SITE PLAN

HONDA SALES AND SERVICE
FREDERICK COUNTY, VIRGINIA
Tax MAP 75 (A) 11C, 11L, & 11M
SITE PLAN # xx-23

DEVELOPER
CMA PROPERTIES, INC.
100 Myers Drive
Charlottesville, VA 22901
Phone (434) 951-1000

LAND OWNER
CMA PROPERTIES, INC
100 Myers Drive
Charlottesville, VA 22901
Phone (434) 951-1000

ENGINEER
Stowe Engineering, PLC
103 Heath Court
Winchester, VA 22655
Phone (540) 686-7373

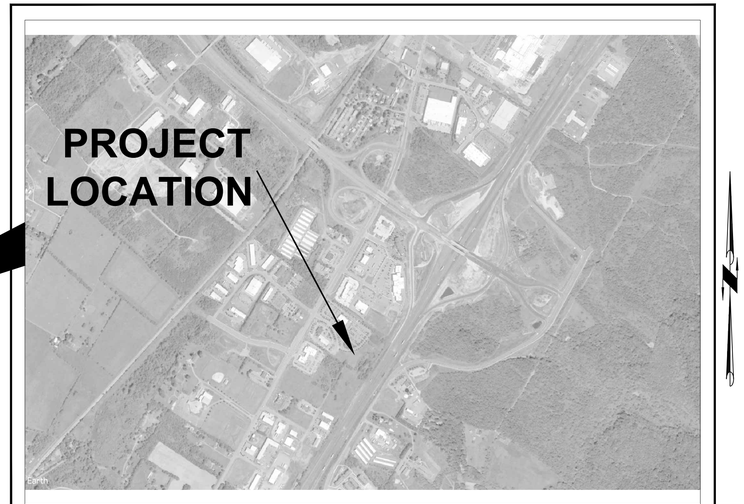
LOCAL UTILITY SERVICE PROVIDERS

WATER AND SEWER
FREDERICK WATER
315 TASKER RD
STEPHENS CITY, VA 22655
540.868.1061

ELECTRIC SERVICE
SHENANDOAH VALLEY ELEC COOP
3463 VALLEY PIKE
WINCHESTER, VA 22602
540-450-0111

TELEPHONE SERVICE
VERIZON
404 HILLANDALE LANE
WINCHESTER, VA 22602
540.665.3153

CABLE SERVICE
COMCAST COMMUNICATIONS
195 RAINVILLE ROAD
WINCHESTER, VA 22602



SCALE 1" = 1000'

SHEET INDEX	
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CALL BEFORE YOU DIG

CALL 811 FROM YOU CELL PHONE OR
1-800-552-7001 FROM A LAND LINE.

SECTION 56-265.17 OF THE CODE OF VA REQUIRES THAT YOU PROVIDE THREE WORKING DAYS NOTICE TO UTILITY OWNERS BEFORE YOU EXCAVATE, DRILL OR BAST.

PREPARED BY

STOWE ENGINEERING, PLC

103 HEATH COURT
WINCHESTER, VA 22602
V 540.686.7373 F 540.301.1100

RESPONSIBLE LAND DISTURBER		
Print Name:		
Address:		
City:	State:	Zip:
Phone Number:		
I hereby agree to install, maintain, and inspect Erosion Control Measures to protect this site and ensure compliance.		
Signature:		Date:
Responsible Land Disturber Cert. Number:		
A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO AN LAND DISTURBING ACTIVITIES		
THE ENGINEER WHO PREPARED THIS PLAN MAY SERVE AS THE REPONSIBLE LAND DISTURBER FOR THE REVIEW PROCESS ONLY AND ASSUMES NO RESPONSIBILITY FOR ACTUAL LAND DISTURBING ACTIVITIES. THE RESPONSIBLE LAND DISTURBER IS THAT PERSON RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITIES SET FORTH IN THESE PLANS.		

APPROVED BY FREDERICK COUNTY ZONING ADMINISTRATOR

_____ _____
DATE

PLAN VALID FOR FIVE YEARS FROM APPROVAL DATE

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

TITLE SHEET
Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

GENERAL NOTES

1. The contractor shall furnish all material, labor and equipment and perform all work to deliver the completed improvements shown or implied as necessary for the completed project ready for use, inclusive of all site restoration and stabilization. Unless otherwise noted, specifications for all work to be in accordance with applicable the Virginia Department of Transportation, the Virginia Department of Environmental Quality, American Water Works Association standards, and Frederick Water Standards and Specifications.
2. All construction shall comply with the latest U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), and Virginia Occupational Safety & Health (VOSHA) rules and regulations.
3. The contractor shall comply with title 59.1, chapter 30 section 406, et. seq. of the code of Virginia (overhead high voltage lines safety act).
4. The contractor shall comply with title 56, chapter 10.3, section 265, et. seq. of the code of Virginia (underground utility damage prevention act).
5. Access for emergency and utility maintenance vehicles shall be maintained. Access for all businesses shall be maintained.
6. The placement of a construction trailer, fencing, parking, and staging areas shall be coordinated with and approved by the property owner and developer.
7. **The contractor shall be responsible** for hiring a surveyor to provide construction surveying stake out.
8. **The owner shall be responsible** for hiring a testing firm to provide all earthwork and compaction testing.
9. The engineer has attempted to show all subsurface utilities, however, such may exist that are not shown. The contractor shall exercise care in this work so as to avoid damage to any utilities. Any damage shall be the responsibility of the contractor. The contractor shall notify Miss Utility of Virginia at least 72 hours prior to digging.
10. All disturbed surfaces shall be restored to the pre-construction condition by the contractor at the contractor's expense.
11. The Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.
12. Any unusual subsurface conditions (e.g., unsuitable soils, springs, sinkholes, voids, caves, etc.) encountered during the course of construction shall be immediately brought to the attention of the engineer. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved.
13. All fill areas, borrow material and undercut areas shall be inspected and approved by a the soils testing firm prior to placement and fill.
14. All surfaces and slopes shall provide positive drainage away from the building and parking areas
15. All fill areas, borrow material, footers, and undercut areas shall be inspected and approved by a the geotechnical engineer prior to placement of fill, aggregate, or concrete.
16. All subgrade material and backfill in the utility/storm sewer trenches, shall be placed and compacted in accordance with the requirements in the geotechnical report. Density tests shall be performed by the soils testing firm.
17. Existing structures, tanks, and other existing features designated to be removed or demolished shall be carefully removed and disposed of at an approved waste disposal site.

DRAINAGE NOTES

1. "H" Dimensions and top elevations shown on the plans are measured from the invert out to the top of the structure. "H" dimensions and top elevations are approximate and are provided for estimating purposes. Actual dimensions shall be determined by the contractor from field conditions.
2. All drainage structures shall meet the requirements of VDOT road and bridge standards and VDOT specifications. see details in this plan set.
3. All structures shall have vdot standard invert shaping IS-1. see detail in this plan set.
4. All storm drainage pipe materials shall be as shown on the profiles.

GRADING NOTES

1. All excavation is unclassified.
2. Materials - The material to be used in embankments shall be free of frozen or organic materials such as leaves, roots, grass, weeds, and all other material not consistent with construction of a stable, homogeneous fill. Embankments shall not be constructed on frozen ground. All proposed fill materials should be approved by the geotechnical engineer prior to placement, and representative samples should be obtained one week prior to placement of that material to allow time for completion of the necessary laboratory tests.
3. Site Preparation - All vegetation, rootmat, topsoil, asphalt and concrete shall be removed from areas upon which embankment will be constructed. Clearing shall extend ten (10) feet beyond the building and pavement limits, and one additional foot for each foot of proposed fill. Topsoil shall be stockpiled as required by the e&s plan. All sloping areas upon which fill is to be placed should be benched or "notched" so that a smooth interface between existing ground and new fill will not be present. Each layer of fill should be benched into the existing ground a minimum of 3 feet horizontally and the depth of one fill layer. Flat areas upon which fill is to be placed shall be deeply plowed to allow for bonding with the existing material. the controlled fill slopes and embankments should be constructed at the designed 2h:1v slopes or flatter.
4. Formation in Layers - All fill layers shall be constructed with materials and methods prescribed in the geotechnical report. Any soil placed as engineered fill should be an approved material, free of organic matter or debris. unacceptable engineered fill materials include topsoil, organic materials (oh, ol), construction debris and large rock. all such materials removed during grading operations should be either stockpiled for later use in landscaped areas or placed in approved disposal areas either on or off site. All frozen soil should be removed prior to continuation of fill operations. Borrow fill shall not contain frozen materials at the time of placement. All frost-heaved soil should be removed prior to placement of fill, stone, concrete or asphalt. It is recommended that processed shot rock be utilized as fill within the upper five (5) feet of finish subgrade to provide a weather resilient construction area which can be utilized to reduce concrete slab, pavement section thickness, or foundation size. ***The site contractor shall have means of providing water at all times during structural fill placement. The geotechnical report is entitled Report of Geotechnical Exploration, Honda Store, Frederick County, Virginia prepared by Triad Engineering, Winchester, VA.***
5. As the embankment is consolidated, the slopes shall be carefully dressed to the desired section and maintained to their proper height, dimensions, and shape until the work is accepted. When transporting material with rubber-tired equipment, care shall be taken to see that the trailing units do not follow in the tracks of the preceding unit. At the end of each day's work the embankment shall be dressed to shed any water that might fall during the night.
6. All blasting operations shall be performed in accordance with the Fire Marshall's requirements. The contractor shall protect the existing buildings, cars, site utilities and overhead power lines from fly rock and its associated damage.
7. If karst features such as caves, disappearing streams, or large springs are encountered during the project, contact Wil Ondorff of VA DCR (540-394-2552) to document and minimize adverse impacts.

WATER & SEWER NOTES

1. The public water and sewer lines are owned and operated by Frederick Water. All construction, connections and activities pertaining to the water and sewer lines shall conform to the requirements prescribed in the Frederick Water Standards and Specifications which can be found at
   https://www.frederickwater.com/sites/default/files/docs_forms_media/frederick_water_standards_and_specifications_2022-04-19_w_std_details.pdf
2. On site water and sewer facilities are currently owned by Carter Myers.
3. Manhole rims, valve boxes, etc. shall be adjusted to match the surrounding finished grade.
4. The contractor shall coordinate water and sewer construction with Frederick Water.
5. Location marker requirements - water line location markers shall be Scotchmark mid-range markers (wheel) part number 1257 or approved equal. sewer line locator markers shall be Scotchmark mid-range markers (wheel) part number 1258 or approved equal.

SIGN NOTES

1. BUILDING MOUNTED SIGN SHALL NOT EXCEED 20% OF THE WALL AREA OR 200SF TOTAL. INTERNAL DIRECTION SIGNS WILL ALSO BE UTILIZED.

OUTDOOR LIGHTING NOTES

1. OUTDOOR LIGHTING WILL BE INSTALLED IN ACCORDANCE WITH FREDERICK COUNTY REQUIREMENTS AND THESE PLANS.

STORMWATER MANAGEMENT NOTES

1. THIS PROJECT INCREASES THE IMPERVIOUS AREA OF THE SITE. STORMWATER QUALITY WILL BE MITIGATED THROUGH THE PURCHASE OF NUTRIENT CREDITS FROM A DEQ APPROVED SOURCE. STORMWATER QUANTITY WILL BE MANAGED WITH ONSITE SYSTEMS.

Virginia Department of Transportation

Staunton District
Rev. June 19, 2013

VDOT General Notes

V1. All work on this project shall conform to the current editions of and latest revisions to the Virginia Department of Transportation (VDOT) Road and Bridge Specifications and Standards, the Virginia Erosion and Sediment Control Regulations, and any other applicable state, federal or local regulations. In case of a discrepancy or conflict between the Standards or Specifications and Regulations, the most stringent shall govern.

V2. All construction shall comply with the latest U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), and Virginia Occupational Safety & Health (VOSH) Rules and Regulations.

V3. When working within VDOT right-of-way, all traffic control, whether permanent or temporary, shall be in accordance with the current edition of VDOT's Work Area Protection Manual. A transportation management plan needs to be submitted for approval and land use permit issued prior to any execution of work within the VDOT right of way.

V4 The developer shall be responsible for relocating, at his expense, any and all utilities, including traffic signal poles, junction boxes, controllers, etc., owned by VDOT or private / public utility companies. It is the sole responsibility of the developer to locate and identify utility facilities or items that may be in conflict with the proposed construction activity. VDOT approval of these plans does not indemnify the developer from this responsibility.

V5. Design features relating to field construction, regulations, and control or safety of traffic may be subject to change as deemed necessary by VDOT. Any additional expense incurred as a result of any field revision shall be the responsibility of the developer.

V6. If required by the local VDOT Land Development Office, a pre-construction conference shall be arranged and held by the engineer and/or developer with the attendance of the contractor (s), various County agencies, utility companies and VDOT prior to initiation of work.

V7. The contractor shall notify the local VDOT Land Development Office when work is to begin or cease for any undetermined length of time. VDOT requires and shall receive 48 hours advance notice prior to any required or requested inspection.

V8. The contractor shall notify the Traffic Operations Center at (540) 332-9500 for any traffic control plan that impacts a VDOT maintained Interstate or Primary roadway to provide notification of the installation and removal of the work zone.

V9. The contractor shall be responsible for maintaining a VDOT permitted temporary construction entrance(s) in accordance with Section 3.02 of the Virginia Erosion and Sediment Control Handbook. Furthermore, access to other properties affected by this project shall be maintained through construction.

V10. Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.

V11. All water and sewer lines within existing or proposed VDOT right-of-way shall have a minimum thirty-six (36) inches cover and when possible shall be installed under roadway drainage facilities at conflict points.

V12. Any unusual subsurface conditions (e.g., unsuitable soils, springs, sinkholes, voids, caves, etc.) encountered during the course of construction shall be immediately brought to the attention of the engineer and VDOT. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved by VDOT.

V13. All fill areas, borrow material and undercut areas shall be inspected and approved by a VDOT representative prior to placement of fill. A VDOT representative shall be present to insure the soil sample(s) obtained for CBR's is representative of the location. When soil samples are submitted to private laboratories for testing, the samples shall be clearly identified and labeled as belonging to a project to be accepted by VDOT and that testing shall be performed in accordance with all applicable VDOT standards and procedures.

V14. All roadway fill, base, subgrade material, and backfill in utility/storm sewer trenches shall be compacted in accordance with the lift thicknesses, density and moisture requirements as specified in the current VDOT Road and Bridge Specifications. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise.

V15. VDOT Standard CD and UD underdrains shall be installed where indicated on these plans and/or as specified by VDOT.

V16. A post installation visual/video camera inspection shall be conducted by the Contractor on all pipes identified on the plans as storm sewer pipe and a select number of pipe culverts. For pipe culverts, a minimum of one pipe installation for each size of each material type will be inspected or ten percent of the total amount for each size and material type summarized. All pipe installations on the plans not identified as storm sewer pipe shall be considered as culvert pipe for inspection purposes. Additional testing may be required as directed by the Area Land Use Engineer or their representative.

V17. The installation of any entrances and mailboxes within any dedicated street right-of-way shall meet VDOT minimum design standards and is the responsibility of the developer.

V18. Prior to VDOT acceptance of any streets, all required street signage and/or pavement markings shall be installed by the developer in accordance with the Manual On Uniform Traffic Control Devices.

V19. The developer shall provide the VDOT Land Development Office with a list of all material sources prior to the start of construction. Copies of all invoices for materials utilized within any dedicated street right-of-way must be provided to the local VDOT Land Development Office prior to acceptance of the work. Unit and total prices may be obscured.

V20. Aggregate base and subbase materials shall be placed on subgrade by means of a mechanical spreader. Density will be determined using the density control strip in accordance with Section 304 of the VDOT Road and Bridge Specifications and VTM-10. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. In addition to checking stone depths, a VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the density control strip.

V21. Asphalt concrete pavements shall be placed in accordance with Section 315 of the VDOT Road and Bridge Specifications. Density shall be determined using the density control strip as specified in Section 315 and VTM-76. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. A VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the control strip.

V22. In accordance with Section 302.03, the foundations for pipe culverts thirty-six (36) inches and larger shall be explored below the bottom of the excavation to determine the type and condition of the foundation. The contractor shall report findings of foundation exploration to the engineer and VDOT for approval prior to placing pipe. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.

V23. VDOT Standard Guardrail shall be installed where warranted and/or as proposed on these plans in accordance with VDOT's installation criteria. Final approval of the guardrail layout to be given by VDOT after grading is mostly complete.

V24. Approval of these plans shall expire five (5) years from the date of the approval letter.

V25. VDOT Standard CG-12 Curb Ramps shall be installed where indicated on these plans and/or as specified by VDOT.

V26. The foundations for all box culverts shall be investigated by means of exploratory borings advanced below proposed foundation elevation to determine the type and condition of the foundation. The contractor shall submit copies of borehole logs and report findings of foundation exploration to the engineer and VDOT for approval prior to constructing box. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Contrary to the Standard, where rock is encountered and cast-in-place box is proposed, the thickness of bedding shall be six (6) inches. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.

PROJECT SUMMARY INFORMATION		
Owner	CMA Properties, Inc.	
Proposed Project Description	15,301 SF building addition and parking area revision	
Property Identification Number (PIN)	75 A 11C, 11L, & 11M	
Total Area (AC)	7.58	
Developed Area (Existing AC)	3.2	
Developed Area (after this project AC)	7.58	
Woodlands Disturbed (%)	0	
Zoning	B2	
Existing Use	Auto Sales & Service	
Proposed Use	Auto Sales & Service	
Finished Floor Area (existing) SF	19694	
Finished Floor Area (proposed)	35005	
FAR Allowed	1	
FAR Provided	0.1	
Minimum Greenspace Area	15%	
Greenspace Provided	29%	
Setbacks (from edge of pavement)	Required	Provided
Front	50'	96'
Side	0	58'
Rear	0	517'
Maximum Building Height	35'	24' +/-
Previsouly Approved Plans		
Master Development Plans:		
Site Plans:		

ABBREVIATIONS

A	ARC
AC	ACRE
@	AT
BM	BENCH MARK
BLDG	BUILDING
BRL	BUILDING RESTRICTIONLINE
CL	CENTERLINE
CL	RATIONAL RUNOFF COEFFICIENT
CG	CURB & GUTTER
CH	CHORD
CO	CLEAN OUT
CON	CONCRETE
CMP	CORRUGATED METAL PIPE
CP	CONCRETE POST
CY	CUBIC YARDS
XING	CROSSING
DI	DROP INLET
DIA	DIAMETER
DNG	DRAINAGE
EL / ELEV	EELVATION
EM	ELECTRIC METER
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX	EXISTNG
FC	FACE OF CURB
FH	FIRE HYDRANT
FF	FIRST FLOOROR FINISHED FLOOR
FL	FLOW LINE
F	FORCE MAIN
GA	GUY ANCHOR
GM	GAS METER
GV	GATE VALVE
HP	HIGH POINT
IE	INVERT ELEVATION
IRF	IRON ROD FOUND
IRS	IRON ROD SET
LAT	LATERAL
LF	LINEAR FEET
LOS	LANDSCAPE OPEN SPACE
LT	LEFT
LTP	LIGHT POLE
LP	LOW POINT
MAX	MAXIMUM
MIN	MINIMUM
OS	OFFSET
PRL	PARKING RESTRICTION LINE
PCC	POINT OF COMPOUND CURVATURE
PCR	POINT OF CURB RETURN
PC	POINT OF CURVATURE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVC	POINT OF VERTICAL CURVATURE OR POLYVINYL CHLORIDE
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
PT	POINT OF TANGENCY
PL	PROPERTY LINE
PROP	PROPOSED
PW	PRROCESS WATER- SANITARY
R	RADIUS
RED	REDUCER
RCP	REINFORCED CONCRETE PIPE
RT	RIGHT
ROW	RIGHT-OF-WAY
SAN	SANITARY
SEW	SEWER
SHLD	SHOLDER
SHT	SHEET
SD	SIGHT DISTANCE
SF	SQUARE FOOT
STA	STATION
SWM	STORMWATER MANAGEMENT
STM	STORMWATER MANAGEMENT
SY	SQUARE YARDS
TC	TOP OF CURB
TEMP	TEMPORARY
TS	TOP OF SIDEWALK
TW	TOP OF WALL
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UG	UNDERGROUND GAS
UT	UNDERGROUND TELEPHONE
UTV	UNDERGROUND TELEVISION
VC	VERTICAL CURVE
W	WATER
WL	WATER LINE
WM	WATER METER
WS	WATER SURFACE
WW	WASTE WATER

PARKING TABULATION

	REQUIRED	PROVIDED
1 space/400 SF of enclosed Floor Area (9,350 sf)	23	36
1 space/3000 SF of outdoor display area (11,100 sf)	4	16
2 spaces per service bay (27 bays)	54	69
New Vehicle Lot		195
TOTAL	81	316
HANDICAPPED PARKING (13VAC5-63-250. Chapter 11 Accessibility)		
Enclosed Floor Area (show Room) @ 9,350 sf)	2	2
TOTAL	2	2
LOADING SPACES (1 PER 40,000 SF)	1	1

LANDSCAPING REQUIREMENTS

PERIMETER LANDSCAPING			
PARKING AREA			
	EXISTING IMPERVIOUS AREA TO BE REMOVED (SF)		7,110
	NEW IMPERVIOUS AREA TO BE CONSTRUCTED (SF)		75,923
	NET INCREASE IN IMPERVIOUS AREA (SF)		68,813
	TRESS REQUIRED		TREES PROVIDED
	35	1 TREE/2000 SF OF IMPERVIOUS AREA TO 100,000 SF	35
	0	1 TREE/5000 SF OF IMPERVIOUS AREA OVER 100,000 SF	0
	35	NEW PERIMETER TREES	35
	HEADLIGHT SCREEN	HEDGE - SCREENING BUSHES @ 3' O.C., MIN 3' TALL	SCREENING BUSHES REQD 51
INTERIOR LANDSCAPING			
	New Parking Lot Area	75,923	SF
	INTERIOR LANDSCAPING REQUIRED	3,796	SF
	INTERIOR LANDSCAPING PROVIDED	9,353	SF
	INTERIOR TREES REQUIRED IN NEW CAR PARKING AREA (1 PER 10 PARKING SPACE)	20	
	INTERIOR TREES PROVIDED	0	

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

GENERAL NOTES

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

0 200
Scale in feet

PROPERTY OWNER & LAND USE INDEX TABLE			
ID	Owner	Zoning	Land Use
1	John W. truban	B2	undeveloped
2	Garden of Eden, LLC	B2	Auto sales and service
3	CMA Properties, Inc.	B2	Auto sales and service
4	Orange Partners, LLC	B2	Commercial
5	Aldi, Inc	B2	Commercial
6	Orange Partners, LLC	B2	undeveloped

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

SURROUNDING PROPERTIES, ROADS & LAND USES

Honda Store

Carter Myers Automotive

LOTS 11C, 11L, 11M

BACK CREEK MAGISTERIAL DISTRICT

FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
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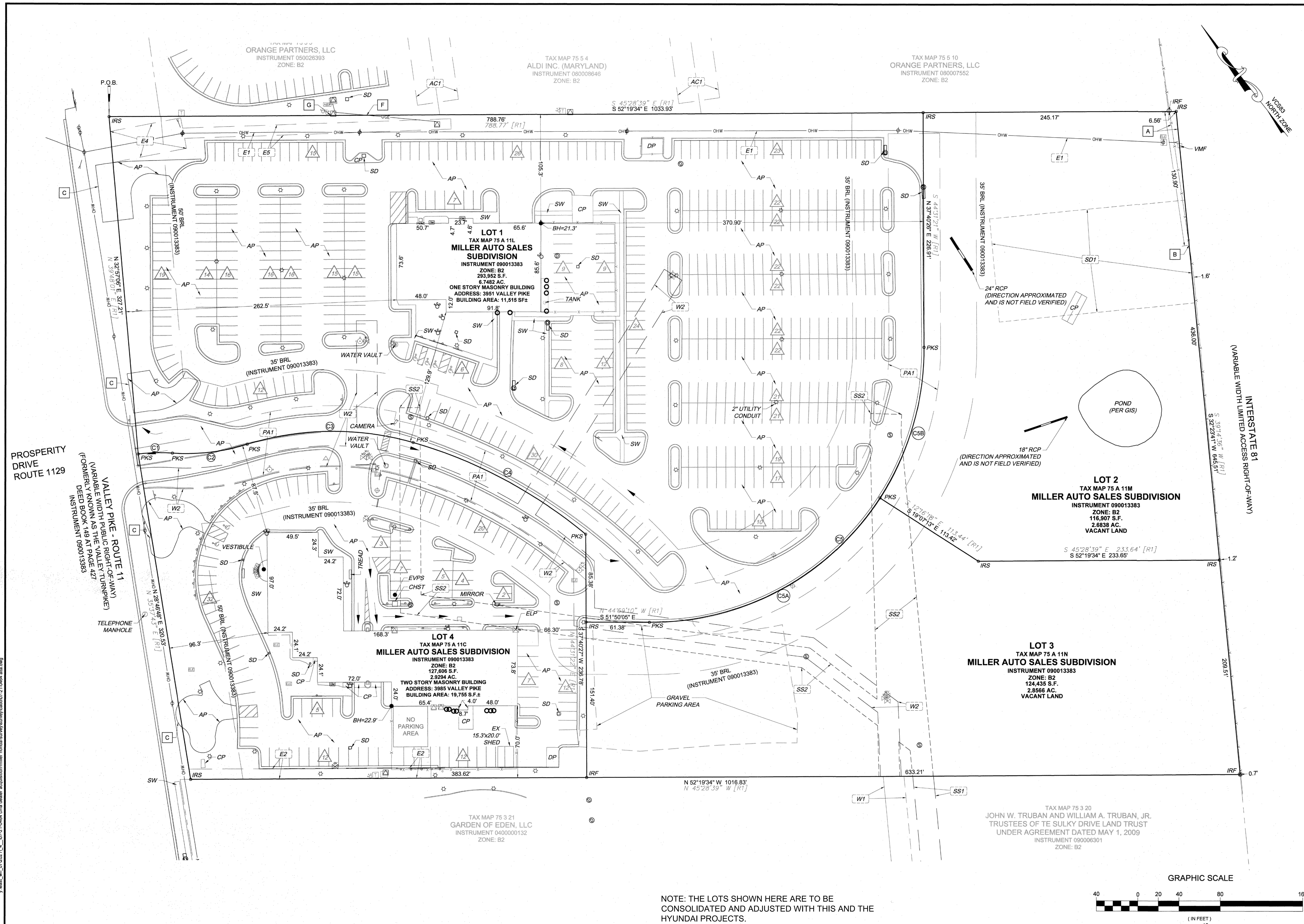

NOTE: THE LOTS SHOWN HERE ARE TO BE CONSOLIDATED AND ADJUSTED WITH THIS AND THE HYUNDAI PROJECTS.

