Stantec

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CONTACT: TONY CARPENTER

BENNETT'S CREEK HEALTH AND REHABILITATION CENTER

SUFFOLK, VIRGINIA

SITE PLAN#:SPL2026-_____

STN PROJECT NO. :195151140

CITY OF SUFFOLK STANDARD PLAN NOTES

THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO ALL OWNERS AND RESIDENTS OF PROPERTY ADJACENT TO A DEVELOPMENT OR OFFSITE IMPROVEMENTS, 30 DAYS PRIOR TO COMMENCEMENT OF WORK UNLESS OTHERWISE DIRECTED BY THE CITY.

ALL WORK AREAS AND LANE CLOSURES SHALL BE IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL DATED AUGUST 2011 AND SHALL BE DIRECTED OR APPROVED BY CITY OF SUFFOLK PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION. NO LANE CLOSURE OPERATION SHALL BE CONDUCTED WITHOUT A RECEIVED WRITTEN REQUEST 48 TO 72 HOURS PRIOR TO THE OPERATION. ONCE THE REQUEST HAS BEEN APPROVED, WORK MAY COMMENCE. HOURS OF CLOSURE SHALL BE CONDUCTED BETWEEN 9:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY. LANE CLOSURES WILL NOT BE PERMITTED ON SATURDAYS, SUNDAYS, STATE RECOGNIZED HOLIDAYS AND OTHER DAYS DEEMED BY THE CITY OF SUFFOLK TO BE THE SAME AS HOLIDAYS. LANE CLOSURES WILL BE PROHIBITED FROM NOON PRIOR TO A THREE DAY WEEKEND TO NOON THE FOLLOWING WORK DAY. THE CONTRACTOR SHALL NOT CONDUCT OPERATIONS WHEN THE WEATHER CAUSES UNSAFE CONDITIONS FOR THE TRAVELING PUBLIC AS DETERMINED BY THE PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION. THE PUBLIC WORKS ENGINEERING DEPARTMENT RESERVES THE RIGHT TO CHANGE ANY OR ALL OF THE WORKING HOURS WHEN SUCH CHANGES ARE IN THE BEST INTEREST OF THE TRAVELING PUBLIC. THE CONTRACTOR MAY REQUEST A CHANGE IN THE HOURS OF OPERATION IF THE REQUESTED TIME WILL BE SAFE FOR THE TRAVELING PUBLIC. THIS REQUEST MUST BE APPROVED BY THE PUBLIC WORKS ENGINEERING DEPARTMENT PRIOR TO CONDUCTING SUCH OPERATION. ALL SIGNS, EQUIPMENT AND MATERIAL WILL BE REMOVED FROM THE CITY OF SUFFOLK'S RIGHT-OF-WAY PRIOR TO THE END OF THE LANE CLOSURE TIME INDICATED. FOR WORK ON ROUTES 10/32, 13, 17, 58, 337, AND 460, THERE SHALL BE AT LEAST ONE LANE OPEN AT ALL TIMES.

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CH-103	Water Quality Land Use Map Post-Development	CP-123	Roadway Cross Section
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CH-105	Water Quantity Drainage Area Map Pre-Development	CP-125	Sight Distance Plan
CH-106	Water Quantity Drainage Area Map Post-Development	CP-126	Pavement Marking and Signing index of Sheets Notes and Legend
CH-107	Water Quantity Computations	CP-127	City of Sufolk Traffic General Notes
CH-201	SWM Profiles	CP-128	Sign Schedule
CH-202	SWM Profiles	CP-129	Pavement Marking and Signing Plan
CH-501	SWM Notes and Specifications	MT-001	Maintenance of Traffic Sequence of Construction Notes
CH-502	SWM Details	MT-002	Maintenance of Traffic Standard Details
LP-101	Landscape Planting Plan Bio Retention #1	MT-101	Maintenance of Traffic Plan
LP-102	Landscape Planting Plan Bio Retention #2	MT-102	Maintenance of Traffic Plan
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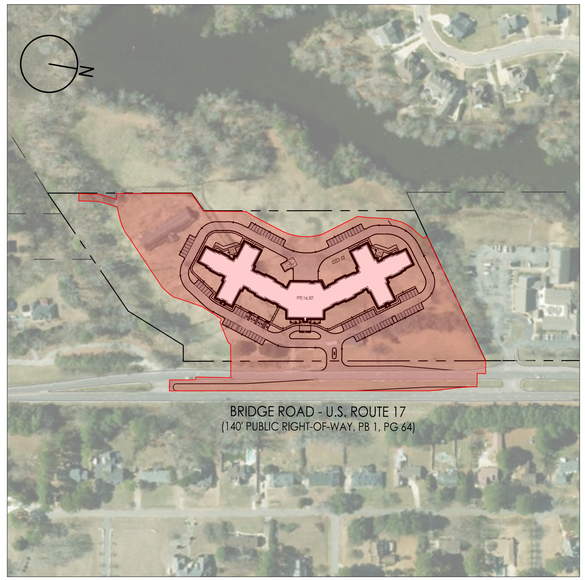
C-503	Sanitary Sewer Details - II	MT-106	Maintenance of Traffic Plan
C-504	Sanitary Sewer Details - III	MT-107	Maintenance of Traffic Plan

VICINITY MAP

1" = 2000'



LOCATION MAP

1" = 200'

PROJECT TITLE :BENNETT'S CREEK HEALTH AND REHABILITATION CENTER

SITE STATISTICS	
PARCEL ID	4G**T*3/253500800 & 5*13C/252538700
SITE AREA: 4G**T*3	4.431 (ac)
SITE ADDRESS	1931 Bridge Rd, Suffolk, VA. 23433
SITE AREA: 5*13C	5.004 (ac)
SITE ADDRESS	1975 Bridge Rd, Suffolk, VA. 23433
TOTAL SITE AREA	9.435 (ac)
DISTURBED AREA - SITE	7.29 (ac)
DISTURBED AREA - RIGHT OF WAY	1.45 (ac)
TOTAL DISTURBED AREA	8.74 (ac)
PRE-DEVELOPED IMPERVIOUS AREA - SITE	0.2 (ac)/2.1%
POST-DEVELOPED IMPERVIOUS AREA - SITE	3.03 (ac)/32%
PRE-DEVELOPED IMPERVIOUS AREA - ROW	1.87 (ac)
POST-DEVELOPED IMPERVIOUS AREA - ROW	2.08 (ac)
CONTRIBUTING WATERSHED	BENNETT CREEK-NANSEMOND RIVER WATERSHED
TAX MAP ID NUMBERS	4G**T*3/5*13C
TOTAL CRITICAL AREAS - RPA	1.65 (ac)
TOTAL OPEN SPACE	6.41 (ac)
ZONING	
CURRENT ZONING	OI OFFICE INSTITUTIONAL
INTENDED USE	NURSING HOME AND HEALTH REHABILITATION CENTER
FLOOD ZONE	
A PORTION OF THIS PROPERTY IS LOCATED WITHIN FLOOD ZONE "AE" AND "X" AS SHOWN ON THE FLOOD INSURANCE RATE MAP NO. 5101560036E, WITH AN EFFECTIVE DATE OF AUGUST 3, 2015.	

va811.com Dig With CARE

CALL BEFORE YOU DIG

SECTION 56-265.17 REQUIRES NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, OR BLAST. THE CONTRACTOR SHALL CONTACT 'MISS UTILITY OF VIRGINIA' (811 OR 1-800-552-7001) NO LESS THAN THREE (3) AND UP TO TWELVE (12) WORKING DAYS PRIOR TO THE BEGINNING OF ANY EXCAVATION WORK IN ORDER TO DETERMINE THE EXACT EXTENT AND LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS. CALL BEFORE YOU DIG.

NO.	DATE	DESCRIPTION	BY
1	07/08/2026	1ST SUBMISSION	

PROJECT SURVEYOR
TONY CARPENTER, PLS

PROJECT ENGINEER
MATTHEW HOGAN, PE

PROJECT ENGINEER
BRYANT MOUNTJOY, PG, PMP

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

DATE
2026-06-22

INDEX NUMBER
GI-001

ORIGINAL SHEET - ARCH D
\\us0702-pvfss01\shared_projects\195151140\08_Working Files\01_civil\01_cad\01_sheets\195151140_GI-001.dwg
2026/07/10 1:17 PM By: Jones, Bay

ABBREVIATIONS

A	
ACRE	AC.
ADJACENT	ADJ.
AGGREGATE	AGG.
AHEAD	AHD.
ALTERNATE	ALT.
ALUMINUM	ALUM.
AMERICAN ASSOC. OF STATE HWY. AND TRANSPORTATION OFFICIALS	A.A.S.H.T.O.
AMERICAN NATIONAL STANDARDS INSTITUTE	A.N.S.I.
AMERICAN SOCIETY OF CIVIL ENGINEERS	A.S.C.E.
AMERICAN SOCIETY FOR TESTING AND MATERIALS	A.S.T.M.
AMPERE	AMP.
APPROXIMATE	APPROX.
AREA	A
ASPHALT	ASPH.
AT	@
AUTOMATIC	AUTO.
AVENUE	AVE.
AVERAGE	AVG.
AVERAGE DAILY TRAFFIC	A.D.T.
B	
BACK OF CURB	B.O.C.
BASELINE	B/L
BENCH MARK	B.M.
BITUMINOUS	BIT.
BOOK	BK.
BOTTOM	BTM.
BOTTOM OF CURB	B.C.
BOTTOM OF TRENCH	B.O.T.
BOTTOM OF WALL	B.W.
BOULEVARD	BLVD.
BUILDING	BLDG.
BLDG. RESTR. LINE	B.R.L.
C	
CABLE TELEVISION	CA.TV.
CAST IRON	C.I.
CAST IRON PIPE	C.I.P.
CATCH BASIN	C.B.
CELSIUS	C
CENTER	CTR.
CENTER TO CENTER	C-C
CENTERLINE	CL., C/L
CENTIMETER	CM
CHECK	CHK.
CIRCUIT	CIR.
CLASS	CL.
CLEANOUT	C.O.
CLEAR	CLR.
COMBINATION	COMB.
CONCENTRATION	CONC.
CONCRETE	CONC.
CONTINUOUS	CONT.
COORDINATE	COORD.
COPPER	COP.
CORNER	COR.
CORRIDOR	CORR.
CORRUG. ALUM. PIPE	C.A.P.
CORRUG. ALUM. PIPE ARCH	C.A.P.A.
CORRUG. METAL PIPE	C.M.P.
CORRUG. METAL PIPE ARCH	C.M.P.A.
CORRUG. POLYETH. PIPE	C.P.P.S.
CORRUG. STEEL PIPE	C.S.P.
CORR. STEEL PIPE ARCH	C.S.P.A.
COURT	CT.
CUBIC	CU.
CUBIC YARDS	CU.YD.,CY
CURB AND GUTTER	C&G
CULVERT	CULV.
D	
DECIMETER	DM
DEED BOOK	D.B.
DEMOLITION	DEMO.
DEPARTMENT	DEPT.
DEGREE	%, DEG.
DIAGONAL	DIAG.
DIAMETER	0, DIA.
DIMENSION	DIM.
DISTANCE	DIST.
DOWNSPOUT	D.S.
DRAIN	DR.
DRAINAGE AREA	D.A.
DRAWING	DWG.
DRIVE	DR.
DUCTILE IRON PIPE	D.I.P.
E	
EASEMENT	ESMT.
EAST	E.
EASTBOUND LANE	E.B.L.
EDGE OF PAVING	E.O.P.
ELBOW ELEVATION	E.E.
ELEC. JUNCTION BOX	E.J.
ELECTRICAL	ELEC.
ELECTRIC PANEL	E.P.
ELEVATION	ELEV.,EL.
ELLIP. REIN. CEMENT CONCRETE PIPE	E.R.C.C.P.
ENDWALL	EW
ENTRANCE	ENT.
EQUAL	EQ.
EQUIPMENT	EQUIP.
EQUIVALENT	EQV.
ESTIMATE	EST.
EXCAVATE	EXC.
EXHAUST	EXH.
EXISTING	EXIST.,EX.
EXPANSION JOINT	EXP. JT.
EXTENSION	EXTN.
EXTERIOR	EXT.
F	
FACE OF CURB	F.O.C.
FAHRENHEIT	F
FEET OR FOOT	', FT.
FIBERGL. REIN. EPOXY	F.R.E.
FIBEROPTIC	FIB., F.O.
FINISHED FLOOR ELEV.	F.F.E.
FLEXIBLE	FLEX.
FLOWLINE	F.L.
FOOTING	FTG.
FORCE MAIN	F.M.
FORWARD	FWD.
FOUNDATION	FND.
FUTURE	FUT.
G	
GALLON	GAL.
GALVANIZED	GALV.
GALVANIZED IRON	G.I.
GAGE	GA.
GAS	G.
GAS METER	G.M.
GAS VALVE	G.V.
GENERAL	GEN.
GIGAWATT	GW
GRAM	G
GRAVEL	GVL.
GROUND	GND.
GUTTER	GUT.
H	
HANDRAIL	HR.
HANDBOX	HH.
HANDICAP	HC
HARDWARE	HDW.
HEADWALL	HDWL.
HECTOMETER	HM
HEADWALL	HW
HEIGHT	HT.
HIGH DENSITY POLYETHYLENE	H.D.P.E.
HIGH POINT	H.P.
HIGHWAY	HWY.
HORIZONTAL	HORIZ.
HORIZONTAL BEND	H.B.
HORIZ. ELLIPTICAL REIN. CONC. PIPE	H.E.R.C.P.
HOUR	HR.
HYDRAULIC GRADE LINE	H.G.L.
HIGHWAY ADMINISTRATION	
MASONRY	MAS.
MATERIAL	MAT.
MAXIMUM	MAX.
MECHANICAL	MECH.
MEGAJOULE	MJ
MEGAWATT	MW
METER	M
MICROJOULE	µJ
MICROMETER	µM
MIL	MIL
MILE	MI.
MILLIJOULE	MJ
MILLIMETER	MM
MILLILITER	ML
MINIMUM	MIN.
MINUTE	MIN.
MISCELLANEOUS	MISC.
MONUMENT	MON.
MOUNTED	MTD.
MODIFIED	MOD.
N	
NANOJOULE	NJ
NANOMETER	NM
NATIONAL BUREAU OF STANDARDS	N.B.S.
NATIONAL PARK SERV.	N.P.S.
NATURAL	NAT.
NORTH	N.
NORTHBOUND LANE	N.B.L.
NORTHEAST	N.E.
NORTHWEST	N.W.
NOT APPLICABLE	N.A.
NOT IN CONTRACT	N.I.C.
NOT TO EXCEED	N.T.E.
NOT TO SCALE	N.T.S.
NOW OR FORMERLY	N/F
NUMBER	#, NO.
O	
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	O.S.H.A.
ON CENTER	O.C.
OPERATOR	OPER.
OPPOSITE	OPP.
OUNCE	OZ.
OUTSIDE DIAMETER	O.D.
OUTSIDE FACE	O.F.
OVERHEAD	O.H.
OVERHEAD CABLE TELEVISION	O.H.C.
OVERHEAD ELECTRIC	O.H.E.
OVERHEAD TELEPHONE	O.H.T.
P	
PAGE	PG.
PARKING	PKG.
PARKING METER	P.M.
PARKWAY	PKWY.
PAVEMENT	PVMT.
PER	/
PERCENT	%
PERFORATE	PERF.
PERIMETER	PER.
PERPENDICULAR	PERP.
PLACE	PL.
PLASTIC	PLAS.
PLAT BOOK	P.B.
PLATE	PL.
PLYWOOD	PLY.
POINT	PT.
POINT OF BEGINNING	P.O.B.
POINT OF COMPOUND CURVES	P.C.C.
POINT OF CURVATURE	P.C.
POINT OF ENDING	P.O.E.
POINT OF GRADE LINE	P.G.L.
POINT OF REVERSE CURVES	P.R.C.
POINT OF TANGENCY	P.T.
POINT OF VERTICAL INTERSECTION	P.V.I.
POINT OF VERT. CURVE	P.V.C.
POINT OF VERTICAL	P.V.R.C.
REVERSE CURVE	
POINT OF VERTICAL TANGENT	P.V.T.
POINT ON CURVE	P.O.C.
POINT ON TANGENT	P.O.T.
POLYBUTYLENE	PB.
POLYETHELYNE	PE.
POLYVINYL CHLORIDE	P.V.C.
POSITION	POS.
POUND	#, LB.
POUNDS / SQ. FOOT	P.S.F.
POUNDS / SQ. INCH	P.S.I.
PRECAST	PRCST.
PREFABRICATED	PREFAB.
PRELIMINARY	PRELIM.
PRESTRESSED CONC. CYLINDER PIPE	P.C.C.P.
PRINCE GEORGE'S COUNTY DEPT. OF PERMITS INSPECT. AND ENFORCEMENT	P.G.D.P.I.E.
PRINCE GEORGE'S COUNTY DEPT. OF PUBLIC WORKS AND TRANSP.	P.G.D.P.W.T.
PROFILE GROUND ELEVATION	P.G.E.
PROFILE GRADE LINE	P.G.L.
PROPERTY	PROP.
PROPERTY LINE	P.L.
PROPOSED	PROP.
Q	
QUALITY	QLTY.
QUALITY LEVEL A	Q.L.A.
QUALITY LEVEL B	Q.L.B.
QUALITY LEVEL C	Q.L.C.
QUALITY LEVEL D	Q.L.D.
QUANTITY	QTY.
R	
RADIUS	R.,RAD.
RAILROAD	RR.
REFERENCE	REF.
REFERENCE POINT	RP
REINF. CONC. PIPE	R.C.P.
REINFORCED CONC. ELLIPTICAL PIPE	R.C.E.P.
REINFORCED CEMENT CONCRETE PIPE	R.C.C.P.
REINFORCING	REINF.
REINFORCING BAR	REBAR
REQUIRED	REQD.
RETAINING	RET.
REVERSE OSMOSIS	R.O.
REVISION	REV.
RIGHT	RT.
RIGHT-OF-WAY	R/W
ROAD	RD.
ROOF DRAIN	R.D.
S	
SANITARY	SAN.
SANITARY SEWER	S.S.
SCHEDULE	SCH.
SECOND	SEC.
SECTION	SECT.
SERVICE	SERV.
SHEATHING	SHTG.
SHEET	SHT.
SIDEWALK	SDWK.
SILT FENCE	S.F.
SIMILAR	SIM.
SOIL BORING	S.B.
SOUTH	S.
SOUTHEAST	S.E.
SOUTHWEST	S.W.
SOUTHBOUND LANE	S.B.L.
SPECIFICATIONS	SPECS.
SQUARE	SQ.
SQUARE FEET	SQ.FT.
SQUARE INCH	SQ.IN.
SQUARE YARD	SQ.YD.,
SY	
STANDARD	STD.
STATION	STA.
STORAGE	STO.
STORM	STM.
STORM DRAIN	S.D.
STORMWATER MANAGEMENT	S.W.M.
STREET	ST.
STRUCTURE	STRUCT.
SUBSTITUTE	SUB.
SUPER ELEVATION	S/E
SUPER SILT FENCE	S.S.F.
SUPPLY	SUP.
SURFACE	SUR.
SYMBOL	SYM.
SYNTHETIC	SYN.
SYSTEM	SYS.
T	
TANGENT	TAN.
TELEPHONE	TEL.
TEMPERATURE	TEMP.
TEMPORARY	TEMP
TEMPORARY SWALE	T.S.
TERRA-COTTA	T.C.
TERRACE	TERR.
TEST BORING	T.B.
TEST HOLE	T.H.
THICKNESS	THK.
TO BE ABANDONED	TBA
TO BE REMOVED	TBR
TOP OF BANK	T.B.
TOP OF CURB	T.C.
TOP OF PIPE	T.O.P.
TOP OF SLAB	T.O.S.
TOP OF WALL	T.W.
TRAF. CONTROL PLAN	T.C.P.
TRANSFORMER	TRANS.
TYPICAL	TYP.
U	
UNDERGROUND	UG.
UNEXCAVATED	UNEX.
UNITED STATES DEPT. OF AGRICULTURE	U.S.D.A.
UNKNOWN	UNK.
UNLESS OTHERWISE NOTED	U.O.N.
UTILITY	UTIL.
UTILITY POLE	U.P.
V	
VARIES	VAR.
VERTICAL	VERT.
VERTICAL BEND	V.B.
VERTICAL CURVE	V.C.
VICINITY	VIC.
VOLUME	VOL.
W	
WATER METER	W.M.
WATER SURFACE ELEV.	W.S.E.L.
WATER VALVE	W.V.
WATERS OF THE UNITED STATES	W.U.S.
WATT	W.
WEIGHT	WT.
WELDED WIRE FABRIC	W.W.F.
WELDED WIRE MESH	W.W.M.
WEST	W.
WEST BOUND LANE	W.B.L.
WETLAND BUFFER	W.B.
WITH	W/
WITHOUT	W/O
WOOD	WD.
WROUGHT IRON	W.I.
Y	
YARD	YD.
Z	
ZINC	ZN.

NOTE: SOME ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE USED ON THE PROJECT. CONTACT THE ENGINEER / ARCHITECT FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

EXISTING CONDITIONS LEGEND

- EXISTING WATER MAIN
- EXISTING TELEPHONE
- EXISTING STORM DRAIN
- EXISTING FORCE MAIN
- EXISTING FENCE
- EXISTING EOP
- EXISTING BUILDING
- EXISTING ASPHALT RD.
- EXISTING PROPERTY LINE / ROW
- EXISTING WATER MAIN VALVE
- EXISTING UTILITY POLE
- GIS PARCEL LINE
- EXISTING FIBER OPTIC
- EXISTING CABLE TV
- EXISTING DRAINAGE DITCH
- EXISTING OVERHEAD ELECTRIC
- EXISTING 20' PUE
- EXISTING RPA
- EXISTING TREE LINE
- EXISTING GRAVEL/RIP RAP
- EXISTING BUILDING SETBACK
- EXISTING FIRE HYDRANT
- EXISTING CONTOUR
- ZONE X FLOOD AREAS

DEMOLITION LEGEND

- DEMO EXISTING FENCE
- DEMO EXISTING BLDG. / DRIVEWAY
- DEMO EXISTING UTILITY

PROPOSED CONDITIONS LEGEND

- WATER MAIN
- STORM DRAIN
- PROPOSED GRAVITY SS
- UTILITY EASEMENT
- BUILDING
- FENCE
- HC RAMP DETECTABLE SURFACE
- FORCE MAIN VALVE CHAMBER
- FORCE MAIN/WATER MAIN BEND
- FORCE MAIN MANHOLE
- RIP RAP
- SWM MEDIA/PROFILE
- SWM GRAVEL/PROFILE
- STORM DRAIN HEADWALL
- ROOF DRAIN CO
- GREASE TRAP
- PROPOSED CONTOUR
- HEAVY DUTY ASPHALT PVMT.
- HEAVY DUTY CONCRETE PVMT.
- FORCE MAIN SS
- ROOF DRAIN
- CURB
- SIDEWALK
- HANDICAP PARKING/STRIPING
- LOD
- FORCE MAIN WET WELL
- FORCE MAIN CO
- FORCE MAIN/WATER MAIN VALVE
- SITE LIGHT
- SWM DEVICE SURFACE
- SWM CHOKER LAYER/PROFILE
- STORM DRAIN INLET
- STORM DRAIN MANHOLE
- FIRE HYDRANT
- DRAINAGE DIVIDE
- SITE WALL
- LIGHT DUTY ASPHALT PVMT.

Stantec

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Consultants

Notes

By Appd. MM.DD.YY

Issued / Revised

File Name: 195151140_C-001.dwg

Dwn.	Chkd.	Dsgn.
BAY J.	MBH	BAY J. 06/25/2026
		MM.DD.YY

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
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Title

CIVIL ABBREVIATIONS & LEGENDS

Drawing No.

GI-002

CITY OF SUFFOLK STANDARD EROSION & SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (3RD EDITION, 1992) AND THE CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.
2. THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL DENUDED OR DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED OR DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING, AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN LAND DISTURBANCE.
4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.
5. THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESCH, STD. AND SPEC 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.
6. STOCK PILES OF SOIL AND OTHER ERODIBLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCK PILES ON SITE AS WELL AS FOR MATERIALS TRANSPORTED FROM THE PROJECT SITE.
7. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING (BUT NOT LIMITED TO) USE OF WATER, MULCH, OR CHEMICAL DUST ADHESIVES AND CONTROL OF CONSTRUCTION SITE TRAFFIC.
8. EFFLUENT FROM DE-WATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE. OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS, OR THE STORM DRAINAGE SYSTEM.
9. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED NECESSARY BY THE PLAN APPROVING AUTHORITY.
10. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS THAT ARE PERTINENT TO THIS WORK.
2. AREAS OUTSIDE THE PROJECT LIMITS ARE DESIGNATED AS RESTRICTED AREAS. THE CONTRACTOR'S FORCES ARE PROHIBITED FROM ENTERING RESTRICTED AREAS AT ANY TIME, UNLESS SPECIFICALLY AUTHORIZED BY THE ADJACENT LAND OWNER.
3. THE CONTRACTOR SHALL CONTROL DUST AND DEBRIS FROM HIS OPERATION TO A LEVEL ACCEPTABLE TO THE COUNTY AT ALL TIMES. THE CONTRACTOR SHALL HAVE ON THE PROJECT SITE:VACUUM SWEEPERS, WATERING TRUCKS, AND OTHER EQUIPMENT NECESSARY TO CONTROL DUST AT ALL TIMES. ALL METHODS FOR CONTROLLING DUST SHALL BE SUBJECT TO THE COUNTY'S APPROVAL. FAILURE TO PROPERLY CONTROL DUST OR TO RESPOND TO ANY REQUEST TO DO SO WILL RESULT IN CONSTRUCTION ACTIVITIES BEING STOPPED.
4. THE ROADS USED BY THE CONTRACTOR FOR ACCESS OR HAULING SHALL BE KEPT CLEAN AND ACCESSIBLE TO ALL OTHER TRAFFIC FOR THE ENTIRE DURATION OF THE PROJECT. HAUL TRUCKS MUST BE COVERED AND ANY SPILLAGE OR DEBRIS BUILDUP PROMPTLY REMOVED FROM ALL HAUL ROUTES ON PUBLIC ROADS.
5. ALL RETAINING WALLS SHALL HAVE FALL PROTECTION INSTALLED PER CODE.
6. UNLESS SPECIFICALLY STATED HEREIN, THESE PLANS ARE NOT SUITABLE FOR MACHINE GUIDANCE USE OR PURPOSES DURING CONSTRUCTION. NO GUARANTEE IS MADE THAT THE ELECTRONIC DATA SYSTEMS OR FILE STRUCTURE USED BY STANTEC WILL BE COMPATIBLE WITH THE ELECTRONIC SYSTEMS USED BY THE CONTRACTOR. INFORMATION SHOWN ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THE ELECTRONIC FILES DATA.
7. THE CONTRACTOR SHALL VERIFY SITE CONDITIONS, COORDINATE DIMENSIONS, ELEVATIONS AND DETAILS SHOWN ON CONTRACT DRAWINGS. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO PREPARATION OF SHOP DRAWINGS AND THE COMMENCEMENT OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY ALL FEES ASSOCIATED WITH ALL PERMITS AND PROVIDE ALL BONDS REQUIRED FOR THIS WORK INCLUDING BUT NOT LIMITED TO OFF-SITE HIGHWAY IMPROVEMENTS, UTILITY CONNECTIONS AND BUILDING & SITE CONSTRUCTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE THAT ALL NECESSARY PERMITS, CERTIFICATIONS, AND/OR INSPECTIONS, REQUIRED BY CODES AND/OR UTILITY SERVICE PROVIDERS, ARE OBTAINED PRIOR TO ANNOUNCED BUILDING / SITE POSSESSION AND/OR THE FINAL CONNECTION OF SERVICES.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE OWNERS REPRESENTATIVE SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.
11. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND/OR DIG SAFE SERVICE AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS TO LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS AS REQUIRED TO MEET EXISTING CONDITIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES, WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY LOCATIONS. COORDINATE WORK WITH ALL PROJECT CONTRACTORS AND OWNER'S REPRESENTATIVE.
12. MAINTENANCE AND PROTECTION OF TRAFFIC ALONG WITH SECURING THE WORK AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE TEMPORARY BARRICADES AND/OR OTHER APPROPRIATE EQUIPMENT AS REQUIRED TO DIRECT VEHICLE TRAFFIC AND PEDESTRIANS AWAY FROM WORK AREAS.
13. ALL DEBRIS AND SOILS DERIVED FROM THE CONTRACTOR'S OPERATIONS FOUND IN THE PUBLIC RIGHT-OF-WAY OR CAUSING NUISANCE TO OPERATIONS SHALL BE CLEANED AND REMOVED ON A DAILY BASIS OR WHEN NOTIFIED BY THE OWNER'S REPRESENTATIVE.
14. THE DRAWINGS ARE INTENDED TO REQUIRE AND TO INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT PROPER FOR THE WORK.
15. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND SAFETY PROCEDURES. THE OWNER/ENGINEER/ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR OR THEIR AGENTS, EMPLOYEES OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK.
16. OBSERVE ALL OSHA AND OTHER APPLICABLE SAFETY REQUIREMENTS INCLUDING THE USE OF SAFETY GLASSES, HARD HATS AND PROTECTION OF THE AREA AT ALL TIMES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR CONSTRUCTION SAFETY AT ALL TIMES.
17. SAFETY: THE CONTRACTOR IS RESPONSIBLE FOR OVERSEEING THE SAFE OPERATION OF ALL EQUIPMENT IN HIS USE. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL OF THE EQUIPMENT IN HIS USE IN A SAFE CONDITION. CONDUCT ALL CONSTRUCTION OPERATIONS IN A SAFE MANNER FOR EMPLOYEES AS WELL AS OTHER WORK PERSONS OR ANYONE VISITING THE JOB SITE. PROVIDE BARRIERS, FLAGS, TAPE, ETC., AS REQUIRED FOR SAFETY.
18. SUBCONTRACTOR IS RESPONSIBLE TO REVIEW AND IMPLEMENT SAFETY PROCEDURES AS DETAILED IN THE OWNER'S SAFETY POLICIES.
19. STORAGE OF EQUIPMENT AND SUPPLIES: STORAGE OF EQUIPMENT AND SUPPLIES FOR THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SCHEDULED FOR DELIVERY TO THE SITE AS THE EQUIPMENT OR SUPPLIES ARE REQUIRED. DAMAGE TO THE EQUIPMENT DELIVERED TO THE SITE OR IN TRANSPORT TO THE JOB SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
20. DAMAGE RESPONSIBILITY: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY LOSS OR DAMAGE CAUSED BY HIM OR HIS WORKMEN TO THE EXISTING FACILITY OR FEATURES DURING THE COURSE OF CONSTRUCTION AND SHALL BE FULLY RESPONSIBLE FOR REPAIRING OR REPLACING IN KIND, AS REQUIRED, TO ENSURE RESTORATION TO THE ORIGINAL CONDITION AND AT NO COST TO OWNER.
21. SHOP DRAWINGS: REPRODUCTION OF DESIGN DRAWINGS SHALL NOT BE PERMITTED. CONTRACTOR SHALL REVIEW AND PROVIDE REVIEW STAMP ON SHOP DRAWING SUBMISSION PRIOR TO SUBMITTAL TO OWNER'S REPRESENTATIVE INDICATING UNDERSTANDING AND ACCEPTANCE OF SUBMITTAL AND CONFIRMING CONFORMANCE TO PROJECT DRAWINGS/SPECIFICATIONS.
22. ALL SUBMITTAL/SHOP DRAWINGS SHALL CONTAIN COMPLETE INFORMATION NECESSARY TO DETERMINE THAT THE ITEM IS APPROPRIATE FOR THE PURPOSE INTENDED. ALL SUBMITTAL/SHOP DRAWINGS SHALL CONTAIN THE MANUFACTURER'S NAME, THE MANUFACTURER'S CONTACT PERSON, CURRENT TELEPHONE NUMBER AND SHALL BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL.
23. SHOP DRAWINGS: ALL EQUIPMENT TO BEAR U.L. LABEL OR THAT OF ANOTHER ACCEPTABLE TESTING LABORATORY WHEN SUCH LISTINGS EXIST FOR COMPARABLE EQUIPMENT.
24. CONFLICTING STANDARDS: IN THE CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT STANDARD SHALL APPLY.
25. ACCEPTANCE OF CONDITIONS: INITIATING WORK CONSTITUTES CONTRACTOR ACCEPTANCE OF THE EXISTING CONDITIONS ASSOCIATED WITH THE WORK IN QUESTION.
26. PROFESSIONALISM AND APPEARANCE OF WORK: WORKMANSHIP OF ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH ACCEPTED PRACTICES OF THIS TRADE. INSTALLATION METHODS SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE THE PROJECT WITH QUALIFIED JOURNEYMEN AND EMPLOYEES IN THIS TRADE FOR THE DURATION OF THE PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMMUNICATE WITH AND KEEP THE OWNER APPRISED OF CHANGES OR CLARIFICATIONS.
27. UTILITY COORDINATION: CONTRACTOR SHALL CONTACT ALL UTILITIES ANDVERIFY ALL UTILITY REQUIREMENTS PRIOR TO COMMENCING OR ORDERING ANY MATERIALS WHATSOEVER. CONFLICTS BETWEEN UTILITY REQUIREMENTS AND THE PLANS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER PRIOR TO COMMENCING CONSTRUCTION OR ORDERING ANY MATERIALS WHATSOEVER.
28. CONTRACTOR SHALL CALL FOR A PRE-CONSTRUCTION FACE-TO-FACE MEETING WITH THE GAS/ELECTRIC/COMMUNICATION UTILITY COMPANIES TO REVIEW REQUIREMENTS, PLANS AND MAKE ARRANGEMENTS FOR UTILITY COMPANY ENGINEERED DRAWINGS.
29. INCIDENTAL ITEMS: INCIDENTAL ITEMS NOT INDICATED ON DRAWINGS, NOT MENTIONED IN THE SPECIFICATIONS THAT CAN BE LEGITIMATELY AND REASONABLY INFERRED TO BELONG TO THE WORK DESCRIBED OR NECESSARY IN GOOD PRACTICE TO PROVIDE A COMPLETE SYSTEM, SHALL BE FURNISHED AND INSTALLED AS THOUGH ITEMIZED HERE IN EVERY DETAIL.
30. ANY WORK NOT CONFORMING TO PLANS, SPECIFICATIONS, CODES OR MANUFACTURER'S RECOMMENDATIONS OR UNACCEPTABLE TO THE OWNER'S Q.C. REPRESENTATIVE OR TO THE LOCAL GOVERNING AUTHORITY SHALL BE REPAIRED OR REPLACED BY THE SUBCONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
31. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. SLIGHT FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES PRIOR TO INSTALLATION OF PAVEMENT.
32. CONTRACTOR'S CONSTRUCTION SCHEDULE: INITIAL SCHEDULE, OF SIZE REQUIRED TO DISPLAY ENTIRE SCHEDULE FOR ENTIRE CONSTRUCTION PERIOD.
33. RECORD PRINTS: MAINTAIN ONE SET OF MARKED-UP PAPER COPIES OF THE CONTRACT DRAWINGS AND SHOP DRAWINGS, INCORPORATING NEW AND REVISED DRAWINGS AS MODIFICATIONS ARE ISSUED.
    a. PREPARATION: MARK RECORD PRINTS TO SHOW THE ACTUAL INSTALLATION WHERE INSTALLATION VARIES FROM THAT SHOWN ORIGINALLY. REQUIRE INDIVIDUAL OR ENTITY WHO OBTAINED RECORD DATA, WHETHER INDIVIDUAL OR ENTITY IS INSTALLER, SUBCONTRACTOR, OR SIMILAR ENTITY, TO PROVIDE INFORMATION FOR PREPARATION OF CORRESPONDING MARKED-UP RECORD PRINTS.
    b. GIVE PARTICULAR ATTENTION TO INFORMATION ON CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO IDENTIFY OR MEASURE AND RECORD LATER.
    c. RECORD DATA AS SOON AS POSSIBLE AFTER OBTAINING IT.
    d. RECORD AND CHECK THE MARKUP BEFORE ENCLOSING CONCEALED INSTALLATIONS.
36. MARK THE CONTRACT DRAWINGS AND SHOP DRAWINGS COMPLETELY AND ACCURATELY. USE PERSONNEL PROFICIENT AT RECORDING GRAPHIC INFORMATION IN PRODUCTION OF MARKED-UP RECORD PRINTS.
37. MARK RECORD SETS WITH ERASABLE, RED-COLORED PENCIL. USE OTHER COLORS TO DISTINGUISH BETWEEN CHANGES FOR DIFFERENT CATEGORIES OF THE WORK AT SAME LOCATION.
38. NOTE CONSTRUCTION CHANGE DIRECTIVE NUMBERS, ALTERNATE NUMBERS, CHANGE ORDER NUMBERS, AND SIMILAR IDENTIFICATION, WHERE APPLICABLE.
39. CONTRACTOR SHALL MATCH ALL NEW PAVEMENT, SIDEWALK, AND/OR CURB & GUTTER WITH EXISTING AT ALL CONNECTION POINTS. PROIVDE SEALANT AT ALL JOINTS BETWEEN EX. AND PROPOSED ASPHALT PAVEMENTS TO PROVIDE A SMOOTH & SEAMLESS TRANSITION.
40. ALL DIMENSIONS ARE TO THE FACE OF CURB, EDGE OF PAVEMENT (IF NO CURB), FACE OF BUILDING, CENTER OF COLUMN, CENTER OF STRUCTURE, CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
41. PATCH AND REPAIR ALL EXISTING CONCRETE SIDEWALK, CURB & GUTTER DAMAGED DURING CONSTRUCTION. (TYP.) CONTRACTOR SHOULD DOCUMENT THE EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION AND SUBMIT DOCUMENTATION TO ARCHITECT/ENGINEER.

SITE DATA

1. THE SETBACK LINES AND NOTES RELATED TO SETBACKS SHOWN HEREIN ARE INTENDED TO SHOW APPLICABLE ZONING REQUIREMENTS OF THE CITY OF SUFFOLK VIRGINIA AS OF THE DATE OF THIS PLAN AND ARE NOT INTENDED TO IMPOSE ANY ADDITIONAL RESTRICTIONS OTHER THAN SAID ZONING REQUIREMENTS.
2. VERTICAL DATUM USED WAS NAVD88; HORIZONTAL DATUM USED WAS VA. STATE PLANE NAD83 SOUTH ZONE GRID COORDINATE SYSTEM.
4. CONTRACTOR TO COORDINATE WITH OWNER AND ENSURE ALL APPLICABLE CONSTRUCTION AND LAND DISTURBANCE PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCING ANY WORK.
5. CONTRACTOR AND/OR OWNER IS RESPONSIBLE FOR COORDINATING CONSTRUCTION WITH UTILITY COMPANIES, ADJACENT LAND DEVELOPMENTS OR OTHER EFFECTED THIRD PARTIES.
6. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE AGENCIES FOR THE EXACT FIELD LOCATIONS OF ALL WATER, SEWER, ELECTRIC, TELEPHONE, TELEVISION AND ANY OTHER UNDERGROUND AND OVERHEAD UTILITY 72 HOURS BEFORE COMMENCING CONSTRUCTION. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE CONTRACT DRAWINGS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND DEPTHS OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF WORK.
7. PRIOR TO COMMENCING WITH THE EXCAVATION, CONTRACTOR SHALL NOTIFY 811 FOR LOCATIONS OF UNDERGROUND UTILITIES. ANY UTILITIES DAMAGED THAT ARE NOT TO BE REMOVED SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
8. ALL WORK PERFORMED SHALL COMPLY WITH THE REGULATIONS AND ORDINANCES OF THE VARIOUS GOVERNMENTAL AND PRIVATE AGENCIES HAVING JURISDICTION OVER THE WORK, LATEST EDITIONS.
9. SHOULD THE CONTRACTOR FIND ANY DISCREPANCIES OR CONFLICTS ON THE CONSTRUCTION PLANS IN THE FIELD, AND/OR DOCUMENTS PREPARED BY OTHERS, PRIOR TO BEGINNING WORK OR DURING CONSTRUCTION, HE/SHE SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO CONTINUING WORK.
10. MONUMENTS AND OTHER SURVEY CONTROL POINTS SHALL BE PROTECTED FROM DAMAGE AND DISTURBANCE. IF ANY CONTROL POINTS ARE DAMAGED OR DISTURBED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND REPLACE THE CONTROL POINTS TO THEIR ORIGINAL CONDITION AT HIS OWN EXPENSE.

UTILITY NOTES

1. ALL PROPOSED WATER AND SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC UTILITIES PUBLIC FACILITIES MANUAL VOLUME II, MOST RECENT REVISION.
2. AS-BUILT DRAWINGS SHALL BE PROVIDED TO THE DEPARTMENT OF PUBLIC UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC FACILITIES MANUAL VOLUME II, MOST RECENT REVISION.
3. CONTACT THE DEPART OF UTILITIES, AT (757)-514-7000. A MINIMUM OF 5 WORKING DAYS PRIOR TO COMMENCEMENT OF ANY WATER AND SEWER WORK.
4. CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL BE SPECIFICALLY RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES THAT MIGHT HAVE EXISTING UTILITIES ON SITE TO DETERMINE IF ANY EXIST AND HOW TO HANDLE. ENGINEER IS NOT RESPONSIBLE FOR EXISTENCE OR LOCATION OF UNDERGROUND UTILITIES.
5. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR COORDINATING WITH THEM REGARDING UTILITY LOCATIONS, CONSTRUCTION AND SCHEDULES.
6. ALL CONNECTIONS TO EXISTING UTILITIES AND ALL UTILITY INSTALLATIONS SHALL BE IN COMPLIANCE WITH REQUIREMENTS OF APPROPRIATE JURISDICTIONAL AGENCIES.
7. SHOULD THE CONTRACTOR ENCOUNTER UNSUITABLE MATERIAL, THEN THE CONTRACTOR WILL ENGAGE AN INDEPENDENT GEOTECHNICAL ENGINEER TO VERIFY UNSUITABLE MATERIAL AND MAKE RECOMMENDATIONS ON THE REMOVAL AND THE PLACEMENT AND TYPE OF NEW BEDDING AND BACKFILL MATERIAL. THE RECOMMENDATIONS BY THE INDEPENDENT GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE OWNER AND CIVIL ENGINEER FOR CONCURRENCE PRIOR TO PROCEEDING WITH WORK.
8. ALL KNOWN UTILITIES HAVE BEEN SHOWN BASED ON THE BEST INFORMATION AVAILABLE TO THE OWNER. ALL KNOWN UTILITIES HAVE BEEN SHOWN SCHEMATICALLY ON THE PLANS AND MAY NOT BE SHOWN ACCURATELY HORIZONTALLY OR VERTICALLY. UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED EITHER VERTICALLY OR HORIZONTALLY WHEN NECESSARY FOR PROPOSED CONSTRUCTION OR ADAPTED FOR PROPOSED CONNECTIONS.

BACK FLOW PREVENTION

- ALL PIPELINES, METERS, IRRIGATION, FIRE SYSTEMS, AND PLUMBING WORK SHALL BE IN ACCORDANCE WITH DPU, THE PFM AND THE VDH REGULATIONS.
- DEVICES FOR THE PREVENTION OF BACKFLOW SHALL BE TESTED AND CERTIFIED TO MEET THE STANDARDS OF THE FOLLOWING
  - A. American Society of Sanitary Engineers (ASSE).
  - B. American Water Works Association (AWWA).
  - C. American National Standards Institute (ANSI).
  - D. University of Southern California Foundation for Cross-Connection Control (USC).
  - E. Commonwealth of Virginia Office of Drinking Water.
  - F. City of Suffolk Department of Public Utilities.

HRSD STANDARD CONSTRUCTION NOTES

1. CONTACT HAMPTON ROADS SANITATION DISTRICT (HRSD) @ (757) 460-7072 A MINIMUM OF 3 WEEKS PRIOR TO EXCAVATION OF, OR IN THE VICINITY OF, HRSD LINES. MISS UTILITY CALLS DO NOT FULFILL THIS REQUIREMENT.
2. UNDER NO CIRCUMSTANCES CAN A FORCE MAIN BE DEACTIVATED FROM THE HRSD INTERCEPTOR SYSTEM WITHOUT THE PRESENCE AND APPROVAL OF A DESIGNATED HRSD INSPECTOR. CONTACT THE INTERCEPTOR SYSTEM MANAGER A MINIMUM OF 3 WEEKS PRIOR TO DISCONNECTION OF DISTRICT FACILITIES IN ORDER TO SCHEDULE THE HRSD INSPECTOR.
3. VALVE BOXES AND RISER PIPES TO BE INSTALLED OVER HRSD VALVES SHALL BE IN ACCORDANCE WITH HRSD STANDARD DESIGN GUIDELINES. ONLY HRSD PERSONNEL ARE AUTHORIZED TO OPERATE HRSD VALVES.
4. CONTRACTOR SHALL MAINTAIN ACCESS TO HRSD FACILITIES THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 5 FEET FROM HRSD INFRASTRUCTURE. ANY PROPOSED DEVIATION FROM THE MINIMUM SEPARATION OF 5 FEET WILL REQUIRE REVIEW AND APPROVAL BY HRSD ENGINEERING PRIOR TO CONSTRUCTION.
5. IF THE HRSD INFRASTRUCTURE WILL BE EXPOSED DURING CONSTRUCTION, A DETAIL DESCRIBING THE MEANS AND METHODS OF SUPPORTING THE HRSD INFRASTRUCTURE SHALL BE SUBMITTED TO HRSD FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
6. ALL CONSTRUCTION METHODS AND MATERIALS FOR HRSD WORK SHALL CONFORM TO HRSD'S STANDARDS FOR DESIGN AND CONSTRUCTION, LATEST EDITION.

GRADING NOTES

1. FILL MATERIALS SHALL CONSIST OF CLEAN SOIL, FREE OF ORGANIC OR DELETERIOUS MATERIALS, ROCKS, OR BROKEN PIECES OF CONCRETE LARGER THAN THREE INCHES IN SIZE, OR OF ANY OTHER FOREIGN OBJECTS THAT COULD IMPEDE THE COMPACTION RESULTS.
2. FILL MATERIALS SHALL BE SPREAD EVENLY IN HORIZONTAL LAYERS OF NOT MORE THAN 8 INCHES IN LOOSE LIFTS OVER THE FULL WIDTH OF FILL AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY BY STANDARD PROCTOR COMPACTION TEST ASTM D698.
3. MAXIMUM CUT OR FILL SLOPES IS 3H:1V.
4. GRADE TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS INTO STORM INLETS.
5. SEE GEOTECHNICAL ENGINEER FOR RECOMMENDATIONS CONCERNING PROPER PLACEMENT AND COMPACTION OF STRUCTURAL FILL.
6. GRADE ALL HANDICAP RAMPS 12H:1V SLOPE MAXIMUM TO TOP OF CURB.
7. ALL SPOT ELEVATIONS ARE FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING RIM ELEVATIONS IN RELATION TO PROPOSED FINISHED GRADE PRIOR TO INSTALLATION.
9. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, STRAIGHT GRADES SHALL BE RUN BETWEEN ALL FINISH GRADE ELEVATIONS AND/OR FINISH CONTOUR LINES SHOWN. FINISH PAVEMENT GRADES AT TRANSITION TO EXISTING PAVEMENT SHALL MATCH EXISTING PAVEMENT GRADES OR BE FEATHERED PAST JOINTS WITH EXISTING PAVEMENT AS REQUIRED TO PROVIDE A SMOOTH, FREE DRAINING SURFACE.
10. IMPORTED SOILS FOR USE AS ENGINEERED FILL SHALL BE NON-EXCLUSIVE MATERIALS AND SHALL NOT CONTAIN ROCKS OR HARD LUMPS GREATER THAN 3 INCHES IN MAXIMUM DIMENSIONS AND SHALL BE FREE OF VEGETATION, ORGANIC MATTER, DEBRIS, RUBBLE, AND OTHER UNSUITABLE MATERIALS.
11. ALL AREAS TO RECEIVE FILL, AND AREAS OF STRUCTURES AND PAVEMENTS, SHALL BE STRIPPED OF VEGETATION, ORGANIC MATTER, DEBRIS, RUBBLE, AND OTHER UNSUITABLE MATERIALS. STRIPPED SOILS SHALL NOT BE USED IN ENGINEERED FILL, BUT MAY BE USED IN LANDSCAPE AREAS.
12. ENGINEERED FILL MATERIAL SHALL BE COMPACTED TO AT LEAST THE FOLLOWING PERCENTAGES OF MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT, PER ASTM D698 (STANDARD PROCTOR)
13. BASE COURSE SHALL BE COMPACTED TO AT LEAST THE FOLLOWING PERCENTAGES OF MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT, PER AASHTO T180 (MODIFIED PROCTOR)
    NOTE: MOISTURE CONTENT OF ENGINEERED FILL MATERIAL MAY REQUIRE ADJUSTMENT DURING CONSTRUCTION TO PREVENT SOIL PUMPING.
14. ENGINEERED FILL SHALL BE PLACED IN LIFTS NO GREATER THAN 6 INCHES THICK (LOOSE).
15. IF SOFT OR LOOSE SOIL IS PRESENT AT THE BASE OF EXCAVATIONS, IT SHALL BE EXCAVATED AND/OR COMPACTED AS ENGINEERED FILL OR AS RECOMMENDED BY THE GEOTECHNICAL FIELD REPRESENTATIVE.
16. IF SUBGRADE SOILS EXHIBIT PUMPING DURING COMPACTION, THE AREA SHALL BE ALLOWED TO DRY UNTIL THE SOLIDS BECOME WORKABLE WITHOUT PUMPING. THE MOISTURE CONTENT OF THE SOILS SHALL BE ADJUSTED TO PREVENT PUMPING.
17. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
18. ALL SIDEWALKS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2% AND LONGITUDENAL SLOPE OF 5%.

Stantec

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Consultants

Notes

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File Name: 195151140_C-001.dwg

BAY J. MBH BAY J. 06/25/2026
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Stantec

Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati OH 45242-4754

June 3, 2026

Project/File: 203402855

Saber Healthcare Group
Michael Coyne
23700 Commerce Park
Beachwood, Ohio 44122

Dear Michael Coyne,

Reference: Bennett's Creek Geotechnical Report Recommendations

Stantec Consulting Services, Inc. (Stantec) was contracted by the Client to perform the geotechnical exploration, laboratory testing, and report preparation for the design and construction of a new healthcare facility to be located at 1931/1975 Bridge Road (US Route 17), immediately north of the Nansemond River Bridge in Suffolk, Suffolk County, Virginia.

The proposed structure is to be a single-story building to be constructed on an approximately 9.8-acre lot. The planned size of the structure is 54,940 square feet with 100 parking spaces surrounding the structure. There will be one entrance/exit to the property, from the east off Bridge Road. A storm water basin is planned to the south of the structure with a dumpster enclosure to the west.

Please refer to the complete report: "Bennett's Creek Health and Rehabilitation Center – Bridge Road, Suffolk, Virginia" for additional information, including soil boring logs and laboratory testing, dated July 30, 2025.

1 Historic Geotechnical Exploration

GET Solutions, Inc. (GET) performed a feasibility study for St. Andrew's Presbyterian Church in 2010 on the plot of the project site. GET advanced three (3) 20-foot borings within the property limits and encountered sand with varying amounts of silt and clay until the planned boring termination depths. SPT values ranged from 2 to 13 blows per foot (bpf) in the upper 8 feet and 4 to 16 bpf in the lower 12 feet. The groundwater was measured at a depth of 5 to 6 feet below the current ground surface elevation.

2 Current Geotechnical Exploration

Stantec coordinated and oversaw a drilling exploration program in 2025 performed by McCallum Testing Laboratories (McCallum), contracted through the Client, a licensed geotechnical drilling contractor in

Chesapeake, Virginia. The project consisted of eight (8) soil borings, each advanced to a depth of 26 feet below the current ground surface. Boring locations and depths were selected by Stantec to obtain geological information to provide recommendations for the structure and parking areas. Standard Penetration Tests (SPT) were performed continuously in the upper 10 feet, then at 5-foot intervals thereafter until the planned boring termination depth was reached. A representative from McCallum logged the soils encountered in the borings.

The soil samples obtained from the borings were returned to McCallum's geotechnical laboratory for visual classification and tested for water content. Engineering classification testing was performed on samples reflecting the major soil horizons. The engineering classification tests conducted on the samples were sieve analysis (ASTM C117 and C136) and Atterberg limits (ASTM D4318). The samples were classified according to the United States Classification System (USCS) method.

A layer of topsoil was encountered at the ground surface to an approximate depth of 6 inches. Beneath the topsoil, silty fine sand (SM), silty clayey fine sand (SC), or clayey silty fine sand (SM-SC) was encountered to the boring termination depth. These materials were described as brown or gray, moist to wet (natural moisture contents of 13.3 to 50.0 percent, an average of 30.6 percent), and very loose to loose. The relative density of the material became medium dense at an approximate depth of 15 to 25 feet in all the borings except for B-1. The SPT values of the material ranged from 0 to 16 blows per foot, with an average of 8 blows per foot. The material was non-plastic or had low plasticity, with liquid limits of 17 to 29 percent (average of 21 percent) and plasticity indices of 12 to 13 percent (average of 13 percent) when plastic limits could be achieved. Because these soils have low clay content, swelling or heaving (uplift) is not expected, which limits shrinkage that can cause settlement. Occasional traces of shell fragments were encountered at varying depths.

Groundwater was encountered in the borings at a depth of 4 to 6 feet from the current ground surface. Refer to the complete geotechnical report for soil boring logs and results of laboratory testing.

3 Conclusions and Recommendations

3.1 General

The conclusions and recommendations that follow are based upon Stantec's conceptual understanding of the project as discussed through this report. The recommendations that follow are based on the information discussed in this report and the interpretation of the subsurface conditions encountered at the site during our fieldwork. If future design changes are made, Stantec should be notified so that such changes can be reviewed and the recommendations amended as necessary.

These conclusions and recommendations are based on data and subsurface conditions from the borings advanced during this exploration using the degree of care and skill ordinarily exercised under similar circumstances by competent members of the engineering profession. No warranties can be made regarding the continuity of conditions.

3.2 Site Grading

5.2.1. Prior to earthwork involving soil excavation or placement of fill materials, areas within the proposed footprint and drives/parking should be cleared of any vegetation, excessively wet or soft soil, and any deleterious surface debris.

5.2.2. Surface and foundation areas should be reviewed following stripping operations and after reaching design grade at building excavations by proof-rolling and by observation to check for unsuitable zones. Unsuitable zones encountered should be undercut to firm material and properly backfilled, stabilized with crushed stone, or treated with a combination of both. The methods and depths of treatment and stabilization should be determined by a Geotechnical Engineer on a case-by-case basis.

5.2.3. Site grading and temporary drainage ditches and/or pipes should be maintained so that positive drainage is provided during construction.

5.2.4. Borrow material used as structural fill or backfill should be approved for such use by the geotechnical engineer. Prior to its use, the contractor should identify the source and provide samples for soil classification and moisture-density testing. Borrow material should meet the following requirements:

- Unless otherwise permitted by the geotechnical engineer, borrow material should not consist of soils represented by the following classifications, as determined in accordance with ASTM D2487: MH, CH, OL, OH, Pt.
- The borrow material should be free from rubbish, organic matter, frozen soil, muck or other perishable, compressible debris, which prevents compaction to a dense, uniform state. Rock and other hard, durable fragments should be limited to particles displaying maximum dimension of six inches, should not exceed ten percent of the total volume, and should be uniformly distributed throughout the material.
- Borrow material exhibiting the characteristics of acid-sulfate soil shall not be used. Borrow material shall be tested for peroxide potential acidity (PPA), or an equivalent testing method.
- The maximum dry density of the borrow material should meet or exceed 98 pounds per cubic foot in accordance with ASTM D698, Standard Specification for Test Methods for Moisture-Density Relations for Soils and Soil-Aggregate Mixtures.

5.2.5. Soil embankments supporting structures should be compacted in maximum 8-inch lifts (loose thickness) to at least 98 percent of the Standard Proctor maximum dry density at a moisture content within a range of plus or minus two percent of optimum.

5.2.6. If onsite material, such as clayey sand (SC) or silty sand (SM), is used as structural fill, these soils are erodible, and care should be used during placement. Project design and construction should include measures to place soils within the specified moisture content range and reduce the impact of the moisture content.

5.2.7. For the soil to maintain adequate strength, it is imperative that it not be allowed to become saturated and that foundation excavations not be left open. Concrete should be placed as soon as possible

after preparation of the subgrade. If this cannot be done, the last six inches of foundation materials should not be removed until preparations of the placement of concrete are ready or protect the surface of the excavation by undercutting and placing a 4-inch lean-mix concrete (mud mat) immediately upon approval and before placing the reinforcing steel. In no case should concrete be placed in a foundation excavation that contains standing water or moisture-softened material.

5.2.8. It is recommended that the floor slab be placed above and in contact with a vapor retarder meeting or exceeding ASTM E1745 for Class [A, B or C] vapor retarders. To prevent the collection of water beneath the slab, a granular layer should not be placed beneath the slab as a capillary break or "blotter layer." If a granular layer is required by the construction, the vapor retarder should be placed above the layer. The vapor retarder may be placed below the granular layer if the layer will remain dry. The granular material should consist of rounded to sub-rounded aggregate to minimize construction damage to the vapor retarder. The contractor should seal all incidental and intentional penetrations in the retarder per vapor retarder manufacturer's recommendations before concrete placement.

5.2.9. The presence and levels of groundwater are seasonal and dependent on recent precipitation levels. The Contractor should anticipate that groundwater may be encountered within site excavations, especially during wet periods. It is likely that any water which does accumulate can be handled by excavating sumps and pumping, or by the installation of subsurface drains.

5.2.10. The site lies within a low risk for sulfide concentrations that may produce moderately problematic acid sulfate soil conditions which could require special reclamation efforts. It is recommended that representative soils be tested prior to construction to determine sulfide concentrations and if remediation will be needed.

3.3 Building Foundations

5.3.1. It is anticipated that the proposed facility is to be of slab-on-grade construction supported by shallow foundations. Based on field and laboratory testing of the soil encountered at the anticipated foundation depths for each structure, the recommended net allowable bearing capacity for continuous wall and isolated spread footings bearing on undisturbed, original soil or engineered fill and constructed in accordance with the recommendations outlined herein is 1,500 psf. Due to the low SPT N-values (0 to 3 bpf) at a depth of 4 to 8 feet in the borings, it is recommended to undercut the footing excavations by a depth of 2 feet and replace the material with a compacted, clean #57 stone aggregate to maintain the recommended bearing capacity.

5.3.2. The recommended allowable bearing capacity is based on a minimum factor of safety equal to three against bearing capacity failure. Generally, settlements produced by bearing pressures based on a factor of safety of three are within tolerable limits. Some settlement of subgrade soils will likely occur and should be expected.

5.3.3. It is recommended that the bottom of exterior footings extend to a minimum of 18 inches below the finished outside grade to provide frost protection.

5.3.4. Reinforcing steel should be placed in all footings to provide rigidity and strength to bridge over any weak or compressible foundation materials that may be in contact with the foundation system. Although no shear failures are expected if the recommended allowable stresses are not exceeded, a small amount of settlement could occur and should be anticipated. This precaution will tend to cause any settlement that may occur to be of a more uniform nature and prevent damage to foundation elements.

5.3.5. The subgrade soils should be proof rolled and any soft materials removed. A fully loaded dump truck (approximately 35 tons) with rubber tires should be used to perform the proof roll. Any soft or unsuitable soils should be removed and replaced with a clean #57 stone aggregate or other means (geogrid, chemical stabilization, etc.) directed by the engineer.

3.4 Pavement Design

5.4.1. Pavement design should include proper preparation of the subgrade, design of the drainage system, and implantation of an aggregate base course with an asphalt or concrete surface course.

5.4.2. Preparation of the pavement subgrades should be completed in accordance with Section 3.2 of this report. Care and attention should be given to preparing the surface to prevent surface depressions that could retain water.

5.4.3. The exposed surface should be proof rolled and any soft areas removed. Compaction of fill material intended to support pavement should meet or exceed 98 percent of the maximum dry density as determined by ASTM D698. The moisture content at the time of compaction should be within 2 percent of the optimum value.

5.4.4. Traffic information was not available at the time of this report. Based on the provided site plan, 100 spaces are planned for car parking and it is assumed that truck traffic will not be typical.

5.4.5. The following is for input into the Tensar+ pavement design software for section design:

Design Parameters

Parameter	Flexible Pavement	Rigid Pavement
Reliability (%)	80	80
Standard Deviation	0.49	0.39
Design Live (Years)	20	20
Initial Serviceability	4.5	2.5
Terminal Serviceability	2.5	2.5
Design CBR	5	N/A
Subgrade Modulus (k, pci)	N/A	75

5.4.6. **Flexible Pavement.** Appendix III of the Virginia Department of Transportation *Pavement Design Guide for Subdivision and Secondary Roads in Virginia* manual was used to develop minimum thicknesses for pavement design. A CBR value of 5 was used in these calculations due to the low SPT N-values near the bearing elevation. These minimum thicknesses correlate to an estimated 396,900 ESALs and 1,375,800 ESALs for light-duty and heavy-duty pavement sections, respectively, when input into the Tensar+ Design software for flexible pavements. If an ESAL value greater is required, the thickness of the pavement system can be revised.

Flexible Pavement Sections

Layer	Light-Duty (in.)	Heavy-Duty (in.)
Surface Course (Asphalt Concrete SM-12.5A)	1.5	1.5
Intermediate Course (Asphalt Concrete-19.0A)	2.0	3.5
Aggregate Base Course	10.0	10.0

5.4.7. Proper drainage and material selection for the aggregate base material is crucial for pavement performance. It is recommended that Type I aggregate, according to the Virginia Department of Transportation guidelines, be used as the base course.

5.4.8. **Rigid Pavement.** It is recommended that rigid pavements to be used in areas expecting heavy truck traffic. Where concrete pavement is to be used in lieu of asphalt pavement, the concrete should have a 28-day flexural strength of at least 650 psi and be air entrained. Expansion joints should be sealed with a polyurethane sealant so that moisture infiltration into the subgrade soils is reduced. The thicknesses in the below table correspond to 1,007,400 ESALs and 4,870,800 ESALs for light-duty and heavy-duty pavement sections, respectively, when input into the Tensar+ Design software for rigid pavements.

Rigid Pavement Sections

Layer	Light-Duty (in.)	Heavy-Duty (in.)
Reinforced Concrete	6.0	8.0
Aggregate Base Course	10.0	10.0

Respectfully,

Stantec Consulting Services Inc.

Jim Swindler PE
Senior Geotechnical Engineer
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jim.swindler@stantec.com

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

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SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

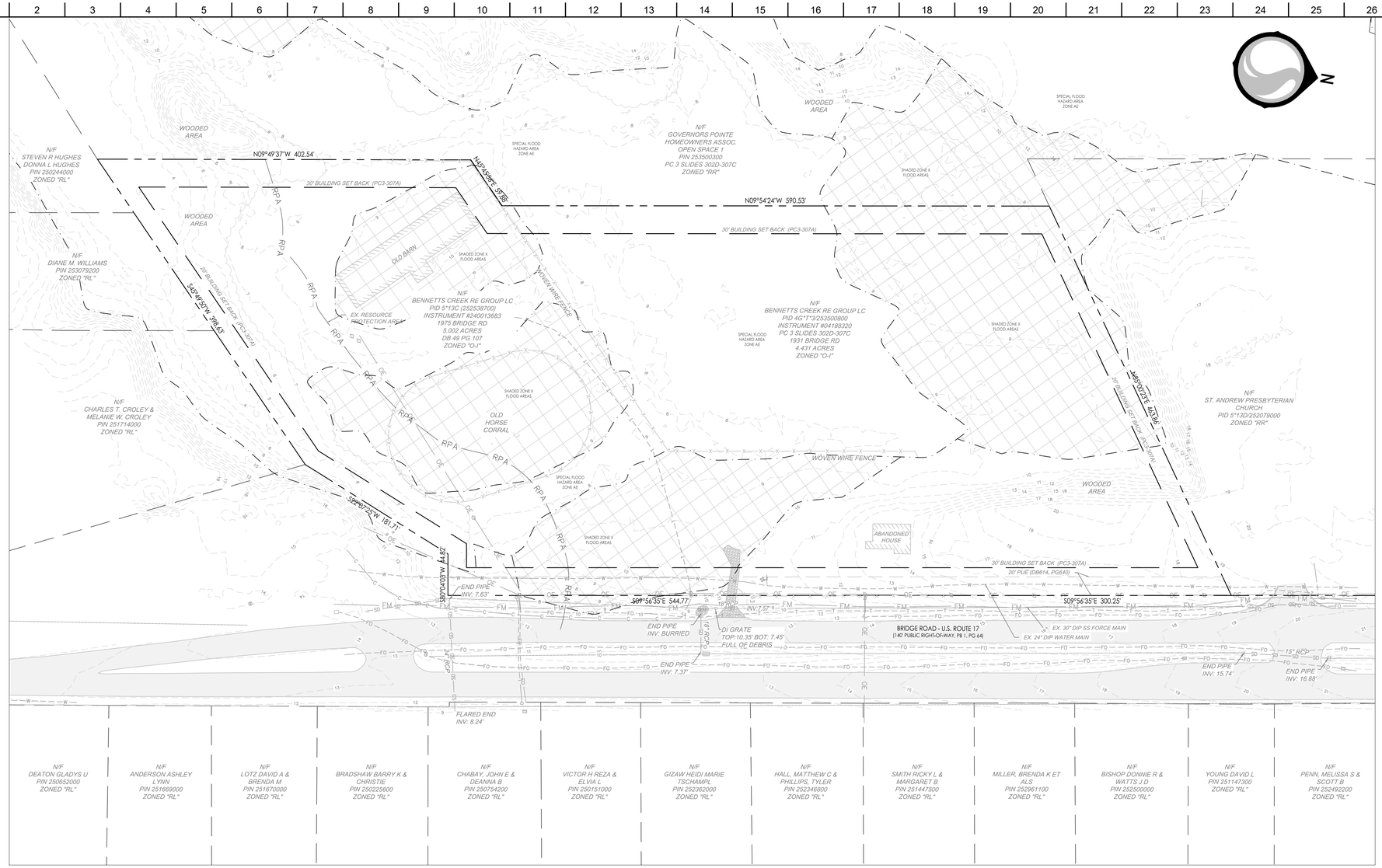
Title

GEOTECHNICAL RECOMMENDATIONS

Drawing No.

