUOUS TREES	BOTANICAL NAME
ACE RUB	ACER RUBRUM `OCTOBER GLORY`
QUE PHE	QUERCUS PHELLOS
TAX DIS	TAXODIUM DISTICHUM



REQUIREMENTS KEY

INT. LANDSCAPE	-	2,745 SF
PARKING	-	18,630 SF
EX. VEG.	-	8,169 SF

HENRICO COUNTY MINIMUM LANDSCAPE REQUIREMENTS

TREE COVER REQUIREMENT (per section 24-106.2.e.2.)

REQUIREMENT	AREA		CALCULATION	REQUIRED	PROVIDED
10%	LOD	86,218	67,588 x 10% = 6,758.80	6,759	ADDED TREES = 9,250
TREE COVERAGE	BUILDING: -	0	EXIST. VEG. - x 1.25 = -		EXIST. VEG. = + -
	PARKING: -	18,630			TOTAL CANOPY = 9,250
	SPORT FIELDS: -	0			
	EASEMENTS: -	0			
	TOTAL:	67,588			

PARKING LOT INTERIOR LANDSCAPE REQUIREMENT (per section 24-106.2.e.4.b.1.)

REQUIREMENT	PARKING AREA	CALCULATION	REQUIRED LANDSCAPE	PROVIDED LANDSCAPE
NO LESS THAN 5% OF PARKING SPACES	PARKING SPACES = 115 115 x 162 = 18,630 SF	18,630 x 5% = 931.50	932 SF	2,745 SF

PARKING PERIPHERAL LANDSCAPE REQUIREMENT (per section 24-106.2.4.a.1.)

REQUIREMENT	CALCULATION	REQUIRED	PROVIDED
2 TREES PER 100 LF LENGTH = 1075 6' wide	TREES: (1075 ÷ 100) x 2 = 22	22 TREES	22 TREES

TRANSITIONAL BUFFER REQUIREMENT (per section24-106.2.e.3.)

YARD	REQUIREMENT	LENGTH & WIDTH	CALCULATION	REQUIRED	PROVIDED
A	LANDSCAPE TYPE: 50 CDEF LG DECID. / EVGRN. TREES: 7 / 100 SM DECID. / EVGRN. TREES: 4 / 100 SHRUBS: 24 / 100	LENGTH: 511 LF ENTRIES: - 0 LF EASEMENTS: - 0 LF EXIST. VEG.: - 0 LF TOTAL: 511 LF WIDTH: 50	LG DECID. / EVGRN. TREES: (511 ÷ 100) x 7 = 35.77 SM DECID. / EVGRN. TREES: (511 ÷ 100) x 4 = 20.44 SHRUBS: (511 ÷ 100) x 24 = 122.64	LG DECID. / EVGRN. TREES: 36 SM DECID. / EVGRN. TREES: 21 SHRUBS: 123	LG DECID. TREES: 0 LG EVGRN. TREES: 0 SM DECID. TREES: 0 SM EVGRN. TREES: 0 SHRUBS: 0 (MET BY EXISTING VEGETATION TO REMAIN)

COMMONWEALTH OF VIRGINIA
SCOTT W. WILEY
No. 1629
12/18/2020
LANDSCAPE ARCHITECT

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DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE 12/18/2020
DRAWN BY C. GREGORY
DESIGNED BY CG / EM
CHECKED BY S. WILEY
SCALE 1" = 30'

POD2020-00355

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

CONCEPTUAL LANDSCAPE PLAN

JOB NO. 45692
SHEET NO. L1.0

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GENERAL NOTES

PRE-CONSTRUCTION

- CONTRACTOR IS RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1.800.552.7001 FOR LOCATION OF ALL UTILITY LINES.TREES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM SEWER/WATER CONNECTIONS. NOTIFY LANDSCAPE ARCHITECT OF CONFLICTS.
- VERIFY ALL PLANT MATERIAL QUANTITIES ON THE PLAN PRIOR TO BIDDING, PLANT LIST TOTALS ARE FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO BIDDING.
- PROVIDE PLANT MATERIALS OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY INDICATED ON PLANS. ALL PLANT MATERIALS AND INSTALLATION SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK". IF SPECIFIED PLANT MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON AVAILABILITY TO THE LANDSCAPE ARCHITECT, TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL.
- PROVIDE AND INSTALL ALL PLANTS AS IN ACCORDANCE WITH DETAILS AND CONTRACT SPECIFICATIONS.
- SOIL TESTS SHALL BE PERFORMED TO DETERMINE SOIL CHARACTER AND QUALITY. NECESSARY SOIL AMENDMENTS SHALL BE PERFORMED PER TEST RESULTS TO ENSURE PLANT HEALTH.

CONSTRUCTION/INSTALLATION

- LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANTS AND MATERIALS THAT ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION, AS WELL AS PLANTS AND MATERIALS THAT DO NOT CONFORM TO ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK"
- LABEL AT LEAST ONE TREE AND ONE SHRUB OF EACH VARIETY AND CALIPER WITH A SECURELY ATTACHED, WATERPROOF TAG BEARING THE DESIGNATION OF BOTANICAL AND COMMON NAME.
- INSTALL LANDSCAPE PLANTINGS AT ENTRANCES/EXITS AND PARKING AREAS ACCORDING TO PLANS SO THAT MATERIALS WILL NOT INTERFERE WITH SIGHT DISTANCES.
- CONTRACTOR IS RESPONSIBLE FOR WATERING ALL PLANT MATERIAL DURING INSTALLATION AND UNTIL FINAL INSPECTION AND ACCEPTANCE BY OWNER. CONTRACTOR SHALL NOTIFY OWNER OF CONDITIONS WHICH AFFECTS THE GUARANTEE.

INSPECTIONS/GUARANTEE

- UPON COMPLETION OF LANDSCAPE INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR WHO WILL VERIFY COMPLETENESS, INCLUDING THE REPLACEMENT OF ALL DEAD PLANT MATERIAL. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A FINAL INSPECTION BY THE LANDSCAPE ARCHITECT.
- ALL EXTERIOR PLANT MATERIALS SHALL BE GUARANTEED FOR ONE FULL YEAR AFTER DATE OF FINAL INSPECTION AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. DEFECTS RESULTING FROM NEGLECT BY THE OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND THE CONTRACTORS CONTROL ARE NOT THE RESPONSIBILITY OF THE CONTRACTOR.
- PLANT MATERIAL QUANTITIES AND SIZES WILL BE INSPECTED FOR COMPLIANCE WITH APPROVED PLANS BY A SITE PLAN REVIEW AGENT OF THE PLANNING DEPARTMENT PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY.
- REMOVE ALL GUY WIRES AND STAKES 12 MONTHS AFTER INSTALLATION.

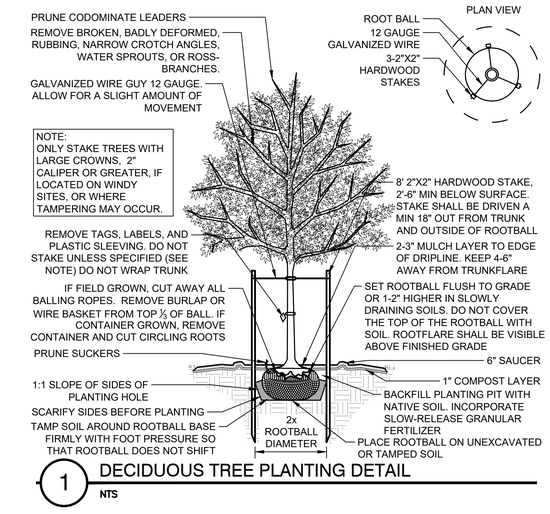
HENRICO COUNTY LANDSCAPE NOTES

- ALL SHRUBS TO BE MAINTAINED AT 2.5' MAX. HT. WHEN LOCATED ALONG AN ENTRANCE, WALKWAY, OR PARKING AREA.
- ALL TREES TO BE LIMBED UP AT LEAST 5' OFF THE GROUND REMOVING FOLIAGE TO PREVENT VISUAL OBSTRUCTION.
- THE OWNER IS RESPONSIBLE FOR REPLACEMENT OF ANY PLANTING (I.E. SHRUBS, ETC.) DAMAGED OR REMOVED BY DPU, OR ITS AGENT, AS REQUIRED FOR MAINTENANCE OF COUNTY OWNED WATER AND/OR SEWER FACILITIES.
- HENRICO COUNTY IS NOT LIABLE OR RESPONSIBLE FOR ANY DAMAGE OR DESTRUCTION OF PLANTINGS, LIGHTING, IRRIGATION SYSTEMS, ETC. IN THE RIGHT-OF-WAY OR PUBLIC EASEMENT RESULTING FROM MAINTENANCE OF THE DRAINAGE SYSTEMS, RIGT-OF-WAY, AND/OR ROADWAY.
- TREES LOCATED AROUND THE BUILDINGS, WALKWAYS AND PARKING AREAS SHOULD HAVE A NATURAL GROWTH HABIT THAT IS A TREE-FORM, NON-PYRAMIDAL SHAPED TREE. IF THIS CANNOT BE DONE, THE CANOPY OF THE TREES SHOULD BE MAINTAINED AT LEAST 4 FEET FROM THE GROUND AS THE TREE MATURES.
- NO LANDSCAPING SHALL BE PLACED WITHIN A THREE FOOT RADIUS OF ANY FIRE HYDRANT, FIRE PUMP TEST HEADER, FIRE DEPARTMENT CONNECTION (FDC) FOR FIRE PROTECTION SYSTEMS, OR FIRE SUPPRESSION CONTROL VALVE. LANDSCAPING SHALL BE OF THE TYPE THAT WILL NOT ENCROACH INTO THE THREE FOOT RADIUS UPON MATURITY (VIRGINIA STATEWIDE FIRE PREVENTION CODE, 2012, SECTION 507.5.5).