TRIAD ENGINEERING, INC.
200 AVIATION DRIVE
WINCHESTER, VA 22602
PH: 540.667.9300 FAX: 540.667.2260
OFFICE LOCATIONS:
MARYLAND ○ VIRGINIA ○ WEST VIRGINIA ○ OHIO

CADD FILE: 07-21-0464 alta.dwg
DRAWN BY: MAC | CHECKED BY: MAC | SCALE: 1" = 40'
DATE: 09/27/2021

MARK A. CAMPBELL
Lic. No. 003251
10/29/2021
LAND SURVEYOR

PLAT SHOWING
ALTA/NSPS LAND TITLE SURVEY
ON THE PROPERTIES OF
DEALERSHIP MANAGEMENT COMPANY, LLC
INSTRUMENT 090013384 AND INSTRUMENT 170011763
AND
MILLER AUTO SALES, INC.
INSTRUMENT 090013384 AND DEED BOOK 793 AT PAGE 559 (PER ASSESSMENTS)
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

TRIAD ENGINEERING, INC.
www.triadeng.com
SHEET NUMBER:
3 OF 4
PROJECT No.: 07-21-0464

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

PROPERTY BOUNDARY
Honda Store
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FREDERICK COUNTY, VIRGINIA

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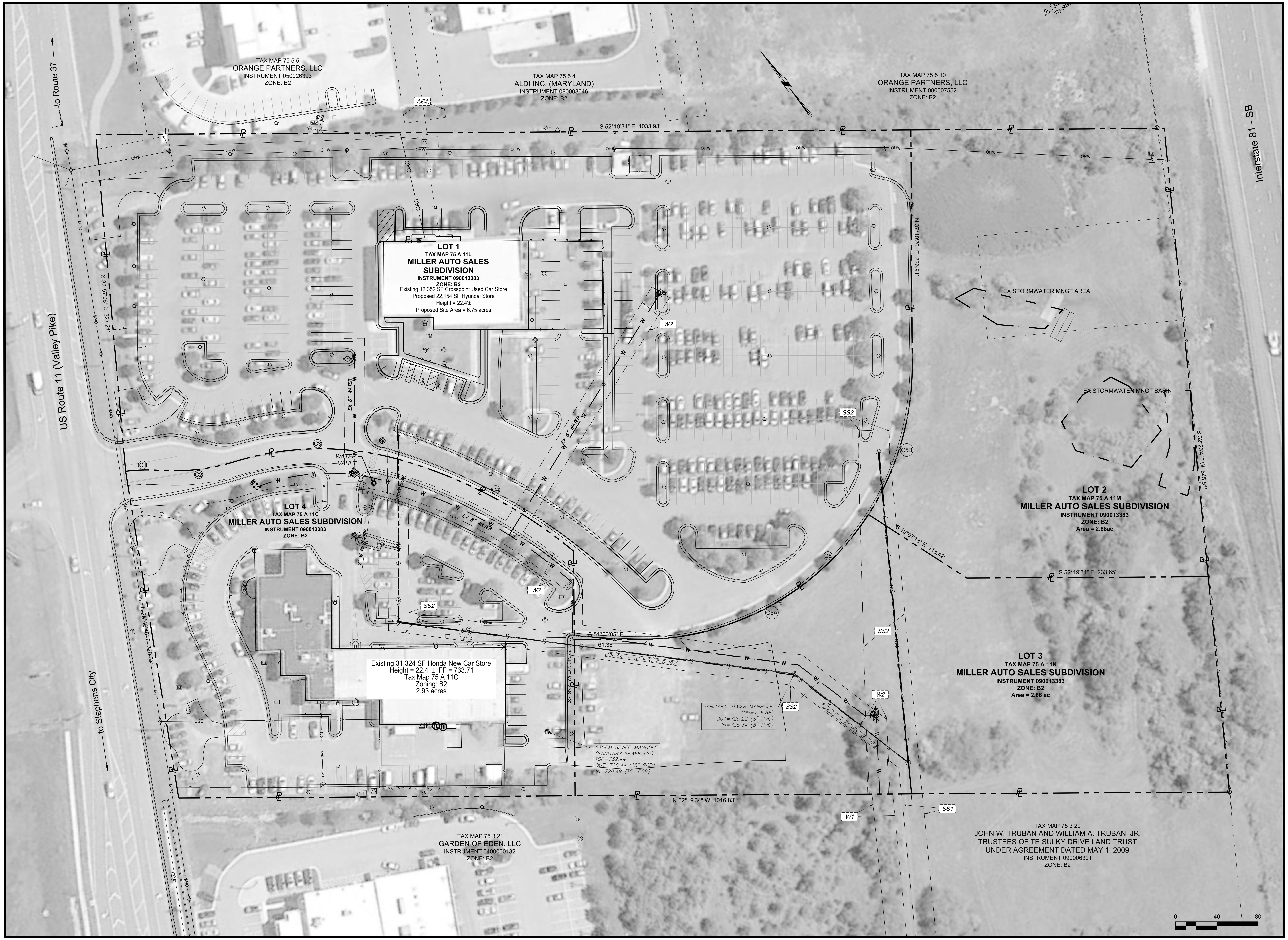


TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2
TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2
TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2
to Route 37
US Route 11 (Valley Pike)
to Stephens City
Interstate 81 - SB
S 52°19'34" E 1033.93'
N 32°57'06" E 327.21'
N 37°40'26" E 226.91'
S 32°23'41" W 645.51'
S 19°07'13" E 113.42'
S 52°19'34" E 233.65'
S 51°50'05" E 61.38'
N 52°19'34" W 1016.83'
LOT 1
TAX MAP 75 A 11L
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
Existing 12,352 SF Crosspoint Used Car Store
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres
EX STORMWATER MNGT AREA
EX STORMWATER MNGT BASIN
LOT 2
TAX MAP 75 A 11M
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
Area = 2.68ac
LOT 3
TAX MAP 75 A 11N
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
Area = 2.86 ac
LOT 4
TAX MAP 75 A 11C
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
WATER VAULT
EX 6" WATER
EX 8" WATER
Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres
SANITARY SEWER MANHOLE
TOP=736.68'
OUT=725.22 (8" PVC)
IN=725.34 (8" PVC)
STORM SEWER MANHOLE
(SANITARY SEWER LID)
TOP=732.44
OUT=728.44 (18" RCP)
IN=728.49 (15" RCP)
TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2
TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2
AC1
W1
W2
SS1
SS2
C1
C2
C3
C4
C5
C5A
C5B
0
40
80

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

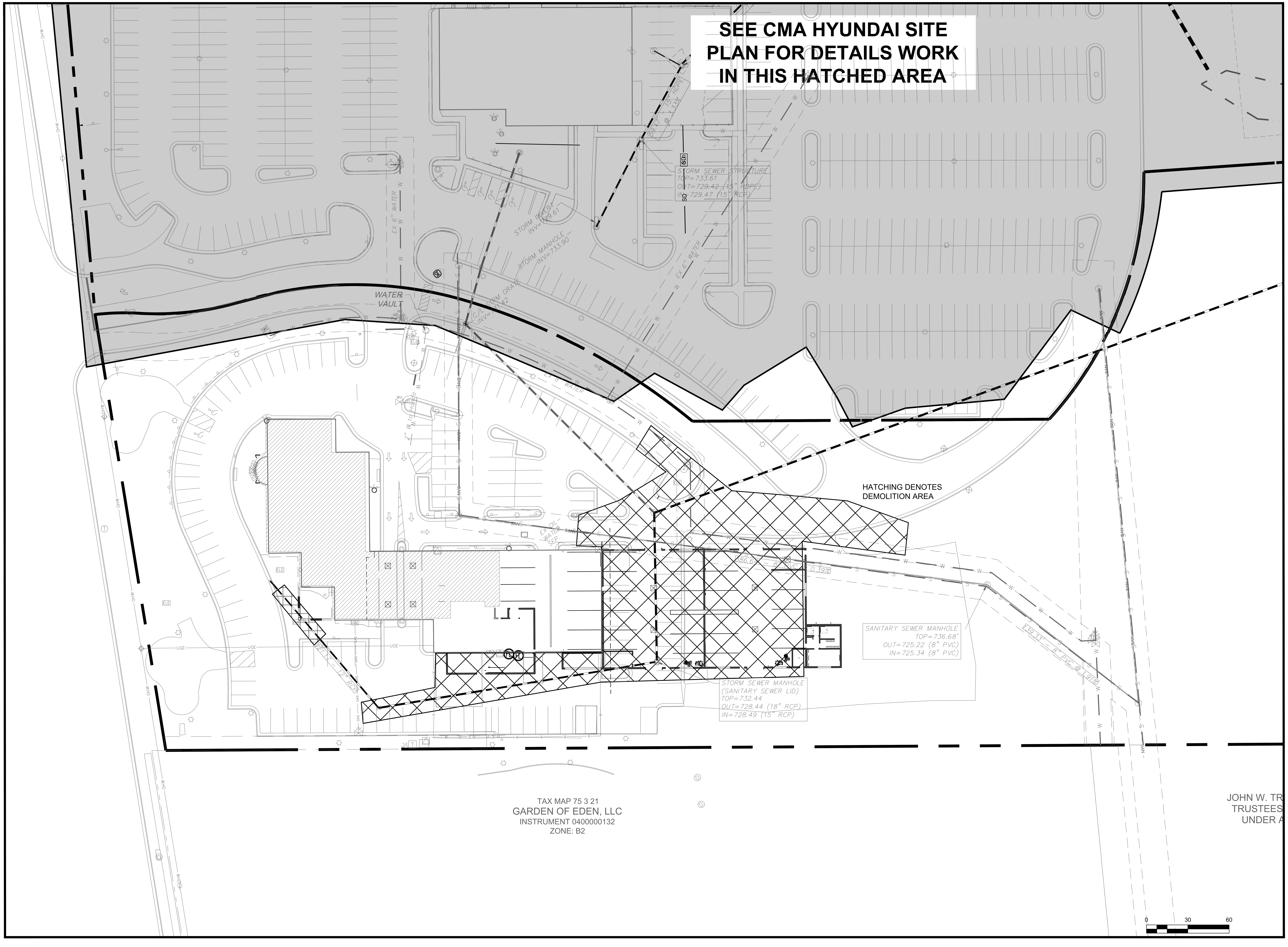
NO.	DATE	REVISION	BY

EXISTING CONDITIONS

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS


SEE CMA HYUNDAI SITE
PLAN FOR DETAILS WORK
IN THIS HATCHED AREA
STORM SEWER STRUCTURE
TOP=733.61
OUT=729.42 (15" HDPE)
IN=729.47 (15" RCP)
STORM INVERT
INV=729.61
STORM MANHOLE
INV=733.90
WATER
VAULT
EX 6" WATER
HATCHING DENOTES
DEMOLITION AREA
SANITARY SEWER MANHOLE
TOP=736.68'
OUT=725.22 (8" PVC)
IN=725.34 (8" PVC)
STORM SEWER MANHOLE
(SANITARY SEWER LID)
TOP=732.44
OUT=728.44 (18" RCP)
IN=728.49 (15" RCP)
TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2
JOHN W. TR
TRUSTEES
UNDER A
0
30
60

STOWE ENGINEERING, PLC
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Winchester, VA 22602
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fax (540) 301-1100

NO.	DATE	REVISION	BY

DEMOLITION PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
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PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
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DRAWN BY:	TSS
CHECKED BY:	TSS

TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2

TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2

TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2

EASEMENT INDEX

SS1 EX. 20'SANITARY SEWER EASEMENT
DB 954 PG 1310

SS2 EX. 20' SANITARY SEWER EASEMENT
INSTRUMENT 040016095
(NO EVIDENCE OF FCSA TAKING EASEMENTS)

W1 EX 20' WATER LINE EASEMENT
DB 954 PG 1310

W2 EX 20' WATER LINE EASEMENT
INSTRUMENT 040016095
(NO EVIDENCE OF FCSA TAKING EASEMENTS)

HYUNDAI PROPOSED BOUNDARY ADJUSTMENT
AREA = 7.64 AC

Existing 12,352 SF Crosspoint Used Car Store
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres

EX STORMWATER MNGT AREA

EX STORMWATER MNGT BASIN

Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres

ABANDON EX. SAN. SEWER. SEE NOTES THIS SHEET.

PROP 20' FREDERICK WATER ESMT.

10' PARKING RESTRICTION LINE

50' BUILDING RESTRICTION LINE

HONDA PROPOSED BOUNDARY ADJUSTMENT
AREA = 7.58 AC

TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2

SANITARY SEWER ABANDONMENT NOTES
EXISTING SANITARY SEWER THAT IS NOT PART OF THE FINISHED SYSTEM IS TO BE ABANDONED IN PLACE AS FOLLOWS:
1. IN MANHOLES GROUT CLOSED ALL LINES ENTERING AND LEAVING.
2. REMOVE THE CONE/TOP SECTION OF THE MANHOLE. REMOVE MORE AS NEEDED TO ACHIEVE FINAL GRADE.
3. FILL THE MANHOLE WITH No. 57 AGGREGATE

CONNECTION TO EXISTING WATER MAIN BY CONTRACTOR

EX. 8" CONN TO HAVE PIPE REMOVED AND PLUGGED WITH WATER TIGHT GROUT BY CONTRACTOR.

TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2

0 40 80

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
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fax (540) 301-1100

NO.	DATE	REVISION	BY

OVEERALL SITE PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
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PROFESSIONAL ENGINEER

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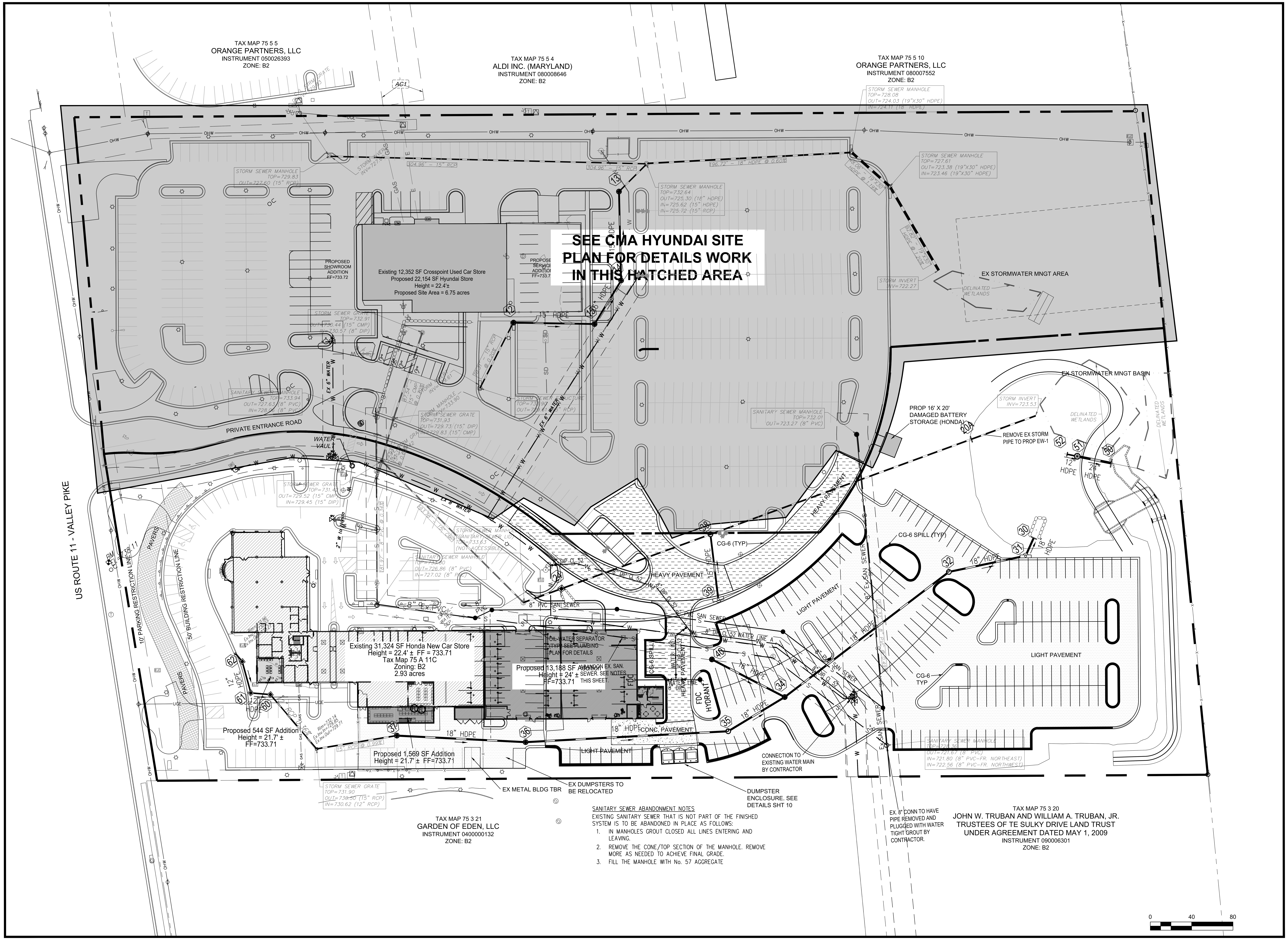
TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2
TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2
TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2
SEE CMA HYUNDAI SITE PLAN FOR DETAILS WORK IN THIS HATCHED AREA
Existing 12,352 SF Crosspoint Used Car Store
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres
PROPOSED SHOWROOM ADDITION FF=733.72
EX STORMWATER MNGT AREA
EX STORMWATER MNGT BASIN
DELINATED WETLANDS
PRIVATE ENTRANCE ROAD
WATER VAULT
PROP 16' X 20' DAMAGED BATTERY STORAGE (HONDA)
REMOVE EX STORM PIPE TO PROP EW-1
US ROUTE 11 - VALLEY PIKE
10' PARKING RESTRICTION LINE
50' BUILDING RESTRICTION LINE
PAVERS
HEAVY PAVEMENT
LIGHT PAVEMENT
CONC. PAVEMENT
CG-6 (TYP)
CG-6 SPILL (TYP)
Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres
Proposed 13,188 SF Addition
Height = 24' ±
FF=733.71
OIL/WATER SEPARATOR (TYP) SEE PLUMBING PLAN FOR DETAILS
ABANDON EX. SAN. SEWER. SEE NOTES THIS SHEET.
FDC HYDRANT
Proposed 544 SF Addition
Height = 21.7' ±
FF=733.71
Proposed 1,569 SF Addition
Height = 21.7' ± FF=733.71
EX METAL BLDG TBR
EX DUMPSTERS TO BE RELOCATED
DUMPSTER ENCLOSURE. SEE DETAILS SHT 10
CONNECTION TO EXISTING WATER MAIN BY CONTRACTOR
EX. 8" CONN TO HAVE PIPE REMOVED AND PLUGGED WITH WATER TIGHT GROUT BY CONTRACTOR.
TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2
TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2
SANITARY SEWER ABANDONMENT NOTES
EXISTING SANITARY SEWER THAT IS NOT PART OF THE FINISHED SYSTEM IS TO BE ABANDONED IN PLACE AS FOLLOWS:
1. IN MANHOLES GROUT CLOSED ALL LINES ENTERING AND LEAVING.
2. REMOVE THE CONE/TOP SECTION OF THE MANHOLE. REMOVE MORE AS NEEDED TO ACHIEVE FINAL GRADE.
3. FILL THE MANHOLE WITH No. 57 AGGREGATE
0 40 80

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NO.	DATE	REVISION	BY

SITE PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
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PROJECT NUMBER:	1262.0
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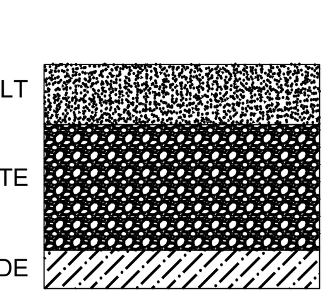
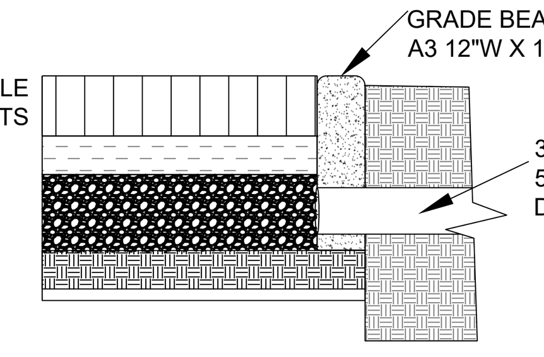
LIGHT DUTY/PARKING AREA PAVEMENT SECTION
for hatched area parking spaces
n.t.s.



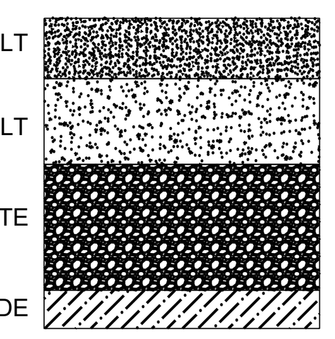
SIDEWALK SECTION
NOT TO SCALE

- LIGHT BROOM FINISH.
- PLAN FOR JOINTS AND EXPANSION JOINTS TO BE PROVIDED BY CONTRACTOR.

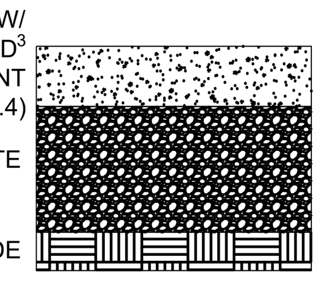
PAVER SECTION
for area near Route 11
n.t.s.



HEAVY DUTY PAVEMENT SECTION
n.t.s.



CONCRETE PAVEMENT SECTION
for area under and near dumpsters
n.t.s.

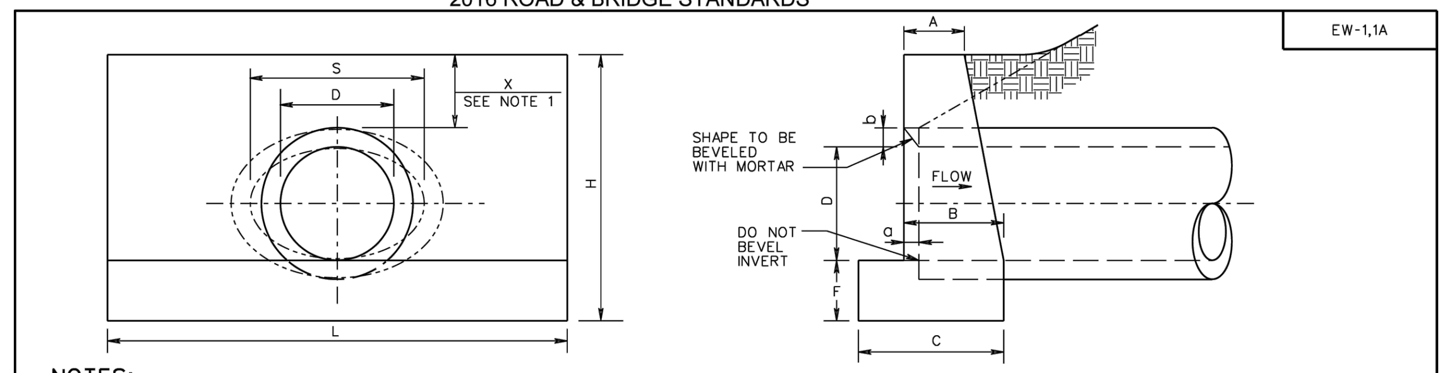


NOTE: DUMPSTER PAD TURN DOWN TO EXTEND 18" BELOW TOP OF SLAB, AND SHALL INCLUDE 1 GRADE 60 CONTINUOUS NO. 5 DEFORMED BAR TOP AND BOTTOM OF THE SECTION.

NOTES
1. JOINTS WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENT SHALL BE SAW CUT TO PROVIDE A SMOOTH STRAIGHT EDGE. A 10' WIDE STRIP OF THE EXISTING PAVEMENT ADJACENT TO THE JOINT SHALL BE MILLED TO A DEPTH EQUAL TO THE THICKNESS OF THE SURFACE COURSE, AND THE NEW SURFACE COURSE SHALL EXTEND THROUGH THIS MILLED AREA.

2016 ROAD & BRIDGE STANDARDS

EW-1A



NOTES:
1. "H" MAY BE REDUCED UNTIL "X" REACHES A MINIMUM OF 4" WHERE ENDWALL WOULD PROTRUDE ABOVE SHOULDER LINE. IN NO CASE SHALL TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.
2. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
3. ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR PRECAST SEE SHEET 101.02.
4. THIS STANDARD TO BE USED WITH STRAIGHT CROSSINGS AND ALL SKEWS(0° TO 45°).
5. HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT.
6. BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT (WHERE THE FLOW ENTERS THE CULVERT).
7. HEADWALL AT THE OUTLET END OF THE CULVERT MAY BE EITHER SQUARE EDGE OR BEVEL EDGE.
8. ON SHALLOW FILLS, WHERE ENDWALLS ARE 1' OR LESS BELOW SHOULDER LINE, THE TOP OF THE ENDWALL SHALL BE CONSTRUCTED PARALLEL TO THE GRADE OF THE ROAD.
9. ¾" CHAMFER MAY BE PROVIDED ON ALL EDGES AT MANUFACTURER'S OPTION.

EW-1

ENDWALL FOR CIRCULAR PIPE

	DIAMETER OF PIPE CULVERT					
	12"	15"	18"	21" OR 24"	27" OR 30"	33" OR 36"
A	0'-6"	0'-8"	0'-9"	0'-11"	1'-0"	1'-0"
B	0'-11"	1'-1"	1'-3"	1'-6"	1'-9"	2'-0"
C	1'-4"	1'-7"	1'-9"	2'-2"	2'-6"	2'-9"
D	1'-0"	1'-3"	1'-6"	2'-0"	2'-6"	3'-0"
F	0'-6"	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"
H	2'-3"	2'-11"	3'-2"	3'-9"	4'-3"	4'-9"
L	4'-0"	5'-0"	6'-0"	8'-0"	10'-0"	12'-0"
a	0'-1¼"	0'-1¾"	0'-2"	0'-2½"	0'-3¼"	0'-3¾"
b	0'-1"	0'-1¼"	0'-1½"	0'-2"	0'-2½"	0'-3"
CUBIC YARDS OF CONCRETE						
CONC. PIPE	0.241	0.492	0.697	1.319	2.067	2.947
C.M. PIPE	0.257	0.521	0.739	1.398	2.198	3.145

ENDWALL FOR ELLIPTICAL PIPE

	SIZE OF ELLIPTICAL PIPE CULVERT (SPAN x RISE)							
	23"x14"	30"x19"	34"x22"	38"x24"	42"x27"	45"x29"	49"x32"	53"x34"
A	0'-8"	0'-9"	0'-10"	0'-11"	0'-11"	1'-0"	1'-0"	1'-0"
B	1'-2"	1'-5"	1'-6"	1'-8"	1'-9"	1'-10"	1'-11"	1'-11"
C	1'-8"	1'-11"	2'-1"	2'-4"	2'-5"	2'-7"	2'-8"	2'-9"
D	1'-2"	1'-7"	1'-10"	2'-0"	2'-3"	2'-5"	2'-8"	2'-10"
F	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
H	2'-10"	3'-3"	3'-7"	3'-9"	4'-0"	4'-2"	4'-5"	4'-7"
L	5'-5"	7'-2"	8'-6"	9'-2"	10'-2"	10'-11"	12'-1"	12'-11"
S	1'-11"	2'-6"	2'-10"	3'-2"	3'-6"	3'-9"	4'-1"	4'-5"
a	0'-2½"	0'-3¼"	0'-3½"	0'-4"	0'-4½"	0'-4¾"	0'-5"	0'-5½"
b	0'-2"	0'-2½"	0'-2¾"	0'-3"	0'-3½"	0'-3¾"	0'-4"	0'-4½"
CUBIC YARDS OF CONCRETE								
CONC.PIPE	0.502	0.855	1.236	1.500	1.811	2.101	2.512	2.801

SPECIFICATION REFERENCE 105 302

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

STANDARD ENDWALL FOR PIPE CULVERTS
12" - 36" CIRCULAR AND 23" x 14" - 53" x 34" ELLIPTICAL PIPES
VIRGINIA DEPARTMENT OF TRANSPORTATION

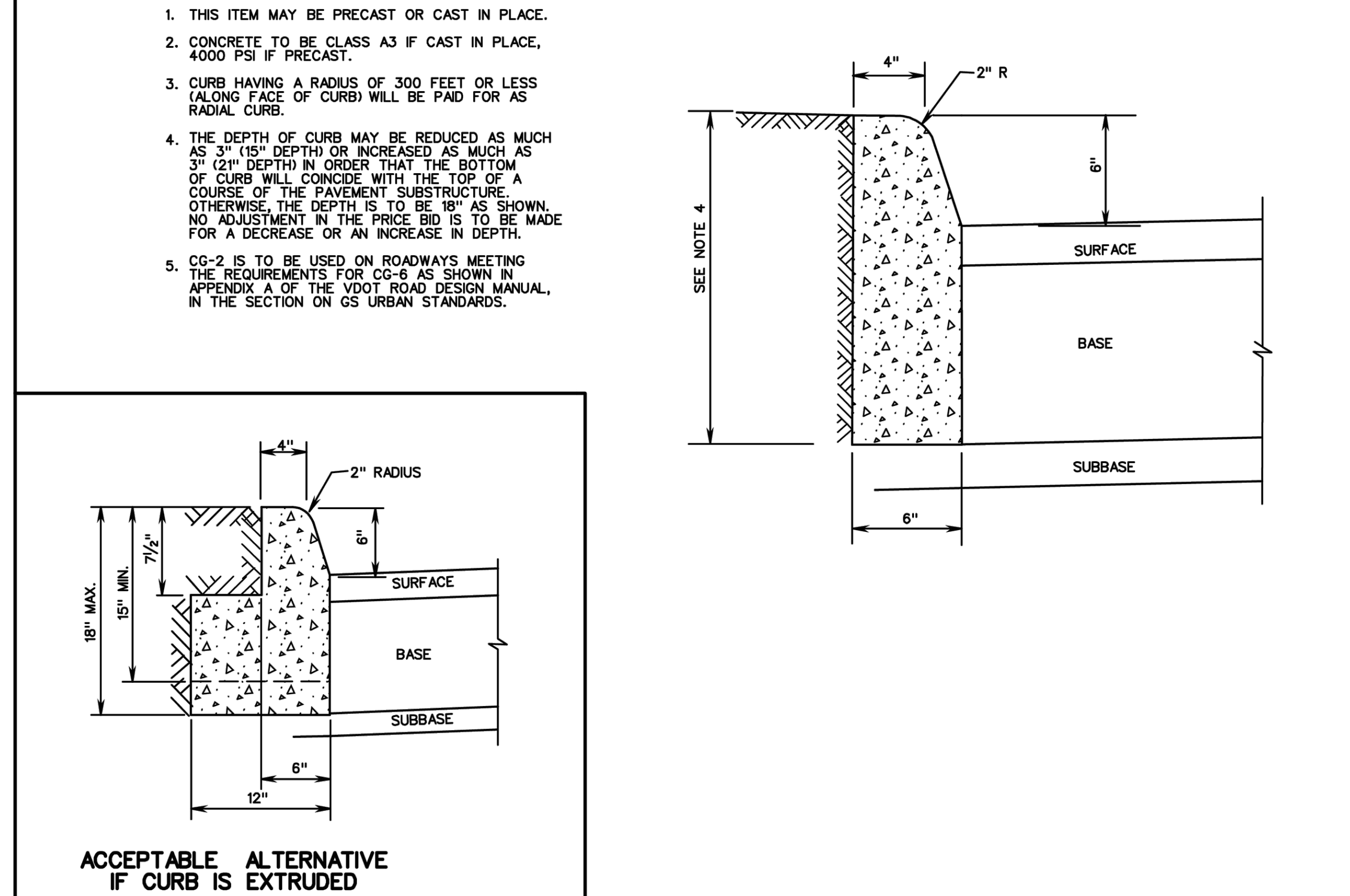
VDOT ROAD AND BRIDGE STANDARDS — REVISION DATE 04/19 — SHEET 1 OF 1 — 101.01

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

CG-2

NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. CURB HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) WILL BE PAID FOR AS RADIAL CURB.
4. THE DEPTH OF CURB MAY BE REDUCED AS MUCH AS 3" (15" DEPTH) OR INCREASED AS MUCH AS 3" (21" DEPTH) IN ORDER THAT THE BOTTOM OF CURB WILL COINCIDE WITH THE TOP OF A COURSE OF THE PAVEMENT SUBSTRUCTURE. OTHERWISE, THE DEPTH IS TO BE 18" AS SHOWN. NO ADJUSTMENT IN THE PRICE BID IS TO BE MADE FOR A DECREASE OR AN INCREASE IN DEPTH.
5. CG-2 IS TO BE USED ON ROADWAYS MEETING THE REQUIREMENTS FOR CG-6 AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL, IN THE SECTION ON GS URBAN STANDARDS.