GI-004

ORIGINAL SHEET - ARCH D



EXISTING CONDITIONS PLAN

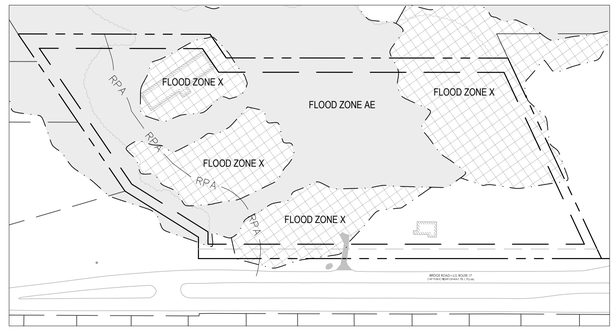
SCALE: 1"=60'

0 60' 120'

SCALE:1"=60'

LEGEND

EXISTING WATER MAIN	W	EXISTING FIBER OPTIC	FO	EXISTING PROPERTY LINE / ROW	
EXISTING TELEPHONE	T	EXISTING CABLE TV	C	EXISTING BUILDING SETBACK	
EXISTING STORM DRAIN	SD	EXISTING DRAINAGE DITCH		EXISTING WATER MAIN VALVE	
EXISTING FORCE MAIN	FM	EXISTING OVERHEAD ELECTRIC	OE	EXISTING FIRE HYDRANT	
EXISTING FENCE	X	EXISTING 20' PUE		EXISTING UTILITY POLE	
EXISTING EOP		EXISTING RPA	RPA	EXISTING CONTOUR	100
EXISTING BUILDING		EXISTING TREE LINE		GIS PARCEL LINE	
EXISTING ASPHALT RD.		EXISTING GRAVEL/RIP RAP		ZONE X FLOOD AREA	



FLOOD ZONE MAP

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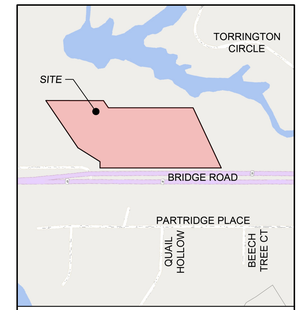
SCALE:1"=150'



VICINITY & KEY MAP

SCALE:1"=500'

EXISTING CONDITIONS NOTES

1. THE HORIZONTAL COORDINATES SHOWN HEREON ARE REFERENCED TO THE VIRGINIA STATE PLANE , SOUTH ZONE COORDINATE SYSTEM, NAD 83.
2. THE VERTICAL DATUM SHOWN HEREON IS REFERENCED TO NAVD 1988.
3. TOPOGRAPHIC FIELDWORK COMPLETED ON 03/19/2026 BY STANTEC CONSULTING SERVICES.
4. THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM FIELD LOCATIONS AND/OR UTILITY COMPANY RECORD PLANS. THE LOCATION OF ALL CHARTED AND UNCHARTED UTILITIES SHOULD BE STAKED
5. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
6. REFER TO SHEET GI-003 FOR GENERAL NOTES.

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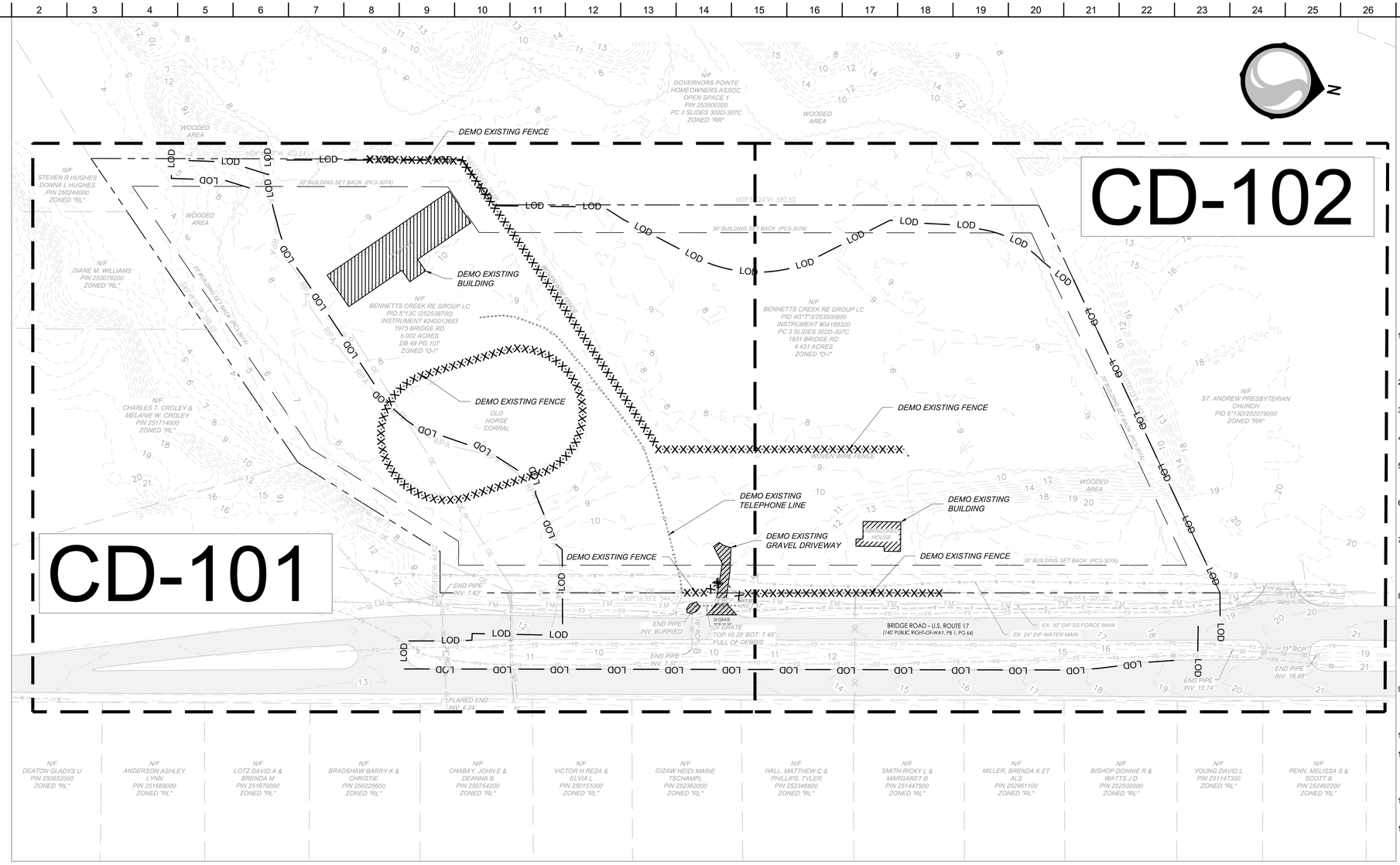
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN

Title
EXISTING CONDITIONS PLAN

Drawing No.
VL-101

ORIGINAL SHEET - ARCH D



OVERALL DEMOLITION PLAN

SCALE: 1"=60'

0 60' 120'

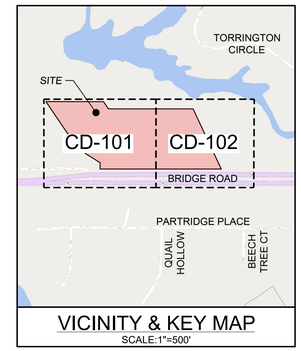
SCALE:1"=60'

DEMOLITION LEGEND

DEMO EXISTING FENCE - XXXXXXXXXXXXXXXXX

DEMO EXISTING UTILITY

DEMO EXISTING BLDG. / DRIVEWAY



VICINITY & KEY MAP

SCALE:1"=500'

DEMOLITION NOTES

1. APPLICABLE EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO ANY DEMOLITION OR LAND DISTURBANCE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.
2. EQUIPMENT SHALL NOT BE OPERATED OR STORED ON ANY ADJOINING PROPERTY.
3. MATERIALS SHALL NOT BE STORED ON ANY ADJOINING PROPERTY.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ANY ADJOINING PROPERTY'S ENTRANCE OR DRIVE.
5. ALL EXISTING ON-SITE UTILITIES SHALL REMAIN UNLESS DESIGNATED FOR REMOVAL OR ABANDONMENT. PROTECT ALL EXISTING UTILITIES TO REMAIN.
6. MANHOLES, CATCH BASINS, CLEANOUTS, VALVE BOXES, FRAMES, COVERS AND GRATES REMAINING IN USE SHALL BE PROTECTED.
7. ABANDON AND/OR REMOVE EXISTING UTILITIES ONLY AFTER CRITICAL NEW SYSTEMS ARE IN PLACE AND OPERATIONAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR PROPER AND SAFE SEQUENCING OF ABANDONMENT AND RELOCATION OF UTILITIES.
8. FOR ALL UTILITY LINES DESIGNATED TO BE REMOVED, PLACE AND COMPACT STRUCTURAL BACKFILL WITHIN TRENCH. FOLLOW GOVERNING AGENCY REQUIREMENTS WITHIN RIGHT-OF-WAY. ALL UTILITY TRENCHES SHALL BE BACKFILLED WITH SELECT GRANULAR FILL WHEN LOCATED UNDER OR WITHIN 10 FEET OF PAVEMENT AND/OR BUILDINGS. TRENCHES LOCATED OUTSIDE OF THIS REGION SHALL BE BACKFILLED WITH NATIVE FILL MATERIAL CONSISTENT WITH THE SPECIFICATIONS.
9. CONTRACTOR IS RESPONSIBLE TO VERIFY EXISTING CONDITIONS PRIOR TO START OF ANY WORK. ANY AND ALL DISCREPANCIES ARE TO BE DOCUMENTED AND SUBMITTED TO THE OWNER'S REPRESENTATIVE AT THE TIME OF DISCOVERY.
10. PROTECT ALL TREES DESIGNATED TO REMAIN.
11. THE CONTRACTOR SHALL COORDINATE THE WORK WITH VARIOUS UTILITY PROVIDERS TO CONSTRUCT NEW UTILITY LINES AND/OR DEMOLISH EXISTING UTILITY LINES PRIOR TO START OF CONSTRUCTION.
12. ALL UNDERGROUND UTILITY PIPING TO BE PLUGGED AT TERMINUS OF REMOVAL.
13. ALL CONSTRUCTION DEBRIS AND OTHER WASTE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE REGULATORY AGENCY REQUIREMENTS OR AS DIRECTED BY THE OWNER.

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CONTACT: MICHAEL COYNE

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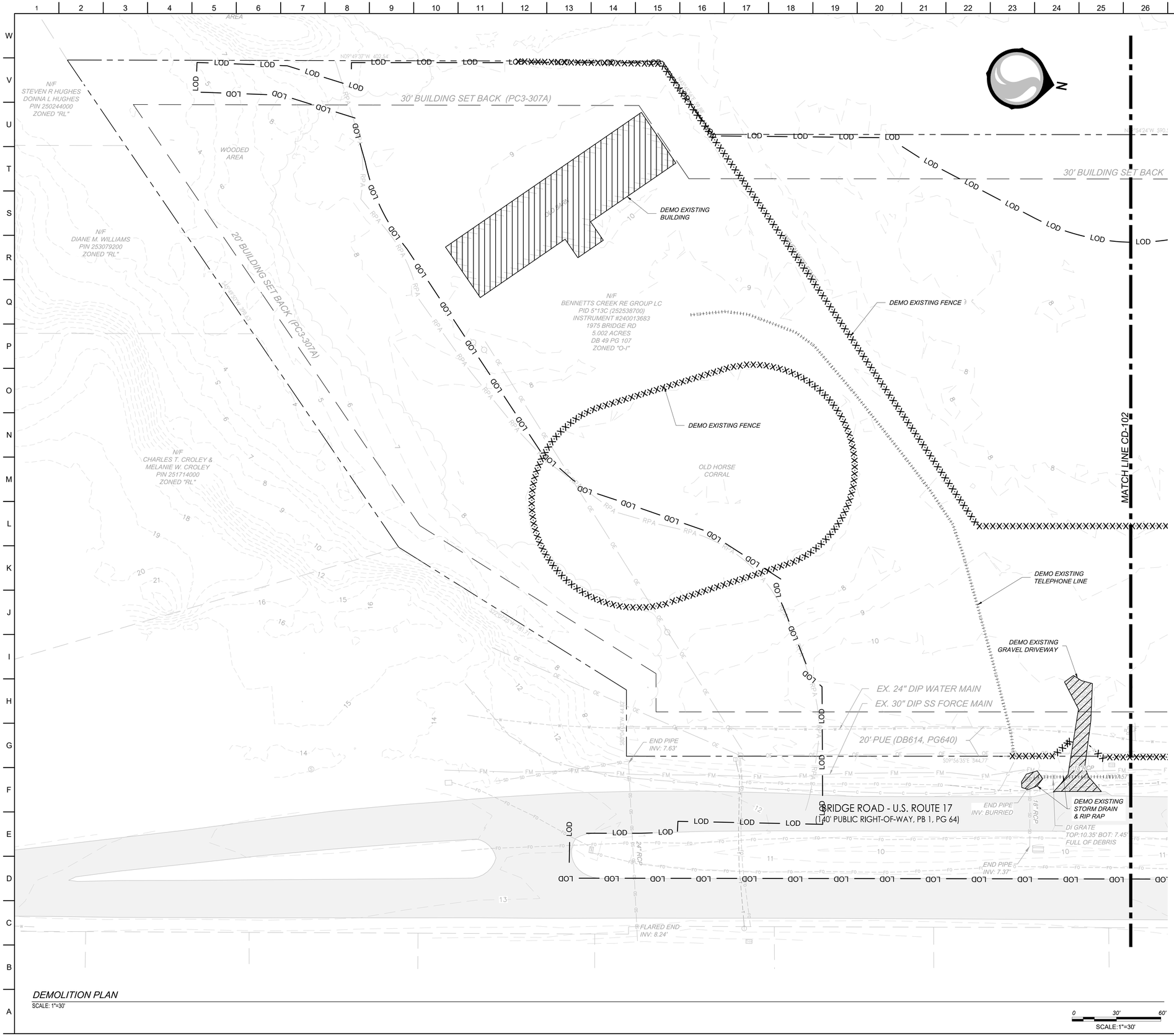
Title

OVERALL DEMOLITION PLAN

Drawing No.

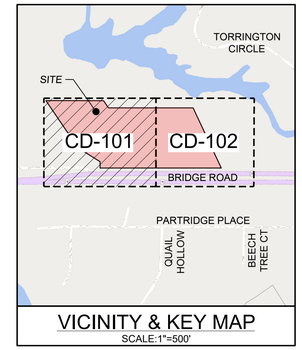
CD-100

ORIGINAL SHEET - ARCH D



DEMOLITION PLAN

SCALE: 1"=30'



VICINITY & KEY MAP

SCALE:1"=500'

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.
3. REFER TO SHEET CD-100 FOR DEMOLITION NOTES.

DEMOLITION LEGEND

DEMO EXISTING FENCE - XXXXXX

DEMO EXISTING UTILITY

DEMO EXISTING BLDG. / DRIVEWAY

ORIGINAL SHEET - ARCH D

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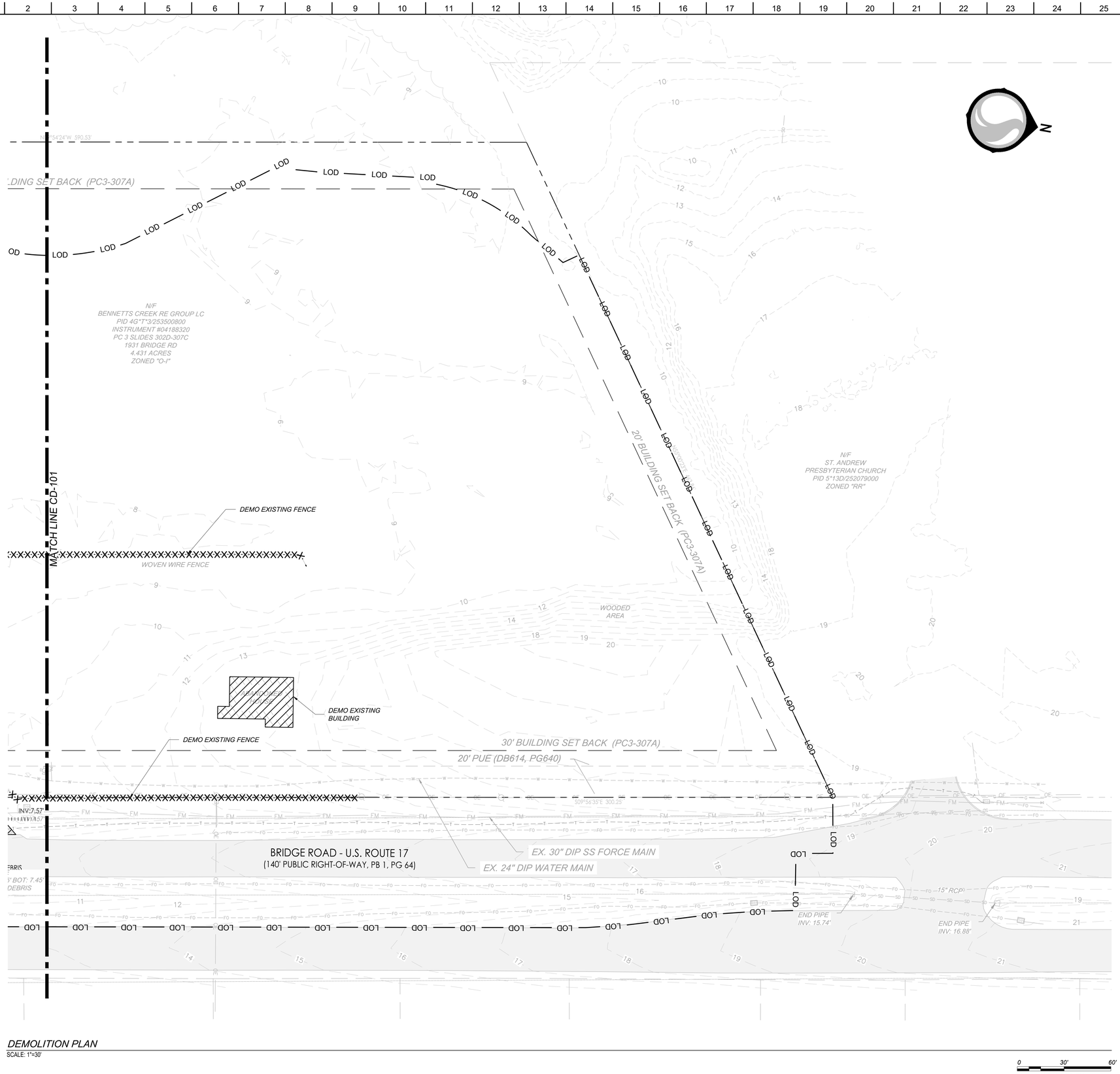
DEMOLITION PLAN

Drawing No.

CD-101

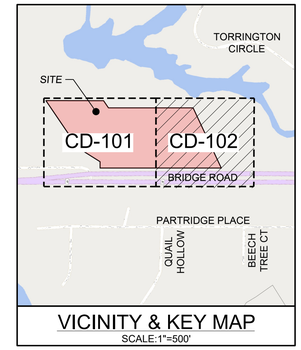


DEMOLITION PLAN

SCALE: 1"=30'

0 30' 60'

SCALE:1"=30'



VICINITY & KEY MAP

SCALE:1"=500'

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DEMOLITION LEGEND

DEMO EXISTING FENCE - X-X-X-X-X-X

DEMO EXISTING UTILITY

DEMO EXISTING BLDG. / DRIVEWAY

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File Name: 195151140_CD-101.dwg

Dwn.	Chkd.	Dsgn.	06/25/2026
BAY J.	MBH	BAY J.	MM.DD.YY

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

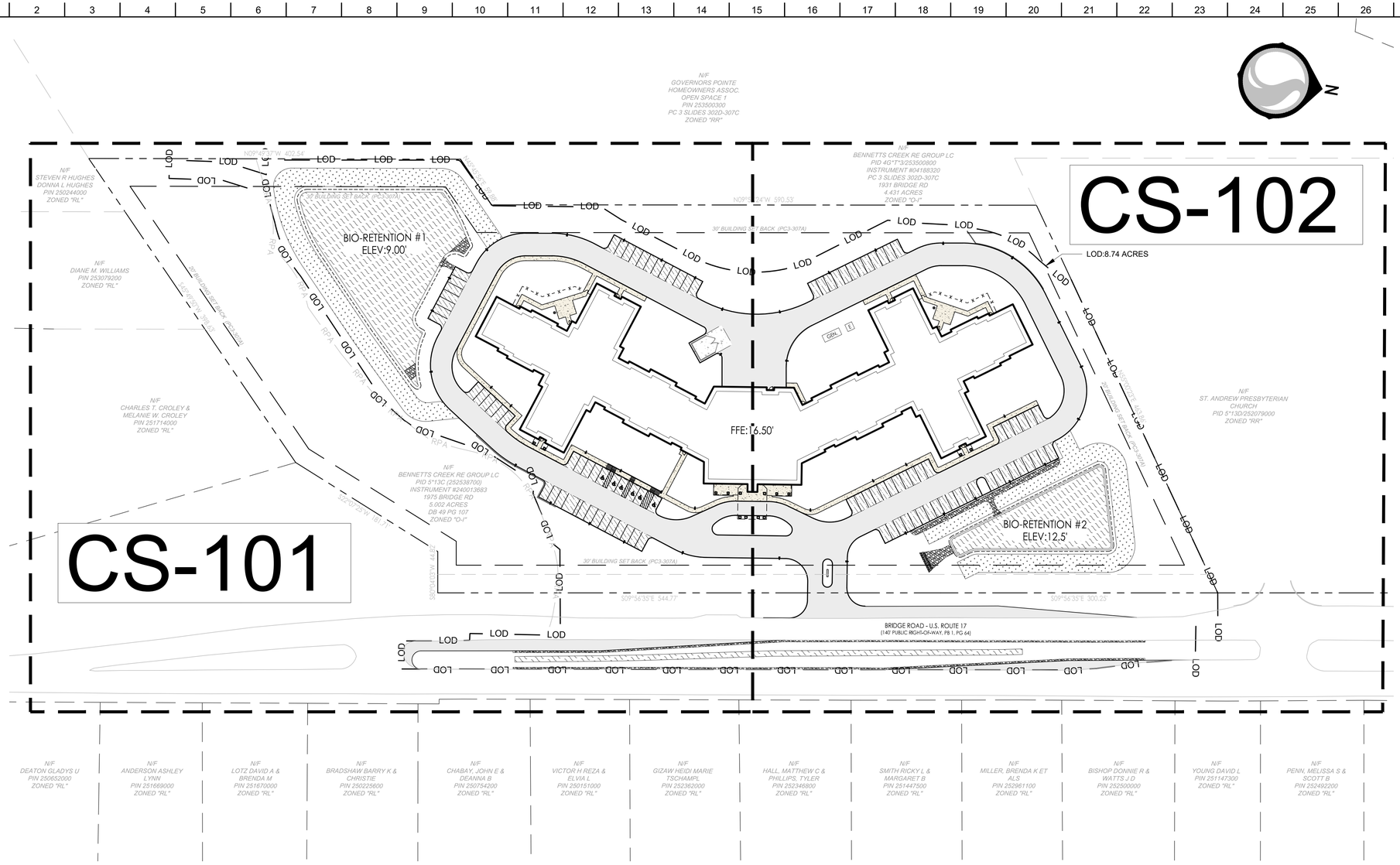
Title

DEMOLITION PLAN

Drawing No.

CD-102

ORIGINAL SHEET - ARCH D

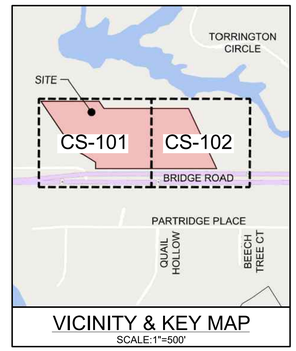


OVERALL SITE PLAN

SCALE: 1"=60'

0 60' 120'

SCALE:1"=60'



VICINITY & KEY MAP

SCALE:1"=500'

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.

RPA NOTE
ALL LAND DISTURBANCE, USES, DEVELOPMENT AND REDEVELOPMENT IN THE CHESAPEAKE BAY PRESERVATION AREA OVERLAY DISTRICT ARE REQUIRED TO RETAIN AN UNDISTURBED VEGETATED 100-FOOT BUFFER AREA AROUND RPA FEATURES, SUCH AS WETLANDS, SHORELINES AND ALONG WATER BODIES WITH PERENNIAL FLOW

CHESAPEAKE BAY PRESERVATION AREA OVERLAY DISTRICT NOTE
ONLY CERTAIN SPECIFIED ACTIVITIES MAY BE PERMITTED IN THE RPA, RESOURCE PROTECTION AREA, SUCH AS APPROVED WATER DEPENDENT FACILITIES, REDEVELOPMENT, ROADS AND DRIVEWAYS, FLOOD CONTROL AND BONA FIDE AGRICULTURAL ACTIVITIES AND WETLANDS RESTORATION ACTIVITIES.

LEGEND

EXISTING 20' PUE		EXISTING EOP	
EXISTING RPA	RPA RPA	EXISTING PROPERTY LINE / ROW	
EXISTING BUILDING SETBACK		EXISTING CONTOUR	100
GIS PARCEL LINE			
CURB		SIDEWALK	
BUILDING	FFE:16.50'	HANDICAP PARKING/STRIPING	
FENCE	x x x x x	LOD	LOD LOD
HC RAMP DETECTABLE SURFACE		SITE LIGHT	
SWM DEVICE SURFACE		ASPHALT PVMT.	
PROPOSED CONTOUR	100	SITE WALL	

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BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

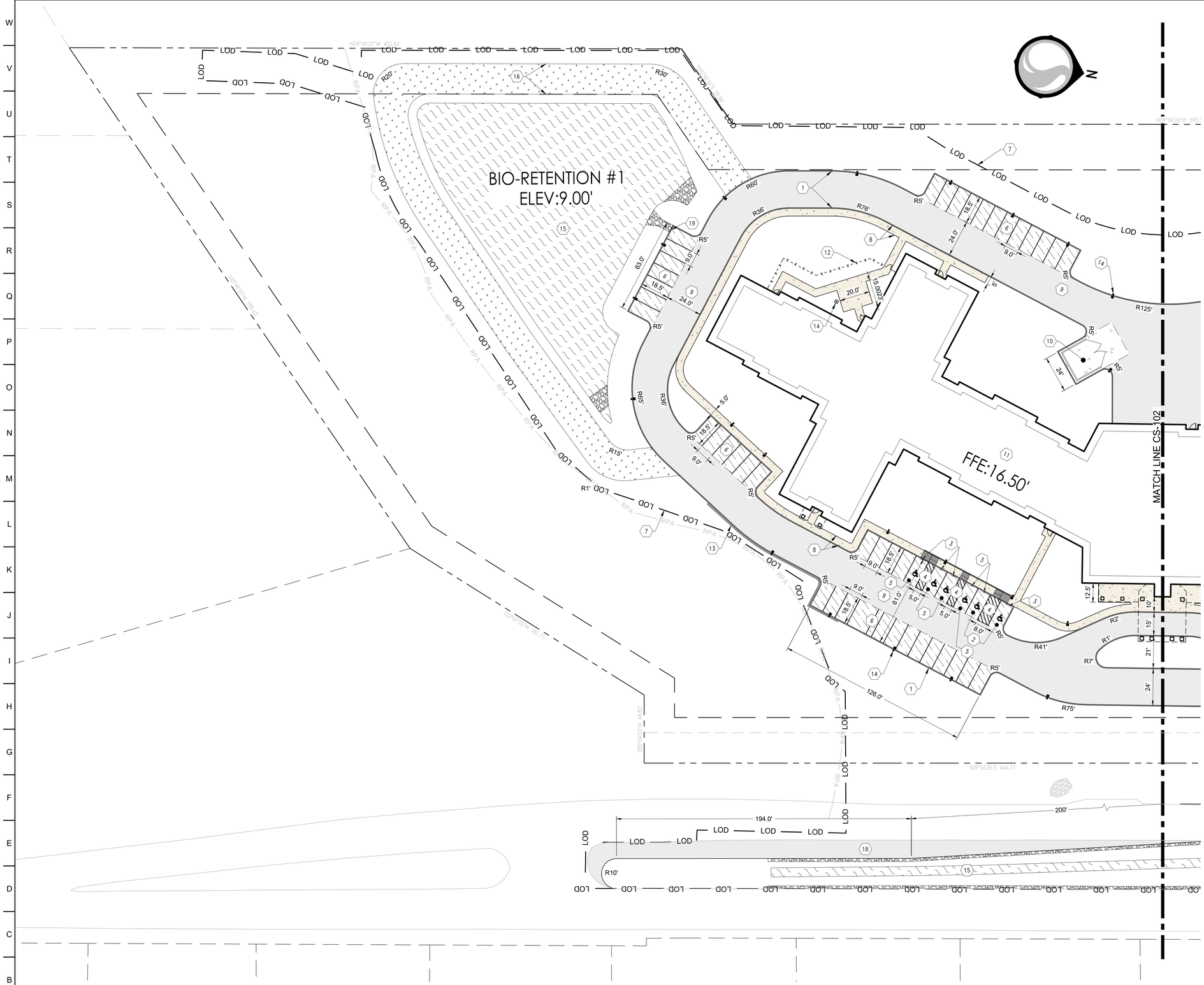
Title

OVERALL SITE PLAN

Drawing No.

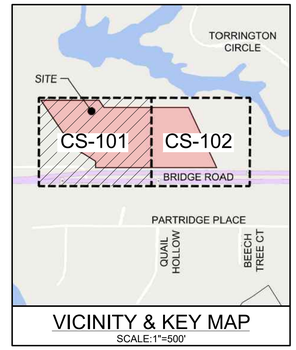
CS-100

ORIGINAL SHEET - ARCH D



SITE PLAN
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'



VICINITY & KEY MAP
SCALE:1"=500'

KEYNOTES NOTES :

1. CONCRETE CURB AND GUTTER. E1/C-506.
2. VAN ACCESSIBLE HANDICAP PARKING STALL. Q17/C-505.
3. HANDICAP SIGN. B17/C-505.
4. HANDICAP ASPHALT MARKING. I7/C-505 & I9/C-505.
5. TYPICAL HANDICAP PARKING STALL. Q9/C-505.
6. LIGHT DUTY ASPHALT PAVEMENT REGULAR PARKING STALL (TYP). Q1/C-505 & E21/C-506.
7. LIMITS OF DISTURBANCE - 8.74 ACRES
8. 5' CONCRETE SIDEWALK. E11/C-506.
9. HEAVY DUTY ASPHALT PAVEMENT. E21/C-506.
10. HEAVY DUTY CONCRETE DUMPSTER PAD. E21/C-506.
11. BUILDING.
12. FENCE.
13. RETAINING WALL.
14. SITE LIGHT (TYP). EA-102
15. SWM. CH101 - CH202
16. SWM ACCESS ROAD.
17. HC. RAMP W/ DETECTABLE WARNING SUR. N1/C-506
18. SEE SHEET CP-100 TO CP124 FOR RIGHT OF WAY PAVING.
19. 5' CURB CUT.

LEGEND

- EXISTING 20' PUE
- EXISTING RPA
- EXISTING BUILDING SETBACK
- GIS PARCEL LINE
- EXISTING EOP
- EXISTING PROPERTY LINE / ROW
- CURB
- SIDEWALK
- BUILDING (FFE:16.50')
- HANDICAP PARKING/ STRIPING
- FENCE
- LOD
- HC DET. SUR.
- SITE LIGHT
- SWM DEVICE
- HD ASPHALT PVMT.
- LD ASPHALT PVMT.
- HD CONCRETE PVMT.
- PROPOSED CONTOUR (100)
- SITE WALL

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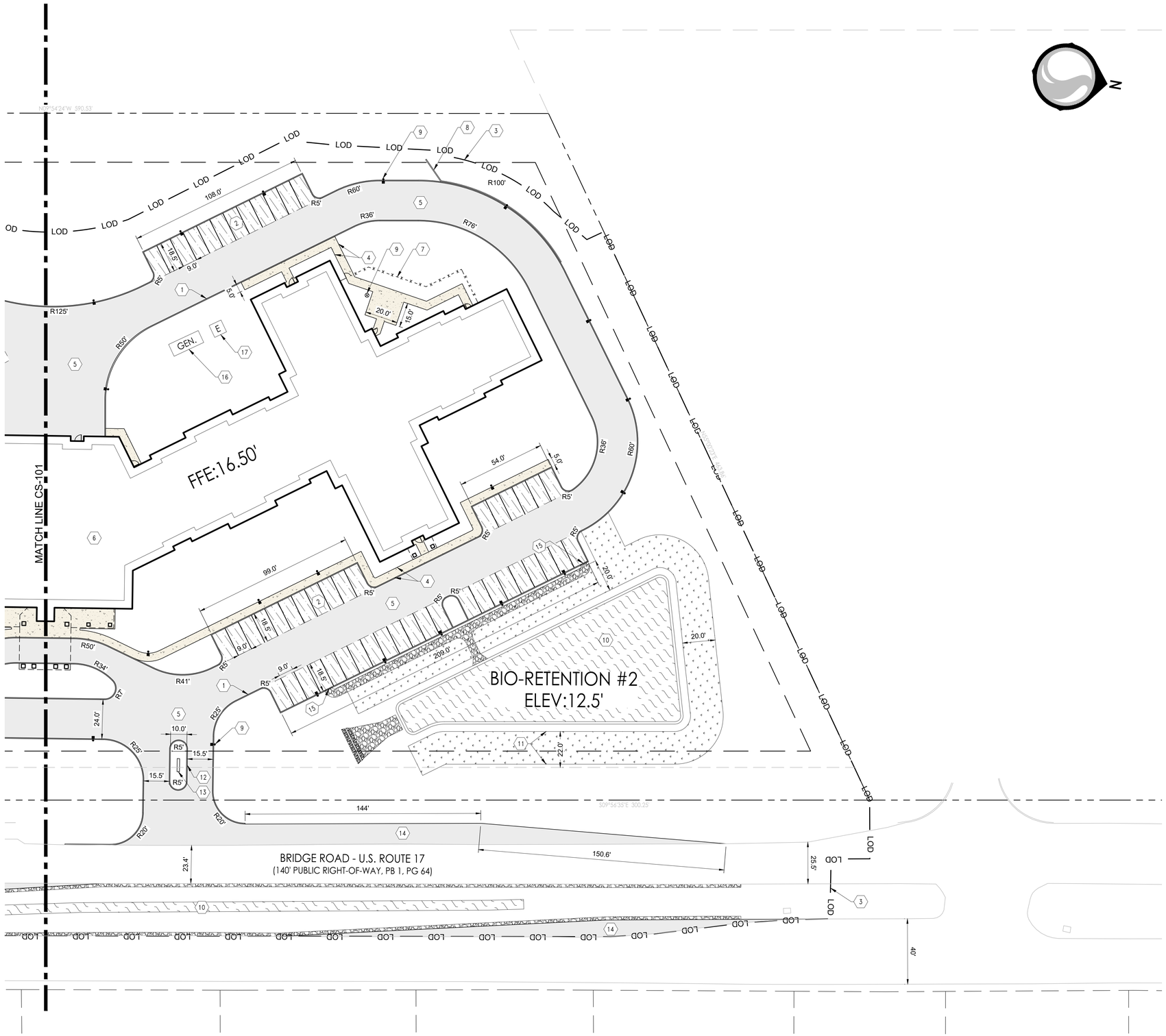
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
SITE PLAN

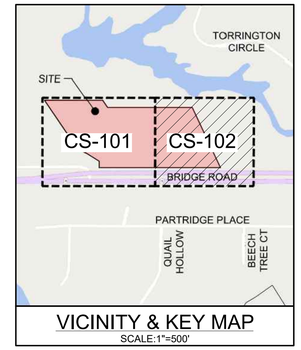
Drawing No.
CS-101

ORIGINAL SHEET - ARCH D



SITE PLAN
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'



VICINITY & KEY MAP
SCALE:1"=500'

KEYNOTES NOTES :

1. CONCRETE CURB AND GUTTER. E1/C-506.
2. LIGHT DUTY ASPHALT PAVEMENT REGULAR PARKING STALL (TYP). Q1/C-505 & E21/C-506.
3. LIMITS OF DISTURBANCE - 8.74 ACRES
4. 5' CONCRETE SIDEWALK. E11/C-506.
5. HEAVY DUTY ASPHALT PAVEMENT. E21/C-506.
6. BUILDING.
7. FENCE.
8. RETAINING WALL.
9. SITE LIGHT (TYP). EA-102
10. SWM. CH101 - CH202
11. SWM ACCESS ROAD.
12. CONCRETE MEDIAN CURB. N21/C-506
13. SITE MONUMENT SIGN. SEE ARCHITECTURAL PLANS.
14. SEE SHEET CP-100 TO CP124 FOR RIGHT OF WAY PAVING.
15. 5' CURB CUT.
16. GENERATOR. SEE ARCH PLANS.
17. TRANSFORMER SEE ARCH PLANS.

LEGEND

- EXISTING 20' PUE
- EXISTING RPA (RPA)
- EXISTING BUILDING SETBACK
- GIS PARCEL LINE
- EXISTING EOP
- EXISTING PROPERTY LINE / ROW
- CURB
- SIDEWALK
- BUILDING (FFE:16.50')
- HANDICAP PARKING/ STRIPING
- FENCE
- LOD
- HC DET. SUR.
- SITE LIGHT
- SWM DEVICE
- HD ASPHALT PVMT.
- LD ASPHALT PVMT.
- HD CONCRETE PVMT.
- PROPOSED CONTOUR (100)
- SITE WALL

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BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title

SITE PLAN

Drawing No.
CS-102

ORIGINAL SHEET - ARCH D

ORIGINAL SHEET - ARCH D

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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: NOT TO SCALE

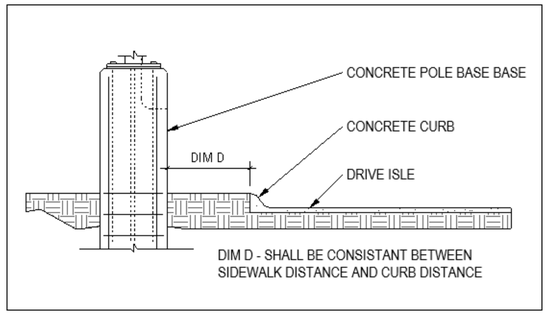
Title
SITE LIGHTING PLAN

Revision:

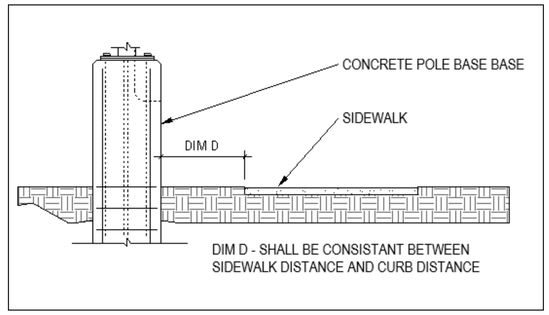
Drawing No.
EA-101

LUMINAIRE SCHEDULE

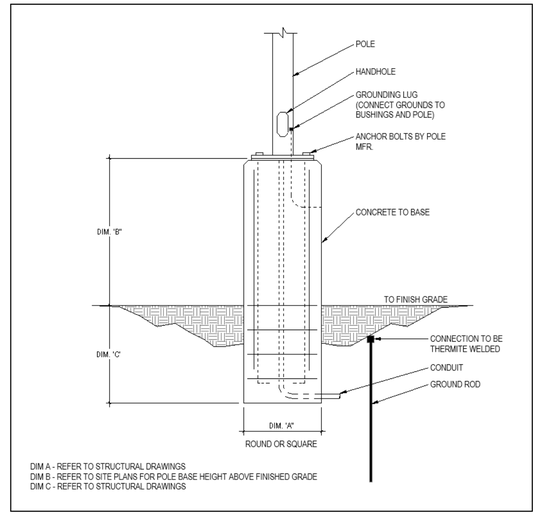
TYPE	DESCRIPTION	MANUFACTURER	CATALOGUE SERIES	LAMP				CONTROLS		INPUT		FORM			COMMENTS / NOTES
				TYPE	LUMENS	CCT	CRI	TYPE	RANGE	WATTAGE	VOLTAGE	FINISH	LENS / DISTRIBUTION	MOUNTING	
ED01	4" DIAMETER RECESSED DOWNLIGHT	GOTHAM	IVO4	LED	500 LUMENS	3500K	80+	0-10V	1% MIN	5	UNIV	PER ARCHITECT	50° DISTRIBUTION, WHITE GLOSS PARABOLIC TRIM	RECESSED	CONTRACTOR TO COORDINATE MOUNTING HARDWARE WITH APPROVED CEILING SUBMITTALS AND FIELD CONDITIONS.
EP01	19.4" WIDE X 35.8" TALL POST-TOP AREA LUMINAIRE, IP66, WET LOCATION LISTED	LUMENPULSE	CLASSICA CLA3661	LED	8,000 LUMENS	3000K	80+	0-10V	10% MIN	64	120V	PER ARCHITECT	CLEAR ACRYLIC LENS, TYPE IV BACKLIGHT SHIELD	POLE @ 16'-0" A.F.G.	FINAL MOUNTING LOCATIONS SHALL BE COORDINATED IN THE FIELD WITH LANDSCAPE PLAN, LANDSCAPE ELEMENTS, AND LANDSCAPE ARCHITECT PRIOR TO ROUGH-IN.
EP02	19.4" WIDE X 35.8" TALL POST-TOP AREA LUMINAIRE, IP66, WET LOCATION LISTED	LUMENPULSE	CLASSICA CLA3661	LED	6,000 LUMENS	3000K	80+	0-10V	10% MIN	55	120V	PER ARCHITECT	CLEAR ACRYLIC LENS, TYPE V SQUARE	POLE @ 16'-0" A.F.G.	FINAL MOUNTING LOCATIONS SHALL BE COORDINATED IN THE FIELD WITH LANDSCAPE PLAN, LANDSCAPE ELEMENTS, AND LANDSCAPE ARCHITECT PRIOR TO ROUGH-IN.
EW01	16.5" TALL X 8" WIDE X 7.8" DEEP WALL LANTERN, WET LISTED	TRANS GLOBE LIGHTING	4095 WALL LANTERN	SEE NOTES	800 LUMENS	3500K	80+	--	--	10	120V	PER ARCHITECT	FROSTED OR CLEAR GLASS PER ARCHITECT	WALL	PROVIDE (1) E26 60W EQUIVALENT LED LAMP. REFER TO INTERIOR DESIGN DOCUMENTATION FOR INSTALL HEIGHT OF LUMINAIRE.



STANDARD POLE BASE DETAIL NEAR DRIVE AISLE



STANDARD POLE BASE DETAIL NEAR SIDEWALK



STANDARD POLE BASE DETAIL

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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: NOT TO SCALE

Title
LUMINAIRE SCHEDULE & POLE BASE DETAILS

Revision:

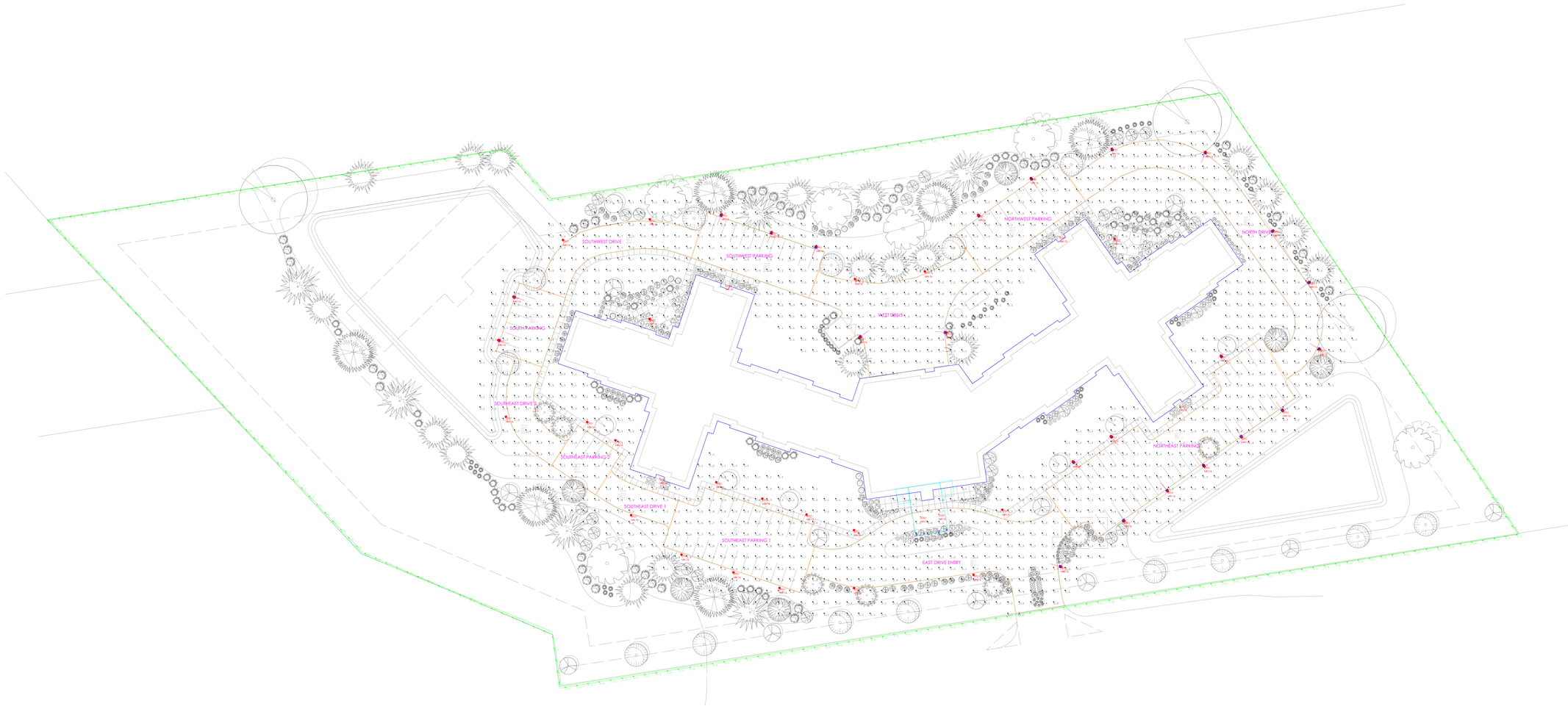
Drawing No.
EA-102

ORIGINAL SHEET - ARCH D

SITE LIGHTING PHOTOMETRIC NOTES

1. ALL SITE LIGHTING TO UTILIZE 100% DOWNLIGHT, 0% UPLIGHT.
2. CALCULATION RESULTS SHOW 0 FOOTCANDLES AT PROPERTY BOUNDARY.
3. POLE HEIGHTS NOT TO EXCEED 16'-0" A.F.G.
4. ALL POLES TO BE PROVIDED WITH BACKLIGHT SHIELD TO REFRAIN FROM UNDESIRABLE LIGHTSPILL.
5. LIGHT LEVELS TO MEET IES RECOMMENDED ILLUMINANCE CRITERIA.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Ground_Planar	Illuminance	Fc	0.90	6.3	0.1	9.00	63.00
Property Boundary	Illuminance	Fc	0.00	0.2	0.0	N.A.	N.A.
EAST DRIVE ENTRY	Illuminance	Fc	1.10	3.7	0.1	11.00	37.00
NORTH DRVIE	Illuminance	Fc	1.24	2.6	0.3	4.13	8.67
NORTHEAST PARKING	Illuminance	Fc	1.73	2.8	0.6	2.88	4.67
NORTHWEST PARKING	Illuminance	Fc	1.11	2.6	0.4	2.78	6.50
SOUTH PARKING	Illuminance	Fc	1.52	2.8	0.7	2.17	4.00
SOUTHEAST DRIVE_1	Illuminance	Fc	1.50	2.3	1.0	1.50	2.30
SOUTHEAST DRIVE_2	Illuminance	Fc	1.21	2.3	0.5	2.42	4.60
SOUTHEAST PARKING_1	Illuminance	Fc	2.01	3.2	1.3	1.55	2.46
SOUTHEAST PARKING_2	Illuminance	Fc	1.68	3.2	0.6	2.80	5.33
SOUTHWEST DRIVE	Illuminance	Fc	1.25	2.5	0.6	2.08	4.17
SOUTHWEST PARKING	Illuminance	Fc	1.45	2.9	0.6	2.42	4.83
WEST DRIVE	Illuminance	Fc	1.45	2.9	0.1	14.50	29.00



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CONTACT: MICHAEL COYNE

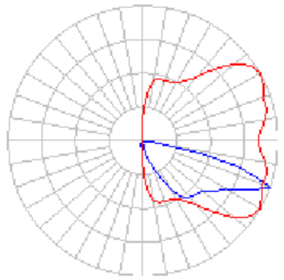
Project No.: 195151140

Scale: NOT TO SCALE

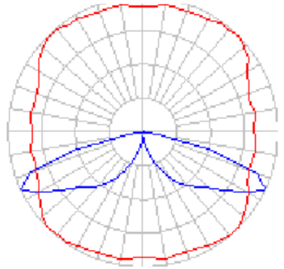
Title
SITE LIGHTING PHOTOMETRIC

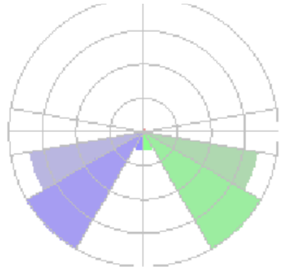
Revision:

Drawing No.
EA-103

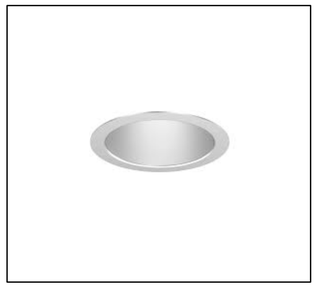


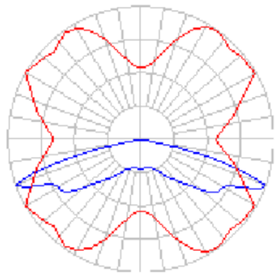
Type: **EP01**, 16FT POLE
Manufacturer: Lumenpulse
Model: Classica Type IV
Spec: CLA3661-120-CAL-M80-30K-CRI 80-4 BLS-DIM_SPL

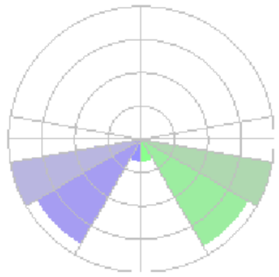




Type: **EP02**, 16FT POLE
Manufacturer: Lumenpulse
Model: Classica Type V
Spec: CLA3661-120-CAL-S60-30K-CRI 80-5S-DIM_SPL







Type: **ED01**
Manufacturer: Gotham Lighting
Model: EVO 4”
Spec: IVO4 D 05LM 35K 80CRI 50D P WR

Type: **EW01**
Manufacturer: Transglobe Lighting
Model: Wall Lantern 4095

ORIGINAL SHEET - ARCH D

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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: N/A

Title
SITE LIGHTING POLAR PLOTS

Revision:

Drawing No.
EA-105

Specification Sheet

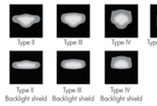
Classica
CLA3661

Project Name _____ **Qty** _____

Type _____ **Catalog / Part Number** _____

Front view

Distributions



Colors and Color Temperatures

2200K 2700K 3000K 3500K 4000K 5700K

Control

ON/OFF 0-10V

Rating

IP66 (optical chamber)

Certifications

5 YEARS

Description

The Classica is an LED luminaire for urban lighting applications, including pedestrian plazas, residential streets and collector roads. Featuring a traditional lantern design with a decorative top, the luminaire can be further customized, with a choice of outputs, color temperatures and finishes.

Features

Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, 5700K
Distributions	Type II, Type III or Type IV (with or without backlight shield), Type V square and Type V frosted
Option	Surge Protector
Mounting Options	Top-Mount (3 in Tenon Adapter), Top-Mount (4 in Tenon Adapter)
Warranty	5-year limited warranty

Performance

Output (Nominal Lumens)	Minimum 4000lm / Maximum 8000lm
Color Rendering	3 SDCM for CRI 70+ and 2 SDCM for CRI 80+
Lumen Maintenance	TM-21 L70 527,000 hrs (projected, Ta 77 °F), 36,000 hrs (reported, Ta 77 °F)

Physical

Housing Material	Injection moulded aluminum
Lens Material	Clear or Pond UV stabilised acrylic
Weight	45 lbs
EPA	3.06 ft²

Specification Sheet

Classica
CLA3661

How to Order

Housing [1]	Voltage	Lens	Output (Nominal Lumens)	Color and Color Temperature [2]	Color Rendering	Distributions	Finish	Control	Option	Mounting Options
CLA3661 Classica 3661	120 120 Volts 208 208 Volts 240 240 Volts 277 277 Volts 347 347 Volts 480 480 Volts	CAL Clear acrylic lens [3] PA Pond_acrylic lens [3]	540 4000lm [4] 560 6000lm M80 8000lm	22K 2200K [5] 27K 2700K [5] 30K 3000K 35K 3500K 40K 4000K 57K 5700K	CRI 70 CRI 70+ [7] CRI 80 CRI 80+ [8]	2 Type II 2BLS Type II Backlight Shield 3 Type III 3BLS Type III Backlight Shield 4 Type IV 4BLS Type IV Backlight Shield 5S Type V Square 5 Type V frosted	BK Black Sandtex® [9] BRZ Bronze Sandtex® [9] SI Silver Sandtex® [9] BKTX Textured Black BRTX Textured Bronze Non-Metallic GRATX Textured Medium Gray GRNTX Textured Green WHTX Textured White CC Custom Color (& finish to RAL) [9]	D1M D-10V Dimming [10]	SP Surge Protector	TN3 Top-Mount (3 in Tenon Adapter) TN4 Top-Mount (4 in Tenon Adapter)

Notes:

1. Consult Related Products section on webpage for a selection of compatible decorative arms, decorative poles (sold separately).
2. Available with types 2, 2BLS, 3, 3BLS, 4, 4BLS and 5S distribution only.
3. Available with type 5 distribution only.
4. Available up to 33°K.
5. Consult factory for more color temperature options.
6. Available for CRI 80 only.
7. Binning within 3-Step MacAdam ellipse, with the exception of 2200K and 5700K.
8. Binning within 2-Step MacAdam ellipse, with the exception of 5700K.
9. Specify RAL number followed by "TX" for textured finish (ex RAL9005TX) or STK for Sandtex finish (ex RAL9005STK). Textured or Sandtex finishes are recommended for the durability of all products. If a finish unspecified with the RAL number (ex. RAL9007), a glossy finish will be provided. Please consult factory for other RAL textures and glosses, or to match other site color charts. Finish color matching results may vary.
10. Setup charges apply for RAL colors. Consult factory for details.
11. Longer lead times can be expected for custom RAL color finishes.
12. DALI controller be used as NO (On/Off control). If no data is required.

Trans Globe Lighting

4095 BK-FR

Wall Lantern

Width (in): 8

Height (in): 16.5

Depth (in): 7.75

Glass Type: Frosted

Bulb Type: E26

Number of Bulbs: 1

Wattage: 60

Finish Shown: Black

Available Finishes: Black (BK)

UL Listed: Wet

Country of Origin: China

Material: Metal, Glass, Electrical

- Multiple finishes available
- Available in clear glass (4095 BK)

Job Name: Job Type: Contact:

Fixture Location: Quantity: Additional Notes:

Shipping Box	Width	Height	Depth	Ship Wt	Method	Oversize	Case QTY
Ship QTY: 1 ea					Ground	No	
UPC: by finish		**Finish:**		**Warranty:** 1 year limited parts, repair, and replacement			

28104 Witherspoon Pkwy | Valencia, CA 91355
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gotham® | E V O®
Multiple Layers of Light

Luminaire Type:
Catalog Number:

ds BAA BABA RoHS ALIGHT

General Illumination Round Downlight 4"

OVERVIEW

Feature Set

- Bounding Ray™ optical design
- Unitized optics mechanically attach the light engine to the lower reflector for complete optical alignment.
- 45° cutoff to source and source image
- Fully serviceable and upgradeable lensed LED light engine
- 70% lumen maintenance at 60,000 hours
- 2.5 MacAdam Ellipse, 85 CRI typical, 90+ CRI optional
- Fixtures are wet location, covered ceiling
- Available with 10% dimming, 1% dimming, or dim to dark
- Batwing distribution with feathered edges provides even illumination on horizontal and vertical surfaces
- UGR of zero for fixtures aimed at nadir with a cut-off equal to or less than 60deg per CIE 117-1995 Discomfort Glare in Interior Lighting. UGR FAQ

Distribution

Superior Performance*

Nominal Lumens	250	500	750	1000	1500	2000	2500	3000	3500	4000	4500
Delivered Lumens	271	573	808	1001	1527	1994	2580	3110	3612	4126	4584
Wattage	3.3	7.2	7.9	8.8	13.7	19.5	25.7	31.2	38.4	35.4	48.1
Lumens per Watt	87.4	79.6	102.3	113.8	111.5	102.3	100.4	99.7	94.1	116	114

*Based on 3500K AR LSS MWD 80CRI

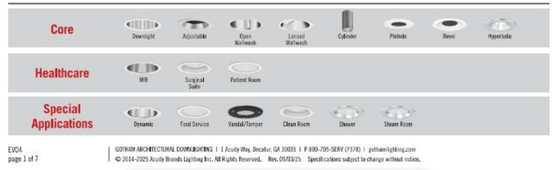
Coordinated Apertures | Multiple Layers of Light

General Illumination Layer | EVO

High Center Beam Layer | Incito

EVO + Incito — Multiple Layers of Light

COMPLEMENTARY PRODUCTS



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gotham® | E V O®

4" General Illumination Round Downlight

ORDERING INFORMATION

ds Design Select options indicated by this color background.

Luminaire Type:
Catalog Number:

EXAMPLE: EVO4 35/25 AR MWD LSS 120 EZ1

Series	Color Temperature	Nominal Lumen Values	Reflector & Flange Color	Trim Style	Finish	Distribution	Voltage
EVO4	27/ 2700 K 30/ 3000 K 35/ 3500 K 40/ 4000 K 50/ 5000 K	02 250 lumens 05 500 lumens 07 750 lumens 10 1000 lumens 15 1500 lumens 20 2000 lumens 25 2500 lumens 30 3000 lumens 35 3500 lumens 40 4000 lumens 45 4500 lumens	AR Clear PR Pewter WTR Wheat GR Gold WHI White BR[1] Black WRAMF[1] White Anti-microbial TRALTBD[1,7] RAL paint for pricing only TCPC[1] Custom paint color	(blank) Soft-flanged FL Flangeless	LSS Semi-specular LD Matte-diffuse LS Specular	MD Medium (0.9 s/mh) MWD Medium wide (1.9 s/mh) WD Wide (1.2 s/mh)	MVOLT 120 277 347[2,4]

Driver*	Control Interface	Emergency Options	Options
EZ10 0-10V driver dims to 10% EZ1 0-10V driver dims to 1% EZ10 eldoLED 0-10V ECODrive. Linear dimming to 10% min. EZ1 eldoLED 0-10V ECODrive. Linear dimming to 1% min. EZB eldoLED 0-10V SOLODrive. Logarithmic dimming to <1%. EDAB eldoLED SOLODrive DALI. Logarithmic dimming to <1%. EDXB eldoLED SOLODrive DMX with RDM (remote device management). Square Law dimming to <1%. Minimum 1000 lumens. Includes luminaire resistor. Refer to DMXR Manual. ECOD[3] Lutron Ecosystem digital Hi-Lume 1% soft on. Fade to black. Min. 250LLM. Max. 4000LM.	NLT[7] nLight® dimming pack controls NLTER[5,7,8] nLight® dimming pack controls emergency circuit NLTAIR2[7,10] nLight® Air enabled NLTAIRE2[1,6,8] nLight® ABR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit NLTAIREMC[1,8] nLight® ABR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit with battery pack options.	ELSD[11] Emergency battery pack, 10W, with self-diagnostics, integral test switch ELRSD[11] Emergency battery pack, 10W, with self-diagnostics, remote test switch E10WCR[12] Emergency battery pack, 10W Constant Power, CA Title 20 compliant with integral test switch E10WDD[12] Emergency battery pack, 10W Constant Power, CA Title 20 compliant with remote test switch GTD Generator transfer device, Specify 120V or 277V.	SF Single Fuse, Specify 120V or 277V TBW[13] White painted flange TRBL[13] Black painted flange FRALTBD[2] Flange ring only RAL color for pricing only FCPC Flange custom paint color NBD[14] nLight® Lumen Compensation GTD Generator transfer device, Specify 120V or 277V 90CRI High CRI (90+) CP[15] Chicago Plenum. Specify 123V or 277V for 500Obs and above. RRL_ RELOC®-ready luminaire connectors enable a simple and consistent factory-installed option across all RAB luminaire brands. Available only with RRLA, RRLB, RRLAE, and RRLC12S. Refer to RRL spec sheet on www.acuitybrands.com for RELOC® product specifications. Above ceiling access required.

ACCESSORIES — order as separate catalog numbers (shipped separately)

SCA4	Sloped ceiling adapter. Degree of slope must be specified (5D, 10D, 15D, 20D, 25D, 30D). Ex: SCA4 10D. Refer to TECH-150.
CTAEVO4	4" Aperture ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 5").
CTA4-8 YK	4"-8" Aperture ceiling thickness adapter (extends mounting frame to accommodate ceiling thickness up to 5"). For use with CWW/DWW trims, EDXB, CP or nTune options.
ISD BC	0-10V wallbox dimmer. Refer to ISD-BC.

ORDERING NOTES

1. Not available with finishes.
2. Replace with applicable RAL number and finish when ready to order. See RAL BROCHURE for available color options. Not available with emergency battery pack options.
3. Not available with emergency battery pack options.
4. Supplied with factory installed step down transformer.
5. Refer to TECH-240 for compatible dimmers.
6. Not available with nLight®.
7. Must specify voltage.
8. EM for use as UL924 Emergency Operation via power sense load. Will require an emergency hot feed and normal hot feed. .EM for use as UL924 Emergency Operation via power interrupt detection.
9. Not available DALI or DMX drivers. Not available with CP or NBD options. Not recommended for medial ceiling installations.
10. When combined with the EZ1, EZ10, or EZB option, normal luminaires (non-emergency) can be used as a normal power sensing device for nearby nLight AIR devices and luminaires with EM emergency options.
11. 17" of plenum depth or less access required for battery pack maintenance.
12. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with WR (white reflector) or FL (flangeless) option.
13. For use with different reflector finish only (i.e. AR, PR, WTR, GR options). Not applicable with BR (black reflector) or FL (flangeless) option.
14. Fixture begins at 80% light level. Must be specified with NLT or NLTER. Only available with EZ10 and EZ1 drivers.
15. Not available with ELR, HAO, or EKAB, or any nLight® ARR dimming options.

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MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

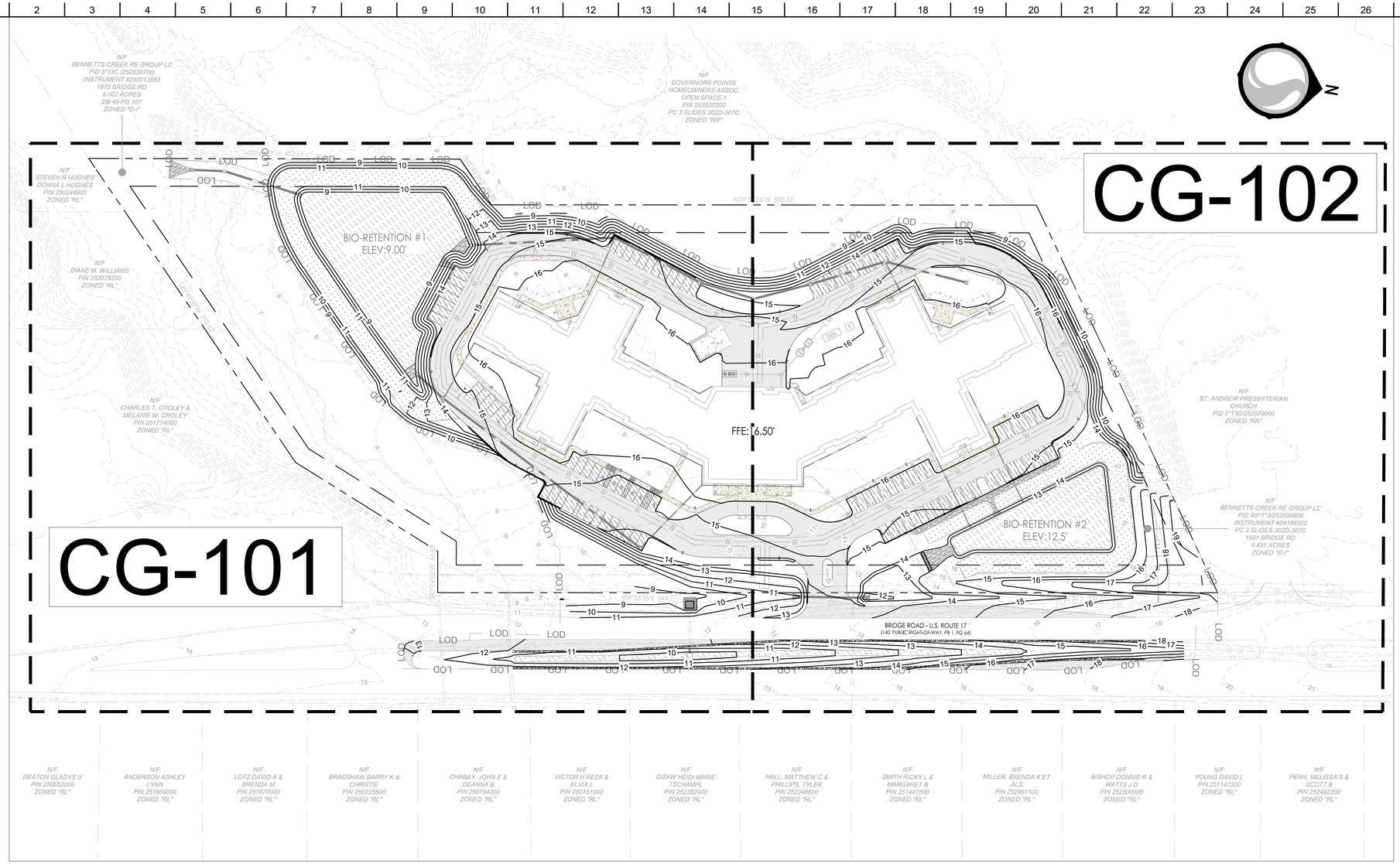
Scale: N/A

Title
SITE LIGHTING
SPECIFICATION CUTSHEETS

Revision:

Drawing No.
EA-106

ORIGINAL SHEET - ARCH D



OVERALL GRADING PLAN

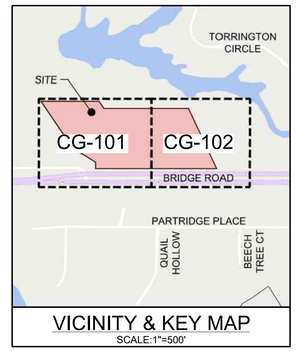
SCALE: 1"=60'

0 60' 120'

SCALE:1"=60'

LEGEND

- EXISTING 20' PUE
- EXISTING PROPERTY LINE / ROW
- EXISTING BUILDING SETBACK
- EXISTING CONTOUR (100)
- GIS PARCEL LINE
- LOD (LOD — LOD)
- PROPOSED CONTOUR (100)
- SITE WALL



VICINITY & KEY MAP

SCALE:1"=500'

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.