PLANT SCHEDULE

LARGE DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	CANOPY	TOTAL
ACE RUB	5	ACER RUBRUM `OCTOBER GLORY`	OCTOBER GLORY RED MAPLE	3" CAL.	B&B	250SF	1,250SF
QUE PHE	10	QUERCUS PHELLOS	WILLOW OAK	3" CAL.	B&B	250SF	2,500SF
TAX DIS	22	TAXODIUM DISTICHUM	BALD CYPRESS	3" CAL.	B&B	250SF	5,500SF
						TOTAL CANOPY	9,250SF

* QUANTITIES ARE PROVIDED FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO BIDDING.
* ALL DISTURBED AREAS TO BE SEEDED UNLESS OTHERWISE CALLED OUT AS HARDSCAPE, MULCH, OR SOD.



1 DECIDUOUS TREE PLANTING DETAIL
NTS

COMMONWEALTH OF VIRGINIA
SCOTT W. WILEY
No. 1629
12/18/2020
LANDSCAPE ARCHITECT

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DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

POD2020-00355

DATE 12/18/2020
DRAWN BY C. GREGORY
DESIGNED BY CG / EM
CHECKED BY S. WILEY
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
CONCEPTUAL LANDSCAPE NOTES AND DETAILS

JOB NO. 45692
SHEET NO. L2.0

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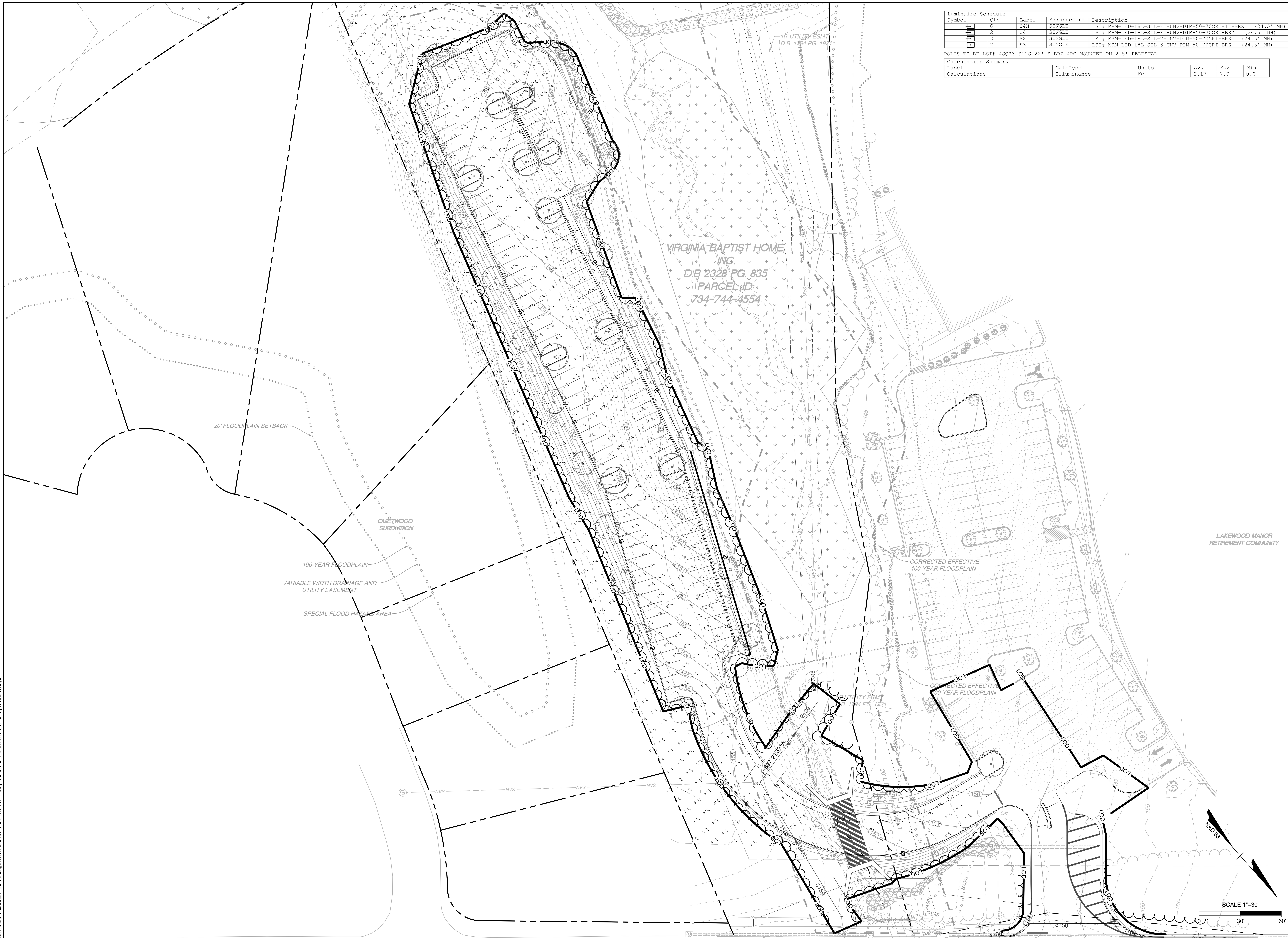

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
⊢□	6	S4H	SINGLE	LSI# MRM-LED-18L-SIL-FT-UNV-DIM-50-70CRI-IL-BRZ (24.5' MH)
⊢□	2	S4	SINGLE	LSI# MRM-LED-18L-SIL-FT-UNV-DIM-50-70CRI-BRZ (24.5' MH)
⊢□	3	S2	SINGLE	LSI# MRM-LED-18L-SIL-2-UNV-DIM-50-70CRI-BRZ (24.5' MH)
⊢□	2	S3	SINGLE	LSI# MRM-LED-18L-SIL-3-UNV-DIM-50-70CRI-BRZ (24.5' MH)

POLES TO BE LSI# 4SQB3-S11G-22'-S-BRZ-4BC MOUNTED ON 2.5' PEDESTAL.

Calculation Summary					
Label	CalcType	Units	Avg	Max	Min
Calculations	Illuminance	Fc	2.17	7.0	0.0

PHOTOMETRICS PROVIDED BY:
THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD., STE. B
MECHANICSVILLE, VA 23116
CONTACT: BRYCE LAWRENCE
PHONE: 804-730-3003
EMAIL: brycel@thomasharrisco.com

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1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
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DATE	REVISION DESCRIPTION
12/18/2020	COUNTY COMMENTS

DATE	12/18/2020
DRAWN BY	B. LAWRENCE
DESIGNED BY	B. LAWRENCE
CHECKED BY	B. LAWRENCE
SCALE	1" = 30'

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING

TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA

PHOTOMETRIC PLAN

JOB NO. 45692

SHEET NO. L3.0

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Catalog # : MRM-LED-18L-SIL-2-UNV-DIM-50-70CRI-BRZ Project : LAKEWOOD SATELLITE PARKING

TYPE S2 Date :

Mirada Medium (MRM)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	7,000 - 42,000
Wattage Range	53 - 390
Efficacy Range (LPW)	93 - 148
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip' polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, SW, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applicationsapplicationsare qualified.

Specifications and dimensions subject to change without notice.

THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD, STE B
MECHANICSVILLE, VA 23116
PHONE: 804-730-3003

Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[1]	Voltage	Driver
MRM - Mirada	LED	7L - 7,000 lms 9L - 9,000 lms 12L - 12,000 lms 18L - 18,000 lms 24L - 24,000 lms 30L - 30,000 lms 36L - 36,000 lms 42L - 42,000 lms	SIL - Silicone	2 - Type 2 3 - Type 3 SW - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive	(blank) standard L - Optics rotated left 90 R - Optics rotated right 90	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 30 - 3,000 CCT[1] AMB - Phosphor Converted Amber[2,3]	70CRI - 70 CRI	(Blank) None **Wireless Controls System** ALSC - AirLink Synapse Control System [4] ALSCH - AirLink Synapse Control System Host / Satellite [4,5] ALSCS01 - AirLink Synapse Control System with 8-12' Motion Sensor [4,6] ALSCHS01 - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor [4,5] ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor [4] ALSCHS02 - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor [4,5] ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor [4] ALSCHS04 - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor [4,5] ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[4] ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[4] **Stand-Alone Controls** EXT - 0-10v Dimming leads extended to housing exterior CR7P - 7 Pin Control Receptacle ANSI C136.41 [7] IMSBT1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4,6] IMSBT2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [4,6] **Button Type Photocells** PCI120 - 120V PCI208-277 - 208 -277V PCI347 - 347V	BRZ - Bronze BLK - Black GPT - Graphite MSV - Metallic Silver WHT - White PLP - Platinum Plus SVG - Satin Verde Green	(Blank) None IL - Integral Louver HSS[1]

Accessory Ordering Information

Controls Accessories	
Description	**Order Number**
Twist Lock Photocell (120V) for use with CR7P	122514
Twist Lock Photocell (208-277) for use with CR7P	122515
Twist Lock Photocell (347V) for use with CR7P	122516
Twist Lock Photocell (480V) for use with CR7P	1225180
AirLink 5 Pin Twist Lock Controller	661409
AirLink 5 Pin Twist Lock Controller	661410
Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

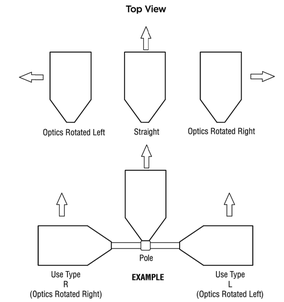
Mounting Accessories	
Description	**Order Number**
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Integral Louver/Shield	684812

Fusing Accessories	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
7 - Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish, See Finish options.
11 - Not available in UNV.
12 - Fusing must be located in hand hole of pole.

Mirada Medium Outdoor LED Area Light

OPTICS ROTATION



ACCESSORIES/OPTIONS

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with PCR 7P

Mirada Medium Outdoor LED Area Light

PERFORMANCE

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ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
7L	53	0.4A	0.3A	0.2A	0.2A	0.2A	0.1A
9L	69	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	94	0.8A	0.5A	0.4A	0.3A	0.3A	0.2A
18L	150	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	187	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	247	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	390	3.2A	1.9A	1.6A	1.4A	1.1A	0.8A

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

LUMINAIRE EPA CHART - MRM

Tilt Degree	0°	30°	45°	Tilt Degree	0°	30°	45°
Single	0.5	1.5	1.9	T90°	1.0	2.5	2.8
D180°	1.0	1.5	1.9	TM120°	1.0	3.3	3.9
D90°	0.8	1.9	2.3	Q90°	1.0	2.5	2.8

RECOMMENDED LUMEN MAINTENANCE[1] (7-18L)

Ambient	Initial[2]	25k[3]	50k[3]	75k[3]	100k[3]
0-50 C	100%	96%	92%	88%	84%

RECOMMENDED LUMEN MAINTENANCE[1] (24-42L)

Ambient	Initial[2]	25k[3]	50k[3]	75k[3]	100k[3]
0-40 C	100%	100%	97%	94%	92%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5848	80	B2-U0-G2	74
	2 - IL	3644	50	B0-U0-G1	
	3	6018	82	B1-U0-G2	
	3 - IL	4468	61	B0-U0-G2	
	SW	5471	74	B3-U0-G1	
	FT	5801	79	B1-U0-G2	
	FT - IL	3649	50	B0-U0-G1	
	FTA	5924	81	B1-U0-G1	
	FTA - IL	4243	58	B1-U0-G1	
12L	2	7530	74	B2-U0-G2	102
	2 - IL	4692	46	B0-U0-G1	
	3	7749	76	B1-U0-G2	
	3 - IL	5753	57	B0-U0-G2	
	SW	7045	69	B3-U0-G2	
	FT	7470	73	B2-U0-G2	
	FT - IL	4699	46	B0-U0-G2	
	FTA	7628	75	B2-U0-G2	
	FTA-IL	5464	54	B1-U0-G1	

*LEDs are frequently updated therefore values are nominal.

PHOTOMETRICS

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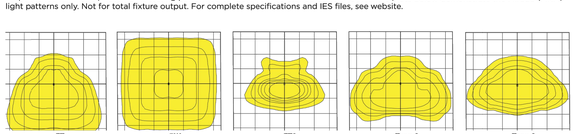
All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada (MRM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



Mirada Medium Outdoor LED Area Light

PERFORMANCE (CONT.)

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
7L	2	70	6550	124	B0-U0-G1	6711	127	B0-U0-G1	7208	137	B2-U0-G2	7596	144	B2-U0-G2	53
	2 - IL	70	4068	77	B0-U0-G1	4167	79	B0-U0-G1	4476	85	B0-U0-G1	4717	89	B0-U0-G1	
	3	70	6724	127	B1-U0-G2	6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	3 - IL	70	4929	93	B0-U0-G2	5050	96	B0-U0-G2	5424	103	B0-U0-G2	5716	108	B0-U0-G2	
	SW	70	6400	121	B3-U0-G1	6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT	70	6540	124	B1-U0-G2	6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B1-U0-G2	
	FT - IL	70	4231	80	B0-U0-G2	4334	82	B0-U0-G2	4656	88	B0-U0-G2	4906	93	B0-U0-G2	
	FTA	70	6636	126	B1-U0-G1	6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	FTA - IL	70	4864	92	B1-U0-G1	4984	94	B1-U0-G1	5353	101	B1-U0-G1	5641	107	B1-U0-G1	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5183	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	SW	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7266	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	SW	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12773	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13053	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9323	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G3	12920	86	B1-U0-G3	14155	95	B1-U0-G3	14739	99	B1-U0-G3	
	SW	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G2	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G3	14243	76	B1-U0-G3	15231	81	B1-U0-G3	15559	83	B1-U0-G3	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15928	85	B1-U0-G3	17299	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	SW	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15226	81	B1-U0-G2	16593	89	B1-U0-G2	17793	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	28581	108	B4-U0-G3	28900	117	B4-U0-G3	30906	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27875	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	SW	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B5-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G5	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	SW	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G4	35456	114	B4-U0-G4	37950	122	B4-U0-G4	38766	124	B4-U0-G4	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	SW	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26925	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LEDs are frequently updated therefore values are nominal

Mirada Medium Outdoor LED Area Light

PRODUCT DIMENSIONS

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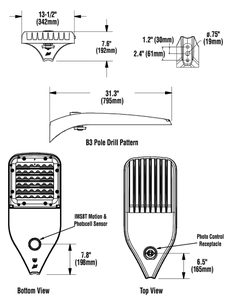

CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click the link below to learn more details about AirLink.

https://www.lsi-industries.com/documents/datasheets/airlink-outdoor-specsheet.pdf

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click the link below to learn more details about IMSBT.

https://www.lsi-industries.com/documents/datasheets/imsbt-specsheet.pdf

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click the link below to learn more details about AirLink Blue.

https://www.lsi-airlink.com/airlink-blue/

PHOTOMETRICS PROVIDED BY:
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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020

DATE 12/18/2020
DRAWN BY B. LAWRENCE
DESIGNED BY B. LAWRENCE
CHECKED BY B. LAWRENCE
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
LIGHTING CUTSHEETS

JOB NO. 45692
SHEET NO. L4.0

Catalog # : MRM-LED-18L-SIL-3-UNV-DIM-50-70CRI-BRZ Project : LAKEWOOD SATELLITE PARKING

TYPE S3 Date :

Mirada Medium (MRM)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	7,000 - 42,000
Wattage Range	53 - 390
Efficacy Range (LPW)	93 - 148
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip' polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, SW, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applicationsapplicationsare qualified.

Specifications and dimensions subject to change without notice.

THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD, STE B
MECHANICSVILLE, VA 23116
PHONE: 804-730-3003

Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[1]	Voltage	Driver
MRM - Mirada	LED	7L - 7,000 lms 9L - 9,000 lms 12L - 12,000 lms 18L - 18,000 lms 24L - 24,000 lms 30L - 30,000 lms 36L - 36,000 lms 42L - 42,000 lms	SIL - Silicone	2 - Type 2 3 - Type 3 SW - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive	(blank) standard L - Optics rotated left 90 R - Optics rotated right 90	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 30 - 3,000 CCT[2] AMB - Phosphor Converted Amber[2,3]	70CRI - 70 CRI	(Blank) None **Wireless Controls System** ALSC - AirLink Synapse Control System [4] ALSCH - AirLink Synapse Control System Host / Satellite [4,5] ALSCS01 - AirLink Synapse Control System with 8-12' Motion Sensor [4,6] ALSCHS01 - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor [4,5] ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor [4] ALSCHS02 - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor [4,5] ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor [4] ALSCHS04 - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor [4,5] ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[6] ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[6] **Stand-Alone Controls** EXT - 0-10v Dimming leads extended to housing exterior CR7P - 7 Pin Control Receptacle ANSI C136.41 [7] IMSBT1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4,6] IMSBT2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [4,6] **Button Type Photocells** PCI120 - 120V PCI208-277 - 208 -277V PCI347 - 347V	BRZ - Bronze BLK - Black GPT - Graphite MSV - Metallic Silver WHT - White PLP - Platinum Plus SVG - Satin Verde Green	(Blank) None IL - Integral Louver HSS[1]

Accessory Ordering Information

Controls Accessories	
Description	**Order Number**
Twist Lock Photocell (120V) for use with CR7P	122514
Twist Lock Photocell (208-277) for use with CR7P	122515
Twist Lock Photocell (347V) for use with CR7P	122516
Twist Lock Photocell (480V) for use with CR7P	1225180
AirLink 5 Pin Twist Lock Controller	661409
AirLink 5 Pin Twist Lock Controller	661410
Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

Mounting Accessories	
Description	**Order Number**
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Integral Louver/Shield	684812

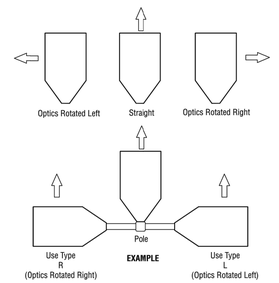
Fusing Accessories	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
7 - Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish, See Finish options.
11 - Not available in UNV.
12 - Fusing must be located in hand hole of pole.

Mirada Medium Outdoor LED Area Light

OPTICS ROTATION

Top View



ACCESSORIES/OPTIONS

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with PCR 7P

Mirada Medium Outdoor LED Area Light

PERFORMANCE

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ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
7L	53	0.4A	0.3A	0.2A	0.2A	0.2A	0.1A
9L	69	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	94	0.8A	0.5A	0.4A	0.3A	0.3A	0.2A
18L	150	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	187	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	247	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	390	3.2A	1.9A	1.6A	1.4A	1.1A	0.8A

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

LUMINAIRE EPA CHART - MRM

Tilt Degree	0°	30°	45°	Tilt Degree	0°	30°	45°
Single	0.5	1.5	1.9	T90°	1.0	2.5	2.8
D180°	1.0	1.5	1.9	TM120°	1.0	3.3	3.9
D90°	0.8	1.9	2.3	Q90°	1.0	2.5	2.8

RECOMMENDED LUMEN MAINTENANCE[1] (7-18L)

Ambient	Initial[2]	25k[3]	50k[3]	75k[3]	100k[3]
0-50 C	100%	96%	92%	88%	84%

RECOMMENDED LUMEN MAINTENANCE[1] (24-42L)

Ambient	Initial[2]	25k[3]	50k[3]	75k[3]	100k[3]
0-40 C	100%	100%	97%	94%	92%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5848	80	B2-U0-G2	74
	2 - IL	3644	50	B0-U0-G1	
	3	6018	82	B1-U0-G2	
	3 - IL	4468	61	B0-U0-G2	
	SW	5471	74	B3-U0-G1	
	FT	5801	79	B1-U0-G2	
	FT - IL	3649	50	B0-U0-G1	
	FTA	5924	81	B1-U0-G1	
	FTA - IL	4243	58	B1-U0-G1	
12L	2	7530	74	B2-U0-G2	102
	2 - IL	4692	46	B0-U0-G1	
	3	7749	76	B1-U0-G2	
	3 - IL	5753	57	B0-U0-G2	
	SW	7045	69	B3-U0-G2	
	FT	7470	73	B2-U0-G2	
	FT - IL	4699	46	B0-U0-G2	
	FTA	7628	75	B2-U0-G2	
	FTA-IL	5464	54	B1-U0-G1	

*LEDs are frequently updated therefore values are nominal.

PHOTOMETRICS

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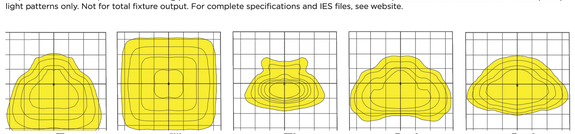
All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada (MRM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



Mirada Medium Outdoor LED Area Light

PERFORMANCE (CONT.)

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
7L	2	70	6550	124	B0-U0-G1	6711	127	B0-U0-G1	7208	137	B2-U0-G2	7596	144	B2-U0-G2	53
	2 - IL	70	4068	77	B0-U0-G1	4167	79	B0-U0-G1	4476	85	B0-U0-G1	4717	89	B0-U0-G1	
	3	70	6724	127	B1-U0-G2	6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	3 - IL	70	4929	93	B0-U0-G2	5050	96	B0-U0-G2	5424	103	B0-U0-G2	5716	108	B0-U0-G2	
	SW	70	6400	121	B3-U0-G1	6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT	70	6540	124	B1-U0-G2	6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B1-U0-G2	
	FT - IL	70	4231	80	B0-U0-G2	4334	82	B0-U0-G2	4656	88	B0-U0-G2	4906	93	B0-U0-G2	
	FTA	70	6636	126	B1-U0-G1	6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	FTA - IL	70	4864	92	B1-U0-G1	4984	94	B1-U0-G1	5353	101	B1-U0-G1	5641	107	B1-U0-G1	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	SW	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7268	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	SW	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12773	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13053	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9325	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G3	12920	86	B1-U0-G3	14155	95	B1-U0-G3	14739	99	B1-U0-G3	
	SW	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G2	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G2	14243	76	B1-U0-G2	15231	81	B1-U0-G2	15559	83	B1-U0-G2	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15928	85	B1-U0-G3	17299	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	SW	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15726	81	B1-U0-G2	16550	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30906	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	SW	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B4-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G5	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	SW	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G3	36056	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G4	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	SW	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26925	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LEDs are frequently updated therefore values are nominal

Mirada Medium Outdoor LED Area Light

PRODUCT DIMENSIONS

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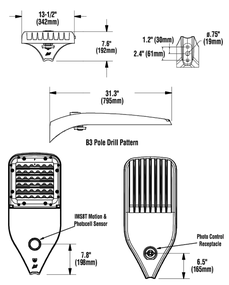

CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click the link below to learn more details about AirLink.

https://www.lsi-industries.com/documents/datasheets/airlink-outdoor-specsheet.pdf

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click the link below to learn more details about IMSBT.

https://www.lsi-industries.com/documents/datasheets/imsbt-specsheet.pdf

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click the link below to learn more details about AirLink Blue.

https://www.lsi-airlink.com/airlink-blue/

PHOTOMETRICS PROVIDED BY:
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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020

DATE 12/18/2020
DRAWN BY B. LAWRENCE
DESIGNED BY B. LAWRENCE
CHECKED BY B. LAWRENCE
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
LIGHTING CUTSHEETS

JOB NO. 45692
SHEET NO. L4.1

Catalog # : MRM-LED-18L-SIL-FT-UNV-DIM-50-70CRI-BRZ Project : LAKEWOOD SATELLITE PARKING

TYPE S4 Date :

Mirada Medium (MRM)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	7,000 - 42,000
Wattage Range	53 - 390
Efficacy Range (LPW)	93 - 148
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip' polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, SW, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applicationsapplicationsare qualified.

Specifications and dimensions subject to change without notice.

THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD, STE B
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Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[1]	Voltage	Driver
MRM - Mirada	LED	7L - 7,000 lms 9L - 9,000 lms 12L - 12,000 lms 18L - 18,000 lms 24L - 24,000 lms 30L - 30,000 lms 36L - 36,000 lms 42L - 42,000 lms	SIL - Silicone	2 - Type 2 3 - Type 3 SW - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive	(blank) standard L - Optics rotated left 90 R - Optics rotated right 90	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 30 - 3,000 CCT[1] AMB - Phosphor Converted Amber[2,3]	70CRI - 70 CRI	(Blank) None **Wireless Controls System** ALSC - AirLink Synapse Control System[4] ALSCH - AirLink Synapse Control System Host / Satellite[4,5] ALSCS01 - AirLink Synapse Control System with 8-12' Motion Sensor[4,6] ALSCHS01 - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor[4,5] ALSCSD02 - AirLink Synapse Control System with 12-20' Motion Sensor[4] ALSCHSD02 - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor[4,5] ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor[4] ALSCHS04 - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor[4,5] ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[6] ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[6] **Stand-Alone Controls** EXT - 0-10v Dimming leads extended to housing exterior CR7P - 7 Pin Control Receptacle ANSI C136.41[7] IMSBT1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[4,6] IMSBT2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[4,6] **Button Type Photocells** PCI120 - 120V PCI208-277 - 208 -277V PCI347 - 347V	BRZ - Bronze BLK - Black GPT - Graphite MSV - Metallic Silver WHT - White PLP - Platinum Plus SVG - Satin Verde Green	(Blank) None IL - Integral Louver HSS[1]

Accessory Ordering Information

Controls Accessories	
Description	**Order Number**
Twist Lock Photocell (120V) for use with CR7P	122514
Twist Lock Photocell (208-277) for use with CR7P	122515
Twist Lock Photocell (347V) for use with CR7P	122516
Twist Lock Photocell (480V) for use with CR7P	1225180
AirLink 5 Pin Twist Lock Controller	661409
AirLink 5 Pin Twist Lock Controller	661410
Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

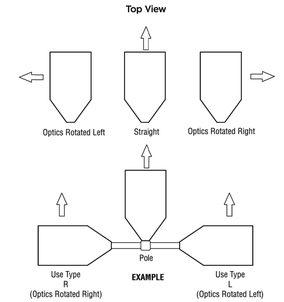
Mounting Accessories	
Description	**Order Number**
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Integral Louver/Shield	684812

Fusing Accessories	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
7 - Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish, See Finish options.
11 - Not available in UNV.
12 - Fusing must be located in hand hole of pole.

Mirada Medium Outdoor LED Area Light

OPTICS ROTATION



ACCESSORIES/OPTIONS

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with PCR 7P

Mirada Medium Outdoor LED Area Light

PERFORMANCE

Back to Quick Links

ELECTRICAL DATA (AMPS)*							
Lumens	Watts	120V	208V	240V	277V	347V	480V
7L	53	0.4A	0.3A	0.2A	0.2A	0.2A	0.1A
9L	69	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	94	0.8A	0.5A	0.4A	0.3A	0.3A	0.2A
18L	150	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	187	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	247	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	390	3.2A	1.9A	1.6A	1.4A	1.1A	0.8A

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*							
Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

LUMINAIRE EPA CHART - MRM								
Tilt Degree		0°	10°	45°	Tilt Degree	0°	10°	45°
	Single	0.5	1.5	1.9	T90°	1.0	2.5	2.8
	D180°	1.0	1.5	1.9	T#120°	1.0	3.3	3.9
	D90°	0.8	1.9	2.3	O90°	1.0	2.5	2.8

RECOMMENDED LUMEN MAINTENANCE[1] (7-18L)					
Ambient	Initial[2]	25h[3]	50h[3]	75h[3]	100h[3]
0-50 C	100%	96%	92%	88%	84%

RECOMMENDED LUMEN MAINTENANCE[1] (24-42L)					
Ambient	Initial[2]	25h[3]	50h[3]	75h[3]	100h[3]
0-40 C	100%	100%	97%	94%	92%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

DELIVERED LUMENS*				
Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5848	80	B2-U0-G2	74
	2 - IL	3644	50	B0-U0-G1	
	3	6018	82	B1-U0-G2	
	3 - IL	4468	61	B0-U0-G2	
	SW	5471	74	B3-U0-G1	
	FT	5801	79	B1-U0-G2	
	FT - IL	3649	50	B0-U0-G1	
	FTA	5924	81	B1-U0-G1	
	FTA - IL	4243	58	B1-U0-G1	
12L	2	7530	74	B2-U0-G2	102
	2 - IL	4692	46	B0-U0-G1	
	3	7749	76	B1-U0-G2	
	3 - IL	5753	57	B0-U0-G2	
	SW	7045	69	B3-U0-G2	
	FT	7470	73	B2-U0-G2	
	FT - IL	4699	46	B0-U0-G2	
	FTA	7628	75	B2-U0-G2	
	FTA-IL	5464	54	B1-U0-G1	

*LEDs are frequently updated therefore values are nominal.

PHOTOMETRICS

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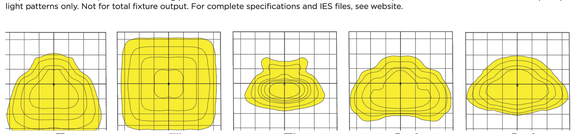
All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada (MRM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



Mirada Medium Outdoor LED Area Light

PERFORMANCE (CONT.)

DELIVERED LUMENS*													
Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
7L	2	70	6550	124	B2-U0-G1	6711	127	B2-U0-G1	7208	137	B2-U0-G2	7096	144	B2-U0-G2	53
	2 - IL	70	4068	77	B0-U0-G1	4167	79	B0-U0-G1	4476	85	B0-U0-G1	4717	89	B0-U0-G1	
	3	70	6724	127	B1-U0-G2	6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	3 - IL	70	4929	93	B0-U0-G2	5050	96	B0-U0-G2	5424	103	B0-U0-G2	5716	108	B0-U0-G2	
	SW	70	6400	121	B3-U0-G1	6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT	70	6540	124	B1-U0-G2	6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B1-U0-G2	
	FT - IL	70	4231	80	B0-U0-G2	4334	82	B0-U0-G2	4656	88	B0-U0-G2	4906	93	B0-U0-G2	
	FTA	70	6636	126	B1-U0-G1	6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	FTA - IL	70	4864	92	B1-U0-G1	4984	94	B1-U0-G1	5353	101	B1-U0-G1	5641	107	B1-U0-G1	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5183	76	B0-U0-G1	5308	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	SW	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7268	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	SW	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12773	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13002	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9323	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G3	12920	86	B1-U0-G3	14155	95	B1-U0-G3	14739	99	B1-U0-G3	
	SW	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G2	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G3	14243	76	B1-U0-G3	15231	81	B1-U0-G3	15559	83	B1-U0-G3	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15928	85	B1-U0-G3	17299	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	SW	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15726	81	B1-U0-G2	16550	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30906	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	SW	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B5-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G5	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	SW	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G4	36056	114	B4-U0-G4	38559	122	B4-U0-G4	39386	124	B4-U0-G4	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	SW	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LEDs are frequently updated therefore values are nominal

Mirada Medium Outdoor LED Area Light

PRODUCT DIMENSIONS

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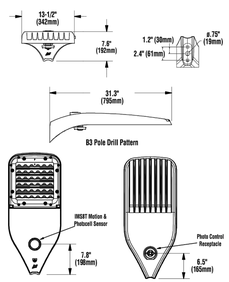

CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click the link below to learn more details about AirLink.

https://www.lsi-industries.com/documents/datasheets/airlink-outdoor-specsheet.pdf

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click the link below to learn more details about IMSBT.

https://www.lsi-industries.com/documents/datasheets/imsbt-specsheet.pdf

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click the link below to learn more details about AirLink Blue.

https://www.lsi-airlink.com/airlink-blue/

PHOTOMETRICS PROVIDED BY:
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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020

DATE 12/18/2020
DRAWN BY B. LAWRENCE
DESIGNED BY B. LAWRENCE
CHECKED BY B. LAWRENCE
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
LIGHTING CUTSHEETS

JOB NO. 45692
SHEET NO. L4.2

Catalog # : MRM-LED-18L-SIL-FT-UNV-DIM-50-70CRI-IL-BRZ Project : LAKEWOOD SATELLITE PARKING

TYPE S4H Date :

Mirada Medium (MRM)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	7,000 - 42,000
Wattage Range	53 - 390
Efficacy Range (LPW)	93 - 148
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip' polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, SW, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 5 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details.

Installation

- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty

- LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applicationsapplicationsare qualified.

Specifications and dimensions subject to change without notice.

THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD, STE B
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Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

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TYPICAL ORDER EXAMPLE: **MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[1]	Voltage	Driver
MRM - Mirada	LED	7L - 7,000 lms 9L - 9,000 lms 12L - 12,000 lms 18L - 18,000 lms 24L - 24,000 lms 30L - 30,000 lms 36L - 36,000 lms 42L - 42,000 lms	SIL - Silicone	2 - Type 2 3 - Type 3 SW - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive	(blank) standard L - Optics rotated left 90 R - Optics rotated right 90	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 30 - 3,000 CCT[1] AMB - Phosphor Converted Amber[2,3]	70CRI - 70 CRI	(Blank) None **Wireless Controls System** ALSC - AirLink Synapse Control System[4] ALSCH - AirLink Synapse Control System Host / Satellite[4,5] ALSCS01 - AirLink Synapse Control System with 8-12' Motion Sensor[4,6] ALSCHS01 - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor[4,5] ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor[4] ALSCHS02 - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor[4,5] ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor[4] ALSCHS04 - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor[4,5] ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)[6] ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)[6] **Stand-Alone Controls** EXT - 0-10v Dimming leads extended to housing exterior CR7P - 7 Pin Control Receptacle ANSI C136.41[7] IMSBT1 - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height[4,6] IMSBT2 - Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height[4,6] **Button Type Photocells** PCI120 - 120V PCI208-277 - 208 -277V PCI347 - 347V	BRZ - Bronze BLK - Black GPT - Graphite MSV - Metallic Silver WHT - White PLP - Platinum Plus SVG - Satin Verde Green	(Blank) - None IL - Integral Louver HSS[1]

Accessory Ordering Information

Controls Accessories	
Description	**Order Number**
Twist Lock Photocell (120V) for use with CR7P	122514
Twist Lock Photocell (208-277) for use with CR7P	122515
Twist Lock Photocell (347V) for use with CR7P	122516
Twist Lock Photocell (480V) for use with CR7P	1225180
AirLink 5 Pin Twist Lock Controller	661409
AirLink 5 Pin Twist Lock Controller	661410
Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

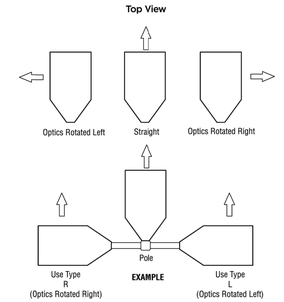
Mounting Accessories	
Description	**Order Number**
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Integral Louver/Shield	684812

Fusing Accessories	
Description	**Order Number**
Single Fusing (120V)	FK120
Single Fusing (120V)	FK277
Double Fusing (480V)	DFK480
Double Fusing (347V)	DFK347

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store
7 - Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish, See Finish options.
11 - Not available in UNV.
12 - Fusing must be located in hand hole of pole.

Mirada Medium Outdoor LED Area Light

OPTICS ROTATION



ACCESSORIES/OPTIONS

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with PCR 7P

Mirada Medium Outdoor LED Area Light

PERFORMANCE

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ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
7L	53	0.4A	0.3A	0.2A	0.2A	0.2A	0.1A
9L	69	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	94	0.8A	0.5A	0.4A	0.3A	0.3A	0.2A
18L	150	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	187	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	247	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	390	3.2A	1.9A	1.6A	1.4A	1.1A	0.8A

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

LUMINAIRE EPA CHART - MRM

Tilt Degree	0°	30°	45°	Tilt Degree	0°	30°	45°
Single	0.5	1.5	1.9	T90°	1.0	2.5	2.8
D180°	1.0	1.5	1.9	TM120°	1.0	3.3	3.9
D90°	0.8	1.9	2.3	Q90°	1.0	2.5	2.8

RECOMMENDED LUMEN MAINTENANCE[1] (7-18L)

Ambient	Initial[2]	25h[3]	50h[3]	75h[3]	100h[3]
0-50 C	100%	96%	92%	88%	84%

RECOMMENDED LUMEN MAINTENANCE[1] (24-42L)

Ambient	Initial[2]	25h[3]	50h[3]	75h[3]	100h[3]
0-40 C	100%	100%	97%	94%	92%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5848	80	B2-U0-G2	74
	2 - IL	3644	50	B0-U0-G1	
	3	6018	82	B1-U0-G2	
	3 - IL	4468	61	B0-U0-G2	
	SW	5471	74	B3-U0-G1	
	FT	5801	79	B1-U0-G2	
	FT - IL	3649	50	B0-U0-G1	
	FTA	5924	81	B1-U0-G1	
	FTA - IL	4243	58	B1-U0-G1	
12L	2	7530	74	B2-U0-G2	102
	2 - IL	4692	46	B0-U0-G1	
	3	7749	76	B1-U0-G2	
	3 - IL	5753	57	B0-U0-G2	
	SW	7045	69	B3-U0-G2	
	FT	7470	73	B2-U0-G2	
	FT - IL	4699	46	B0-U0-G2	
	FTA	7628	75	B2-U0-G2	
	FTA-IL	5464	54	B1-U0-G1	

*LEDs are frequently updated therefore values are nominal.

PHOTOMETRICS

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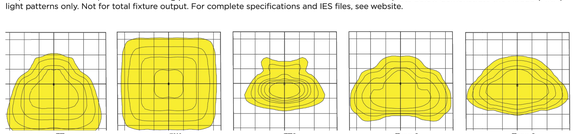
All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada (MRM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



Mirada Medium Outdoor LED Area Light

PERFORMANCE (CONT.)

DELIVERED LUMENS*

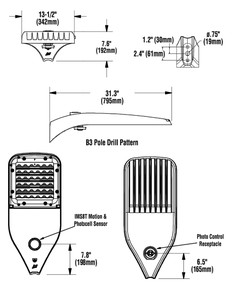
Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
7L	2	70	6550	124	B2-U0-G1	6711	127	B2-U0-G1	7208	137	B2-U0-G2	7596	144	B2-U0-G2	53
	2 - IL	70	4068	77	B0-U0-G1	4167	79	B0-U0-G1	4476	85	B0-U0-G1	4717	89	B0-U0-G1	
	3	70	6724	127	B1-U0-G2	6889	130	B1-U0-G2	7400	140	B1-U0-G2	7798	148	B1-U0-G2	
	3 - IL	70	4929	93	B0-U0-G2	5050	96	B0-U0-G2	5424	103	B0-U0-G2	5716	108	B0-U0-G2	
	SW	70	6400	121	B3-U0-G1	6557	124	B3-U0-G1	7043	133	B3-U0-G2	7422	141	B3-U0-G2	
	FT	70	6540	124	B1-U0-G2	6701	127	B1-U0-G2	7197	136	B1-U0-G2	7584	144	B1-U0-G2	
	FT - IL	70	4231	80	B0-U0-G2	4334	82	B0-U0-G2	4656	88	B0-U0-G2	4906	93	B0-U0-G2	
	FTA	70	6636	126	B1-U0-G1	6799	129	B2-U0-G1	7303	138	B2-U0-G1	7696	146	B2-U0-G1	
	FTA - IL	70	4864	92	B1-U0-G1	4984	94	B1-U0-G1	5353	101	B1-U0-G1	5641	107	B1-U0-G1	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	SW	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7268	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	SW	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12773	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13053	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9323	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G3	12920	86	B1-U0-G3	14155	95	B1-U0-G3	14739	99	B1-U0-G3	
	SW	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G2	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G3	14240	76	B1-U0-G3	15231	81	B1-U0-G3	15559	83	B1-U0-G3	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15928	85	B1-U0-G3	17299	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	SW	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15726	81	B1-U0-G2	16550	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30906	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	SW	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B5-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G5	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	SW	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G4	35456	114	B4-U0-G4	38959	122	B4-U0-G4	39366	124	B4-U0-G4	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B2-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G5	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	SW	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LEDs are frequently updated therefore values are nominal

Mirada Medium Outdoor LED Area Light

PRODUCT DIMENSIONS

Back to Quick Links



CONTROLS

AirLink Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click the link below to learn more details about AirLink.

https://www.lsi-industries.com/documents/datasheets/airlink-outdoor-specsheet.pdf

Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30° C to 70° C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click the link below to learn more details about IMSBT.

https://www.lsi-industries.com/documents/datasheets/imsbt-specsheet.pdf

AirLink Blue

Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click the link below to learn more details about AirLink Blue.

https://www.lsi-airlink.com/airlink-blue/

PHOTOMETRICS PROVIDED BY:
THOMAS HARRIS & CO., INC.
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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION	DATE
COUNTY COMMENTS	12/18/2020

DATE 12/18/2020
DRAWN BY B. LAWRENCE
DESIGNED BY B. LAWRENCE
CHECKED BY B. LAWRENCE
SCALE AS SHOWN

TIMMONS GROUP

LAKEWOOD MANOR SATELLITE PARKING
TUCKAHOE DISTRICT - HENRICO COUNTY - VIRGINIA
LIGHTING CUTSHEETS

JOB NO. 45692
SHEET NO. L4.3

Project : LAKEWOOD SATELLITE PARKING		Fixture Type : S2, S3, S4 & S4H
Catalog # : 4SQB3-S11G-22'-S-BRZ-4BC	Prepared By :	Date :

STEEL SQUARE STRAIGHT POLES

Features & Specifications

Pole Shaft
- Straight poles are 4", 5", or 6" square.
- Pole shaft is electro-welded ASTM-A500 Grade C steel tubing with a minimum yield strength of 50,000 psi.
- On Tenon Mount steel poles, tenon is 2-3/8" O.D. high-strength pipe. Tenon is 4-3/4" in length.

Hand-Hole
- Standard hand-hole location is 12" above pole base.
- Poles 22' and above have a 3" x 6" reinforced hand-hole. Shorter poles have a 2" x 4" non-reinforced hand-hole.