SPECIFICATION REFERENCE 105 502

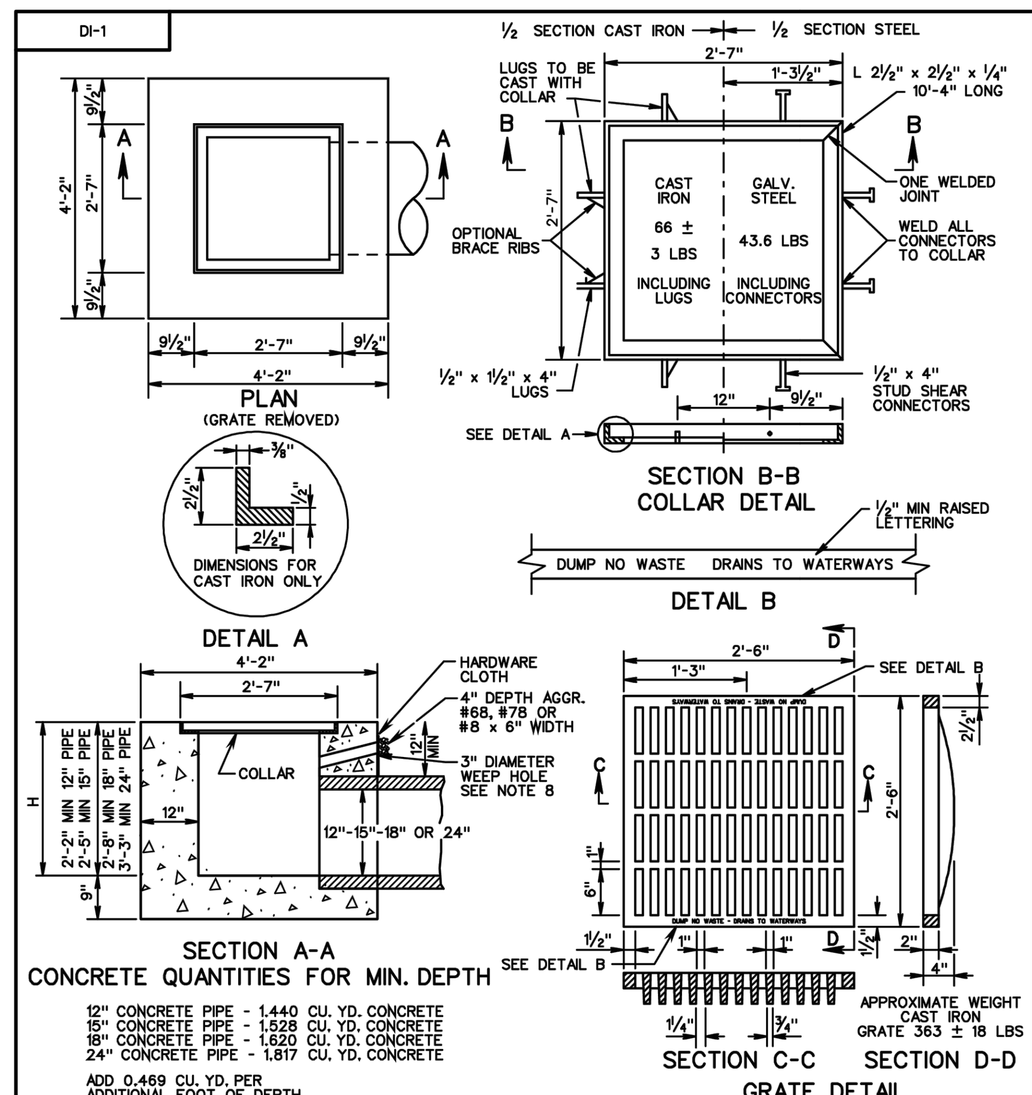
STANDARD 6" CURB
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS — REVISION DATE — SHEET 1 OF 1 — 201.01

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

DI-1



NOTES
1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS. FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2"X4" NOTCH MAY BE PROVIDED. SEE STANDARD T-DI-3, 4 FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.
11. DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS — SHEET 1 OF 1 — REVISION DATE — 104.01

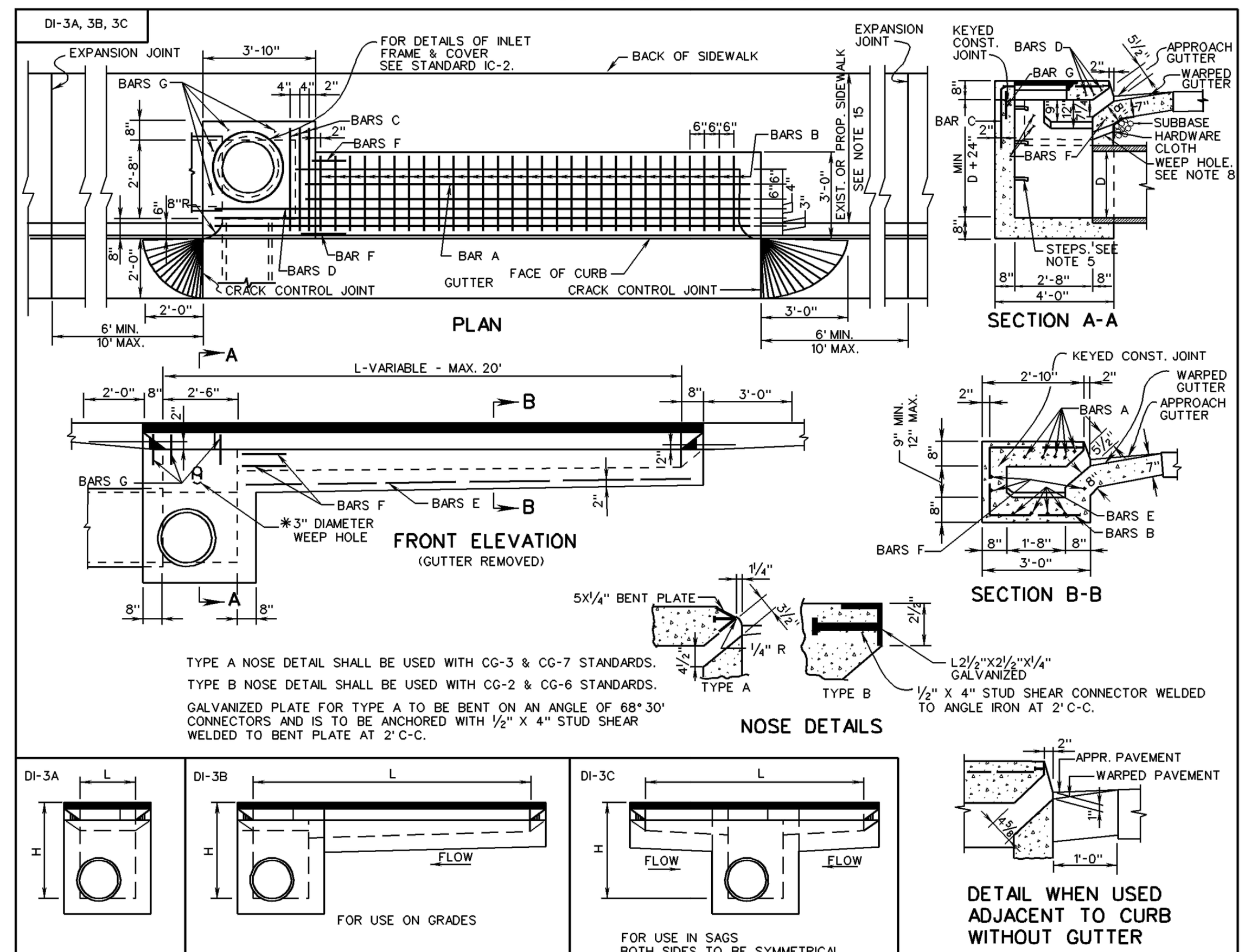
STANDARD DROP INLET
12" - 24" PIPE: MAXIMUM DEPTH (H) = 10'
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 233 302

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

DI-3A, 3B, 3C



TYPE A NOSE DETAIL SHALL BE USED WITH CG-3 & CG-7 STANDARDS.
TYPE B NOSE DETAIL SHALL BE USED WITH CG-2 & CG-6 STANDARDS.
GALVANIZED PLATE FOR TYPE A TO BE BENT ON AN ANGLE OF 68°30' CONNECTORS AND IS TO BE ANCHORED WITH ½" X 4" STUD SHEAR WELDED TO BENT PLATE AT 2'-C-C.

VDOT ROAD AND BRIDGE STANDARDS — SHEET 1 OF 2 — REVISION DATE 08/10 — 104.09

STANDARD CURB DROP INLET
12" - 30" PIPE: MAXIMUM DEPTH (H) = 8'
VIRGINIA DEPARTMENT OF TRANSPORTATION

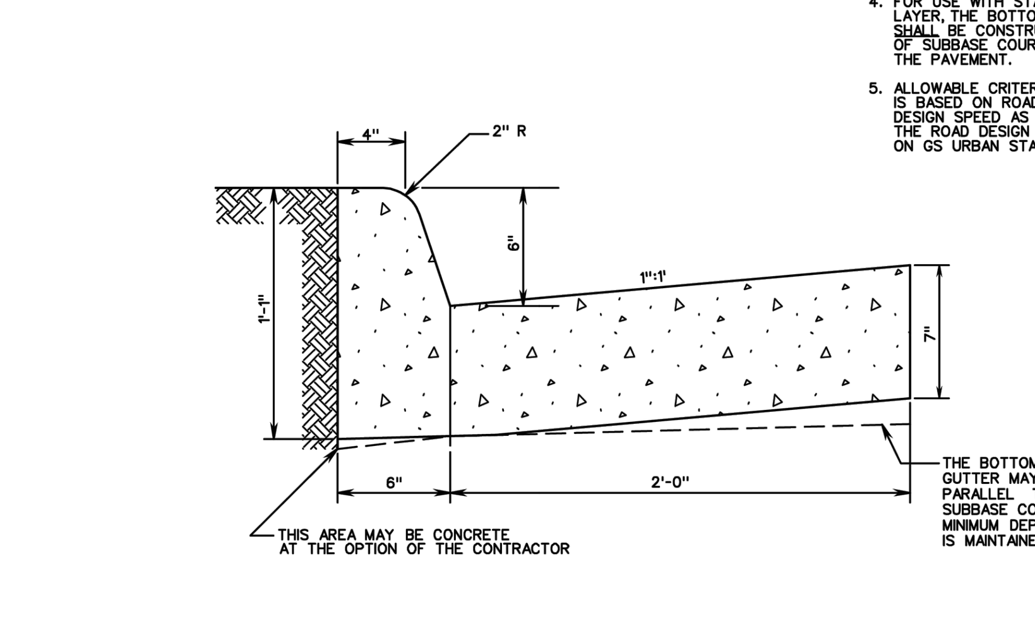
SPECIFICATION REFERENCE 233 302

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

CG-6

NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB & GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. ALLOWABLE CRITERIA FOR THE USE OF CG-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE ROAD DESIGN MANUAL IN THE SECTION ON GS URBAN STANDARDS.



SPECIFICATION REFERENCE 105 502

COMBINATION 6" CURB AND GUTTER
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS — REVISION DATE — SHEET 1 OF 1 — 201.03

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

TABLE OF QUANTITIES (DI-3A, 3B, 3C)

TYPE	L	AREA OF SLOT	REINFORCING STEEL															
			Concrete	BARS A		BARS B		BARS C		BARS D		BARS E		BARS F		BARS G		WEIGHT
	Ft.	Sq. Ft.	Cu. Yds.	No.	Lin. Ft. ✳	No.	Lin. Ft. ✳	No.	Lin. Ft. ✳	No.	Lin. Ft.✳	No.	Lin. Ft.✳	No.	Lin. Ft.✳	No.	Lin. Ft.✳	Lbs.
DI-3A	2'-6"	1.15	2.26	-	-	-	-	1	5'-7"	3	3'-2"	-	-	-	-	6	1'-0"	22
DI-3B	4'	1.83	2.59	5	1'-6"	2	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	1'-6"	3	1'-6"	4	1'-0"	64
	6'	2.75	3.02	5	3'-6"	6	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	3'-6"	3	1'-6"	4	1'-0"	111
	8'	3.67	3.46	5	5'-6"	10	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	5'-6"	3	1'-6"	4	1'-0"	158
	10'	4.58	3.90	5	7'-6"	14	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	7'-6"	3	1'-6"	4	1'-0"	204
	12'	5.50	4.34	5	9'-6"	18	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	9'-6"	3	1'-6"	4	1'-0"	251
	14'	6.42	4.78	5	11'-6"	22	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	11'-6"	3	1'-6"	4	1'-0"	298
	16'	7.33	5.22	5	13'-6"	26	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	13'-6"	3	1'-6"	4	1'-0"	345
	18'	8.25	5.66	5	15'-6"	30	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	15'-6"	3	1'-6"	4	1'-0"	391
	20'	9.17	6.09	5	17'-6"	34	6'-7" to 6'-10"	3	5'-7"	3	3'-2"	4	17'-6"	3	1'-6"	4	1'-0"	438
DI-3C	6'	2.75	3.01	10	1'-9"	4	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	1'-9"	6	1'-6"	2	1'-0"	111
	8'	3.67	3.45	10	2'-9"	8	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	2'-9"	6	1'-6"	2	1'-0"	158
	10'	4.58	3.89	10	3'-9"	12	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	3'-9"	6	1'-6"	2	1'-0"	205
	12'	5.50	4.33	10	4'-9"	16	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	4'-9"	6	1'-6"	2	1'-0"	252
	14'	6.42	4.77	10	5'-9"	20	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	5'-9"	6	1'-6"	2	1'-0"	298
	16'	7.33	5.21	10	6'-9"	24	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	6'-9"	6	1'-6"	2	1'-0"	345
	18'	8.25	5.65	10	7'-9"	28	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	7'-9"	6	1'-6"	2	1'-0"	392
	20'	9.17	6.09	10	8'-9"	32	6'-7" to 6'-10"	5	5'-7"	3	3'-2"	8	8'-9"	6	1'-6"	2	1'-0"	439

NOTES
1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT.
8. 3" DIAMETER WEEP HOLE TO BE LOCATED TO DRAIN SUBBASE MATERIAL. WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ¼" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. ALL REINFORCING STEEL SHALL HAVE A MIN. COVER OF 2".
10. ALL REINFORCING STEEL TO BE CUT CLEAR OF ALL OPENINGS BY 2".
11. CAST-IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
12. LENGTH OF SLOT (L) WILL, IN EVERY CASE, BE SHOWN ON PLANS.
13. IF INLET IS CONSTRUCTED IN MEDIAN CURB OR WITH INTEGRAL CURB, GUTTER IS TO BE OMITTED (SEE DETAIL).
14. STANDARD INLETS MAY BE CONSTRUCTED WITH CONCRETE BLOCKS IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD DRAWING DI-MB.
15. THIS AREA MAY BE EARTHEN, IN WHICH CASE THE EXPANSION JOINTS WILL APPLY ONLY TO CURB AND GUTTER.
16. CONCRETE QUANTITIES SHOWN ARE FOR DEPTH (H) OF 5'-2" WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES. FOR INLETS OF DIFFERENT DEPTHS ADD OR SUBTRACT 0.32 CUBIC YARDS OF CONCRETE FOR EACH FOOT OF DEPTH.
17. LENGTH OF ANGLE IRON AS SHOWN ON SHEET 1 OF 2 IS TO BE L +16" AT 4.10 LBS./FT..
18. ✳ DENOTES LENGTH OF ONE (1) BAR.
19. ALL REINFORCING BARS TO BE #5.
20. WHEN INLET IS USED IN 4'-0" MEDIAN, BACK OF INLET IS TO BE SHAPED TO CONFORM TO PROPOSED CURB.

SPECIFICATION REFERENCE 233 302

STANDARD CURB DROP INLET
12" - 30" PIPE: MAXIMUM DEPTH (H) = 8'
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS — REVISION DATE — SHEET 2 OF 2 — 104.10

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

MH-1

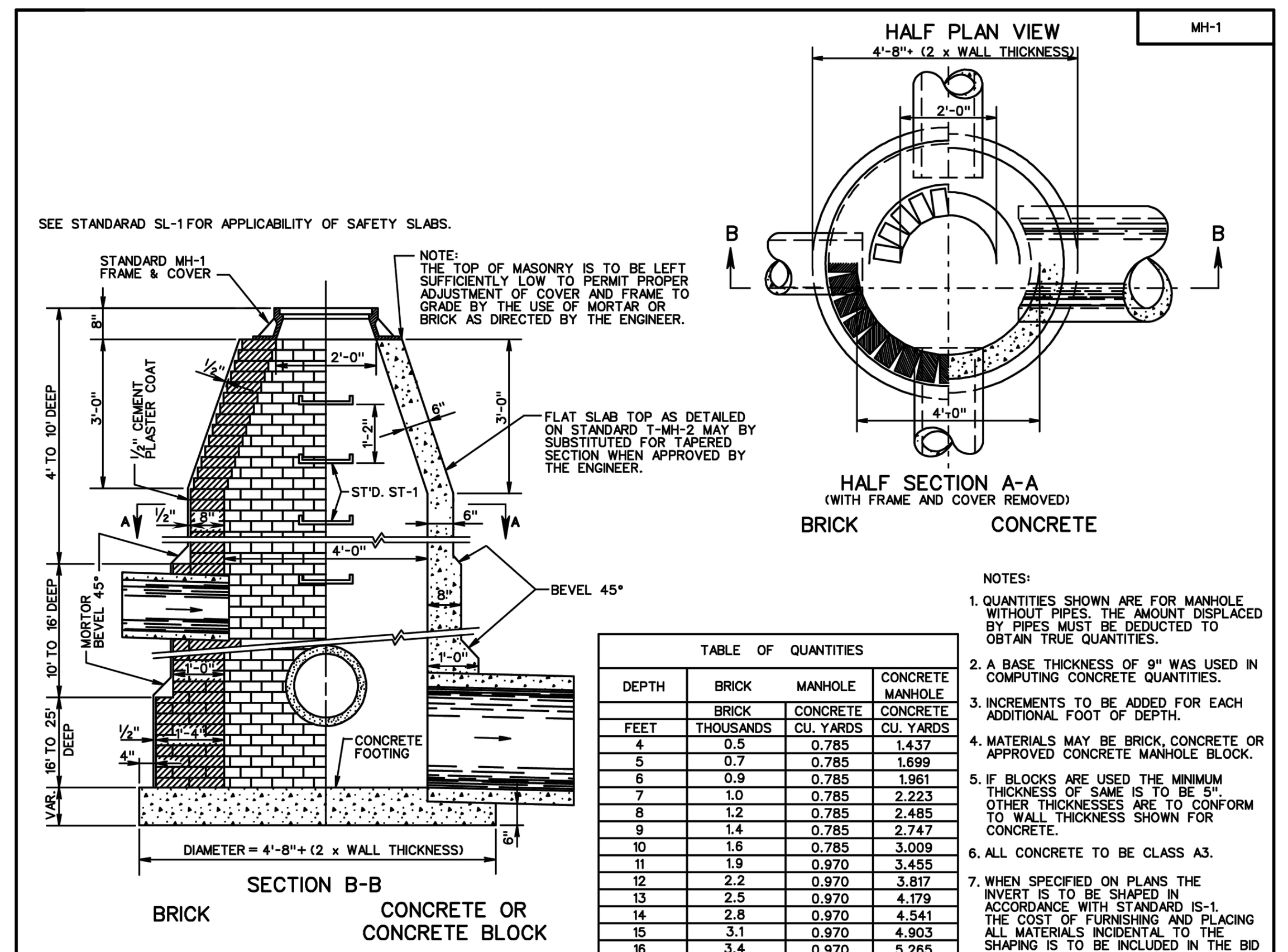


TABLE OF QUANTITIES			
DEPTH	BRICK	MANHOLE	CONCRETE MANHOLE
	BRICK	CONCRETE	CONCRETE
FEET	THOUSANDS	CU. YARDS	CU. YARDS
4	0.5	0.785	1.437
5	0.7	0.785	1.699
6	0.9	0.785	1.961
7	1.0	0.785	2.223
8	1.2	0.785	2.485
9	1.4	0.785	2.747
10	1.6	0.785	3.009
11	1.9	0.970	3.455
12	2.2	0.970	3.817
13	2.5	0.970	4.179
14	2.8	0.970	4.541
15	3.1	0.970	4.903
16	3.4	0.970	5.265
17	4.0	1.173	6.032
INCREMENT	0.45	-	0.582

NOTES:
1. QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
2. A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
3. INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
4. MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
5. IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
6. ALL CONCRETE TO BE CLASS A3.
7. WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

SPECIFICATION REFERENCE 302

MANHOLE FOR 12" - 48" PIPE CULVERTS
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS — REVISION DATE — SHEET 1 OF 5 — 106.01

2016 ROAD & BRIDGE STANDARDS

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

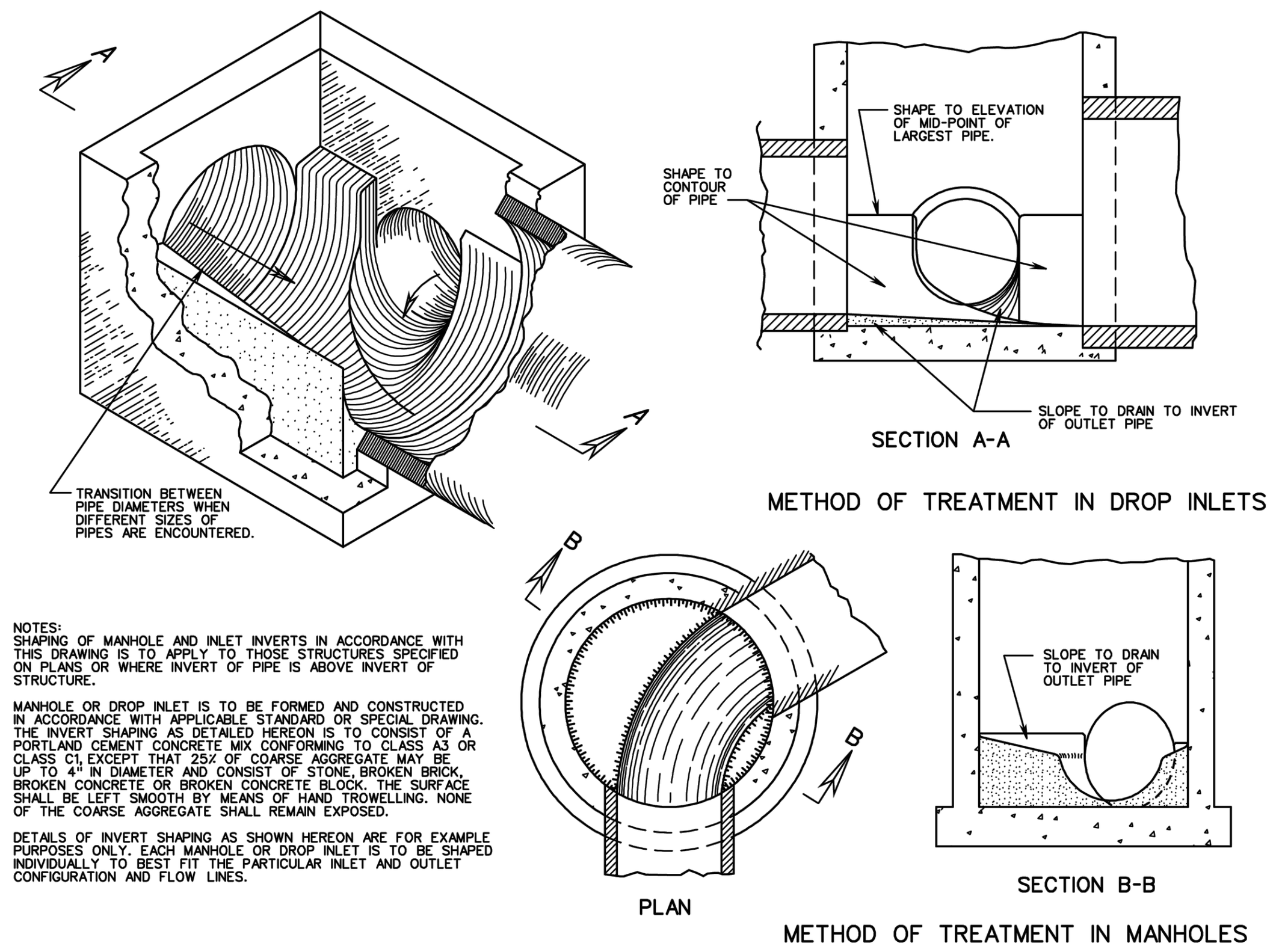
SITE DETAILS

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

2016 ROAD & BRIDGE STANDARDS

IS-1



NOTES:
SHAPING OF MANHOLE AND INLET INVERTS IN ACCORDANCE WITH THIS DRAWING IS TO APPLY TO THOSE STRUCTURES SPECIFIED ON PLANS OR WHERE INVERT OF PIPE IS ABOVE INVERT OF STRUCTURE.

MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS C1, EXCEPT THAT 25% OF COARSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED.

DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE OR DROP INLET IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.

VDOT ROAD AND BRIDGE STANDARDS | SHEET 1 OF 1 | 106.08 | REVISION DATE

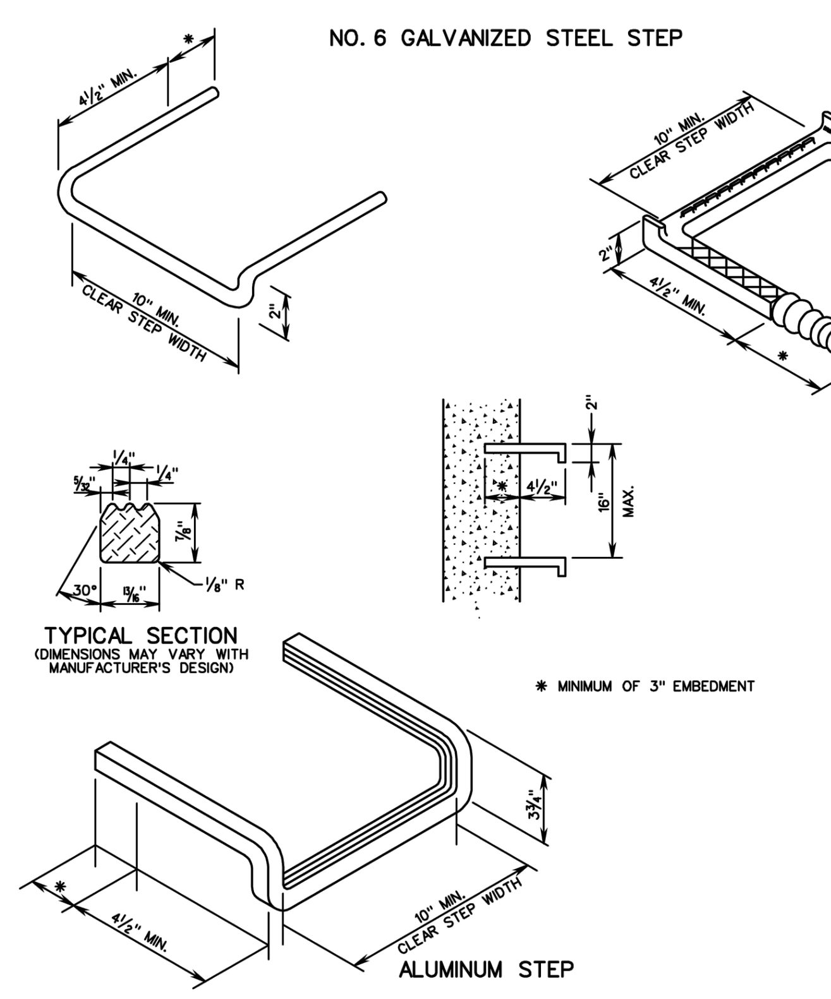
STANDARD METHOD OF SHAPING MANHOLE & INLET INVERTS
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 302

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

ST-1



NOTES:
STEPS WILL BE REQUIRED IN ALL STRUCTURES WITH A DEPTH OF 4'-0" OR GREATER UNLESS OTHERWISE NOTED ON THE PLANS.