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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

OVERALL GRADING PLAN

Drawing No.

CG-100

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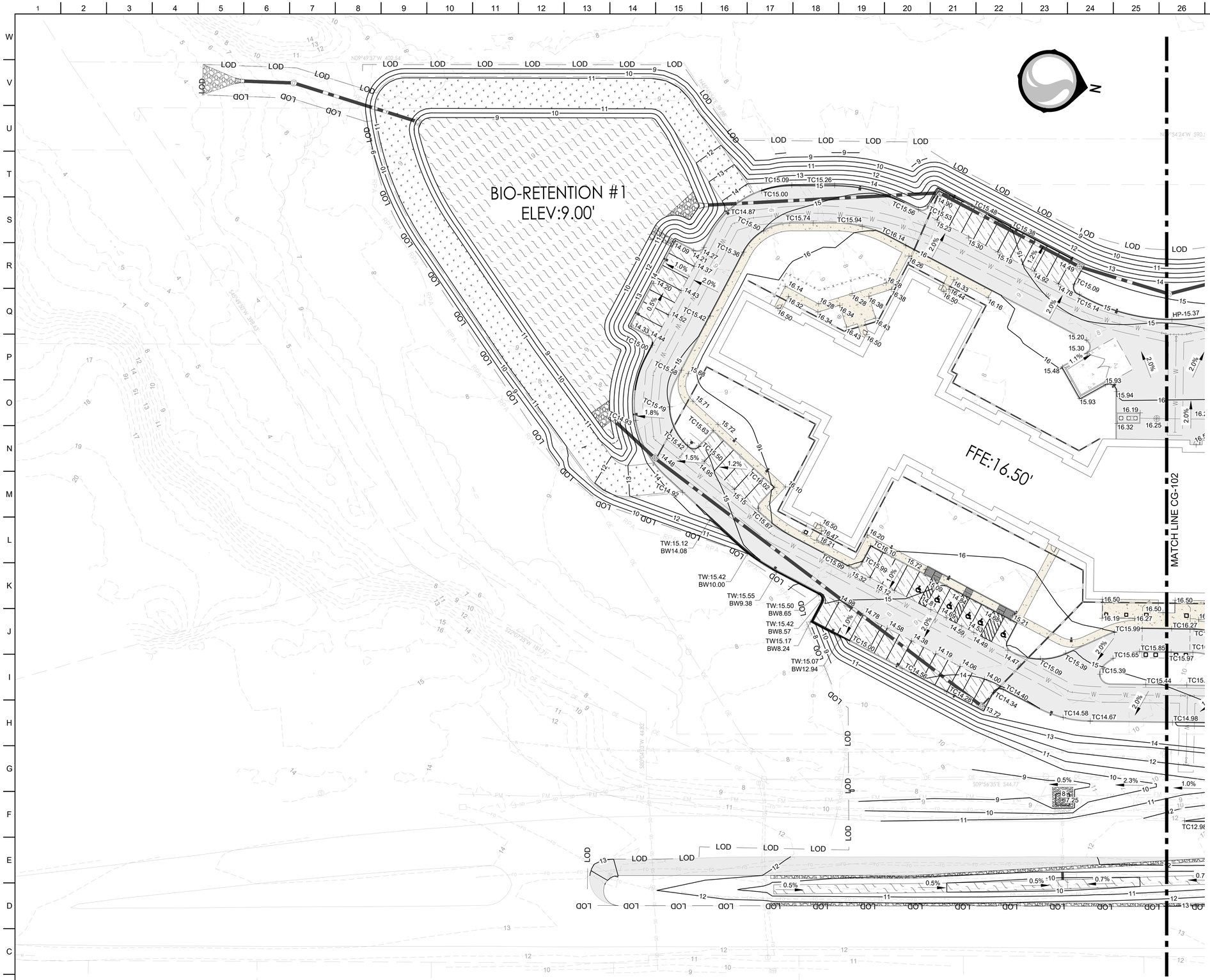
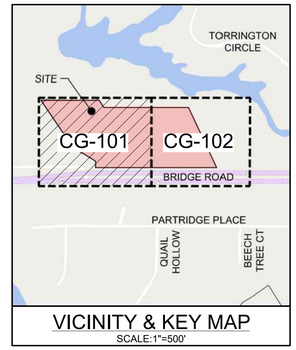


GRADING PLAN
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

ORIGINAL SHEET - ARCH D



VICINITY & KEY MAP
SCALE:1"=500'

NOTE

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2. REFER TO SHEET GI-003 FOR GENERAL NOTES.

LEGEND

- EXISTING 20' PUE
- EXISTING BUILDING SETBACK
- GIS PARCEL LINE
- EXISTING CONTOUR 100
- EXISTING PROPERTY LINE / ROW
- LOD — LOD — LOD
- PROPOSED CONTOUR 100
- SITE WALL

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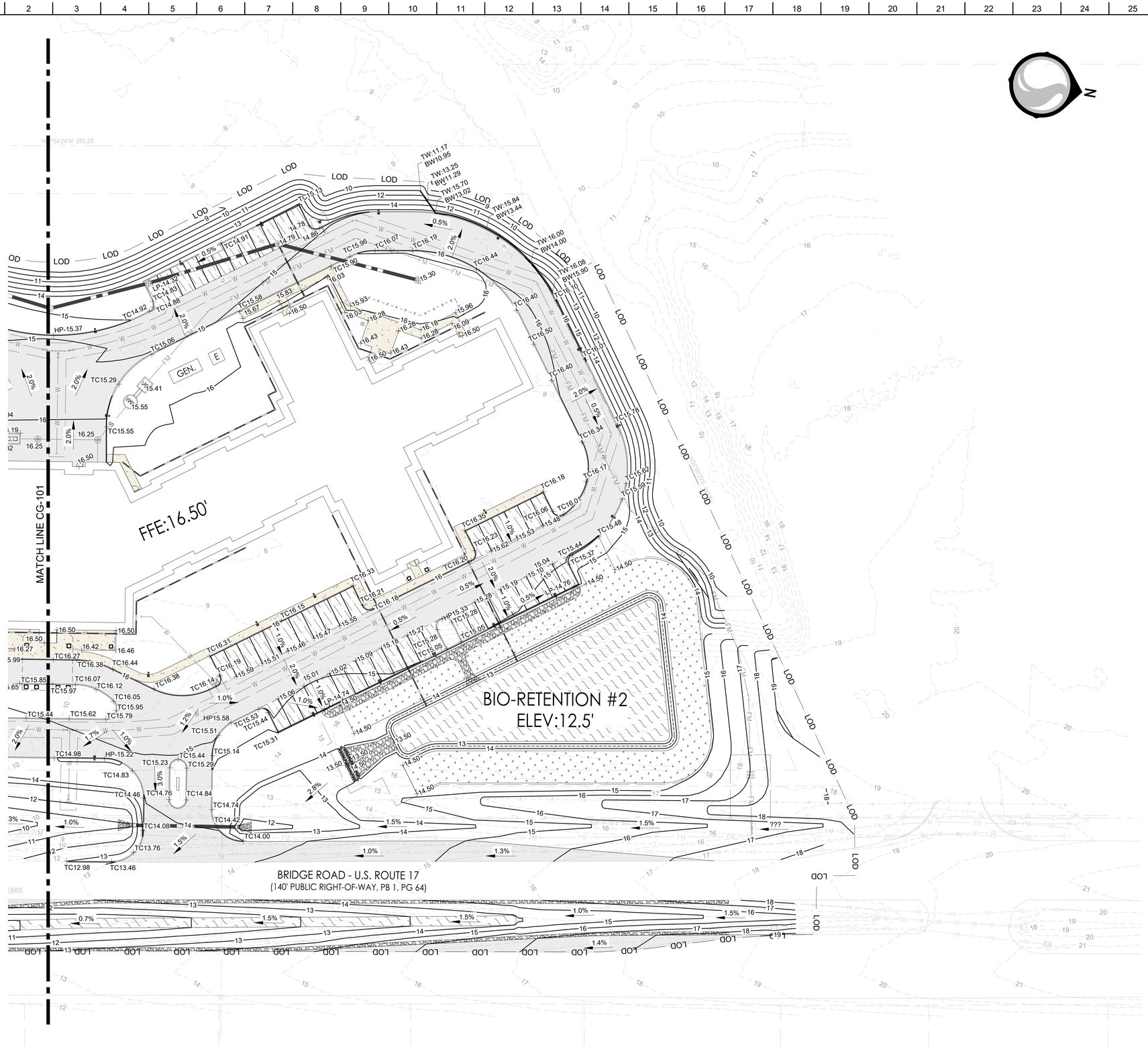
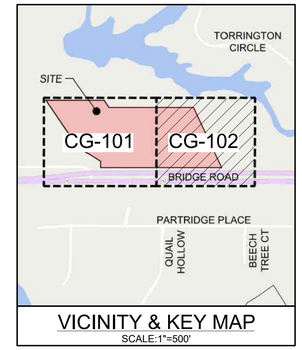
GRADING PLAN

Drawing No.
CG-101



GRADING PLAN
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'



VICINITY & KEY MAP
SCALE:1"=500'

NOTE

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2. REFER TO SHEET GI-003 FOR GENERAL NOTES.

LEGEND

- EXISTING 20' PUE
- EXISTING BUILDING SETBACK
- GIS PARCEL LINE
- EXISTING CONTOUR 100
- EXISTING PROPERTY LINE / ROW
- LOD LOD LOD
- PROPOSED CONTOUR 100
- SITE WALL

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Project No.: 195151140
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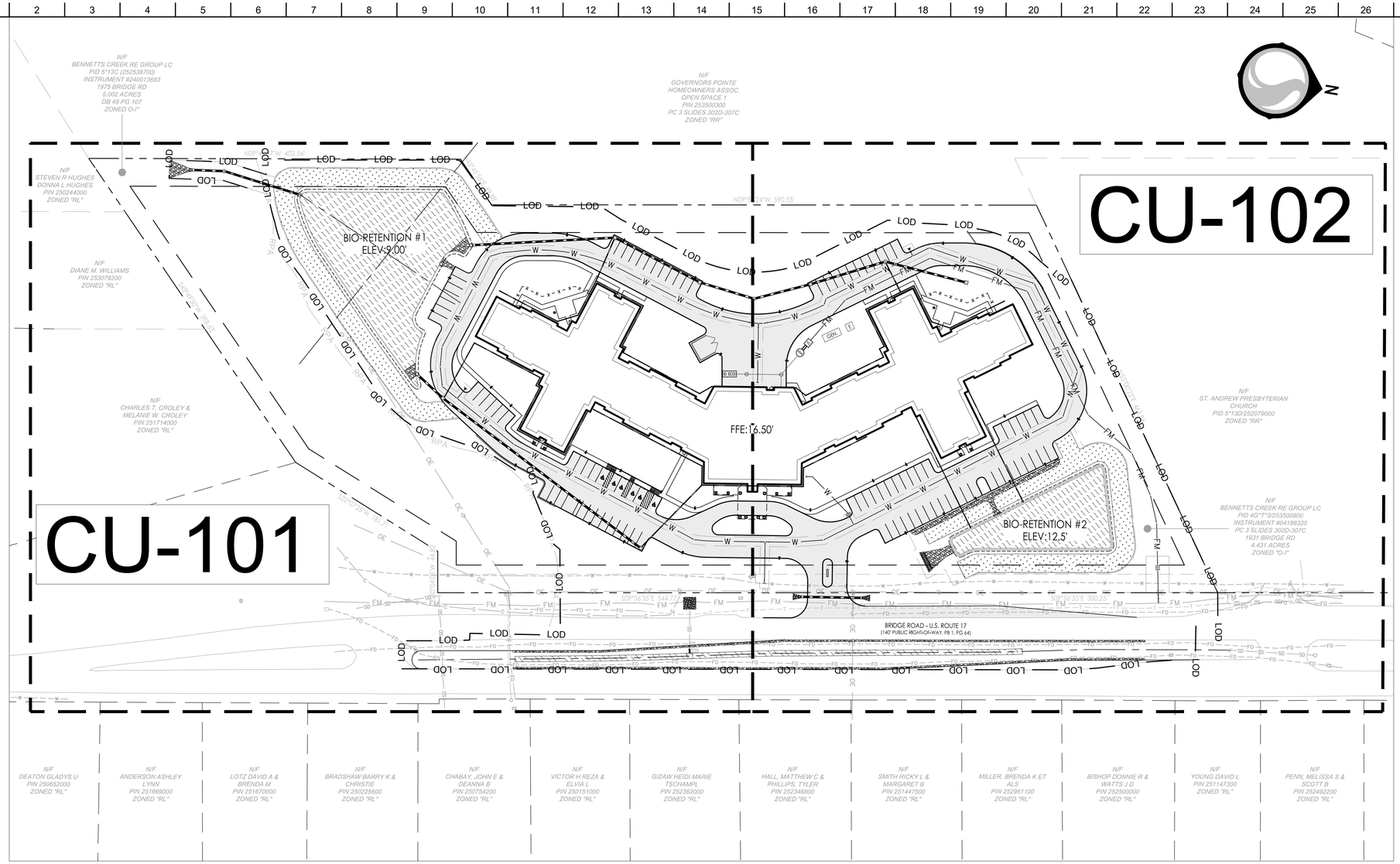
Title

GRADING PLAN

Drawing No.
CG-102

ORIGINAL SHEET - ARCH D

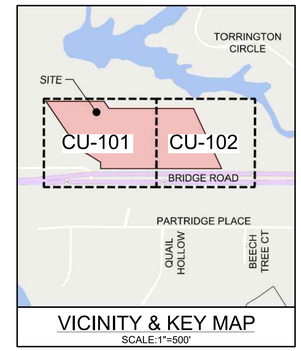


OVERALL UTILITY PLAN

SCALE: 1"=60'

0 60' 120'

SCALE:1"=60'



VICINITY & KEY MAP

SCALE:1"=500'

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.

LEGEND

- WATER MAIN
- FORCE MAIN SS
- STORM DRAIN
- ROOF DRAIN
- GRAVITY SS
- UTILITY EASEMENT
- FORCE MAIN WET WELL
- FORCE MAIN V/ CHAMBER
- FORCE MAIN CO
- FORCE / WATER BEND
- FORCE / WATER VALVE
- FORCE MAIN MH
- RIP RAP
- SWM DEVICE
- STORM DRAIN INLET
- STORM DRAIN HEADWALL
- STORM DRAIN MANHOLE
- ROOF DRAIN CO
- FIRE HYDRANT
- GREASE TRAP

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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

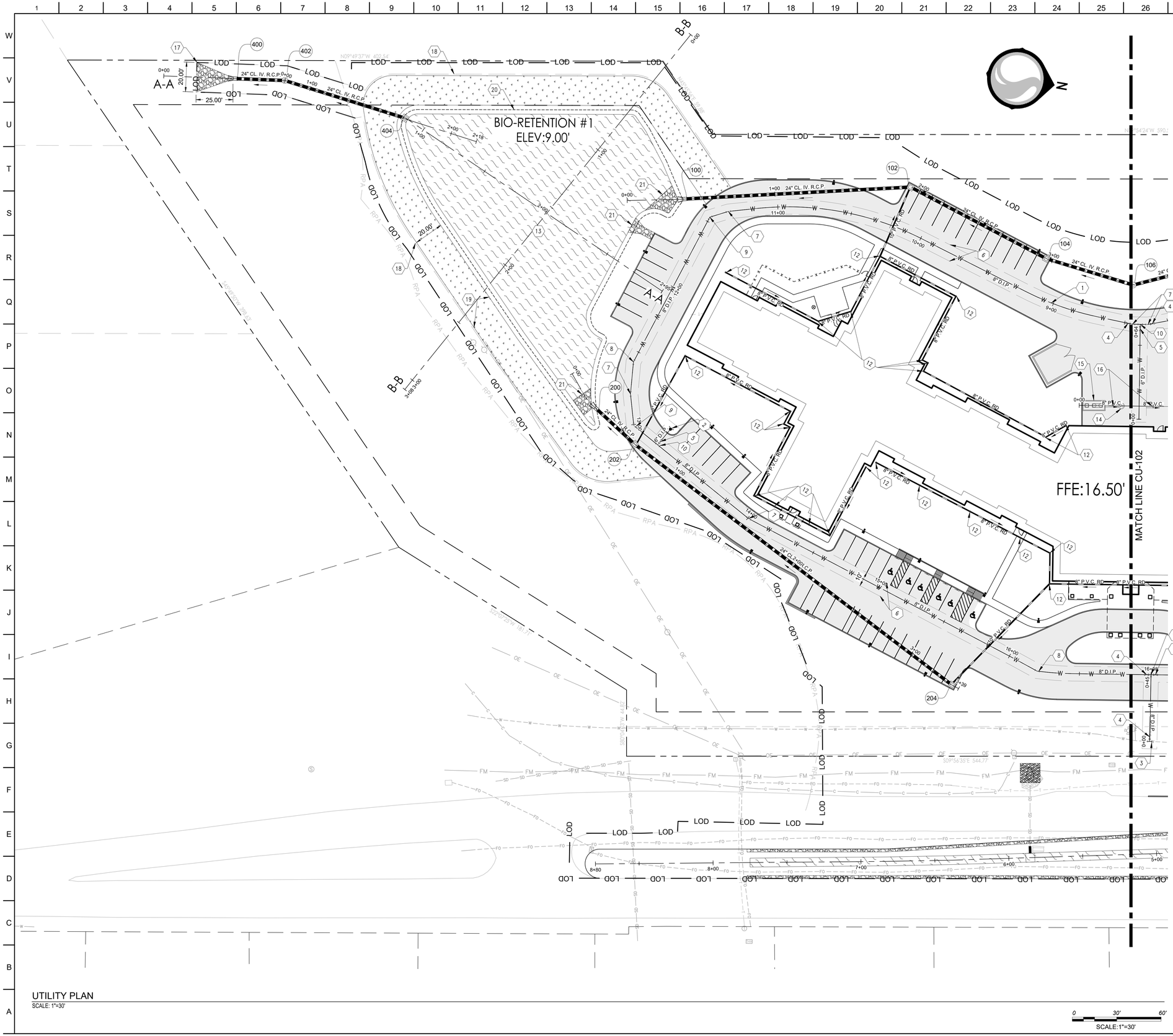
Title

OVERALL UTILITY PLAN

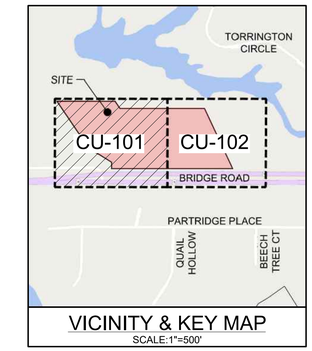
Drawing No.

CU-100

ORIGINAL SHEET - ARCH D



UTILITY PLAN
SCALE: 1"=30'



VICINITY & KEY MAP
SCALE:1"=500'

NOTE

1. SEE SHEET CH-201 FOR BIO RETENTION SECTIONS A-A, B-B, C-C, AND D-D & CH-202 FOR DRY SWALE SECTIONS.
2. ROOF DRAIN PVC SHALL BE SCHEDULE 40 AND SLOPED @1% MINIMUM.
3. DUCTILE IRON PIPE SHALL BE CENTRIFUGALLY CAST IN ACCORDANCE WITH THE LATEST REVISION OF ANSI/AWWA C150/A21.50 AND ANSI/AWWA C151/A21.51 . DIP SHALL BE CEMENT-MORTAR LINED IN ACCORDANCE WITH THE LATEST REVISION OF ANSI/AWWA C104/A21.4, AND A MINIMUM SPECIAL THICKNESS CLASS 50 AND A PRESSURE RATING OF 350 PSI.
4. GRAVITY SEWER PVC PIPE SHALL BE SDR 26.

KEYNOTES NOTES :

1. 8" D.I.P. WATER MAIN (TYP). SEE NOTE #3
2. FIRE HYDRANT. N1/C-508
3. 24" TAPPING SLEEVE . B1/C-507
4. 8" WATER VALVE. N24/C-508
5. 6" WATER VALVE. N24/C-508
6. 10' WATER MAIN EASEMENT.
7. 11.25° D.I.P. BEND. L2,B2/C-504
8. 22.5°D.I.P. BEND. L2,B2/C-504
9. 45° D.I.P. BEND. L2,B2/C-504
10. 8" X 6" D.I.P. TEE. L2,B2/C-504
11. 8" X 8" D.I.P. TEE. L2,B2/C-504
12. ROOF DRAIN CLEAN OUT.
13. SWM DEVICE.
14. SSMH-2: 48" SANITARY SEWER MANHOLE. B1/C-508
15. GREASE TRAP.
16. 8" PVC SANITARY SEWER. SEE NOTE #4
17. RIP RAP OUTFALL PROTECTION.
18. SWM EASEMENT.
19. 20 SWM ACCESS ROAD.
20. BIO-RETENTION WSEL PONDING - 9.75'
21. RIP RAP INFLOW PROTECTION.

LEGEND

- WATER MAIN
- FORCE MAIN SS
- STORM DRAIN
- ROOF DRAIN
- GRAVITY SS
- UTILITY EASEMENT
- FORCE MAIN WET WELL
- FORCE MAIN V/ CHAMBER
- FORCE MAIN CO
- FORCE / WATER BEND
- FORCE / WATER VALVE
- FORCE MAIN MH
- RIP RAP
- SWM DEVICE
- STORM DRAIN INLET
- STORM DRAIN HEADWALL
- STORM DRAIN MANHOLE
- ROOF DRAIN CO
- FIRE HYDRANT
- GREASE TRAP

ORIGINAL SHEET - ARCH D

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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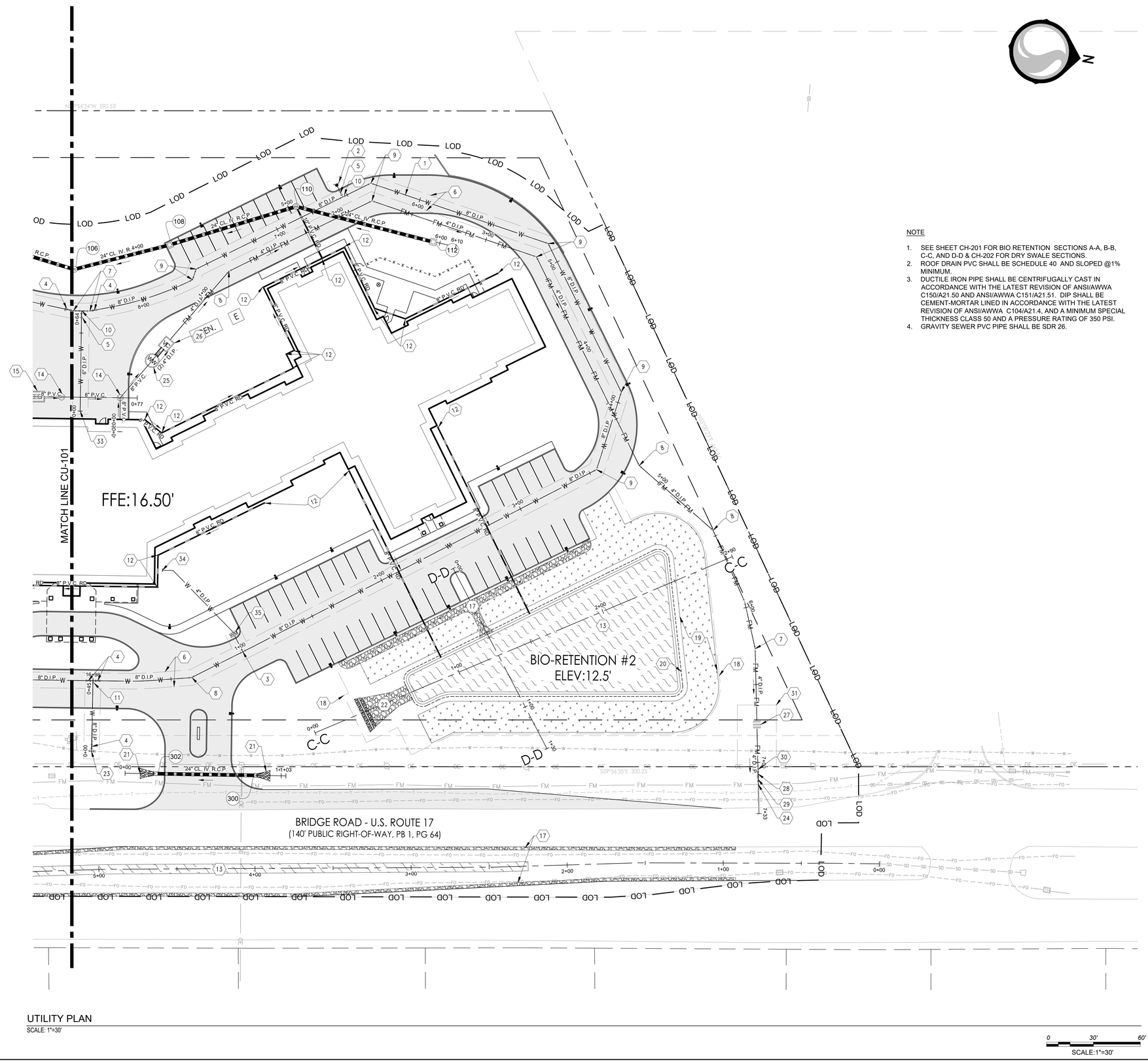
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title

UTILITY PLAN

Drawing No.

CU-101

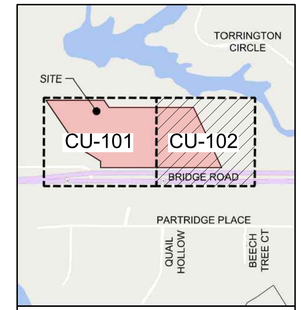


UTILITY PLAN
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

NOTE

1. SEE SHEET CH-201 FOR BIO RETENTION SECTIONS A-A, B-B, C-C, AND D-D & CH-202 FOR DRY SWALE SECTIONS.
2. ROOF DRAIN PVC SHALL BE SCHEDULE 40 AND SLOPED @1% MINIMUM.
3. DUCTILE IRON PIPE SHALL BE CENTRIFUGALLY CAST IN ACCORDANCE WITH THE LATEST REVISION OF ANSI/AWWA C150/A21.50 AND ANSI/AWWA C151/A21.51. DIP SHALL BE CEMENT-MORTAR LINED IN ACCORDANCE WITH THE LATEST REVISION OF ANSI/AWWA C104/A21.4, AND A MINIMUM SPECIAL THICKNESS CLASS 50 AND A PRESSURE RATING OF 350 PSI.
4. GRAVITY SEWER PVC PIPE SHALL BE SDR 26.



VICINITY & KEY MAP
SCALE:1"=500'

KEYNOTES NOTES :

1. 8" D.I.P. WATER MAIN (TYP). SEE NOTE #3.
2. FIRE HYDRANT. N1/C-508
3. 8" X 4" D.I.P. TEE
4. 8" WATER VALVE. N24/C-508.
5. 6" WATER VALVE. N24/ C-508.
6. 10' WATER MAIN EASEMENT.
7. 11.25° D.I.P. BEND. L2,B2/C-504
8. 22.5°D.I.P. BEND. L2,B2/C-504
9. 5° D.I.P. BEND. L2,B2/C-504
10. 8" X 6" D.I.P. TEE. L2,B2/C-504
11. 8" X 8" D.I.P. TEE. L2,B2/C-504
12. ROOF DRAIN CLEAN OUT.
13. SWM DEVICE.
14. SSMH-2: 48" SANITARY SEWER MANHOLE. B1/C-508
15. GREASE TRAP.
16. 8" PVC SANITARY SEWER. SEE NOTE #4
17. RIP RAP INFLOW PROTECTION.
18. SWM EASEMENT.
19. 20 SWM ACCESS ROAD.
20. BIO-RETENTION WSEL PONDING - 13.50'
21. RIP RAP OUTFALL PROTECTION.
22. LEVEL SPREADER
23. 24" X 8" TAPPING SLEEVE. B1/C-507
24. 30" X 8" TAPPING SLEEVE.
25. WET WELL. C1/C-501
26. VALVE CHAMBER. C1/C-501
27. FORCE MAIN CO. J20/C-502
28. 8" JURISDICTION VALVE. M2, M10/C-503
29. 8" TAPPING VALVE.
30. 8" X 4" REDUCER.
31. 25' FORCE MAIN EASEMENT.
32. SSMH-1: 48" SANITARY SEWER MANHOLE.
33. 6" FIRE LINE STUB. SEE ARCH PLANS.
34. 4" DOMESTIC WHC STUB. SEE ARCH PLANS.
35. WATER METER.

LEGEND

- WATER MAIN — W — W —
- FORCE MAIN SS — FM — FM —
- STORM DRAIN
- ROOF DRAIN
- GRAVITY SS — SS —
- UTILITY EASEMENT
- FORCE MAIN WET WELL (WW)
- FORCE MAIN V/ CHAMBER (VC)
- FORCE MAIN CO
- FORCE / WATER BEND
- FORCE / WATER VALVE
- FORCE MAIN MH (S)
- RIP RAP
- SWM DEVICE
- STORM DRAIN INLET
- STORM DRAIN HEADWALL
- STORM DRAIN MANHOLE (D)
- ROOF DRAIN CO
- FIRE HYDRANT
- GREASE TRAP

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PROFESSIONAL ENGINEER

Client/Project
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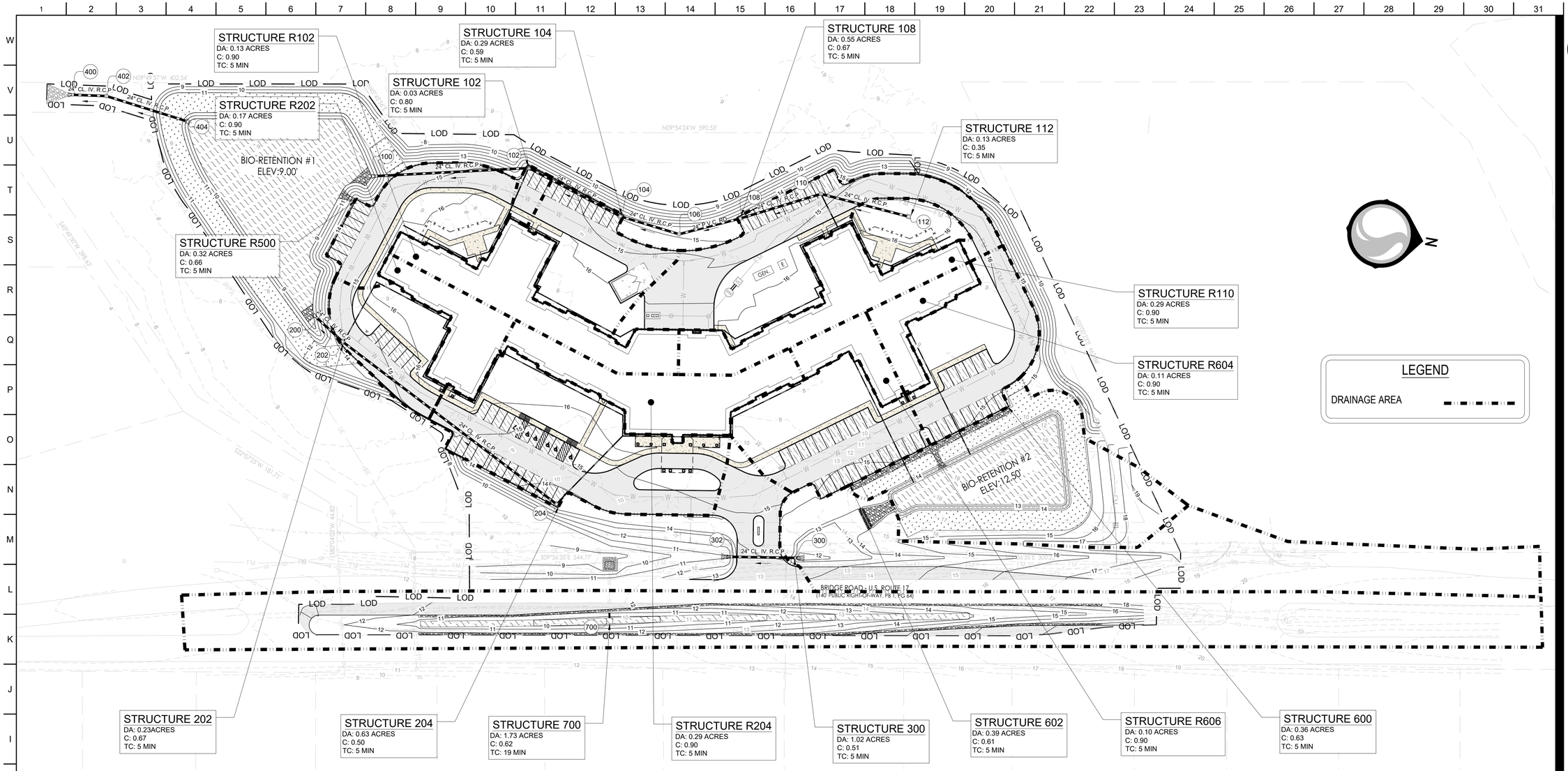
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
UTILITY PLAN

Drawing No.
CU-102

ORIGINAL SHEET - ARCH D



STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

0 50' 100'

SCALE:1"=50'

"C" FACTOR COMPUTATIONS

STR	DRAINAGE AREA		IMPERVIOUS		%	"C"
	sqft.	acres	sqft.	acres	IMPERVIOUS	FACTOR
102	1453.96	0.03	1301.96	0.03	89.55%	0.83
R-102*	12963.41	0.30	12963.41	0.30	100.00%	0.90
104	12487.21	0.29	6467.21	0.15	51.79%	0.59
108	24074.32	0.55	15435.32	0.35	64.12%	0.67
R-110*	12586.71	0.29	12586.71	0.29	100.00%	0.90
112	5713.24	0.13	879	0.02	15.39%	0.35
202	10229.11	0.23	6650.56	0.15	64.04%	0.67
R-202*	7375.98	0.17	7375.98	0.17	100.00%	0.90
204	27522.58	0.63	10546.86	0.24	38.32%	0.50
R-204*	12832.15	0.29	12832.15	0.29	100.00%	0.90
300	44331.00	1.02	17603.00	0.40	39.71%	0.51
500**	14111.15	0.32	8917.15	0.20	63.19%	0.66
600**	15569.82	0.36	9047.82	0.21	58.11%	0.63
602**	16986.50	0.39	9415.53	0.22	55.43%	0.61
R-604	4968.82	0.11	4968.82	0.11	100.00%	0.90
R-606	4392.87	0.10	4392.87	0.10	100.00%	0.90
700	75508.00	1.73	42934	0.99	57.23%	0.62

* ROOF AREA DRAINING TO STRUCTURE

** CURB CUT

CULVERTQ

STR	DRAINAGE AREA		"C"	TC	i		Q
	sqft.	acres	FACTOR	min.	in/HR		cfs
300	44331.00	1.02	0.51	5	1YR	5.12	2.65
					10YR	7.85	4.06
					100YR	10.50	5.43

ORIGINAL SHEET - ARCH D

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BEACHWOOD, OHIO 44122
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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

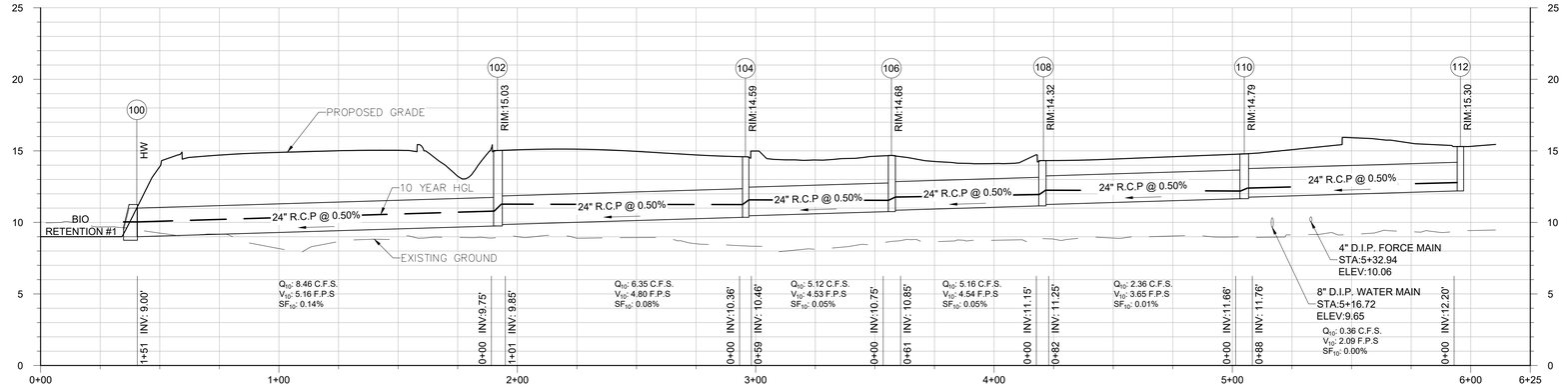
Title

STORM DRAIN DRAINAGE AREA MAP

Drawing No.

CU-103

SD 110 - 100 PROFILE



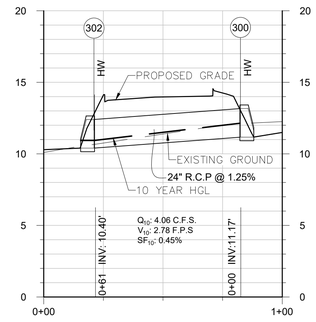
STORM DRAIN PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

HORIZONTAL SCALE:1"=30'

VERTICAL SCALE:1"=5'

SD 300 - 302 PROFILE



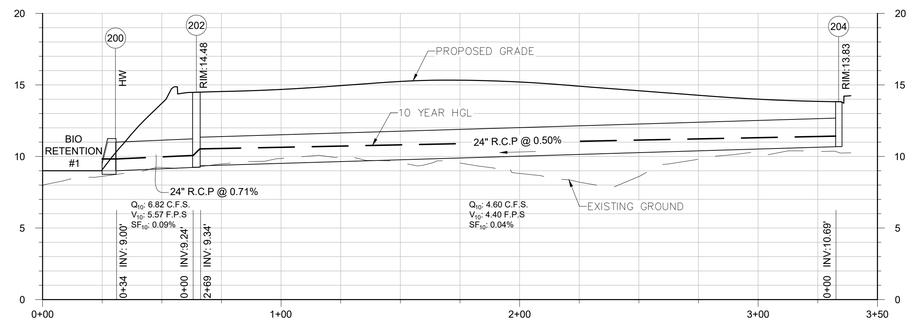
STORM DRAIN PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

HORIZONTAL SCALE:1"=30'

VERTICAL SCALE:1"=5'

SD 200 - 204 PROFILE



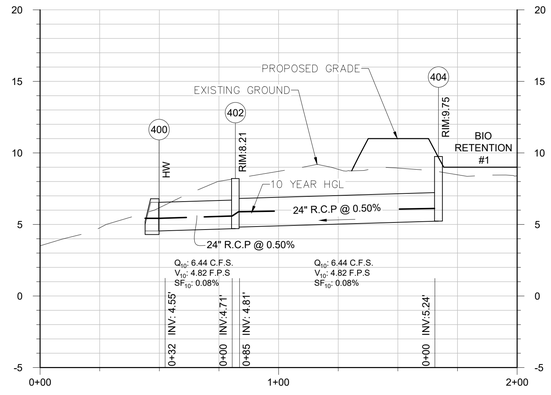
STORM DRAIN PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

HORIZONTAL SCALE:1"=30'

VERTICAL SCALE:1"=5'

SD 400 - 402 PROFILE



STORM DRAIN PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

HORIZONTAL SCALE:1"=30'

VERTICAL SCALE:1"=5'

STRUCTURE SCHEDULE

STRUCTURE #	TYPE	INV. IN (ft)	INV. OUT (ft)	RIM ELEVATION (ft)	SIZE/DIAMTER (ft)	DETAIL #
112	INLET	N/A	12.2	15.3	4' x 4'	N1/C-507
110	MANHOLE	11.78	11.66	14.79	48	N11/C-507
108	INLET	11.25	11.15	14.32	4' x 4'	N1/C-507
106	MANHOLE	10.85	10.75	14.68	48	N11/C-507
104	INLET	10.46	10.36	14.59	4' x 4'	N1/C-507
102	INLET	9.85	9.75	15.03	4' x 4'	N1/C-507
100	HEADWALL	9.00		-	-	N22/C-507
204	INLET	N/A	10.69	13.83	4' x 4'	N1/C-507
202	INLET	9.34	9.24	14.48	4' x 4'	N1/C-507
200	HEADWALL	9.00		-	-	N22/C-507
302	HEADWALL	11.17		-	-	N22/C-507
300	HEADWALL	10.4		-	-	N22/C-507
404	INLET	N/A	5.24	9.75		N1/C-507
402	MANHOLE	4.81	4.71	8.21	48	N11/C-507
400	HEADWALL	4.55		-	-	N22/C-507

TOP ELEVATION IS TOP OF GRATE OR TOP OF MANHOLE LID. STRUTURE 404 TOP ELEVATION IS WIER ELEVATION.

PIPE SCHEDULE

PIPE FROM	PIPE TO	LENGTH (ft)	DIAMETER (ft)	TYPE
112	110	88	2	R.C.P.
110	108	82	2	R.C.P.
108	106	61	2	R.C.P.
106	104	59	2	R.C.P.
104	102	101	2	R.C.P.
102	100	151	2	R.C.P.
204	202	269	2	R.C.P.
202	200	34	2	R.C.P.
300	302	61	2	R.C.P.
404	402	85	2	R.C.P.
402	400	32	2	R.C.P.

PIPE CHART 10 YEAR STORM

#Line	Pipe	From	To	3D Length (ft)	Drainage Area Inc (sq. ft)	Drainage Area (sq. ft)	Runoff Coeff "C"	Area X "C" Inc (sq. ft)	Area X "C" Total (sq. ft)	Time of Concentration (min)	Time of Concentration (min)	Rain "I" (inch/hr)	Runoff "CI" (cu. ft/sec)	Known Q (cu. ft/sec)	Total Q (cu. ft/sec)	Pipe Dia. (ft)	Full Q (cu. ft/sec)	Velocity Full (ft/s)	Velocity Design (ft/s)	Sec Time (min)	Invert Elevation (ft)	Invert Elevation (ft)	Crown Drop (ft)	Slope
1	102-100	102	100	151.49	14417.38	69253.37	0.893	12873.86	49677.29	5	6.927	7.357	8.46	0	8.46	2	16.012	5.097	5.163	0.489	9.75	9	N/A	0.50%
2	104-102	104	102	103.84	12487.68	54936	0.59	7367.73	36803.43	5	6.566	7.449	6.346	0	6.346	2	16.012	5.097	4.798	0.361	10.36	9.85	N/A	0.50%
3	106-104	106	104	61.31	0	42348.32	0	0	29435.7	0	6.341	7.507	5.115	0	5.115	2	16.012	5.097	4.529	0.226	10.75	10.46	N/A	0.50%
4	108-106	108	106	63.17	24074.43	42348.32	0.67	16129.87	29435.7	5	6.109	7.566	5.155	0	5.155	2	16.012	5.097	4.539	0.232	11.15	10.85	N/A	0.50%
5	110-108	110	108	84.67	12563.59	18273.89	0.9	11307.23	13305.83	5	5.722	7.665	2.361	0	2.361	2	16.012	5.097	3.645	0.387	11.66	11.25	N/A	0.50%
6	112-110	112	110	90.68	5710.3	5710.3	0.35	1998.61	1998.61	5	5	7.85	0.363	0	0.363	2	16.012	5.097	2.095	0.722	12.2	11.76	N/A	0.50%
7	202-200	202	200	33.95	17604.17	57958.76	0.766	13491.27	38801.42	5	6.02	7.589	6.816	0	6.816	2	19.134	6.09	5.573	0.102	9.24	9	N/A	0.71%
8	204-202	204	202	269.33	40354.59	40354.59	0.627	25310.16	25310.16	5	5	7.85	4.599	0	4.599	2	16.012	5.097	4.399	1.02	10.69	9.34	N/A	0.50%
9	402-400	402	400	32.26	0	0	0	0	0	0	0	0	0	0	6.44	2	16.012	5.097	4.816	0.112	4.71	4.55	N/A	0.50%
10	404-402	404	402	85.15	0	0	0	0	0	0	0	0	0	6.44	6.44	2	16.012	5.097	4.816	0.295	5.24	4.81	N/A	0.50%

Table 2 - Culvert Summary Table: 300-302

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
2.65	2.65	11.94	0.773	0.0*	1-S2n	0.428	0.563	0.428	0.539	5.329	2.460
2.93	2.93	11.99	0.817	0.0*	1-S2n	0.450	0.594	0.450	0.578	5.483	2.535
3.21	3.21	12.02	0.852	0.0*	1-S2n	0.472	0.623	0.472	0.616	5.618	2.604
3.48	3.48	12.06	0.890	0.0*	1-S2n	0.494	0.651	0.504	0.653	5.575	2.667
3.76	3.76	12.10	0.928	0.0*	1-S2n	0.515	0.675	0.523	0.690	5.724	2.726
4.04	4.04	12.13	0.965	0.014	1-S2n	0.537	0.701	0.537	0.726	5.936	2.781
4.06	4.06	12.14	0.967	0.017	1-S2n	0.539	0.703	0.539	0.729	5.942	2.785
4.60	4.60	12.21	1.042	0.102	1-S2n	0.573	0.751	0.580	0.798	6.107	2.881
4.87	4.87	12.25	1.082	0.147	1-S2n	0.589	0.772	0.599	0.832	6.145	2.927
5.15	5.15	12.29	1.121	0.191	1-S2n	0.606	0.796	0.617	0.867	6.233	2.971
5.43	5.43	12.33	1.159	0.236	1-S2n	0.622	0.819	0.634	0.902	6.321	3.012

CULVERT Q

STR	DRAINAGE AREA sqft.	DRAINAGE AREA acres	"C" FACTOR	TC min.	i in/HR	Q cfs
300	44331.00	1.02	0.51	5	1YR	5.12	2.65
					10YR	7.85	4.06
					100YR	10.50	5.43

10 YEAR HGL CHART-2

#Line	Struct. ID	Exit Ho (ft)	Hf (ft)	Hb (ft)	Hc (ft)	He (ft)	Hj (ft)	Total (ft)	Ei (ft)	y+(Pi*gamma) (ft)	DI	Eai (ft)	CB	C-theta	Cp	Ha (ft)	Ea (ft)
0	100																
1	102	0	0	0	0	0	0	0	1.45	1.03	0.336	1.54	-0.98	0.897	0.484	0.04	1.58
2	104	0.04	0	0	0	0	0	0	1.23	0.88	0.252	1.27	-0.98	0.344	0.296	0	1.27
3	106	0.04	0	0	0	0	0	0	1.1	0.78	0.203	1.1	-0.98	1.224	0	0	1.1
4	108	0.06	0	0	0	0	0	0	1.1	0.78	0.205	1.11	-0.98	0.045	0.566	0	1.11
5	110	0.01	0	0	0	0	0	0	0.73	0.52	0.094	0.65	-0.98	0.187	0	0.06	0.73
6	112	0	0.45	0	0	0	0	0.45	0.64	0.57	0.014	0.65	0	0	1.222	0.02	0.67
7	200																
8	202	0	0	0	0	0	0	0	1.31	0.83	0.271	1.33	-0.98	0.148	0.68	0	1.33
9	204	0.03	0	0	0	0	0	0	1.04	0.73	0.183	1.02	0	0	1.056	0	1.04
10	400																
11	402	0	0	0	0	0	0	0	1.24	0.88	0.256	1.28	-0.98	0.597	0	0	1.28
12	404	0.07	0	0	0	0	0	0	1.24	0.88	0.256	1.28	0	0	0	0	1.28

10 YEAR HGL CHART

#Line	Struct. ID	D (ft)	Q (cu. ft/sec)	L (ft)	V (ft/s)	d (ft)	dc (ft)	v^2/2g (ft)	EGLo (ft)	HGLo (ft)	Sf	Total Pipe Loss (ft)	EGLi (ft)	HGLi (ft)	Ea (ft)	EGLa (ft)	U/STOC (ft)	Surface Elev. (ft)	Step4*	Step7*	Step14*
0	100								10.03	10.03							11	11.75			
1	102	2	8.46	151.49	5.163	1.03	1.04	0.41	10.45	10.03	0.139%	0	11.21	10.79	1.58	11.33	11.85	15.03	N/A	Case B	N/A
2	104	2	6.346	103.84	4.798	0.88	0.89	0.36	11.37	11.27	0.078%	0	11.6	11.24	1.27	11.64	12.46	14.59	N/A	Case F	N/A
3	106	2	5.115	61.31	4.529	0.78	0.8	0.32	11.68	11.57	0.051%	0	11.86	11.54	1.1	11.87	12.85	14.68	N/A	Case F	N/A
4	108	2	5.155	63.17	4.539	0.78	0.8	0.32	11.93	11.77	0.052%	0	12.27	11.95	1.11	12.27	13.25	14.32	N/A	Case F	N/A
5	110	2	2.361	84.67	3.645	0.52	0.53	0.21	12.28	12.25	0.011%	0	12.4	12.19	0.73	12.4	13.76	14.79	N/A	Case F	N/A
6	112	2	0.363	90.68	2.095	0.21	0.21	0.07	12.4	12.4	0.000%	0.45	12.85	12.79	0.67	12.88	---	15.3	N/A	Case F	Case B
7	200								9.83	9.83							11	11.75			
8	202	2	6.816	33.95	5.573	0.83	0.93	0.48	10.31	9.83	0.090%	0	10.55	10.07	1.33	10.58	11.34	14.48	N/A	Case B	N/A
9	204	2	4.599	269.33	4.399	0.73	0.75	0.3	10.61	10.53	0.041%	0	11.72	11.42	1.04	11.72	---	13.83	N/A	Case F	N/A
10	400								5.43	5.43							6.55	7.3			
11	402	2	6.44	32.26	4.816	0.88	0.9	0.36	5.79	5.43	0.081%	0	5.95	5.59	1.28	5.99	6.81	8.21	N/A	Case B	N/A
12	404	2	6.44	85.15	4.816	0.88	0.9	0.36	6.06	5.89	0.081%	0	6.48	6.12	1.28	6.52	---	9.75	N/A	Case F	N/A

*URBAN DRAINAGE DESIGN MANUAL - Hydraulic Engineering Circular No.22 Third Edition

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

File Name: 195151140_CU-201.dwg

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

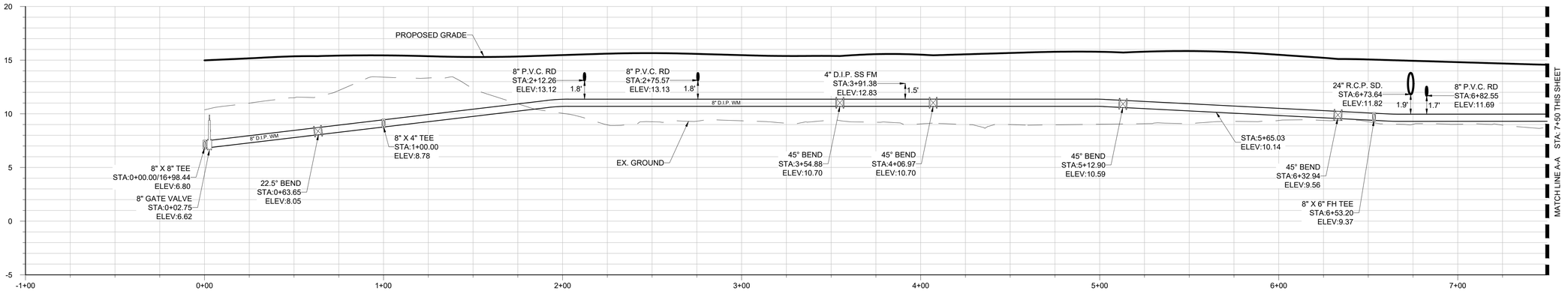
Scale: AS SHOWN

Title

STORM DRAIN PROFILES

Drawing No.

CU-201

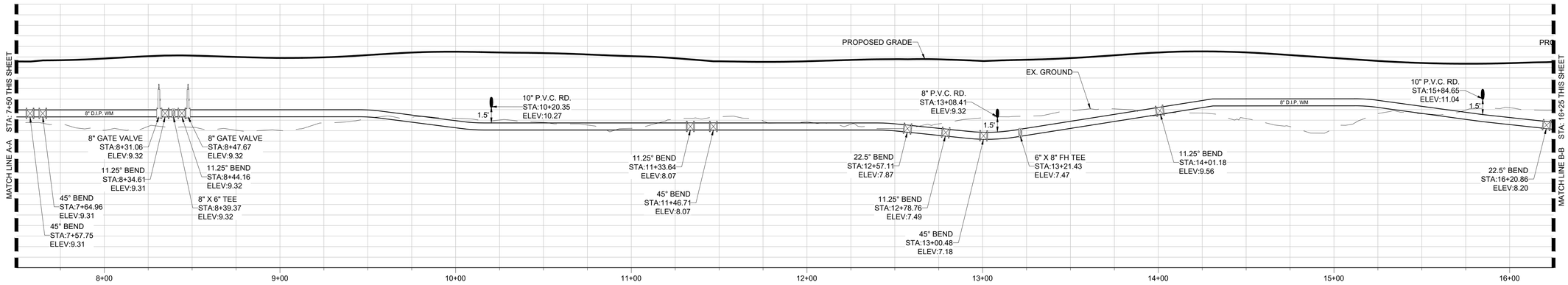


WATER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

0 30' 60'
HORIZONTAL SCALE:1"=30'

0 5' 10'
VERTICAL SCALE:1"=5'



WATER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

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HORIZONTAL SCALE:1"=30'

0 5' 10'
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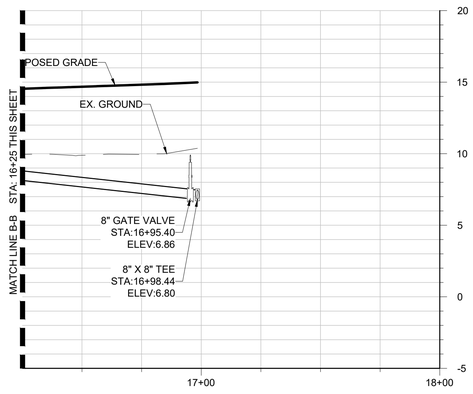

WATER PROFILES

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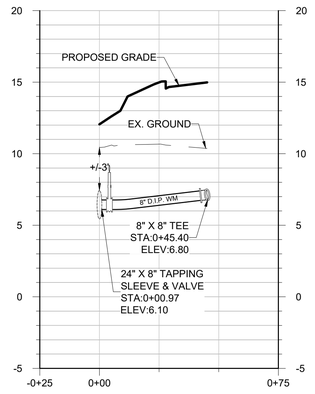
HORIZONTAL SCALE:1"=30'

0 5' 10'
VERTICAL SCALE:1"=5'

WATERMAIN TAP AL PROFILE



WATER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

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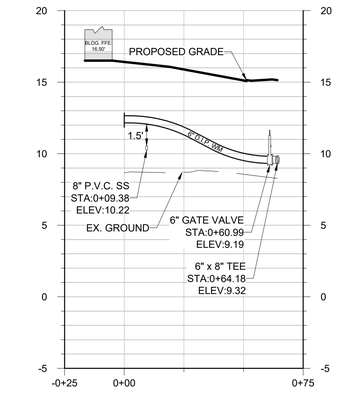
HORIZONTAL SCALE:1"=30'

0 5' 10'
VERTICAL SCALE:1"=5'

FIRE LINE CONNECTION AL PROFILE



WATER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

0 30' 60'
HORIZONTAL SCALE:1"=30'

0 5' 10'
VERTICAL SCALE:1"=5'

WATER MAIN SCHEDULE		
ITEM	UNIT	QTY
8" D.I.P.	L.F.	1,740
6" D.I.P.	L.F.	85
4" D.I.P.	L.F.	76
11.25 DEGREE BEND	EA.	5
22.5 DEGREE BEND	EA.	3
45 DEGREE BEND	EA.	8
6" GATE VALVE	EA.	3
8" GATE VALVE	EA.	5
8" X 4" TEE	EA.	1
8" X 6" TEE	EA.	3
8" X 8" TEE	EA.	2
2" WATER METER	EA.	1
FIRE HYDRANTS	EA.	2
24" X 8" TAPPING SLEEVE	EA.	1

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title
WATER PROFILES

Drawing No.
CU-202

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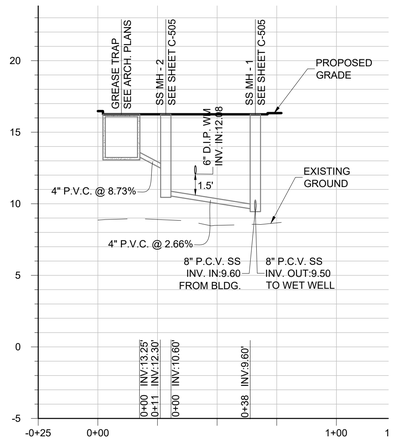


SANITARY SEWER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

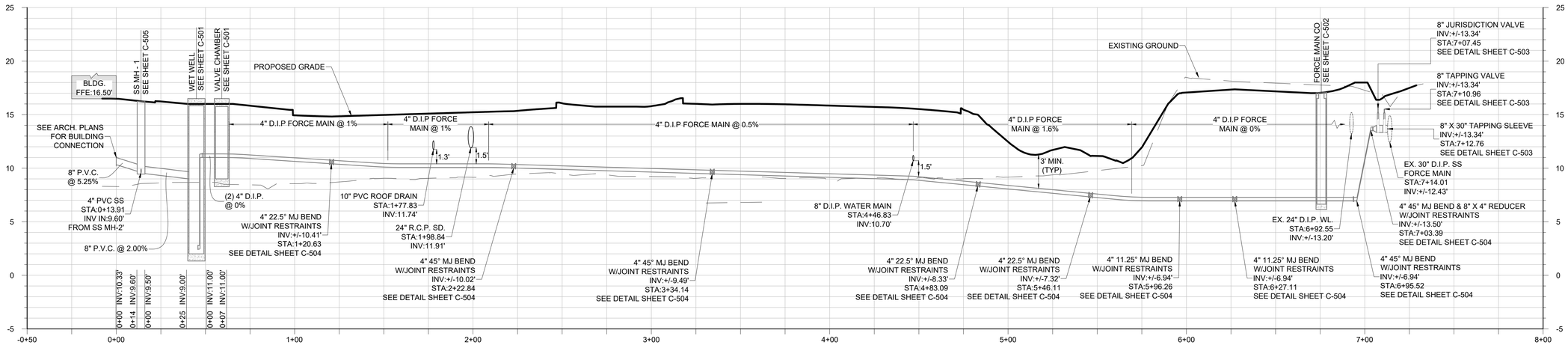
0 30' 60'

HORIZONTAL SCALE:1"=30'

0 5' 10'

VERTICAL SCALE:1"=5'

SANITARY SEWER FORCE MAIN PROFILE



SANITARY SEWER PROFILES

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

0 30' 60'

HORIZONTAL SCALE:1"=30'

0 5' 10'

VERTICAL SCALE:1"=5'

ORIGINAL SHEET - ARCH D

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File Name: 195151140_CU-203.dwg

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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

SANITARY SEWER PROFILES

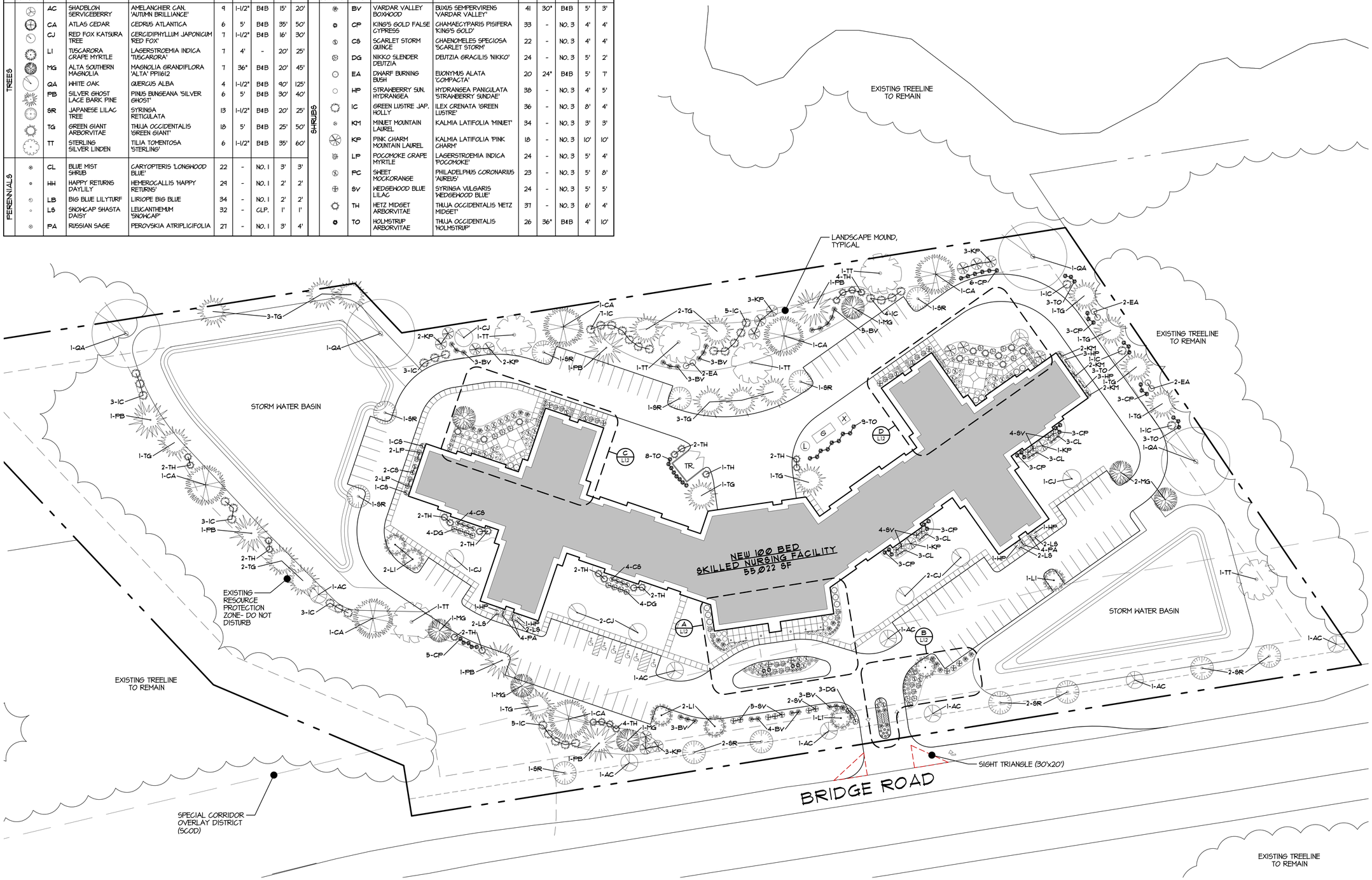
Drawing No.