Base
- Pole base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 psi.
- Two-piece square base cover is optional.

Anchor Bolts
- Poles are furnished with anchor bolts featuring zinc-plated double nuts and washers. Galvanized anchor bolts are optional.
- Anchor bolts conform to ASTM F 1554-07a Grade 55 with a minimum yield strength of 55,000 psi.

Ground Lug
- Ground lug is standard.

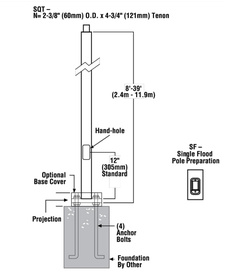
Duplex Receptacle
- Weatherproof duplex receptacle is optional.

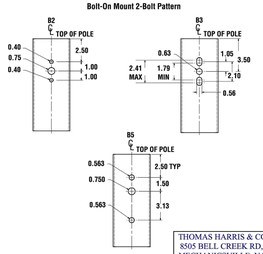
Ground Fault Circuit Interrupter
- Self-testing ground fault circuit interrupter is optional.

Finishes
- Every pole is provided with the **DuraGrig® Protection System** and a 5-year limited warranty:
  - Each shaft is purchased to a stricter straightness tolerance than specified on industry material standards. Shafts with dents, dings, roll marks, or patterns on the exterior surface are rejected. Shafts are stored indoors to prevent corrosion.
  - After connecting holes are cut and hand holes and baseplates welded to the shafts, each pole undergoes a thorough shot-peening process, resulting in a near-white surface. This procedure removes all dirt and scale and strengthens the surface of the steel by inducing a compressive residual stress that helps prevent cracking and extend the life of the pole.
  - After shot peening, a neutral wash is applied followed by the application of a zirconium treatment that improves powder-coat adhesion and protects from corrosion.
  - Next, each pole is coated through electrostatic application of a polyester powder paint in standard LSI bronze or the color approved by the customer. Paint thickness is measured in multiple locations along the pole to ensure specification adherence.
  - Finally, the pole is oven baked to form a homogenous, non-porous surface and wrapped for shipment in a woven fabric sleeve to protect the finish during transit.
- When the top-of-the line **DuraGrig® Plus Protection System** is selected, in addition to the DuraGrig® Protection System, a non-porous, automotive-grade corrosion coating is applied to the lower portion of the pole interior, sealing and further protecting it from corrosion. This option extends the limited warranty to 7 years.

CLASSIFIED UL ARRA Funding Compliant — IN THE USA

Product Dimensions





THOMAS HARRIS & CO., INC.
8505 BELL CREEK RD, STE B
MECHANICSVILLE, VA 23116
PHONE: 804-730-3003

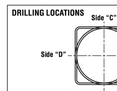
Features & Specifications (Cont.)

Determining The Luminaire/Pole Combination For Your Application:
- Select luminaire from luminaire ordering information
- Select bracket configuration if required
- Determine EPA value from luminaire/bracket EPA chart
- Select pole height
- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value from note above
- Consult factory for special wind load requirements and banner brackets

SHIPPING WEIGHTS - Steel Square Poles

4"(102mm) sq. 11 Ga. is approximately	7.50 lbs./ft.
4"(102mm) sq. 07 Ga. is approximately	10.00 lbs./ft.
5"(127mm) sq. 11 Ga. is approximately	9.00 lbs./ft.
5"(127mm) sq. 07 Ga. is approximately	12.50 lbs./ft.
6"(152mm) sq. 07 Ga. is approximately	15.40 lbs./ft.
Anchor Bolts (3/4" x 30")(19mm x 762mm)	15 lbs. (7kg)/set
Anchor Bolts (1" x 36")(25mm x 914mm)	30 lbs. (14kg)/set

DRILLING LOCATIONS

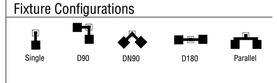


Sides	A	B	C	D
Hand-hole	X			
Single	X			
D180		X		X
D90	X			X
DN90°				
T90	X	X		X
TN120°				
Q90	X	X	X	X
QN90°				
Single FBO	X			
Double FBO		X		X

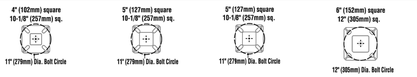
Notes:
1 - Two locations will be 45° to the left and right of Side A.
2 - Other two locations will be 120° to the left and right of Side A.
3 - Two locations will be 45° to the left and right of Side A and two locations will be 135° to the left and right of Side A.

Consult factory for custom variations. Standard SF and DF pole preparations are located 3/4 of the height of the pole from the base, except on 20' poles. Maximum height for SF and DF pole preparations on 20' poles is 13' from the base.

Fixture Configurations



Bolt Circle



Bolt Circle Designator	B	C	D	J
Bolt Circle	Slotted 8"-11" (203mm-279mm)	Slotted 9"-11" (229mm-279mm)	Slotted 9"-11" (229mm-279mm)	Slotted 12" (305mm)
Anchor Bolt Size	3/4" x 30" (19mm x 762mm)	3/4" x 30" (19mm x 762mm)	1" x 36" (25mm x 914mm)	1" x 36" (25mm x 914mm)
Anchor Bolt Projection	3-1/4" (83mm)	3-1/4" (83mm)	4" (102mm)	4" (102mm)
Base Plate Opening for Wirenway Entry	3-5/8" (80mm)	4-3/4" (121mm)	4-5/8" (117mm)	5-5/8" (143mm)
Base Plate Dimensions	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 3/4" thk. (257mm x 19mm)	10-1/8" sq. x 1" thk. (257mm x 25mm)	12" sq. x 1-1/8" thk. (305mm x 29mm)

Note: Base plate illustrations may change without notice. Do not use for setting anchor bolts. Consult factory for the appropriate anchor bolt template.

Ordering Guide

TYPICAL ORDER EXAMPLE: **5SQ B5 S07G 24 S PLP DGP**

Pole Series	Mounting Method	Material	Height [1]	Mounting Configuration	Pole Finish	Options
4SQ - 4" x 4" Square Straight Pole **5SQ** - 5" x 5" Square Straight Pole **6SQ** - 6" x 6" Square Straight Pole	**Bolt-On Mount[2]** - See pole selection guide for patterns and fixture matches. **B5** - 5" Traditional drilling pattern **B3** - 3" Reduced drilling pattern **B2** - 2" Tellus drilling pattern **T** - Tenon Mount - See pole selection guide for tenon and fixture/bracket matches. **I** - No Mounting Holes[3] - Use with: • BKA 4SF & BKA 5SF • BKA X4ISF & BKA X5ISF	**S11G** - 11 Ga. Steel (4SQ and 5SQ only) S07G - 07 Ga. Steel	8' 10' 12' 13' 14' 15' 16' 17' 17' 6" 18' 20' **22'** 22' 6" 23' 24' 25' 26' 27' 28' 30' 32' 35' 39' Height Restriction. Consult Pole Selection Chart on opposite page	**S** - Single/Parallel D180 – Double D90 – Double DN90 – Double T90 – Triple TN120 – Triple Q90 – Quad QN90 – Quad N – Tenon Mount (Standard tenon size is 2-3/8" O.D.)	**BRZ** Bronze BLK – Black PLP – Platinum Plus WHT – White SVG – Satin Verde Green GPT – Graphite MSV – Metallic Silver BZA – Alternate Bronze	GA – Galvanized Anchor Bolts SF – Single Prep[4] DF – Double Prep[4] DGP – DuraGrig® Plus LAB – Less Anchor Bolts OSXX – Pole preparation for PMOS Occupancy Sensor[4] CRXX - Conduit Raceway[4] Standard SF and DF pole preparations are located 3/4 of the height of the pole from the base, except on 20' poles. Maximum height for SF and DF pole preparations on 20' poles is 13' from the base.

Accessory Ordering Information

Description	Order Number
4BC - 4" Square Base Cover	122559CLR
5BC – 5" Square Base Cover	122561CLR
6BC – 6" Square Base Cover	122563CLR
ER2 – Weatherproof Duplex Receptacle	122566CLR
GFI – Ground Fault Circuit Interrupter	122567CLR
MHS - mounting Hole Plugs for use with 5" traditional drill pattern (1 set of 3 plugs)	132336
MH3 - mounting Hole Plugs for use with 3" reduced drill pattern (1 set of 3 plugs)	681126
MH2 - Mounting Hole Plugs for use with 2" reduced drill pattern (1 sets of 3 plugs)	725841

Description	Order Number
Vibration Damper - 4" Square Pole (bolt-on mount only)	172539
Vibration Damper - 5" Square Pole (bolt-on mount only)	172538
Vibration Damper - 6" Square Pole (bolt-on mount only)	178361
PMOS120 - 120V Occupancy Sensor	518030CLR[5]
PMOS208/240 - 208, 240V Occupancy Sensor	534239CLR[5]
PMOS277 - 277V Occupancy Sensor	518029CLR[5]
PMOS480 - 480V Occupancy Sensor	534240CLR[5]

FOOTNOTES:
1 - See Area Light Brackets - 3" Reduced Drill Pattern and Area Light Brackets - 5" Traditional Drill Pattern spec sheets.
2 - Pole heights will have +/- 1/2" tolerance.
3 - See Flood Lighting Brackets section for choice of FBO brackets.
4 - Order PMOS separately. Change "XX" to indicate height and side of pole location for pole preparation. EX: 0S18A indicates preparation is to be 18ft. up from pole base on side A. Optimal distance from ground to sensor is 20ft.
5 - OSXX option required. Not for use with Metal Halide fixtures
6 - CR selection must indicate required height and side of pole mounting location. Mounting template required at time of order.