ALL STEPS SHALL PROTRUDE 4½" FROM INSIDE FACE OF STRUCTURE WALL.

MAXIMUM STEP SPACING TO BE 16" C-C.

STEPS SHALL WITHSTAND A MINIMUM FORCE OF 300 POUNDS WHEN EXTENDED 4½" FROM THE FACE OF THE SUPPORT.

STEPS ARE TO BE VERTICALLY ALIGNED AND UNIFORMALY SPACED FOR THE ENTIRE DEPTH OF ANY STRUCTURE.

IN PRECAST UNITS STEPS MAY BE CAST IN PLACE, MORTARED INTO HOLES PROVIDED BY THE FABRICATOR, OR DRIVEN.

STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THEY MEET THE MINIMUM REQUIREMENTS SHOWN HEREON AND THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS AND CERTIFIED TEST REPORTS OF THE PROPOSED SUBSTITUTE AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.

ALL STEPS INSTALLED SHALL BE PROVIDED WITH SLIP-RESISTANT SURFACES SUCH AS BUT NOT LIMITED TO, CORRUGATED KNURLED, OR DIMPLED SURFACES.

ALUMINUM STEPS SHALL BE FABRICATED IN ACCORDANCE WITH ASTM B221, ALLOY 6005-T5.
THAT PORTION OF THE STEP ENCASED IN MASONRY SHALL BE UNIFORMLY COATED WITH A BITUMIMOUS, SOLVENT TYPE, ASBESTOS FILLED ALUMINUM PIGMENTED COATING CONFORMING TO FEDERAL SPECIFICATION TC-C-00498A.

SPECIFICATION REFERENCE

STANDARD STEP
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 1 OF 1 | 106.09

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

PC-1

POLYETHYLENE CORRUGATED PIPE (PE)			
DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER FEET	
		TYPE C	TYPE S
12	0.8	23	20
15	1.2	23	19
18	1.8	19	19
24	3.1	16	15
30	4.9	—	13
36	7.1	—	12
42	9.6	—	10
48	12.6	—	10
54	15.9	—	10
60	19.6	—	10

POLYVINYLCHLORIDE PROFILE WALL PIPE (PVC)		
DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER FEET
18	1.7	41
21	2.3	40
24	3.0	37
30	4.7	34
36	6.9	34

POLYPROPYLENE PIPE (PP)			
DIAMETER INCHES	AREA SQ. FT.	MAXIMUM HEIGHT OF COVER FEET	
		TYPE S	TYPE D
12	0.8	25	—
15	1.2	24	—
18	1.8	24	—
24	3.1	20	—
30	4.9	16	—
36	7.1	14	16
42	9.6	14	16
48	12.6	13	16
60	19.6	12	15

NOTES:

1. COVER HEIGHTS INDICATED IN TABLES ARE FOR FINISHED CONSTRUCTION, USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. TO PROTECT PIPE DURING CONSTRUCTION, MINIMUM HEIGHT OF COVER TO BE IN ACCORDANCE WITH TABLE A PRIOR TO ALLOWING CONSTRUCTION TRAFFIC TO CROSS INSTALLATION. THE COVER SHALL EXTEND THE FULL LENGTH OF THE PIPE. THE APPROACH FILL IS TO EXTEND A MINIMUM OF 10(DIAMETER + ½ DIAMETER) ON EACH SIDE OF THE PIPE OR TO THE INTERSECTION WITH A CUT.
3. STANDARD MINIMUM FINISHED HEIGHT OF COVER FOR ALL PIPES, EXCEPT THOSE UNDER ENTRANCES, SHALL BE 2.0' OR ½ DIAMETER WHICHEVER IS GREATER. FOR 12" THROUGH 48" DIAMETER PIPE INSTALLATIONS WHERE THE COVER HEIGHTS CANNOT BE ACHIEVED, AN ABSOLUTE MINIMUM FINISHED COVER HEIGHT OF 1.0' WILL BE ALLOWED ONLY IF ALL POSSIBLE MEANS TO OBTAIN THE STANDARD VALUE HAVE BEEN EXHAUSTED. THE MINIMUM FINISHED HEIGHT OF COVER FOR PIPES UNDER ENTRANCES IS 9" FOR PIPE DIAMETERS LESS THAN OR EQUAL TO 24", AND 12" FOR PIPE DIAMETERS GREATER THAN 24". WHERE THE SURFACE OVER THE TOP OF THE PIPE WILL BE ASPHALT, A MINIMUM OF 6" OF CLASS I BACKFILL MATERIAL IS TO BE PLACED BETWEEN THE TOP OF THE PIPE AND THE BOTTOM OF THE ASPHALT.
4. SEE STANDARD PB-1 FOR PIPE BEDDING AND BACKFILL REQUIREMENTS.
5. LARGE CULVERTS SHALL BE DESIGNED BY AN ENGINEER, REGISTERED IN THE COMMONWEALTH OF VIRGINIA, AND SHALL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF VOLUME V, PART 2 OF THE MANUAL OF THE STRUCTURE AND BRIDGE DIVISION. A LARGE CULVERT IS ANY CULVERT THAT WILL BECOME PART OF THE STRUCTURE AND BRIDGE INVENTORY. THE GEOMETRIC DEFINITION OF THESE STRUCTURES IS PROVIDED IN THE CURRENT VERSION OF VDOT'S IIM-S&B-27.

PIPE TYPE DEFINITIONS:
TYPE C - SINGLE WALL PIPE (CORRUGATED WALL ONLY)
TYPE S - DOUBLE WALL PIPE (CORRUGATED WALL WITH SMOOTH INNER WALL)
TYPE D - TRIPLE WALL PIPE (CORRUGATED WALL BETWEEN SMOOTH INNER AND OUTER WALL)

TABLE A	
PIPE DIAMETER	MINIMUM COVER HEIGHT DURING CONSTRUCTION (SEE NOTE 2)
12" TO 30"	18"
36" AND ABOVE	½ DIAMETER

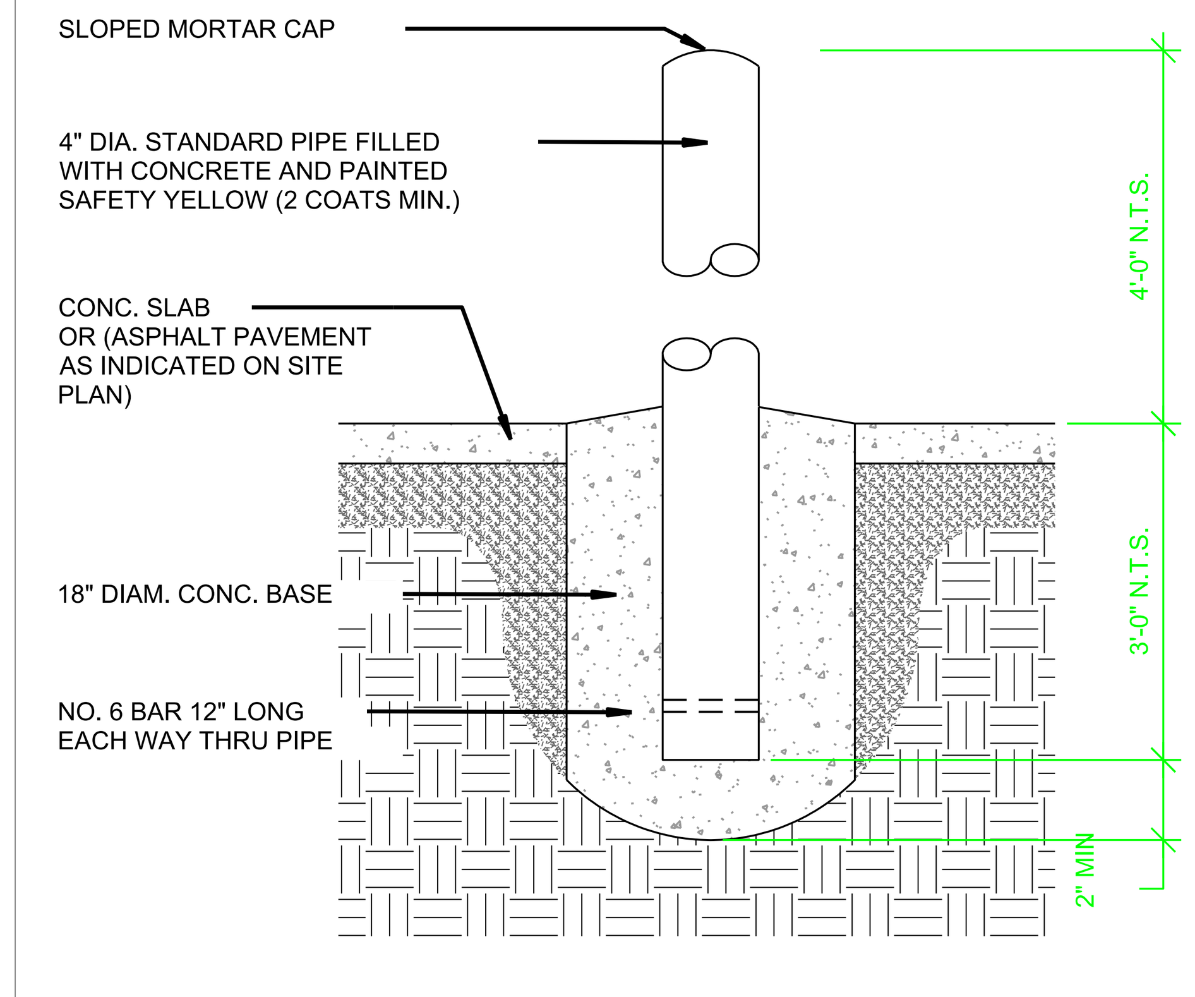
VDOT ROAD AND BRIDGE STANDARDS | SHEET 15 OF 18 | 107.19 | REVISION DATE 04/19

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

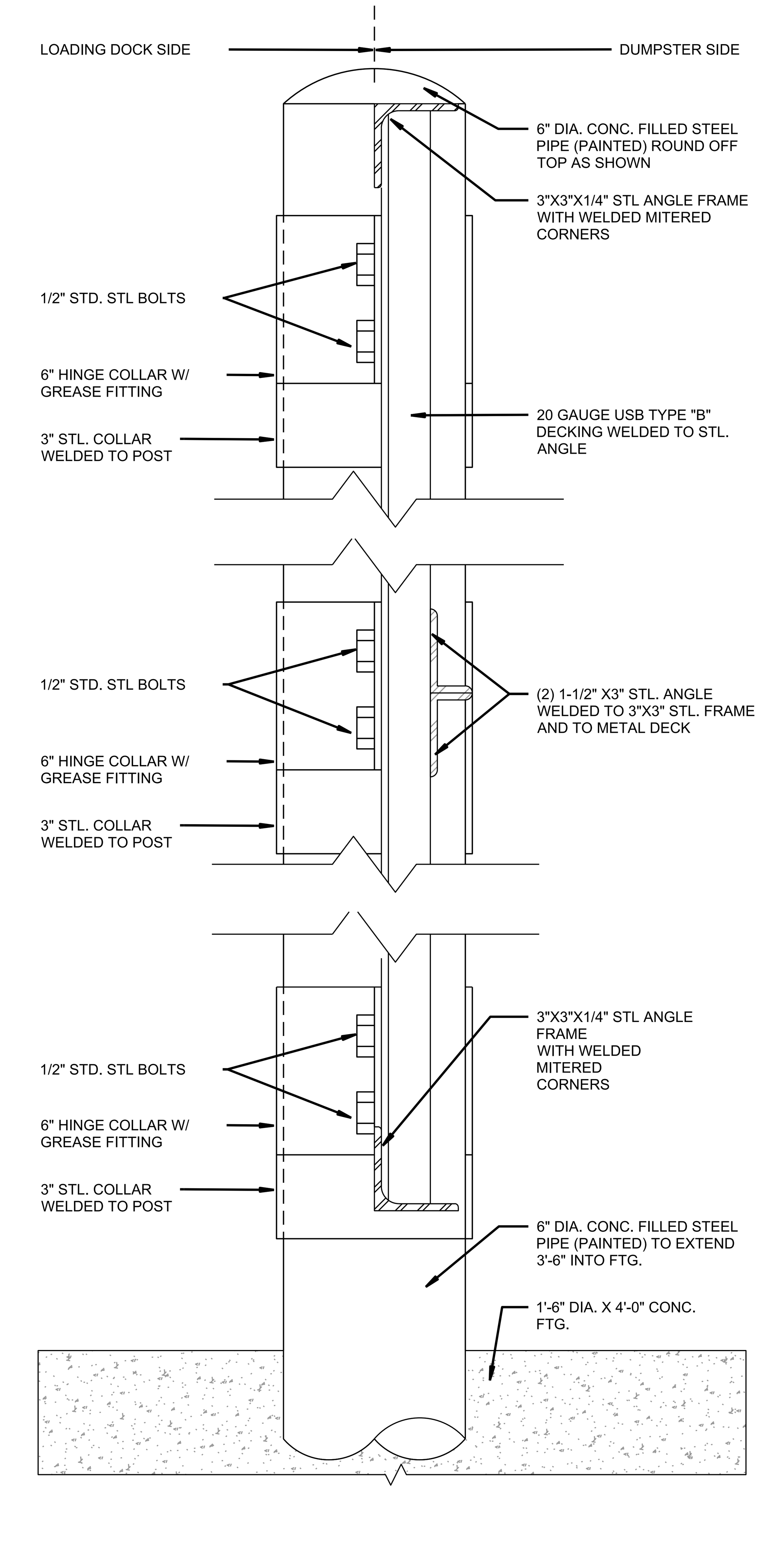
PLASTIC PIPE
HEIGHT OF COVER TABLES FOR HL-93 LIVE LOAD
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 232 302

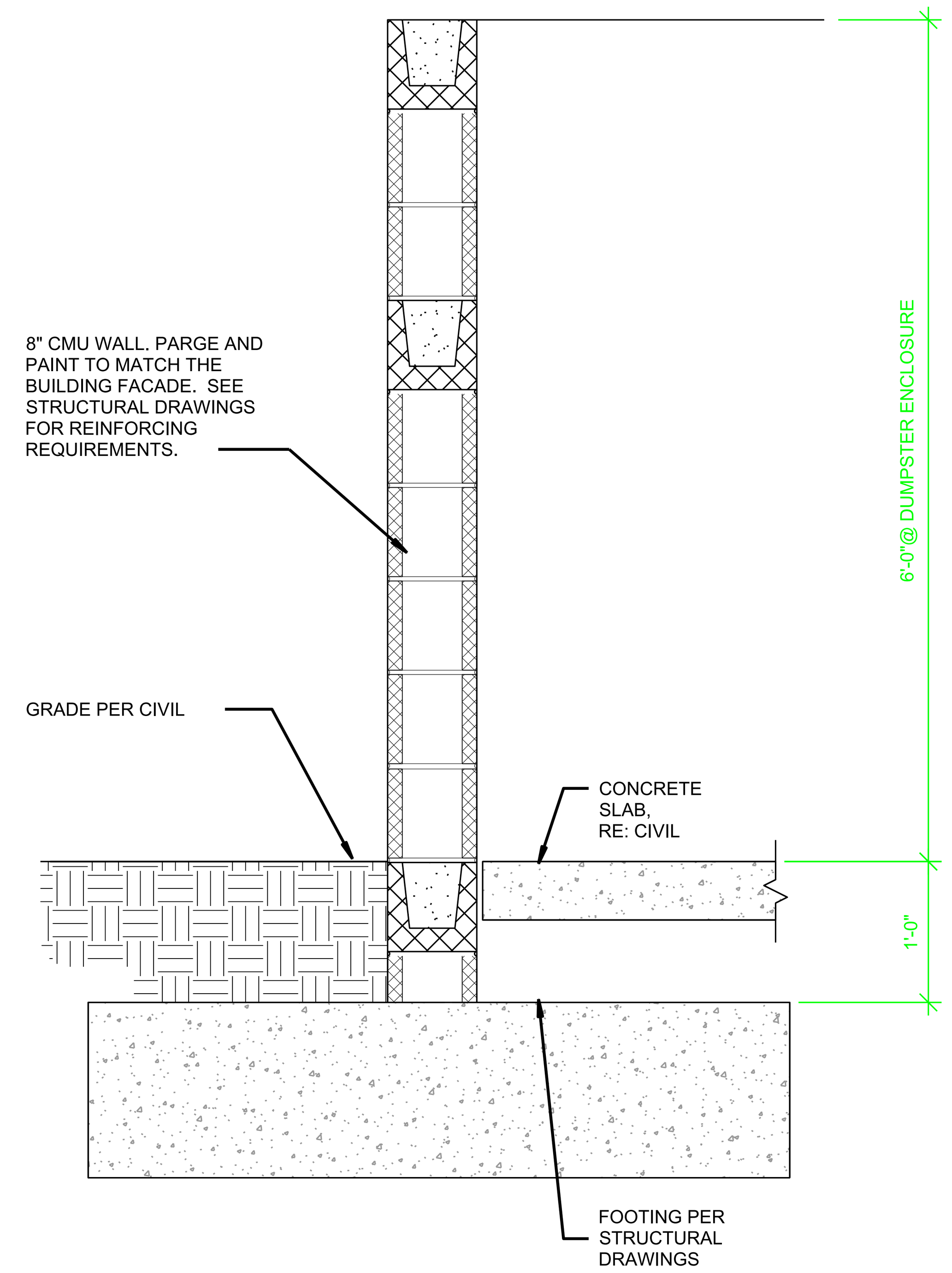
2016 ROAD & BRIDGE STANDARDS



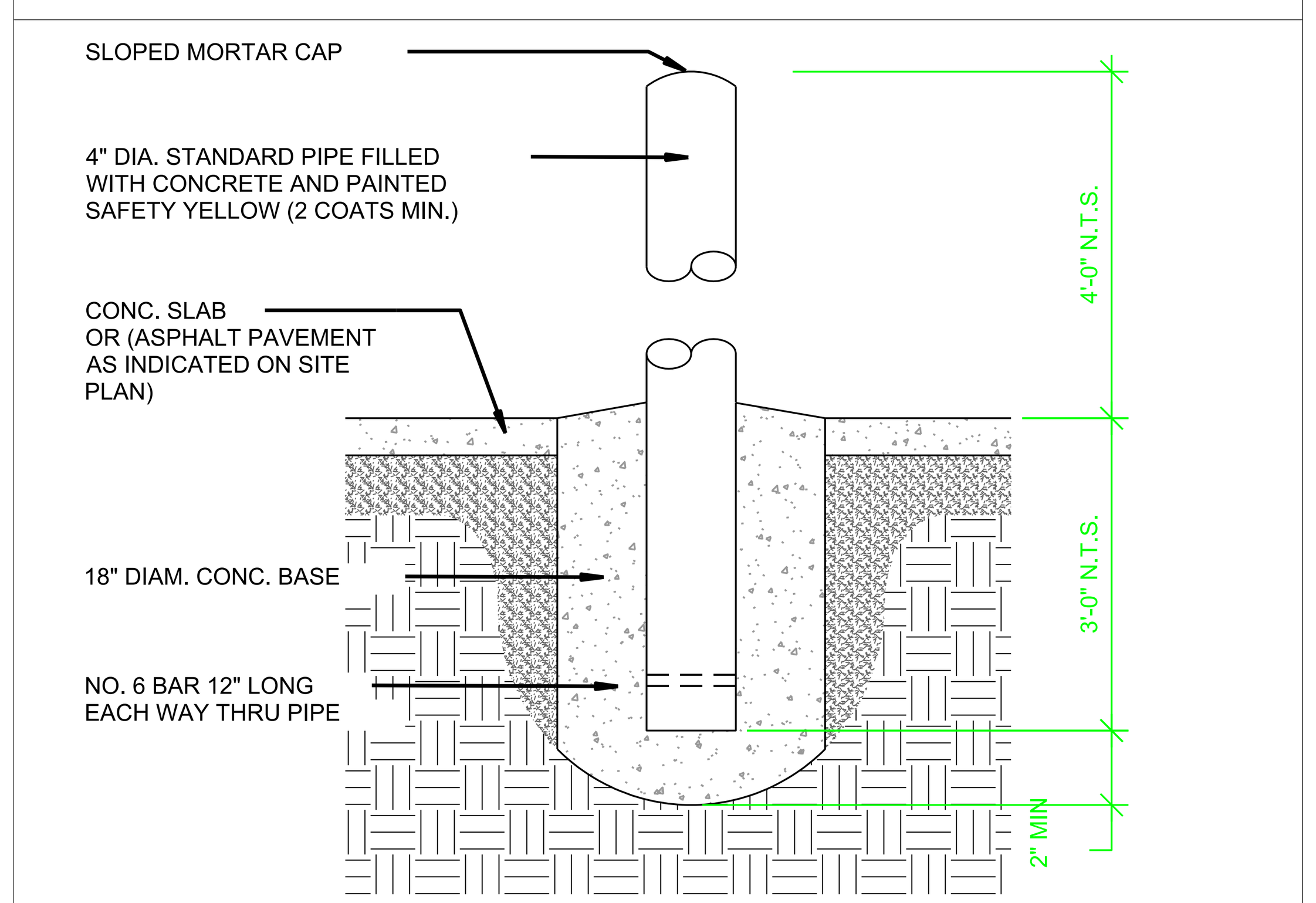
4 BOLLARD DETAIL
1" = 1'-0"



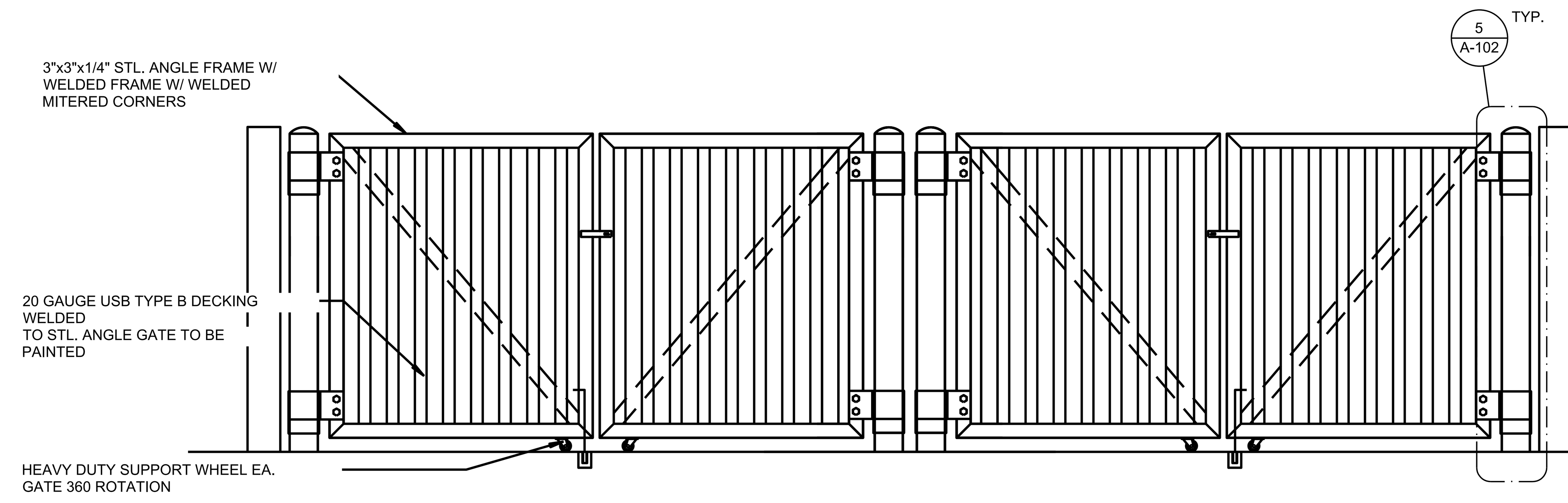
5 DUMPSTER ENCLOSURE BOLLARD DETAIL
3" = 1'-0"



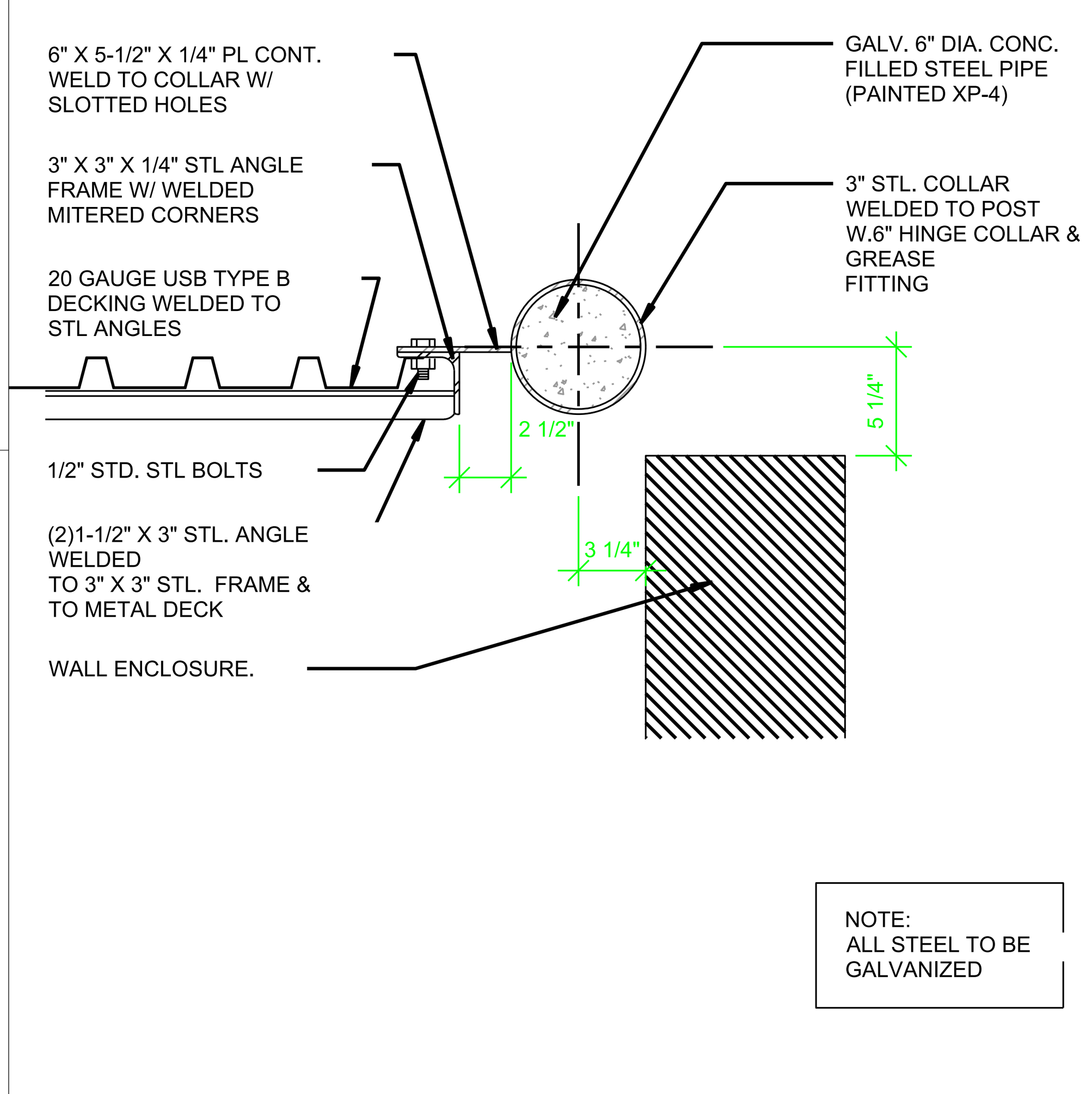
3 WALL SECTION @ DUMPSTER
1" = 1'-0"