CU-203

PLANTING LEGEND

	ITEM LEGEND	ITEM NAME	COMMON NAME	BOTANICAL NAME	QTY.	SIZE	COND.	SPC.	HGT.
TREES		AC	SHADBLOW SERVICEBERRY	AMELANCHIER CAN. 'AUTUMN BRILLIANCE'	9	1-1/2"	B&B	15'	20'
		CA	ATLAS CEDAR	CEDRUS ATLANTICA	6	5'	B&B	35'	50'
		CJ	RED FOX KATSURA TREE	CERCIDIPHYLLUM JAPONICUM 'RED FOX'	7	1-1/2"	B&B	16'	30'
		LI	TUSCARORA CRAPE MYRTLE	LAGERSTROEMIA INDICA 'TUSCARORA'	7	4'	-	20'	25'
		MG	ALTA SOUTHERN MAGNOLIA	MAGNOLIA GRANDIFLORA 'ALTA' PP11612	7	36"	B&B	20'	45'
		QA	WHITE OAK	QUERCUS ALBA	4	1-1/2"	B&B	40'	125'
		PB	SILVER GHOST LACE BARK PINE	PINUS BUNGEANA 'SILVER GHOST'	6	5'	B&B	30'	40'
		SR	JAPANESE LILAC TREE	SYRINGA RETICULATA	13	1-1/2"	B&B	20'	25'
		TG	GREEN GIANT ARBORVITAE	THUJA OCCIDENTALIS 'GREEN GIANT'	18	5'	B&B	25'	50'
		TT	STERLING SILVER LINDEN	TILIA TOMENTOSA 'STERLING'	6	1-1/2"	B&B	35'	60'
PERENNIALS		CL	BLUE MIST SHRUB	CARYOPTERIS 'LONGWOOD BLUE'	22	-	NO. 1	3'	3'
		HH	HAPPY RETURNS DAYLILY	HEMEROCALLIS 'HAPPY RETURNS'	29	-	NO. 1	2'	2'
		LB	BIG BLUE LILYTURF	LIRIOPE BIG BLUE	34	-	NO. 1	2'	2'
		LS	SNOWCAP SHASTA DAISY	LEUCANTHEMUM 'SNOWCAP'	32	-	C.P.	1'	1'
		PA	RUSSIAN SAGE	PEROVSKIA ATRIPLICIFOLIA	27	-	NO. 1	3'	4'

	ITEM LEGEND	ITEM NAME	COMMON NAME	BOTANICAL NAME	QTY.	SIZE	COND.	SPC.	HGT.
SHRUBS		BV	VARDAR VALLEY BOXWOOD	BUXUS SEMPERVIRENS 'VARDAR VALLEY'	41	30"	B&B	5'	3'
		CP	KING'S GOLD FALSE CYPRESS	CHAMAECYPARIS PISIFERA 'KING'S GOLD'	33	-	NO. 3	4'	4'
		CS	SCARLET STORM QUINCE	CHAENOMELES SPECIOSA 'SCARLET STORM'	22	-	NO. 3	4'	4'
		DG	NIKKO SLENDER DEUTZIA	DEUTZIA GRACILIS 'NIKKO'	24	-	NO. 3	5'	2'
		EA	DWARF BURNING BUSH	EUONYMUS ALATA 'COMPACTA'	20	24"	B&B	5'	7'
		HP	STRAWBERRY SUN. HYDRANGEA	HYDRANGEA PANICULATA 'STRAWBERRY SUNDAE'	38	-	NO. 3	4'	5'
		IC	GREEN LUSTRE JAP. HOLLY	ILEX CRENATA 'GREEN LUSTRE'	36	-	NO. 3	8'	4'
		KM	MINUET MOUNTAIN LAUREL	KALMIA LATIFOLIA 'MINUET'	34	-	NO. 3	3'	3'
		KP	PINK CHARM MOUNTAIN LAUREL	KALMIA LATIFOLIA 'PINK CHARM'	18	-	NO. 3	10'	10'
		LP	POCOMOKE CRAPE MYRTLE	LAGERSTROEMIA INDICA 'POCOMOKE'	24	-	NO. 3	5'	4'
		PC	SWEET MOCKORANGE	PHILADELPHUS CORONARIUS 'AUREUS'	23	-	NO. 3	5'	8'
		SV	WEDGEWOOD BLUE LILAC	SYRINGA VULGARIS 'WEDGEWOOD BLUE'	24	-	NO. 3	5'	5'
		TH	HETZ MIDGET ARBORVITAE	THUJA OCCIDENTALIS 'HETZ MIDGET'	37	-	NO. 3	6'	4'
		TO	HOLMSTRUP ARBORVITAE	THUJA OCCIDENTALIS 'HOLMSTRUP'	26	36"	B&B	4'	10'



ARCHITECTURAL LANDSCAPE PLAN

SCALE: 1" = 40'-0" 0 40'

DSC ARCHITECTS
401 FRONT STREET
BEREA, OHIO 44017
PHONE: 440.835.3957
mail@dscarchitects.com

DATE:
PERMIT SUBMISSION:
06.19.26

BENNETT'S CREEK
HEALTH & REHABILITATION CENTER

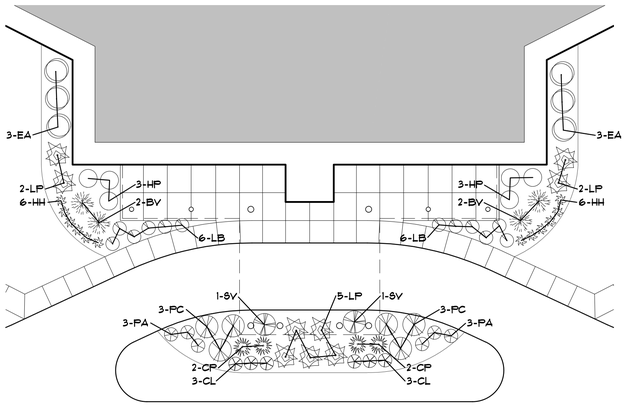
1931/1975 BRIDGE ROAD (HIGHWAY 17)
SUFFOLK, VIRGINIA

COMMONWEALTH OF VIRGINIA
JEFFREY M CERTO
20214
ARCHITECT

DRAWING NAME
LANDSCAPE PLAN & LEGEND

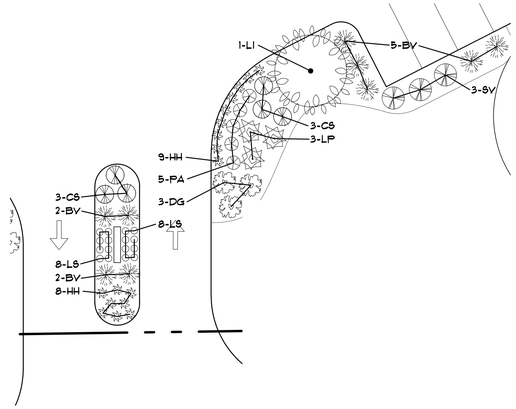
DSCA PROJECT NO.
24.061

L1.1



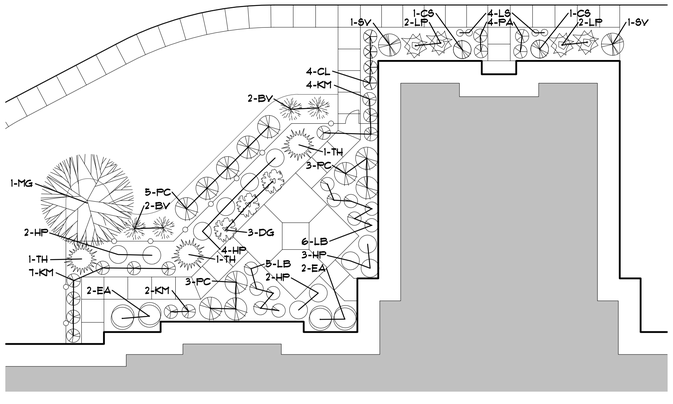
A L1.2 ENLARGED FRONT ENTRY PLAN

SCALE: 1/16" = 1'-0"
NOTE: SEE DRAWING L1.1 FOR PLANTING LIST



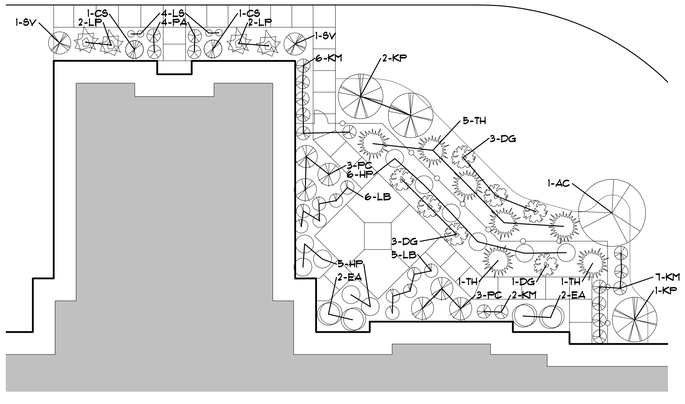
B L1.2 ENLARGED MONUMENT SIGN PLAN

SCALE: 1/16" = 1'-0"
NOTE: SEE DRAWING L1.1 FOR PLANTING LIST



C L1.2 ENLARGED SOUTH PATIO PLAN

SCALE: 1/16" = 1'-0"
NOTE: SEE DRAWING L1.1 FOR PLANTING LIST



D L1.2 ENLARGED NORTH PATIO PLAN

SCALE: 1/16" = 1'-0"
NOTE: SEE DRAWING L1.1 FOR PLANTING LIST

LANDSCAPE NOTES

1. LANDSCAPING INDICATED REPRESENTS GENERAL CONCEPT OF LANDSCAPING TO BE PROVIDED. LANDSCAPE CONTRACTOR MAY ALTER SELECTED PLANTINGS, QUANTITIES AND PLACEMENT AS REQUIRED DUE TO AVAILABILITY & SOIL/EXPOSURE CONDITIONS. LANDSCAPE CONTRACTOR IS TO PROVIDE LANDSCAPING IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR LANDSCAPE STOCK," OTHER AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, AND AMERICAN HORT. ALL PLANTING OPERATIONS SHALL ADHERE TO AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS.

2. CALIPER MEASUREMENTS ARE TO BE TAKEN 6" ABOVE NORMAL GRADE FOR TREES LESS THAN 6" IN CALIPER. TREE SIZES AND CALIPER TO BE IN COMPLIANCE WITH SUFFOLK ZONING CODE:
   - LARGE STREET TREES: 1-1/2" TO 2" CALIPER
   - MEDIUM STREET TREES: 1" TO 1-1/2" CALIPER
   - SCREENING TREES: 4-1/2' TO 6' HIGH
   - STREETSCAPE SHRUBS: MIN. 3 GAL. & MIN. 24" HIGH
   - SCREENING SHRUBS: 30" MIN.

3. DELIVER ALL PLANT MATERIALS AFTER PREPARATIONS HAVE BEEN COMPLETED, AND INSTALL IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS, KEEP ROOTS MOIST, AND STORE OUT OF SUN AND WIND. DO NOT PRUNE BEFORE DELIVERY. PROTECT PLANTS FROM SUNSCALD, DRYING, WHIPPING, AND OTHER HANDLING DAMAGE. DO NOT DESTROY NATURAL SHAPES THROUGH BENDING OR BINDING. DO NOT DROP PLANTS DURING DELIVERY.

4. INSTALLATIONS OF PLANTINGS, LAWN, AND MULCHES TO BE PER STANDARD INDUSTRY PRACTICE. PROVIDE FREE-FORM SHAPED ORGANIC MULCH BED AT ALL PLANTING AREAS. AT ISOLATED TREES PROVIDE MIN. 5' DIAMETER ORGANIC MULCH BED SURROUNDING TRUNKS OF TREES IN LAWN AREAS.

5. MULCH TO BE DOUBLE SHREDDED HARDWOOD MULCH, 3" DEPTH AT BEDS. MULCH MUST BE 1-2 YEAR AGED AND MAY NOT COME FROM SHREDDING TREE MATERIAL TAKEN FROM SITE. PROVIDE PERVIOUS WEED BARRIER (TYPAR OR EQUIV.) AT UNPLANTED AREAS.

6. LOCATIONS ON PLAN TO SERVE AS A GUIDE. SLIGHT RELOCATION MAY OCCUR DUE TO FIELD CONDITIONS & TO PROVIDE THE MOST AESTHETIC ARRANGEMENT.

7. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CLEANUP ASSOCIATED WITH LANDSCAPE CONSTRUCTION. LEGALLY DISPOSE OF ALL SURPLUS & WASTE MATERIALS OFF OF THE OWNER'S PROPERTY.

8. CONTRACTOR SHALL WARRANTY ALL PLANT MATERIALS INSTALLED FOR A PERIOD OF ONE YEAR FROM INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR REGULAR WATERING OF PLANTINGS FOR A PERIOD OF ONE GROWING SEASON TO ALLOW FOR ROOT ESTABLISHMENT. PLANTS THAT ARE UNHEALTHY OR MORE THAN 25% DEAD SHALL BE REPLACED BY CONTRACTOR AT NO ADDITIONAL CHARGE TO OWNER.

9. CONFIRM LOCATIONS OF ALL UTILITIES & SUBSURFACE DRAIN LINES PRIOR TO PLANT INSTALLATION.

10. TOPSOIL MUST BE BACK FILLED TO PROVIDE POSITIVE DRAINAGE OF THE LANDSCAPE AREA.

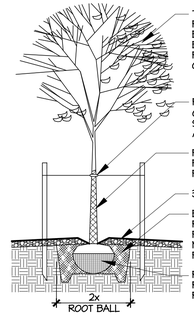
11. ALL PLANTING BEDS TO BE FERTILIZED WITH 10-10-10 OR EQ.

12. ALL NON-LANDSCAPED AREAS TO BE SEEDED WITH PREMIXED "PARK MIX".

13. PROVIDE COMMERCIAL IRRIGATION SYSTEM INCLUDING CONTROLLER, HARDWARE, SOFTWARE, PUMPS, VALVES, ETC. SYSTEM TO BE DESIGNED BY IRRIGATION SYSTEM MANUFACTURER FOR SITE CONDITIONS. PROVIDE IRRIGATION TO ALL NEW TREES & PLANTING BEDS.

14. CONTRACTOR TO PROVIDE PROTECTION FOR EXIS. TREES TO REMAIN:
   - MAINTAIN EXISTING GRADE
   - ERECT ORANGE CONSTRUCTION FENCES BENEATH TREE DRIPLINE
   - ELIMINATE CONSTRUCTION TRAFFIC WITHIN 1' FOR EVERY 1" OF TRUNK DIAMETER OR TO TREE DRIPLINE, WHICHEVER IS GREATER

15. IF EXISTING TREES CANNOT BE SALVAGED DUE TO DAMAGE OR DISEASE, PROVIDE NEW TREES TO MATCH EXISTING SPECIES OR AS DIRECTED BY CITY OF SUFFOLK.



TREE PLANTING DETAIL

SCALE: N.T.S

DSC
ARCHITECTS
401 FRONT STREET
BEREA, OHIO 44017
PHONE: 440.835.3957
mail@dscarchitects.com

DATE:
PERMIT SUBMISSION:
06.19.26

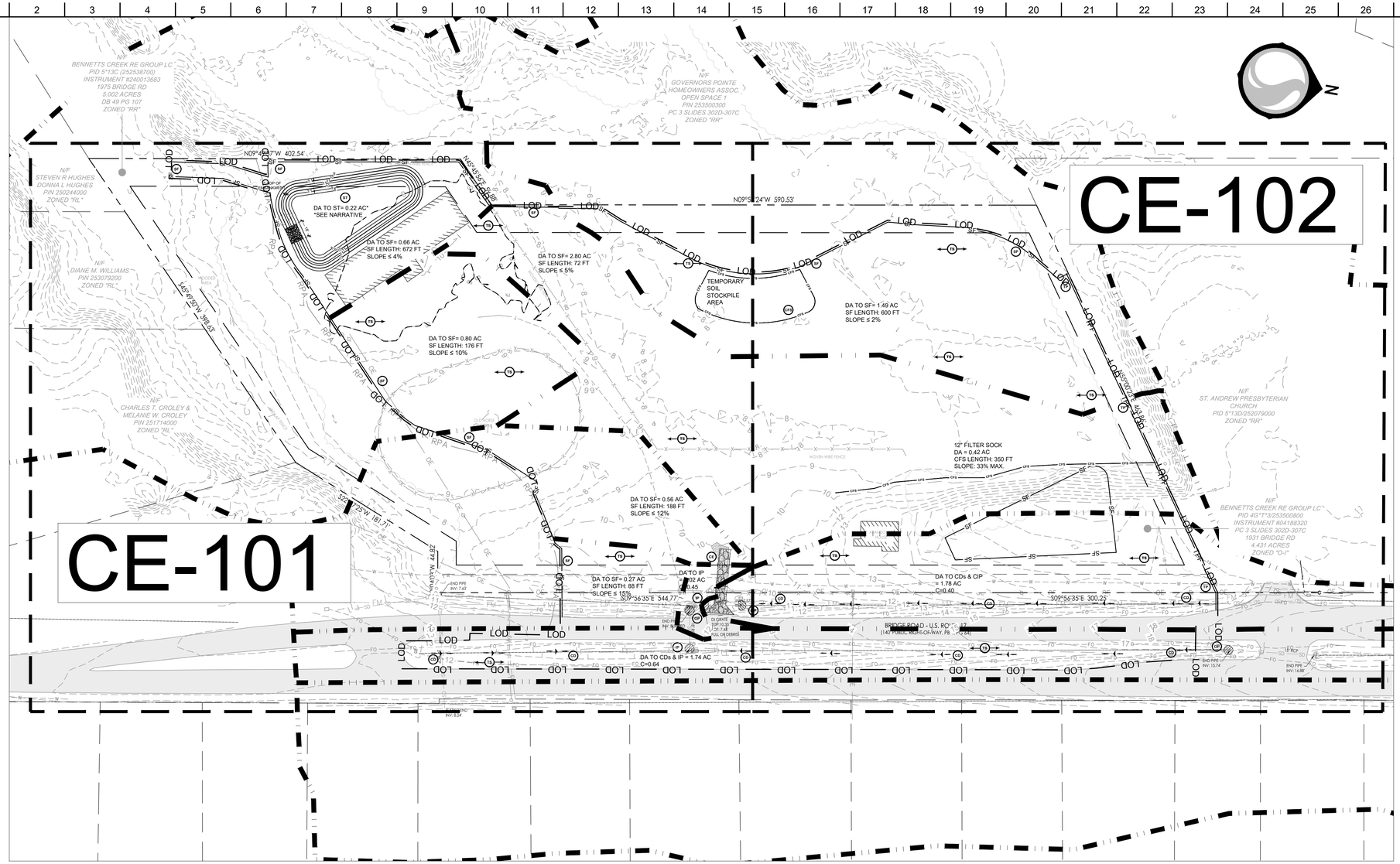
BENNETT'S CREEK
HEALTH & REHABILITATION CENTER
1931/1915 BRIDGE ROAD (HIGHWAY 17)
SUFFOLK, VIRGINIA

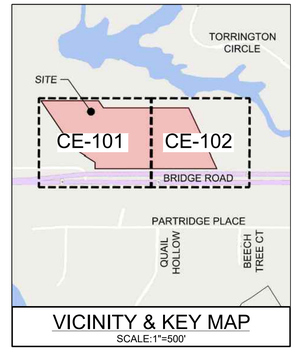
COMMONWEALTH OF VIRGINIA
JEFFREY M CERTO
20214
ARCHITECT

DRAWING NAME
ENLARGED LANDSCAPE PLANS

DSCA PROJECT NO.
24.061

L1.2





VICINITY & KEY MAP
SCALE:1"=500'

OVERALL EROSION AND SEDIMENT CONTROL PLAN PHASE I
SCALE: 1"=60'

0 60' 120'
SCALE:1"=60'

LEGEND

EROSION CONTROL MEASURES		
C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE	
C-PCM-04 SILT FENCE	SF	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP	TPF
C-PCM-01 SAFETY FENCE	SAF	XXX XXX
C-SCM-05 CULVERT INLET PROTECTION	CIP	
C-ECM-15 OUTLET PROTECTION	OP	
C-SCM-04 INLET PROTECTION	IP	
C-SCM-07 ROCK CHECK DAMS	CD	
C-PCM-05 COMPOST FILTER SOCK	CFS	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M	B/M
C-SCM-11 TEMPORARY SEDIMENT TRAP	ST	
C-SSM-09 TEMPORARY SEEDING	TS	TS

ORIGINAL SHEET - ARCH D

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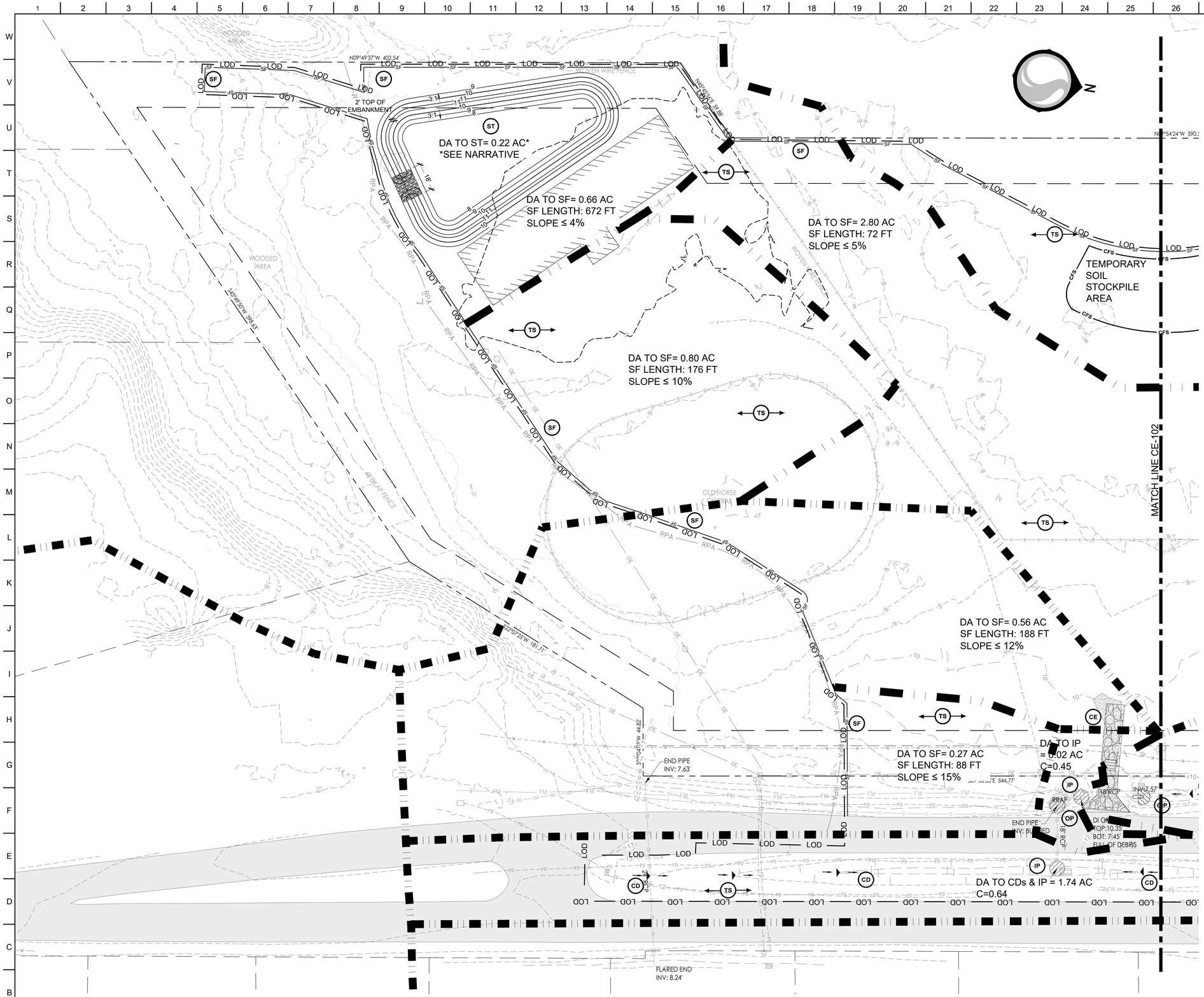
COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN

Title
OVERALL EROSION AND SEDIMENT CONTROL PLAN PHASE I

Drawing No.
CE-100



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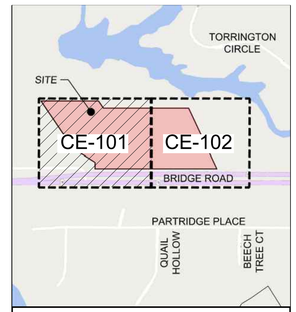

VICINITY & KEY MAP
SCALE:1"=500'

LEGEND

EROSION CONTROL MEASURES		
C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE	
C-PCM-04 SILT FENCE	SF	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP	TPF
C-PCM-01 SAFETY FENCE	SAF	XXXX XXXX
C-SCM-05 CULVERT INLET PROTECTION	CIP	
C-ECM-15 OUTLET PROTECTION	OP	
C-SCM-04 INLET PROTECTION	IP	
C-SCM-07 ROCK CHECK DAMS	CD	
C-PCM-05 COMPOST FILTER SOCK	CFS	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M	B/M
C-SCM-11 TEMPORARY SEDIMENT TRAP	ST	
C-SSM-09 TEMPORARY SEEDING	TS	TS

EROSION AND SEDIMENT CONTROL PLAN PHASE I
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

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CONTACT: MICHAEL COYNE

Project No.: 195151140
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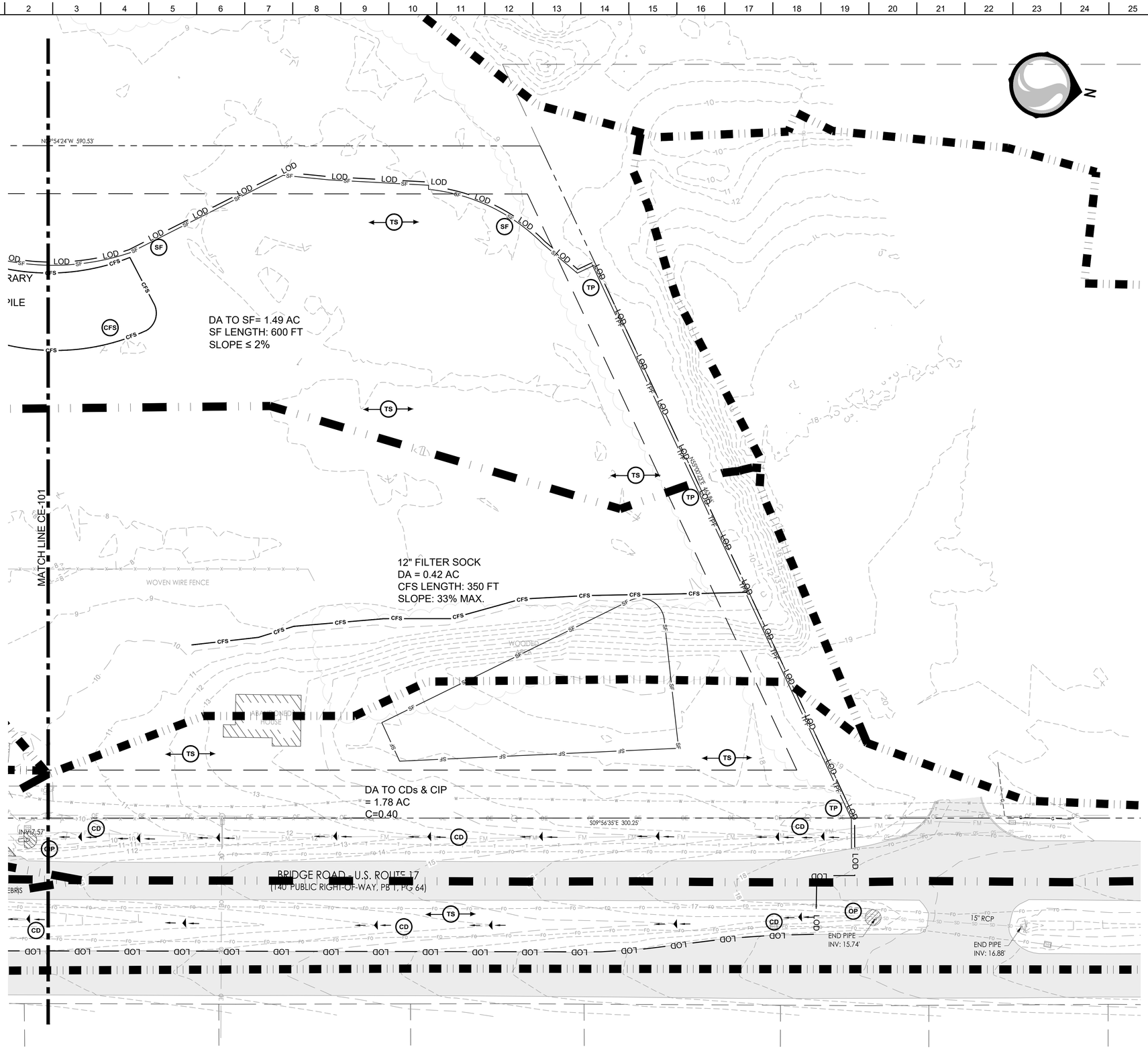
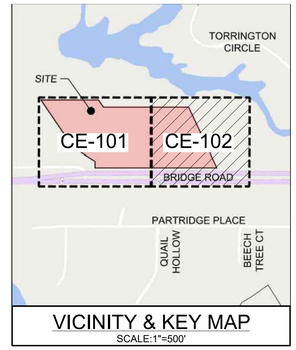
Title

EROSION AND SEDIMENT CONTROL PLAN PHASE I

Drawing No.
CE-101





VICINITY & KEY MAP
SCALE:1"=500'

LEGEND

EROSION CONTROL MEASURES

C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE
C-PCM-04 SILT FENCE	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP
C-PCM-01 SAFETY FENCE	SAF
C-SCM-05 CULVERT INLET PROTECTION	CIP
C-ECM-15 OUTLET PROTECTION	OP
C-SCM-04 INLET PROTECTION	IP
C-SCM-07 ROCK CHECK DAMS	CD
C-PCM-05 COMPOST FILTER SOCK	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M
C-SCM-11 TEMPORARY SEDIMENT TRAP	ST
C-SSM-09 TEMPORARY SEEDING	TS

EROSION AND SEDIMENT CONTROL PLAN PHASE I
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

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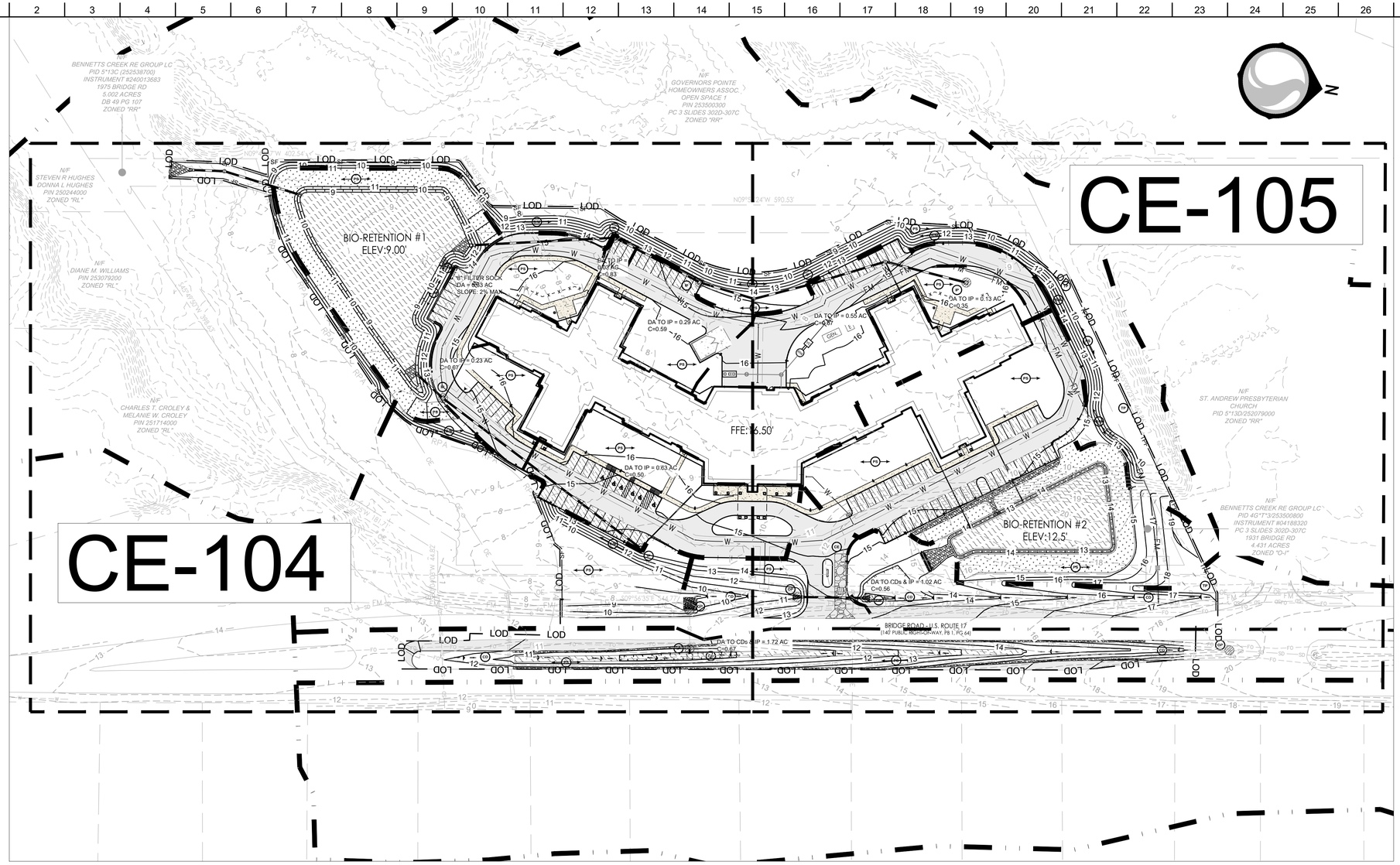
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN

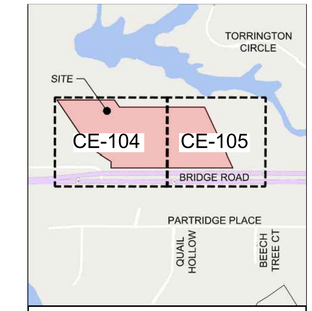
Title
EROSION AND SEDIMENT CONTROL PLAN PHASE I

Drawing No.
CE-102



SCALE: 1"=60'

SCALE:1"=60'



VICINITY & KEY MAP

SCALE:1"=500'

LEGEND

EROSION CONTROL MEASURES		
C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE	
C-PCM-04 SILT FENCE	SF	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP	TPF
C-PCM-01 SAFETY FENCE	SAF	XXX XXX
C-SCM-05 CULVERT INLET PROTECTION	CIP	
C-ECM-15 OUTLET PROTECTION	OP	
C-SCM-04 INLET PROTECTION	IP	
C-SCM-07 ROCK CHECK DAMS	CD	
C-PCM-05 COMPOST FILTER SOCK	CFS	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M	B/M
C-SSM-10 PERMANENT SEEDING	PS	PS

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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title
OVERALL EROSION AND SEDIMENT CONTROL PLAN PHASE II

Drawing No.
CE-103

ORIGINAL SHEET - ARCH D

BIO-RETENTION #1
ELEV:9.00'

8" FILTER SOCK
DA = 0.33 AC
SLOPE: 2% MAX

DA TO IP = 0.03 AC
C=0.83

DA TO IP = 0.29 AC
C=0.59

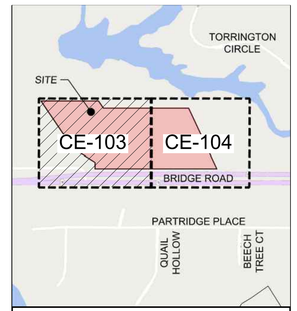
DA TO IP = 0.23 AC
C=0.67

DA TO IP = 0.63 AC
C=0.50

DA TO CDs & IP = 1.7
C=0.67

FFE 6.50'

MATCH LINE CE-105



VICINITY & KEY MAP
SCALE:1"=500'

LEGEND

EROSION CONTROL MEASURES

C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE
C-PCM-04 SILT FENCE	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP
C-PCM-01 SAFETY FENCE	SAF
C-SCM-05 CULVERT INLET PROTECTION	CIP
C-ECM-15 OUTLET PROTECTION	OP
C-SCM-04 INLET PROTECTION	IP
C-SCM-07 ROCK CHECK DAMS	CD
C-PCM-05 COMPOST FILTER SOCK	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M
C-SSM-10 PERMANENT SEEDING	PS

EROSION AND SEDIMENT CONTROL PLAN PHASE II
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

ORIGINAL SHEET - ARCH D

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CONTACT: MICHAEL COYNE

Project No.: 195151140

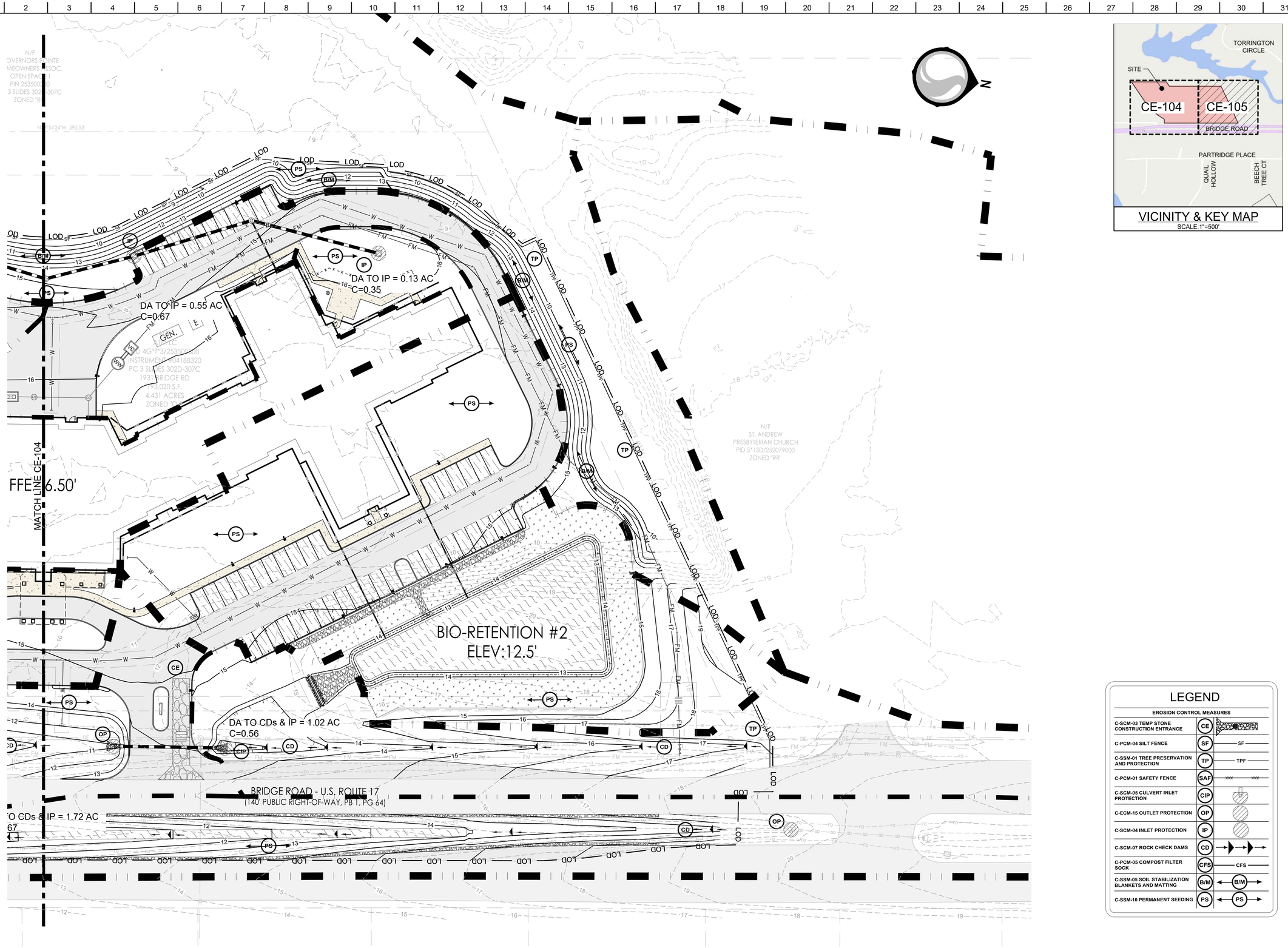
Scale: AS SHOWN

Title

EROSION AND SEDIMENT CONTROL PLAN PHASE II

Drawing No.

CE-104



EROSION AND SEDIMENT CONTROL PLAN PHASE II
SCALE: 1"=30'

0 30' 60'
SCALE:1"=30'

VICINITY & KEY MAP
SCALE:1"=500'

LEGEND

EROSION CONTROL MEASURES		
C-SCM-03 TEMP STONE CONSTRUCTION ENTRANCE	CE	
C-PCM-04 SILT FENCE	SF	SF
C-SSM-01 TREE PRESERVATION AND PROTECTION	TP	TPF
C-PCM-01 SAFETY FENCE	SAF	XXX XXX
C-SCM-05 CULVERT INLET PROTECTION	CIP	
C-ECM-15 OUTLET PROTECTION	OP	
C-SCM-04 INLET PROTECTION	IP	
C-SCM-07 ROCK CHECK DAMS	CD	
C-PCM-05 COMPOST FILTER SOCK	CFS	CFS
C-SSM-05 SOIL STABILIZATION BLANKETS AND MATTING	B/M	B/M
C-SSM-10 PERMANENT SEEDING	PS	PS

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CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title

EROSION AND SEDIMENT CONTROL PLAN PHASE II

Drawing No.
CE-105

ORIGINAL SHEET - ARCH D

EROSION AND SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (V1.2, 2025) AND THE CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.

2. THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL DENUDED OR DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED OR DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 14 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING, AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.

3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN LAND DISTURBANCE.

4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.

5. THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESCH, STD. AND SPEC 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.

6. STOCK PILES OF SOIL AND OTHER ERODIBLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCK PILES ON SITE AS WELL AS FOR MATERIALS TRANSPORTED FROM THE PROJECT SITE.

7. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING(BUT NOT LIMITED TO) USE OF WATER, MULCH, OR CHEMICAL DUST ADHESIVES AND CONTROL OF CONSTRUCTION SITE TRAFFIC.

8. EFFLUENT FROM DE-WATERING OPERATIONS SHALL BE FILTER OR PASSED THROUGH AN ATTROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS, OR THE STORM DRAINAGE SYSTEM.

9. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED NECESSARY BY THE PLAN APPROVING AUTHORITY.

10. TEMPORARY EROSION CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.

GENERAL LAND CONSERVATION NOTES

1. NO DISTURBED AREA WHICH IS NOT ACTIVELY BEING WORKED MAY REMAIN DENUDED FOR MORE THAN 14 CALENDAR DAYS UNLESS AUTHORIZED BY THE DIRECTOR.
2. SEDIMENT CONTROL MEASURES, AS APPROPRIATE, MUST BE PLACED AS SHOWN ON THE APPROVED PLANS AS THE FIRST STEP IN THE LAND DISTURBING PROCESS.
3. WHERE CONSISTENT WITH JOB SAFETY REQUIREMENTS, ALL EXCAVATED MATERIAL MUST BE PLACED ON THE UPHILL SIDE OF TRENCHES. NO MATERIAL MAY BE PLACED IN STREAMBEDS. ANY STOCKPILED MATERIAL WHICH WILL REMAIN IN PLACE LONGER THAN 14 DAYS MUST BE SEEDED AND MULCHED. WHEN SPOIL IS PLACED ON THE DOWNHILL SIDE OF TRENCH, IT MUST BE BACKSLOPED TO DRAIN TOWARD THE TRENCH. WHEN NECESSARY TO DEWATER THE TRENCH, THE PUMP DISCHARGE HOSE MUST OUTLET IN A STABILIZED AREA OR A SEDIMENT TRAPPING DEVICE.
4. WHERE STREAM CROSSINGS ARE REQUIRED FOR EQUIPMENT, TEMPORARY CULVERTS MUST BE PROVIDED.
5. NO MORE THAN 500 FEET OF TRENCH MAY BE OPEN AT ANY ONE TIME.
6. ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL OF THE APPLICABLE TRENCH SECTION. SPEED IS THE ESSENTIAL LAND CONSERVATION ELEMENT FOR LINEAR PROJECTS.
   - 6.1. THE EXISTING AND PROPOSED DRAINAGE PATTERNS MUST BE EXAMINED. THE DRAINAGE AREA AND THE 2-YR STORM RUNOFF QUANTITIES MUST BE REVIEWED TO DETERMINE THE EXISTING AND PROPOSED DIRECTION OF STORMWATER RUNOFF.
   - 6.2. THE ACREAGE TO BE DISTURBED MUST BE IDENTIFIED.
   - 6.3. THE EXIT SWALES AND SLOPES TO THE FOLLOWING MUST BE EXAMINED:
     - 6.3.1. OFF-SITE PROPERTIES.
     - 6.3.2. PARKLANDS.
     - 6.3.3. MAJOR STREAMS AND LAKES OR PONDS.
   - 6.4. A DETERMINATION MUST BE MADE AS TO WHAT PROPERTY WOULD BE IMPACTED BY SEDIMENT IF CONTROLS ARE NOT PROVIDED.
   - 6.5. TREE PRESERVATION AND OTHER AREAS TO REMAIN UNDISTURBED MUST BE DETERMINED AND DEPICTED ON THE PLAN.
   - 6.6. POSSIBLE PROBLEM AREAS MUST BE IDENTIFIED AND ADDRESSED.
   - 6.7. THE LENGTHS AND GRADES OF EXISTING AND PROPOSED LONG SLOPES MUST BE EXAMINED:
     - 6.7.1. CLASSIFY SOILS AS TO DEGREE OF ERODIBILITY.
     - 6.7.2. CHECK VELOCITIES OF SHEET, SWALE OR PIPE DISCHARGE ON SLOPES, OR UNPROTECTED SOIL SURFACES.
     - 6.7.3. CHECK USE OF DIVERSIONS AND SEEDING AND MULCHING WHEN SLOPE EXCEEDS 4:1 AND LENGTH EXCEEDS 20 FEET. SEE THAT ADEQUATE OUTLETS ARE PROVIDED FOR DIVERSIONS.
     - 6.7.4. LOOK FOR INTERCEPTOR DITCH AT TOP OF CUT SLOPES, FOR BERM (DIKE) AT BASE OF FILL SLOPES AND SEE THAT OUTLETS WITH STORAGE ARE PROVIDED.
   - 6.8. STORM AND SANITARY SEWER ROUTES MUST BE REVIEWED. SEDIMENT TRAPS AROUND ALL STRUCTURES AND WORK AREA SEDIMENT CONTROLS MUST BE IDENTIFIED. THE CONSTRUCTION SEQUENCE MUST BE VISUALIZED.
   - 6.9. THE LOCATIONS FOR AND SUITABILITY OF THE FOLLOWING MUST BE CHECKED:
     - 6.9.1. TEMPORARY DIVERSION DIKES, DITCHES AND TERRACES.
     - 6.9.2. PERMANENT DIKES, DITCHES AND TERRACES.
     - 6.9.3. TEMPORARY SEEDING AND MULCHING, HIGHLY ERODIBLE AREAS, STEEP AND LONG SLOPES.
     - 6.9.4. SEDIMENT BARRIERS, STRAW BALES, GRAVEL WEIRS AND SILT FENCES.
     - 6.9.5. MINOR SEDIMENT DAMS, AREAS 2 TO 3 ACRES.
     - 6.9.6. MAJOR SEDIMENT BASINS, DRAINAGE AREAS OVER 3 ACRES (TO BE DESIGNED STRUCTURES).
   - 6.10. THE SEQUENCE OF CONSTRUCTION OPERATIONS AND AREAS TO BE DISTURBED SIMULTANEOUSLY MUST BE CHECKED.
   - 6.11. THE INSTRUCTIONS TO THE CONTRACTOR MUST BE REVIEWED FOR CLARITY.
   - 6.12. THE PROPOSED TIMING OF CONSTRUCTION MUST BE REVIEWED FOR SUITABILITY OF PLANTING AND MULCHING PROVISIONS. THE TIME SPAN FOR ESTABLISHMENT OF PERMANENT COVER MUST BE CHECKED.
   - 6.13. THE ADEQUACY OF DIVERSIONS TO HANDLE THE DESIGN STORM RUNOFF WITHOUT EXCESSIVE VELOCITIES OR OVER-TOPPING AND THE DIMENSIONS OF ALL STORAGE AREAS AND OUTLETS MUST BE CHECKED. A MINIMUM OF 134 CY OF STORAGE PER ACRE MUST BE PROVIDED AND SEDIMENT BASIN DIMENSIONS MUST BE SHOWN ON THE PLANS.
   - 6.14. ADEQUATE INSTRUCTIONS TO THE CONTRACTOR AND THE DEVELOPER MUST BE PROVIDED TO ENSURE PROPER MAINTENANCE OF THE E&S CONTROL FACILITIES (INCLUDING CLEANOUT). A DAILY INSPECTION BY THE CONTRACTOR IS REQUIRED.
   - 6.15. MAXIMUM EROSION OCCURS DURING CONSTRUCTION; THE PERIOD IMMEDIATELY FOLLOWING STRIPPING AND STOCKPILING OF TOPSOIL IS CRITICAL. THE PROBABLE DRAINAGE FLOW EXPECTED BEFORE AND DURING THE TIME OF MAXIMUM EROSION MUST BE CONSIDERED WHILE THE GRADING IS BEING DONE AND THE STORM DRAINAGE DITCHES ARE BEING DUG.
   - 6.16. SINCE THE MAXIMUM RUNOFF ALSO OCCURS DURING CONSTRUCTION, IT IS ESSENTIAL THAT SEDIMENT TRAPS AND BASINS BE CONSTRUCTED BEFORE GENERAL STRIPPING AND BE MAINTAINED DURING CONSTRUCTION TO PROVIDE TEMPORARY STORMWATER MANAGEMENT TO COMPENSATE FOR INCREASED RUNOFF. A MINIMUM RUNOFF COEFFICIENT OF 0.5 MUST BE USED TO DESIGN THESE TEMPORARY MEASURES.

PROJECT DESCRIPTION

THE PROJECT PROPOSES TO CONSTRUCT A NEW HEALTHCARE FACILITY. THE PROPOSED STRUCTURE IS TO BE A SINGLE-STORY BUILDING TO BE CONSTRUCTED ON AN APPROXIMATELY 9.8-ACRE LOT. THE PLANNED SIZE OF THE STRUCTURE IS 54,530 SQUARE FEET WITH 100 PARKING SPACES SURROUND THE STRUCTURE. THERE WILL BE ONE ENTRANCE/EXIT TO THE PROPERTY, FROM THE EAST OFF BRIDGE ROAD. A STORM WATER BASIN IS PLANNED TO THE SOUTH OF THE STRUCTURE WITH A DUMPSTER ENCLOSURE TO THE WEST.

EXISTING CONDITIONS

THE PROJECT IS LOCATED AT 1931/1975 BRIDGE ROAD (US ROUTE 17), IMMEDIATELY NORTH OF THE NANSEMOND RIVER BRIDGE IN SUFFOLK, VIRGINIA.

ADJACENT AREAS

THE SITE IS BOUNDED BY A PRIVATE POND TO THE WEST, ST. ANDREW PRESBYTERIAN CHURCH TO THE NORTH, BRIDGE ROAD (US ROUTE 17) TO THE EAST, AND PRIVATE RESIDENCES TO THE SOUTH.

OFFSITE BORROW MATERIAL

OFFSITE BORROW IS NOT ANTICIPATED FOR THIS PROJECT. HOWEVER, IF NECESSARY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROCURING ALL OFFSITE BORROW MATERIAL AND PROVIDING GEOTECHNICAL CERTIFICATION THAT MATERIAL CONFORMS TO THE REQUIRED SPECIFICATIONS REFERENCED HEREIN. ALL ACTIVITIES ASSOCIATED WITH THE BORROW OPERATIONS SHALL INCLUDE ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES. CONTRACTOR SHALL COORDINATE WITH A GEOTECHNICAL ENGINEER AND ARLINGTON COUNTY AS NEEDED AND INCLUDE VSMP GENERAL CONSTRUCTION PERMIT.

SOILS

ACCORDING TO THE BENNETT'S CREEK Health And REHABILIATION CENTER – BRIDGE ROAD, SUFFOLK, VIRGINIA – GEOTECHNICAL REPORT DATED JULY 30, 2025, THE SURFACE SOILS OF THE SITE ARE PREDOMINANTLY (APPROXIMATELY 50 PERCENT) CLASSIFIED AS THE UDORTHENTS, A LOAMY UNIT WITH THE REMAINING SURFACE SOILS CLASSIFIED AS THE KALMIA FINE SANDY LOAM UNIT AND THE NANSEMOND LOAMY FINE SAND UNIT. UDORTHENT SOILS ARE TYPICALLY MODERATELY WELL TO WELL DRAINED THAT HAVE BEEN DISTURBED BY CUTTING AND/OR FILLING OPERATIONS THAT ARE OR HAVE BEEN COVERED BY BUILDINGS AND PAVEMENT. THE KALMIA FINE SANDY LOAM AND NANSEMOND LOAMY FINE SAND UNITS ARE COMPOSED OF FINE SANDY LOAM, LOAMY FINE SAND, AND SANDY CLAY LOAM, CONSISTENT WITH FINDINGS OF THE BORING LOGS, TO A DEPTH GREATER THAN 6 FEET. THEY ARE DESCRIBED AS MODERATELY WELL DRAINED TO WELL DRAINED AND HAVE A MODERATELY HIGH TO HIGH CAPACITY TO TRANSMIT WATER.

SEE SHEET CH-102.

CRITICAL AREAS

THERE ARE NO CRITICAL EROSION AREAS ON SITE.

EROSION AND SEDIMENT CONTROL PRACTICES

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 STORMWATER MANAGEMENT HANDBOOK (V1.2, 2025). THE MINIMUM STANDARDS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, LATEST EDITION, SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE, IN WRITING.

1. OUTLET PROTECTION – C-ECM-15
   OUTLET PROTECTION SHALL APPLY TO THE OUTLETS OF ALL PIPES AND ENGINEERED CHANNEL SECTIONS. DISCHARGE VELOCITIES FROM PIPE OUTFALLS, OUTLET CHANNELS, OR SIMILAR STRUCTURES SHOULD NOT CAUSE EROSION IN DOWNSTREAM CHANNELS. REFER TO SHEET CE-502.

2. SAFETY FENCE – C-PCM-01
   SAFETY FENCE IS PROTECTIVE BARRIER THAT SHALL BE INSTALLED TO PREVENT ACCESS TO A LAND-DISTURBING ACTIVITY OR EROSION CONTROL MEASURE. REFER TO SHEET CE-502.

3. SILT FENCE – C-PCM-04
   SILT FENCE IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A SYNTHETIC FILTER FABRIC CONSISTING OF A SYNTHETIC FABRIC ENTRENCHED AND STRETCHED ACROSS AND ATTACHED TO SUPPORTING POST SHALL BE INSTALLED DOWNSTREAM OR BELOW DISTURBED AREAS WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION. REFER TO SHEET CE-502.

3. COMPOST FILTER SOCK – C-PCM-05
   COMPOST FILTER SOCKS SHALL BE USED IN MANY CONSTRUCTION SITE APPLICATIONS WHERE EROSION WILL OCCUR IN THE FORM OF SHEET EROSION. REFER TO SHEET CE-502.

3. TEMPORARY STONE CONSTRUCTION ENTRANCE – C-SCM-03
   THE TEMPORARY STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED WHERE TRAFFIC LEAVES A CONSTRUCTION SITE AND MOVES DIRECTLY ONTO A PUBLIC ROAD OR OTHER PAVED AREA.. REFER TO SHEET CE-502.

4. STORM DRAIN INLET PROTECTION – C-SCM-04
   ALL STORM INLETS WITH THE POTENTIAL OF RECEIVING SEDIMENT LADEN RUNOFF SHALL RECEIVE INLET PROTECTION AS SHOWN ON ESC SHEETS CE-502.

5. CULVERT INLET PROTECTION – C-SCM-05
   CULVERTS WITH THE POTENTIAL OF RECEIVING SEDIMENT LADEN RUNOFF SHALL RECEIVE INLET PROTECTION AS SHOWN ON ESC SHEETS CE-502.

6. ROCK CHECK DAMS – C-SCM-07
   ROCK CHECK DAMS ARE SMALL TEMPORARY STONE DAMS CONSTRUCTED ACROSS A SWALE, CHANNEL, OR DRAINAGE DITCH. ROCK CHECK DAMS SHALL BE INSTALLED TO MINIMIZE THE EROSION RATE OF A SWALE, CHANNEL, OR DITCH BY REDUCING THE VELOCITY OF CONCENTRATED STORMWATER FLOWS. REFER TO ESC SHEETS CE-502.

7. TEMPORARY SEDIMENT TRAP – C-SCM-11
   A TEMPORARY SEDIMENT TRAP IS A TEMPORARY PONDING BASIN FORMED BY CONSTRUCTING AN EMBANKMENT, OFTEN EARTHEN OR COMPOSED OF COMPOST FILTER SOCK, WITH A STONE OUTLET. A TEMPORARY SEDIMENT TRAP SHALL BE INSTALLED o DETAIN SEDIMENT-LADEN RUNOFF FROM SMALL, DISTURBED AREAS LONG ENOUGH TO ALLOW MUCH OF THE SEDIMENT TO SETTLE OUT TO PROTECT WATER QUALITY IN RECEIVING STREAMS, LAKES, DRAINAGE SYSTEMS, AND ADJACENT PROPERTY. REFER TO ESC SHEET CE-503.

8. TREE PRESERVATION AND PROTECTION – C-SSM-01
   TREE PROTECTION FENCING SHALL BE INSTALLED TO PROTECT DESIRABLE TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITIES. REFER TO ESC SHEET CE-503.

9. SOIL STABILIZATION BLANKETS AND MATTING – C-SSM-05
   SOIL STABILIZATION BLANKETS AND MATTING ARE A FORM OF PROTECTIVE BLANKET ON A PREPARED PLANTING AREA OF A STEEP SLOPE, CHANNEL, OR SHORELINE SOIL STABILIZATION BLANKETS AND MATTING SHALL BE INSTALLED ON SHORT, STEEP SLOPES WHERE EROSION HAZARD IS HIGH, AND PLANTING IS LIKELY TO BE TOO SLOW TO PROVIDE ADEQUATE PROTECTIVE COVER; IN VEGETATED CHANNELS WHERE THE VELOCITY OF DESIGN FLOW EXCEEDS "ALLOWABLE" VELOCITY; ON STREAMBANKS OR TIDAL SHORELINES WHERE MOVING WATER IS LIKELY TO WASH OUT NEW PLANTINGS; OR WHERE THE FORCES OF WIND PREVENT STANDARD MULCHING FROM REMAINING IN PLACE UNTIL VEGETATION BECOMES ESTABLISHED. REFER TO ESC SHEET CE-503.

8. TEMPORARY SEEDING – C-SSM-09
   ALL EXPOSED SOIL SURFACES THAT ARE NOT TO BE FINE-GRADED FOR PERIODS LONGER THAN 30 DAYS SHALL RECEIVE TEMPORARY SEEDING. SELECTION OF THE TEMPORARY SEED MIXTURE SHALL BE IN ACCORDANCE WITH THE SEEDING SCHEDULE LOCATED ON SHEET CE-503.

9. PERMANENT SEEDING – C-SSM-10
   PERMANENT SEEDING SHALL BE USED TO STABILIZE DISTURBED AREAS BROUGHT TO FINAL GRADE BY ESTABLISHING PERENNIAL VEGETATIVE COVER. SELECTION OF THE PERMANENT SEED MIXTURE SHALL BE IN ACCORDANCE WITH THE SEEDING SCHEDULE LOCATED ON SHEET CE-503.

PHASING OF LAND-DISTURBING ACTIVITY

AS REQUIRED, SEDIMENT CONTROL IS PROVIDED THROUGH A TWO-PHASED APPROACH:

PHASE I:

PHASE I OPERATIONS WILL INCLUDE EROSION AND SEDIMENTATION ASSOCIATED WITH THE INITIAL CLEARING AND GRADING OPERATIONS. AS REQUIRED, PHASE 1 CONTROLS SHALL BE:

1. CONTRACTOR TO OBTAIN ALL NECESSARY AND REQUIRED PERMITS. OWNER, CONTRACTOR, AND RESPONSIBLE LAND DISTURBER SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE COUNTY INSPECTOR PRIOR TO STARTING ANY LAND-DISTURBING ACTIVITIES.
2. INSTALL PERIMETER CONTROLS: TREE PROTECTION, SILT FENCE, SAFETY FENCE, CULVERT AND STORM DRAIN INLET PROTECTION, AND OUTLET PROTECTION. PERIMETER CONTROLS MUST BE IN PLACE PRIOR TO ANY LAND DISTURBING ACTIVITIES. BIORETENTION AREAS SHOULD BE FULL PROTECT BY SILT FENCE OR CONSTRUCTION FENCING UNLESS BEING USED AS A SEDIMENT TRAP.
3. ONCE THE SITE INSPECTOR HAS APPROVED THE INSTALLATION OF THE PHASE 1 CONTROLS, BEGIN DEMOLITION OPERATIONS WITHIN THE LIMITS OF CONSTRUCTIONS. PROTECT AND MAINTAIN TREES ALONG EXISTING RETAINING WALL.
4. ONCE THE CLEARING AND DEMOLITION WORK HAS BEEN COMPLETED, BEGIN ROUGH GRADING OPERATIONS. SEDIMENT TRAP SHALL BE INSTALL DURING ROUGH GRADING OPERATION.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE INSPECTOR.

PHASE II:

1. MAINTAIN ESC MEASURES AS INDICATED IN THE PHASE 2 PLAN.
2. INSTALL PROPOSED FEATURES INCLUDING ASPHALT, CURB, STORM INLET, SANITARY, WATER, FOUNDATION AND BUILDING.
3. GRADE SITE TO FINAL CONTOURS AS SHOWN ON THE PLAN. CONVERT SEDIMENT TRAP INTO BIORETENTION 1. CONSTRUCT BIORETENTION 2.
5. PERMANENTLY STABILIZE SITE. APPLY SEEDING AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH VESCH STANDARDS.
6. OBTAIN INSPECTOR'S APPROVAL PRIOR TO REMOVING PERIMETER CONTROLS.

MAINTENANCE PRACTICES

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL BY THE CONTRACTOR. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

C-PCM-04 – SILT FENCE – THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. REPLACE THE FABRIC PROMPTLY IF THE FABRIC ON A SILT FENCE DECOMPOSES OR BECOMES INEFFECTIVE BEFORE THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY. REMOVE TRASH, FLOATABLES, AND LARGE SEDIMENT DEPOSITS AFTER EACH STORM EVENT AND WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

C-PCM-05 – COMPOST FILTER SOCK – THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES HALF THE ABOVE-GROUND HEIGHT OF THE SOCK AND DISPOSE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN. REPAIR DAMAGED SOCKS IN THE MANNER REQUIRED BY THE MANUFACTURER OR REPLACE COMPOST FILTER SOCKS ACCORDING TO THE MANUFACTURER'S FREQUENCY RECOMMENDATIONS. WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED REMOVE THE STAKES. THE COMPOST FILTER SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED IN ACCORDANCE WITH THE STABILIZATION PLAN. FOR REMOVAL, THE MESH CAN BE CUT, AND THE COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.

C-SCM-04 – STORM DRAIN INLET PROTECTION – THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSION WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE INLET PROTECTION. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

C-SCM-05 – CULVERT INLET PROTECTION – THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSION WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE CULVERT INLET PROTECTION. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

C-SCM-11 – TEMPORARY SEDIMENT TRAP – THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSION WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

STORMWATER RUNOFF CONSIDERATIONS

SEE OUTALL AND SWM/BMP NARRATIVES ON SHEET CH-104.

SEEDING NOTES

5. THE FOLLOWING STABILIZATION SEED MIXES ARE PROPOSED FOR THE SITE: TURF TYPE STABILIZATION SEED MIX AND TEMPORARY STABILIZATION SEED MIX.
6. TURF TYPE STABILIZATION SEED MIXES SHALL BE APPLIED TO ALL DISTURBED AREAS THAT ARE NOT BUILT UPON OR SURFACED.
   - 6.1. TEMPORARY SEED MIX SHALL BE APPLIED TO ALL TEMPORARILY DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS.
   - 6.2. THE SEED MIXES ARE TO BE UNTREATED TESTED SEED OF GOOD QUALITY AND FREE OF NOXIOUS WEEDS.
7. SEED SHALL BE DRY AND NOT MOLDY AND SHALL SHOW NO SIGN OF HAVING BEEN WET OR OTHERWISE DAMAGED.
8. EACH BAG OF SEED SHALL BE LABELED WITH THE NAME OF THE SEED MIX, PERCENTAGES OF EACH SPECIES IN THE MIX, AND THE SUPPLIER'S NAME, ADDRESS, AND PHONE NUMBER.
9. THE CONTRACTOR SHALL USE THE SEED MIXES AND APPLICATION RATES AS SHOWN ON THE PLANT SCHEDULE. NO SUBSTITUTIONS SHALL BE ACCEPTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER OR LANDSCAPE ARCHITECT.
10. CONTRACTOR SHALL HYDROSEED THE MIXES AT THE RATES SHOWN IN THE PLANT SCHEDULE. CONTRACTOR SHALL APPLY SHREDDED STRAW MULCH TO ALL SEEDED AREAS AT A RATE IN ACCCORDANCE WITH VESCH SPEC 3.35.
11. CONTRACTOR SHALL PROTECT SEEDED AREAS PRIOR TO FINAL ACCEPTANCE.
12. SEEDED AREAS SHALL BE INSPECTED BY THE ENGINEER OR LANDSCAPE ARCHITECT AT THE COMPLETION OF THE SEEDING OPERATIONS AND ACCEPTED SUBJECT TO COMPLIANCE WITH SPECIFIED MATERIALS AND INSTALLATION REQUIREMENTS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ACTUAL AMOUNT OF STABILIZATION SEED MIXES REQUIRED.
14. APPLY SEED AND HYDROMULCH DIRECTLY AFTER ACHIEVING GRADE.

EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS

THE INTENT OF THIS SECTION IS TO SUMMARIZE HOW THE EROSION AND SEDIMENT CONTROL MEASURES PROPOSED IN THE EROSION AND SEDIMENT CONTROL PLAN SATISFY THE 19 MINIMUM STANDARDS SET FORTH IN THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (4VAC50-30-40). THE FOLLOWING IS A BRIEF SYNOPSIS OF THE MINIMUM STANDARDS (MS) AND HOW THEY ARE ADDRESSED IN THE PLAN:

MS-1 STABILIZATION OF DENUDED AREAS – WITHIN SEVEN DAYS, PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS THAT MAY REMAIN DORMANT FOR LONGER THAN 30 DAYS. TEMPORARY AND PERMANENT SEEDING IS SPECIFIED IN THE PLAN FOR STABILIZATION OF DENUDED AREAS.

MS-2 STABILIZATION OF SOIL STOCKPILES – N/A. HOWEVER, IF DEEMED NECESSARY, DURING CONSTRUCTION, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES, SUCH AS A SILT FENCE.

MS-3 ESTABLISHMENT OF PERMANENT VEGETATION – 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.

MS-4 TIMING AND STABILIZATION OF SEDIMENT TRAPPING MEASURES – ALL SEDIMENT TRAPPING MEASURES (EXCLUDING SEDIMENT TRAP) SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. SEDIMENT TRAP SHALL BE INSTALLED AFTER DEMOLITION PHASE AND DURING ROUGH GRADING PHASE. SEE SHEET CE-101.

MS-5 STABILIZATION OF EARTHEN STRUCTURES – N/A. HOWEVER IF DEEMED NECESSARY, STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES IMMEDIATELY AFTER INSTALLATION.

MS-6 SEDIMENT TRAP AND BASINS – SEDIMENT TRAPS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. SEE SHEETS CE-101 AND CE-503.

MS-7 DESIGN, CONSTRUCTION, AND STABILIZATION OF CUT AND FILL SLOPES – CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

MS-8 CONCENTRATED RUNOFF DOWN SLOPES – CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE.

MS-9 ADEQUATE DRAINAGE PROTECTION FROM WATER SEEPS – IF THE CONTRACTOR IDENTIFIES WATER SEEPAGE FROM A SLOPE FACE, ADEQUATE DRAINAGE PER VESCH 3.28 OR OTHER APPROPRIATE PROTECTION SHALL BE PROVIDED.

MS-10 STORM SEWER INLET PROTECTION – ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED. INLET PROTECTION SHALL BE INSTALLED PER SHEETS CH-102 AND CE-102, AND MAINTAINED PER C-SCM-04.

MS-11 STORMWATER CONVEYANCE PROTECTION – N/A, HOWEVER IF DEEMED NECESSARY. ADEQUATE OUTLET PROTECTION SHALL BE IN STALLED IN RECEIVING CHANNELS IN ACCORDANCE WITH VESCH 3.18.