Specifications and dimensions subject to change without notice.

Wind Speed

EPA Information
All LSI Industries' poles are guaranteed to meet the EPA requirements listed. LSI Industries is not responsible if a pole order has a lower EPA rating than the indicated wind-loading zone where the pole will be located. **CAUTION:** This guarantee does not apply if the pole/bracket/fixture combination is used to support any other items such as flags, pennants, or signs, which would add stress to the pole. LSI Industries cannot accept responsibility for harm or damage caused in these situations.

NOTE: Pole calculations include a 1.3 gust factor over steady wind velocity. Example: poles designed to withstand 80 MPH steady wind will withstand gusts to 104 MPH. EPAs are for locations 100 miles away from hurricane ocean lines. Consult LSI for other areas. Note: Hurricane ocean lines are the Atlantic and Gulf of Mexico coastal areas. For applications in Florida or Canada, consult factory.

Use ONLY with "Wind Speed Map for ASCE 7-10

POLE[1]	Mtg. Height Length (ft)	Wall Thick (ga)	BOLT CIRCLE			EPA								
			Designator	Dia. (in)	Anchor bolt Dia (in)	110 MPH	115 MPH	120 MPH	130 MPH	140 MPH	150 MPH	160 MPH	170 MPH	180 MPH
4" x 11-ga x 12'	12	11	B	8"-11"	0.75	13.9	12.5	11.3	9.2	7.6	6.3	5.2	4.3	3.6
4" x 11-ga x 14'	14	11	B	8"-11"	0.75	10.7	9.5	8.5	6.8	5.4	4.4	3.5	2.7	2.1
4" x 11-ga x 16'	16	11	B	8"-11"	0.75	8.2	7.2	6.4	4.9	3.8	2.9	2.1	1.5	1.0
4" x 11-ga x 18'	18	11	B	8"-11"	0.75	6.3	5.4	4.7	3.4	2.4	1.6	1.0	0.4	n/a
4" x 11-ga x 20'	20	11	B	8"-11"	0.75	4.6	3.9	3.2	2.1	1.2	0.6	n/a	n/a	n/a
4" x 11-ga x 22'	22	11	B	8"-11"	0.75	7.6	6.6	5.7	4.2	3.0	2.0	1.2	0.5	n/a
4" x 11-ga x 24'	24	11	B	8"-11"	0.75	6.0	5.1	4.3	2.9	1.8	0.9	n/a	n/a	n/a
4" x 11-ga x 26'	26	11	B	8"-11"	0.75	4.6	3.7	3.0	1.7	0.7	n/a	n/a	n/a	n/a
4" x 7-ga x 14'	14	7	B	8"-11"	0.75	18.3	16.4	14.9	12.2	10.2	8.5	7.1	5.9	5.0
4" x 7-ga x 16'	16	7	B	8"-11"	0.75	14.7	13.2	11.8	9.6	7.8	6.3	5.2	4.2	3.4
4" x 7-ga x 18'	18	7	B	8"-11"	0.75	11.9	10.5	9.3	7.4	5.9	4.6	3.6	2.8	2.1
4" x 7-ga x 20'	20	7	B	8"-11"	0.75	9.6	8.4	7.4	5.7	4.3	3.2	2.3	1.6	0.9
4" x 7-ga x 22'	22	7	B	8"-11"	0.75	7.7	6.6	5.7	4.2	3.0	2.0	1.2	0.5	n/a
4" x 7-ga x 24'	24	7	B	8"-11"	0.75	6.0	5.1	4.3	2.9	1.8	0.9	n/a	n/a	n/a
4" x 7-ga x 26'	26	7	B	8"-11"	0.75	4.6	3.7	3.0	1.7	0.7	n/a	n/a	n/a	n/a
4" x 7-ga x 28"	28	7	B	8"-11"	0.75	3.3	2.5	1.8	0.7	n/a	n/a	n/a	n/a	n/a
4" x 7-ga x 30"	30	7	B	8"-11"	0.75	2.2	1.4	0.8	n/a	n/a	n/a	n/a	n/a	n/a
5" x 11-ga x 14'	14	11	C	9"-11"	0.75	17.4	15.7	14.1	11.5	9.3	7.7	6.3	5.2	4.2
5" x 11-ga x 16'	16	11	C	9"-11"	0.75	13.8	12.3	10.9	8.7	6.9	5.5	4.3	3.3	2.5
5" x 11-ga x 18'	18	11	C	9"-11"	0.75	10.8	9.6	8.4	6.5	4.9	3.7	2.6	1.8	1.1
5" x 11-ga x 20'	20	11	C	9"-11"	0.75	8.5	7.3	6.3	4.6	3.2	2.1	1.2	0.5	n/a
5" x 11-ga x 22'	22	11	C	9"-11"	0.75	10.9	9.5	8.3	6.2	4.5	3.2	2.1	1.2	0.5
5" x 11-ga x 24'	24	11	C	9"-11"	0.75	8.8	7.5	6.4	4.5	3.0	1.8	0.8	n/a	n/a
5" x 11-ga x 26'	26	11	C	9"-11"	0.75	6.8	5.7	4.6	3.0	1.6	0.6	n/a	n/a	n/a
5" x 11-ga x 28'	28	11	C	9"-11"	0.75	5.2	4.1	3.2	1.6	0.4	n/a	n/a	n/a	n/a
5" x 11-ga x 30'	30	11	C	9"-11"	0.75	3.6	2.7	1.8	0.4	n/a	n/a	n/a	n/a	n/a
5" x 7-ga x 20'	20	7	D	9"-11"	1.00	21.6	19.3	17.3	14.0	11.3	9.2	7.4	6.0	4.8
5" x 7-ga x 22'	22	7	D	9"-11"	1.00	20.7	18.6	16.6	13.3	10.7	8.5	6.8	5.4	4.2
5" x 7-ga x 24'	24	7	D	9"-11"	1.00	17.7	15.6	13.8	10.8	8.5	6.6	5.0	3.7	2.6
5" x 7-ga x 26'	26	7	D	9"-11"	1.00	14.9	13.1	11.4	8.8	6.6	4.9	3.5	2.3	1.3
5" x 7-ga x 28'	28	7	D	9"-11"	1.00	12.5	10.9	9.4	6.9	4.9	3.4	2.1	1.0	n/a
5" x 7-ga x 30'	30	7	D	9"-11"	1.00	10.3	8.9	7.5	5.2	3.4	2.0	0.8	n/a	n/a
5" x 7-ga x 35'	35	7	D	9"-11"	1.00	6.0	4.8	3.6	1.8	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 24'	24	7	J	12"	1.00	18.6	16.4	14.3	11.2	8.6	6.5	4.8	3.4	2.2
6" x 7-ga x 26'	26	7	J	12"	1.00	15.6	13.4	11.7	8.8	6.5	4.6	3.0	1.8	0.7
6" x 7-ga x 28'	28	7	J	12"	1.00	12.9	10.9	9.3	6.7	4.6	2.8	1.5	n/a	n/a
6" x 7-ga x 30'	30	7	J	12"	1.00	10.4	8.8	7.3	4.8	2.9	1.3	n/a	n/a	n/a
6" x 7-ga x 32'	32	7	J	12"	1.00	8.3	6.8	5.5	3.1	1.3	n/a	n/a	n/a	n/a
6" x 7-ga x 34'	34	7	J	12"	1.00	6.5	5.0	3.7	1.6	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 35'	35	7	J	12"	1.00	5.5	4.2	2.9	0.9	n/a	n/a	n/a	n/a	n/a
6" x 7-ga x 39'	39	7	J	12"	1.00	2.3	1.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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Note:
1- Poles shorter than these listed here in for each gauge have EPA rating equal to or greater than what is provided in this table. To Confirm EPA ratings on shorter poles, contact LSI Industries.
2- LSI Industries recommends a vibration damper be ordered with this length.

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