4 BOLLARD DETAIL
1" = 1'-0"

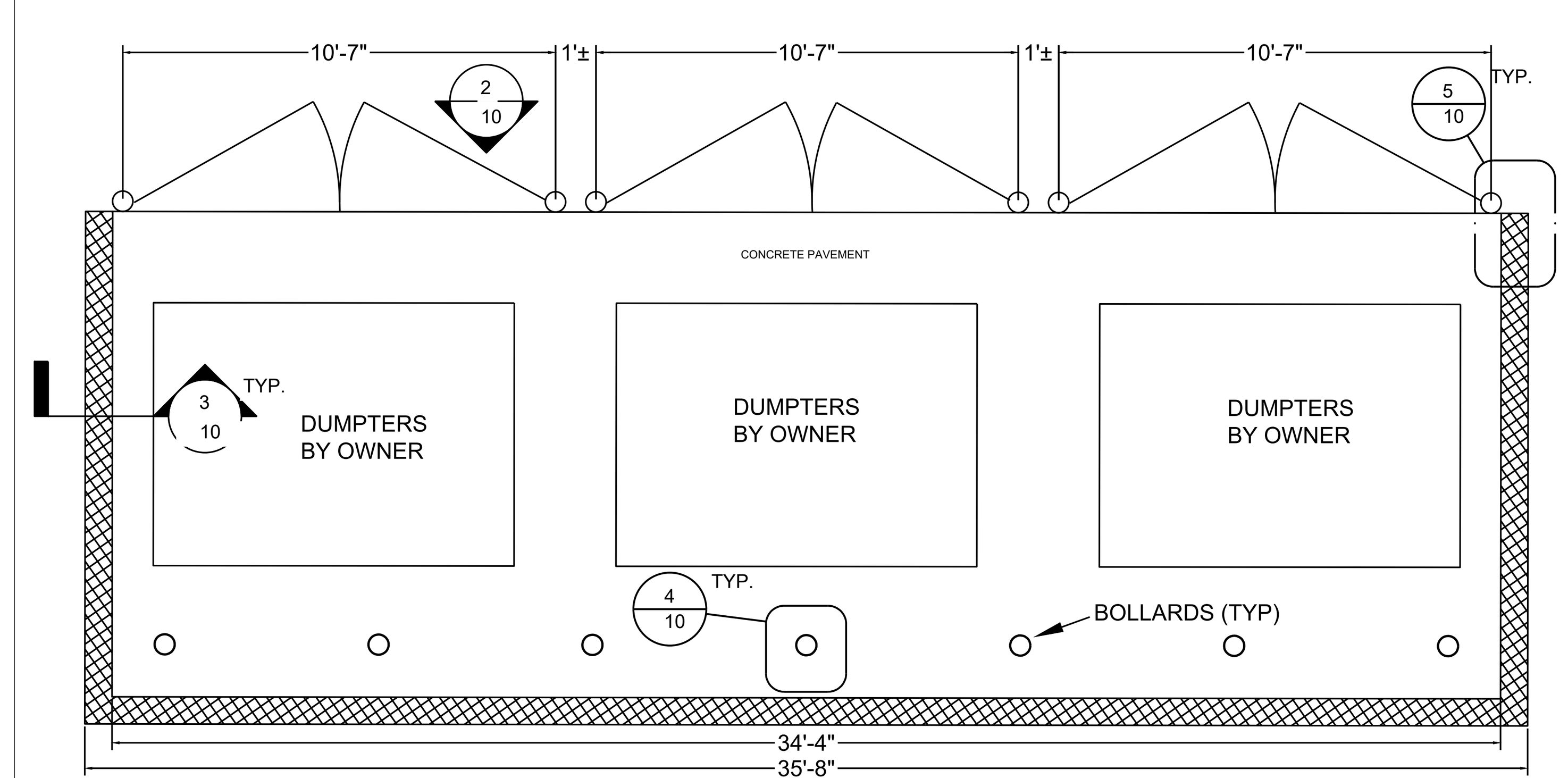


2 DUMPSTER GATE ELEVATION
1/2" = 1'-0"



NOTE:
ALL STEEL TO BE GALVANIZED

6 DUMPSTER ENCLOSURE PLAN DETAIL
1 1/2" = 1'-0"



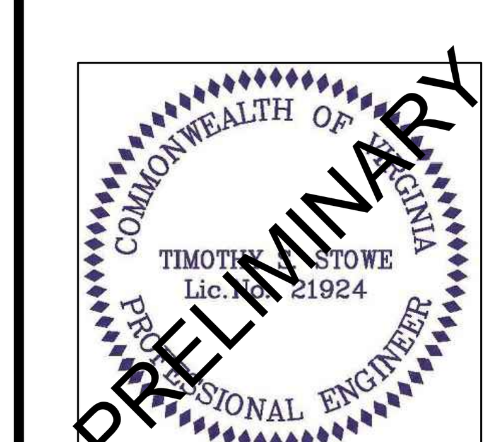
1 ENLARGED PLAN AT DUMPSTER
3" = 1'-0"

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

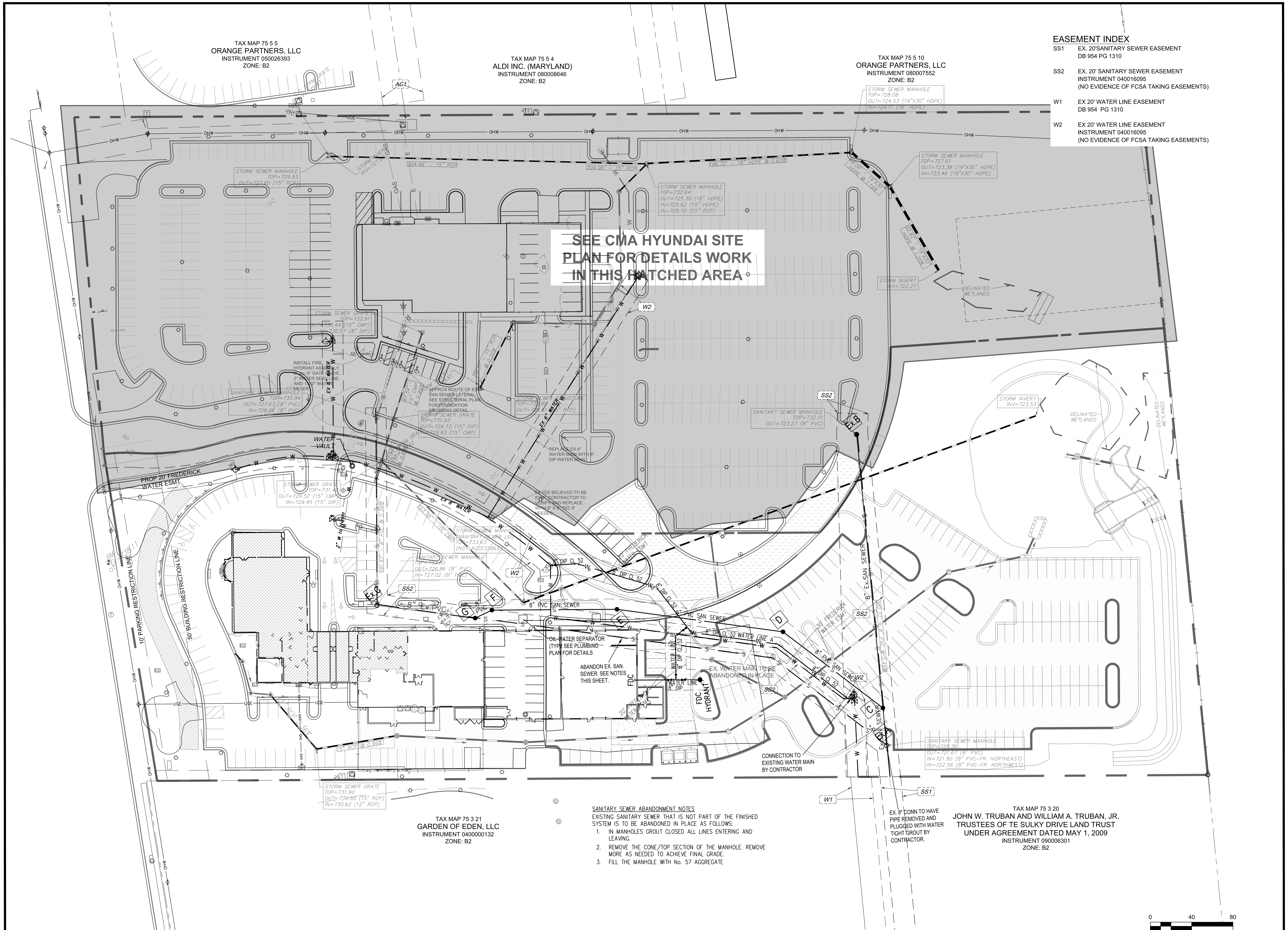
SITE DETAILS

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA



PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 10 OF ##



TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2
TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2
TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2
SEE CMA HYUNDAI SITE PLAN FOR DETAILS WORK IN THIS HATCHED AREA
STORM SEWER MANHOLE
TOP=728.08
OUT=724.03 (19"X30" HDPE)
IN=724.11 (18" HDPE)
STORM SEWER MANHOLE
TOP=727.61
OUT=723.38 (19"X30" HDPE)
IN=723.46 (19"X30" HDPE)
STORM SEWER MANHOLE
TOP=729.83
OUT=727.60 (15" RCP)
STORM SEWER MANHOLE
TOP=732.64
OUT=725.30 (18" HDPE)
IN=725.62 (15" HDPE)
IN=725.72 (15" RCP)
STORM INVERT
INV=722.27
DELINATED WETLANDS
STORM SEWER GRATE
TOP=732.91
OUT=730.44 (15" CMP)
IN=730.57 (8" DIP)
INSTALL FIRE HYDRANT ASSEMBLY
SANITARY SEWER MANHOLE
TOP=733.94
OUT=727.63 (8" PVC)
IN=728.06 (8" PVC)
APPROX ROUTE OF EX. SAN SEWER LATERAL SEE STRUCTURAL PLAN FOR FOUNDATION CROSSING DETAIL
STORM SEWER GRATE
TOP=731.93
OUT=729.73 (15" DIP)
IN=729.83 (15" CMP)
SANITARY SEWER MANHOLE
TOP=732.01
OUT=723.27 (8" PVC)
STORM INVERT
INV=723.53
W2
SS2
WATER VAULT
REPLACE EX 6" WATER MAIN WITH 8" DIP WATER MAIN
EX TEE BELIEVED TO BE 8". CONTRACTOR TO VERIFY AND REPLACE WITH 8" X 8" TEE IF NEEDED
PROP 20' FREDERICK WATER ESMT.
STORM SEWER GRATE
OUT=729.52 (15" CMP)
IN=729.45 (15" DIP)
EX 8" WATER
8" DIP CL 52
8" PVC SANI SEWER
10' PARKING RESTRICTION LINE
50' BUILDING RESTRICTION LINE
OIL-WATER SEPARATOR (TYP) SEE PLUMBING PLAN FOR DETAILS
ABANDON EX. SAN. SEWER. SEE NOTES THIS SHEET.
EX. WATER MAIN TO BE ABANDONED IN PLACE
FDC
FDC HYDRANT
WATER LINE 8" DIP
20' FREDERICK WATER ESMT.
8" Ex. SAN SEWER
CONNECTION TO EXISTING WATER MAIN BY CONTRACTOR
SANITARY SEWER MANHOLE
TOP=728.36
OUT=721.67 (8" PVC)
IN=721.80 (8" PVC-FR. NORTHEAST)
IN=722.56 (8" PVC-FR. NORTHWEST)
STORM SEWER GRATE
TOP=731.90
OUT=730.50 (15" RCP)
IN=730.62 (12" RCP)
W1
SS1
EX. 8" CONN TO HAVE PIPE REMOVED AND PLUGGED WITH WATER TIGHT GROUT BY CONTRACTOR.
TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2
TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2
0 40 80

EASEMENT INDEX

SS1	EX. 20'SANITARY SEWER EASEMENT DB 954 PG 1310
SS2	EX. 20' SANITARY SEWER EASEMENT INSTRUMENT 040016095 (NO EVIDENCE OF FCSA TAKING EASEMENTS)
W1	EX 20' WATER LINE EASEMENT DB 954 PG 1310
W2	EX 20' WATER LINE EASEMENT INSTRUMENT 040016095 (NO EVIDENCE OF FCSA TAKING EASEMENTS)

SANITARY SEWER ABANDONMENT NOTES

EXISTING SANITARY SEWER THAT IS NOT PART OF THE FINISHED SYSTEM IS TO BE ABANDONED IN PLACE AS FOLLOWS:

1. IN MANHOLES GROUT CLOSED ALL LINES ENTERING AND LEAVING.
2. REMOVE THE CONE/TOP SECTION OF THE MANHOLE. REMOVE MORE AS NEEDED TO ACHIEVE FINAL GRADE.
3. FILL THE MANHOLE WITH No. 57 AGGREGATE

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

UTILITY PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

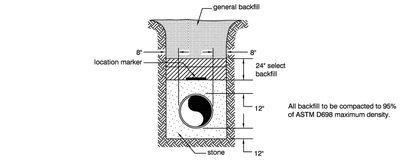
COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

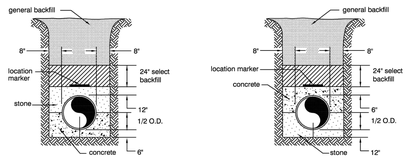
FREDERICK WATER

Construction Notes

1. Frederick Water's Water and Sewer Standards and Specifications are available at www.frederickwater.com
2. The contractor shall adhere to Frederick Water standards and specifications in effect at the time of construction.
3. The contractor shall schedule a pre-construction meeting with the Frederick Water Inspector prior to commencing installation of any water or sewer facilities. Contractor shall also arrange for inspection of said facilities by Frederick Water. Oil water separators and/or grease traps may be required by Frederick County Building Inspections. Both Frederick County Building Inspections and Frederick Water will inspect the installation of those facilities. Both inspections shall be scheduled by Contractor.
4. The contractor shall connect a new sewer line to an existing manhole by core drilling the manhole.
5. A new water (or forced sewer) main shall be connected to an existing main by a a cut-in tee with accompanying valves.
6. Exact locations of water and sewer services on new lines are to be coordinated with Frederick Water's Inspector.
   a. Adjust Frederick Water facilities to grade as required by the Frederick Water Inspector.
7. Frederick Water's maintenance division shall furnish and install all water meters through 2 inch in size. It is the contractor's responsibility to have the meter box assembly installed correctly. Before a permanent meter is installed:
   a. The meter box, with its frame and cover, must be properly aligned with the yoke bar.
   b. The frame and cover shall be set to final grade.
   c. The distance between the top of the cover and the yoke bar shall be between 20 and 23 inches.
   d. All components of the meter box assembly shall be in proper working order.
8. For services that connect to existing lines:
   a. Frederick Water shall furnish and install:
      i. all ¾"x¾", ¾", 1", 1½" and 2" water services
      ii. all sewer services.
   b. The owner/developer shall:
      i. coordinate (or have the contractor coordinate) the location of the service lateral with Frederick Water's engineering assistant.
      ii. submit an Application for Service and pay the required fees.
9. All water service lines must have a backflow prevention assembly (double check valve or RPZ, as required). The assembly must meet ASSE standard number 1015 or 1013.
10. All fire lines must have a backflow prevention assembly (detector double check valve or RPZ, as required). The assembly shall meet ASSE standard number 1048 or 1047. Any privately owned fire line, interior or exterior, shall also have a fire service meter. This assembly shall be installed immediately before the backflow prevention unit. Radio read remotes are required.
11. Frederick Water shall review the mechanical plan(s) for design and material approval of a building's:
    a. domestic water meter and its backflow prevention device, and/or its
    b. Fire service line's water meter and backflow prevention device.
12. DEQ must also approve sewer pump stations. Frederick Water requires a copy of DEQ's Certificate to Operate and a copy of the station's DEQ approved O&M manual. These documents must be received before substantial completion is issued and water meters released.

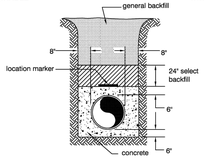


STANDARD



CONCRETE CRADLE

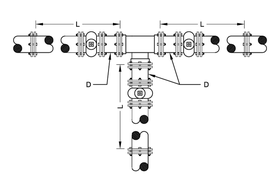
CONCRETE ARCH



CONCRETE ENCASEMENT

TRENCH & BEDDING

-1- MAR 18



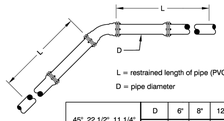
In addition to restraining each joint of the fitting, any joint that falls within the specified length of each branch of the fitting shall be restrained.

L = restrained length of pipe (PVC or DIP)

D = pipe diameter

D	6"	8"	12"	16"	18"	20"	24"
L (ft)	60	60	100	120	120	140	160

TEE, CROSS, WYE



L = restrained length of pipe (PVC or DIP)

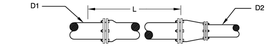
D = pipe diameter

	D	6"	8"	12"	16"	18"	20"	24"
45°, 22 1/2", 11 1/4°	L (ft)	20	20	20	20	20	20	20

HORIZONTAL BEND

RESTRAINED JOINTS FOR TEE, CROSS, WYE AND HORIZONTAL BEND

-2- FEB 09



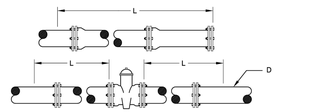
Both joints of the fitting shall be restrained. In addition, all joints within the specified length on the large side of the reducer shall be restrained.

L = restrained length of pipe (PVC or DIP)

D = pipe diameter

D2	L (ft) D1					
	8"	12"	16"	18"	20"	24"
6"	40	60	100	120	120	140
8"	--	60	80	100	120	140
12"	--	--	60	80	100	120
16"	--	--	--	--	40	60	100
18"	--	--	--	--	40	80
20"	--	--	--	--	--	60

REDUCER



In addition to restraining the connection, any joint that falls within the specified length shall be restrained.

L = restrained length of pipe (PVC or DIP)

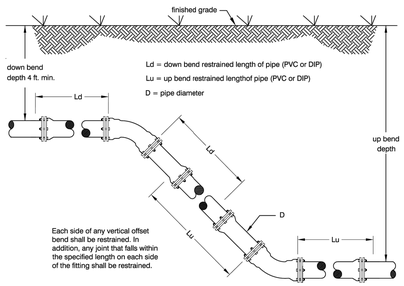
D = pipe diameter

D	6"	8"	12"	16"	18"	20"	24"
L (ft)	60	60	100	120	120	140	160

VALVE, DEAD END

RESTRAINED JOINTS FOR REDUCER, GATE VALVE AND DEAD END

-3- FEB 09



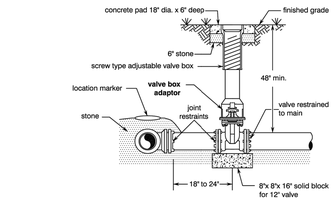
	D	6"	8" & 12"	16", 18" & 20"	24"
45°	Ld (ft)	20	40	60	80
	Lu (ft)	20	20	20	20

	D	6"	8" & 12"	16", 18" & 20"	24"
22 1/2°	Ld (ft)	20	20	40	40
	Lu (ft)	20	20	20	20

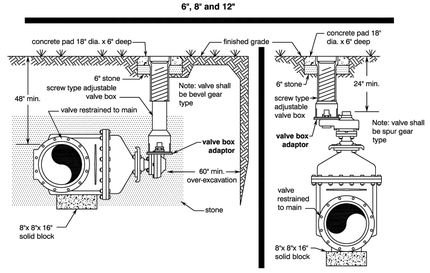
	D	6"	8" & 12"	16", 18" & 20"	24"
11 1/4°	Ld (ft)	20	20	20	20
	Lu (ft)	20	20	20	20

RESTRAINED JOINTS FOR VERTICAL OFFSET

-4- FEB 09



6", 8" and 12"

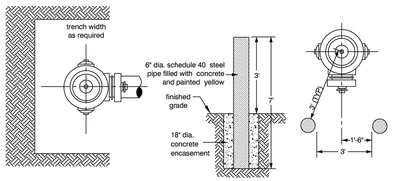


Water Forced Sewer

16", 18", 20" and 24"

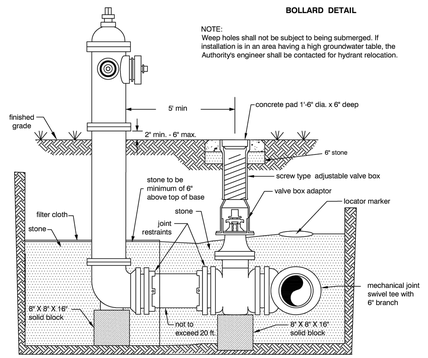
GATE VALVE

-5- APR 09



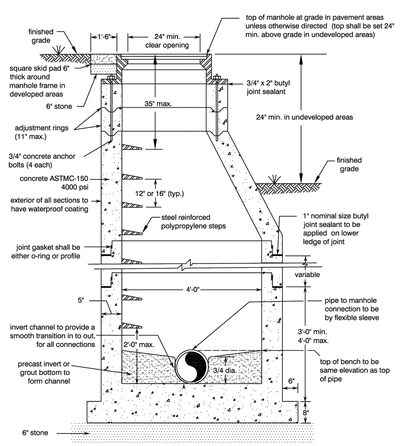
BOLLARD DETAIL

NOTE:
Weep holes shall not be subject to being submerged. If installation is in an area having a high groundwater table, the Authority's engineer shall be contacted for hydrant relocation.



FIRE HYDRANT ASSEMBLY

-6- JAN 19



NOTES :
1. Manhole sections shall have an external coating of approved polymer film water proofing prior to installation.
2. If adjustment elevation exceeds two inches use concrete adjustment rings with a exterior coating of water proofing.
3. Final slope adjustment of manhole frame shall be by shims and non-shrink grout.
4. Skid pad to be placed around manholes located in shoulders of roads.
5. Flat top shall be used if height from invert out to rim is four feet or less. Frame to be 4" in height.
6. There shall be a 0.20 foot drop in elevation through the manhole.

STANDARD MANHOLE

-15- FEB 09

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

UTILITY DETAILS

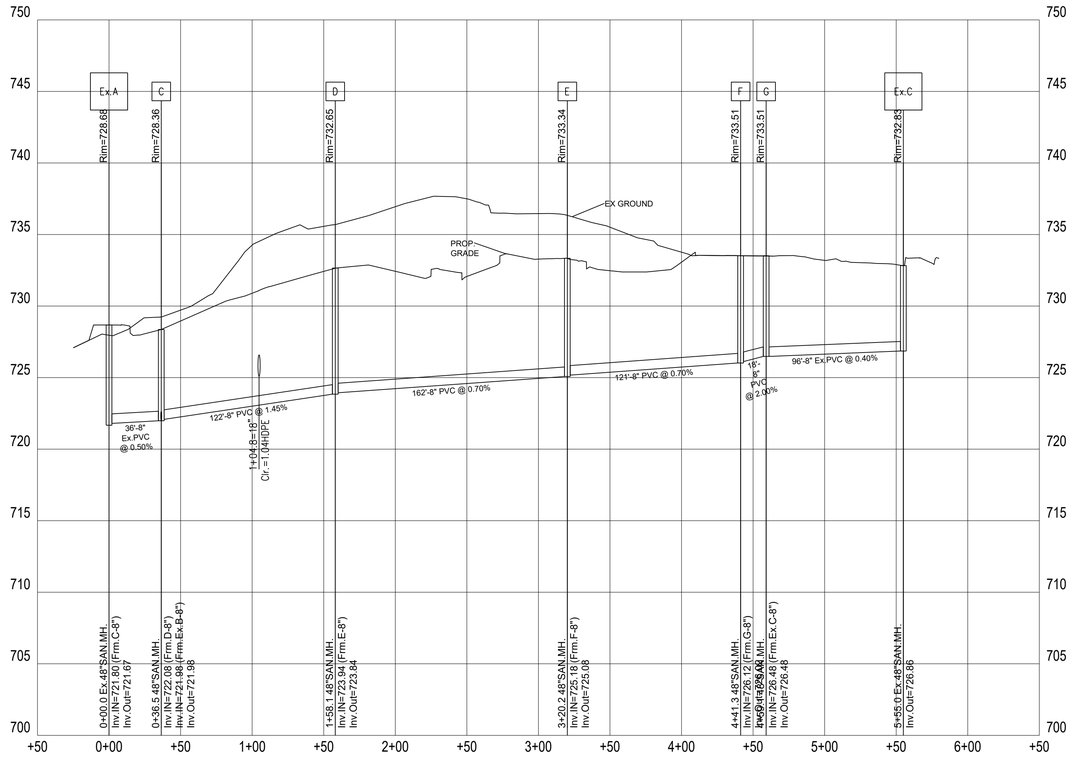
Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic. No. 21924
PROFESSIONAL ENGINEER

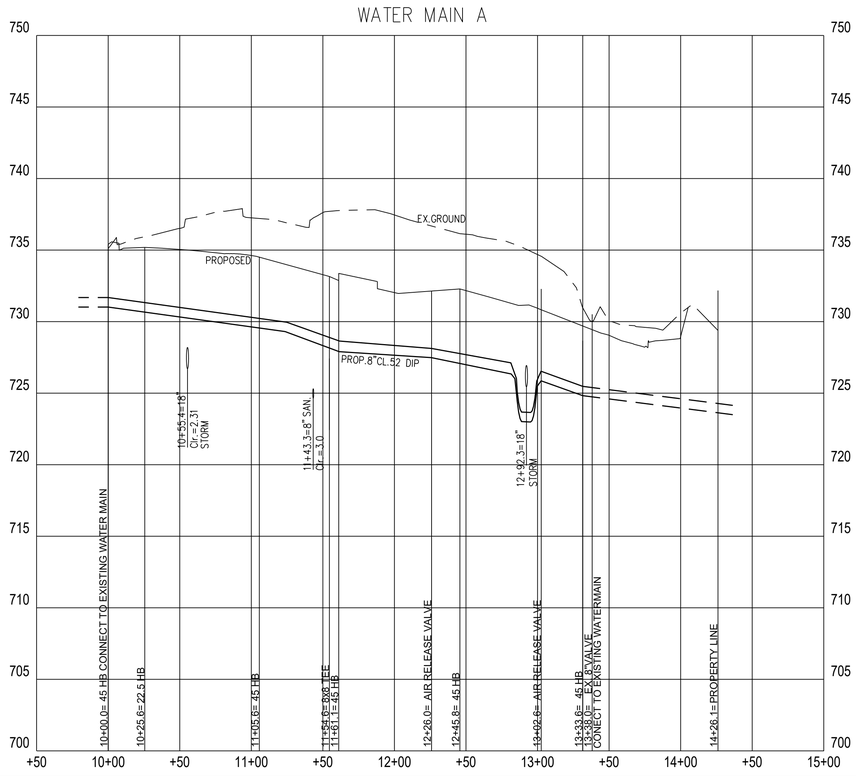
PRELIMINARY

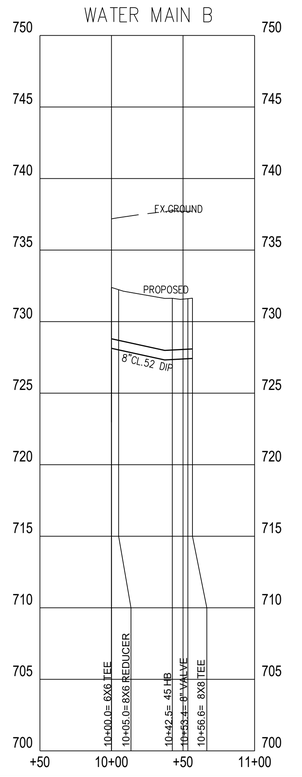
PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

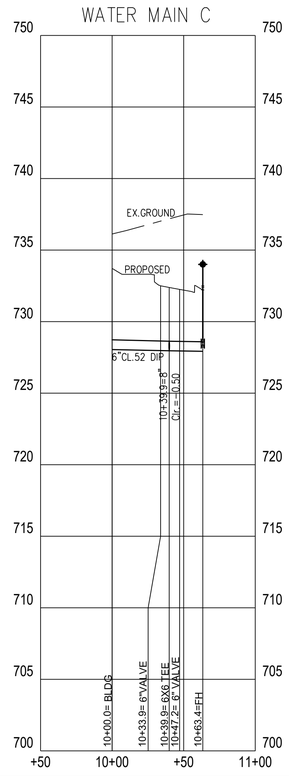
SHEET 12 **OF** ##



Scale: 1" = 50' H
1" = 5' VB







Scale: 1" = 50' H
1" = 5' VB

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Winchester, VA 22602
(540) 686-7373
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NO.	DATE	REVISION	BY

WATER & SEWER PROFILES

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic. No. 021924
PROFESSIONAL ENGINEER
PRELIMINARY

PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 13 **OF** ##

SEE CMA HYUNDAI SITE PLAN FOR DETAILS WORK IN THIS HATCHED AREA

LOT 1
TAX MAP 75 A 11L
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2

LOT 4
MAP 75 A 11C
SALES SUBDIVISION
UMENT 090013383
ZONE: B2

LOT 2
TAX MAP 75 A 11M
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
Area = 2.0880

LOT 3
TAX MAP 75 A 11N
MILLER AUTO SALES SUBDIVISION
INSTRUMENT 090013383
ZONE: B2
Area = 2.86 ac

REMOVE EX STORM PIPE TO PROP EW-1

ABANDON EX. SAN. SEWER. SEE NOTES THIS SHEET.