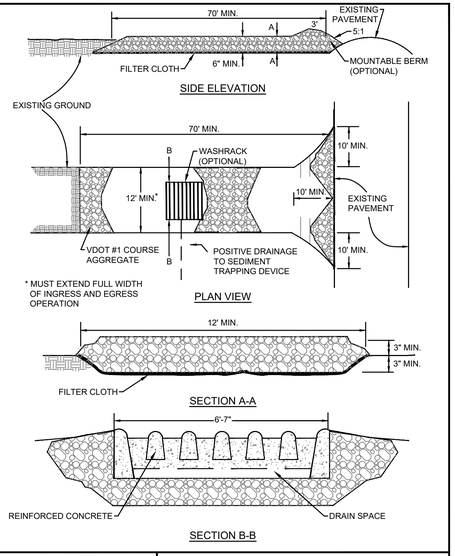
MS-12 WORK IN LIVE WATERCOURSE – N/A.

MS-13 CROSSING LIVE WATERCOURSE – N/A.

MS-14 REGULATION OF WATERCOURSE CROSSING – N/A.

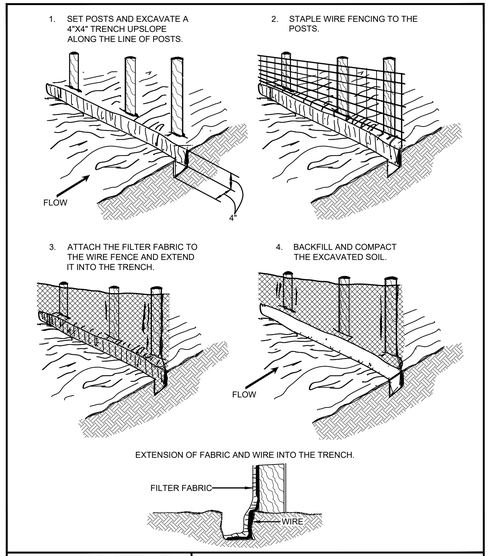
MS-15 STABILIZATION OF WATERCOURSE – N/A.

MS-16 UNDERGROUND UTILITY LINE INSTALLATION – U



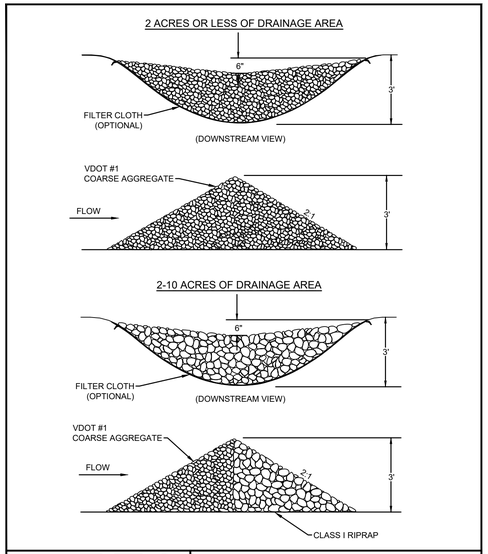
STONE CONSTRUCTION ENTRANCE

v1.1 SOURCE: VA. DSWC, MD ESC STDS C-SCM-03-1



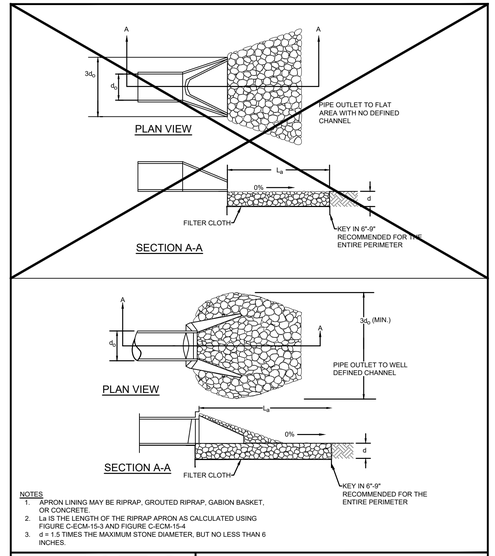
CONSTRUCTION OF SILT FENCE WITH WIRE SUPPORT INSTALLATION

v1.1 SOURCE: ADAPTED FROM STRAW & FAB. BARRIERS, SHERWOOD & WYANT C-PCM-04-2



ROCK CHECK DAM

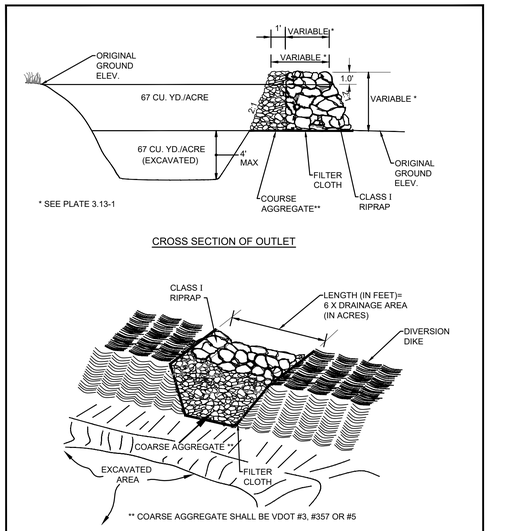
v1.1 SOURCE: VA. DSWC C-SCM-07-1



NOTES
1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP APRON AS CALCULATED USING FIGURE C-ECM-15-3 AND FIGURE C-ECM-15-4
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NO LESS THAN 6 INCHES.

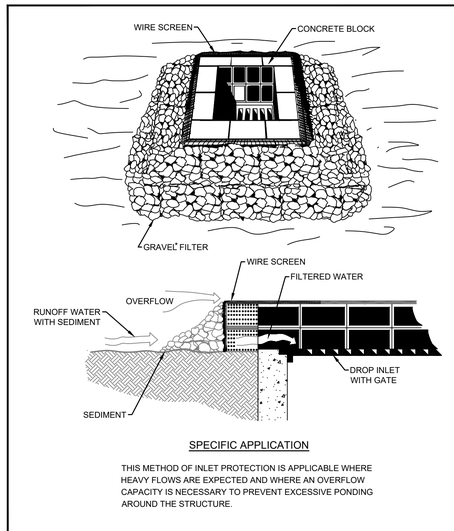
PIPE OUTLET CONDITIONS

v1.1 SOURCE: VA DSWC C-ECM-15-1



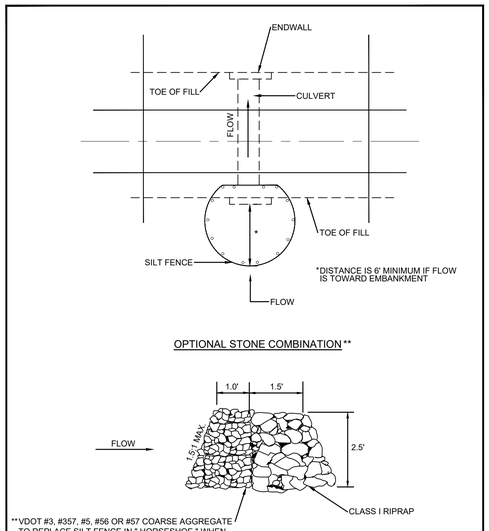
TEMPORARY SEDIMENT TRAP

v1.1 SOURCE: VA. DSWC C-SCM-11-2



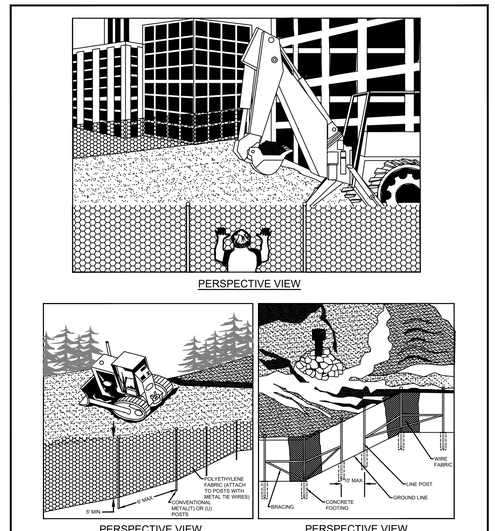
BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER

v1.1 SOURCE: VA. DSWC C-SCM-04-3



SILT FENCE CULVERT INLET PROTECTION

v1.1 SOURCE: VA. DSWC, VDOT C-SCM-05-1



SAFETY FENCE

v1.1 SOURCE: VDOT STDS., VA DSWC, CONWED PLASTICS C-PCM-01-1

Stantec

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Consultants

Notes

Issued / Revised
By Appd. MM.DD.YY

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Dwn. Chkd. Dsgn. MM.DD.YY

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

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Project No.: 195151140
Scale: AS SHOWN
Title EROSION AND SEDIMENT CONTROL DETAILS

Drawing No. CE-502

ORIGINAL SHEET - ARCH D

Table C-SSM-09-2 Liming

Liming Requirements for Temporary Sites

pH Test	Recommended Application of Agricultural Limestone
below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

Table C-SSM-09-3 Plant Material for Temporary Seeding

Acceptable Temporary Seeding Plant Materials "Quick Reference for all Regions"

Planting Dates	Species	Rate (pounds per acre)
Sept. 1 – Feb. 15	50/50 Mix of Annual Rye grass (*Lolium perenne var. aristatum*) & Rye (*Secale cereale*)	50 – 100
Feb. 16 – Apr. 30*	Annual Rye Grass (*Lolium perenne var. aristatum*)	60 – 100
May 1* – Aug. 31	Foxtail-millet, Italian Bristlegrass (*Setaria italica*)	50

* The shift date for Annual Rye Grass to Foxtail-millet, Italian Bristlegrass should be April 15 for the Piedmont and Coastal Plain, rather than May 1.

Table C-SSM-09-4 Temporary Seeding Applications

Temporary Seeding Plant Materials, Seeding Rates, and Dates

Species	Seeding Rate		North[a]			South[b]			Plant Characteristics
	lbs./ acre	lbs./ 1,000 ft²	3/1 - 4/30	5/1 - 8/15	8/15 - 11/1	2/15 - 4/30	5/1 - 9/1	9/1 - 11/15	
Oats (*Avena sativa*)	50 – 100	2.0	X	-	--	X	-	-	Use spring varieties (e.g., Noble).
Rye[d] (*Secale cereale*)	50 – 110	2.5	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
Foxtail-millet, Italian Bristlegrass (*Setaria italica*)	50	1.0	-	X*	-	-	X*	-	Warm-season annual. Dies at first frost. May be added to summer mixes.
Annual Rye Grass[c] (*Lolium perenne var. aristatum*)	60	1.5	X*	-	X	X*	-	X	May be added in mixes. Will mow out of most stands.
Korean-clover[c] (*Kummerowia stipulacea*)	25	1.5	X	X	-	X	X	-	Warm-season annual legume. Tolerates acid soils. May only be used in a mix with another grass (e.g., annual or cereal rye); it is not suitable as a pure seeding for this purpose.

a. Northern Piedmont and Mountain regions. See Figure C-ENV-01-1 and Figure C-ENV-01-2.
b. Southern Piedmont and Coastal Plain.
c. May be used as a cover crop with spring seeding.
d. May be used as a cover crop with fall seeding.
e. May not be planted between these dates.
f. May be planted between these dates.

For native alternatives to these species please see DCR's 2017 addendum to the Stormwater Handbook titled "Native versus Invasive Plant Species" https://www.deq.virginia.gov/home/showpublisheddocument?id=2466

*** The shift date for Annual Rye Grass to Foxtail-millet, Italian Bristlegrass should be April 15 for the Piedmont and Coastal Plain, rather than May 1.**

TEMPORARY SEEDING

Table C-SSM-10-8 Site-Specific Seeding Mixtures for Coastal Plain Area

Site Condition	Seed Mix	Application Rate (pounds per acre)
Minimum-Care Lawn Commercial or Residential	Kentucky 31* or VCIA approved Turf-Type Tall Fescue or Common Bermuda Grass	150 – 200 75
High-Maintenance Lawn	Kentucky 31 or VCIA approved Turf-Type Tall Fescue[1]	150 – 200
	Hybrid Bermudagrass (seed) **	40 (unhulled)
	Hybrid Bermuda Grass (by other vegetative establishment method refer to Bermuda Grass & Zoysiagrass Establishment [C-SSM-07])	30 (hulled)
General Slope (3H:1V or less)	Tall Fescue[1] and/or Hard Fescue	50 – 75
	Redtop Grass[1]	5 – 10
	Korean-clover, Japanese-clover and/or White Clover***	10 – 20
	Seasonal Nurse Crop ****	30 – 40
Low-Maintenance Slope (Steeper than 3H:1V)	Tall Fescue[1] and/or Red/Hard Fescue	75 – 100
	Common Bermuda Grass **	0 – 15
	Redtop Grass[1]	5 – 10
	Korean-clover, Japanese-clover and/or White Clover***	10 – 20
	Seasonal Nurse Crop ****	30 – 40

* Increase seed rate if only KY-31 is used.

** May through October, use hulled seed. All other seeding periods, use unhulled see. Weeping lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10 - 20 pounds per acre in mixes.

*** Use legume seed that is properly inoculated with specified Rhizobia. Legumes recommended unless periodic N fertilization is intended. Weeping Lovegrass[1] may be added to any slope or low-maintenance mix during warmer seeding periods; add 10 to 20 lbs/acre in mixes.

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

March 15 through August,

Foxtail-millet, Italian Bristlegrass
September, October through November 15

Italian Rye Grass, Annual Rye Grass. Rye
November 16 through March 15,

Italian Rye Grass, Annual Rye Grass. Rye
Note: Seed mixes are suggested and subject to modification based on site-specific conditions by an agronomist or other qualified revegetation professionals. All seed rates expressed as PLS (Pure Live Seed; see Table C-SSM-10-9).

PERMANENT SEEDING

SEDIMENT TRAP CALCULATIONS

TRAP #	*DRAIN. AREA (AC)	WET VOL REQ. (CY)	WET VOL PROV (CY)	WET STORAGE AREA(sf)	WET STORAGE DEPTH (ft)	INV WET STORAGE	DRY VOL REQ. (CY)	DRY VOL PROV (CY)	RISER ELEV.	BERM ELEV.	BERM W (ft)	OUTLET WIDTH (ft)
1	3.00	201.0	205.5	6529.0	1.0	8.00	201.0	261.6	9.00	11.00	2.0	18.0

*DA VARIES THROUGHOUT CONSTRUCTION. STARTING DA 0.22 AC, MAXIMUM DA 3.0 ACRES.

Volume of Sediment Trap: 1

	Elevation	Area (sf)	Vol. (cf)	Vol. (cy)	Cum. Vol. (cy)
wet bottom	8.0	5,517		0	0.0
wet top/dry bottom	9	6,529	6,023	223	223.1
	10	7,597	7,063	262	484.7
	11	8,721	8,159	302	786.9

Sediment Trap	
Bottom Wet Storage	8
Top of Wet Storage/Botto	9
Riser Height Above Wet Storage (ft)	1.0
Top of Dry Storage	10
Top of Berm	11

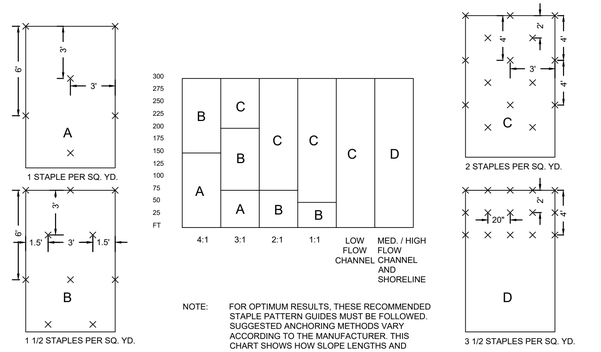
SEDIMENT TRAP CALCULATIONS

Table C-PCM-05-1 Design Parameter of Sock Thickness

Maximum Slope Lengths Above Compost Filter Sock

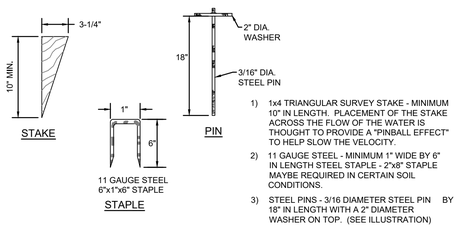
Diameter (inches)	Slope (%)						
	2	5	10	20	25	33	50
	Length (feet)						
8	378	264	177	91	64	29	--
12	586	256	137	73	60	47	32
18	718	321	174	95	78	61	42
24	956	436	240	133	110	86	60
32	1,277	605	344	195	163	130	93

COMPOST FILTER SOCK



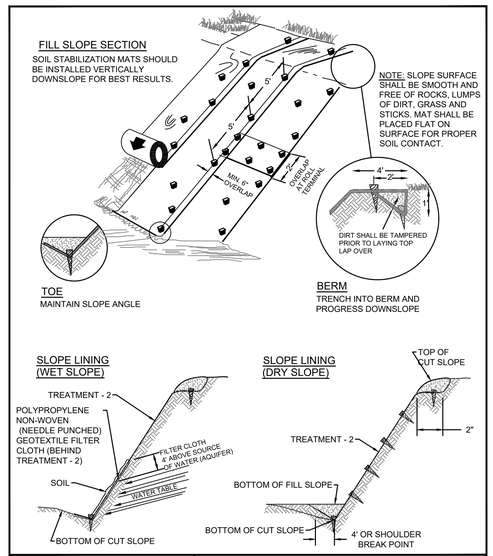
GENERAL STAPLE PATTERN GUIDE AND RECOMMENDATIONS FOR TREATMENT - 2 (SOIL STABILIZATION MATTING)

v1.1 SOURCE: PRODUCT LITERATURE FROM NORTH AMERICAN GREEN C-SSM-05-6



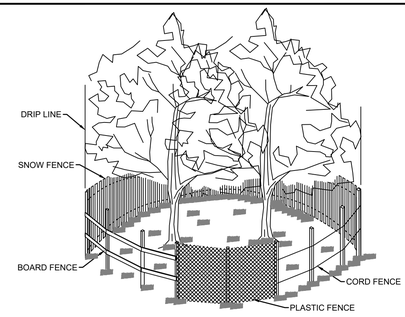
STAKES STAPLES, & PINS FOR INSTALLATION OF TREATMENT-2 SOIL STABILIZATION MATTING

v1.1 SOURCE: PRODUCT LITERATURE FROM GREENSTREAT, INC. C-SSM-05-3

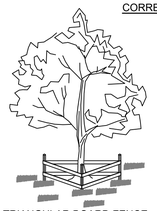


TYPICAL TREATMENT - 2 SOIL STABILIZATION MATTING SLOPE INSTALLATION

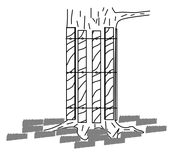
v1.1 SOURCE: VDOT ROAD & BRIDGE STDS. C-SSM-05-5



CORRECT METHODS OF TREE FENCING



TRIANGULAR BOARD FENCE



CORRECT TRUNK ARMORING

FENCING AND ARMORING

v1.1 SOURCE: VA. DSWC C-SSM-01-2

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Notes

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Project No.: 195151140
Scale: AS SHOWN
Title EROSION AND SEDIMENT CONTROL DETAILS

Drawing No. CE-503

ORIGINAL SHEET - ARCH D

PROJECT NARRATIVE

THE EXISTING PARCELS CONSIST PRIMARILY OF VACANT LAND, PORTIONS OF WHICH WERE HISTORICALLY USED FOR AGRICULTURAL PURPOSES. TWO (2) STRUCTURES CURRENTLY EXIST ON THE SUBJECT PROPERTIES: A SINGLE-STORY BRICK RESIDENCE WITH A FRONT PORCH AND A BARN ASSOCIATED WITH THE PROPERTY LOCATED AT 1975 BRIDGE ROAD. THE EXISTING IMPERVIOUS AREA IS APPROXIMATELY 0.20 ACRES.

THE PROPERTY AT 1975 BRIDGE ROAD WAS REZONED IN 2025 (RZN2025-00007) AS PART OF THIS PROJECT AND IS NOW SUBJECT TO DEVELOPMENT PROFFERS IN ACCORDANCE WITH CITY OF SUFFOLK ORDINANCE 25-O-111.

THE PROPOSED DEVELOPMENT CONSISTS OF A 100-BED SKILLED NURSING FACILITY OCCUPYING APPROXIMATELY 1.26 ACRES OF THE SITE. TOTAL PROPOSED IMPERVIOUS AREA IS ESTIMATED TO BE APPROXIMATELY 3.03 ACRES.

BRIDGE ROAD (U.S. ROUTE 17) IS AN OPEN-SECTION ROADWAY WITH A POSTED SPEED LIMIT OF 45 MPH. THE EXISTING ROADWAY PROFILE AND ELEVATIONS WILL REMAIN UNCHANGED. THE PROPOSED ROADWAY IMPROVEMENTS ARE INTENDED TO SUPPORT DEVELOPMENT OF THE FACILITY AND SATISFY PROFFERED TRANSPORTATION REQUIREMENTS.

IN ACCORDANCE WITH THE PROFFERED CONDITIONS, THE DESIGN INCLUDES AN EXTENSION OF THE EXISTING NORTHBOUND LEFT-TURN LANE AT THE PRESBYTERIAN CHURCH DRIVEWAY TO PROVIDE 200 FEET OF STORAGE AND A 200-FOOT TAPER, ALLOWING NORTHBOUND TRAFFIC TO SAFELY EXECUTE U-TURN MOVEMENTS TO ACCESS THE PROPOSED DEVELOPMENT.

A SOUTHBOUND RIGHT-TURN LANE IS PROPOSED AT THE SITE ENTRANCE WITH 150 FEET OF STORAGE AND A 150-FOOT TAPER TO ACCOMMODATE VEHICLE DECELERATION INTO THE SITE.

ADDITIONALLY, A SOUTHBOUND LEFT-TURN LANE IS PROPOSED AT THE EXISTING MEDIAN OPENING SOUTH OF THE SITE, CONSISTING OF 200 FEET OF STORAGE AND A 200-FOOT TAPER TO FACILITATE U-TURN MOVEMENTS FOR VEHICLES EXITING THE SITE AND TRAVELING NORTHBOUND.

EXISTING IMPERVIOUS AREA WITHIN THE LIMITS OF DISTURBANCE (LOD) OF THE PUBLIC RIGHT-OF-WAY IS APPROXIMATELY 1.87 ACRES, WHILE THE PROPOSED IMPERVIOUS AREA WITHIN THESE LIMITS IS APPROXIMATELY 2.08 ACRES.

HYDROLOGY NARRATIVE

1. EXISTING SITE CONDITIONS

THE EXISTING PROJECT SITE IS CHARACTERIZED BY GENERALLY FLAT TOPOGRAPHY THAT EXHIBITS A GENTLE SLOPE TOWARD A NATURAL DRAINAGE SWALE LOCATED ALONG THE SOUTHERN BOUNDARY OF THE PROPERTY. THE PROPERTY PRIMARILY CONSISTS OF LOW-LYING FIELDS HISTORICALLY UTILIZED AS PASTURELAND.

- HYDROLOGY & DRAINAGE FEATURES: NO PERENNIAL STREAMS ARE PRESENT WITHIN THE PROJECT LIMITS. SURFACE RUNOFF IS CURRENTLY COLLECTED AND CONVEYED ACROSS THE PASTURELAND VIA MAN-MADE, NON-PERENNIAL CONVEYANCE DITCHES ESTABLISHED IN PREVIOUS DECADES TO MANAGE SURFACE PONDING.
- ENVIRONMENTAL CONSTRAINTS: A 100-FOOT RESOURCE PROTECTION AREA (RPA) BUFFER HAS BEEN DELINEATED AND PROJECTED FROM THE LIMITS OF THE FORESTED AND EMERGENT WETLANDS SITUATED ALONG THE SOUTHERN PORTION OF THE SITE. ADDITIONALLY, PORTIONS OF THE LOW-LYING PROPERTY FALL WITHIN THE ESTABLISHED 100-YEAR BASE FLOOD ELEVATION (BFE) FLOODPLAIN.
- SOIL CHARACTERIZATION: SOIL MAPPING VIA THE NRCS WEB SOIL SURVEY INDICATES THE SITE IS COMPRISED OF KALMIA FINE SANDY LOAM, NANSEMOND LOAMY FINE SAND, AND UDORTHENTS LOAMY. ALL UNDERLYING SOILS ARE CLASSIFIED UNDER HYDROLOGIC SOIL GROUP B (HSG B), PROVIDING MODERATE INFILTRATION POTENTIAL. REFER TO THE EXISTING DRAINAGE AREA SCHEMATIC ON THIS SHEET FOR RUNOFF ROUTING.

PROPOSED SITE CONDITIONS

THE PROPOSED STORMWATER MANAGEMENT DESIGN UTILIZES A SINGLE DESIGN POINT, DESIGNATED AS STUDY POINT #1 (STP #1). TO EVALUATE LOCALIZED PEAK FLOWS AND BEST MANAGEMENT PRACTICE (BMP) PERFORMANCE, THE SITE IS DIVIDED INTO THREE PRIMARY DRAINAGE WATERSHEDS (SUB-AREAS A, B, AND C), WHICH ARE FURTHER SEGMENTED INTO DISTINCT SUB-BASINS.

SUB-AREA A

- SUB-AREA A1: RUNOFF FROM DEVELOPED SURFACES IS ROUTED TO BIORETENTION #1 FOR WATER QUALITY AND QUANTITY ATTENUATION. MANAGED DISCHARGES OUTFALL VIA A CONTROLLED STRUCTURE INTO AN ENGINEERED RIP-RAP OUTLET PROTECTION APRON TO MITIGATE EROSIVE VELOCITIES.
- SUB-AREA A2: THIS BASIN REMAINS UNDISTURBED AND UNCHANGED FROM ITS NATURAL, EXISTING STATE. RUNOFF CONTINUES TO DRAIN VIA SHEET FLOW TOWARD ITS NATURAL TERMINUS AT STP #1.

SUB-AREA B

- SUB-AREA B1: CONCENTRATED RUNOFF IS CAPTURED AND TREATED WITHIN BIORETENTION #2. IT OUTFALLS DIRECTLY INTO AN ENGINEERED LEVEL SPREADER, TRANSFORMING CONCENTRATED FLOW INTO SHEET FLOW AS IT ENTERS SUB-AREA B2.
- SUB-AREA B2: THIS ZONE MAINTAINS A DRAINAGE PATTERN SIMILAR TO EXISTING CONDITIONS BUT ACCEPTS ADDITIONAL RUNOFF FROM A NEW PROPOSED TURNING LANE AT THE SITE ENTRANCE. RUNOFF CONVEYED VIA A PROPOSED 24-INCH CULVERT BENEATH THE MAIN SITE ENTRANCE.
- SUB-AREA B3: THIS SUB AREA ACTS AS THE MAIN CONVEYANCE FOR SUB AREA B, COLLECTING AND ROUTING COMBINED FLOWS ORIGINATING FROM SUB-AREAS B1, B2, AND THE B4 PLUNGE POOL OUTFALL. RUNOFF TO SUB- AREA B3 IS CONVEYED THROUGH A MANMADE CHANNEL.
- SUB-AREA B4: RUNOFF WITHIN THIS BASIN IS COLLECTED AND TREATED VIA A DRY SWALE CONVEYANCE FEATURE, WHICH ROUTES FLOWS TO A RELOCATED EXISTING STORMWATER INLET. THIS INLET CONNECTS TO AN EXISTING 18-INCH PIPE, ULTIMATELY DISCHARGING INTO A NEWLY ENGINEERED PLUNGE POOL DISSIPATOR LOCATED AT THE BOUNDARY OF SUB-AREA B3.

SUB-AREA C

- SUB-AREA C1: THE DRAINAGE CHARACTERISTICS AND BOUNDARIES OF SUB-AREA C1 REMAIN ENTIRELY IDENTICAL TO PRE-DEVELOPMENT CONDITIONS, EXCEPT FOR THE PROPOSED CONDITIONS CONVEYED FROM SUB-AREA B.

WATER QUALITY NARRATIVE

THE PROPOSED DEVELOPMENT IS SUBJECT TO THE WATER QUALITY DESIGN CRITERIA OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATIONS, WHICH AIM TO PROTECT STATE WATERS BY CONTROLLING THE DISCHARGE OF STORMWATER POLLUTANTS FROM REGULATED LAND-DISTURBING ACTIVITIES. TO DEMONSTRATE COMPLIANCE, STANTEC UTILIZED THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM).

1. COMPLIANCE

- ON-SITE COMPLIANCE: THE VRRM NEW DEVELOPMENT SPREADSHEET WAS UTILIZED FOR ALL IMPROVEMENTS CONTAINED WITHIN THE MAIN PARCEL BOUNDARIES.
- OFF-SITE COMPLIANCE: THE VRRM REDEVELOPMENT SPREADSHEET WAS UTILIZED FOR LINEAR CORRIDOR INFRASTRUCTURE AND ENTRY ENHANCEMENTS LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY (ROW).

2. COMPLIANCE BOUNDARIES & COMPUTATIONAL AREAS

THE TOTAL REGULATORY LIMITS OF ANALYSIS FOR THE VRRM COMPUTATIONS ARE DEFINED AS FOLLOWS:

- ON-SITE MODEL BOUNDARY: CONSTRAINED TO THE SITE PARCEL AREA, TOTALING 9.43 ACRES.
- OFF-SITE MODEL BOUNDARY: CONSTRAINED TO THE AREA DRAINING TO STUDY POINT ONE WITHIN THE RIGHT-OF-WAY, TOTALING 4.10 ACRES.

3. ON-SITE WATER QUALITY TREATMENT STRATEGY

THE ON-SITE STORMWATER MANAGEMENT APPROACH TARGETS POLLUTANT REDUCTION USING TWO BIO-RETENTION'S

BIORETENTION #1 (LEVEL 2)

- LOCATION: LOCATED NEAR THE SOUTHWEST CORNER OF THE PARCEL.
- CONTRIBUTING DRAINAGE AREA: 4.09 ACRES.
- CONVEYANCE: RUNOFF IS CAPTURED AND ROUTED TO THE FACILITY VIA CURB CUTS AND A CLOSED-CONDUIT STORM DRAIN NETWORK.

SEE DETAILS AN COMPUTATIONS ON SHEET CH-104.

BIORETENTION #2 (LEVEL 2)

- LOCATION: LOCATED NEAR THE NORTHEAST CORNER OF THE PARCEL.
- CONTRIBUTING DRAINAGE AREA: 1.70 ACRES.
- CONVEYANCE: RUNOFF IS DELIVERED TO THE FACILITY THROUGH SURFACE CURB CUTS AND DAYLIGHTED ROOF LEADER DRAINS.

SEE DETAILS AND COMPUTATIONS ON SHEET CH-104 .

4. OFF-SITE WATER QUALITY TREATMENT STRATEGY

THE OFF-SITE STORMWATER MANAGEMENT APPROACH TARGETS POLLUTANT REDUCTION USING A DRY SWALE

DRY SWALE #1 (LEVEL 2)

- LOCATION: IOCATED WITHIN THE EXISTING ROADWAY MEDIAN ALONG THE PRIMARY FRONTAGE OF THE PROPOERTY.
- CONTRIBUTING DRAINAGE AREA: 1.73 ACRES OF LINEAR ROADWAY.
- CONVEYANCE: RUNOFF FROM THE OPEN-SECTION ROADWAY DRAINS DIRECTLY VIA OVERLAND SHEET FLOW OVER THE VEGETATIVE SHOULDER BUFFER INTO THE DRY SWALE FILTER CHANNEL.

SEE DETAILS AND COMPUTATIONS ON SHEET CH-104 .

WATER QUANTITY NARRATIVE

SEE HYDROLOGY NARRATIVE THIS SHEET FOR DESCRIPTION OF EXISTING AND PROPOSED DRAINAGE PATTERNS.

THE PRE- AND POST-DEVELOPMENT DRAINAGE AREAS ARE SHOWN ON SHEETS CH-105 AND CH-106.

CHANNEL PROTECTION

THE POINT OF ANALYSIS FOR CHANNEL PROTECTION COMPLIANCE IS STP#1 AND IS LOCATED BEYOND THE SOUTH WEST PROPERTY CORNER.

CHANNEL PROTECTION REQUIREMENTS HAVE BEEN MET THROUGH THE USE OF THE ENERGY BALANCE EQUATIONENERGY BALANCE CALCULATIONS ARE PROVIDED ON SHEET C-107.

FLOOD PROTECTION

THE POINT OF ANALYSIS FOR FLOOD PROTECTION REQUIREMENTS IS STP#1. FLOOD PROTECTION REQUIREMENTS HAVE BEEN MET SUCH THAT THE POST-DEVELOPMENT 10-YEAR PEAK FLOW RATE IS LESS THAN THE PRE-DEVELOPMENT PEAK FLOW RATE. SEE SHEET C-107 FOR COMPUTATIONS.

SUB AREA A_1 ONSITE BIO RETENTION #1

PROPOSED DRAINAGE AREA	Area (sqft.)	Area (acres)
	178,089	4.09

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	0	0.00	B	55	82	1 YR: 73
MIXED OPEN	0	0.00	B	59		2 YR:75
MANAGED TURF	77,408	1.78	B	61		10 YR:77
IMPERVIOUS	100,681	2.31	B	98		

SUB AREA B_1 ONSITE BIO RETENTION #2

PROPOSED DRAINAGE AREA	Area (sqft.)	Area (acres)
	73,219	1.68

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	0	0.00	B	55	75	1 YR: 67
MIXED OPEN	0	0.00	B	59		2 YR:69
MANAGED TURF	46,139	1.06	B	61		10 YR:71
IMPERVIOUS	27,080	0.62	B	98		

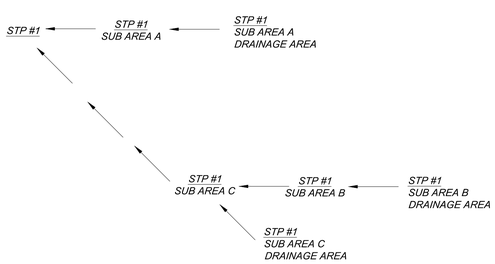
SUB AREA B_4 RIGHT OF WAY DRY SWALE #1 (SEE DRY SWALE CHECK DAM SUB AREAS)

PROPOSED DRAINAGE AREA	Area (sqft.)	Area (acres)
	75,508	1.73

POST LAND COVER

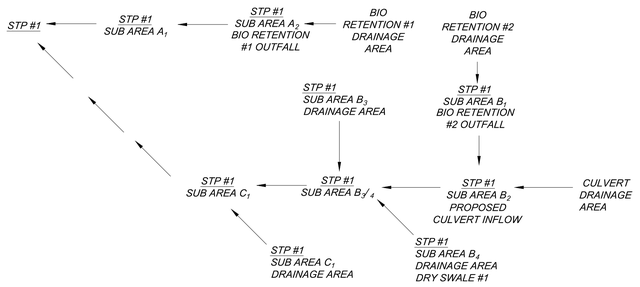
COVER TYPE	DRAINAGE AREA RIGHT OF WAY sqft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	0	0.00	B	55	82	1 YR: 78
MIXED OPEN	0	0.00	B	59		2 YR:78
MANAGED TURF	32,574	0.75	B	61		10 YR:79
IMPERVIOUS	42,934	0.99	B	98		

BMP DRAINAGE AREAS AND LAND USE



EXISTING ROUTING SCHEMATIC

SCALE:N.T.S.



PROPOSED ROUTING SCHEMATIC

SCALE:N.T.S.

BMP FACILITY LOCATION

BMP	NOTRTHING	EASTING
BIO - RETENTION #1	3,491,247.138	12,069,129.086
BIO - RETENTION #2	3,492,001.099	12,069,296.840
DRY SWALE #1	3,491,779.273	12,069,480.995

BMP DRAINAGE AREA MAP

SCALE: HORIZONTAL 1"=80'

0 80' 160'

HORIZONTAL SCALE:1"=80'

ORIGINAL SHEET - ARCH D

Stantec

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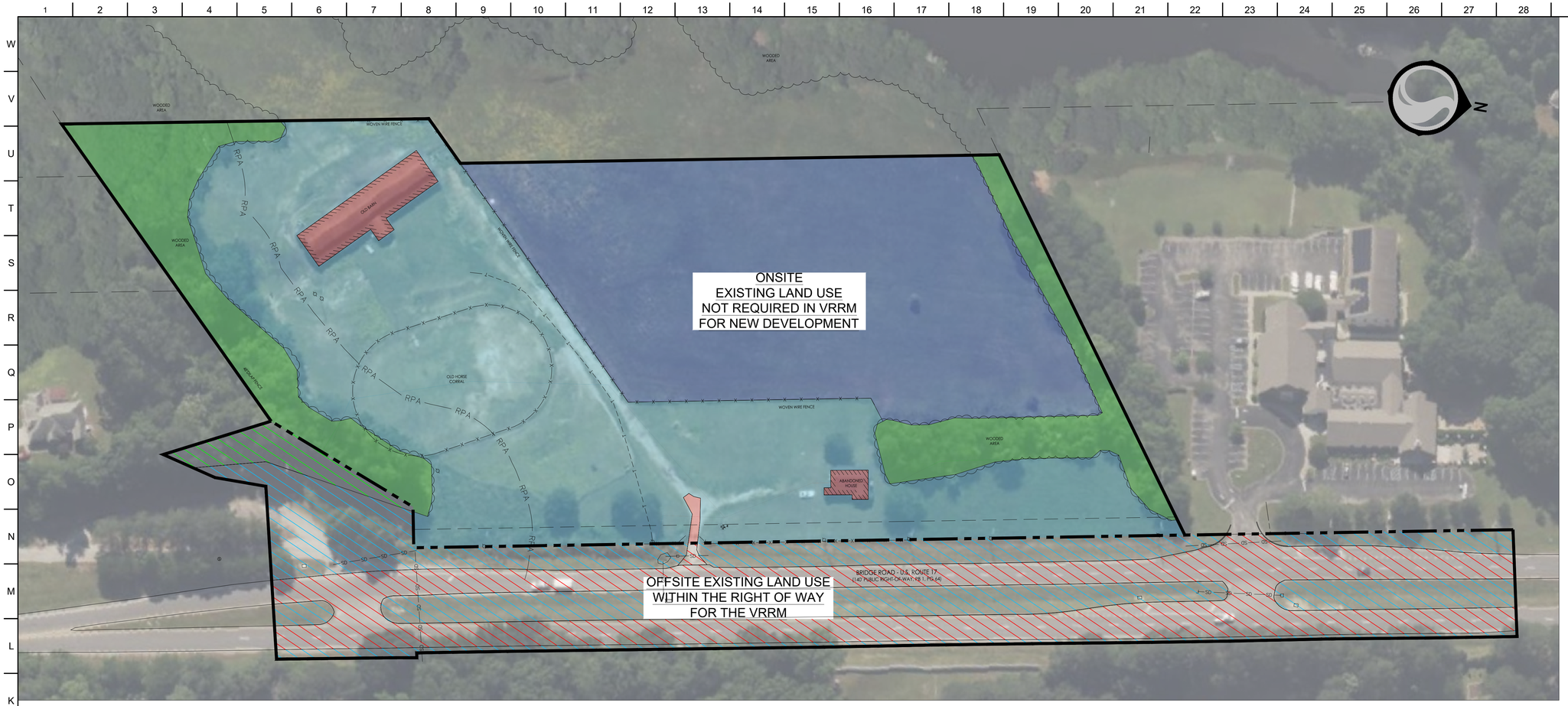
Scale: AS SHOWN

Title

SWM PROJECT AREAS MAP & NARRATIVE

Drawing No.

CH-101



WATER QUALITY LAND USE MAP PRE-DEVELOPMENT

SCALE: HORIZONTAL 1"=60'

0 60' 120

HORIZONTAL SCALE:1"=60'

LAND USE LEGEND

ONSITE - MIXED OPEN: 3.40 ACRES	RIGHT OF WAY - FOREST: 0.17 ACRES
ONSITE - FOREST: 1.33 ACRES	RIGHT OF WAY - MANAGED TURF: 2.06 ACRES
ONSITE - MANAGED TURF: 4.50 ACRES	RIGHT OF WAY - IMPERVIOUS: 1.87 ACRES
ONSITE - IMPERVIOUS: 0.20 ACRES	
TOTAL - 9.43 ACRES	TOTAL: 4.10 ACRES

LEGEND

- RIGHT OF WAY LINE
- VRRM STUDY LIMIT

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.
3. REFER TO SHEET CH-104 FOR WATER QUALITY COMPUTATIONS.
4. REFER TO SHEET CH-107 FOR WATER QUANTITY COMPUTATIONS.

ORIGINAL SHEET - ARCH D

Stantec

Stantec Consulting Services Inc.
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Notes

No.	Issued / Revised	By	Appd.	MM.DD.YY

File Name: 195151140_C-401.dwg

Dwn.	Chkd.	Dsgn.	MM.DD.YY
BAY J.	MBH	BAY J.	06/25/2026

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

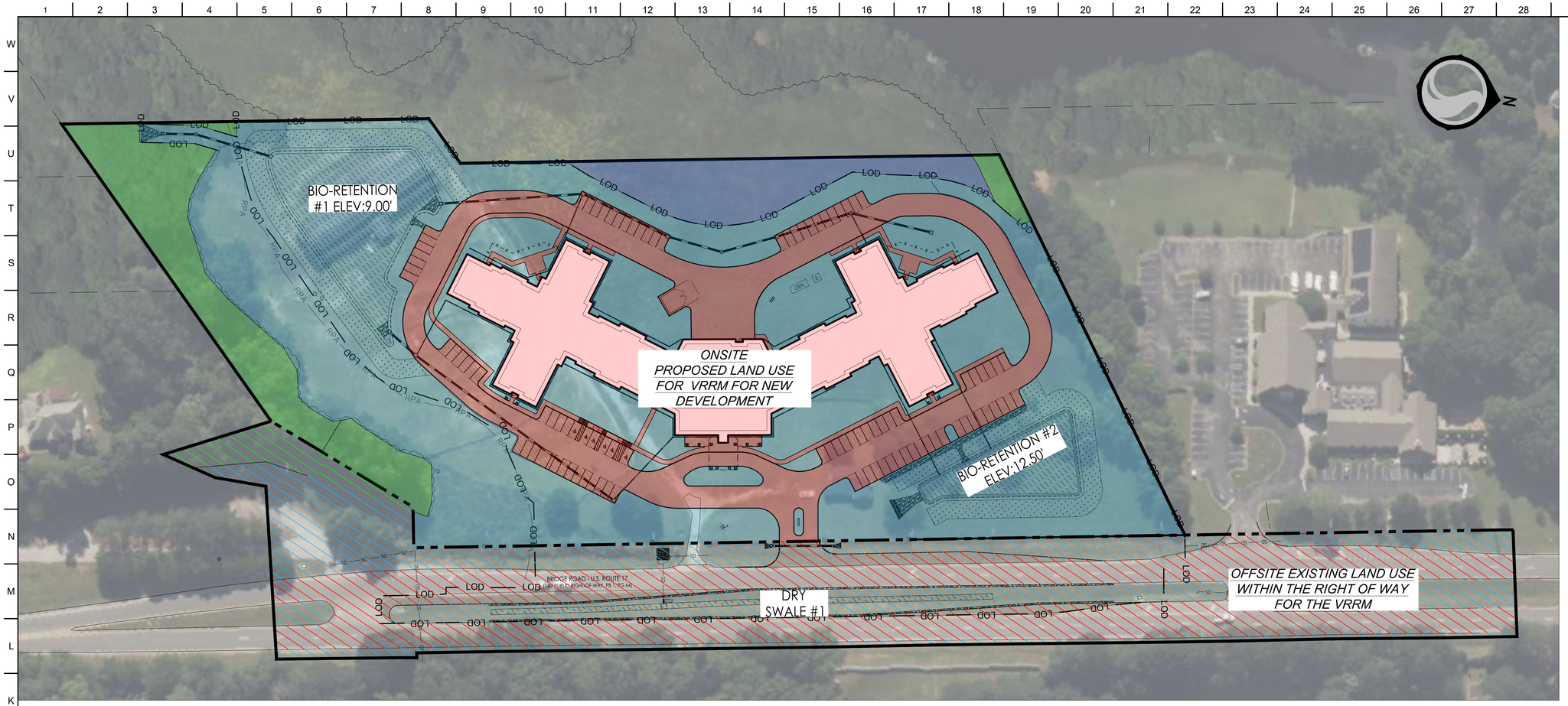
Scale: AS SHOWN

Title

WATER QUALITY LAND USE MAP PRE-DEVELOPMENT

Drawing No.

CH-102



WATER QUALITY LAND USE MAP POST-DEVELOPMENT

SCALE: HORIZONTAL 1"=60'

0 60' 120

HORIZONTAL SCALE:1"=60'

LAND USE LEGEND

ONSITE - MIXED OPEN: 0.43 ACRES	RIGHT OF WAY - FOREST: 0.17 ACRES
ONSITE - FOREST: 0.76 ACRES	RIGHT OF WAY - MANAGED TURF: 1.85 ACRES
ONSITE - MANAGED TURF: 5.21 ACRES	RIGHT OF WAY - IMPERVIOUS: 2.08 ACRES
ONSITE - IMPERVIOUS: 3.03 ACRES	
TOTAL - 9.43 ACRES	TOTAL: 4.10 ACRES

LEGEND

- RIGHT OF WAY LINE
- VRRM STUDY LIMIT

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.
3. REFER TO SHEET CH-104 FOR WATER QUALITY COMPUTATIONS.
4. REFER TO SHEET CH-107 FOR WATER QUANTITY COMPUTATIONS.

ORIGINAL SHEET - ARCH D

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Notes

By Appd. MM.DD.YY

Issued / Revised

File Name: 195151140_C-402.dwg

BAY J.	MBH	BAY J.	06/25/2026
Dwn.	Chkd.	Dsgn.	MM.DD.YY

Permit/Seal

COMMONWEALTH OF VIRGINIA
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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

WATER QUALITY LAND USE MAP POST-DEVELOPMENT

Drawing No.

CH-103

VRRM PROPOSED DEVELOPMENT FOR SABER HEALTH CARE FACILITY

VRRM REDEVELOPMENT FOR IMPROVEMENTS IN THE RIGHT OF WAY

ORIGINAL SHEET - ARCH D

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - **Version 4.1**

Project Name: SABER HEALTH
Date: 6/10/2026

CLEAR ALL (Ctrl+Shift+R)

BMP Design Specifications List: 2024 Stds & Specs

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest (acres) – undisturbed, protected forest or reforested land		0.76			0.76 *
Mixed Open (acres) – undisturbed/infrequently maintained grass or shrub land		0.43			0.43
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed		5.21			5.21
Impervious Cover (acres)		3.03			3.03
					9.43

** Forest and Mixed Open areas must be protected in accordance with the Virginia Runoff Reduction Method*

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	3.87

LAND COVER SUMMARY – POST DEVELOPMENT

Land Cover Summary	
Forest Cover (acres)	0.76
Weighted Rv (Forest)	0.03
% Forest	8%
Mixed Open (acres)	0.43
Weighted Rv (mixed open)	0.11
% Mixed Open	5%
Managed Turf Cover (acres)	5.21
Weighted Rv (Turf)	0.20
% Managed Turf	55%
Impervious Cover (acres)	3.03
Rv (Impervious)	0.95
% Impervious	32%
Site Area (acres)	9.43
Site Rv	0.42

Treatment Volume and Nutrient Loads	
Treatment Volume (acre-ft)	0.3326
Treatment Volume (cubic feet)	14,486
TP Load (lb/yr)	6.32
TN Load (lb/yr)	76.39

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv	Composite Loading P
Forest (acres)					0.00	0.03	0.06
Mixed Open (acres)					0.00	0.08	0.00
Managed Turf (acres)		1.78			1.78	0.20	0.68
Impervious Cover (acres)		2.31			2.31	0.95	0.86
				Total	4.09		

VRRM 4.1, 2024

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr): 5.19
Post Development Treatment Volume in D.A. A (ft³): 9,258

Composite Loading N: 0.00, 0.00, 7.21, 12.33

Stormwater Best Management Practices (RR = Runoff Reduction) –Select from dropdown lists–

Practice	Runoff Reduction Credit (%)	Mixed Open Credit Area (acres)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Practice to be Employed	Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
A. Vegetated Roof (RR)																			
1.a. Vegetated Roof A1 (P-FI-A1)	45				0	0	0	0			0.00	0.00	0.00				0.00	0.00	0.00
1.b. Vegetated Roof A2 (P-FI-A2)	60				0	0	0	0			0.00	0.00	0.00				0.00	0.00	0.00
B. Rooftop Disconnection (RD)																			
2.a. Simple Disconnection to A/B Soils (P-FI-A1)	50				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.b. Simple Disconnection to C/D Soils (P-FI-A2)	25				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.c. To Soil Amended Filter Path as per Specification 1 (existing C/D soils) (P-FI-A1)	50				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (P-FI-A1)	50				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (P-FI-A2)	50				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.f. To Rain Garden #1, Micro-Bioretention #1 (P-FI-A1)	80				0	0	0	0	35	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.g. To Rain Garden #2, Micro-Bioretention #2 (P-FI-A2)	80				0	0	0	0	35	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.h. To Rainwater Harvesting (P-BIO-H4)	0				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.i. To Stormwater Planter, Urban Bioretention (P-FI-A1)	60				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
C. Permeable Pavement (PP)																			
3.a. Permeable Pavement A1 (P-FI-A1)	45				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
3.b. Permeable Pavement A2 (P-FI-A2)	75				0	0	0	0	25		0.00	0.00	0.00				0.00	0.00	0.00
D. Grass Channel (GC)																			
4.a. Grass Channel A/B Soils (P-CHN-01)	20				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
4.b. Grass Channel C/D Soils (P-CHN-02)	10				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
4.c. Grass Channel with Compost Amended Soils as per Spec# 2 (P-FI-A1)	20				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
E. Dry Swale (DS)																			
5.a. Dry Swale #1 (P-CNV-01)	40			1.78	2.31	0	1,647	1,852	5,554	20	0.00	0.00	5.19	2.87	0.31	None	0.00	41.32	39.01	0.31
5.b. Dry Swale #2 (P-CNV-02)	40					0	0	0	0	20	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
F. Bioretention (BR)																			
6.a. Bioretention #1 or Micro-Bioretention #1 (P-FI-A1)	40					0	0	0	0	35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	
6.b. Bioretention #2 or Micro-Bioretention #2 (P-FI-A2)	60					0	0	0	0	35	0.00	0.00	0.00	0.00			0.00	0.00	0.00	

Drainage Area B

Drainage Area B Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv	Composite Loading P
Forest (acres)		0.03			0.03	0.03	0.06
Mixed Open (acres)					0.00	0.00	0.00
Managed Turf (acres)		1.26			1.26	0.20	0.68
Impervious Cover (acres)		0.02			0.02	0.95	0.86
				Total	1.31		

VRRM 4.1, 2024

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. B (lb/yr): 1.25
Post Development Treatment Volume in D.A. B (ft³): 1,809

Composite Loading N: 0.00, 0.00, 7.21, 12.33

Stormwater Best Management Practices (RR = Runoff Reduction) –Select from dropdown lists–

Practice	Runoff Reduction Credit (%)	Mixed Open Credit Area (acres)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft³)	Runoff Reduction (ft³)	Remaining Runoff Volume (ft³)	Total BMP Treatment Volume (ft³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Practice to be Employed	Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
A. Vegetated Roof (RR)																			
1.a. Vegetated Roof A1 (P-FI-A1)	45				0	0	0	0			0.00	0.00	0.00				0.00	0.00	0.00
1.b. Vegetated Roof A2 (P-FI-A2)	60				0	0	0	0			0.00	0.00	0.00				0.00	0.00	0.00
B. Rooftop Disconnection (RD)																			
2.a. Simple Disconnection to A/B Soils (P-FI-A1)	50				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.b. Simple Disconnection to C/D Soils (P-FI-A2)	25				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.c. To Soil Amended Filter Path as per Specification 1 (existing C/D soils) (P-FI-A1)	50				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (P-FI-A1)	50				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (P-FI-A2)	90				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.f. To Rain Garden #1, Micro-Bioretention #1 (P-FI-A1)	40				0	0	0	0	35	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.g. To Rain Garden #2, Micro-Bioretention #2 (P-FI-A2)	80				0	0	0	0	50	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.h. To Rainwater Harvesting (P-BIO-H4)	0				0	0	0	0	0	0.00	0.00	0.00	0.00				0.00	0.00	0.00
2.i. To Stormwater Planter, Urban Bioretention (P-FI-A1)	60				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
C. Permeable Pavement (PP)																			
3.a. Permeable Pavement A1 (P-FI-A1)	45				0	0	0	0	25	0.00	0.00	0.00	0.00				0.00	0.00	0.00
3.b. Permeable Pavement A2 (P-FI-A2)	75				0	0	0	0	25		0.00	0.00	0.00				0.00	0.00	0.00
D. Grass Channel (GC)																			
4.a. Grass Channel A/B Soils (P-CHN-01)	20				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
4.b. Grass Channel C/D Soils (P-CHN-02)	10				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
4.c. Grass Channel with Compost Amended Soils as per Spec# 2 (P-FI-A1)	20				0	0	0	0	15	0.00	0.00	0.00	0.00				0.00	0.00	0.00
E. Dry Swale (DS)																			
5.a. Dry Swale #1 (P-CNV-01)	40		0.75	0.99	0	1,576	2,364	1,940	20	0.00	1.35	0.75	0.65				0.00	17.54	9.65	7.89
5.b. Dry Swale #2 (P-CNV-02)	40					0	0	0	0	40	0.00	0.00	0.00				0.00	0.00	0.00	0.00

Site Results (Water Quality Compliance) VRRM 4.1, 2024

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MIXED OPEN (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MIXED OPEN AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	1.78	1.06	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	1.78	1.06	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	2.31	0.62	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	2.31	0.62	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft³): 14,486

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft³)	7,407	2,326	0	0	0	9,733
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	3.19	1.25	0.00	0.00	0.00	4.44
TP LOAD REDUCTION ACHIEVED (lb/yr)	2.87	1.12	0.00	0.00	0.00	3.99
TP LOAD REMAINING (lb/yr)	0.32	0.13	0.00	0.00	0.00	0.44
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	38.01	14.06	0.00	0.00	0.00	52.08

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	6.32
TP LOAD REDUCTION REQUIRED (lb/yr)	3.87
TP LOAD REDUCTION ACHIEVED (lb/yr)	3.99
TP LOAD REMAINING (lb/yr)	2.33
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr)	0.00

** TARGET TP REDUCTION EXCEEDED BY 0.12 LB/YEAR **

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	76.39
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	52.08
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	24.31

Runoff Volume and Curve Number Calculations, VRRM 4.1, 2024

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
2.89	3.61	5.58

Use NOAA Atlas 14 (http://hdsc.nws.noaa.gov/hdsc/pfds/)

Notes (see below):

[1] The curve numbers and runoff volumes computed in this spreadsheet for each drainage area are limited in their applicability for determining and demonstrating compliance with water quantity requirements. See VRRM User's Guide and Documentation for additional information.

[2] Runoff Volume (RV) for pre- and post-development drainage areas must be in volumetric units (e.g., acre-feet or cubic feet) when using the Energy Balance Equation. Runoff measured in watershed-inches and shown in the spreadsheet as RV*watershed-inch) can only be used in the Energy Balance Equation when the pre- and post-development drainage areas are equal. Otherwise RV*watershed-inch) must be multiplied by the drainage area.

[3] Adjusted CNs are based on runoff reduction volumes as calculated in D.A. tabs. An alternative CN adjustment calculation for Vegetated Roofs is included in BMP specification No. 5.

Drainage Area Curve Numbers and Runoff Depths *

Drainage Area A

		A Soils	B Soils	C Soils	D Soils
Forest – undisturbed, protected forest or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Mixed Open – undisturbed/infrequently maintained grass or shrub land	Area (acres)	0.00	0.00	0.00	0.00
	CN	34	59	72	78
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	1.78	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	2.31	0.00	0.00
	CN	98	98	98	98
					$CN_{D.A. A}$ = 84

Total Area (acres): 4.09
Runoff Reduction Volume (ft³): 7,407

$RV_{developed}$ (watershed-inch) with no Runoff Reduction	1-year storm	2-year storm	10-year storm
	1.36	1.87	3.58
$RV_{developed}$ (watershed-inch) with Runoff Reduction	0.86	1.37	3.09
Adjusted CN*	73	75	77

**See Notes above*

Drainage Area B

		A Soils	B Soils	C Soils	D Soils
Forest – undisturbed, protected forest or reforested land	Area (acres)	0.00	0.02	0.00	0.00
	CN	30	55	70	77
Mixed Open – undisturbed/infrequently maintained grass or shrub land	Area (acres)	0.00	0.00	0.00	0.00
	CN	34	59	72	78
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	1.06	0.00	0.00
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.62	0.00	0.00
	CN	98	98	98	98
					$CN_{D.A. B}$ = 74

Total Area (acres): 1.70
Runoff Reduction Volume (ft³): 2,326

$RV_{developed}$ (watershed-inch) with no Runoff Reduction	1-year storm	2-year storm	10-year storm
	0.89	1.32	2.82
$RV_{developed}$ (watershed-inch) with Runoff Reduction	0.51	0.94	2.44
Adjusted CN*	66	68	70

**See Notes above*

BIO RETENTION #1, LEVEL 2
P-RL-05

Bioretention Level 2 Design Section	Bioretention #1
	Depth (in)
Mulch	3
Filter Media	36
Choker Stone	3
Underdrain with aggregate	9
TOTAL Depth of Section (in)	**51**
TOTAL Depth of Section (ft)	**4.25**

Bioretention #1 Level 2 Surface Area

Minimum Bioretention Surface Area (VOLUMETRIC APPROACH)= SA =

$$Tv_{BMP} = (1.25in)(Rv)(A) / 12$$

$$BSD = (d_{ponding} \times n_{ponding}) + (d_{media} \times n_{media}) + (d_{gravel} \times n_{gravel})$$

Bioretention #1	
A =	178,089 sf
Rv =	0.62
Tv_{BMP} =	**9,255 cf**
$d_{ponding}$ (ponding depth) =	0.75 ft
d_{media} (filter media depth) =	3.00 ft
d_{gravel} (gravel depth) =	0.25 ft
$n_{ponding}$ (Ponding Porosity) =	1
n_{media} (Media Porosity) =	0.25
n_{gravel} (Gravel Porosity) =	0.40
BSD =	**1.60 ft**
Bioretention Surface Area (required) =SA=	5,784 sf
Bioretention Surface Area (provided) =SA=	**19,209 sf**
Area ok?	OK

Bioretention Level 2 Drain Time

Bioretention #1	
$t_{d\text{-}FV} = 12 \times PV / (K_{sat} \times SA)$	Surface Ponding
PV (ponding volume) =	14,407 cf
K_{sat} =	0.50 in/hr
SA =	19,209 sf
$t_{d\text{-}FV}$ =	**18.00** hr
$t_{d\text{-}TV} = 12 \times Tv_{BMP} / (K_{sat} \times SA)$	Treatment Volume
Tv_{BMP} =	9,255 cf
K_{sat} =	0.5 in/hr
SA =	19,209 sf
$t_{d\text{-}TV}$ =	**11.56** hr

BIO RETENTION #2, LEVEL 2
P-RL-05

Bioretention Level 2 Design Section	Bioretention #1
	Depth (in)
Mulch	3
Filter Media	36
Choker Stone	3
Underdrain with aggregate	9
TOTAL Depth of Section (in)	**51**
TOTAL Depth of Section (ft)	**4.25**

Bioretention #2 Level 2 Surface Area

Minimum Bioretention Surface Area (VOLUMETRIC APPROACH)= SA =

$$Tv_{BMP} = (1.25in)(Rv)(A) / 12$$

$$BSD = (d_{ponding} \times n_{ponding}) + (d_{media} \times n_{media}) + (d_{gravel} \times n_{gravel})$$

Bioretention #1	
A =	73,219 sf
Rv =	0.48
Tv_{BMP} =	**2,909 cf**
$d_{ponding}$ (ponding depth) =	1.00 ft
d_{media} (filter media depth) =	3.00 ft
d_{gravel} (gravel depth) =	0.25 ft
$n_{ponding}$ (Ponding Porosity) =	1
n_{media} (Media Porosity) =	0.25
n_{gravel} (Gravel Porosity) =	0.40
BSD =	**1.85 ft**
Bioretention Surface Area (required) =SA=	1,573 sf
Bioretention Surface Area (provided) =SA=	**8,699 sf**
Area ok?	OK

Bioretention Level 2 Drain Time

Bioretention #2	
$t_{d\text{-}FV} = 12 \times PV / (K_{sat} \times SA)$	Surface Ponding
PV (ponding volume) =	8,699 cf
K_{sat} =	0.50 in/hr
SA =	8,699 sf
$t_{d\text{-}FV}$ =	**24.00** hr
$t_{d\text{-}TV} = 12 \times Tv_{BMP} / (K_{sat} \times SA)$	Treatment Volume
Tv_{BMP} =	2,909 cf
K_{sat} =	0.5 in/hr
SA =	8,699 sf
$t_{d\text{-}TV}$ =	**8.03** hr

DRY SWALE LEVEL 2
P-CNV-02

Dry Swale Level 2 Design Section	Dry Swale #1
	Depth (in)
Filter Media	24
Choker Stone	3
Underdrain with aggregate	9
TOTAL Depth of Section (in)	**36**
TOTAL Depth of Section (ft)	**3.00**

Dry Swale Level 2 Surface Area

Minimum Dry Swale Surface Area (VOLUMETRIC APPROACH) = SA = Tv_{BMP} / BSD

$$BSD = (d_{media} \times n_{media}) + (d_{gravel} \times n_{gravel})$$

$$Tv_{BMP} = (1.0in)(Rv)(A) / 12$$

Dry Swale #1	
A =	75,359 sf
Rv =	0.57
Tv_{BMP} =	**3,597 cf**
d_{media} (filter media depth) =	2.00 ft
d_{gravel} (gravel depth) =	1.00 ft
n_{media} (Media Porosity) =	0.25
n_{gravel} (Gravel Porosity) =	0.40
BSD =	**0.9 ft**
Dry Swale Length (L1) =	487.0 ft
Dry Swale Width (W) =	6.0 ft
Ponding (P) =	0.75 ft
Surface Storage Volume (SSV) = L1 * W * P1 =	2,102 cf
Dry Swale Length (L2) =	83 ft
Dry Swale Width (W2) =	6 ft
Ponding (P) =	0.50 ft
Surface Storage Volume (SSV) = L2 * W2 * P2 =	249 cf
Total Storage Volume =	2,351 cf
Dry Swale SA (required) =Tv÷SA=	2,062 sf
y Swale SA (provided) ESD - SSV(provided)=SA=	**3,300 sf**
Area ok?	OK

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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23700 COMMERCE PARKWAY
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Project No.: 195151140

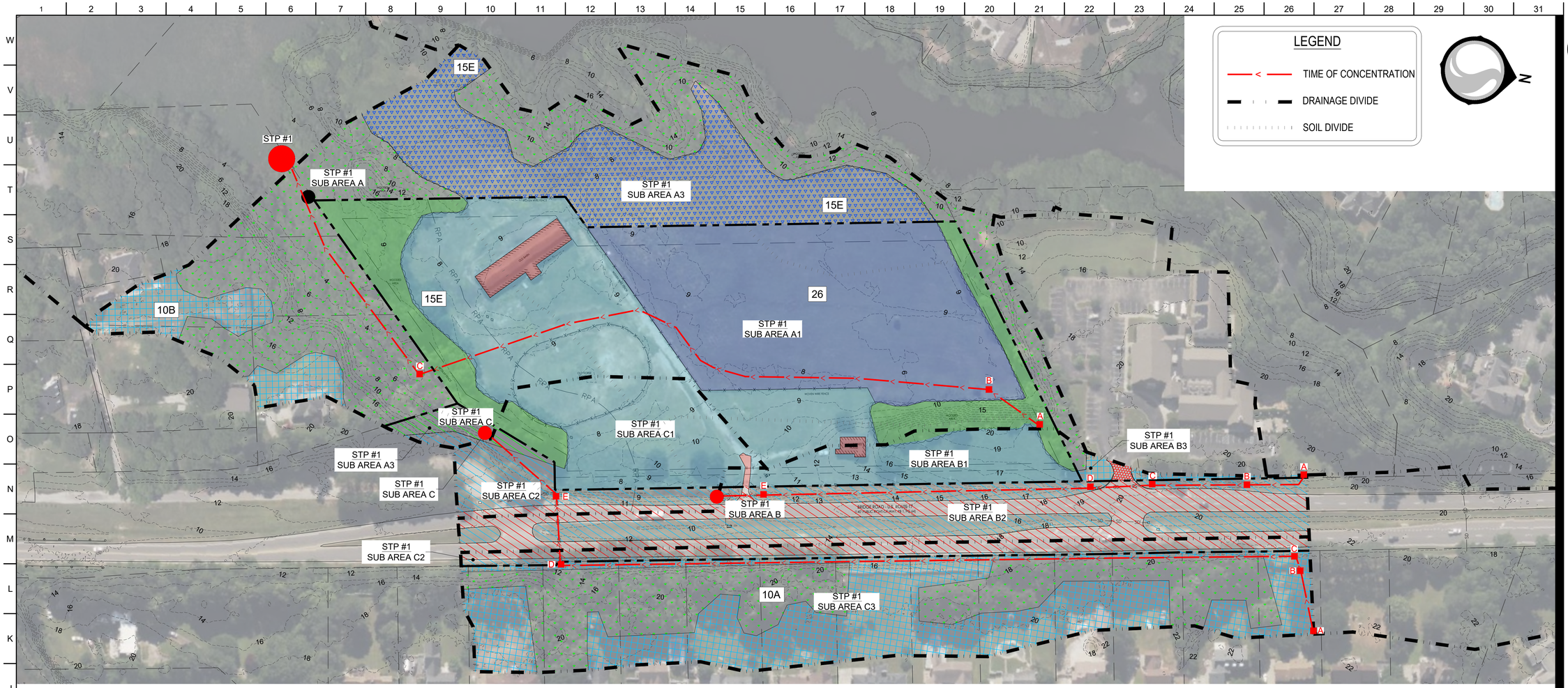
Scale: AS SHOWN

Title

WATER QUALITY COMPUTATIONS

Drawing No.