CONNECTION TO EXISTING WATER MAIN BY CONTRACTOR

EX. 8" CONN TO HAVE PIPE REMOVED AND PLUGGED WITH WATER TIGHT GROUT BY CONTRACTOR.

TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2

TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2

SANITARY SEWER ABANDONMENT NOTES

EXISTING SANITARY SEWER THAT IS NOT PART OF THE FINISHED SYSTEM IS TO BE ABANDONED IN PLACE AS FOLLOWS:

1. IN MANHOLES GROUT CLOSED ALL LINES ENTERING AND LEAVING.
2. REMOVE THE CONE/TOP SECTION OF THE MANHOLE. REMOVE MORE AS NEEDED TO ACHIEVE FINAL GRADE.
3. FILL THE MANHOLE WITH No. 57 AGGREGATE

0 30 60

STOWE ENGINEERING, PLC
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Winchester, VA 22602
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NO.	DATE	REVISION	BY

GRADING PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M, 11N
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

Erosion and Sediment Control Narrative

Project Description
This project consists of remodeling and expanding the Honda auto dealership and supporting site features. 4.5 acres of land will be disturbed with the construction of this project.

Date of Construction
Construction is planned to begin the 3rd quarter of 2023 and end in the 3rd quarter of 2024.

Existing Site Conditions
The site is currently a Honda car dealership store.

Adjacent Property
The project is located in the Kernstown area of Frederick County south of Route 37, and between I-81 and Route 11.

Offsite Areas
There are no planned off-site borrow or disposal areas associated with this project.

Soils
For the project area, generalized soils data contained on the USDA Natural Resource Conservation Service's Web Soil Survey shows the project area with 34% Carbo-Oaklet silt loam with 2-15% slopes, 22.2% Chilhowie silty clay loam with 7 to 15% slopes, and 43.9% Oaklet silt loam, 2 to 7% slopes.

Geology
No rock outcrops or karst features were observed.

Critical Erosion Areas
Areas where concentrated stormwater is discharging will be critical.

Erosion and Sediment Control Measures
Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook. The minimum standards of the handbook shall be adhered to unless otherwise waived or approved by a variance.

CONSTRUCTION NARRATIVE
The work shall generally be carried out in the following sequence:

PHASE 1
1. Hold pre-construction meeting on-site with the inspector. The Frederick County inspector shall have 48 hours notice to schedule an on-site pre-construction inspection following the issuance of a land disturbance permit. The certified responsible land disturber must attend the pre-construction meeting
2. Install the construction entrance. Temporary Construction Entrance (3.02) installed at the entrance to the site to minimize mud carried onto the roadway.
3. Clearing and grubbing for sediment control and sediment trapping devices only. Silt Fence Barrier (3.05) or temporary diversion dikes (3.09) are to be installed down-slope of work areas and around the on-site stockpile area to filter sediment-laden runoff from sheet flow as indicated on the plans.
4. Construct and/or place sediment trapping and sediment control devices.

PHASE 2
1. Clear and grub the remainder of the site. Topsoil that is to be used in the final grading of grassed areas shall be stripped and stockpiled on site for later use. The excess topsoil shall be removed and disposed of by the contractor. All stockpiles shall be stabilized with seeding and surrounded with silt fence.
2. Rough grade the site.
3. Storm drain structures and pipe shall be installed. Inlet protection (3.07) shall be installed as shown on the plans around inlets to filter sediment-laden runoff. The area shall be stabilized upon completion of grading.
5. Final grading.
6. Top Soiling (3.30) and Surface Roughening (3.29) shall be applied to all areas that will be seeded.
7. Permanent Seeding (3.32) shall be applied as soon as the grading operations are completed.
8. Remove erosion and sediment control measures within 30 days from when they are no longer needed and with approval of the inspector.

Vegetative Practices
Temporary seeding (3.31) soil stabilization shall be applied to denuded areas within seven days after the final grading is complete on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 30 days, but less than one year. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

Stockpile areas shall be surrounded with silt fence and protected by mulch and/or temporary seeding immediately after grading.
Diversion dike and temporary sediment trap embankments shall be compacted by machine, seeded and mulched (hay mulch or straw) for temporary and/or permanent vegetative cover immediately after construction.

Vegetative stabilization shall be uniform, mature enough to survive, and adequate to inhibit erosion. Any areas not meeting these requirements shall be reseeded.

Management Practices
Construction will be carried out so that grading operations can begin and end as quickly as possible.
Sediment trapping measures will be installed as the first step in grading. These measures will be seeded and mulched immediately following installation.

Temporary seeding or other stabilization will follow immediately after grading. Areas which are not to be disturbed will be clearly marked by flags, signs, etc. The job superintendent shall be responsible for the installation and maintenance of all erosion and sediment control practices. Maintenance of these measures throughout the project is critical to the effectiveness of the program. Devices listed herein are considered to be minimum erosion and sediment controls. Addition E&S measures may be necessary due to contractor phasing or other unforeseen conditions. It is the contractor's responsibility to provide measures in addition to those shown in order to control erosion and contain sediment on the site. All measures shall be installed in accordance with the Virginia Erosion and Sediment Control Handbook. After achieving adequate stabilization, the temporary E&S controls will be cleaned up and removed.

Permanent Stabilization
All areas disturbed by construction shall be stabilized with permanent seeding immediately following finish grading. Seeding shall be done with Kentucky 31 Tall Fescue according to Std. & Spec. 3.32, PERMANENT SEEDING, of the handbook. Mulch (straw or fiber) will be installed over fill slopes which have been brought to final grade and have been seeded to protect the slopes from hill and gully erosion and to allow the seed to germinate properly will be used on relatively flat areas. In all seeding operations, seed, fertilizer, and lime will be applied before mulching.

STORMWATER MANAGEMENT
This project does not increase the impervious area of the site. The existing on-site stormwater management system will be used to manage stormwater runoff.

MAINTENANCE
In general, all erosion and sediment control measures will be checked daily and after each rainfall event. The following items are to be checked:
1. The gravel construction entrance shall be checked regularly for sediment buildup which will prevent drainage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.
2. The silt fence shall be checked after each storm event. Silt shall be cleaned out and repairs made when needed.
3. The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and reseeded as needed.
4. The contractor shall be responsible for keeping all roads and travel ways, both public and private, clean of all dust and mud at all times.
5. All downstream properties and waterways shall be provided adequate protection from erosion and sediment deposition.

SEEDING SCHEDULE
1. All permanent seeding shall be in accordance with section 3.32 of the VESCH.
2. On non-rock surfaces, spread topsoil at a minimum depth of four inches.
3. Incorporate pulverized agricultural lime into the soil at a rate of 92 lbs. per 1000 sq. ft. (2 tons per acre).
4. Fertilize with 10-10-10 fertilizer at a rate of 23 lbs. per 1000 sq. ft. (1000 lbs. per acre).
5. Seed all areas with a seed mix consisting of 67% Kentucky 31 Tall Fescue and 33% Red Top Clover.
6. Mulch all seeded areas with straw mulch applied at a rate of 3,500 lbs. per acre anchored with cutback or emulsified asphalt applied at a rate of 200 gallons per acre.

DUST CONTROL
1. Temporary seeding shall be applied to all disturbed areas subject to little or no construction traffic.
2. All haul roads and other heavy traffic routes shall be sprinkled with water until the surface is wet. This process shall be repeated as needed to control dust.

MINIMUM CONSTRUCTION EROSION & SEDIMENT CONTROL STANDARDS
9VAC25-840-40. Minimum standards.

A VESCP must be consistent with the following criteria, techniques and methods:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

2. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

3. A 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.

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

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

6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.

a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.

b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

7. Cut and fill slopes shall 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.

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.

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

10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

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 nonerodible material shall be provided.

14. All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.

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

16. Underground utility lines shall be installed in accordance with the following standards in addition 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 in a manner that 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. Restabilization shall be accomplished in accordance with this chapter.

f. Applicable safety requirements shall be complied with.

17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. 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 provision shall apply to individual development lots as well as to larger land-disturbing activities.

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 VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.

b. Adequacy of all channels and pipes shall be verified in the following manner:

(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or

(2)(a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.

(a)All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and

(b) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.

c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

(1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to channel the bed or banks; or

(2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;

(3) Develop a site design that will not cause the pre-development peak runoff rate from a two- year storm to increase when runoff outfalls into a natural channel or will not cause the pre- development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man- made channel; or provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.

d. The applicant shall provide evidence of permission to make the improvements.

e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.

f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.

h. All on-site channels must be verified to be adequate.

i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.

j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.

k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.

Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24- hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44.15:54 or 62.1- 44.15:65 of the Act.

l. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 62.1-44.15:52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Permit Regulations.

m. Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

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NO.	DATE	REVISION	BY

EROSION & SEDIMENT CONTROL NARRATIVE

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic. No. 21924
PROFESSIONAL ENGINEER
PRELIMINARY

PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

E&S LEGEND

- (CE) Construction Entrance
- (CIP) Culvert Inlet Protection FILTREX
- (SB) Sediment Basin
- (SF) Silt Fence
- (RR) Rip Rap
- (CD) Check Dam
- (IP) Inlet Protection
- (TO) Top Soiling
- (TS) Temporary Seeding
- (PS) Permanent Seeding

TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2

TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2

TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2

SEE CMA HYUNDAI SITE PLAN FOR DETAILS WORK IN THIS HATCHED AREA

Existing 12,352 SF Crosspoint Used Car Store
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres

EX STORMWATER MNGT AREA

EX STORMWATER MNGT BASIN

CONFIGURE OUTLET STRUCTURE AS SEDIMENT BASIN FOR E & S DURING CONSTRUCTION.

BAFFLE REQD FOR SEDIMENT BASIN

RR Class II T = 2.5'

Class II RRT = 2.5'

Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres

ABANDON EX. SAN. SEWER. SEE NOTES THIS SHEET.

CONNECTION TO EXISTING WATER MAIN BY CONTRACTOR

EX. 8" CONN TO HAVE PIPE REMOVED AND PLUGGED WITH WATER TIGHT GROUT BY CONTRACTOR.

TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2

TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2

SANITARY SEWER ABANDONMENT NOTES

EXISTING SANITARY SEWER THAT IS NOT PART OF THE FINISHED SYSTEM IS TO BE ABANDONED IN PLACE AS FOLLOWS:

1. IN MANHOLES GROUT CLOSED ALL LINES ENTERING AND LEAVING.
2. REMOVE THE CONE/TOP SECTION OF THE MANHOLE. REMOVE MORE AS NEEDED TO ACHIEVE FINAL GRADE.
3. FILL THE MANHOLE WITH No. 57 AGGREGATE

0 40 80

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NO.	DATE	REVISION	BY

PHASE 1 EROSION & SEDIMENT CONTROL PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 16 **OF** 28

E&S LEGEND

- (CE) Construction Entrance
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- (RR) Rip Rap
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SEE CMA HYUNDAI SITE PLAN FOR DETAILS WORK IN THIS HATCHED AREA

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2.93 acres

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0 40 80

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NO.	DATE	REVISION	BY

PHASE 2 EROSION & SEDIMENT CONTROL PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project CMA Honda

Basin # 1 Location east side of side

Total area draining to basin: 4 acres.

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).
   67 cu. yds. x 4 acres = 268 cu. yds.
2. Available basin volume = 317 cu. yds. at elevation 722. (From storage - elevation curve)
3. Excavate 0 cu. yds. to obtain required volume*.
   * Elevation corresponding to required volume = invert of the dewatering orifice.
4. Available volume before cleanout required.
   33 cu. yds. x 4 acres = 132 cu. yds.
5. Elevation corresponding to cleanout level = 721.
   (From Storage - Elevation Curve)
6. Distance from invert of the dewatering orifice to cleanout level = 1 ft. (Min. = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).
   67 cu. yds. x 4 acres = 268 cu. yds.

8. Total available basin volume at crest of riser* = 741 cu. yds. at elevation 724. (From Storage - Elevation Curve)
   * Minimum = 134 cu. yds./acre of total drainage area.
9. Diameter of dewatering orifice = 4 in.
10. Diameter of flexible tubing = 26 in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

11. Crest of Riser = 722
    Top of Dam = 725
    Design High Water = 722
    Upstream Toe of Dam = 720

Basin Shape

12. Length of Flow / Effective Width L / We = 0.5
    If > 2, baffles are not required
    If < 2, baffles are required yes

Runoff

13. Q_2 = 9.2 cfs (From Chapter 5)
14. Q_{25} = 27.6 cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2$ = 9.2 cfs. (riser and barrel)
    Without emergency spillway, required spillway capacity $Q_p = Q_{25}$ = 18.4 cfs. (riser and barrel)

16. With emergency spillway:
    Assumed available head (h) = 1 ft. (Using Q_2)
    h = Crest of Emergency Spillway Elevation - Crest of Riser Elevation
    Without emergency spillway:
    Assumed available head (h) = ft. (Using Q_{25})
    h = Design High Water Elevation - Crest of Riser Elevation
17. Riser diameter (D_r) = 72 in. Actual head (h) = 2 ft.
    (From Plate 3.14-8.)
    Note: Avoid orifice flow conditions.
18. Barrel length (l) = 60 ft.
    Head (H) on barrel through embankment = 4 ft.
    (From Plate 3.14-7).
19. Barrel diameter = 24 in.
    (From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).
20. Trash rack and anti-vortex device
    Diameter = 102 inches.
    Height = 36 inches.
    (From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p$ = 18.4 cfs.
22. Bottom width (b) = 15 ft.; the slope of the exit channel (s) = 0.01 ft./foot; and the minimum length of the exit channel (x) = 20 ft.
    (From Table 3.14-C).

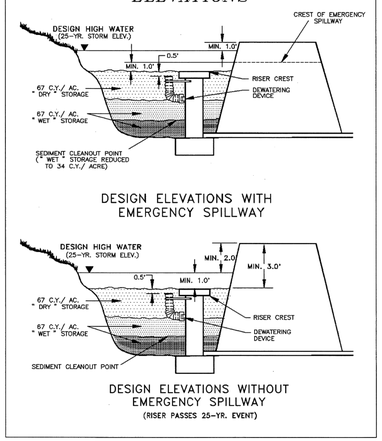
Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = 1 ft.
    Slope of upstream face of embankment (Z) = 3 :1.
    Slope of principal spillway barrel (S_b) = 0.5 %
    Length of barrel in saturated zone (L_s) = 35 ft.
24. Number of collars required = 1 dimensions = 5'x5'
    (from Plate 3.14-12).

Final Design Elevations

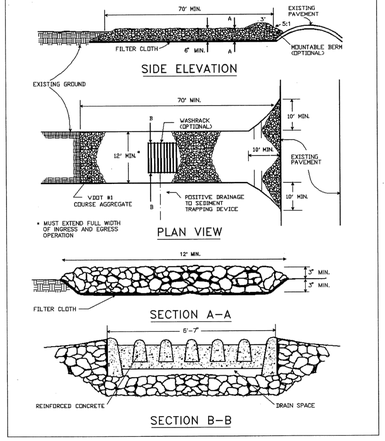
25. Top of Dam = 724
    Design High Water = 722
    Emergency Spillway Crest = 723
    Principal Spillway Crest = 722
    Dewatering Orifice Invert = 721
    Cleanout Elevation = 721
    Elevation of Upstream Toe of Dam or Excavated Bottom of "Wet Storage Area" (if excavation was performed) = 720

SEDIMENT BASIN SCHEMATIC ELEVATIONS



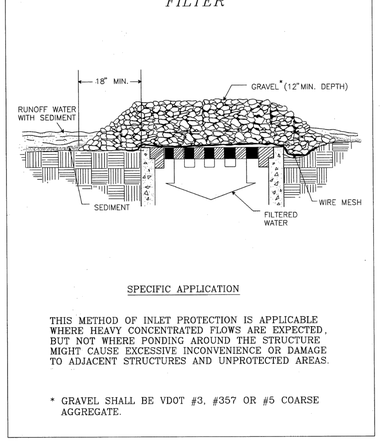
Source: Va. DSWC Plate 3.14-2

STONE CONSTRUCTION ENTRANCE



Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC Plate 3.02-1

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER



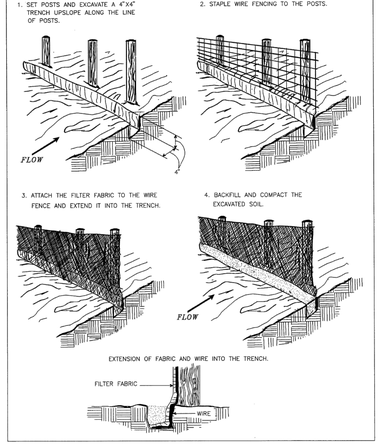
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

Source: Va. DSWC Plate 3.07-2

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant Plate 3.05-1

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E & S DETAILS

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
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PROJECT NUMBER:	1262.0
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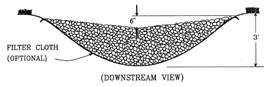
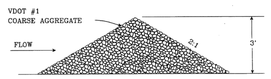
SHEET 18 **OF** ##

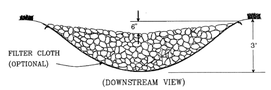
ROCK CHECK DAM

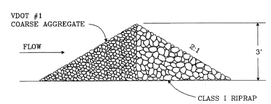
2 ACRES OR LESS OF DRAINAGE AREA:





2–10 ACRES OF DRAINAGE AREA:





Source: Va. DSWC Plate 3.20-1

3. The center of the check dam must be at least 6 inches lower than the outer edges. Field experience has shown that many dams are not constructed to promote this "weir" effect. Stormwater flows are then forced to the stone-soil interface, thereby promoting scour at that point and subsequent failure of the structure to perform its intended function.

4. For added stability, the base of the check dam can be keyed into the soil approximately 6 inches.

5. The maximum spacing between the dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam (see Plate 3.20-2).

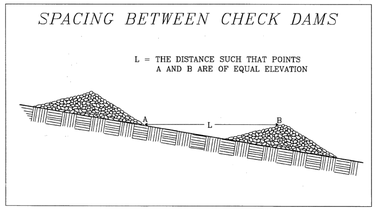
6. Stone should be placed according to the configuration in Plate 3.20-1. Hand or mechanical placement will be necessary to achieve complete coverage of the ditch or swale and to insure that the center of the dam is lower than the edges.

7. Filter cloth may be used under the stone to provide a stable foundation and to facilitate the removal of the stone. See Std. and Spec. 3.19, RIPRAP, for required physical properties of the filter cloth.

Sediment Removal

Sediment should be removed from behind the check dams when it has accumulated to one half of the original height of the dam.

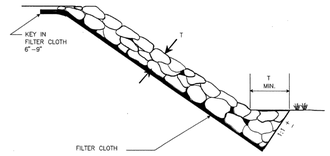
SPACING BETWEEN CHECK DAMS



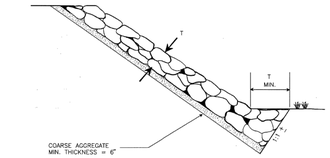
Source: Va. DSWC Plate 3.20-2

TOE REQUIREMENTS FOR BANK STABILIZATION

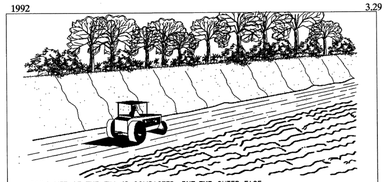
FILTER CLOTH UNDERLINER (PREFERRED)



GRANULAR FILTER

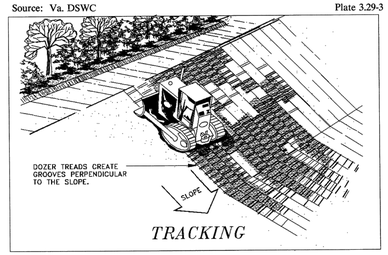


Source: Adapted from VDOT Drainage Manual Plate 3.19-1



FILL SLOPE TREATMENT

Source: Va. DSWC Plate 3.29-3



TRACKING

Source: Michigan Soil Erosion and Sedimentation Guide Plate 3.29-4

Mulching

1. Seedings made in fall for winter cover and during hot and dry summer months shall be mulched according to MULCHING, Std. & Spec. 3.35, except that hydromulches (fiber mulch) will not be considered adequate. Straw mulch should be used during these periods.

2. Temporary seedings made under favorable soil and site conditions during optimum spring and fall seeding dates may not require mulch.

Re-seeding

Areas which fail to establish vegetative cover adequate to prevent rill erosion will be re-seeded as soon as such areas are identified.

TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

Source: Va. DSWC

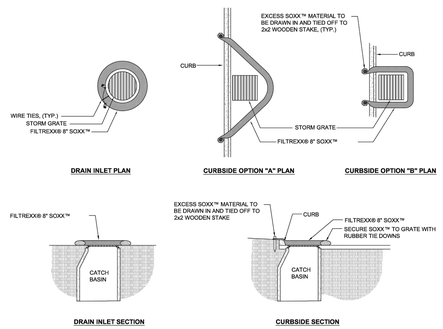
TABLE 3.32-C
SITE SPECIFIC SEEDING MIXTURES
FOR APPALACHIAN/MOUNTAIN AREA

Minimum Care Lawn	Total Lbs. Per Acre
- Commercial or Residential	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	90-100%
- Improved Perennial Ryegrass *	0-10%
- Kentucky Bluegrass	0-10%
High-Maintenance Lawn	
Minimum of three (3) up to five (5) varieties of bluegrass from approved list for use in Virginia.	125 lbs.
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop **	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop **	20 lbs.
- Crownvetch ***	20 lbs.
	150 lbs.

* Perennial Ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seedbed.

** Use seasonal nurse crop in accordance with seeding dates as stated below:
March, April through May 15th ..... Annual Rye
May 16th through August 15th ..... Foxtail Millet
August 16th through September, October ..... Annual Rye
November through February ..... Winter Rye

*** If Flatpea is used, increase to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may also be included in any slope or low-maintenance mixture during warmer seeding periods; add 10-20 lbs/acre in mixes.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

FILTREXX® INLET PROTECTION

NTS

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

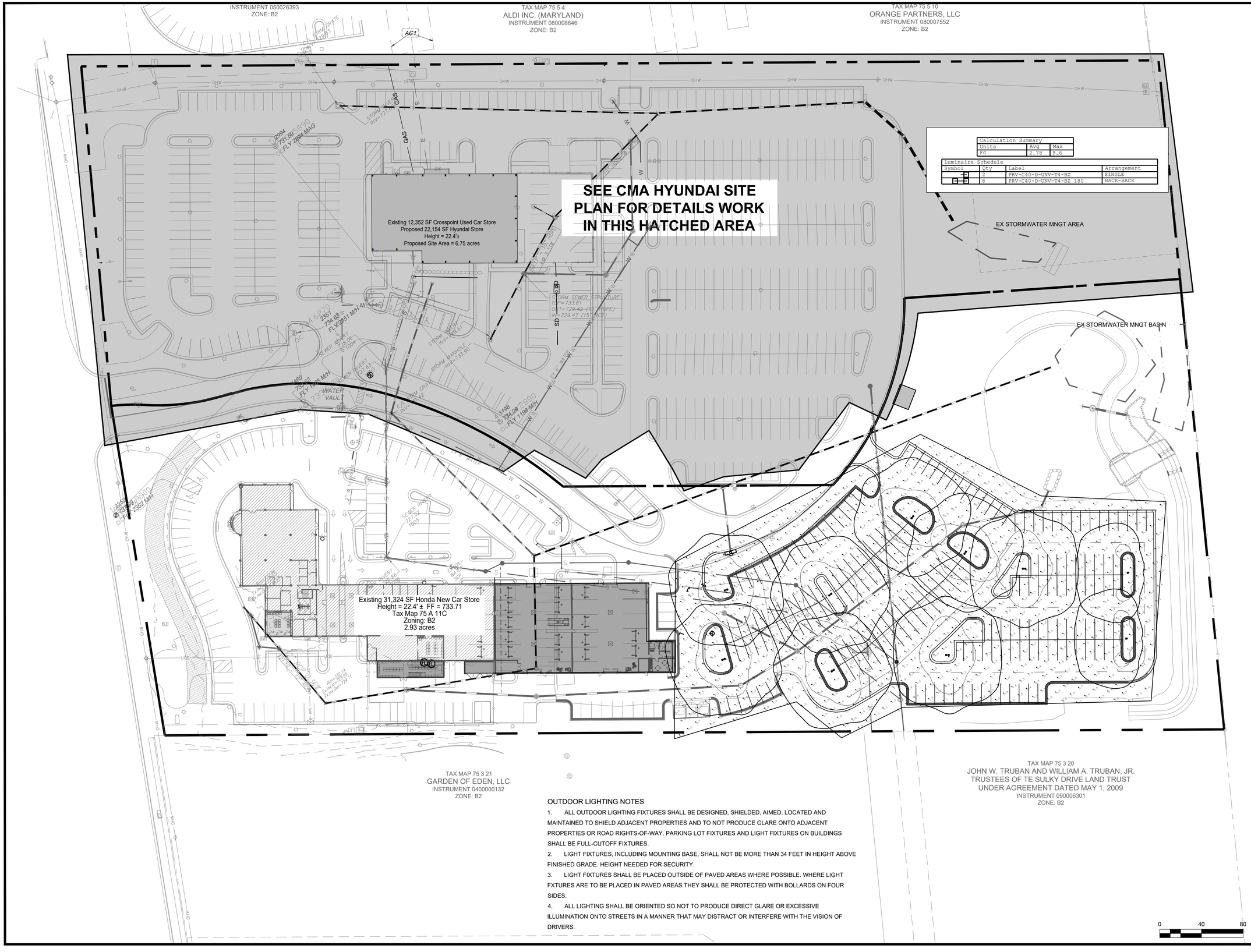
E & S DETAILS

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic. No. 21924
PROFESSIONAL ENGINEER
PRELIMINARY

PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 19 **OF** ##



OUTDOOR LIGHTING NOTES

1. ALL OUTDOOR LIGHTING FIXTURES SHALL BE DESIGNED, SHIELDED, AIMED, LOCATED AND MAINTAINED TO SHIELD ADJACENT PROPERTIES AND TO NOT PRODUCE GLARE ONTO ADJACENT PROPERTIES OR ROAD RIGHTS-OF-WAY. PARKING LOT FIXTURES AND LIGHT FIXTURES ON BUILDINGS SHALL BE FULL-CUTOFF FIXTURES.
2. LIGHT FIXTURES, INCLUDING MOUNTING BASE, SHALL NOT BE MORE THAN 34 FEET IN HEIGHT ABOVE FINISHED GRADE. HEIGHT NEEDED FOR SECURITY.
3. LIGHT FIXTURES SHALL BE PLACED OUTSIDE OF PAVED AREAS WHERE POSSIBLE. WHERE LIGHT FXTURES ARE TO BE PLACED IN PAVED AREAS THEY SHALL BE PROTECTED WITH BOLLARDS ON FOUR SIDES.
4. ALL LIGHTING SHALL BE ORIENTED SO NOT TO PRODUCE DIRECT GLARE OR EXCESSIVE ILLUMINATION ONTO STREETS IN A MANNER THAT MAY DISTRACT OR INTERFERE WITH THE VISION OF DRIVERS.

0 40 80

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

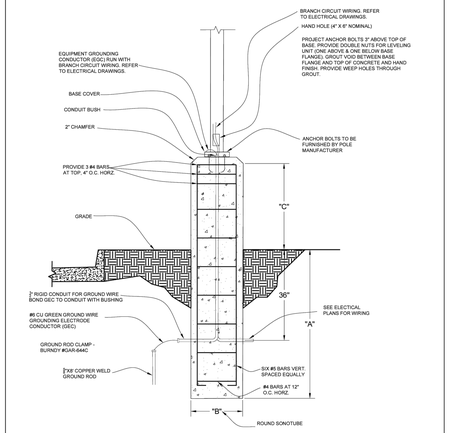
OUTDOOR LIGHTING PLAN

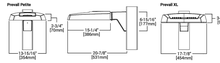
Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

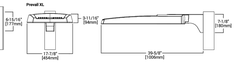
COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

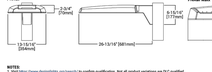
PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

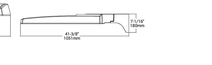
SHEET 20 **OF** 28

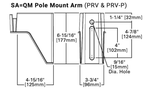


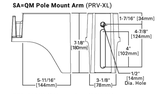


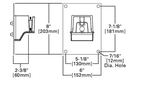


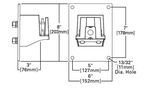


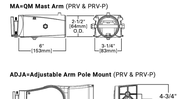


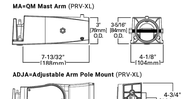


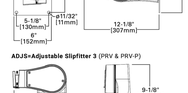


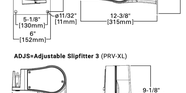


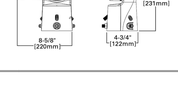


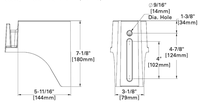


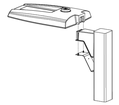


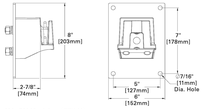


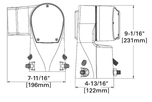


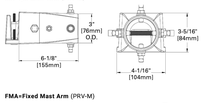


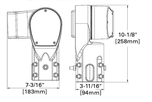


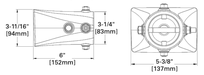


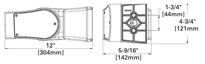


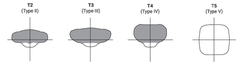












DIMENSIONS			
Pole Height	A	B	C
15'	5'	24"	3'
20'	5'	24"	3'
30'	6'	30"	4'

NOTE:
1. CONCRETE TO BE VDOT A3 GENERAL CONCRETE (3000 PSI WITH 4-8% AIR).
2. REBAR TO BE REGULAR GRADE 60 DEFORMED BARS CONFORMING TO VDOT SPECIFICATIONS.

LIGHT POLE BASE DETAIL

SCALE: NONE

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark

Prevail LED

Area / Site Luminaire

Product Features

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3, 4
- Optical Configurations page 5
- Product Specifications page 5
- Energy and Performance Data page 6, 7
- Control Options page 8

Product Certifications

Quick Facts

- Lumen packages range from 4,800 - 84,000 lumens (35W - 588W)
- Replaces 70W up to 1,000W HID equivalents
- Efficacies up to 160 lumens per watt
- Energy and maintenance savings up to 85% versus HID solutions
- Standard universal quick mount arm with universal drill pattern

Connected Systems

- WaveLinx

Dimensional Details

NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Lumark **Prevail LED**

Ordering Information

SAMPLE NUMBER: **PRV-XL-C75-D-UNV-T4-SA-BZ**

Product Family [1, 2]	Light Engine [4]	Driver	Voltage	Distribution	Mounting	Color
PRV-P=Prevail Petite **BAA-PRV-P**=Prevail Petite BAA Compliant [3] **TAA-PRV-P**=Prevail Petite TAA Compliant [3]	**C10**=(1 LED) 4,900 Nominal Lumens **C15**=(1 LED) 6,900 Nominal Lumens **C20**=(1 LED) 9,800 Nominal Lumens **C25**=(1 LED) 11,800 Nominal Lumens	**D**=Dimming (0-10V)	**UNV**=Universal (120-277V) **H**=High Voltage, 347-480V **8**=480V [5] **9**=347V **DV**=DuraVolt (277-480V) [5, 6]	**T2**=Type II **T3**=Type III **T4**=Type IV **T5**=Type V	**SA**=QM Standard Versatile Arm **MA**=QM Mast Arm **FMA**= Fixed Mast Arm [28] **WM**=QM Wall Mount Arm **ADJA-WM**=Adjustable Arm–Wall Mount [30] **ADJA**=Adjustable Arm–Pole Mount [30] **ADJS**=Adjustable Arm–Slipfitter, 3" vertical tenon [30] **SP2**=Adjustable Arm–Slipfitter, 2 3/8" vertical tenon [28, 30]	**BZ**=Bronze **AP**=Grey **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White
PRV=Prevail **BAA-PRV**=Prevail BAA Compliant [3] **TAA-PRV**=Prevail TAA Compliant [3]	**C15**=(1 LED) 7,100 Nominal Lumens **C25**=(2 LEDs) 13,100 Nominal Lumens **C40**=(2 LEDs) 17,100 Nominal Lumens **C60**=(2 LEDs) 20,000 Nominal Lumens					
PRV-XL=Prevail XL **BAA-PRV-XL**=Prevail XL BAA Compliant [3] **TAA-PRV-XL**=Prevail XL TAA Compliant [3]	**C75**=(4 LED) 26,100 Nominal Lumens **C100**=(4 LED) 31,000 Nominal Lumens **C125**=(4 LED) 36,000 Nominal Lumens **C150**=(6 LED) 41,100 Nominal Lumens **C175**=(6 LED) 48,600 Nominal Lumens					
PRV-M=Prevail Maxx **BAA-PRV-M**=Prevail Maxx BAA Compliant[3] **TAA-PRV-M**=Prevail MaxxTAA Compliant [3]	**C200**=(9 LED) 48,000 Nominal Lumens **C225**=(9 LED) 56,000 Nominal Lumens **C250**=(9 LED) 65,000 Nominal Lumens **C275**=(9 LED) 73,000 Nominal Lumens					

Options (Add as Suffix)

- **7030**=70 CRI / 3000K CCT [7]
- **7050**=70 CRI / 5000K CCT [7]
- **CC**=Coastal Construction finish [31]
- **HSS**=House Side Shield [8]
- **L90**=Optics Rotated 90° Left
- **R90**=Optics Rotated 90° Right
- **10K**=10kV/10kA UL 1449 Fused Surge Protective Device
- **20MSP**=20kV MOV Surge Protective Device
- **20K**=20kV UL 1449 Fused Surge Protective Device
- **HA**=50°C High Ambient Temperature [9]
- **PR**=NEMA 3-PIN Twistlock Photocontrol Receptacle [11]
- **PR7**=NEMA 7-PIN Twistlock Photocontrol Receptacle [11]
- **MS/DIM-L08**=Dimming Motion and Daylight Sensor, IR Remote Programmable, < 8' Mounting Height [12, 13, 22, 28]
- **MS/DIM-L20**=Dimming Motion and Daylight Sensor, IR Remote Programmable, 8' - 20' Mounting Height [12, 22, 13]
- **MS/DIM-L40**=Dimming Motion and Daylight Sensor, IR Remote Programmable, 21' - 40' Mounting [12, 13]
- **SPB1**=Dimming Motion and Daylight Sensor, Bluetooth Programmable, < 8' Mounting Height [12, 14, 22]
- **SPB2**=Dimming Motion and Daylight Sensor, Bluetooth Programmable, 8' - 20' Mounting Height [12, 14, 22]
- **SPB4**=Dimming Motion and Daylight Sensor, Bluetooth Programmable, 21' - 40' Mounting Height [12, 14, 28, 29]
- **ZW**=Wavelinx-enabled 4-PIN Twistlock Receptacle [12]
- **ZD**= DALI-enabled 4-PIN Twistlock Receptacle [12]
- **ZW-SWPD4XX**=WaveLinx Pro, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting [12, 15, 16, 17, 22]
- **ZW-SWPD5XX**=WaveLinx Pro, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting [12, 15, 16, 17, 28, 29]
- **ZD-SWPD4XX**= WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting [12, 15, 16, 17, 22]
- **ZD-SWPD5XX**=WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting [12, 15, 16, 17, 28, 29]
- **(See Table Below)**=LumenSafe Integrated Network Security Camera [18, 19]

Accessories (Order Separately) [20, 21]

- **PRVSA-XX**=Standard Arm Mounting Kit [22]
- **PRVMA-XX**=Mast Arm Mounting Kit [22]
- **PRVWM-XX**=Wall Mount Kit [22]
- **PRV-ADJA-XX**=Adjustable Arm - Pole Mount Kit [22]
- **PRV-ADJS-XX**=Adjustable Arm - Slipfitter Kit [22]
- **PRV-ADJA-WM-XX**=Adjustable Arm - Wall Mount Kit [22]
- **PRVXLSA-XX**=Standard Arm Mounting Kit [29]
- **PRVXLMA-XX**=Mast Arm Mounting Kit [29]
- **PRVXLWM-XX**=Wall Mount Kit [29]
- **PRV-XL-ADJA-XX**=Adjustable Arm - Pole Mount Kit [29]
- **PRV-XL-ADJS-XX**=Adjustable Arm - Slipfitter Kit [29]
- **PRV-XL-ADJA-WM-XX**=Adjustable Arm - Wall Mount Kit [29]
- **PRV-M-ADJA-XX**=Adjustable Arm - Pole Mount Kit [28]
- **PRV-M-ADJS-XX**=Adjustable Arm - Slipfitter Kit [28]
- **PRV-M-ADJA-WM-XX**=Adjustable Arm - Wall Mount Kit [28]
- **MA1010-XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon
- **MA1011-XX**=2@180° Tenon Adapter for 3-1/2" O.D. Tenon
- **MA1017-XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon
- **MA1018-XX**=2@180° Tenon Adapter for 2-3/8" O.D. Tenon
- **SRA238**=Tenon Adapter from 3" to 2-3/8"
- **PRV/COB-FDV**=Full Drop Visor [23]
- **PRVXL/COB-FDV**=Full Drop Visor [18]
- **HS/VERD**=House Side Shield Kit [8, 24]
- **VGS-F/B**= Vertical Glare Shield Kit, Front/Back [24]
- **VGS-SIDE**=Vertical Glare Shield Kit, Side [24]
- **OA/RA1013**=Photocontrol Shorting Cap
- **OA/RA1014**=NEMA Photocontrol - 120V
- **OA/RA1016**=NEMA Photocontrol - Multi-Tap 105-285V
- **OA/RA1201**=NEMA Photocontrol - 347V
- **OA/RA1027**=NEMA Photocontrol - 480V
- **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [25]
- **WOLC-7P-10A**=WaveLinx Outdoor Control Module (7-PIN) [27]
- **SWPD4-XX**=WaveLinx Sensor, Dimming Motion and Daylight, WAC Programmable, 7' - 15' Mounting [15, 16, 17, 22, 26]
- **SWPD5-XX**=WaveLinx Sensor, Dimming Motion and Daylight, WAC Programmable, 15' - 40' Mounting [15, 16, 17, 26, 28, 29]

NOTES:
1. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
2. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for alll applications. Refer to installation instructions IB500002EN and pole white paper WP513001EN for additional support information.
3. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
4. Standard 4000K CCT and 70CRI.
5. 480V not to be used with ungrounded or impedance grounded systems.
6. DuraVolt drivers feature added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.signify.com/duravolt for more information.
7. Use dedicated IES files on product website for non-standard CCTs.
8. House Side Shield not suitable with T5 distribution. Not available with PRV-C60 lumen package.
9. Not available with PRV-C60 lumen package. Not available with PRV-P-C25 lumen package.
10. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654.
11. If DuraVolt (DV) is specified, use a photocontrol that matches the input voltage used.
12. Controls system is not available in combination with a photocontrol receptacle (PR & PER7) or another controls system (MS, SPB, ZD, or ZW). Option not available with DuraVolt (DV) voltage option.
13. Utilizes the Wattstopper sensor FSP-211. Sensor color white unless specified otherwise via PDR. To field-configure, order FSIR-100 accessory separately.
14. Utilizes the Wattstopper sensor FSP-3XX series. Sensor color determined by product finish. See Sensor Color Reference Table. Field-configures via mobile application. See Controls section for details.
15. Sensor passive infrared (PIR) may be overly sensitive when operating below -20°C (-4°F).
16. For the device to be field-configurable, requires WAC Gateway components WAC-PoE and WPOE-120 in appropriate quantities. Only compatible with WaveLinx system and software and requires system components to be installed for operation. See website for more Wavelinx application information.
17. Replace XX with sensor color (WH, BZ, or BK).
18. Only available in PRV-XL configurations C75, C100, C125, C150, or C175.
19. Not available with 347V, 480V, DV, or HA options. Consult LumenSafe system product pages for additional details and compatability information.
20. Replace XX with paint color.
21. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
22. Not for use with PRV-XL or PRV-M configurations.
23. Only for use with PRV. Not applicable to PRV-M, PRV-XL, or PRV-P.
24. Must order one per optic/LED when ordering as a field-installable accessory (1, 2, 4, 6 or 9).
25. This tool enables adjustment to Motion Sensor (MS) parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative for more information.
26. Requires 4-PIN twistlock receptacle (ZD or ZW) option.
27. Requires 7-PIN NEMA twistlock photocontrol receptacle (PR & PER7) option. The WOLC-7 cannot be used in conjunction with other controls systems (MS, ZD, ZW or LWR). Operates on 120-347V input voltages.
28. Only for use with PRV-M configurations.
29. Only for use with PRV-XL configurations.
30. Fixed for PRV-M.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul		
L=LumenSafe Technology	**H**=Dome Camera, High Res **Z**=Dome Camera, Remote PTZ	**C**=Cellular, Customer Installed SIM Card **A**=Cellular, Factory Installed AT&T SIM Card	**V**=Cellular, Factory Installed Verizon SIM Card **S**=Cellular, Factory Installed Sprint SIM Card	**E**=Ethernet Networking

Stock Ordering Information

Product Family [1]	Light Engine	Voltage	Distribution
PRVS=Prevail	**C15**=(1 LED) 7,100 Nominal Lumens **C25**=(2 LEDs) 13,100 Nominal Lumens **C40**=(2 LEDs) 17,100 Nominal Lumens **C60**=(2 LEDs) 20,000 Nominal Lumens	**UNV**=Universal (120-277V) **347**=347V [2]	**T3**=Type III **T4**=Type IV
PRVS-XL=Prevail XL	**C75**=(4 LED) 26,100 Nominal Lumens **C100**=(4 LED) 31,000 Nominal Lumens **C125**=(4 LED) 36,000 Nominal Lumens **C150**=(6 LED) 41,100 Nominal Lumens **C175**=(6 LED) 48,600 Nominal Lumens		

NOTES:
1. All stock configurations are standard 4000K/70CRI, bronze finish, and include the standard versatile mounting arm.
2. Only available in PRVS configurations C15, C25, C40 or C60.

Lumark **Prevail LED**

Mounting Details

Lumark **Prevail LED**

Mounting Details

Lumark **Prevail LED**

Mounting Details

Mounting Configurations and EPAs

NOTE: For 2 PRV's mounted at 90°, requires minimum 3" square or 4" round pole for fixture clearance. For 2 PRV-XL's mounted at 90°, requires minimum 4" square or round pole for fixture clearance. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for applications.

Housing Size	Tilt Angle (Degrees)	Arm Mount Single	Arm Mount 2 @ 180°	Arm Mount 2 @ 90°	Arm Mount 3 @ 90°	Arm Mount 4 @ 90°
Prevail Petite	0°	0.54	1.08	0.84	1.38	1.38
	60°	1.68	1.85	2.42	3.15	3.30
Prevail	0°	0.92	1.35	1.42	1.63	1.63
	60°	2.20	2.40	3.05	3.88	4.07
	60° + Full Drop Visor	2.20	2.40	3.25	4.28	4.47
Prevail XL	0°	1.12	2.25	2.13	2.52	2.52
	60°	3.99	4.30	5.26	6.51	6.79
	60° + Full Drop Visor	3.99	4.30	5.59	7.17	7.49
Prevail Maxx	0°	1.28	2.56	1.7	2.69	2.69
	60°	5.09	5.52	6.34	7.49	7.81

Optical Configurations

Optical Distributions

Product Specifications

Construction
- Single-piece die-cast aluminum housing
- Tethered die-cast aluminum door

Optics
- Dark Sky Approved (3000K CCT and warmer only)
- Precision molded polycarbonate optics

Electrical
- -40°C minimum operating temperature
- 40°C maximum operating temperature
- >.9 power factor
- <20% total harmonic distortion
- Class 1 electronic drivers have expected life of 100,000 hours with <1% failure rate
- 0-10V dimming driver is standard with leads external to the fixture
- Standard MOV surge protective device designed to withstand 10kV of transient line surge

Mounting
- Versatile, patented, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8" (Type M drilling recommended for new installations)
- A knock-out on the standard mounting arm enables round pole mounting
- Adjustable pole and wall mount arms adjust in 5° increments from 0° to 60°; Downward facing orientation only (Type N drilling required for ADJA mount)
- Adjustable slipfitter arm adjusts in 5° increments from -5° to 85°; Downward facing orientation only
- Adjustable Arms: 1.5G vibration rated
- Prevail and Prevail Petite: 3G vibration rated
- Prevail XL Mast Arm: 3G vibration rated
- Prevail XL Standard Arm: 1.5G vibration rated

Typical Applications
- Parking lots, Walkways, Roadways and Building Areas

Finish
- Five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Finish is compliant to 3,000 hour salt spray standard (per ASTM B117)

Shipping Data
- Prevail Petite: 18 lbs. (7.94 kgs.)
- Prevail: 20 lbs. (9.09 kgs.)
- Prevail XL: 45 lbs. (20.41 kgs.)
- Prevail Maxx: 49 lbs. (22.23 kgs.)

Warranty
- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

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Lumark **Prevail LED**

Energy and Performance Data

Power and Lumens

Product Family		Prevail Petite				Prevail				Prevail XL					Prevail Maxx			
Light Engine		C10	C15	C20	C25	C15	C25	C40	C60	C75	C100	C125	C150	C175	C200	C225	C250	C275
Power (Watts)		35	49	73	94	52	96	131	153	176	217	264	285	346	346	418	487	588
Input Current @ 120V (A)		0.29	0.41	0.61	0.79	0.43	0.80	1.09	1.32	1.50	1.84	2.21	2.38	2.92	2.89	3.49	4.06	4.90
Input Current @ 277V (A)		0.13	0.18	0.27	0.35	0.19	0.35	0.48	0.57	0.66	0.82	0.97	1.04	1.25	1.26	1.51	1.72	2.06
Input Current @ 347V (A)		0.11	0.16	0.23	0.29	0.17	0.30	0.41	0.48	0.54	0.66	0.79	0.84	1.02	1.00	1.21	1.40	1.70
Input Current @ 480V (A)		0.08	0.12	0.17	0.22	0.12	0.22	0.30	0.35	0.40	0.48	0.57	0.62	0.74	0.73	0.88	1.00	1.21
Distribution [1]																		
Type II	4000K Lumens	4,775	6,717	9,542	11,521	7,123	13,205	17,172	20,083	26,263	31,231	36,503	41,349	48,876	50,349	59,444	68,447	79,322
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	138	137	131	122	137	138	131	131	149	144	138	145	141	146	142	141	135
	3000K Lumens [1]	4,869	6,595	9,369	11,312	6,994	12,965	16,860	19,718	25,786	30,664	35,840	40,598	47,989	49,437	58,368	67,208	77,886
Type III	4000K Lumens	4,782	6,727	9,556	11,538	7,111	13,183	17,144	20,050	26,120	31,061	36,304	41,124	48,610	50,162	59,223	68,193	79,027
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	138	137	131	123	137	137	131	131	148	143	138	144	140	145	142	140	135
	3000K Lumens [1]	4,695	6,605	9,383	11,329	6,982	12,944	16,832	19,686	25,646	30,497	35,645	40,377	47,727	49,254	58,151	66,958	77,596
Type IV	4000K Lumens	4,880	6,865	9,752	11,774	7,088	13,140	17,087	19,984	26,098	31,035	36,274	41,089	48,569	50,575	59,711	68,754	79,678
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B5-U0-G5
	Lumens per Watt	141	140	134	125	136	137	130	131	148	143	137	144	140	146	143	141	136
	3000K Lumens [1]	4,792	6,740	9,575	11,561	6,959	12,901	16,777	19,621	25,624	30,471	35,615	40,343	47,687	49,659	58,630	67,510	78,235
Type V	4000K Lumens	5,067	7,128	10,126	12,226	7,576	14,045	18,264	21,360	28,129	33,450	39,097	44,287	52,349	53,531	63,201	72,773	84,335
	BUG Rating	B3-U0-G2	B3-U0-G2	B4-U0-G3	B4-U0-G3	B3-U0-G3	B4-U0-G3	B4-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	Lumens per Watt	146	145	139	130	146	146	139	140	160	154	148	155	151	155	151	150	144
	3000K Lumens [1]	4,975	6,999	9,942	12,004	7,438	13,790	17,932	20,972	27,618	32,843	38,387	43,483	51,398	52,562	62,057	71,455	82,808

NOTES:
1. For 3000K, 5000K or HSS data, refer to published IES files.

Lumen Maintenance

Configuration	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
Prevail and Prevail Petite at 25°C	91.30%	> 194,000
Prevail and Prevail Petite at 40°C	87.59%	> 134,000
Prevail XL at 25°C	91.40%	> 204,000
Prevail XL at 40°C	89.41%	> 158,000
Prevail Maxx at 25°C	91.40%	> 204,000
Prevail Maxx at 40°C	89.41%	> 158,000

Sensor Color Reference Table (SPBx)

Housing Finish	Sensor Color
AP=Grey	Grey
BZ=Bronze	Bronze
BK=Black	Black
DP=Dark Platinum	Grey
GM=Graphite Metallic	Black
WH=White	White

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
10ºC	1.02
15ºC	1.01
25ºC	1.00
40ºC	0.99

Lumark **Prevail LED**

Control Options

0-10V This fixture provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PR and PR7) Photocontrol receptacles provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-PIN standards can be utilized with the PR7 receptacles.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX) These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the luminaire will dim down after five minutes of no activity detected. When activity is detected, the luminaire returns to full light output. These occupancy sensors include an integral photocell for "dusk-to-dawn" control or "daylight harvesting." Factory default is enabled for the MS sensors and disabled for the SPB. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes.

WaveLinx Wireless Control and Monitoring System Available in 7-PIN or 4-PIN configurations, the WaveLinx Outdoor control platform operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets).

WaveLinx Outdoor Control Module (WOLC-7P-10A) A photocontrol that enables astronomic or time-based schedules to provide ON, OFF and dimming control of fixtures utilizing a 7-PIN receptacle. The out-of-box functionality is ON at dusk and OFF at dawn.

WaveLinx Wireless Sensor (SWPD4 and SWPD5) These outdoor sensors offer passive infrared (PIR) occupancy sensing and a photocell for closed-loop daylight sensing. These sensors can be factory installed or field-installed via simple, tool-less integration into luminaires equipped with the Zhaga Book 18 compliant 4-PIN receptacle (ZD or ZW). These sensors are factory preset to dim down to approximately 50 percent power after 15 minutes of no activity detected, and the photocell for "dusk-to-dawn" control is default enabled. A variety of sensor lenses are available to optimize the coverage pattern for mounting heights from 7'-40'.

LumenSafe (LD) The LumenSafe integrated network camera is a streamlined, outdoor-ready camera that provides high definition video surveillance. This IP camera solution is optimally designed to integrate into virtually any video management system or security software platform of choice. No additional wiring is needed beyond providing line power to the luminaire. LumenSafe features factory-installed power and networking gear in a variety of networking options allowing security integrators to design the optimal solution for active surveillance.

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

OUTDOOR LIGHTING DETAILS

Hyundai Store
Carter Myers Automotive
LOT 75 (A) 11L
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY [illegible] STOWE
Lic. No. 21924
PROFESSIONAL ENGINEER

PRELIMINARY

PROJECT NUMBER:	1262.0
DATE:	JULY 11, 2022
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 21 OF ##

TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2

TAX MAP 75 5 4
ALDI INC. (MARYLAND)
INSTRUMENT 080008646
ZONE: B2

TAX MAP 75 5 10
ORANGE PARTNERS, LLC
INSTRUMENT 080007552
ZONE: B2

SIGN TYPE "A" | SIGN TYPE "C" | SIGN TYPE "D" | MODIFIED SIGN TYPE "D"

NO PARKING / FIRE LANE

18" (TYP.)

12" (TYP.)

SIGN SPECIFICATIONS

A. METAL CONSTRUCTION, 12"X18"
B. RED LETTERS ON REFLECTIVE WHITE BACKGROUND WITH 1" RED TRIM STRIP AROUND ENTIRE OUTER EDGE OF SIGN.
C. LETTERING ON SIGN TO BE 'NO PARKING OR STANDING LANE'.
D. LETTERING SIZE TO BE AS FOLLOWS: 'NO PARKING' AND 'STANDING' IS 2", 'OR' IS 1" 'FIRE LANE' IS 2 ½" AND THE ARROW WITH THE SOLID SHAFT IS 1"X6" WITH THE SOLID HEAD 1 ½" WIDE AND 2" DEEP.
E. SIGNS ARE TO BE MOUNTED 7' FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE FIRE MARSHAL.
F. POST FOR SIGNS, WHEN REQUIRED, SHALL BE BETAL ADN SECURELT MOUNTED, UNLESS WRITTEN PERMISSION FOR ALTERNATIVES IS OBTAINED PRIOR RO INSTALLATION FROM THE FIRE MARSHAL. SIGNS SHOULD BE SPACED AS DIRECTED BY THE FIREMARSHAL.. IN LONG STRETCHES, THE MAXIMUM DISTANCE BETWEEN SIGNS IS 70'.
G. OTHER SPECIAL SIGNS MAY BE APPROVED BY THE FIRE MARSHAL.

CURB DESIGNATIONS

A. ALL CURB OR PAVED SPACES DESIGNATED AS FIRE LANES SHALL BE INDICATED BY YELLOW PAINT AS APPROVED BY THE FIRE MARSHAL. IN AREAS WITHOUT CURBING, A 6" WIDE YELLOW STRIPE SHALL BE APPLIED ON THE EDGE OF THE PAVEMENT.

NOTE:
FIRE LANE MARKINGS, TYPE OF SIGNS, LOCATIONS, ETC. SHALL BE SUBJECT TO APPROVAL BY THE FIRE MARSHAL.

Existing 12,352 SF Crosspoint Used Car S
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres

Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres

EX STORMWATER MNGT AREA

EX STORMWATER MNGT BASIN

EX. HYDRANT

EX. HYDRANT

26' FIRE LANE

8" WATER MAIN

FIRE LANE MARKING

FDC

FDC HYDRANT

25' FIRE LANE

26' FIRE LANE

N 32°57'06" E 327.21'

N 37°40'26" E 226.91'

S 32°23'41" W 645.51'

S 19°07'13" E 113.42'

S 52°19'34" E 233.65'

S 61°50'05" E 61.38'

N 28°46'48" E 320.03'

N 52°19'34" W 1016.83'

TAX MAP 75 3 21
GARDEN OF EDEN, LLC
INSTRUMENT 0400000132
ZONE: B2

TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2

0 40 80

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

LIFE SAFETY PLAN

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
Timothy S. Stowe
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

SHEET 22 **OF** 28

TAX MAP 75 5 5
ORANGE PARTNERS, LLC
INSTRUMENT 050026393
ZONE: B2

ALDI
INST

Existing 12,352 SF Crosspoint Used Car Store
Proposed 22,154 SF Hyundai Store
Height = 22.4'±
Proposed Site Area = 6.75 acres

Existing 31,324 SF Honda New Car Store
Height = 22.4' ± FF = 733.71
Tax Map 75 A 11C
Zoning: B2
2.93 acres

EX STORMWATER MNGT BASIN

3' CUT BANK - SCREEN NOT REQD

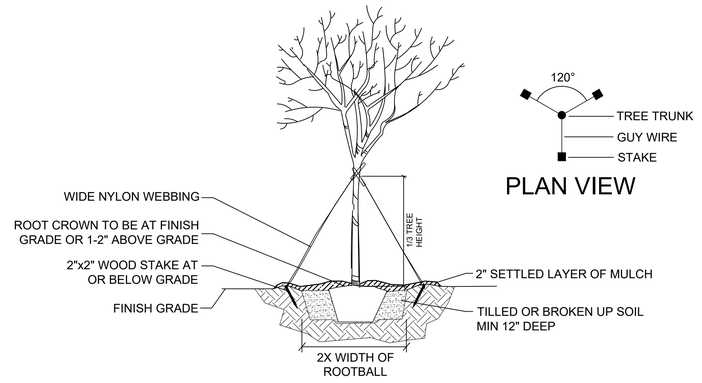
3' CUT BANK SCREEN NOT REQD

3' HEADLIFGHT SCREEN

TAX MAP 75 3 20
JOHN W. TRUBAN AND WILLIAM A. TRUBAN, JR.
TRUSTEES OF TE SULKY DRIVE LAND TRUST
UNDER AGREEMENT DATED MAY 1, 2009
INSTRUMENT 090006301
ZONE: B2

0 40 80

PLANTING DETAILS



PLAN VIEW

GENERAL PLANTING NOTES

1. THE LANDSCAPING WILL CONFORM TO SECTION 165-203.01 OF THE FREDERICK COUNTY ZONING ORDINANCE.
2. SUBSTITUTION OF LANDSCAPE MATERIALS MUST BE APPROVED IN WRITING BY THE FREDERICK COUNTY PLANNING DEPARTMENT.
3. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL OTHER SITE IMPROVEMENTS PRIOR TO BEGINNING LANDSCAPE WORK.
4. THE GENERAL CONTRACTOR IS TO PROVIDE SUBGRADES 4" BELOW HARD SURFACES PLUS/MINUS .1 FOOT.
5. LANDSCAPE PLANTING AREAS SHALL BE FREE OF DEBRIS AND ROCKS LARGER THAN 3" IN ANY DIRECTION.
6. TOPSOIL WITH A MINIMUM OF 30% ORGANIC CONTENT SHALL BE PLACED AT A MINIMUM DEPTH OF 4" IN LANDSCAPE PLANTING AREAS.
7. TOPSOIL SHALL BE TILLED INTO THE EXISTING SUBGRADE TO ELIMINATE SOIL INTERFACE PROBLEMS.
8. ALL LANDSCAPE PLANTING AREAS RECEIVE A MINIMUM OF 2" MEDIUM-FINE BARK MULCH.
9. ALL PLANT MATERIALS ARE TO CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN, STANDARDS FOR NURSERY STOCK, LATEST EDITION.
10. PLANT SPECIES SUBSTITUTIONS ARE DISCOURAGED. IF PLANT AVAILABILITY IS A PROBLEM, CONTACT THE LANDSCAPE DESIGNER FOR ACCEPTABLE ALTERNATIVES.
11. IF THE SITE WORK IS DIFFERENT OR MODIFIED FROM WHAT IS DEPICTED ON THE LANDSCAPE PLAN, OR POOR SOIL AND/OR DEBRIS ARE ENCOUNTERED, REQUIRING CHANGES TO THE LANDSCAPE PLAN, CONTACT THE LANDSCAPE DESIGNER FOR INSTRUCTION.
12. THE CONTRACTOR SHALL MAINTAIN AND WATER PLANT MATERIAL UNTIL OWNER'S FINAL ACCEPTANCE.
13. FIELD ADJUST THE LOCATION OF TREES AND SHRUBS TO AVOID CONFLICT WITH LOCATION OF ANY UTILITIES. CONTACT LANDSCAPE DESIGNER IF PROBLEMS ARE ENCOUNTERED.
14. NEW LANDSCAPE AREAS WILL NEED TO BE WATERED FOR THE FIRST ONE TO TWO GROWING SEASONS TO ESTABLISH PLANTINGS.
15. LANDSCAPIG SHALL NOT BE PLANTED WITHIN FREDERICK WATER EASEMENTS.