CH-104



WATER QUANTITY DRAINAGE AREA MAP PRE-DEVELOPMENT

SCALE: 1"=80'

0 80' 160'

SCALE:1"=80'

PRE - STUDY POINT#1

SUB AREA A_1 ONSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	316,822	7.27

PRE LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	49,231	1.13	B	55	60	N/A
MIXED OPEN	147,967	3.40	B	59		
MANAGED TURF	112,095	2.57	B	61		
IMPERVIOUS	7,529	0.17	B	98		

SUB AREA A_2 RIGHT OF WAY

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	7,360	0.17

PRE LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	5,485	0.13	B	55	57	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	1,875	0.04	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA A_3 OFFSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	293,545	6.74

PRE LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sqft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	164,458	3.78	B	55	57	N/A
MIXED OPEN	101,875	2.34	B	59		
MANAGED TURF	27,212	0.62	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA B_1 ONSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	37,169	0.85

PRE LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	3,044	0.07	B	55	61	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	33,134	0.76	B	61		
IMPERVIOUS	991	0.02	B	98		

SUB AREA B_2 RIGHT OF WAY

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	113,421	2.60

PRE LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sqft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	0	0.00	B	55	79	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	58,800	1.35	B	61		
IMPERVIOUS	54,621	1.25	B	98		

SUB AREA B_3 OFFSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	5,731	0.13

PRE LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sqft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	1,167	0.03	B	55	65	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	3,743	0.09	B	61		
IMPERVIOUS	821	0.02	B	98		

SUB AREA C_1 ONSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	56,805	1.30

PRE LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sqft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	5,795	0.13	B	55	61	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	50,705	1.16	B	61		
IMPERVIOUS	305	0.01	B	98		

SUB AREA C_2 RIGHT OF WAY

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	57,799	1.33

PRE LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sqft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	1,852	0.04	B	55	78	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	29,088	0.67	B	61		
IMPERVIOUS	26,859	0.62	B	98		

SUB AREA C_3 OFFSITE

EXISTING DRAINAGE AREA	Area (sqft.)	Area (acres)
	208,589	4.79

PRE LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sqft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ. CN (VRRM)
FOREST	91,685	2.10	B	55	58	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	116,904	2.68	B	61		
IMPERVIOUS	0	0.00	B	98		

LAND USE LEGEND

- ONSITE - MIXED OPEN
- ONSITE - FOREST
- ONSITE - MANAGED TURF
- ONSITE - IMPERVIOUS
- OFFSITE - MIXED OPEN
- OFFSITE - FOREST
- OFFSITE - MANAGED TURF
- OFFSITE - IMPERVIOUS
- RIGHT OF WAY - FOREST
- RIGHT OF WAY - MANAGED TURF
- RIGHT OF WAY - IMPERVIOUS

NOTE

1. REFER TO SHEET GI-002 FOR OVERALL ABBREVIATIONS & LEGENDS.
2. REFER TO SHEET GI-003 FOR GENERAL NOTES.
3. REFER TO SHEET CH-104 FOR WATER QUALITY COMPUTATIONS.
4. REFER TO SHEET CH-107 FOR WATER QUANTITY COMPUTATIONS.
5. REFER TO SHEET CH-107 FOR TIME OF CONCENTRATION COMPUTATIONS.

ORIGINAL SHEET - ARCH D

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Project No.: 195151140
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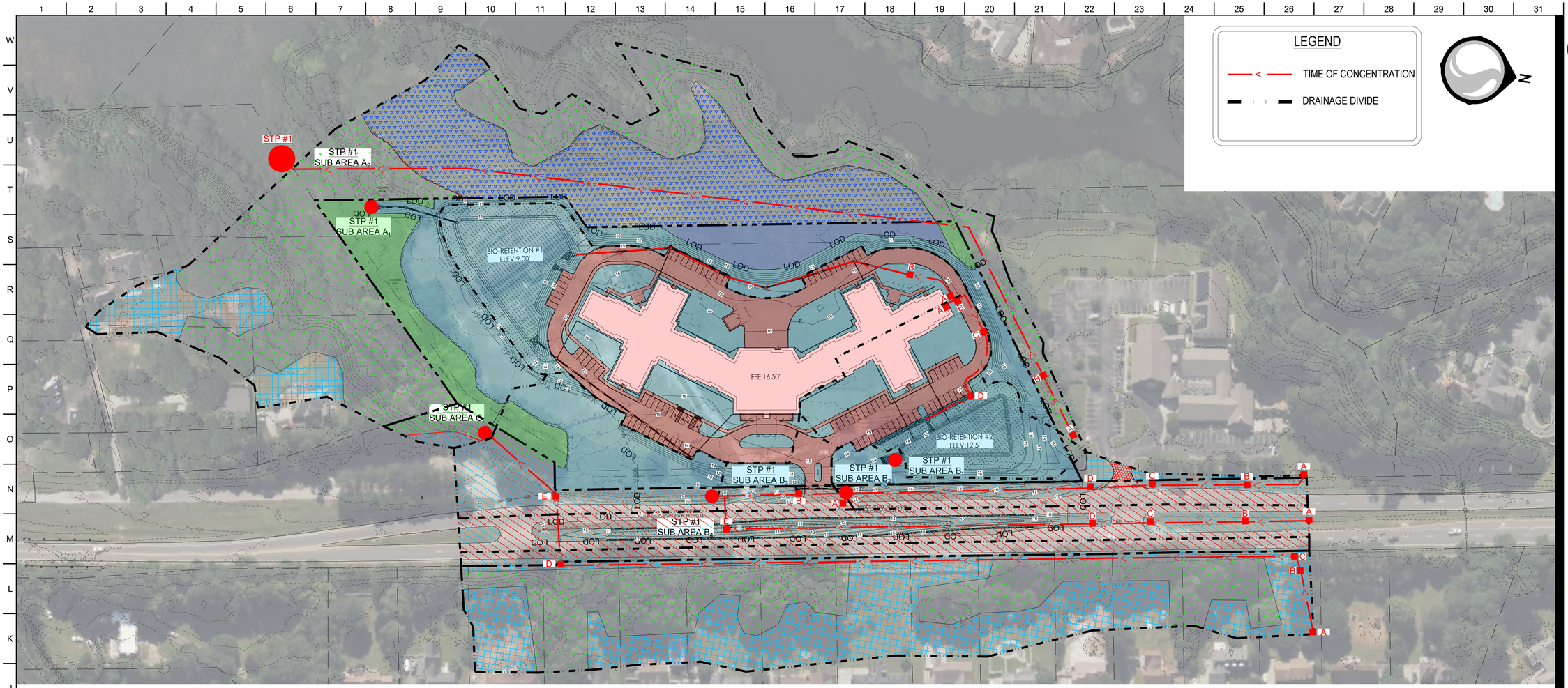
WATER QUANTITY DRAINAGE AREA MAP PRE-DEVELOPMENT

Drawing No.

CH-105



WATER QUANTITY DRAINAGE AREA MAP POST-DEVELOPMENT

SCALE: 1"=80'

0 80' 160'

SCALE:1"=80'

POST- STUDY POINT#1
SUB AREAA, ONSITE EIO RETENTION #1

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	178,089	4.09

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	82	1 YR: 73
MIXED OPEN	0	0.00	B	59		2 YR:75
MANAGED TURF	77,408	1.78	B	61		10 YR:77
IMPERVIOUS	100,681	2.31	B	98		

SUB AREA A, ONSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	104,063	2.39

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	27,098	0.62	B	55	59	N/A
MIXED OPEN	18,577	0.43	B	59		
MANAGED TURF	58,388	1.34	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREAA, OFFSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	293,945	6.74

POST LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sq.ft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	164,458	3.78	B	55	57	N/A
MIXED OPEN	101,875	2.34	B	59		
MANAGED TURF	27,212	0.62	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA A, RIGHT OF WAY

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	7,360	0.17

POST LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sq.ft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	5,485	0.13	B	55	57	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	1,875	0.04	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA B, ONSITE EIO RETENTION #2

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	73,219	1.68

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	75	1 YR: 67
MIXED OPEN	0	0.00	B	59		2 YR:69
MANAGED TURF	46,139	1.06	B	61		10 YR:71
IMPERVIOUS	27,080	0.62	B	98		

SUB AREA B, OFFSITE EIO RETENTION #2

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	782	0.02

POST LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sq.ft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	782	0.02	B	55	55	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	0	0.00	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA B, ONSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	9,072	0.21

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	61	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	9,072	0.21	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA B, RIGHT OF WAY

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	30,240	0.69

POST LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sq.ft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	82	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	13,458	0.31	B	61		
IMPERVIOUS	16,782	0.39	B	98		

SUB AREA B, OFFSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	4,949	0.11

POST LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sq.ft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	385	0.01	B	55	67	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	3,743	0.09	B	61		
IMPERVIOUS	821	0.02	B	98		

SUB AREA B, ONSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	9,550	0.22

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	78	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	5,288	0.12	B	61		
IMPERVIOUS	4,262	0.10	B	98		

SUB AREA B, RIGHT OF WAY

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	7,854	0.18

POST LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sq.ft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	81	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	3,621	0.08	B	61		
IMPERVIOUS	4,233	0.10	B	98		

SUB AREA B, RIGHT OF WAY DRY SWALE #1 (SEE DRY SWALE CHECK DAM SUB AREAS)

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	75,508	1.73

POST LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sq.ft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	0	0.00	B	55	82	1 YR: 78
MIXED OPEN	0	0.00	B	59		2 YR:78
MANAGED TURF	32,574	0.75	B	61		10 YR:79
IMPERVIOUS	42,934	0.99	B	98		

SUB AREA C, ONSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	36,621	0.84

POST LAND COVER

COVER TYPE	DRAINAGE AREA ONSITE sq.ft.	DRAINAGE AREA ONSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	5,795	0.13	B	55	60	71
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	30,826	0.71	B	61		
IMPERVIOUS	0	0.00	B	98		

SUB AREA C, RIGHT OF WAY

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	57,799	1.33

POST LAND COVER

COVER TYPE	DRAINAGE AREA RIGHT OF WAY sq.ft.	DRAINAGE AREA RIGHT OF WAY acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	1,852	0.04	B	55	78	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	29,088	0.67	B	61		
IMPERVIOUS	26,859	0.62	B	98		

SUB AREA C, OFFSITE

PROPOSED DRAINAGE AREA	Area (sq.ft.)	Area (acres)
	208,589	4.79

POST LAND COVER

COVER TYPE	DRAINAGE AREA OFFSITE sq.ft.	DRAINAGE AREA OFFSITE acres	HYDROLOGIC SOIL GROUP	CN	WEIGHTED CN	ADJ CN (VRRM)
FOREST	91,685	2.10	B	55	58	N/A
MIXED OPEN	0	0.00	B	59		
MANAGED TURF	116,904	2.68	B	61		
IMPERVIOUS	0	0.00	B	98		

LAND USE LEGEND

- ONSITE - MIXED OPEN
- ONSITE - FOREST
- ONSITE - MANAGED TURF
- ONSITE - IMPERVIOUS
- OFFSITE - MIXED OPEN
- OFFSITE - FOREST
- OFFSITE - MANAGED TURF
- OFFSITE - IMPERVIOUS
- RIGHT OF WAY - FOREST
- RIGHT OF WAY - MANAGED TURF
- RIGHT OF WAY - IMPERVIOUS

NOTE

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Project No.: 195151140
Scale: AS SHOWN
Title

WATER QUANTITY DRAINAGE AREA MAP POST-DEVELOPMENT

Drawing No.

CH-106

ORIGINAL SHEET - ARCH D

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 1

EXISTING STP1 (SA- A)

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 11.00	0.00	0.00	
Travel Time (min)	**= 6.79**	**+ 0.00**	**+ 0.00**	**= 6.79**
Shallow Concentrated Flow				
Flow length (ft)	= 967.00	0.00	0.00	
Watercourse slope (%)	= 0.70	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.35	0.00	0.00	
Travel Time (min)	**= 11.94**	**+ 0.00**	**+ 0.00**	**= 11.94**
Channel Flow				
X sectional flow area (sqft)	= 2.23	0.00	0.00	
Wetted perimeter (ft)	= 6.26	0.00	0.00	
Channel slope (%)	= 0.50	0.00	0.00	
Manning's n-value	= 0.030	0.015	0.015	
Velocity (ft/s)	=1.76			
		0.00		
			0.00	
Flow length (ft)	({0})390.0	0.0	0.0	
Travel Time (min)	**= 3.70**	**+ 0.00**	**+ 0.00**	**= 3.70**
Total Travel Time, Tc				**22.43 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 2

EXISTING STP1 (SA- B)

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 13.44**	**+ 0.00**	**+ 0.00**	**= 13.44**
Shallow Concentrated Flow				
Flow length (ft)	= 159.00	0.00	0.00	
Watercourse slope (%)	= 1.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.98	0.00	0.00	
Travel Time (min)	**= 1.34**	**+ 0.00**	**+ 0.00**	**= 1.34**
Channel Flow				
X sectional flow area (sqft)	= 1.77	5.00	1.77	
Wetted perimeter (ft)	= 4.71	8.32	4.71	
Channel slope (%)	= 1.50	1.50	1.50	
Manning's n-value	= 0.013	0.030	0.013	
Velocity (ft/s)	=7.29			
		4.32		
			7.29	
Flow length (ft)	({0})90.0	524.0	73.0	
Travel Time (min)	**= 0.21**	**+ 2.02**	**+ 0.17**	**= 2.39**
Total Travel Time, Tc				**17.20 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 3

EXISTING STP1 (SA- C)

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 13.44**	**+ 0.00**	**+ 0.00**	**= 13.44**
Shallow Concentrated Flow				
Flow length (ft)	= 44.00	0.00	0.00	
Watercourse slope (%)	= 2.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.28	0.00	0.00	
Travel Time (min)	**= 0.32**	**+ 0.00**	**+ 0.00**	**= 0.32**
Channel Flow				
X sectional flow area (sqft)	= 1.77	3.14	1.77	
Wetted perimeter (ft)	= 4.71	6.28	4.71	
Channel slope (%)	= 1.00	2.00	1.00	
Manning's n-value	= 0.030	0.013	0.030	
Velocity (ft/s)	=2.58			
		10.19		
			2.58	
Flow length (ft)	({0})1178.0	120.0	124.0	
Travel Time (min)	**= 7.62**	**+ 0.20**	**+ 0.80**	**= 8.61**
Total Travel Time, Tc				**22.40 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 1

PROPOSED SA- A1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 87.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.58	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 12.07**	**+ 0.00**	**+ 0.00**	**= 12.07**
Shallow Concentrated Flow				
Flow length (ft)	= 0.00	0.00	0.00	
Watercourse slope (%)	= 0.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.00	0.00	0.00	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**
Channel Flow				
X sectional flow area (sqft)	= 3.14	0.00	0.00	
Wetted perimeter (ft)	= 6.28	0.00	0.00	
Channel slope (%)	= 0.50	0.00	0.00	
Manning's n-value	= 0.013	0.015	0.015	
Velocity (ft/s)	=5.10			
		0.00		
			0.00	
Flow length (ft)	({0})542.0	0.0	0.0	
Travel Time (min)	**= 1.77**	**+ 0.00**	**+ 0.00**	**= 1.77**
Total Travel Time, Tc				**13.80 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 4

PROPOSED STP1 (SA- A2)

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 11.00	0.00	0.00	
Travel Time (min)	**= 6.79**	**+ 0.00**	**+ 0.00**	**= 6.79**
Shallow Concentrated Flow				
Flow length (ft)	= 0.00	0.00	0.00	
Watercourse slope (%)	= 0.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=0.00	0.00	0.00	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**
Channel Flow				
X sectional flow area (sqft)	= 2.23	0.00	0.00	
Wetted perimeter (ft)	= 6.26	0.00	0.00	
Channel slope (%)	= 0.50	0.00	0.00	
Manning's n-value	= 0.030	0.015	0.015	
Velocity (ft/s)	=1.76			
		0.00		
			0.00	
Flow length (ft)	({0})1391.0	0.0	0.0	
Travel Time (min)	**= 13.18**	**+ 0.00**	**+ 0.00**	**= 13.18**
Total Travel Time, Tc				**20.00 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 7

PROPOSED SA- B1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.013	0.011	
Flow length (ft)	= 12.0	88.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	3.61	0.00	
Land slope (%)	= 2.00	0.50	0.00	
Travel Time (min)	**= 2.46**	**+ 2.05**	**+ 0.00**	**= 4.51**
Shallow Concentrated Flow				
Flow length (ft)	= 115.00	0.00	0.00	
Watercourse slope (%)	= 0.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.44	0.00	0.00	
Travel Time (min)	**= 1.33**	**+ 0.00**	**+ 0.00**	**= 1.33**
Channel Flow				
X sectional flow area (sqft)	= 1.34	0.00	0.00	
Wetted perimeter (ft)	= 3.16	0.00	0.00	
Channel slope (%)	= 0.50	0.00	0.00	
Manning's n-value	= 0.030	0.000	0.000	
Velocity (ft/s)	=1.98			
		0.00		
			0.00	
Flow length (ft)	({0})80.0	0.0	0.0	
Travel Time (min)	**= 0.67**	**+ 0.00**	**+ 0.00**	**= 0.67**
Total Travel Time, Tc				**6.50 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 10

PROPOSED SA- B2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 13.44**	**+ 0.00**	**+ 0.00**	**= 13.44**
Shallow Concentrated Flow				
Flow length (ft)	= 159.00	0.00	0.00	
Watercourse slope (%)	= 1.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.98	0.00	0.00	
Travel Time (min)	**= 1.34**	**+ 0.00**	**+ 0.00**	**= 1.34**
Channel Flow				
X sectional flow area (sqft)	= 1.77	5.00	0.00	
Wetted perimeter (ft)	= 4.71	8.32	0.00	
Channel slope (%)	= 1.50	1.50	0.00	
Manning's n-value	= 0.013	0.030	0.015	
Velocity (ft/s)	=7.29			
		4.32		
			0.00	
Flow length (ft)	({0})90.0	398.0	0.0	
Travel Time (min)	**= 0.21**	**+ 1.53**	**+ 0.00**	**= 1.74**
Total Travel Time, Tc				**16.50 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 12

PROPOSED SA-B4 DRY SWALE#1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.61	0.00	0.00	
Land slope (%)	= 1.50	0.00	0.00	
Travel Time (min)	**= 15.07**	**+ 0.00**	**+ 0.00**	**= 15.07**
Shallow Concentrated Flow				
Flow length (ft)	= 148.00	0.00	0.00	
Watercourse slope (%)	= 1.50	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.98	0.00	0.00	
Travel Time (min)	**= 1.25**	**+ 0.00**	**+ 0.00**	**= 1.25**
Channel Flow				
X sectional flow area (sqft)	= 1.77	5.00	1.77	
Wetted perimeter (ft)	= 4.71	8.32	4.71	
Channel slope (%)	= 1.50	1.50	1.50	
Manning's n-value	= 0.013	0.030	0.013	
Velocity (ft/s)	=7.29			
		4.32		
			7.29	
Flow length (ft)	({0})80.0	602.0	55.0	
Travel Time (min)	**= 0.18**	**+ 2.32**	**+ 0.13**	**= 2.63**
Total Travel Time, Tc				**19.00 min**

TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v20

Hyd. No. 36

PROPOSED SA- C

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.58	0.00	0.00	
Land slope (%)	= 2.00	0.00	0.00	
Travel Time (min)	**= 13.49**	**+ 0.00**	**+ 0.00**	**= 13.49**
Shallow Concentrated Flow				
Flow length (ft)	= 44.00	0.00	0.00	
Watercourse slope (%)	= 2.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.28	0.00	0.00	
Travel Time (min)	**= 0.32**	**+ 0.00**	**+ 0.00**	**= 0.32**
Channel Flow				
X sectional flow area (sqft)	= 1.77	3.14	1.77	
Wetted perimeter (ft)	= 4.71	6.28	4.71	
Channel slope (%)	= 1.00	2.00	1.00	
Manning's n-value	= 0.030	0.013	0.030	
Velocity (ft/s)	=2.58			
		10.19		
			2.58	
Flow length (ft)	({0})1178.0	120.0	124.0	
Travel Time (min)	**= 7.62**	**+ 0.20**	**+ 0.80**	**= 8.61**
Total Travel Time, Tc				**22.40 min**

NOTE

1. PROPOSED SA-B2 TC: 5 MIN.
2. REFER TO SWM COMPUTATIONS REPORT FOR ADJUSTED CURVE NUMBER FOR CHECK DAMNS IN DRY SWALE #1.
3. REFER TO SWM COMPUTATIONS REPORT FOR ROUTING.

STUDY POINT A - ENERGY BALANCE
Rainfall Depths: 1-year 24-hour storm: 2.97"

$AREA_{PRE\text{-}DEV}$ (ac)	$AREA_{DEV}$ (ac)	$CN_{PRE\text{-}DEV}$	CN_{DEV}	$q_{pre\text{-}dev}$	$q_{post\text{-}dev}$	I.F.
25.19	25.19	62	67	7.19	3.78	0.80

$S_{PRE\text{-}DEV}$ =	$1000/CN_{D.A.} - 10$	=	6.17	S_{DEV} =	4.93
$Q_{PRE\text{-}DEV}$ =	$(P - 0.2XS)^2/(P + 0.8XS)$	=	0.38	Q_{DEV} =	0.57
$Vr_{PRE\text{-}DEV}$ =	QXA	=	34,884.58	Vr_{DEV} =	52,132.91

$qp_{ALLOWABLE} <= I.F. * (q_{p\ PRE\text{-}DEVELOPED} * Q_{PRE\text{-}DEVELOPED})/Q_{DEVELOPED}$

1 YEAR STORM STUDY POINT A

$qp_{ALLOWABLE} <= 0.8 * (7.19 * 0.38)/.57$

$qp_{ALLOWABLE} <= 3.85$

qp_{ACTUAL} AFTER ROUTING: 3.78

Pre Drainage Area Summary (Discharge and Volumes from Hydraflow Hydrographs)

	Area (Ac)	SCS CN	Tc (min)	1-YR (CFS)	1-YR (ac-ft)	2-YR (CFS)	2-YR (ac-ft)	10-YR (CFS)	10-YR (ac-ft)	100-YR (CFS)	100-YR (ac-ft)
$SA\text{-}A_{ONSITE}$	7.27	60	22.40	2.14	0.352	5.5	0.646	21.7	1.880	62.67	5.050
$SA\text{-}A_{RIGHT\ OF\ WAY}$	0.17	57									
$SA\text{-}A_{OFFSITE}$	6.74	57									
$SA\text{-}A_{TOTAL}$	14.18	59									
$SA\text{-}B_{ONSITE}$	0.85	61	17.20	3.47	0.266	5.30	0.394	11.72	0.843	25.17	1.820
$SA\text{-}B_{RIGHT\ OF\ WAY}$	2.60	79									
$SA\text{-}B_{OFFSITE}$	0.13	65									
$SA\text{-}B_{TOTAL}$	3.59	74									
$SA\text{-}C_{ONSITE}$	1.30	61	22.40	1.89	0.243	4.08	0.420	13.44	1.130	36.03	2.870
$SA\text{-}C_{RIGHT\ OF\ WAY}$	1.33	78									
$SA\text{-}C_{OFFSITE}$	4.79	58									
$SA\text{-}C_{TOTAL}$	7.42	62									
TOTAL	**25.19**	**62**		**7.19**	**0.861**	**14.58**	**1.460**	**46.11**	**3.850**	**123.39**	**9.730**

Post Drainage Area Summary (Discharge and Volumes from Hydraflow Hydrographs)

	Area (Ac)	SCS CN	SCS CN ADJ (VRRM)	Tc (min)	1-YR (CFS)	1-YR ADJ.CN (CFS)	1-YR ROUTED (CFS)	1-YR (ac-ft)	2-YR (CFS)	2-YR ADJ.CN (CFS)	2-YR ROUTED (CFS)	2-YR (ac-ft)	10-YR (CFS)	10-YR ADJ.CN (CFS)	10-YR ROUTED (CFS)	10-YR (ac-ft)	100-YR (CFS)	100-YR ROUTED (CFS)	100-YR (ac-ft)
$SA\text{-}A_{1\ BIO\text{-}RETENTION\ \#1\ ONSITE}$	4.09	82	1YR:73, 2YR:75, 10YR:77	13.80	6.96	4.05	0.00	0.000	9.67	6.96	0.21	0.134	18.37	16.00	6.44	0.710	35.27	27.96	2.030
$SA\text{-}A_{1\ TOTAL}$	**4.09**	82	1YR:73, 2YR:75, 10YR:77																
$SA\text{-}A_{2\ ONSITE}$	2.39	59	N/A	20.00	0.99	N/A	N/A	0.184	3.06	N/A	N/A	0.355	13.73	N/A	N/A	1.100	41.80	N/A	3.050
$SA\text{-}A_{2\ OFFSITE}$	6.74	57	N/A																
$SA\text{-}A_{2\ RIGHT\ OF\ WAY}$	0.17	57	N/A																
$SA\text{-}A_{2\ TOTAL}$	**9.30**	57	N/A																
$SA\text{-}A_{TOTAL}$	**13.39**	**65**	**1YR:62, 2YR:63, 10YR:63**				**0.98**	**0.184**			**3.06**	**0.489**			**17.66**	**1.800**		**69.47**	**5.030**
$SA\text{-}B_{1\ BIO\text{-}RETENTION\ \#2\ ONSITE}$	1.68	75	1YR:67, 2YR:69, 10YR:71	6.50	2.56	1.40	0.00	0.000	3.88	2.75	0.00	0.000	8.07	7.32	0.25	0.123	17.03	10.52	0.591
$SA\text{-}B_{1\ BIO\text{-}RETENTION\ \#2\ OFFSITE}$	0.02	55	55																
$SA\text{-}B_{1\ TOTAL}$	**1.70**	**74**	1YR:66, 2YR:68, 10YR:70																
$SA\text{-}B_{2\ ONSITE}$	0.21	61	N/A	16.50	1.16	N/A	N/A	0.078	1.74	N/A	N/A	0.114	3.75	N/A	N/A	0.241	7.89	N/A	0.514
$SA\text{-}B_{2\ RIGHT\ OF\ WAY}$	0.69	82	N/A																
$SA\text{-}B_{2\ OFFSITE}$	0.11	67	N/A																
$SA\text{-}B_{2\ TOTAL}$	**1.02**	**75**	N/A																
$SA\text{-}B_{3\ ONSITE}$	0.22	78	N/A	5.00	0.08	N/A	N/A	0.036	1.17	N/A	N/A	0.052	2.20	N/A	N/A	0.103	4.34	N/A	0.209
$SA\text{-}B_{3\ RIGHT\ OF\ WAY}$	0.18	81	N/A																
$SA\text{-}B_{3\ TOTAL}$	**0.40**	79	N/A																
$SA\text{-}B_{4\ DRY\ SWALE\ \#1\ RIGHT\ OF\ WAY}$	1.73	82	1YR:78, 2YR:78, 10YR:79	19.00	2.69	2.16	0.21	0.160	3.76	3.14	1.11	0.142	7.17	6.61	6.69	0.373	13.81	N/A	1.020
$SA\text{-}B_{4\ TOTAL}$	**1.73**	82	1YR:78, 2YR:78, 10YR:79																
$SA\text{-}B_{TOTAL}$	**4.85**	**78**	**1YR:76, 2YR:76, 10YR:77**				**1.70**	**0.186**			**3.16**	**0.308**			**11.53**	**0.840**		**33.96**	**2.330**
$SA\text{-}C_{1\ ONSITE}$	0.84	60	N/A	22.40	1.77	N/A	N/A	0.228	3.83	N/A	N/A	0.394	12.61	N/A	N/A	1.060	33.96	N/A	2.700
$SA\text{-}C_{1\ RIGHT\ OF\ WAY}$	1.33	78	N/A																
$SA\text{-}C_{1\ OFFSITE}$	4.79	58	N/A																
$SA\text{-}C_{1\ TOTAL}$	6.96	62	N/A																
$SA\text{-}C_{TOTAL}$	**6.96**	**62**	**N/A**		**1.77**	**N/A**	**N/A**	**0.228**	**3.83**	**N/A**	**N/A**	**0.394**	**12.61**	**N/A**	**N/A**	**1.060**	**33.96**	**N/A**	**2.700**
TOTAL	**25.19**	**67**	**1YR:65, 2YR:65, 10YR:65**				**3.782**	**0.598**			**9.409**	**1.190**			**38.01**	**3.700**		**133.68**	**10.100**

Stantec

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Notes

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 040204793
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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Project No.: 195151140

Scale: AS SHOWN

Title

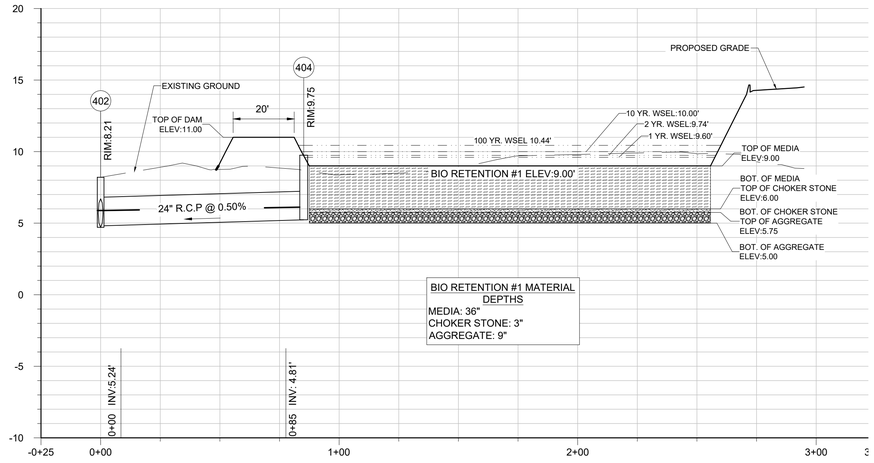
WATER QUANTITY COMPUTATIONS

Drawing No.

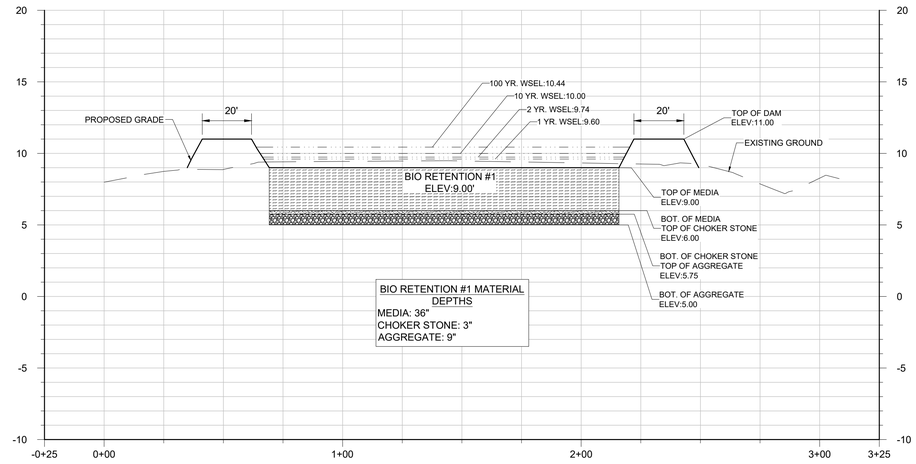
CH-107

ORIGINAL SHEET - ARCH D

BIO RETENTION ONE A-A PROFILE



BIO RETENTION ONE B-B PROFILE



BIO RETENTION #1 SECTION A-A

HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=5'

0 30' 60' — SCALE:1"=30' HORIZONTAL

0 5' 10' — SCALE:1"=5' VERTICAL

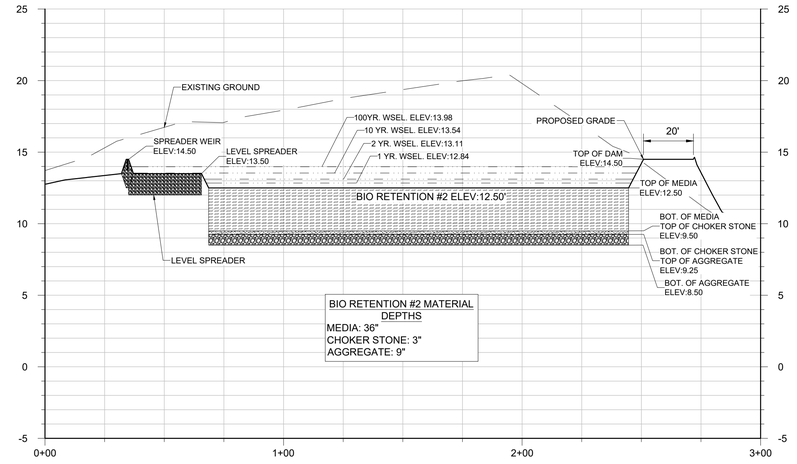
BIO RETENTION #1 SECTION B-B

HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=5'

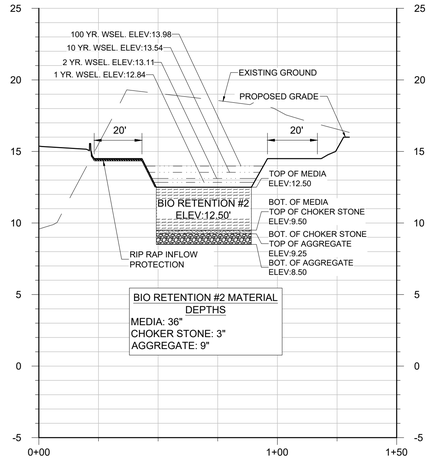
0 30' 60' — SCALE:1"=30' HORIZONTAL

0 5' 10' — SCALE:1"=5' VERTICAL

BIO RETENTION TWO C-C PROFILE



BIO RETENTION TWO D-D PROFILE



BIO RETENTION #1 SECTION C-C

HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=5'

0 30' 60' — SCALE:1"=30' HORIZONTAL

0 5' 10' — SCALE:1"=5' VERTICAL

BIO RETENTION #1 SECTION D-D

HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=5'

0 30' 60' — SCALE:1"=30' HORIZONTAL

0 5' 10' — SCALE:1"=5' VERTICAL

ORIGINAL SHEET - ARCH D

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Dwn.	Chkd.	Dsgn.	MM.DD.YY
BAY J.	MBH	BAY J.	06/25/2026

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

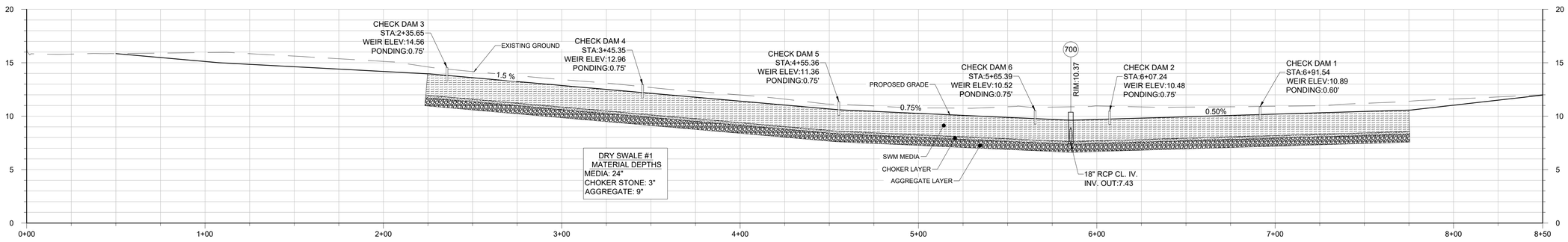
Title

SWM PROFILES

Drawing No.

CH-201

DRY SWALE PROFILE



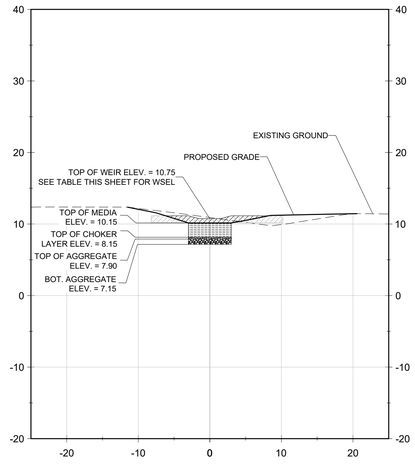
DRY SWALE #1

HORIZONTAL SCALE: 1"=30' VERTICAL SCALE: 1"=5'

0 30' 60'
SCALE:1"=30'
HORIZONTAL

0 5' 10'
SCALE:1"=5'
VERTICAL

CHECK DAM #1
STA:6+91.55



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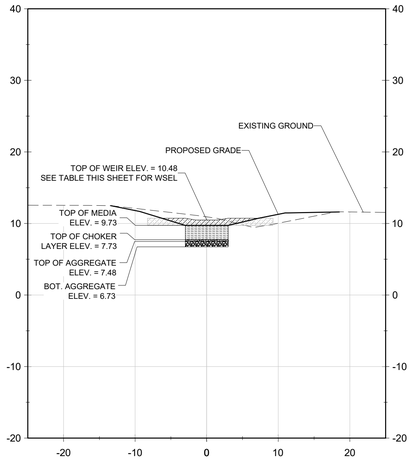

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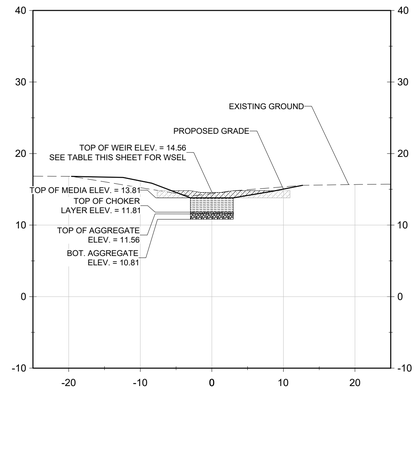

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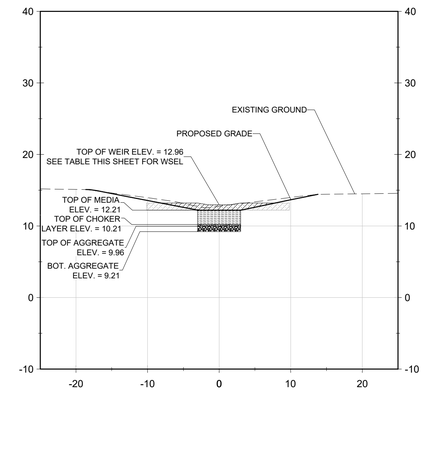
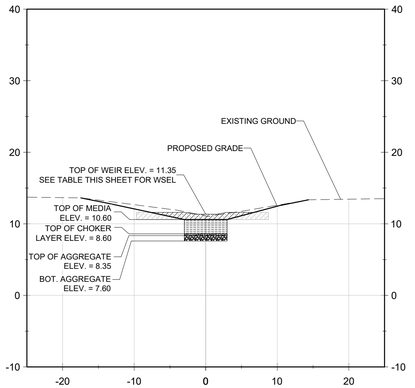
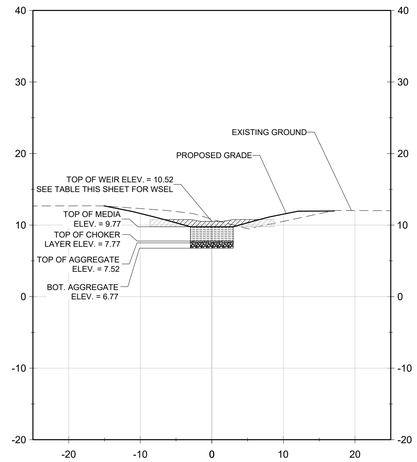


CHECK DAM WATER SURFACE ELEVATION			
CHECK DAM #	1 YR. WSEL	2 YR. WSEL	10 YR. WSEL
CHECK DAM #1	10.94	11.00	11.14
CHECK DAM #2	10.58	10.71	10.91
CHECK DAM #3	14.82	14.90	15.10
CHECK DAM #4	13.16	13.34	13.62
CHECK DAM #5	11.43	11.61	12.02
CHECK DAM #6	10.57	10.70	11.18

CHECK DAM #5
STA:4+55.37



CHECK DAM #6
STA:5+65.41



DRY SWALE INLET
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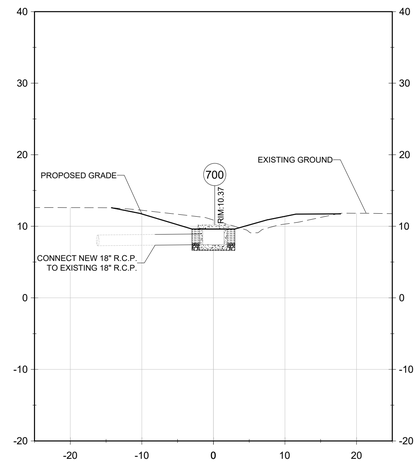

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SCALE:1"=30'
HORIZONTAL
VERTICAL

CHECK DAMS 1-6 & INLET #700

HORIZONTAL SCALE: 1"=10' VERTICAL SCALE: 1"=10'

ORIGINAL SHEET - ARCH D

Stantec

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Consultants

Notes

No.	Issued / Revised	By	Appd.	MM.DD.YY

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SWM PROFILES

Drawing No.

CH-202

BIORETENTION SPECIFICATIONS & NOTES

BIORETENTION MATERIALS SPECIFICATIONS (TABLE P-FIL-05-11)

FILTER MEDIA COMPOSITION

- GENERAL COMPOSITION: FILTER MEDIA MUST HAVE THE PROPER PROPORTIONS SAND, FINES, AND ORGANIC MATTER TO PROMOTE PLANT GROWTH, DRAIN AT THE PROPER RATE OVER TIME, AND FILTER POLLUTANTS, PARTICULARLY P.
- STANDARD:
  - 80%-90% SAND;
  - 10%-20% SOIL FINES (SILT+CLAY); MAXIMUM CLAY CONTENT:10%
  - 3%-5% ORGANIC MATTER CONTENT BY WEIGHT
- TESTING: SEE APPENDIX F TABLE F-1 FOR TESTING (MEDIA SHOULD BE CERTIFIED BY THE SUPPLIER)

MULCH LAYER

- STANDARD:
  - USE AGED (AT LEAST 6 MONTHS), DOUBLE- SHREDDED HARDWOOD BARK MULCH.
- ALTERNATIVE:
  - RIVER STONE OR PEA GRAVEL, COIR AND JUTE MATTING, OR TURFGRASS COVER.

CHOKING LAYER

- STANDARD:
  - LAY 2- TO 4-INCH LAYER OF SAND OVER 3-INCH LAYER OF VDOT #8 OR #89 WASHED GRAVEL.

STONE UNDERDRAIN AND/OR STORAGE LAYER

- STANDARD:
  - VDOT #57 STONE - DOUBLE WASHED AND CLEAN AND FREE OF ALL FINES.

UNDERDRAINS AND CLEANOUTS

- STANDARD:
  - USE 6-INCH RIGID SCHEDULE 40 PVC PIPE (OR EQUIVALENT CORRUGATED HDPE FOR MICRO-BIORETENTION), WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER; POSITION EACH UNDERDRAIN ON A 1% OR 2% SLOPE LOCATED NOR MORE THAN 20 FEET FROM THE NEXT PIPE.
  - LAY THE PERFORATED PIPE UNDER THE LENGTH OF THE BIORETENTION CELL, AND INSTALL NON-PERFORATED PIPE AS NEEDED TO CONNECT WITH THE STORM DRAIN SYSTEM. INSTALL T'S AND Y'S AS NEEDED, DEPENDING ON THE UNDERDRAIN CONFIGURATION.
    EXTEND CLEANOUT PIPES TO THE SURFACE WITH VENTED CAPS AT THE TS AND YS.

OBSERVATION WELLS

- STANDARD:
  - USE 4- TO 6- INCH RIGID SCHEDULE 40 PVC PIPE (OR EQUIVALENT CORRUGATED HDPE FOR MICRO-BIORETENTION), WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER WITHIN THE GRAVEL LAYER.
  - USE A CLOSED WALL PIPE ABOVE THE GRAVEL LAYER. EXTEND OBSERVATION WELL PIPES TO THE SURFACE WITH VENTED CAPS.

PLANT MATERIALS

- STANDARD: ESTABLISH PLANT MATERIALS AS SPECIFIED IN THE LANDSCAPING PLAN AND THE RECOMMENDED PLANT LIST.

BIORETENTION INSTALLATION

STEP 1
CONSTRUCTION OF THE BIORETENTION AREA MAY ONLY BEGIN AFTER THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED WITH VEGETATION. IT MAY BE NECESSARY TO BLOCK CERTAIN CURB OR OTHER INLETS WHILE THE BIORETENTION AREA IS BEING CONSTRUCTED. THE PROPOSED SITE SHOULD BE CHECKED FOR EXISTING UTILITIES PRIOR TO ANY EXCAVATION.

STEP 2
THE DESIGNER AND THE INSTALLER SHOULD HAVE A PRECONSTRUCTION MEETING, CHECKING THE BOUNDARIES OF THE CONTRIBUTING DRAINAGE AREA AND THE ACTUAL INLET ELEVATIONS TO ENSURE THEY CONFORM TO THE ORIGINAL DESIGN. SINCE OTHER CONTRACTORS MAY BE RESPONSIBLE FOR CONSTRUCTING PORTIONS OF THE SITE, IT IS QUITE COMMON TO FIND SUBTLE DIFFERENCES IN SITE GRADING, DRAINAGE AND PAVING ELEVATIONS THAT CAN PRODUCE HYDRAULICALLY IMPORTANT DIFFERENCES FOR THE PROPOSED BIORETENTION AREA. THE DESIGNER SHOULD CLEARLY COMMUNICATE, IN WRITING, ANY PROJECT CHANGES DETERMINED DURING THE PRECONSTRUCTION MEETING TO THE INSTALLER AND THE PLAN REVIEW/INSPECTION AUTHORITY.

STEP 3
TEMPORARY EROSION AND SEDIMENT CONTROLS ARE NEEDED DURING CONSTRUCTION OF THE BIORETENTION AREA TO DIVERT STORMWATER AWAY FROM THE BIORETENTION AREA UNTIL IT IS COMPLETED. SPECIAL PROTECTION MEASURES SUCH AS EROSION CONTROL FABRICS MAY BE NEEDED TO PROTECT VULNERABLE SIDE SLOPES FROM EROSION DURING THE CONSTRUCTION PROCESS.

STEP 4
ANY PRE-TREATMENT CELLS SHOULD BE EXCAVATED FIRST AND THEN SEALED TO TRAP SEDIMENTS.

STEP 5
EXCAVATORS OR BACKHOES SHOULD WORK FROM THE SIDES TO EXCAVATE THE BIORETENTION AREA TO ITS APPROPRIATE DESIGN DEPTH AND DIMENSIONS. EXCAVATING EQUIPMENT SHOULD HAVE SCOOPS WITH ADEQUATE REACH SO THEY DO NOT HAVE TO SIT INSIDE THE FOOTPRINT OF THE BIORETENTION AREA. CONTRACTORS SHOULD USE A CELL CONSTRUCTION APPROACH IN LARGER BIORETENTION BASINS, WHEREBY THE BASIN IS SPLIT INTO 500 TO 1,000 SQ. FT. TEMPORARY CELLS WITH A 10- TO 15-FOOT EARTH BRIDGE IN BETWEEN, SO THAT CELLS CAN BE EXCAVATED FROM THE SIDE.

STEP 6
IT MAY BE NECESSARY TO RIP THE BOTTOM SOILS TO A DEPTH OF 6 TO 12 INCHES TO PROMOTE GREATER INFILTRATION IF REQUIRED K_{SAT} TESTING AND/OR ONSITE SOIL INVESTIGATION INDICATES LIMITATIONS.

STEP 7
PLACE GEOTEXTILE FABRIC ON THE SIDES OF THE BIORETENTION AREA WITH A 6-INCH OVERLAP ON THE SIDES. IF A STONE STORAGE LAYER WILL BE USED, PLACE THE APPROPRIATE DEPTH OF #57 STONE ON THE BOTTOM, INSTALL THE PERFORATED UNDERDRAIN PIPE, PACK #57 STONE TO 3 INCHES ABOVE THE UNDERDRAIN PIPE, AND ADD APPROXIMATELY 3 INCHES OF CHOKER STONE/PEA GRAVEL AS A FILTER BETWEEN THE UNDERDRAIN AND THE SOIL MEDIA LAYER. IF NO STONE STORAGE LAYER IS USED, START WITH 6 INCHES OF #57 STONE ON THE BOTTOM, AND PROCEED WITH THE LAYERING AS DESCRIBED ABOVE.

STEP 8
OBTAIN FILTER MEDIA FROM A QUALIFIED VENDOR AND STORE IT ON AN ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING. AFTER CONFIRMING THAT THE MEDIA MEETS THE SPECIFICATIONS, APPLY THE MEDIA IN 6 TO 12-INCH LIFTS UNTIL THE DESIRED TOP ELEVATION OF THE BIORETENTION AREA IS ACHIEVED. ADD SUFFICIENT CLEAN WATER TO FACILITATE SETTLING (OR EVALUATE AFTER A SIGNIFICANT RAINFALL EVENT) TO CHECK FOR SETTLEMENT, AND ADD ADDITIONAL MEDIA, AS NEEDED, TO ACHIEVE THE DESIGN ELEVATION. TAKING AND MAINTAINING AN ARCHIVED AIR-DRIED COMPOSITE SAMPLE OF THE MEDIA AND MULCH MATERIALS FOR AT LEAST ONE YEAR FOLLOWING INSTALLATION IS RECOMMENDED IN CASE OF APPARENT INTERNAL DRAINAGE FAILURES.

STEP 9
PREPARE PLANTING HOLES FOR ANY TREES AND SHRUBS, INSTALL THE VEGETATION, AND WATER ACCORDINGLY. INSTALL ANY TEMPORARY IRRIGATION.

STEP 10
PLACE THE SURFACE COVER IN BOTH CELLS (E.G., MULCH, RIVER STONE OR MANAGED GRASS), DEPENDING ON THE DESIGN. IF COIR OR JUTE MATTING WILL BE USED IN LIEU OF MULCH, THE MATTING WILL NEED TO BE INSTALLED PRIOR TO PLANTING (STEP 9), AND HOLES OR SLITS WILL HAVE TO BE CUT IN THE MATTING TO INSTALL THE PLANTS.

STEP 11
INSTALL THE PLANT MATERIALS AS SHOWN IN THE LANDSCAPING PLAN, AND WATER THEM INITIALLY AS REQUIRED FOR ESTABLISHMENT, PARTICULARLY IF WEEKS OF NO RAIN OCCUR BETWEEN MARCH AND NOVEMBER.

STEP 12
INSTALL APPROPRIATE SIGNAGE AND/OR PERIMETER FENCING AS/IF REQUIRED.

DRY SWALE SPECIFICATIONS & NOTES

DRY SWALE MATERIALS SPECIFICATIONS (TABLE P-CNV-02-11)

FILTER MEDIA COMPOSITION

- GENERAL COMPOSITION: FILTER MEDIA MUST HAVE THE PROPER PROPORTIONS SAND, FINES, AND ORGANIC MATTER TO PROMOTE PLANT GROWTH, DRAIN AT THE PROPER RATE OVER TIME, AND FILTER POLLUTANTS, PARTICULARLY P.
- STANDARD:
  - 80%-90% SAND;
  - 10%-20% SOIL FINES (SILT+CLAY); MAXIMUM CLAY CONTENT:10%
  - 3%-5% ORGANIC MATTER CONTENT BY WEIGHT
- TESTING: SEE APPENDIX F TABLE F-1 FOR TESTING (MEDIA SHOULD BE CERTIFIED BY THE SUPPLIER)

MULCH LAYER

- STANDARD:
  - USE AGED (AT LEAST 6 MONTHS), DOUBLE- SHREDDED HARDWOOD BARK MULCH.
- ALTERNATIVE:
  - RIVER STONE OR PEA GRAVEL, COIR AND JUTE MATTING, OR TURFGRASS COVER.

CHOKING LAYER

- STANDARD:
  - LAY 2- TO 4-INCH LAYER OF SAND OVER 3-INCH LAYER OF VDOT #8 OR #89 WASHED GRAVEL.

STONE JACKET AND/OR STORAGE LAYER

- STANDARD:
  - VDOT #57 STONE - DOUBLE WASHED AND CLEAN AND FREE OF ALL FINES.

UNDERDRAINS AND CLEANOUTS

- STANDARD:
  - USE 6-INCH RIGID SCHEDULE 40 PVC PIPE (OR EQUIVALENT CORRUGATED HDPE FOR MICRO-BIORETENTION), WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER; POSITION EACH UNDERDRAIN ON A 1% OR 2% SLOPE LOCATED NOR MORE THAN 20 FEET FROM THE NEXT PIPE.
  - LAY THE PERFORATED PIPE UNDER THE LENGTH OF THE BIORETENTION CELL, AND INSTALL NON-PERFORATED PIPE AS NEEDED TO CONNECT WITH THE STORM DRAIN SYSTEM. INSTALL T'S AND Y'S AS NEEDED, DEPENDING ON THE UNDERDRAIN CONFIGURATION.
    EXTEND CLEANOUT PIPES TO THE SURFACE WITH VENTED CAPS AT THE TS AND YS.

OBSERVATION WELLS

- STANDARD:
  - USE 4- TO 6- INCH RIGID SCHEDULE 40 PVC PIPE (OR EQUIVALENT CORRUGATED HDPE FOR MICRO-BIORETENTION), WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER WITHIN THE GRAVEL LAYER.
  - USE A CLOSED WALL PIPE ABOVE THE GRAVEL LAYER. EXTEND OBSERVATION WELL PIPES TO THE SURFACE WITH VENTED CAPS.

PLANT MATERIALS

- STANDARD: ESTABLISH PLANT MATERIALS AS SPECIFIED IN THE LANDSCAPING PLAN AND THE RECOMMENDED PLANT LIST.

CHECK DAM

- CHECK DAMS SHOULD BE CONSTRUCTED OF A NON-EROSIVE MATERIAL SUCH AS WOOD, GABIONS, RIPRAP, OR CONCRETE. ALL CHECK DAMS SHOULD BE UNDERLAIN WITH FILTER FABRIC CONFORMING TO LOCAL DESIGN STANDARDS. WOOD USED FOR CHECK DAMS SHOULD CONSIST OF PRESSURE-TREATED LOGS OR TIMBERS OR WATER-RESISTANT TREE SPECIES SUCH AS CEDAR, HEMLOCK, SWAMP OAK, OR LOCUST.

EROSION CONTROL FABRIC

- GRASS CHANNELS SHOULD BE PROTECTED BY A BIODEGRADABLE EROSION CONTROL BLANKET TO PROVIDE IMMEDIATE STABILIZATION OF THE CHANNEL BED AND BANKS. WHERE FLOW VELOCITIES DICTATE, USE WOVEN BIODEGRADABLE EROSION CONTROL FABRIC OR MATS THAT ARE DURABLE ENOUGH TO LAST AT LEAST TWO GROWING SEASONS.

DRY SWALE INSTALLATION

STEP 1
PROTECTION DURING SITE CONSTRUCTION: AS NOTED ABOVE, DRY SWALES SHOULD REMAIN OUTSIDE THE LIMIT OF DISTURBANCE DURING CONSTRUCTION TO PREVENT SOIL COMPACTION BY HEAVY EQUIPMENT. HOWEVER, THIS IS SELDOM PRACTICAL GIVEN THAT SWALES ARE A KEY PART OF THE DRAINAGE SYSTEM AT MOST SITES. IN THESE CASES, TEMPORARY ESCS, SUCH AS DIKES, SILT FENCES, AND OTHER SIMILAR MEASURES, SHOULD BE INTEGRATED INTO THE SWALE DESIGN THROUGHOUT THE CONSTRUCTION SEQUENCE. SPECIFICALLY, BARRIERS SHOULD BE INSTALLED AT KEY CHECK DAM LOCATIONS, EROSION CONTROL FABRIC SHOULD BE USED TO PROTECT THE CHANNEL, AND EXCAVATION SHOULD BE NO DEEPER THAN 2 FEET ABOVE THE PROPOSED INVERT OF THE BOTTOM OF THE PLANNED UNDERDRAIN. DRY SWALES THAT LACK UNDERDRAINS (AND RELY ON FILTRATION) MUST BE FULLY PROTECTED BY SILT FENCE OR CONSTRUCTION FENCING TO PREVENT COMPACTION BY HEAVY EQUIPMENT DURING CONSTRUCTION.

STEP 2
GRADING OF THE DRY SWALE IN PREPARATION OF INSTALLATION OF THE GRAVEL, UNDERDRAIN, AND SOIL MEDIA SHOULD BEGIN ONLY AFTER THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED BY VEGETATION OR RUNOFF HAS BEEN DIVERTED AWAY FROM THE AREA. THE DESIGNER AND THE INSTALLER SHOULD HAVE A PRECONSTRUCTION MEETING, CHECKING THE BOUNDARIES OF THE CDA AND THE ACTUAL INLET ELEVATIONS TO ENSURE THEY CONFORM TO ORIGINAL DESIGN. BECAUSE OTHER CONTRACTORS MAY BE RESPONSIBLE FOR CONSTRUCTING PORTIONS OF THE SITE, IT IS QUITE COMMON TO FIND SUBTLE DIFFERENCES IN SITE GRADING, DRAINAGE, AND PAVING ELEVATIONS THAT CAN PRODUCE HYDRAULICALLY IMPORTANT DIFFERENCES FOR THE PROPOSED DRY SWALE. THE DESIGNER SHOULD CLEARLY COMMUNICATE, IN WRITING, ANY PROJECT CHANGES DETERMINED DURING THE PRECONSTRUCTION MEETING TO THE INSTALLER AND THE PLAN REVIEW/INSPECTION AUTHORITY.

STEP 3
IDENTIFY ANY ADDITIONAL ESCS THAT MAY BE NEEDED DURING SWALE CONSTRUCTION, PARTICULARLY TO DIVERT STORMWATER FROM THE DRY SWALE, UNTIL THE FILTER BED AND SIDE SLOPES ARE FULLY STABILIZED.

STEP 4
PRE-TREATMENT CELLS SHOULD BE EXCAVATED FIRST TO TRAP SEDIMENTS BEFORE THEY REACH THE PLANNED FILTER BEDS.

STEP 5
EXCAVATORS OR BACKHOES SHOULD WORK FROM THE SIDES TO EXCAVATE THE DRY SWALE AREA TO THE APPROPRIATE DESIGN DEPTH AND DIMENSIONS. EXCAVATING EQUIPMENT SHOULD HAVE SCOOPS WITH ADEQUATE REACH SO THEY DO NOT HAVE TO SIT INSIDE THE FOOTPRINT OF THE DRY SWALE AREA.

STEP 6
THE BOTTOM OF THE DRY SWALE SHOULD BE RIPPED, ROTO-TILLED, OR OTHERWISE SCARIFIED TO PROMOTE GREATER INFILTRATION.

STEP 7
PLACE AN ACCEPTABLE FILTER FABRIC ON THE UNDERGROUND (EXCAVATED) SIDES OF THE DRY SWALE WITH A MINIMUM 6-INCH OVERLAP. PLACE THE STONE NEEDED FOR STORAGE LAYER OVER THE FILTER BED. PERFORATE THE UNDERDRAIN PIPE AND CHECK ITS SLOPE. ADD THE REMAINING STONE JACKET, AND THEN PACK #57 STONE TO 3 INCHES ABOVE THE TOP OF THE UNDERDRAIN. FINALLY, ADD 3 INCHES OF PEA GRAVEL AS A FILTER LAYER.

STEP 8
OBTAIN THE SOIL MEDIA FROM A QUALIFIED VENDOR AND STORE IT ON AN ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING. AFTER VERIFYING THAT THE MEDIA MEETS THE SPECIFICATIONS, ADD THE SOIL MEDIA IN 12-INCH LIFTS UNTIL THE DESIRED TOP ELEVATION OF THE DRY SWALE IS ACHIEVED. WAIT A FEW DAYS TO CHECK FOR SETTLEMENT AND ADD MEDIA AS NEEDED.

STEP9
INSTALL CHECK DAMS, DRIVEWAY CULVERTS, AND INTERNAL PRE-TREATMENT FEATURES AS SPECIFIED IN THE PLAN.

STEP 10
PREPARE PLANTING HOLES FOR SPECIFIED TREES AND SHRUBS, INSTALL EROSION CONTROL FABRIC WHERE NEEDED, SPREAD SEED OR LAY SOD, AND INSTALL ANY TEMPORARY IRRIGATION.

STEP 11
PLANT LANDSCAPING MATERIALS AS SHOWN IN THE LANDSCAPING PLAN AND WATER THEM WEEKLY DURING THE FIRST 2 MONTHS. THE CONSTRUCTION CONTRACT SHOULD INCLUDE A CARE AND REPLACEMENT WARRANTY TO ENSURE THAT VEGETATION IS PROPERLY ESTABLISHED AND SURVIVES DURING THE FIRST GROWING SEASON FOLLOWING CONSTRUCTION.

STEP 12
CONDUCT A FINAL CONSTRUCTION INSPECTION AND DEVELOP A PUNCH LIST FOR FACILITY ACCEPTANCE. LOG THE GLOBAL POSITIONING SYSTEM (GPS) COORDINATES FOR EACH BIORETENTION FACILITY AND SUBMIT THEM FOR ENTRY INTO THE LOCAL BMP TRACKING DATABASE.

PLUNGE POOL SPECIFICATIONS & NOTES

- INSTALL AND STABILIZE ADEQUATE OUTLET PROTECTION BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL.
- ENSURE THAT THE SUBGRADE FOR THE GRAVEL FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
- CONSTRUCT THE RIPRAP AND GRAVEL FILTER TO CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
- USE WOVEN GEOTEXTILE, WHEN APPLICABLE, THAT MEETS THE DESIGN REQUIREMENTS AND PROPERLY PROTECT FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF WOVEN GEOTEXTILE OVER THE DAMAGED AREA. OVERLAP ALL CONNECTING JOINTS SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE LAYER OF GEOTEXTILE.
- RIPRAP MAY BE PLACED BY EQUIPMENT; BUT TAKE CARE TO AVOID DAMAGING THE FILTER OR GEOTEXTILE.
- RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. USE RIPRAP THAT IS HARD, ANGULAR, HIGHLY WEATHER-RESISTANT, FREE OF FINES, AND WELL GRADED.
- CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFALL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
- ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
- IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.

WHERE RIPRAP IS GROUTED, APPLY THE FOLLOWING CONSTRUCTION SPECIFICATIONS:

- TAKE PRECAUTIONS TO PREVENT UNCURED CONCRETE FROM COMING INTO CONTACT WITH ANY SURFACE WATERS.
- PLACE GROUT IN A LAYER AT A THICKNESS EQUIVALENT TO THE D50 STONE SIZE OVER THE ENTIRE EXTENT OF THE APRON BEFORE ROCK PLACEMENT.
- AFTER ROCK PLACEMENT, FILL VOID SPACES WITH GROUT.