PLANT SCHEDULE

SYMBOL	LOCATION	COMMON NAME	SCIENTIFIC NAME	SIZE	QUANTITY	SPACING	NOTE
	PERIMETER	RED MAPLE "RED SUNSET"	ACER RUBRUM	1-1/4" CALIPER	15	20'	
	PERIMETER	WHITE PINE	PINUS STROBUS	1-1/4" CALIPER	20	20'	
	INTERIOR	FLOWERING CRABAPPLE	MALUS (disease-resistant varieties)	1-1/4" CALIPER	10	20'	
	SHRUB	HOLLY	ILEX (all varieties)	18" HIGH	25	5'	
	HEDGE (HEADLIGHT SCREEN)	VIRBURNUM (EVERGREEN)	(All evergreen/semi-evergreen varieties)	3' HIGH	51	4'	

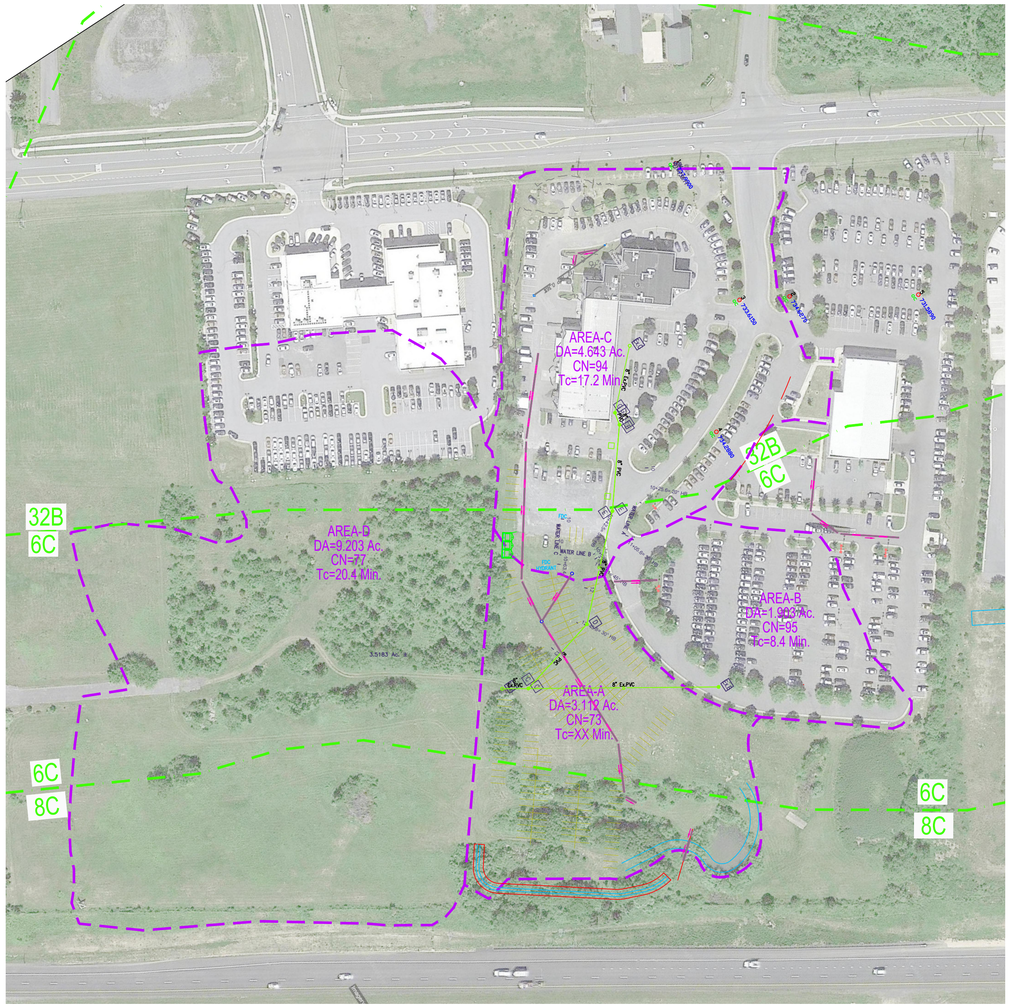
STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

PLANTING PLAN

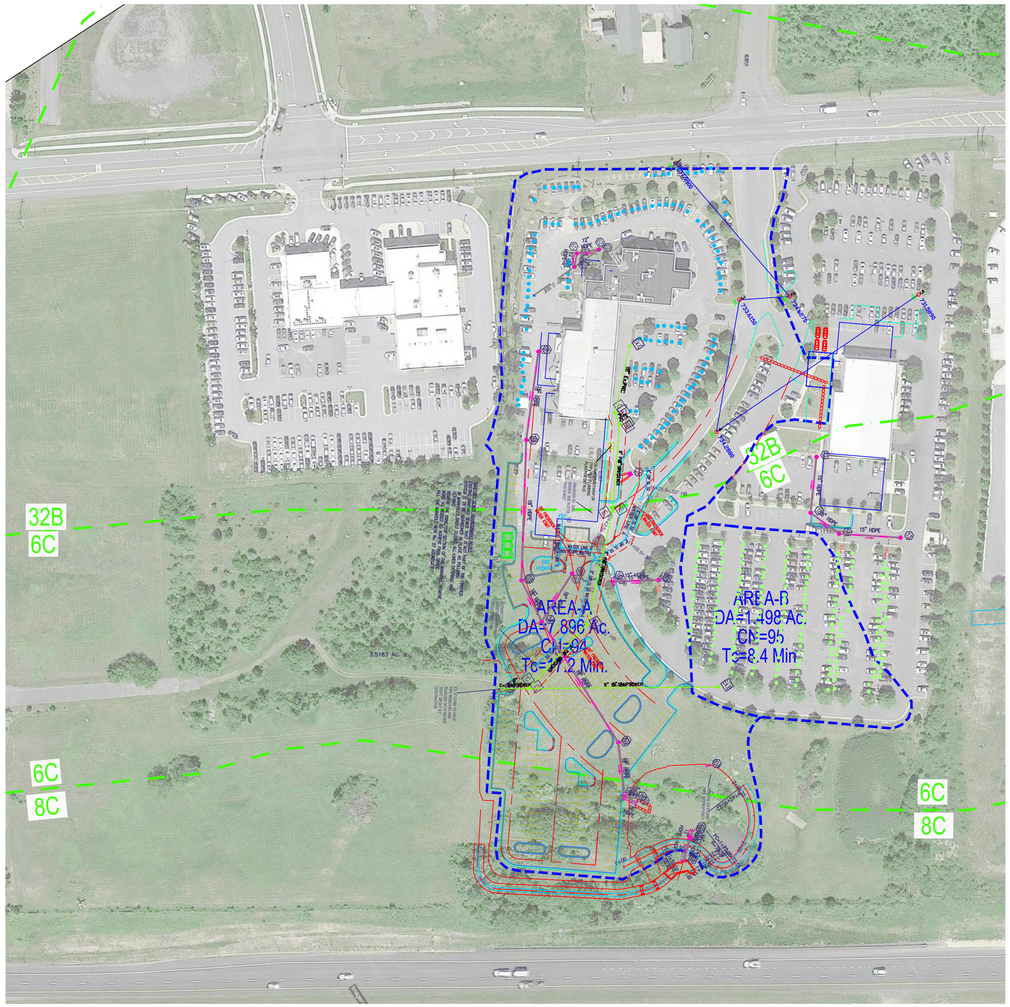
Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS



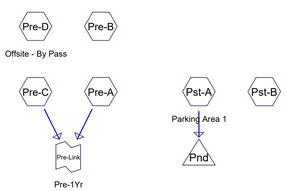
Pre-Development Drainage Areas and Land Cover

0 100 200



Post-Development Drainage Areas and Land Cover

0 100 200



SOILS LEGEND

MAP SYMBOL	MAP UNIT NAME	HYDRAULIC SOIL GROUP
6C	CARBO-OAKLET, VERY ROCK SILT LOAMS, 2 TO 15 PERCENT SLOPES	D
8C	CHILLHOWIE SILTY CLAY LOAM, 7 TO 15 PERCENT SLOPES	D
32B	OAKLET SILT LOAM, 2 TO 7 PERCENT SLOPES	C

SOURCE: NRCS - WEB SOIL SURVEY
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: http://websoilsurvey.sc.egov.usda.gov/. Accessed 6/22/2022.

SOIL BOUNDARIES

Events for Link Pre-Link: Pre-1Yr

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	11.49	11.49	**0.00**
2-Year	15.09	15.09	0.00
10-Year	25.37	25.37	0.00
100-Year	**45.10**	**45.10**	0.00

Events for Pond Pnd:

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	16.39	1.54	1.54	0.00	722.91	23,903
2-Year	20.50	1.69	1.69	0.00	723.46	31,349
10-Year	31.55	15.19	15.19	0.00	723.97	39,001
100-Year	**51.46**	**44.19**	**29.16**	**15.03**	**724.43**	**46,177**

STORM WATER NARRATIVE:

DRAINAGE AREA

THIS PROJECT INVOLVES THE EXPANSION OF AN AUTO DEALERSHIP AND CONSTRUCTION OF A VEHICLE STORAGE AREA.

LIMITS OF STUDY

THE LIMITS OF THE STUDY AREA INCLUDE THOSE DRAINAGE AREAS CONTRIBUTING RUNOFF TO THE EXISTING STORMWATER MNGT BASIN AND AN AREA TO THE SOUTH WHICH DRAINS CROSS THE SITE.

OVERALL RUNOFF ANALYSIS (QUANTITY)

WE HAVE ANALYZED THE DRAINAGE AREA FOR EXISTING CONDITIONS, POST DEVELOPMENT CONDITIONS AND A FORESTED CONDITION (FOR THE PROJECT SITE ONLY). THE SITE DRAINS TO A 48" CULVERT THAT CROSSES UNDER I-81. THE HYUNDAI STORE AREA HAS NOT BEEN INCLUDED EXCEPT FOR THOSE ARES THAT ARE DIRECTLY CONNECTED TO THE HONDA STOM SEWER SYSTEM.

WE HAVE PROVIDED THE 1 YEAR EVENT COMPUTATION IN THIS PLAN

A COMPUTATION BOOKLET HAS BEEN PREPARED THAT INCLUDES ALL STORM EVENTS (1, 2, 10 & 100). THIS COMPUTATION BOOKLET SHALL BE CONSIDERED PART OF THIS PLAN.

IT IS THE OPINION OF THIS ENGINEER THAT THE ALLOWABLE DISCHARGE REQUIREMENTS FOR THIS DEVELOPMENT HAVE BEEN MET, AND THERE WILL BE NO ADVERSE EFFECTS ON THE EXISTING CULVERT UNDER I-81.

QUALITY ANALYSIS

QUALITY REQUIREMENTS WILL BE MET THROUGH THE PURCHASE OF QUALITY CREDITS. COMPUTATIONS CAN BE FOUND ON ASSOCIATED SHEETS

BYPASS CHANNEL COMPUTATIONS

Design Channel — Mon Jun 26 12:28:17 2023

Channel Parameters

Channel Type:	Trapezoidal	
Bottom Width:	4.000	ft
Left Side Ratio:	3.000	
Right Side Ratio:	3.000	
Slope:	0.600	%
Manning's n	0.030	

Results

Flow:	19.870	cfs
Depth:	0.979	ft
Area of Flow:	6.790	sq ft
Wetted Perimeter:	10.191	ft
Hydraulic Radius:	0.666	ft
Velocity:	2.926	ft/s
Critical Depth:	0.753	ft
Top Width:	9.873	ft
EGL:	1.112	ft

Conclusion: Grass lining is sufficient based on velocity < 3 fps

esign Channel — Mon Jun 26 12:28:56 2023

annel Parameters

Channel Type:	Trapezoidal	
Bottom Width:	4.000	ft
Left Side Ratio:	3.000	
Right Side Ratio:	3.000	
Slope:	0.600	%
Manning's n	0.030	

esults

Flow:	9.600	cfs
Depth:	0.671	ft
Area of Flow:	4.032	sq ft
Wetted Perimeter:	8.241	ft
Hydraulic Radius:	0.489	ft
Velocity:	2.381	ft/s
Critical Depth:	0.495	ft
Top Width:	8.024	ft
EGL:	0.759	ft

Conclusion: Grass lining is sufficient based on velocity < 3 fps

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103 Heath Court
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fax (540) 301-1100

NO.	DATE	REVISION	BY

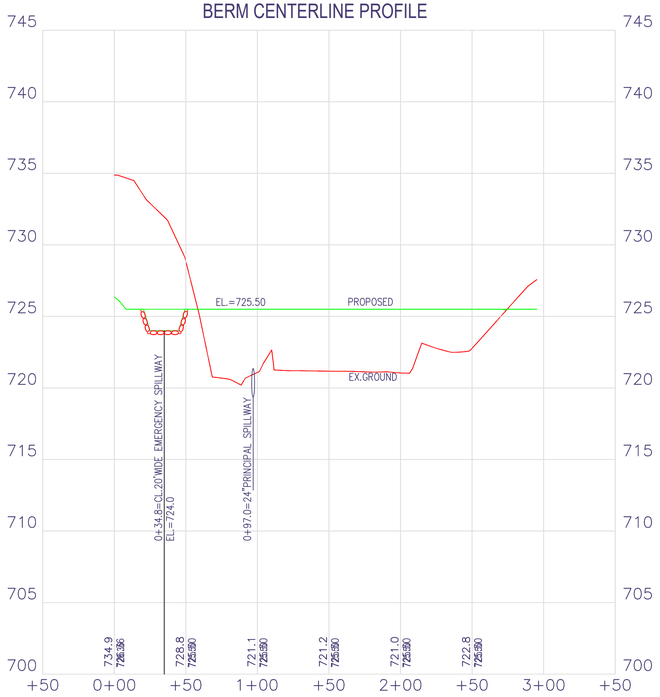
DRAINAGE AREA MAPS AND COMPUTATIONS

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

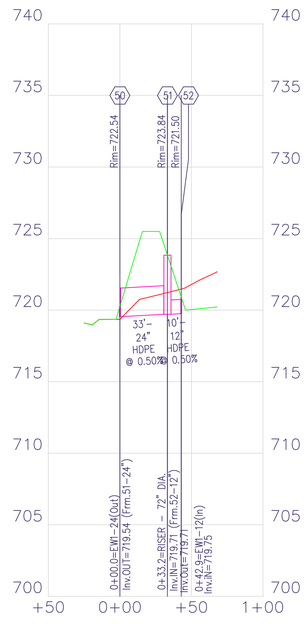
COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

BERM CENTERLINE PROFILE



SPILLWAY SECTION



BERM CENTERLINE GEOMETRY

Centerline Report Mon Jun 26 12:43:02 2023
Centerline File: Z:\2022\2022.015\Prj-2022.015\Align\p-dam.cl

Station Northing Easting Bearing Distance
0+00.000 7089616.906 11569213.383
N06°10'16"E 59.019'
0+59.019 7089675.583 11569219.727 PC
Radius: 7089670.166 11569269.831 Radius Length: 50.396'
PI: 7089720.225 11569224.554 1+03.921 Tangent: 44.902'
Arc Len: 73.358' Delta: 83°24'06" Right Degree: 113°41'31"
Chord Len: 67.050' Chord Brg: N47°52'19"E
Radial-In: S83°49'44"E Radial-Out: S00°25'38"E
Tangential-In, Tangential-Out
1+32.376 7089720.560 11569269.455 PT
Radius: 7089744.610 11569269.276 Radius Length: 24.051'
PI: 7089720.754 11569295.489 1+58.411 Tangent: 26.035'
Arc Len: 39.683' Delta: 94°32'14" Left Degree: 238°13'47"
Chord Len: 35.332' Chord Brg: N42°18'15"E
Radial-In: N00°25'38"W Radial-Out: S85°02'08"W
Tangential-In, Tangential-Out
1+72.060 7089746.691 11569293.236 PT
Radius: 7089739.834 11569214.298 Radius Length: 79.235'
PI: 7089824.344 11569286.491 2+50.004 Tangent: 77.945'
Arc Len: 123.161' Delta: 89°03'33" Left Degree: 72°18'40"
Chord Len: 111.132' Chord Brg: N49°29'39"W
Radial-In: S85°02'08"W Radial-Out: S04°01'25"E
Tangential-In
2+95.221 7089818.874 11569208.739 PT

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NO.	DATE	REVISION	BY

STORMWATER MNGT BERM PROFILE AND SECTION

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
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DRAWN BY:	TSS
CHECKED BY:	TSS

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

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

Update Summary Sheet

Print Preview | Print

Site Summary

Project Title: Honda Store Expansion
Date: 45103

Total Rainfall (in):	**43**
Total Disturbed Acreage:	**4.52**

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	3.39	3.39	75
Managed Turf (acres)	0.00	0.00	0.00	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	1.13	0.00	1.13	25
					4.52	100

Post-ReDevelopment Land Cover (acres)

	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	0.00	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	1.13	3.39	4.52	100
					4.52	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.95	0.95	0.95	0.95
Treatment Volume (ft^3)	15,587	3,897	11,690	3,897
TP Load (lb/yr)	9.79	2.45	7.35	2.45

Total TP Load Reduction Required (lb/yr)	**6.44**	0.49	5.96

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
2.17	**2.17**	**2.17**

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	70.06	20.28

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%

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)	9.79
Remaining TP Load Reduction (lb/yr) Required	6.44

VIRGINIA NUTRIENT BANK

P.O. Box 142 Penn Laird, VA 22846 · (540) 217-4079 · www.VirginiaNutrientBank.com

June 27, 2023

Tim Stowe
Stowe Engineering, PLC
103 Heath Court
Winchester, VA 22602

Re: Nutrient Credit Availability – CMA Honda Store Expansion - Site Plan – Frederick County

Mr. Stowe,

The Virginia Nutrient Bank (VNB) is pleased to confirm availability of 6.44 pounds per year of phosphorus offsets (nutrient credits) for the CMA Honda Store Expansion site plan located at 39°07'00.8"N 78°11'52.8"W. The project drains to HUC: 02070004.

VNB has approval from the Virginia Department of Environmental Quality (VDEQ) for Nonpoint Source Offset Generation Certification. VNB is approved to transfer nutrient credits in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (VA Code 62.1-44.19:14 et seq). These offsets 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 regulator entities qualifying for nutrient offsets.

VNB manages the Ridge Road Nutrient Bank located in Rockingham County and Shenandoah County that will generate 88.94 pounds of phosphorus reduction and 512.51 pounds of nitrogen reduction and 7,645 pounds of sediment reduction per year. VNB as of the date of this letter has capacity at the Ridge Road Nutrient Bank site and will reserve the right to provide the required offsets from another DEQ approved VNB nutrient bank if needed. VNB will retire 6.44 pounds of phosphorus credits in accordance with the Nutrient Offset Certification regulations.

Respectfully,

Amber Aboagye
Conservation Project Director
Virginia Nutrient Bank, LLC
540-217-4079

VIRGINIA NUTRIENT BANK - SERVING FARMERS, DEVELOPERS, AND LOCALITIES
HELPING CLEAN THE CHESAPEAKE BAY ONE SITE AT A TIME

STOWE ENGINEERING, PLC
103 Heath Court
Winchester, VA 22602
(540) 686-7373
fax (540) 301-1100

NO.	DATE	REVISION	BY

WATER QUALITY COMPUTATIONS

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
Lic.No. 21924
7/6/23
PROFESSIONAL ENGINEER

PROJECT NUMBER:	1262.0
DATE:	July 6, 2023
SCALE:	AS SHOWN
DRAWN BY:	TSS
CHECKED BY:	TSS

Summary for Subcatchment Pre-A: Grass Field

Runoff = 1.86 cfs @ 12.08 hrs, Volume= 0.133 af, Depth> 0.51"
Routed to Link Pre-Link : Pre-1Yr

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
3.112	73	Brush, Good, HSG D
3.112		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.89"
5.9	574	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.7	624	Total			

Summary for Subcatchment Pre-C: Ex Honda Store

Runoff = 9.64 cfs @ 12.09 hrs, Volume= 0.684 af, Depth> 1.77"
Routed to Link Pre-Link : Pre-1Yr

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
4.202	94	Urban commercial, 85% imp, HSG C
0.441	95	Urban commercial, 85% imp, HSG D
4.643	94	Weighted Average
0.696		15.00% Pervious Area
3.947		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.89"
9.4	1,150	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.2	1,200	Total			

Summary for Subcatchment Pre-D: Offsite - By Pass

Runoff = 6.27 cfs @ 12.15 hrs, Volume= 0.517 af, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
1.700	94	Urban commercial, 85% imp, HSG C
0.326	65	Brush, Good, HSG C
7.177	73	Brush, Good, HSG D
9.203	77	Weighted Average
7.758		84.30% Pervious Area
1.445		15.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.89"
12.6	750	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.4	800	Total			

Summary for Link Pre-Link: Pre-1Yr

Inflow Area = 7.755 ac, 50.89% Impervious, Inflow Depth > 1.26" for 1-Year event
Inflow = 11.49 cfs @ 12.09 hrs, Volume= 0.817 af
Primary = 11.49 cfs @ 12.09 hrs, Volume= 0.817 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Subcatchment Pst-A: Parking Area 1

Runoff = 16.39 cfs @ 12.09 hrs, Volume= 1.163 af, Depth> 1.77"
Routed to Pond Pnd :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
4.202	94	Urban commercial, 85% imp, HSG C
3.694	95	Urban commercial, 85% imp, HSG D
7.896	94	Weighted Average
1.184		15.00% Pervious Area
6.712		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.89"
9.4	1,150	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.2	1,200	Total			

Summary for Pond Pnd:

Inflow Area = 7.896 ac, 85.00% Impervious, Inflow Depth > 1.77" for 1-Year event
Inflow = 16.39 cfs @ 12.09 hrs, Volume= 1.163 af
Outflow = 1.54 cfs @ 12.85 hrs, Volume= 1.157 af, Atten= 91%, Lag= 45.8 min
Primary = 1.54 cfs @ 12.85 hrs, Volume= 1.157 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 722.91' @ 12.85 hrs Surf.Area= 13,152 sf Storage= 23,903 cf

Plug-Flow detention time= 155.4 min calculated for 1.154 af (99% of inflow)
Center-of-Mass det. time= 151.5 min (953.5 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1	719.95'	64,887 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
719.95	1	0	0
720.00	5	0	0
721.00	7,013	3,509	3,509
722.00	11,396	9,205	12,714
723.00	13,322	12,359	25,073
724.00	15,379	14,351	39,423
725.00	17,569	16,474	55,897
725.50	18,390	8,990	64,887

Device	Routing	Invert	Outlet Devices
#1	Primary	719.71'	**24.0" Round 24"Barrel** L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 719.71' / 719.52' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	719.75'	**12.0" Round 12"- 1 Yr Flow** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 719.75' / 719.70' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	720.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	723.50'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	724.00'	**20.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.54 cfs @ 12.85 hrs HW=722.91' (Free Discharge)
└**1=24"Barrel** (Passes 1.54 cfs of 21.17 cfs potential flow)
  └**2=12"- 1 Yr Flow** (Passes 1.54 cfs of 6.17 cfs potential flow)
    └**3=Orifice/Grate** (Orifice Controls 1.54 cfs @ 7.86 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=719.95' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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NO.	DATE	REVISION	BY

1 YR STORM CALCULATIONS

Honda Store
Carter Myers Automotive
LOTS 11C, 11L, 11M
BACK CREEK MAGISTERIAL DISTRICT
FREDERICK COUNTY, VIRGINIA

COMMONWEALTH OF VIRGINIA
TIMOTHY S. STOWE
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PROFESSIONAL ENGINEER

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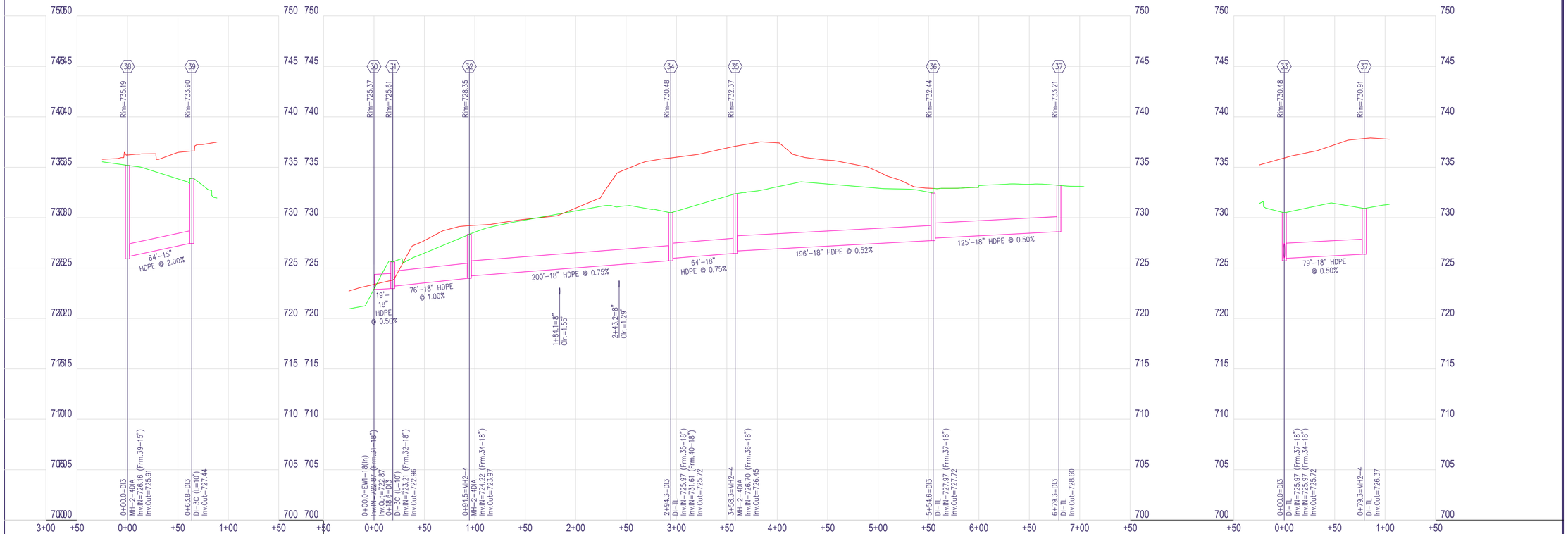

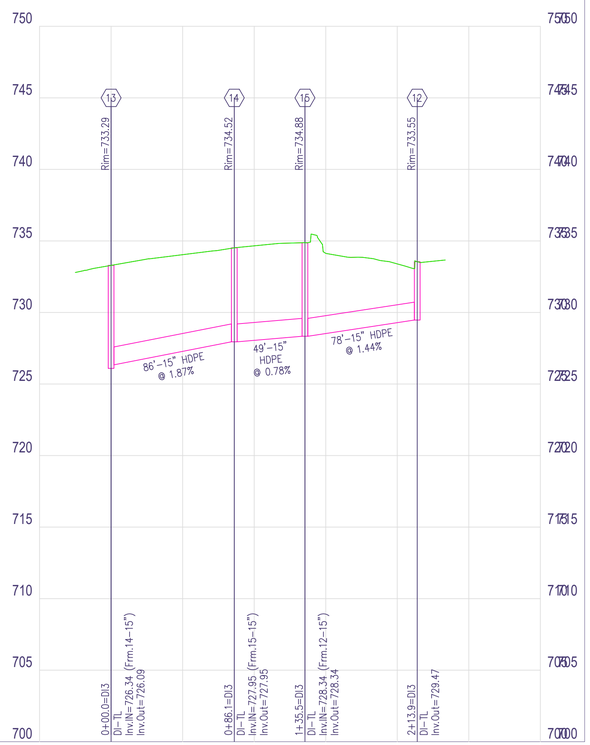

Scale: 1" = 50' H
1" = 5' VB

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STORM SEWER PROFILES

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SHEET 28 **OF** 28