LEVEL SPREADER SPECIFICATIONS & NOTES

- CONSTRUCT LEVEL SPREADERS ON UNDISTURBED SOIL (NOT FILL MATERIAL).
- LEVEL SPREADERS ARE A PERMANENT PART OF A SITE'S STORMWATER MANAGEMENT SYSTEM. THEREFORE, THE UPHILL DEVELOPMENT SHOULD BE STABILIZED BEFORE DIRECTING RUNOFF TO THIS SYSTEM.
- CONSTRUCT DISSIPATION AND PLUNGE POOL SECTIONS.
- CONSTRUCT THE SPREADER LIP AT 0% GRADE TO ENSURE UNIFORM SPREADING OF STORMWATER RUNOFF.
- CONSTRUCT THE SPREADER LIP ON UNDISTURBED SOIL TO UNIFORM HEIGHT AND 0% GRADE OVER THE LENGTH OF THE SPREADER. PROTECT THE LIP OF AN EARTHEN LEVEL SPREADER WITH AN EROSION-RESISTANT MATERIAL, SUCH AS A REINFORCED EROSION CONTROL BLANKET OR TURF REINFORCEMENT MAT, TO PREVENT EROSION AND ENABLE ESTABLISHMENT OF VEGETATION.
- RIGID LIP ONLY – PROVIDE A SMOOTH TRANSITION BETWEEN THE LEVEL SPREADER AND THE NATIVE GROUND DOWNSLOPE. ENTRENCH THE RIGID LEVEL LIP AT LEAST 2 INCHES BELOW EXISTING GROUND AND SECURELY ANCHOR TO PREVENT DISPLACEMENT. INSTALL AN APRON OF VDOT #1, #2, OR #3 COARSE AGGREGATE TO THE TOP OF THE LEVEL LIP AND EXTENDED DOWNSLOPE AT LEAST 3 FEET. PLACE FILTER FABRIC UNDER STONE AND USE GALVANIZED WIRE MESH TO HOLD STONE SECURELY IN PLACE (SEE FIGURE P-SUP-08-2).
- DISCHARGE THE RELEASED RUNOFF ONTO UNDISTURBED STABILIZED AREAS WITH SLOPE NOT EXCEEDING 10%. CONSTRUCT THE SLOPE TO BE SUFFICIENTLY SMOOTH TO PRESERVE SHEET FLOW AND PREVENT FLOW FROM CONCENTRATING.
- FOR PIPED OUTLET, LINE THE SIDES AND BOTTOM OF THE PLUNGE POOL EXCAVATION WITH FILTER FABRIC UNDERLINING AND CLASS AI RIPRAP IN ACCORDANCE WITH BMP C-ECM-13.
- CONSTRUCT THE SPREADER WEIR SECTION BY EXCAVATING A TRENCH TO THE DEPTH AND CONFIGURATION SHOWN ON FIGURE P-SUP-08-1, LAYING DOWN HARDWARE CLOTH AND BACKFILLING WITH VDOT NO. 3 AGGREGATE. USE HARDWARE CLOTH THAT IS GALVANIZED STEEL, ½ INCH MESH, 19 GAUGE. WRAP THE HARDWARE CLOTH AROUND THE AGGREGATE AND TIMBER AS SHOWN ON FIGURE P-SUP-08-1 AND STAPLE THE EDGES TO THE TOP OF THE TIMBER EVERY 12 INCHES WITH ¾-INCH GALVANIZED STEEL STAPLES.
- INSTALL THE LEVEL 6-INCH BY 6-INCH PRESSURE TREATED TIMBER.
- IMMEDIATELY AFTER CONSTRUCTION, APPROPRIATELY SEED AND MULCH THE ENTIRE DISTURBED AREA OF THE SPREADER.
- ENSURE THAT THE END OF THE LEVEL SPREADER IS CONSTRUCTED HIGH ENOUGH TO PREVENT WATER CONVEYANCE AT THIS LOCATION AND FULFILL THE PROPER INTENT OF THE BEST MANAGEMENT PRACTICE

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MATTHEW B. HOGAN
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07/10/2026
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Project No.: 195151140
Scale: AS SHOWN

Title
SWM NOTES AND SPECIFICATIONS

Drawing No.
CH-501

ORIGINAL SHEET - ARCH D

PLUNGE POOL DESIGN TYPE II

Type II: d50 = $(0.0082d^2/Tw) \times (Q/d^{2.5})^{4/3}$ = $(0.0082 \times 2^2/0.87) \times (6.7/2^{2.5})^{4/3}$ = 0.05 (ft)

C = (3 x d) + (6 x F) = (3 x 2) + (6 x 2) = 18 (ft)

B = (2 x d) + (6 x F) = (2 x 2) + (6 x 2) = 16 (ft)

d=	2	(ft)
Tw=	0.87	(ft)
Q=	6.7	(ft)
C=	18	(ft)
B=	16	(ft)
d_{50}=	0.05	(ft)
D=	0.1	(ft)
E=	2	(ft)
3E=	6	(ft)
2E=	4	(ft)
F=	1	(ft)

d_{50} = the median stone size (feet), refer to Riprap (C-ECM-12)

d = the culvert diameter or span (feet)

T_w = the tailwater depth (feet)

Q = the design flow for the culvert, minimum 10-year, 24-hour storm (cfs)

B = the plunge pool width (feet)

C = the plunge pool length (feet)

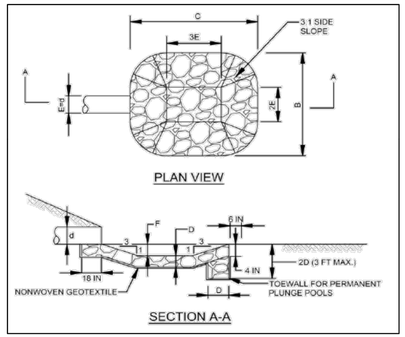
D = 2 x d_{50} = riprap thickness (feet)

E = the culvert diameter or span (feet) equal to d

3E = the plunge pool bottom length in feet

2E = the plunge pool bottom width (feet)

F = plunge pool depth (feet) = d (for Type II) or 0.5 d (for Type I)



L1 PLUNGE POOL DETAIL
SCALE: NOT TO SCALE

LEVEL SPREADER DESIGN

S=	0.028	(ft/ft)
n=	0.24	
L_{SF}=	69.72	(ft)
V=	0.223	(fps)
n=	0.24	
R=	0.1	(ft)
S=	0.028	(ft/ft)
A=	5	(ft^2)
P=	50.2	(ft)
LLS=	50	(ft)

$$L_{SF} = \frac{100\sqrt{S}}{n}$$

where:

L_{SF} = maximum length of sheet flow (feet)

S = slope (feet/foot)

n = Manning's roughness coefficient (U.S. Department of Agriculture, Natural ResourceConservation Service [USDA-NRCS] National Engineering Handbook, Table 15-1 [2008])

$$V = \frac{1.486}{n} R^{2/3} S^{1/2}$$

where:

V = Velocity (feet per second)

n = Manning's roughness coefficient (USDA-NRCS National Engineering Handbook, Table 15-1 [2008])

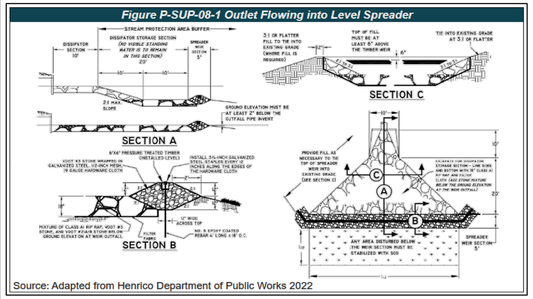
R = Hydraulic radius (feet) = A / P

S = Land slope (feet/foot)

A = Flow area (square feet) = Length of Level Spreader x 0.1 foot

P = Wetted perimeter (feet) = Length of Level Spreader + 0.1 foot + 0.1 foot

Figure P-SUP-08-1 Outlet Flowing into Level Spreader



Source: Adapted from Henrico Department of Public Works 2022

L11 LEVEL SPREADER DETAIL
SCALE: NOT TO SCALE

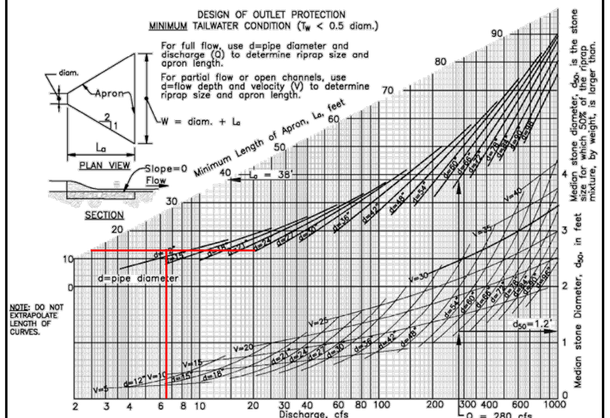
Q:6.44 cfs
V:4.82 fps
d:0.88'

W = 2 + La
La= 13
W = 2' + 13' = 15'

RIP RAP REQ.
LA:13'
W:15'

RIP RAP PROV.
LA:25'
W:20'

OUTFALL @ 400



L20 RIP RAP OUTFALL DETAIL
SCALE: NOT TO SCALE

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Figure P-CNV-02-6 Typical Detail for Dry Swale Check Dam

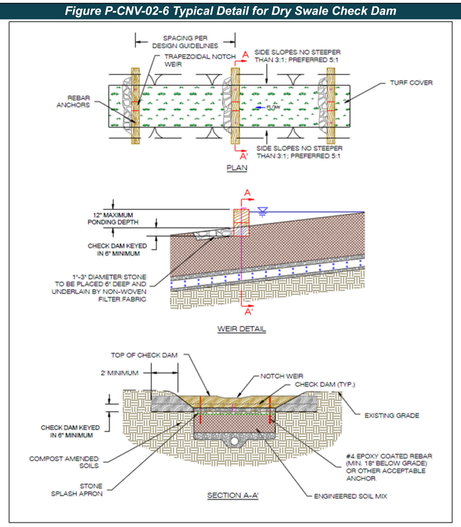
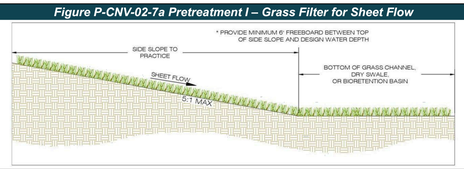


Figure P-CNV-02-7a Pretreatment I – Grass Filter for Sheet Flow



A1 DRY SWALE - CHECK DAM DETAIL
SCALE: NOT TO SCALE

6/30/26, 12:35 PM Document Viewer | Virginia Stormwater Management Handbook v1.2

Figure P-CNV-02-7b Pretreatment II – Grass Filter for Sheet Flow

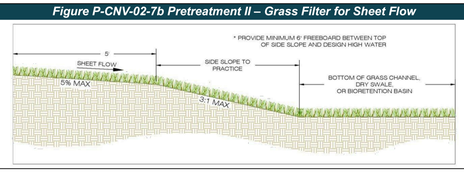
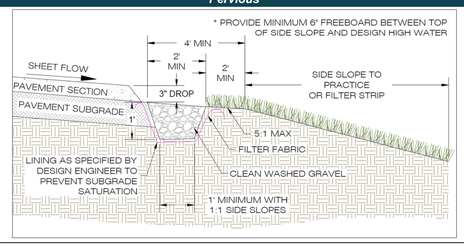


Figure P-CNV-02-8 Pre-treatment – Gravel Diaphragm for Sheet Flow from Impervious or Pervious



A11 DRY SWALE - PRETREATMENT GRAVEL DIAPHRAGM DETAIL
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Project No.: 195151140

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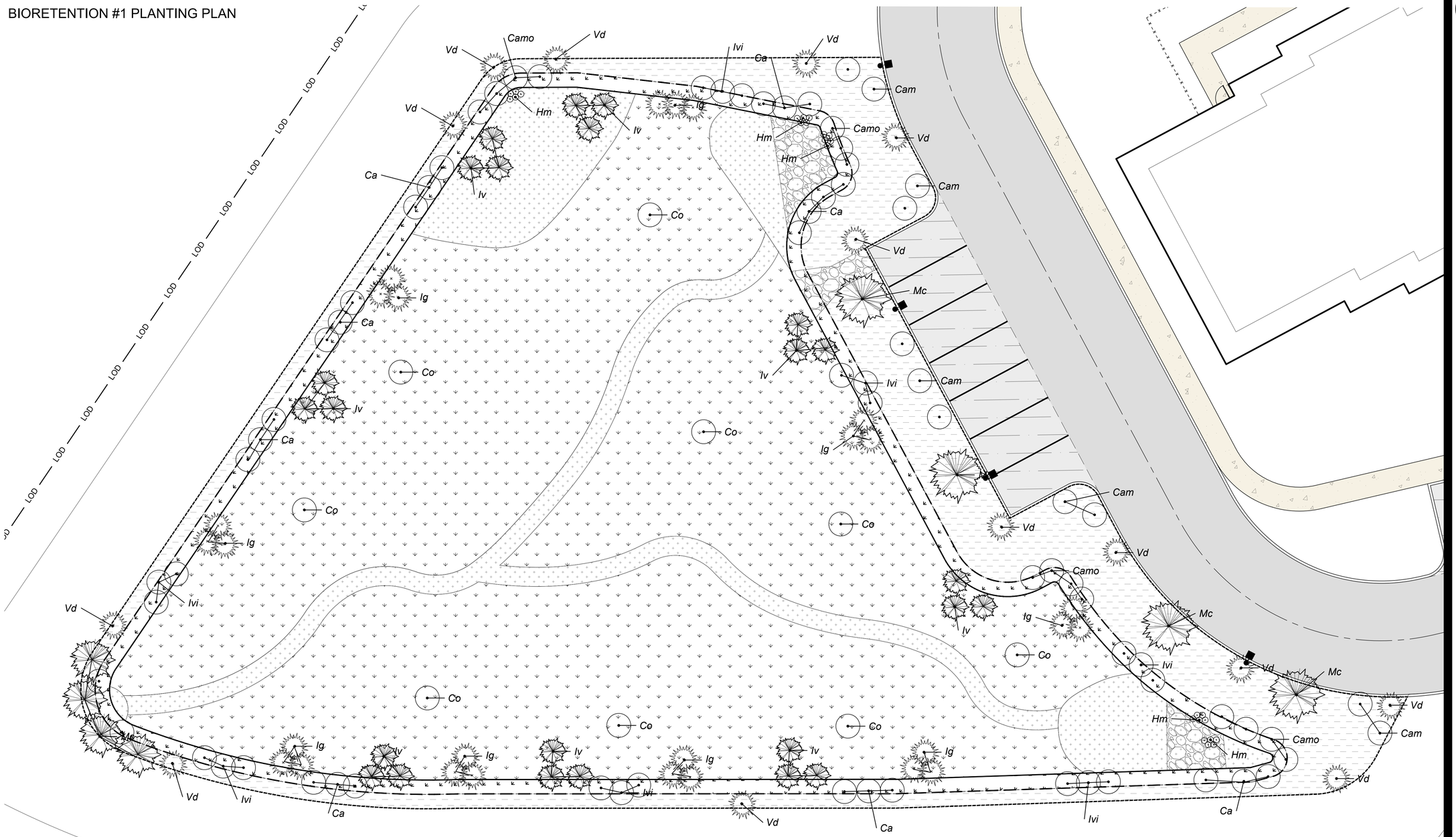
SWM DETAILS

Drawing No.

CH-502

ORIGINAL SHEET - ARCH D

BIORETENTION #1 PLANTING PLAN



Bioretention #1 Planting Schedule

Zone	Symbol	Botanical Name	Common Name	Indicator	Size	Spacing / Rate	Quantity	Layout Pattern & Notes
Zone 1: Bottom Area = 2,607 sq.ft. / 1922 sq.ft.		Ernst ERNMX-883 (or equal)	VA Southern Coastal Plain Retention Basin Mix	FACW/OBL	Seed	Broadcast	10 lbs	FILL: Broadcast evenly across all non-shrub areas in bottom invert (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	29 lbs	NURSE CROP: Sow concurrently with native seed to lock media (1.5 lb/1000 SF)
		Juncus effusus	Soft Rush	FACW	Deep Plug	18" O.C.	1274	ANCHOR: Dense bands immediately downstream of concentrated inflows
		Carex stricta	Tussock Sedge	OBL	Deep Plug	18" O.C.	637	ANCHOR: Defensive ring planted 2 ft out from overflow riser
		Iris virginica	Virginia Blue Flag	OBL	Deep Plug	18" O.C.	213	ANCHOR: Linear sweep tracking the primary low-flow path
		Hibiscus moscheutos (Hm)	Crimsoneyed Rosemallow	OBL	1-Gallon	3' O.C.	25	Small tight clusters near concentrated inflow points
		Ilex glabra (Ig)	Inkberry	FACW	3-Gallon	4' O.C.	27	Framed cluster along the low slope transition line
		Cephalanthus occidentalis (Co)	Buttonbush	OBL	3-Gallon	5' O.C.	9	Single specimens pushed strictly to basin margins
		Ilex verticillata (Iv)	Winterberry	FACW	3-Gallon	5' O.C.	24	Framed cluster along the low slope transition line
Zone 2: Slopes Area = 1,957 sq.ft. / 1595 sq.ft.		Ernst ERNMX-883 (or equal)	VA Southern Coastal Plain Retention Basin Mix	FACW/OBL	Seed	Broadcast	1 lbs	FILL: Broadcast evenly across zone (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	3 lbs	NURSE CROP: Sow concurrently with native seed (1.5 lb/1000 SF)
		Itea virginica (Ivi)	Virginia Sweetspire	FACW	3-Gallon	4' O.C.	18	Loose group of 3 on opposite face slopes
		Clethra alnifolia (Ca)	Sweet Pepperbush	FACW	3-Gallon	4' O.C.	21	Concentrated massing near side-slope contours
		Cornus amomum (Camo)	Silky Dogwood	FACW	3-Gallon	5' O.C.	18	Placed at maximum slope points for bank stability
Zone 3: Perimeter 46/76 sq.ft.		Ernst ERNMX-881 (or equal)	VA Southern Coastal Plain UPL Meadow Mix	UPL	Seed	Broadcast	3 lbs	FILL: Broadcast evenly across zone (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	8 lbs	NURSE CROP: Sow concurrently with native seed (1.5 lb/1000 SF)
		Viburnum dentatum (Vd)	Arrowwood Viburnum	FAC	3-Gallon	5' O.C.	14	Outer property line framing and soft buffer
		Myrica cerifera (Mc)	Southern Wax Myrtle	FAC	5-Gallon	6' O.C.	8	Screen massing behind riser/overflow structures
		Callicarpa americana (Cam)	American Beautyberry	FACU	3-Gallon	5' O.C.	11	Focal groupings near pedestrian or road viewpoints

0 10' 20'

N

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

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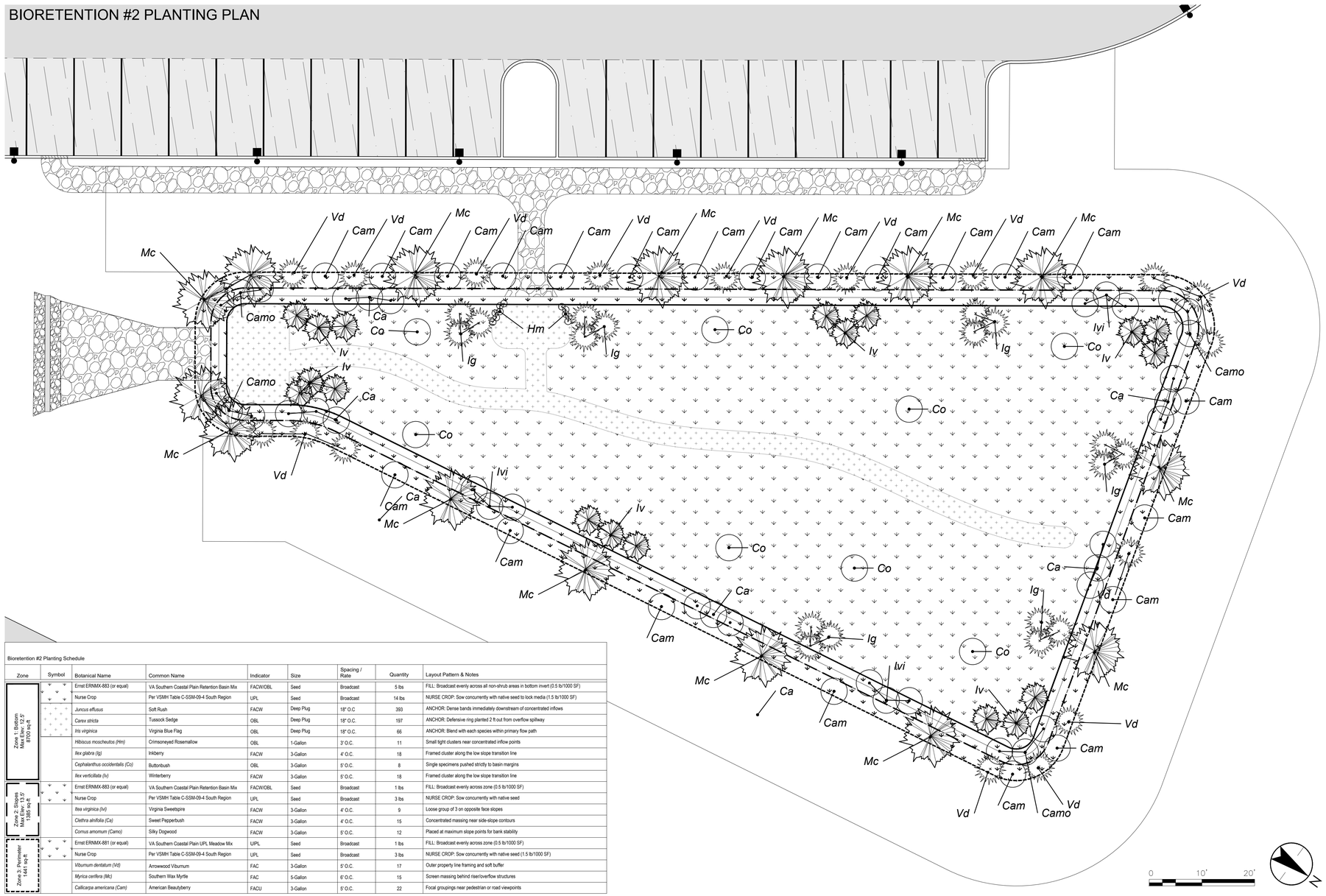
Title

LANDSCAPE PLANTING PLAN
BIO RETENTION #1

Drawing No.

LP-101

BIORETENTION #2 PLANTING PLAN



Bioretention #2 Planting Schedule

Zone	Symbol	Botanical Name	Common Name	Indicator	Size	Spacing / Rate	Quantity	Layout Pattern & Notes
Zone 1: Bottom Mix - Depth 15" 8700 sq.ft.		Ernst ERNMX-883 (or equal)	VA Southern Coastal Plain Retention Basin Mix	FACW/OBL	Seed	Broadcast	5 lbs	FILL: Broadcast evenly across all non-shrub areas in bottom invert (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	14 lbs	NURSE CROP: Sow concurrently with native seed to lock media (1.5 lb/1000 SF)
		Juncus effusus	Soft Rush	FACW	Deep Plug	18" O.C	393	ANCHOR: Dense bands immediately downstream of concentrated inflows
		Carex stricta	Tussock Sedge	OBL	Deep Plug	18" O.C.	197	ANCHOR: Defensive ring planted 2 ft out from overflow spillway
		Iris virginica	Virginia Blue Flag	OBL	Deep Plug	18" O.C.	66	ANCHOR: Blend with each species within primary flow path
		Hibiscus moscheutos (Hm)	Crimsoneyed Rosemallow	OBL	1-Gallon	3' O.C.	11	Small tight clusters near concentrated inflow points
		Ilex glabra (Ig)	Inkberry	FACW	3-Gallon	4' O.C.	18	Framed cluster along the low slope transition line
		Cephalanthus occidentalis (Co)	Buttonbush	OBL	3-Gallon	5' O.C.	8	Single specimens pushed strictly to basin margins
		Ilex verticillata (Iv)	Winterberry	FACW	3-Gallon	5' O.C.	18	Framed cluster along the low slope transition line
Zone 2: Slopes Mix - Depth 15" 1385 sq.ft.		Ernst ERNMX-883 (or equal)	VA Southern Coastal Plain Retention Basin Mix	FACW/OBL	Seed	Broadcast	1 lbs	FILL: Broadcast evenly across zone (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	3 lbs	NURSE CROP: Sow concurrently with native seed
		Itea virginica (Ivi)	Virginia Sweetspire	FACW	3-Gallon	4' O.C.	9	Loose group of 3 on opposite face slopes
		Clethra alnifolia (Ca)	Sweet Pepperbush	FACW	3-Gallon	4' O.C.	15	Concentrated massing near side-slope contours
		Cornus amomum (Camo)	Silky Dogwood	FACW	3-Gallon	5' O.C.	12	Placed at maximum slope points for bank stability
Zone 3: Perimeter 1441 sq.ft.		Ernst ERNMX-881 (or equal)	VA Southern Coastal Plain UPL Meadow Mix	UPL	Seed	Broadcast	1 lbs	FILL: Broadcast evenly across zone (0.5 lb/1000 SF)
		Nurse Crop	Per VSMH Table C-SSM-09-4 South Region	UPL	Seed	Broadcast	3 lbs	NURSE CROP: Sow concurrently with native seed (1.5 lb/1000 SF)
		Viburnum dentatum (Vd)	Arrowwood Viburnum	FAC	3-Gallon	5' O.C.	17	Outer property line framing and soft buffer
		Myrica cerifera (Mc)	Southern Wax Myrtle	FAC	5-Gallon	6' O.C.	15	Screen massing behind riser/overflow structures
		Callicarpa americana (Cam)	American Beautyberry	FACU	3-Gallon	5' O.C.	22	Focal groupings near pedestrian or road viewpoints

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Project No.: 195151140

Scale: AS SHOWN

Title

LANDSCAPE PLANTING PLAN
BIO RETENTION #2

Drawing No.

LP-102

ORIGINAL SHEET - ARCH D

BIORETENTION PLANTING PLAN NOTES

GENERAL PLANTING NOTES:

1. ALL PLANTING SHALL CONFORM TO THESE PLANS AND APPLICABLE LOCAL AND STATE REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE ENGINEER OF DISCREPANCIES PRIOR TO INSTALLATION.
3. NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. ALL PLANTS SHALL MEET ANSI Z60.1 (AMERICAN STANDARD FOR NURSERY STOCK).
5. LOCATIONS OF PLANT MATERIAL ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD TO AVOID CONFLICTS, SUBJECT TO ENGINEER APPROVAL.

BIORETENTION PLANTING NOTES:

1. PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED BIORETENTION PLANTING PLAN AND COORDINATED WITH FINAL GRADING AND MEDIA INSTALLATION.
2. PLANT SPECIES SHALL BE NATIVE OR WELL-ADAPTED AND TOLERANT OF PERIODIC INUNDATION, DROUGHT, AND VARIABLE SOIL MOISTURE CONDITIONS.
3. PLANTING SHALL BE INSTALLED BY DESIGN ZONE (BOTTOM, SIDE SLOPE, AND PERIMETER) AS SHOWN ON THE PLANS.
4. DO NOT DISTURB OR COMPACT BIORETENTION SOIL MEDIA DURING PLANT INSTALLATION.
5. IF MEDIA IS DISTURBED DURING INSTALLATION, CONTRACTOR SHALL LOOSEN AND RESTORE THE SURFACE PRIOR TO MULCHING OR SEEDING.

SHRUB AND PLUG INSTALLATION NOTES:

1. SHRUBS AND PLUGS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD PLANTING DETAILS.
2. ALL PLANTING PITS SHALL BE A MINIMUM OF TWICE THE WIDTH OF THE ROOT BALL.
3. SET ROOT FLARE AT OR SLIGHTLY ABOVE FINISHED GRADE.
4. REMOVE ALL SYNTHETIC BURLAP, WIRE, AND CONTAINERS PRIOR TO BACKFILLING.
5. BACKFILL WITH APPROVED BIORETENTION MEDIA ONLY; DO NOT AMEND WITH FERTILIZER UNLESS APPROVED.
6. WATER ALL PLANT MATERIAL IMMEDIATELY AFTER INSTALLATION.
7. INSTALL PLUGS TIGHT TO GRADE WITH FULL ROOT-TO-SOIL CONTACT TO PREVENT FLOATING OR UPROOTING.

SEEDING NOTES (BIORETENTION AREAS):

1. SEED MIX SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANTING ZONES SHOWN ON THE PLANS AS FOLLOWS:
   A. UPLAND ZONE: ERNST VA SOUTHERN COASTAL PLAIN UPLAND MEADOW MIX.
   B. SIDE SLOPE AND BOTTOM ZONES: ERNST VA SOUTHERN COASTAL PLAIN RETENTION BASIN MIX.
2. TEMPORARY NURSE CROP SHALL BE INCLUDED WITH ALL SEED MIXES TO PROVIDE IMMEDIATE COVER AND EROSION CONTROL.
3. SEEDING SHALL NOT COMMENCE UNTIL FINAL GRADES ARE ACHIEVED AND CONTRIBUTING DRAINAGE AREAS ARE STABILIZED.
4. PRIOR TO SEEDING, LIGHTLY SCARIFY THE TOP 1 TO 2 INCHES OF SOIL MEDIA TO PROMOTE SEED-TO-SOIL CONTACT.
5. SEED SHALL BE UNIFORMLY DISTRIBUTED AND LIGHTLY INCORPORATED INTO THE SOIL; BROADCAST SEED SHALL NOT BE LEFT EXPOSED.
6. SEEDING METHODS SHALL BE USED TO MINIMIZE FLOATING, DISPLACEMENT, OR WASHOUT, INCLUDING ONE OR MORE OF THE FOLLOWING:
   A. HYDROSEEDING WITH TACKIFIER OR BINDER.
   B. HYDRAULICALLY APPLIED MULCH OR BONDED FIBER MATRIX.
   C. ROLLED EROSION CONTROL PRODUCTS (RECP) ON SIDE SLOPES OR FLOW PATHS.
7. LOOSE STRAW MULCH ALONE SHALL NOT BE USED IN AREAS SUBJECT TO CONCENTRATED FLOW OR PONDING.
8. CONTRACTOR SHALL REPAIR AND RESEED ANY AREAS WHERE SEED HAS MIGRATED, WASHED OUT, OR FAILED TO GERMINATE.
9. SEEDING SHALL BE PERFORMED DURING APPROPRIATE SEASONAL WINDOWS.
10. SEED MIXES ARE SELECTED TO MATCH HYDROLOGIC ZONES AND SHALL NOT BE INTERCHANGED WITHOUT ENGINEER APPROVAL.

MULCH NOTES:

1. APPLY HARDWOOD MULCH IN PLANTED BIORETENTION AREAS TO A DEPTH OF 2 TO 3 INCHES.
2. MULCH SHALL BE CLEAN, UNIFORM, AND FREE OF WEEDS AND DEBRIS.
3. MULCH SHALL NOT BE PLACED IN CONTACT WITH PLANT STEMS OR TREE TRUNKS.
4. CONTRACTOR SHALL ENSURE MULCH REMAINS IN PLACE AND DOES NOT FLOAT OR WASH OUT.

PROTECTION NOTES:

1. BIORETENTION AREAS SHALL BE PROTECTED FROM SEDIMENT DEPOSITION PRIOR TO PLANT INSTALLATION.
2. DO NOT USE BIORETENTION AREAS FOR EQUIPMENT ACCESS, STORAGE, OR STAGING.
3. REMOVE AND REPLACE CONTAMINATED OR SEDIMENT-LADEN MEDIA PRIOR TO PLANTING OR SEEDING.

MAINTENANCE AND ESTABLISHMENT NOTES:

1. CONTRACTOR SHALL PROVIDE MAINTENANCE UNTIL FINAL ACCEPTANCE.
2. MAINTENANCE SHALL INCLUDE WATERING, WEED CONTROL, MULCH REPLACEMENT, AND PLANT REPLACEMENT AS REQUIRED.
3. RESEED AND REPLANT AREAS THAT FAIL TO ESTABLISH SATISFACTORY VEGETATIVE COVER.
4. REMOVE INVASIVE SPECIES AS THEY ARE IDENTIFIED.
5. DO NOT APPLY FERTILIZER WITHIN BIORETENTION AREAS UNLESS SPECIFICALLY APPROVED.

WARRANTY NOTES:

1. ALL PLANT MATERIAL SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.
2. CONTRACTOR SHALL REPLACE ANY DEAD, DYING, OR UNSATISFACTORY PLANT MATERIAL AT NO ADDITIONAL COST TO THE OWNER.
3. REPLACEMENT PLANTS SHALL MATCH ORIGINAL SPECIES AND SIZE UNLESS APPROVED OTHERWISE.
4. WARRANTY SHALL INCLUDE ALL LABOR, MATERIALS, AND INCIDENTAL COSTS REQUIRED FOR REPLACEMENT.
5. REPLACEMENT MATERIAL SHALL BE WARRANTED FOR ONE (1) YEAR FROM DATE OF REPLACEMENT.

BIORETENTION PLANTING MAINTENANCE NOTES (VEGETATION ONLY)

GENERAL:

1. THESE NOTES APPLY TO VEGETATION MAINTENANCE ONLY AND SHALL BE USED IN CONJUNCTION WITH THE APPROVED STORMWATER MANAGEMENT PLANS.
2. MAINTENANCE SHALL BE PERFORMED BY THE PROPERTY OWNER OR THEIR DESIGNATED CONTRACTOR.
3. VEGETATION SHALL BE MAINTAINED TO PROVIDE STABLE, UNIFORM COVER AND SUPPORT LONG-TERM SITE FUNCTION.

ESTABLISHMENT PERIOD (FIRST 12 MONTHS):

1. INSPECT PLANTED AREAS MONTHLY AND AFTER MAJOR STORM EVENTS.
2. PROVIDE SUPPLEMENTAL WATERING AS REQUIRED TO ENSURE PLANT SURVIVAL.
3. REMOVE WEEDS AND INVASIVE SPECIES ON A REGULAR BASIS.
4. REPLACE DEAD, DAMAGED, OR DECLINING PLANT MATERIAL DURING THE NEXT APPROPRIATE PLANTING SEASON.
5. RESEED AREAS THAT FAIL TO ESTABLISH ADEQUATE VEGETATIVE COVER.
6. MAINTAIN CONTINUOUS VEGETATIVE COVER TO PREVENT BARE SOIL AND EROSION.
7. MAINTAIN MULCH AT A DEPTH OF APPROXIMATELY 2 TO 3 INCHES; REDISTRIBUTE OR REPLACE AS NEEDED.

LONG-TERM MAINTENANCE:

1. INSPECT PLANTED AREAS AT LEAST TWICE PER YEAR (SPRING AND FALL) AND AFTER MAJOR STORM EVENTS.
2. MAINTAIN HEALTHY PLANT GROWTH THROUGH PRUNING, WEED CONTROL, AND REPLACEMENT OF DECLINING VEGETATION.
3. REMOVE INVASIVE SPECIES PROMPTLY AND PREVENT RE-ESTABLISHMENT.
4. OVERSEED OR REPAIR SEEDED AREAS THAT BECOME THIN OR BARE OVER TIME.
5. MAINTAIN MULCH COVER AND REPLACE AS NECESSARY.

PERFORMANCE REQUIREMENTS:

1. MAINTAIN HEALTHY, VIABLE PLANT MATERIAL.
2. MAINTAIN UNIFORM VEGETATIVE COVER SUFFICIENT TO STABILIZE SOILS.
3. PREVENT EROSION, BARE AREAS, AND DOMINANCE OF INVASIVE SPECIES.
4. IMPLEMENT CORRECTIVE ACTIONS IF THESE CONDITIONS ARE NOT MET.

PROHIBITED ACTIVITIES:

1. DO NOT APPLY FERTILIZER UNLESS REQUIRED FOR PLANT ESTABLISHMENT.
2. DO NOT USE HERBICIDES THAT MAY DAMAGE DESIRABLE VEGETATION.
3. DO NOT MOW PLANTED BIORETENTION AREAS (EXCEPT DESIGNATED TURF AREAS, IF APPLICABLE).
4. DO NOT STORE MATERIALS OR OPERATE EQUIPMENT WITHIN PLANTED AREAS.
5. DO NOT DISTURB OR COMPACT SOILS.

CORRECTIVE ACTIONS:

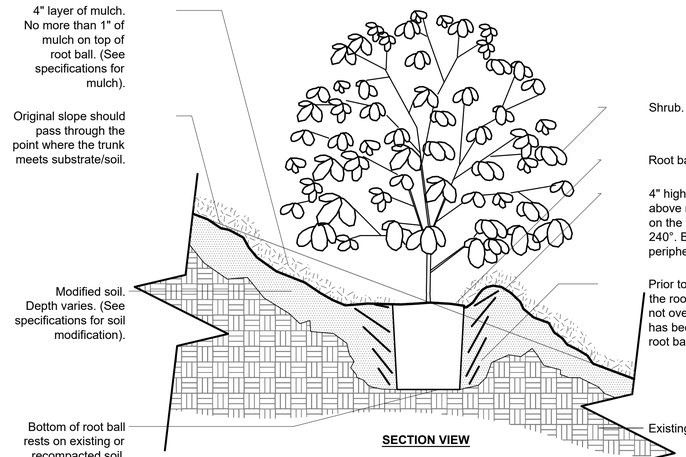
1. IDENTIFY AND ADDRESS CAUSES OF VEGETATION FAILURE (E.G., DROUGHT, WASHOUT, POOR ESTABLISHMENT).
2. REPAIR DAMAGED AREAS AND RESTORE PLANTINGS IN ACCORDANCE WITH APPROVED PLANS.
3. REPLACE PLANT MATERIAL AND RESEED AS REQUIRED.
4. STABILIZE ANY EXPOSED SOILS TO PREVENT EROSION.

RECORD KEEPING:

1. MAINTAIN RECORDS OF INSPECTIONS AND MAINTENANCE ACTIVITIES.
2. RECORD PLANT REPLACEMENTS AND RESEEDING EVENTS AS PART OF FACILITY MAINTENANCE DOCUMENTATION.

REFERENCE:

1. SEE STORMWATER MANAGEMENT PLANS FOR FACILITY DESIGN AND STRUCTURAL MAINTENANCE REQUIREMENTS.



Notes:
1- Shrubs shall be of quality as prescribed in the root observations detail and specification.

2- See specifications for further requirements related to this detail.

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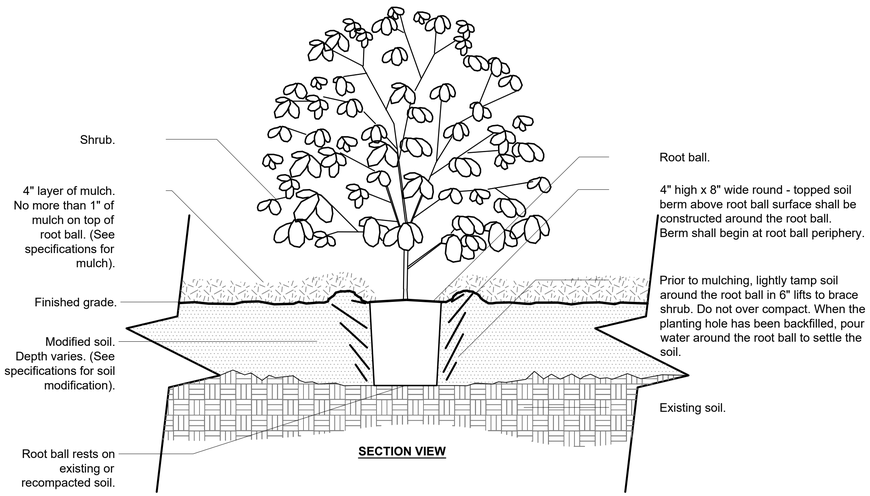
SHRUB ON SLOPE 5% (20:1) TO 50% (2:1) - MODIFIED SOIL

3/4" = 1'-0"

pdet_shrub on slope_modified soil



Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.

2- See specifications for further requirements related to this detail.

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SHRUB - MODIFIED SOIL

3/4" = 1'-0"

pdet_shrub_modified soil

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Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

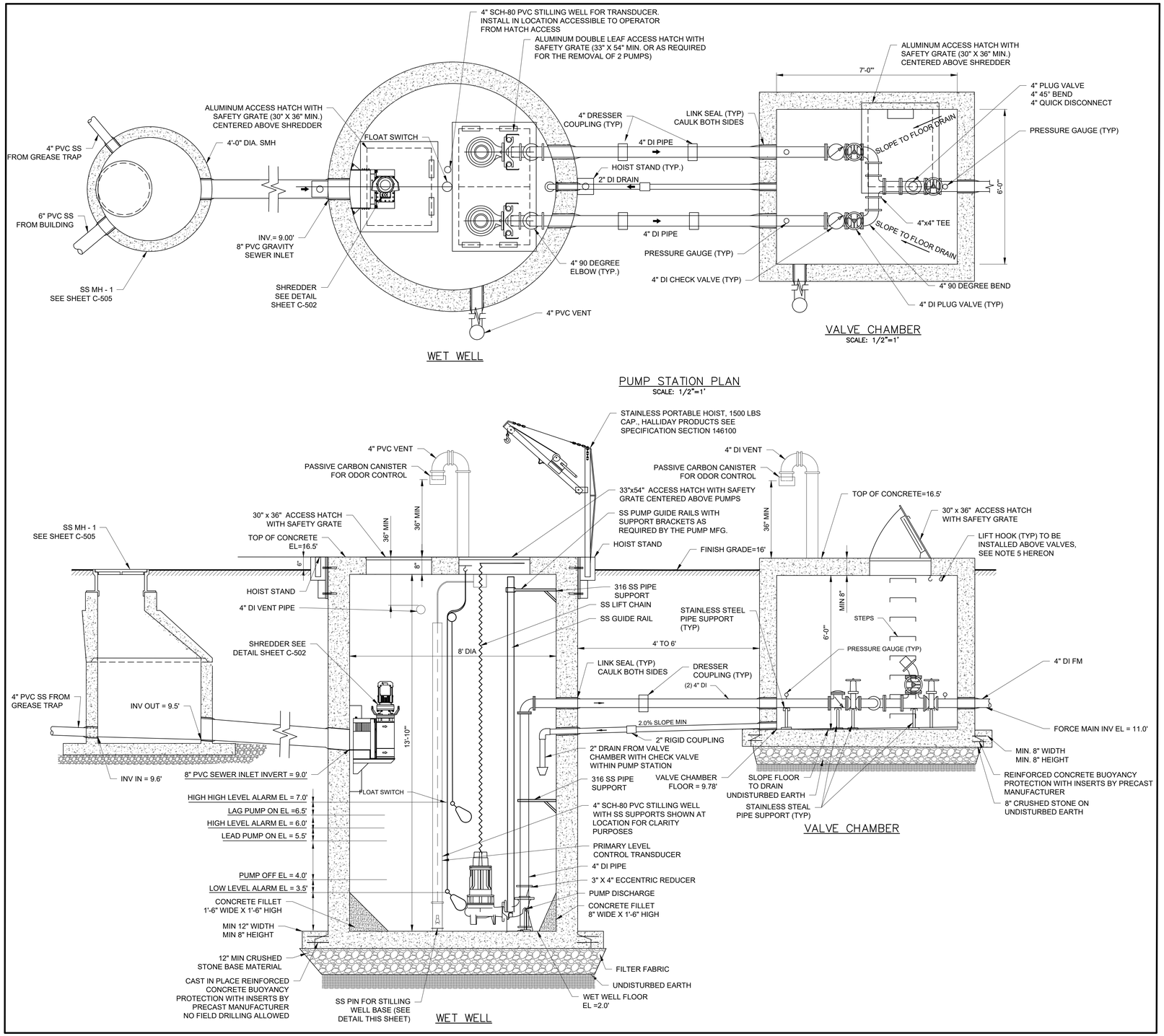
Title

LANDSCAPE PLANTING DETAILS

Drawing No.

LP-501

ORIGINAL SHEET - ARCH D

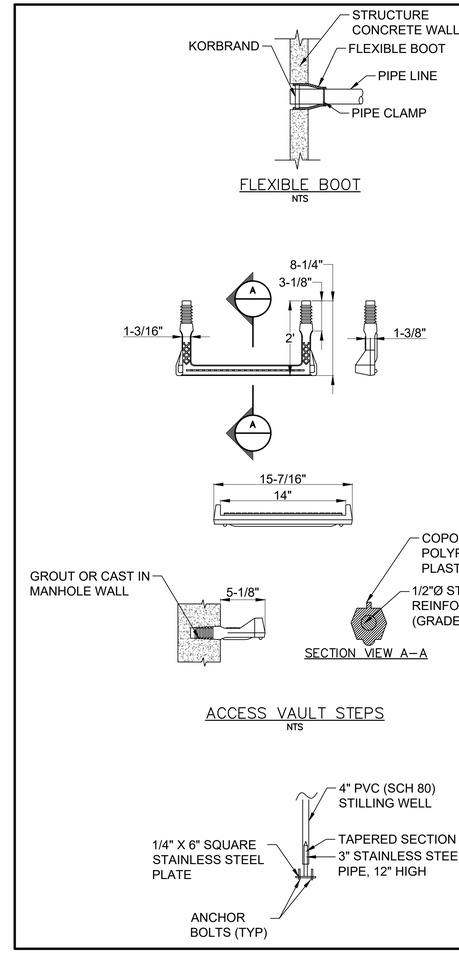


C1 PUMP STATION CROSS SECTION
SCALE: 1/2" = 1"

0 2' 4'

NOTE:

1. THE PUMP STATION SHALL HAVE AN INSIDE DIAMETER OF 8 FEET AND INSIDE HEIGHT OF 13.83 FEET AND EQUIPPED WITH INTEGRAL ANTI-FLOATION COLLAR. THE STRUCTURE SHALL BE WATER TIGHT. CONCRETE SHALL BE 5,000 PSI.
2. REFER TO ELECTRICAL DRAWINGS FOR CONTROL PANEL CONTENTS.
3. ALL ELECTRIC IN WET WELL AND VALVE CHAMBER, SHALL BE EXPLOSION PROOF.
4. THE VALVE CHAMBER SHALL BE 5,000 PSI PRECAST CONCRETE STRUCTURE.
5. COORDINATE LOCATION OF LIFTING HOOKS WITH ACTUAL PIPING PROVIDED; LOCATE SS LIFTING HOOKS DIRECTLY ABOVE CENTER OF VALVES.
6. STAINLESS STEEL PIPE SUPPORTS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN VIRGINIA AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
7. STRUCTURE EXTERIOR SHALL BE DAMP-PROOF COATED.
8. GROUNDWATER LEVELS SHALL VARY OVER TIME DUE TO SEASONAL CHANGES IN PRECIPITATION AND TEMPERATURE, SNOWMELT, AND SURROUNDING AND ON SITE DRAINAGE.
9. FINAL WET WELL HATCH SIZING SHALL BE COORINATED WITH THE PUMP MANUFACTURER BY THE CONTRACTOR TO ENSURE ADEQUATE CLEAR WIDTH OPENING FOR PUMP INSTALLATION AND REMOVAL. ANY DEVIATION FROM THE DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.



A1 STAINLESS STEEL PIN
SCALE: NOT TO SCALE

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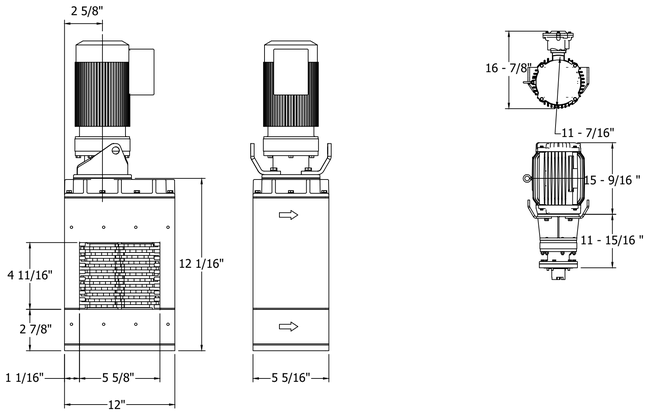
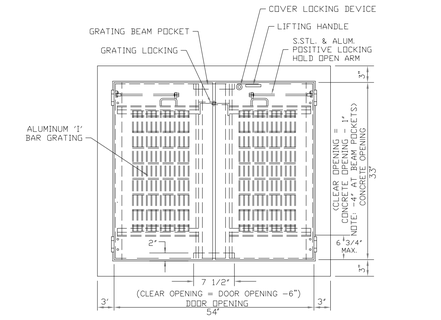
CONTACT: MICHAEL COYNE

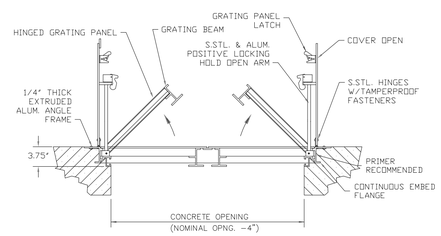
Project No.: 195151140
Scale: AS SHOWN
Title
PUMP STATION DETAILS

Drawing No.
C-501



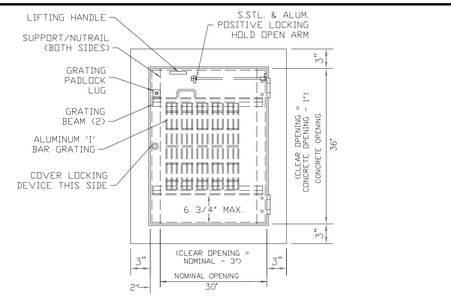
N2 SHREDDER (MUFFIN MONSTER MODEL 10002-0008)
SCALE: NOT TO SCALE

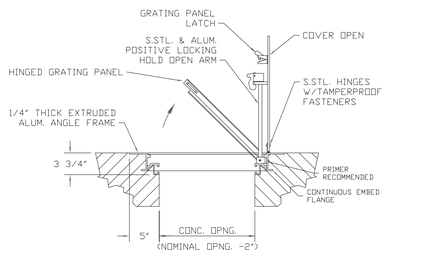




SECTION
(COVERS SHOWN IN OPEN POSITION)

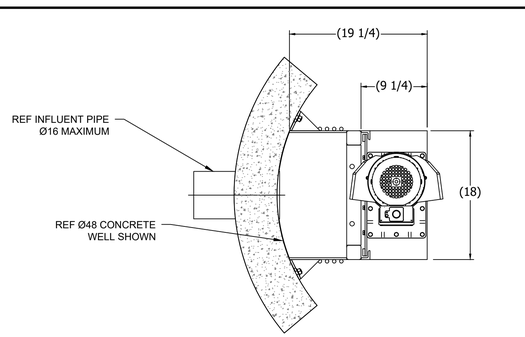
M11 HALLIDAY PRODUCTS SERIES H2R 33" X 54" ACCESS DOOR WITH SAFETY GRATE
SCALE: NOT TO SCALE

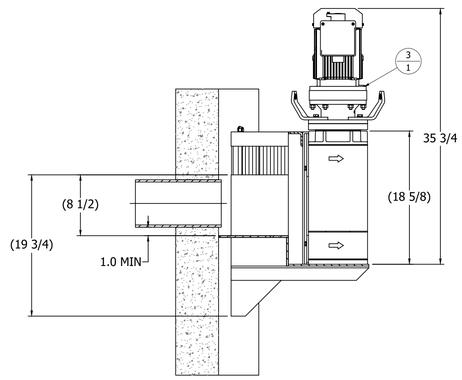




SECTION
(COVERS SHOWN IN OPEN POSITION)

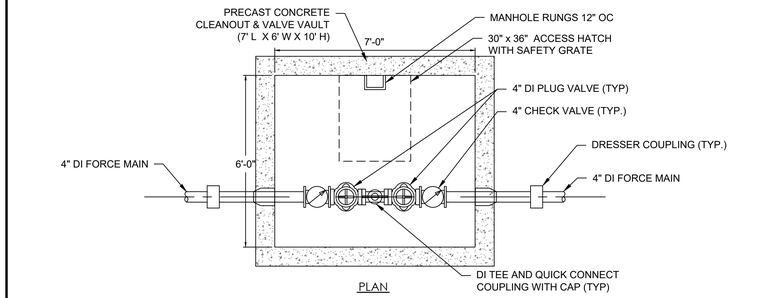
C11 HALLIDAY PRODUCTS SERIES H1R 30" X 36" ACCESS DOOR WITH SAFETY GRATE (VALVE VAULTS & WET WELL ABOVE SHREDDER)
SCALE: NOT TO SCALE



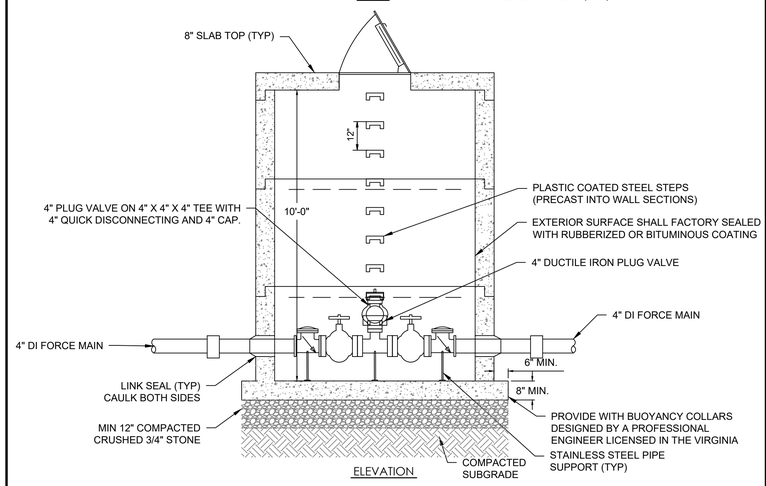


SECTION A-A

B1 IMMERSIBLE MOTOR (FRAME/GUIDE RAIL INSTALLATION)
SCALE: NOT TO SCALE



PLAN



ELEVATION

NOTES:

SEE SPECIFICATION SECTION 11316 FOR PIPE, VALVES, COATING, AND MANHOLE FRAME AND COVER SPECIFICATIONS

J20 FORCE MAIN CLEANOUT AND VALVE VAULT DETAIL
SCALE: NOT TO SCALE

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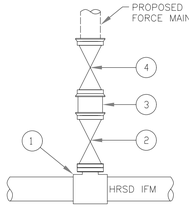
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title
PUMP STATION DETAILS

Drawing No.
C-502



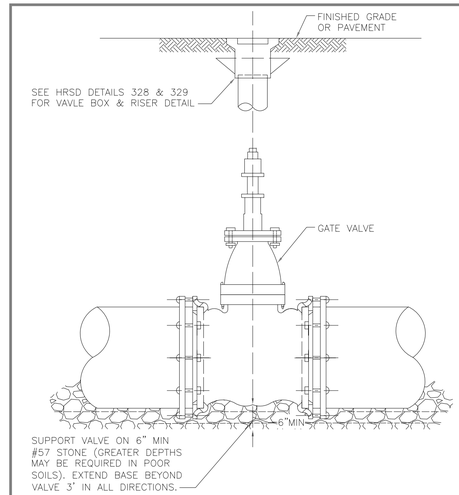
NOTES:

1. TAPPING SADDLE PER HRSD STANDARD DETAILS.
2. TAPPING VALVE (8"MIN.) (FL X MJ). TO BE OWNED BY HRSD.
3. FOSTER ADAPTER OR PE X PE NIPPLE WITH MEGA-LUGS USE OF FOSTER ADAPTORS SHALL BE APPROVED BY HRSD ON A CASE BY CASE BASIS.
4. JURISDICTION VALVE.
   a. JURISDICTION VALVE TO BE SAME SIZE AS HRSD VALVE.
   b. ECCENTRIC REDUCERS TO BE INSTALLED AS NEEDED AFTER JURISDICTION VALVE.
   c. HRSD PIPELINES THAT HAVE CORROSION PROTECTION IN PLACE WILL REQUIRE AN ISOLATION COUPLING. CONTACT THE HRSD ENGINEER FOR DETAILS.

NOT TO SCALE

HRSD	STANDARD DESIGN DETAIL NEW WET TAP WITH NO ADDITIONAL DEVELOPMENT POTENTIAL	DRAWING NO. 303 SHEET 1 OF 1 DATE 7/2025

M2 NEW WET TAP
SCALE: NOT TO SCALE



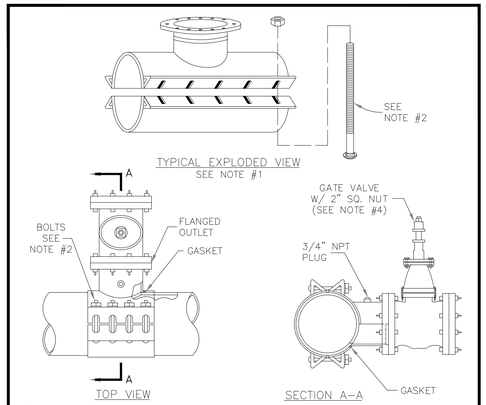
NOTE:

1. SEE SPECIFICATIONS FOR HORIZONTAL OR VERTICAL POSITION AND BYPASS REQUIREMENT.
2. EXTENSION SYSTEMS ARE NOT ACCEPTABLE.
3. INSTALL CRIBBING AS NECESSARY.
4. THIS DETAIL ONLY APPLICABLE FOR VALVES 14" AND SMALLER.
5. MINIMUM VALVE SIZE SHALL BE 8".

NOT TO SCALE

HRSD	STANDARD DESIGN DETAIL VERTICAL GATE VALVE	DRAWING NO. 327 SHEET 1 OF 1 DATE 7/2025

M10 VERTICAL GATE VALVE
SCALE: NOT TO SCALE



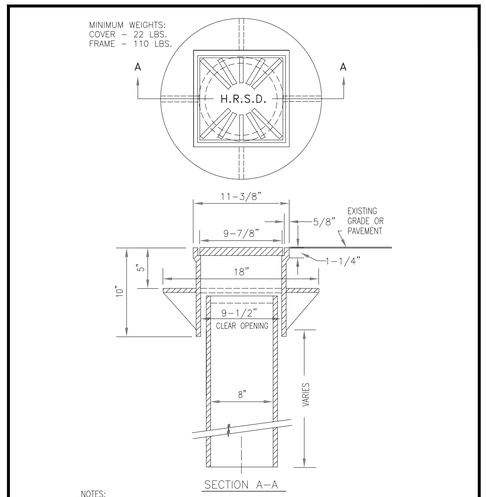
NOTES:

1. FULL BACK SADDLES ONLY, EXCEPT IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATIONS FOR SP-5 AND SP-12 (SEE H.R.S.D. STANDARD DESIGN DETAIL #377 - TAPPING SADDLE FOR CONC. CYLINDER PIPE).
2. THE NUMBER, SPACING, SIZE AND INSTALLATION OF BOLTS SHALL BE IN ACCORDANCE WITH SADDLE MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL SUPPLY TO HAMPTON ROADS SANITATION DISTRICT SYSTEMS ENGINEER THREE (3) CLEAR COPIES OF TAPPING SADDLE MANUFACTURER'S CATALOG CUT AND INSTALLATION INSTRUCTIONS 14 DAYS PRIOR TO INSTALLATION OF SADDLE.
4. GATE VALVE TO BE PROVIDED IN ACCORDANCE WITH SPECIFICATION 02610.
5. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.
6. SADDLE COATING SHALL BE FUSION BONDED EPOXY.
7. TAPPING SADDLE MANUFACTURER SHALL BE SMITH-BLAIR STYLE 622 OR HRSD APPROVED EQUAL.
8. CONTRACTOR TO PERFORM EXPLORATORY EXCAVATIONS ON THE EXISTING FORCE MAIN TO CONFIRM PIPE OUTSIDE DIAMETER AND JOINT LOCATIONS. TAPPING SADDLE TO BE LOCATED A MIN. OF 4' FROM JOINT LOCATION OR AS APPROVED BY ENGINEER

NOT TO SCALE

HRSD	STANDARD DESIGN DETAIL TAPPING SADDLE FOR CAST IRON PIPE, DUCTILE IRON, RC, & PVC PIPE	DRAWING NO. 376 SHEET 1 OF 1 DATE 7/2025

M18 TAPPING SADDLE
SCALE: NOT TO SCALE



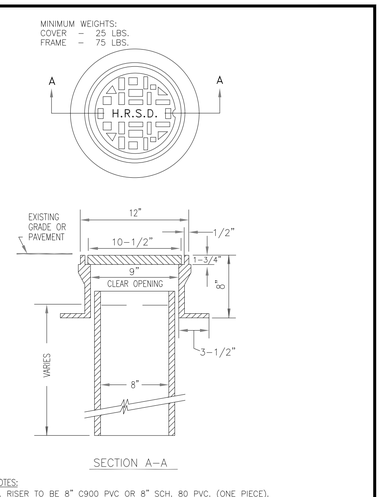
NOTES:

1. RISER TO BE 8" C900 PVC OR 8" SCH. 80 PVC. (ONE PIECE). BELL END PIECE SHALL NOT BE ALLOWED.
2. TOLERANCE TO BE +/-.125" FOR ALL DIMENSIONS.
3. CASTING TO BE SHOT BLASTED.
4. CASTING TO BE ASTM A-48 CLASS 30.
5. JACK UP RINGS NOT ACCEPTABLE.
6. TOP OF RISER PIPE SHALL BE 5" BELOW THE LIP FOR THE CASTING LID.
7. RISER SHALL BE CENTERED ON THE FORCE MAIN AND SHALL BE PLUMB AND STRAIGHT.
8. SEE MASTER SPEC SECTION 01.34 FOR AMERICAN IRON AND STEEL REQUIREMENT.

NOT TO SCALE

HRSD	STANDARD DESIGN DETAIL VALVE BOX & RISER FOR MAINLINE VALVE	DRAWING NO. 328 SHEET 1 OF 1 DATE 7/2025

B2 VALVE BOX AND RISER FOR MAINLINE VALVE
SCALE: NOT TO SCALE



NOTES:

1. RISER TO BE 8" C900 PVC OR 8" SCH. 80 PVC. (ONE PIECE). BELL END PIECE SHALL NOT BE ALLOWED.
2. TOLERANCE TO BE +/-.125" FOR ALL DIMENSIONS.
3. CASTING TO BE SHOT BLASTED.
4. CASTING TO BE ASTM A-48 CLASS 30.
5. JACK UP RINGS NOT ACCEPTABLE.
6. TOP OF RISER PIPE SHALL BE 5" BELOW THE LIP FOR THE CASTING LID.
7. RISER SHALL BE CENTERED ON THE NUT AND SHALL BE PLUMB AND STRAIGHT.
8. SEE MASTER SPEC SECTION 01.340 FOR AMERICAN IRON AND STEEL REQUIREMENT.

NOT TO SCALE

HRSD	STANDARD DESIGN DETAIL VALVE BOX & RISER FOR BYPASS VALVES	DRAWING NO. 329 SHEET 1 OF 1 DATE 7/2025

B10 VALVE BOX AND RISER FOR BYPASS VALVES
SCALE: NOT TO SCALE

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CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN

Title
SANITARY SEWER DETAILS - II

Drawing No.
C-503

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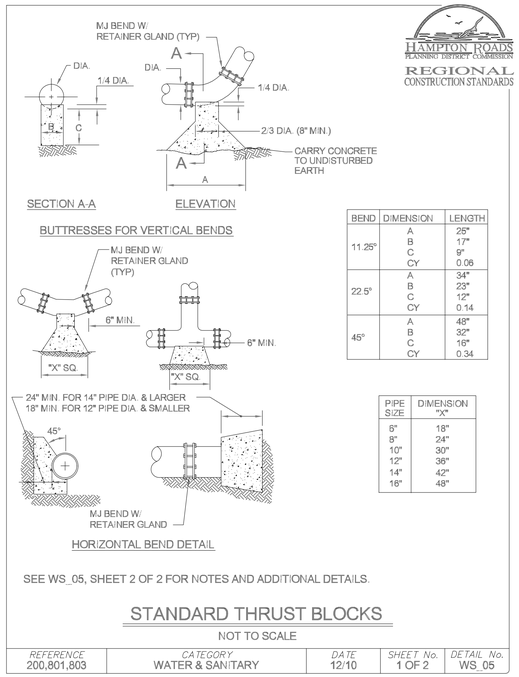
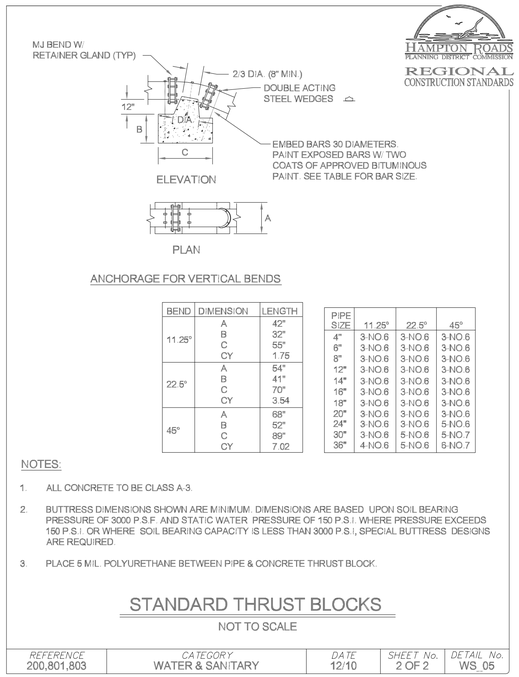


BEND	DIMENSION	LENGTH
11.25°	A	25"
	B	17"
	C	9"
	CY	0.06
22.5°	A	34"
	B	23"
	C	12"
	CY	0.14
45°	A	48"
	B	32"
	C	16"
	CY	0.34

PIPE SIZE	DIMENSION "X"
6"	18"
8"	24"
10"	30"
12"	36"
14"	42"
16"	48"

L2 STANDARD THRUST BLOCKS #1
SCALE: NOT TO SCALE



BEND	DIMENSION	LENGTH
11.25°	A	42"
	B	32"
	C	55"
	CY	1.75
22.5°	A	54"
	B	41"
	C	70"
	CY	3.54
45°	A	68"
	B	52"
	C	89"
	CY	7.02

PIPE SIZE	11.25°	22.5°	45°
4"	3-NO.6	3-NO.6	3-NO.6
6"	3-NO.6	3-NO.6	3-NO.6
8"	3-NO.6	3-NO.6	3-NO.6
12"	3-NO.6	3-NO.6	3-NO.6
14"	3-NO.6	3-NO.6	3-NO.6
16"	3-NO.6	3-NO.6	3-NO.6
18"	3-NO.6	3-NO.6	3-NO.6
20"	3-NO.6	3-NO.6	3-NO.6
24"	3-NO.6	3-NO.6	5-NO.6
30"	3-NO.6	5-NO.6	5-NO.7
36"	4-NO.6	5-NO.6	6-NO.7

B2 STANDARD THRUST BLOCKS #2
SCALE: NOT TO SCALE

ORIGINAL SHEET - ARCH D

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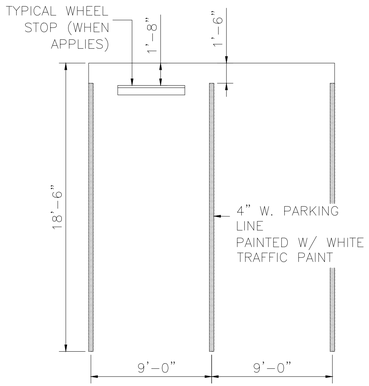
COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
SANITARY SEWER DETAILS - III

Drawing No.
C-504



Q1 TYPICAL REGULAR PARKING DETAIL
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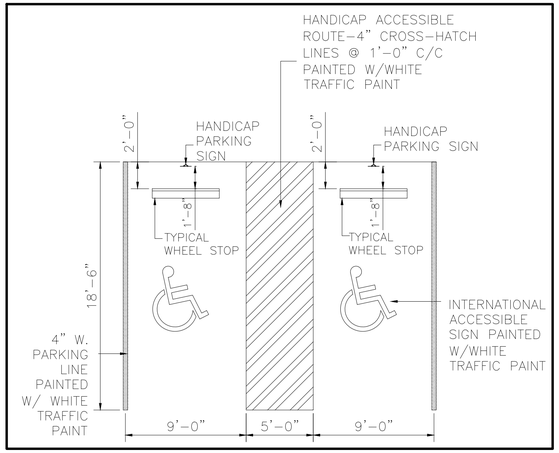

Q9 TYPICAL HANDICAP PARKING DETAIL
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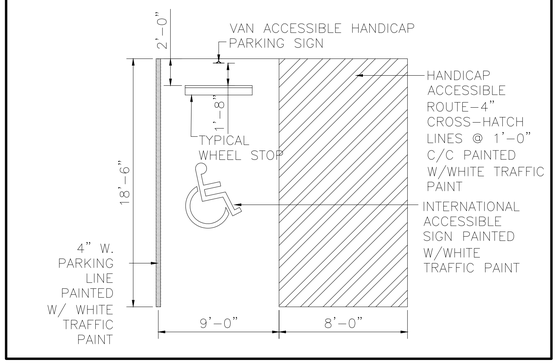

Q17 TYPICAL VAN ACCESSIBLE HANDICAP PARKING DETAIL
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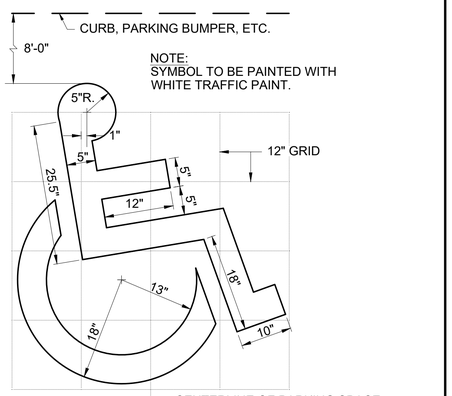

I1 HANDICAP ASPHALT MARKING DETAIL
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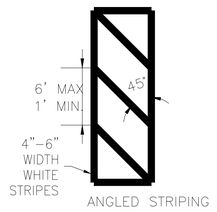

I9 HANDICAP ACCESSIBLE ROUTE DETAIL
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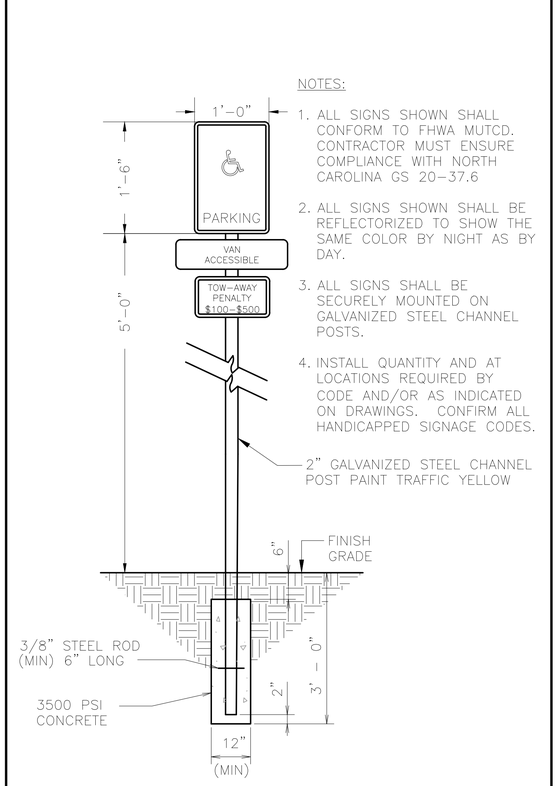

B17 HANDICAP SIGN DETAIL
SCALE: NOT TO SCALE

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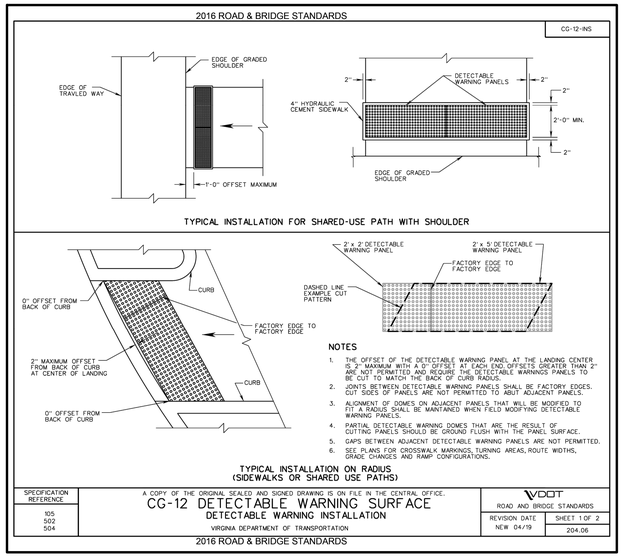
COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
SITE DETAILS - I

Drawing No.
C-505

ORIGINAL SHEET - ARCH D



N1 HANDICAP RAMP DETECTABLE WARNING SURFACE DETAIL
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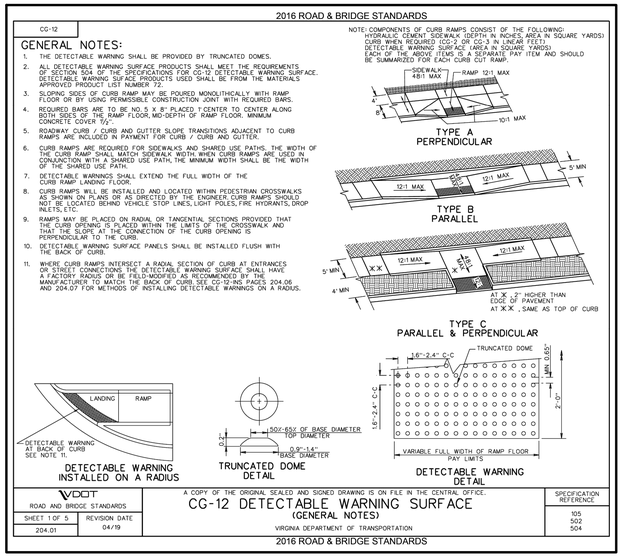

N11 HANDICAP RAMP DETECTABLE WARNING SURFACE & RAMP DETAIL
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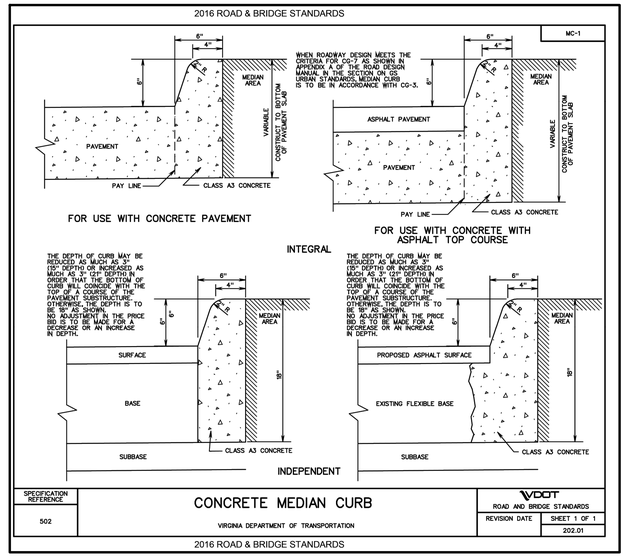

N21 CONCRETE MEDIAN CURB DETAIL
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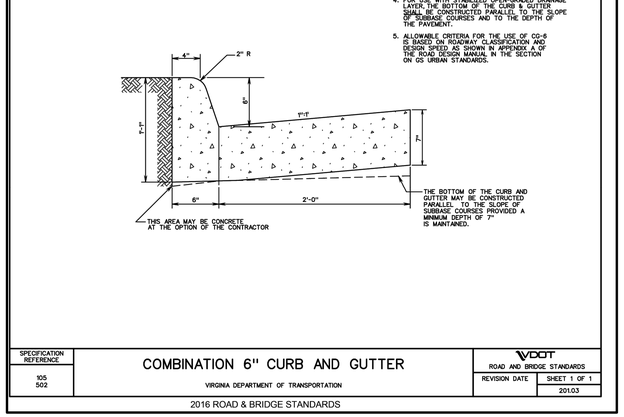
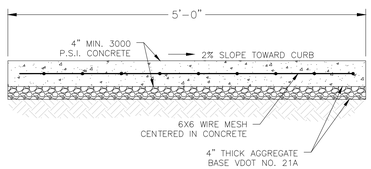


E1 CURB & GUTTER DETAIL
SCALE: NOT TO SCALE



E11 CONCRETE SIDEWALK DETAIL
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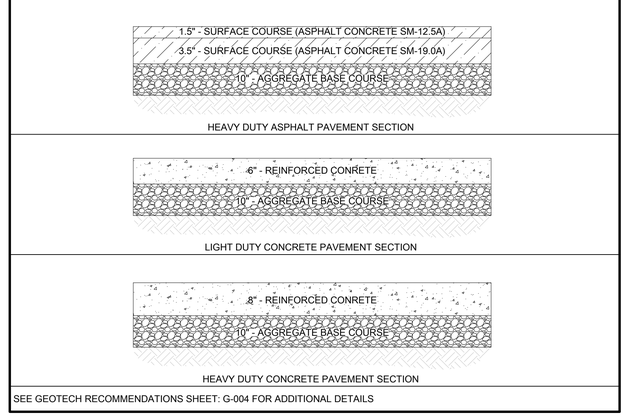

E21 PAVEMENT SECTIONS
SCALE: NOT TO SCALE

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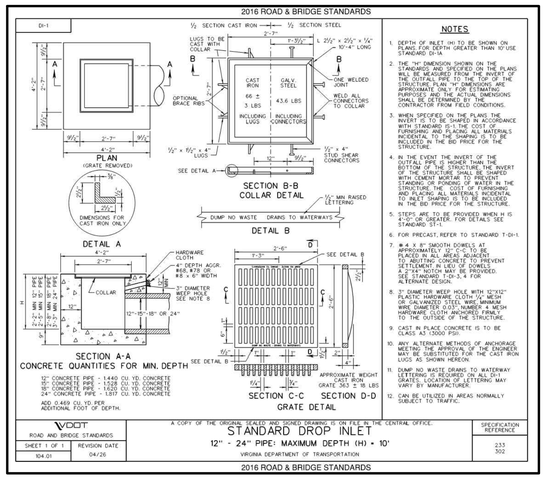
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
SITE DETAILS - II

Drawing No.
C-506

ORIGINAL SHEET - ARCH D



N1 STANDARD DROP INLET DETAIL
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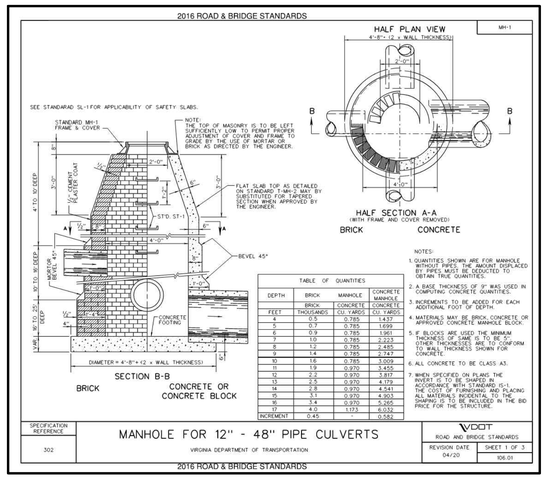
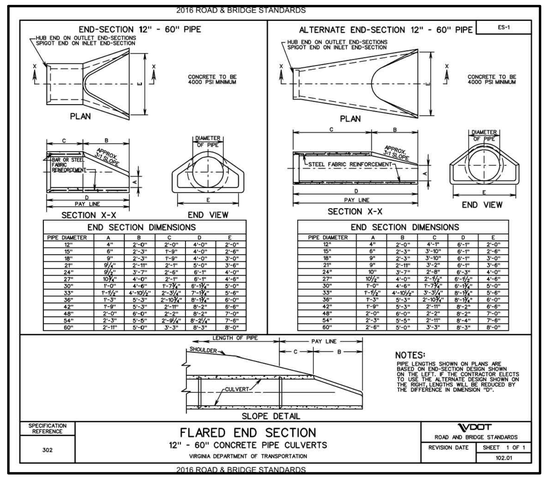


N11 STORM DRAIN MANHOLE DETAIL
SCALE: NOT TO SCALE



N21 CONCRETE MEDIAN CURB DETAIL
SCALE: NOT TO SCALE

JCM INDUSTRIES
P. O. Box 1220, Nash, TX 75569-1220
Phone 800-527-8482 or 903-832-2581
Fax 800-874-9524 or 903-838-6260
www.jcmindustries.com

Typical Specification

JCM 439 All Stainless Steel Tapping Sleeve with Mechanical Joint Outlet

Tapping sleeve shall be fabricated from 304 Stainless Steel or its equivalent with a pass through bolt design and provide 360° seal around the pipe. Sleeve shall be fully passivated to return the stainless steel to its highest corrosion resistance. To provide the proper strength, support and safety factor for the valve, drilling machine operation and load forces, the body construction shall be a minimum of:

Outlet Half (load bearing half):
Sleeve Sizes 0450 through 1392, Outlet sizes 2" - 8" — 12 gauge Stainless Steel
Sleeve Sizes 1075 through 1392, Outlet sizes 10" and 12" — 10 gauge Stainless Steel
Sleeve Sizes 1420 and larger, all outlets — 10 gauge Stainless Steel

Back Half (conforming half): — 14 gauge Stainless Steel

Length:	Outlet Size	Length
	2" - 6"	15"
	8"	21"
	10"	27"
	12"	30"

For proper strength, support and rigidity for the valve, drilling machine operation and load forces, the neck outlet material shall be a minimum of Schedule 10 Stainless Steel pipe sized to accept full size cutter with CF8 Cast stainless steel or equivalent 304 stainless steel mechanical joint outlet. Shall meet the ANSI 21.11/AWWA C111 Standard for Mechanical Joint Dimensions. Outlet shall be furnished with load bearing alignment set pins to prevent movement of the tapping assembly before or during the tapping process.

Lugs shall have a pass-through bolt design, to avoid alignment problems and allow tightening from either side of the pipe. Bolts shall not be integrally welded to the sleeve. Bolting lug shall be triangular design with a maximum of 3° bolt center spacing. Bolting hardware shall be a minimum of 304 Stainless Steel. The bolts shall be track head type and furnished with permanently lubricated heavy-hex nuts and stainless washers.

The full circumferential gasket shall be molded of synthetic rubber compounded for use with water salt solutions, mild acids, bases and sewage. The gasket shall have a gridded surface, be a full 1/4" thick with 304 stainless steel bridge plates molded flush into the gasket and have a raised hydromechanical outlet seal to seal against line surges and water hammer.

Sleeve pressure rating with mechanical joint outlets:
Sleeves 4" – 12" nominal pipe sizes: 250 PSI working pressure, hydrostatic test pressure of 300 PSI.
Sleeves 14" – 24" nominal pipe sizes: 200 PSI working pressure, hydrostatic test pressure of 250 PSI.
Sleeves shall be rated at 150 PSI working pressure with a hydrostatic test pressure of 200 PSI on pipe with a full circumferential break.

Tapping Sleeves shall be JCM 439 or approved equal.

JCM 400 Series Tapping Sleeves are ANSI/NSF Standard 61, Annex G & ANSI/NSF 372 Certified.
JCM 400 Series Tapping Sleeves meet MSS-SP124 and ANSI/AWWA Standard C223 Fabricated Steel and Stainless Steel Tapping Sleeves.

This typical specification, provided by JCM Industries, is a proposed guideline for use by specifying agencies to ensure significant design and material features of this product are included within the agencies' individual specifications.

Effective 09.10.19

B1 TAPPING SLEEVE AND VALVE DETAIL - 1
SCALE: NOT TO SCALE

JCM INDUSTRIES
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Phone 800-527-8482 or 903-832-2581
Fax 800-874-9524 or 903-838-6260
www.jcmindustries.com

Material Specification

JCM 439 All Stainless Steel Tapping Sleeve with Mechanical Joint Outlet

Body: Stainless Steel, 18-8 Type 304

Bolts: Stainless Steel, 18-8 Type 304

Branch Outlet: Schedule 10 Stainless Steel Pipe

Gasket: Full circumferential Virgin Styrene-Butadiene Rubber (SBR) - Compounded for use with water, salt solutions, mild acids and bases. Per ASTM D-2000 M4AA 607. Standard temperature range from -40° to 150°F (-40° to 65°C) constant, maximum intermittent 180° F (82°C). For applications on high temperatures or chemical pipelines, contact JCM Industries Technical Services.

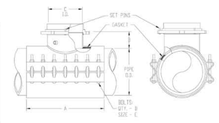
MJ Outlet: CF8 Cast Stainless Steel or 304 Stainless Steel, meets ANSI 21.11/AWWA C111 Standard for Mechanical Joint Dimensions

Option: JCM 469 Stainless Steel Tapping Sleeve with Carbon Steel MJ Outlet

JCM 400 Series Tapping Sleeves are ANSI/NSF Standard 61, Annex G & ANSI/NSF 372 Certified.
JCM 400 Series Tapping Sleeves meet MSS-SP124 and ANSI/AWWA Standard C223 Fabricated Steel and Stainless Steel Tapping Sleeves.

JCM 439 TAPPING SLEEVE DIMENSIONS

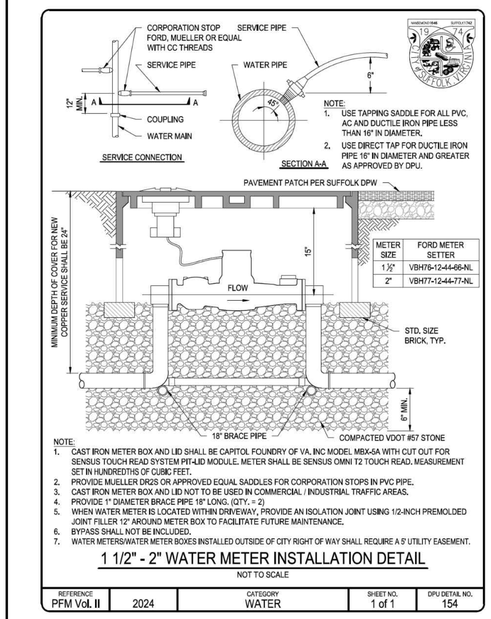
OUTLET SIZE	A	B	C	D	E
3	15	5-1/4	3.32	10	5/8
4	15	5-1/4	4.26	10	5/8
6	15	5-1/4	6.36	10	5/8
8	21	5-1/4	8.33	14	5/8
10	27	5-1/4	10.42	18	5/8
12	30	5-1/4	12.39	20	5/8



This typical specification, provided by JCM Industries, is a proposed guideline for use by specifying agencies to ensure significant design and material features of this product are included within the agencies' individual specifications.

Effective 09.10.19

B11 TAPPING SLEEVE AND VALVE DETAIL - 2
SCALE: NOT TO SCALE



N21 WATER METER DETAIL
SCALE: NOT TO SCALE

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07/10/2026
PROFESSIONAL ENGINEER

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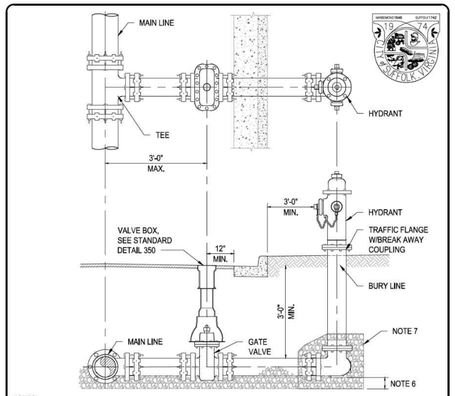
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
UTILITY DETAILS - I

Drawing No.
C-507

ORIGINAL SHEET - ARCH D



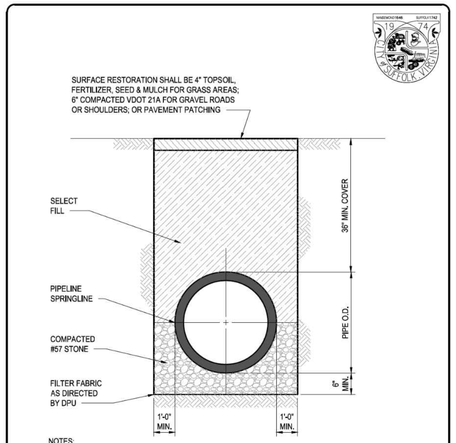
NOTES:
1. ALL HYDRANT CONNECTIONS SHALL BE INSPECTED BY THE DEPARTMENT OF PUBLIC UTILITIES PRIOR TO BACKFILLING.
2. ALL HYDRANT BRANCH LINE PIPE SHALL BE 6-INCH MINIMUM THICKNESS CLASS 50 DUCTILE IRON RESTRAINED JOINT FULL LENGTH UNLESS DESIGN CALCULATIONS DICTATE OTHERWISE AS APPROVED BY DPU.
3. ALL PIPE AND FITTINGS WITHIN 10 FEET OF A MAIN LINE, VALVE OR HYDRANT SHALL BE RESTRAINED MECHANICAL JOINT.
4. PUMPER NOZZLE SHALL FACE ROADWAY UNLESS OTHERWISE SPECIFIED.
5. BRANCH LINE, TEE, GATE VALVE, AND HYDRANT INLET CONNECTION SHALL BE 6-INCH.
6. 6-INCH MIN. COMPACTED VDOT #57 STONE BEDDING UNDER PIPE AND UP TO SPRING LINE.
7. MINIMUM 1 CU. FT. VDOT #57 STONE, WRAP IN FILTER FABRIC.
8. VALVE BOX SHALL NOT BE SET IN CONCRETE GUTTER.
9. HYDRANTS INSTALLED OUTSIDE OF CITY RIGHT OF WAY SHALL REQUIRE A 10'X10' UTILITY EASEMENT.

TYPICAL FIRE HYDRANT CONNECTION (MAIN LINE IN PAVED AREA)

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	WATER	1 of 1	151-2

N1 FIRE HYDRANT DETAIL
SCALE: NOT TO SCALE



NOTES:
1. TRENCH AND PIPE BEDDING SHALL BE IN ACCORDANCE WITH EARTHWORK SPECIFICATIONS.
2. BELL HOLES SHALL BE HAND SHAPED SO THAT ONLY PIPE BARREL RECEIVES BEARING PRESSURE.
3. PLACE BEDDING TO ENSURE THERE ARE NO VOIDS UNDER OR ALONG PIPE.
4. TRENCH SHALL BE CLEAR OF WATER OR DEBRIS PRIOR TO PLACING BEDDING.
5. COORDINATE PAVEMENT PATCHING REQUIREMENTS WITH DEPARTMENT OF PUBLIC WORKS.
6. CERTIFICATION OF COMPACTION SHALL BE SUBMITTED FROM A GEOTECHNICAL ENGINEERING FIRM.

TRENCH AND PIPE BEDDING DETAIL

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	WATER AND SANITARY	1 of 2	354-1

N9 TRENCH AND PIPE BEDDING DETAIL - 1
SCALE: NOT TO SCALE

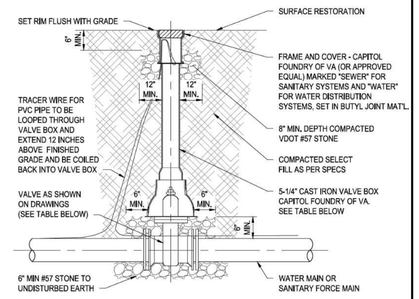
NOTES:
1. BEDDING FOR PIPE AND STRUCTURES AND OVER EXCAVATION FILL DUE TO THE PRESENCE OF UNSUITABLE MATERIAL SHALL BE COMPACTED VDOT NO. 57 STONE.
2. ONLY SELECT FILL MEETING THE REQUIREMENTS OF VDOT SELECT FILL TYPE I, TYPE II OR TYPE III WILL BE ALLOWED TO BE PUT BACK IN THE TRENCH OR USED AS BACKFILL. ON-SITE MATERIAL SHALL NOT BE USED FOR BACKFILL UNLESS IT CAN BE SHOWN TO MEET THE REQUIREMENTS OF SELECT FILL AS DESCRIBED HEREIN AND AS CERTIFIED BY A LICENSED GEOTECHNICAL ENGINEER. IF ON-SITE MATERIAL IS UTILIZED, THE FREQUENCY OF CERTIFICATION SHALL BE AS DIRECTED BY THE CITY.
3. SELECT FILL SHALL BE WITHIN 2% ABOVE OR BELOW THE OPTIMUM MOISTURE CONTENT FOR THE MATERIAL WHILE PLACING AND DURING COMPACTION. AFTER EACH LAYER HAS BEEN PLACED, MIXED AND SPREAD EVENLY, IT SHALL BE THOROUGHLY COMPACTED TO NOT LESS THAN 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 (STANDARD PROCTOR TEST).
4. SELECT FILL MATERIAL PLACED IN UNIMPROVED AREAS 10 FEET AND BEYOND STRUCTURES, ROADWAYS, PIPES OR OTHER IMPROVED AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 (STANDARD PROCTOR TEST).
5. FREQUENCY OF COMPACTION TESTING SHALL BE AS REQUIRED BY THE GEOTECHNICAL ENGINEER AND AS APPROVED BY THE DEPARTMENT.

TRENCH AND PIPE BEDDING NOTES

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	WATER AND SANITARY	2 of 2	354-2

N16 TRENCH AND PIPE BEDDING DETAIL - 2
SCALE: NOT TO SCALE

NOTES:
1. PROVIDE MIDDLE SECTION TO EXTEND FOR DEEP BOXES.
2. ADJUST BOX TOP FOR STREET PAVEMENT OVERLAY, IF OVERLAY IS PERFORMED.
3. VALVES SHALL OPEN TURNING TO THE LEFT.
4. FOR DEEP APPLICATIONS USE PVC PIPE EXTENSION (WITH BELL BELOW VALVE BOX).



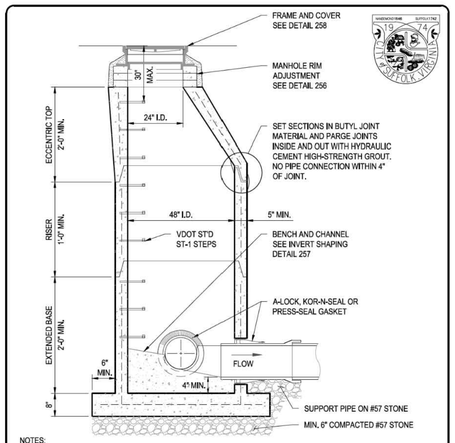
VALVE GUIDE		
APPLICATION	SIZE AND TYPE	
	2" - 12"	> 12"
SANITARY	GATE	GATE
WATER	GATE	BUTTERFLY

VALVE BOX

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	WATER AND SANITARY	1 of 1	350

N24 VALVE BOX DETAIL
SCALE: NOT TO SCALE



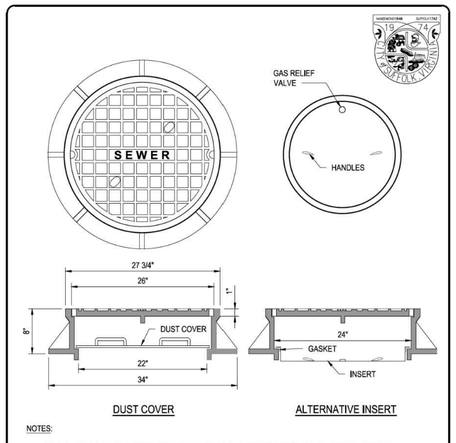
NOTES:
1. MANHOLE AND STEP SPACING TO BE IN COMPLIANCE W/ ASTM C-478.
2. BUTYL JOINT MATERIAL SHALL BE IN COMPLIANCE W/ ASTM C-990.
3. PRECAST LIFT HOLES, IF PROVIDED, SHALL BE PLUGGED W/ HIGH-STRENGTH, NON-SHRINK GROUT TO MAKE WATERTIGHT AFTER INSTALLATION.
4. USE STANDARD 48" MANHOLE FOR DEPTHS UP TO 12.0 FEET AS MEASURED FROM MANHOLE RIM TO INVERT OF LOWEST PIPE.
5. FOR DEPTHS GREATER THAN 12 FEET, OR WHERE PIPE SIZE DICTATES, USE 60" DIAMETER MANHOLE, REFER TO DETAIL 251.
6. MINIMUM 0.10 FOOT DROP FROM INFLUENT INVERTS TO OUT PIPE INVERT.

STANDARD 48" MANHOLE

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	SANITARY	1 of 1	250

B1 SANITARY SEWER MANHOLE DETAIL
SCALE: NOT TO SCALE



DUST COVER ALTERNATIVE INSERT

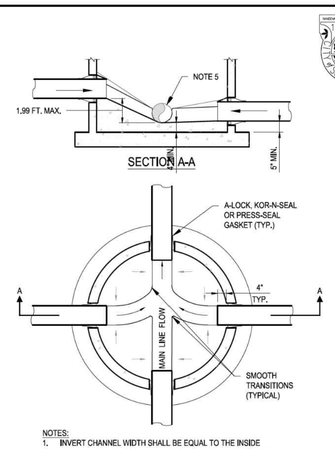
NOTES:
1. FRAME AND COVER BY CAPITOL FOUNDRY MODEL C-21-Y (OR APPROVED EQUAL) MARKED "SEWER"
2. MANHOLE INSERT TO BE PARSON ENVIRONMENTAL STAINLESS STEEL WITH GAS RELIEF VALVE, CLOSED-CELL NEOPRENE GASKET AND (2) PLASTIC COATED STAINLESS STEEL CABLE HANDLES OR APPROVED EQUAL.
3. PROVIDE MANHOLE INSERT AS ALTERNATIVE TO DUST COVER IN ALL LOCATIONS POTENTIALLY SUBJECT TO FLOODING OR AS DIRECTED BY DPU.

STANDARD MANHOLE FRAME AND COVER WITH INSERT

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	SANITARY	1 of 1	258

B9 SANITARY SEWER MANHOLE FRAME AND COVER DETAIL
SCALE: NOT TO SCALE



NOTES:
1. INVERT CHANNEL WIDTH SHALL BE EQUAL TO THE INSIDE DIAMETER OF THE CONTRIBUTING SEWER , DEPTH SHALL BE 3/4 OF THE DIAMETER OF THE CONTRIBUTING SEWER.
2. SLOPE BENCH TOWARDS CHANNEL AT 2" PER FOOT MIN.
3. BENCH AND CHANNEL SHALL BE 3000 PSI CONCRETE OR HIGH-STRENGTH, NON-SHRINK HYDRAULIC CEMENT GROUT.
4. PROVIDE GROUT ABOVE PROTRUDING PIPES IN MANHOLE.
5. MINIMUM 0.10 FOOT DROP FROM INFLUENT INVERTS TO OUT PIPE INVERT.

MANHOLE INVERT SHAPING

NOT TO SCALE

REFERENCE		CATEGORY	SHEET NO.	DPU DETAIL NO.
PFM Vol. II	2024	SANITARY	1 of 1	257

B16 SANITARY SEWER MANHOLE INVERT SHAPING DETAIL
SCALE: NOT TO SCALE

ORIGINAL SHEET - ARCH D

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Project No.: 195151140
Scale: AS SHOWN
Title
UTILITY DETAILS - II

Drawing No.
C-508

SINGLE LINE DIAGRAM SYMBOLOGY

MEDIUM VOLTAGE VACUUM DRAWOUT STARTER

52 — MEDIUM VOLTAGE DRAWOUT BREAKER

THERMAL MAGNETIC CIRCUIT BREAKER
X = LOCATION
LOC
100 — FRAME (AMPS)
20 — TRIP (AMPS)

MCP CIRCUIT BREAKER
LOC — X = LOCATION
100 — CONTINUOUS AMPS
20 — TRIP SETTING BASED ON MOTOR HORSEPOWER

LOW VOLTAGE DRAWOUT CIRCUIT BREAKER
100
20
(L-S-I-G-ARMS)
L LONG TIME
S SHORT TIME
I INSTANTANEOUS
G GROUND FAULT
ARC ARC FLASH REDUCTION MODE

X — COMBINATION NEMA RATED STARTER WITH MCP DISCONNECT AND CONTROL POWER TRANSFORMER
40 MCP — ROMAN NUMERAL = NEMA SIZE
X = LOCATION
* = STARTER TYPE
(BLANK) FULL VOLTAGE NON-REVERSING
FVR FULL VOLTAGE REVERSING
2S2W TWO SPEED TWO WINDING
2S1W TWO SPEED ONE WINDING
*

X — VARIABLE FREQUENCY DRIVE
X = AMPERE RATING

VFD
X — REDUCED VOLTAGE SOLID STATE STARTER
X = AMPERE RATING

RVSS
X / Y — PACKAGED EQUIPMENT
X = EQUIPMENT SIZE
Y = TYPE (KW, KVA, OR HP AS INDICATED)

K — KEY INTERLOCK

E — ELECTRONIC INTERLOCK

GENERATOR
RATINGS AS INDICATED

TRANSFER SWITCH (MANUAL OR AUTOMATIC)
RATINGS AS INDICATED

AS — AMMETER SWITCH

VS — VOLTMETER SWITCH

DUMMY DRAWOUT BREAKER

X — METERING DEVICE
X = METER TYPE
WHM WATT HOUR METER
WM WATT METER
AM AMMETER
VM VOLTMETER
PFM POWER FACTOR METER

480/120 — (3) — POTENTIAL TRANSFORMER
RATIO AND NUMBER OF PT'S AS INDICATED

100/5 — (3) — CURRENT TRANSFORMER
RATIO AND NUMBER OF CT'S AS INDICATED

GROUND FAULT CURRENT TRANSFORMER
RATIO AS INDICATED

5A — FUSE
SIZE AS INDICATED

X — MOTOR
X = HORSEPOWER
* = FULL LOAD AMPS

DELTA-WYE TRANSFORMER WITH SECONDARY KVA SIZE AND VOLTAGE RATIO AS INDICATED

X AMPS
Y SECONDS
51G — DELTA-WYE TRANSFORMER WITH RESISTANCE GROUNDED SECONDARY AND GROUND FAULT RELAYING
X = GROUNDING RESISTOR AMPS
Y = GROUNDING RESISTOR SECONDS

FUSED CONTROL POWER TRANSFORMER

MOV — ELECTRICAL MOTOR OPERATED VALVE, WITH INTEGRAL REVERSING STARTER

30A — DISCONNECT SWITCH
SIZE AS INDICATED

30A / 30A — FUSED DISCONNECT SWITCH
SIZE AS INDICATED

CAPACITOR

SPD — SURGE PROTECTIVE DEVICE

SSM — SOLID STATE METERING DEVICE

SSMP — SOLID STATE MOTOR PROTECTIVE DEVICE

PFC — POWER FACTOR CORRECTION

LIGHTNING ARRESTOR AND SURGE CAPACITOR

* (#) — ANSI RELAY DEVICE
(#) = QUANTITY
* = ANSI DEVICE

25	SYNCHRONISM CHECK RELAY
27	UNDERVOLTAGE
27/47	UNDERVOLTAGE, PHASE SEQUENCE, UNBALANCED VOLTAGE
32	DIRECTIONAL POWER RELAY
38	GENERATOR BEARING TEMP
40	EXCITATION FAILURE
41	FIELD CONTACTOR
43	SELECTOR SWITCH
46	CURRENT UNBALANCE
47	PHASE SEQUENCE VOLTAGE
49	HIGH OIL TEMPERATURE
50/51	INSTANTANEOUS AND TIME OVERCURRENT
50/51N	INSTANTANEOUS AND TIME RESIDUALLY CONNECTED GROUND OVERCURRENT
51G	GROUND FAULT
53	EXCITATION LOW VOLTAGE
59N	NEUTRAL OVER VOLTAGE
60	VOLTAGE BALANCE
62	TIME DELAY
63	SUDDEN PRESSURE
64	GROUND INDICATION
67	AC DIRECTIONAL CURRENT RELAY
71L	LOW OIL LEVEL
78	FREQUENCY CHANGE
81	FREQUENCY RELAY (O=OVER, U=UNDER)
83	CONTROL POWER TRANSFORMER
86	LOCKOUT
87G	GENERATOR DIFFERENTIAL
87TL	TRANSFORMER DIFFERENTIAL
87M	MOTOR DIFFERENTIAL

PLAN SYMBOLOGY

RECEPTACLES

X-# — 120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R (WALL MOUNT)
X = PANELBOARD DESIGNATION
# = CIRCUIT DESIGNATION
* = TYPE
WP WEATHERPROOF
XP EXPLOSION PROOF
GFCI GROUND FAULT CIRCUIT INTERRUPTER

120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R (FLOOR MOUNT)

X — SINGLE SPECIAL PURPOSE RECEPTACLE, 240V 1 PHASE
X = AMPERAGE

X — WELDING RECEPTACLE
X = AMPERAGE

X — SPECIAL PURPOSE RECEPTACLE, 480 VAC
X = AMPERAGE

TELEPHONE OUTLET - FLOOR TYPE

TELEPHONE OUTLET - WALL TYPE

COMPUTER/DATA OUTLET - FLOOR TYPE

COMPUTER/DATA OUTLET - WALL TYPE

CONDUIT AND RACEWAY SYMBOLOGY

EXPOSED OR CONCEALED CONDUIT

CONDUIT RUN (UNDERGROUND OR IN CONCRETE)

CONDUIT RUN (CHANGE IN ELEVATION)

CONDUIT TURNING UP

CONDUIT TURNING DOWN

CONDUIT FROM FLOOR ABOVE TO FLOOR BELOW

CONDUIT CAPPED, OR SEALED

HOMERUN TO EQUIPMENT INDICATED (3/4 " CONDUIT, 2 #12, 1 #12 GND UNLESS INDICATED OTHERWISE)

X — RACEWAY BOX
X = BOX TYPE
MH MANHOLE
HH HANDHOLE
PB PULLBOX

J — JUNCTION BOX OR FITTING

MISCELLANEOUS ELECTRICAL SYMBOLOGY

POWER PANEL

DISCONNECT SWITCH

M — MOTOR

T — THERMOSTAT

HORN

COMBINATION STARTER

LIGHTING SYMBOLOGY

X-#a — PENDANT OR CEILING MOUNT LUMINAIRE
X = LIGHTING PANEL DESIGNATION
# = CIRCUIT NUMBER
a = SWITCH DESIGNATION

PENDANT OR CEILING MOUNT LUMINAIRE - UNSWITCHED (NIGHT LIGHT)

WALL MOUNTED LUMINAIRE

POLE, BRACKET, ARM, AND STREETLIGHT

PENDANT MOUNTED STRIP LUMINAIRE

PENDANT MOUNTED STRIP LUMINAIRE - UNSWITCHED

2'x4' LAY-IN TYPE RECESSED LUMINAIRE

2'x4' LAY-IN TYPE RECESSED LUMINAIRE - UNSWITCHED

2'x2' LAY-IN TYPE RECESSED LUMINAIRE

2'x2' LAY-IN TYPE RECESSED LUMINAIRE - UNSWITCHED

RECESSED DOWN LIGHT

EMERGENCY LUMINAIRE
BATTERY OPERATED

EXIT LIGHT, SHOWN WITH TWO ILLUMINATED SIDES, ARROWS INDICATE DIRECTION OF EXIT

A / * — LUMINAIRE CALLOUT
A = LUMINAIRE TYPE
* = APPROXIMATE MOUNTING HEIGHT AFF
CLG= CEILING MOUNT
(SEE LUMINAIRE SCHEDULE FOR MORE DETAILS)

$ X-#a / * — LIGHT SWITCH
X = LIGHTING PANEL DESIGNATION
# = CIRCUIT DESIGNATION
a = SWITCH DESIGNATION
* = SWITCH TYPE
3 3-WAY
4 4-WAY
D DIMMER
OD OCCUPANCY SENSOR / DIMMER
M MANUAL MOTOR STARTER

LIGHTING PANEL

GROUNDING SYMBOLOGY

GROUND ROD AND GROUND WELL

GROUND ROD (3/4" X 10'-0")

GROUND CONNECTION - BOLTED TYPE

GROUND CONNECTION - EXOTHERMIC TYPE

BARE COPPER GROUND TO GROUND WIRE IN SLAB, OR UNDERGROUND GROUND GRID, SIZE AS NOTED

EARTH GROUNDING

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

Scale: AS SHOWN

Title
ELECTRICAL SYMBOLS ABD ABBREVIATIONS-1

Drawing No.
E-001

ELECTRICAL ABBREVIATIONS

A	AMPERE, AUTOMATIC
AC	ALTERNATING CURRENT
AF	CIRCUIT BREAKER FRAME SIZE
AM	AMMETER
ANN	ANNUNCIATOR
AS	ADJUSTABLE SPEED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BC	BARE COPPER
BCL	BLOCK CLOSE
BKR	BREAKER
C	CONDUIT, CLOSED
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CLOSE COIL
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
COM	COMMON
COMM	COMMUNICATIONS
COMP	COMPARTMENT
CONT	CONTRACTOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY, CARD READER
CT	CURRENT TRANSFORMER
CTRL	CONTROL
DCS	DISTRIBUTED CONTROL SYSTEM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
E	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
F	FREQUENCY, FUSE, FIXED
FDR	FEEDER
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FM	FREQUENCY METER
FO	FIBER OPTIC
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
H	HAND
HD	HEAT DETECTOR
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HPS	HIGH PRESSURE SODIUM
HRA	HIGH RESISTANCE GROUND
HS	HAND SWITCH
HZ	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
INCAND	INCANDESCENT
IND	INDICATION
INF	INFINITY(CONTINUOUS)
INST	INSTANTANEOUS
I/O	INPUT/OUTPUT
Isc	SHORT CIRCUIT CURRENT, AMPS
ISO	ISOLATION
J,JB	JUNCTION BOX
KA	KILO AMPERES
KAIC	KILO AMP INTERRUPTING CURRENT
KCMIL	KILO CIRCULAR MILS
KVA	KILOVOLT AMPERE
L	LOCAL
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LOC	LOCAL
LOR	LOCAL-OFF-REMOTE
LOS	LOCKOUT STOP PUSHBUTTON
LP	LIGHTING PANEL
LRA	LOCKED ROTOR AMPS
LS	LEVEL SWITCH
LTG	LIGHTING
LTS	LIGHTS
M	MOTOR CONTACTOR COIL
Ma	MILLIAMPERE
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFG	MANUFACTURER STANDARD
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
NEUT	NEUTRAL
NP	NAMEPLATE
O	OPEN, OFF
OCR	OVER CURRENT RELAY
OL	OVERLOAD
PA	PUBLIC ADDRESS
PB	PUSHBUTTON, PULLBOX
PC	PHOTOCELL
PCM	PROCESS CONTROL MODULE
PF	POWER FACTOR
PFM	POWER FACTOR METER
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PNLBD	PANELBOARD
PP	POWER PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PTZ	PAN-TILT-ZOOM
PWR	POWER
R	REMOTE
RECPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SIG	SIGNAL
SP	SPARE
SP HTR	SPACE HEATER
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SSM	SOLID STATE METER
SSMP	SOLID STATE MOTOR PROTECTOR
ST, SH	SHUNT TRIP
STR	STARTER
SSTU	SOLID STATE TRIP UNIT
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TACH	TACHOMETER
TB	TERMINAL BOX
TC	TRIP COIL
TERM	TERMINAL
TM	REPEAT CYCLE TIMER
TD	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
USS	UNIT SUBSTATION
UVR	UNDER VOLTAGE RELEASE
V	VOLTAGE, VOLTS
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VCP	VENDOR CONTROL PANEL
VFD	VARIABLE FREQUENCY DRIVE
VFI	VACUUM FAULT INTERUPTER
VM	VOLTMETER
VP	VAPOR PROOF
VRCA	VALVE REGULATED LEAD ACID
W	WATTS, WIRE
WM	WATT METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION PROOF

GENERAL ELECTRICAL NOTES

1. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, APPLICABLE LOCAL CODES AND THE MASSACHUSETTS ELECTRICAL CODE.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST APPROVED SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
3. REFER TO SPECIFICATIONS FOR REQUIREMENTS RELATED TO FLEXIBLE CONDUIT INSTALLATION.
4. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. CONDUIT STUB-UPS SHALL NOT BE MORE THAN 6 INCHES FROM THE CENTERLINE OF TERMINAL BOXES.
6. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND THE ENGINEER SHALL APPROVE PROPOSED CHANGES BEFORE THEY ARE MADE.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4 INCH (MINIMUM) AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. LOCATION OF PULLBOXES ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH MECHANICAL PIPING AND SHALL BE 6 INCHES (MINIMUM) AWAY FROM MECHANICAL PIPING FLOW LINES.
9. ONLY MAJOR PULLBOXES ARE SHOWN. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
10. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DWGS.
12. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE CENTERLINE OF THE TOP CIRCUIT BREAKER OPERATING HANDLE IN THE UPPERMOST POSITION TO THE FINISHED FLOOR SHALL NOT EXCEED 6'-7".
13. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
14. CONNECTIONS BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOXES OR SIMILAR EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT.
15. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO MOTORS AND OTHER EQUIPMENT.
16. ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL.
17. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS. SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVERS.
18. PVC COATED RGS CONDUIT AND FITTINGS SHALL BE USED FOR CONDUIT ABOVE FINISHED GRADE.

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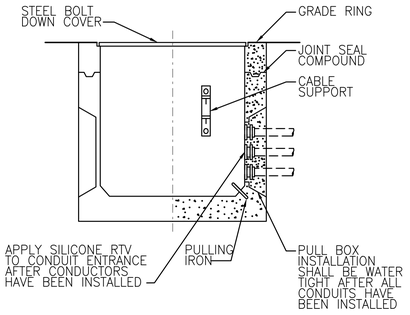
Project No.: 195151140

Scale: AS SHOWN

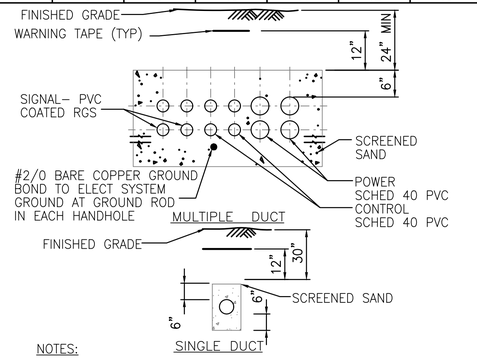
Title
ELECTRICAL SYMBOLS AND ABBREVIATIONS - II

Drawing No.
E-002

ORIGINAL SHEET - ARCH D

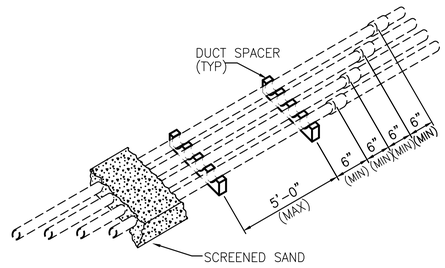


E-1 PRE-CAST PULLBOX

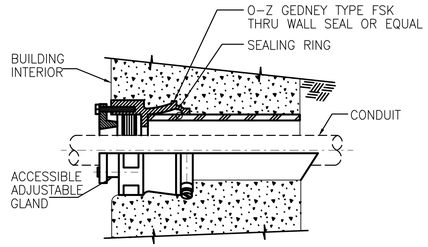


NOTES:
1. DIRECT BURIAL SHALL BE COORDINATED WITH CIVIL CONTRACTOR PRIOR TO COMMENCEMENT OF WORK.
2. SEE SITE PLAN FOR NUMBER AND ARRANGEMENT OF DUCTS.

E-2 TYPICAL DUCTBANK

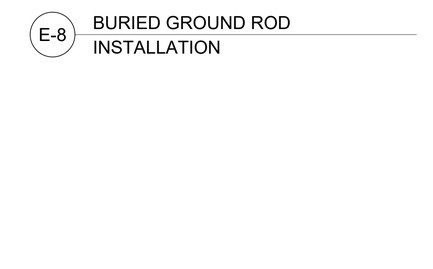


E-3 TYPICAL DUCTBANK
JOINT/SUPPORT SPACING



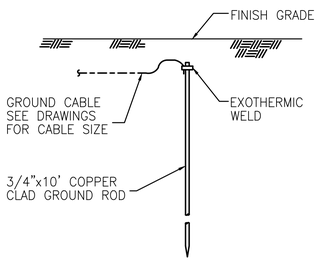
NOTE:
USE WATERTIGHT CONDUIT SEAL WHERE CONDUIT PENTRATIONS OF EXTERIOR WALLS ARE BELOW GRADE.

E-4 WATERTIGHT CONDUIT SEAL
BELOW GRADE EXTERIOR WALLS



E-6 RISER FROM NON-METALLIC DUCT

E-7 ENCLOSURE MOUNTING STAND



E-8 BURIED GROUND ROD INSTALLATION

ELECTRICAL EQUIPMENT LAYOUT DETAIL
NOT TO SCALE

ORIGINAL SHEET - ARCH D

ELECTRICAL SYMBOLS AND ABBREVIATIONS – II

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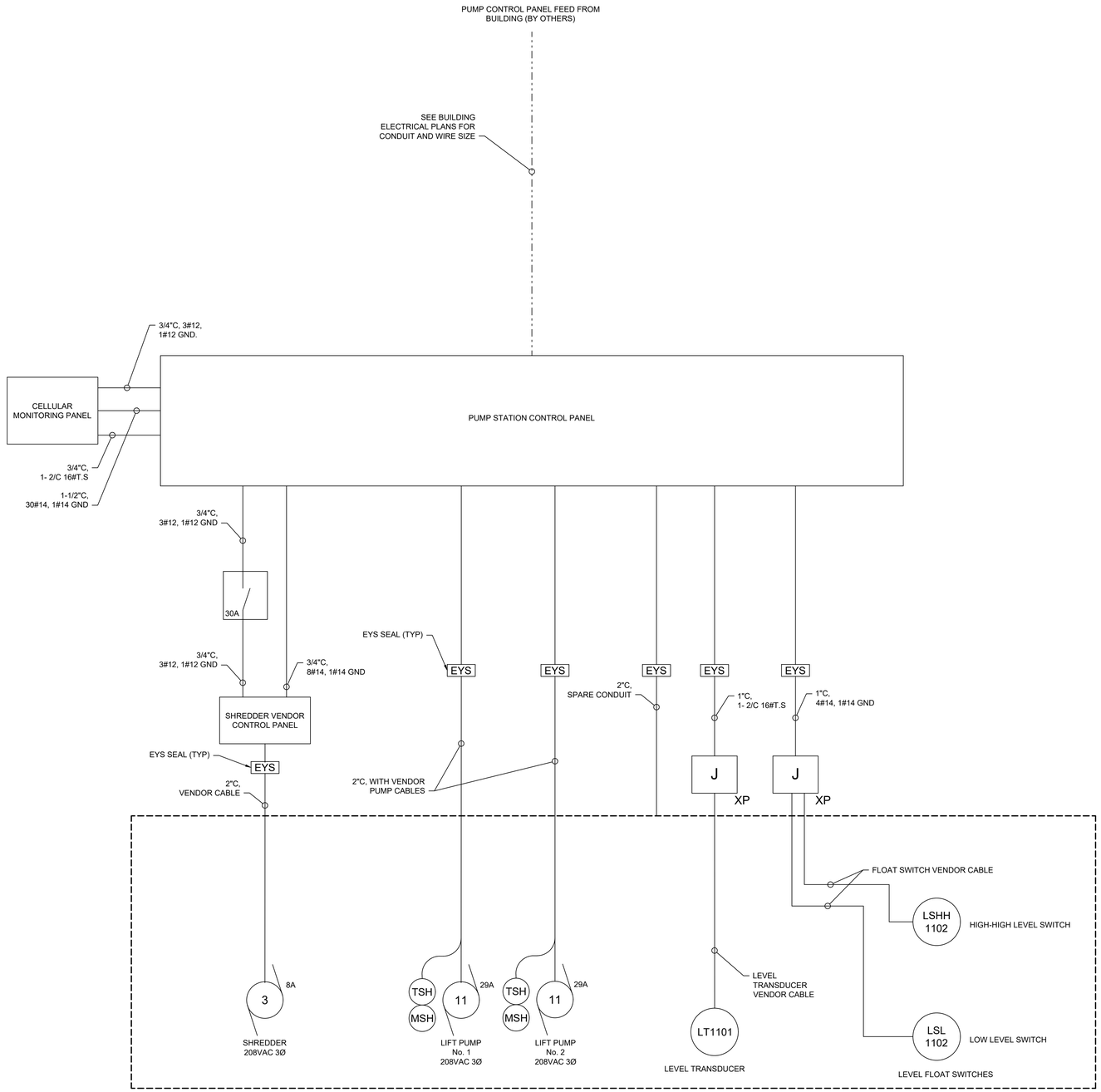
Project No.: 195151140

Scale: AS SHOWN

Title
ELECTRICAL DETAILS

Drawing No.
E-501



ELECTRICAL SYSTEM WIRING DIAGRAM

BENNETTS CREEK PUMPING STATION

NOT TO SCALE

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

Scale: AS SHOWN

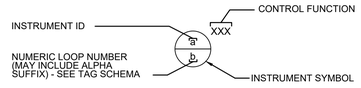
Title

ELECTRICAL RISER DIAGRAM

Drawing No.

E-601

INSTRUMENTATION CALL - OUT



INSTRUMENT SYMBOLS

XXX a b — FIELD MOUNTED INSTRUMENT

XXX a b — FRONT OF PANEL INSTRUMENT

XXX a b — INSTRUMENT MOUNTED WITHIN PANEL

XXX XXX — SINGLE INSTRUMENT WITH MULTIPLE FUNCTIONS

I — GENERIC SOFTWARE INTERLOCK / CONTROL LOGIC (NORMALLY ACCESSIBLE TO OPERATOR) *

DATA ROUTING ARROW

1 — ON-PAGE LOGIC LINK REFERENCE

a — INSTRUMENT IDENTIFICATION / TAG NUMBER (SEE MODIFIED ISA TABLE FOR MORE INFO)

b — INSTRUMENT LOOP NUMBER

XXX — CONTROL FUNCTION

XXX a b — FIELD MOUNTED SHARED DISPLAY/CONTROL

XXX a b — CONTROL SYSTEM SHARED DISPLAY/CONTROL (ACCESSIBLE VIA OI / HMI)

XXX a b — CONTROL SYSTEM SHARED DISPLAY/CONTROL (ACCESSIBLE FROM WITHIN PANEL)

I — RELAY INTERLOCK LOGIC

I — GENERIC SOFTWARE INTERLOCK / CONTROL LOGIC (OPERATOR INACCESSIBLE) *

CR — CONTROL RELAY

LSA — LIGHTNING SURGE ARRESTOR

XXXV — PRIMARY ELECTRICAL POWER (e.g. 24VDC, 120VAC, 220VAC, 480VAC)

NOTE: IF INSTRUMENT POWER NOT INDICATED, REFER TO INSTRUMENT SCHEDULE FOR CONFIRMATION.

* REFER TO SPEC SECTION 409300 (PROJECT CONTROL PHILOSOPHY) FOR DETAILS.

PLC / REMOTE I/O POINTS

ANALOG INPUT — DISCRETE INPUT — DATA SIGNAL ANALOG INPUT * — DATA SIGNAL DISCRETE INPUT *

ANALOG OUTPUT — DISCRETE OUTPUT — DATA SIGNAL ANALOG OUTPUT * — DATA SIGNAL DISCRET OUTPUT *

* FIELD NETWORK INTERFACE. SEE SPECIFICATION FOR MORE INFORMATION

COMPUTING OR CONVERTING FUNCTIONS

COMPUTING

SUMMING	DERIVATIVE	EXPONENTIAL
MULTIPLYING	AVERAGING	BIAS
DIVIDING	RATIO	HIGH LIMITING
SQ ROOT EXTRACTION	DIFFERENCE	LOW LIMITING
PROPORTIONAL	HIGH SELECTING	LINEARIZER
INTEGRAL	LOW SELECTING	

CONVERTING

E	VOLTAGE
I	CURRENT
P	PNEUMATIC
R	RESISTANCE (ELECT)
D	DIGITAL
A	ANALOG
B	BINARY
H	HYDRAULIC

CONTROL FUNCTION DESIGNATIONS

AHC	AUTO / HOLD / CLOSE	HOA	HAND / OFF / AUTO
AM	AUTO / MANUAL	HOR	HAND / OFF / REMOTE
AS	AIR SUPPLY	LEAK	MOISTURE INTRUSION
BEAR	BEARING	LOR	LOCAL / OFF / REMOTE
CLSD	CLOSED	L/R	LOCAL / REMOTE
CV	CONTROL VARIABLE	LSR	LOCAL / STOP / REMOTE
DEV	DEVIATION	MOA	MANUAL / OFF / AUTO
E-STOP	EMERGENCY STOP	MN	MAINTENANCE / NORMAL
ETM	ELAPSED TIME METER	O/C	OPEN / CLOSE
FOR	FORWARD /OFF /REVERSE	OCA	OPEN / CLOSE / AUTO
HML	HIGH / MID / LOW	OL	OVERLOAD
OLH	OFF / LOW / HIGH	RST	RESET
O/O	ON / OFF	SD	SHUTDOWN
O/R	OVERRIDE	SEL	SELECT
OOR	OUT OF RANGE	SP	SET POINT
OSC	OPEN / STOP / CLOSE	S/R	START / RESET
PID	PROPORTIONAL / INTEGRAL / DERIVATIVE	S/S	START / STOP
POT	POTENTIOMETER	STR	START
PV	PROCESS VARIABLE	STP	STOP
RDY	READY	TMR	TIMER
R/L	RAISE / LOWER	WIND	WINDING
RSL	RAISE / STOP / LOWER		

NOTE:

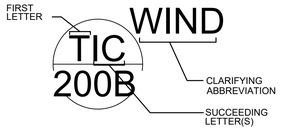
1. REFER TO DRAWING I-002 FOR ANALYTICAL INSTRUMENT DESIGNATIONS.

ISA TABLE (MODIFIED)

	FIRST LETTER		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FORWARD
G			GAUGE, GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		REVERSE
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	INTRUSION	X AXIS			
Y	EVENT, STATE, OR PRESENCE	Y AXIS		COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

TAG SCHEMA

TYPICAL INSTRUMENT & CONTROL VALVE TAGGING



TIC-200B - - INSTRUMENT SCHEDULE (FULL TAG)
TIC-200B - - P&ID (PARTIAL TAG)
TIC – – – – INSTRUMENT / VALVE ID
200– – TAG NUMBER
B - - SUFFIX

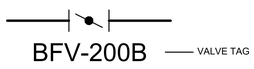
TYPICAL EQUIPMENT TAG FORMAT

P-200B

P-200B - - EQUIPMENT SCHEDULE (FULL TAG)
P – – – – EQUIPMENT ID
200– – TAG NUMBER
B - - SUFFIX

NOTE: REFER TO GENERAL SHEET I-002 FOR STANDARD EQUIPMENT CALLOUTS.

TYPICAL VALVE TAG / SPEC FORMAT



TYPICAL INSTRUMENT & CONTROL VALVE TAGGING

TIC-200B - - INSTRUMENT SCHEDULE (FULL TAG)
TIC-200B - - P&ID (PARTIAL TAG)
TIC – – – – INSTRUMENT / VALVE ID
200– – TAG NUMBER
B - - SUFFIX

TYPICAL EQUIPMENT TAG FORMAT

P-200B - - EQUIPMENT SCHEDULE (FULL TAG)
P – – – – EQUIPMENT ID
200– – TAG NUMBER
B - - SUFFIX

NOTE: REFER TO GENERAL SHEET I-002 FOR STANDARD EQUIPMENT CALLOUTS.

TYPICAL MANUAL VALVE TAG FORMAT

V-200B – MANUAL VALVE SCHEDULE (FULL TAG)
BFV– – – – VALVE
200– – TAG NUMBER
B - - SUFFIX

NOTE: REFER TO GENERAL SHEET I-002 FOR STANDARD VALVE CALLOUTS.

SHEET NUMBER TAG FORMAT

I-001 - - - SHEET SCHEDULE (FULL TAG)
I - - - - - DISCIPLINE CODE
001 – – SHEET NUMBER

GENERAL INSTRUMENTATION NOTES

1. THE SYMBOLS AND NOMENCLATURE SHEETS ARE REPRESENTATIVE OF A GENERALSTANDARD. THEREFORE, IT SHOULD BE UNDERSTOOD THAT NOT ALL INFORMATIONPRESENTED WILL BE RELEVANT TO THIS PROJECT.
2. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED ASREQUIRED. SYMBOLS AND NOMENCLATURE WILL BE EITHER BASED ON ISA STANDARD 5.1-INSTRUMENTATION SYMBOLS AND IDENTIFICATION OR DEFINED ELSEWHERE IN THE P&ID SET.
3. SEE ELECTRICAL AND PROJECT GENERAL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
4. TO CAPTURE THE COMPLETE PROCESS CONTROL INTENT, THE P&IDS MUST TO BE REVIEWED IN CONJUNCTION WITH THE PROJECT CONTROL PHILOSOPHY AND OTHER SECTIONS REFERENCED HEREIN.

INSTRUMENTATION LINE SYMBOLOGY

NEW WORK (UNSCREENED)

EXISTING (SCREENED)

EXISTING TO BE DEMOLISHED

FUTURE EQUIPMENT (DASH)

VENDOR SKID LIMIT

INSTRUMENT LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)

DATA LINK OR SYSTEM BUS BETWEEN DEVICES

ELECTRIC (PULSE SIGNAL)

ELECTRICAL SIGNAL

ULTRASONIC SIGNAL

PROCESS

COMMUNICATION LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)

UTP (CAT 5e OR CAT 6 AS NOTED)

MODBUS (RS485)

VENDOR SIGNAL CABLE

SIGNAL AND PROCESS OFF-PAGE CONNECTORS

PROCESS OR LOGIC CONNECTION TO DRAWING I-002 — I-002 (A)

PROCESS OR LOGIC CONNECTION FROM DRAWING I-002 — I-002 (A)

PROCESS OR LOGIC CONNECTION TO/FROM DRAWING I-002 — I-002 (A)

PROCESS OR LOGIC CONNECTION CONTINUES TO UNREPRESENTED DRAWING

NOTE: REFER TO INSTRUMENTATION LINE SYMBOLOGY FOR PROCESS AND LOGIC LINESTYLE DEFINITION.

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Project No.: 195151140
Scale: AS SHOWN
Title

INSTRUMENTATION SYMBOLS AND ABBREVIATIONS - I

Drawing No.
I-001

ORIGINAL SHEET - ARCH D

EQUIPMENT ABBREVIATIONS

AIR HANDLING UNIT	AHU
AIR RELEASE VALVE	ARV
BACK FLOW PREVENTER	BFP
BACK PRESSURE SUSTAINING VALVE	BPV
BEACON	BCN
CHECK VALVE	CV
EXHAUST FAN	EF
FILTER (GENERAL)	F
HEATER	HTR
HIGH SERVICE PUMP	HSP
LOUVER	LOU
MECHANICAL EQUIPMENT (GENERAL)	ME
MOTOR OPERATOR VALVE	MOV
PNEUMATIC OPERATOR VALVE	POV
PRESSURE REDUCING VALVE	PRV
PRESSURE SAFETY VALVE	PSV
PUMP (GENERAL)	P
SLIDE GATE	SG
SOLENOID OPERATOR VALVE	SOV
TANK	TK
VALVE (MANUAL)	V

CONTROL EQUIPMENT ABBREVIATIONS

ATMOSPHERE	ATM
AUTO TRANSFER CONTROLLER	ATC
CONTACT TIME	CT
CONTROL PANEL	CP
DISTRIBUTED CONTROL SYSTEM	DCS
DIRECT ONLINE STARTER	DOL
FAIL CLOSED	FC
FIBER OPTIC CABLE	FOC
FIBER OPTIC TRANSCEIVER	FOT
FULL VOLTAGE NON-REVERSING STARTER	FVNR
HUMAN MACHINE INTERFACE	HMI
LOCKED CLOSED	LC
LOCAL CONTROL PANEL	LCP
LOCAL CONTROL STATION	LCS
LOCKED OPEN	LO
LIGHTNING SURGE ARRESTOR	LSA
MOTOR CONTROL CENTER	MCC
MAIN CONTROL PANEL	MCP
MULTIMODE FIBER	MMF
MOTOR STARTER	MS
MOTOR	MTR
NOT APPLICABLE	N/A
NORMALLY CLOSED	NC
NOT IN CONTRACT	NIC
NORMALLY OPEN	NO
OPERATOR INTERFACE	OI
OPERATOR INTERFACE TERMINAL	OIT
PERSONAL COMPUTER	PC
PROGRAMMABLE LOGIC CONTROLLER	PLC
PLANT CONTROL NETWORK	PCN
POWER DISTRIBUTION UNIT	PDU
REMOTE I/O	RIO
REDUCED VOLTAGE SOLID-STATE STARTER	RVSS
REMOTE TERMINAL UNIT	RTU
SINGLE MODE FIBER	SMF
SOLID STATE METER	SSM
SHIELDED TWISTED PAIR	STP
THERMOCOUPLE	TC
UNINTERRUPTABLE POWER SUPPLY	UPS
UNSHIELDED TWISTED PAIR	UTP
VENDOR CONTROL PANEL	VCP
VARIABLE FREQUENCY DRIVE	VFD
VARIABLE SPEED DRIVE	VSD

VALVE ABBREVIATIONS

AIR RELEASE VALVE	ARV
GATE VALVE	GV
BALL VALVE	BV
BUTTERFLY VALVE	BFV
CHECK VALVE	CKV
PLUG VALVE	PV
SPECIALITY VALVES	XV

VALVES

- AIR VACUUM, AIR RELEASE, OR COMBINATION AIR VACUUM AND AIR RELEASE ASSEMBLY
- BALL VALVE
- CHECK VALVE
- GATE VALVE
- PINCH VALVE
- PLUG VALVE

PIPING ACCESSORIES

- ATMOSPHERIC VENT
- BLIND FLANGE
- CAP - BREATHER
- CAP - SCREW / THREADED
- CAP - WELDED
- CAP - QUICK DISCONNECT
- DIAPHRAGM SEAL
- DRAIN
- FLANGED
- PIPE MATERIAL CHANGE
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC

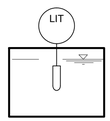
PUMPS & COMPRESSORS

- SUBMERSIBLE PUMP

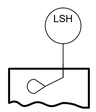
MISCELLANEOUS

- M — MOTOR SYMBOL
- WATER LEVEL

LEVEL INSTRUMENTS

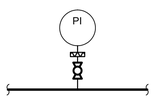


LEVEL TRANSMITTER
HYDROSTATIC TYPE

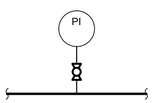


LEVEL DETECTION SWITCH
FLOAT ACTUATED TYPE

PRESSURE OR VACUUM INSTRUMENTS



PRESSURE GAUGE WITH
DIAPHRAGM SEAL



PRESSURE INDICATOR
DIRECT - CONNECTED

ORIGINAL SHEET - ARCH D

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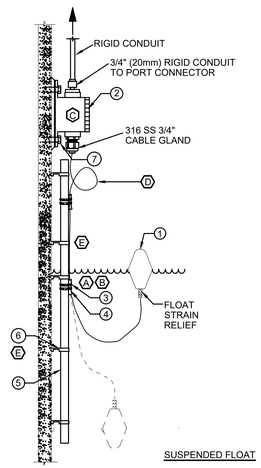
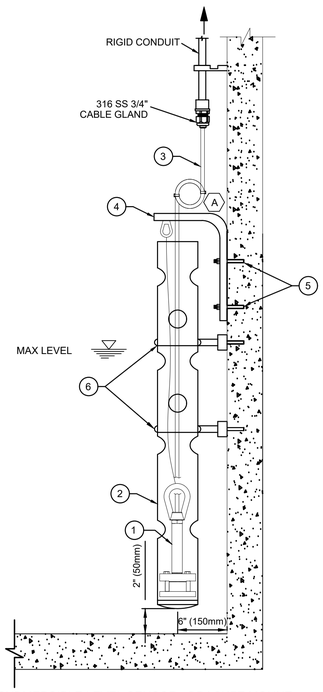
INSTRUMENTATION SYMBOLS AND ABBREVIATIONS - II

Drawing No.

I-002



SUSPENDED FLOAT



SUBMERSIBLE LEVEL SENSOR - BRACKET MOUNT

GENERAL NOTES:

1. PROVIDE MECHANICAL SUPPORT AND FITTINGS FOR ROUTED CONDUIT.
2. SWITCHES SHALL BE MOUNTED AND ORIENTED IN ACCORDANCE WITH THE MANUFACTURER REQUIREMENTS.
3. INSTALLATION OF ANY FLANGED UNITS SHALL BE CARRIED OUT IN COOPERATION WITH THE
4. PIPING AND/ OR TANK SUPPLIER CONTRACTOR.
5. WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
6. USE PVC COATED SS TIE-WRAPS TO NEATLY COIL AND SECURE ANY EXCESS FLOAT CABLING AS SHOWN.
7. JUNCTION BOX SHALL BE MOUNTED ABOVE THE NORMAL WATER OPERATING LEVELS

KEYNOTES:

A. POSITION THE ADJUSTABLE STRAIN RELIEF ON THE CABLE TO ALLOW ONE HALF THE DISTANCE OF THE DIFFERENTIAL BAND BETWEEN THE END OF THE ADJUSTABLE STRAIN RELIEF AND THE END OF THE STRAIN RELIEF ON THE FLOAT.

B. FOR SUSPENDED FLOAT, PROVIDE CABLE TIE AT MIDPOINT AND TOP OF ADJUSTABLE STRAIN RELIEF AS SHOWN, PLUS ONE CABLE TIE FOR EVERY 12" (300mm) OF CABLE LENGTH.

C. TERMINAL JUNCTION BOX SHALL BE WALL OR FLOOR MOUNTED IN EASILY ACCESSED LOCATION WITHIN 30 FEET (10 METERS) OF INSTRUMENT INSTALLATION. FOR FLOOR MOUNT PROVIDE 1/2" (15mm) THICK GROUTING. FOR WALL MOUNT, LOCATE APPROXIMATELY 36" (1 METER) ABOVE GRADE. IF AREA INSTRUMENT JUNCTION BOX IS WITHIN 33 FEET (10 METERS) OF INSTRUMENT INSTALLATION, TERMINAL BOX WILL NOT BE REQUIRED AND INSTRUMENT CABLE MUST BE ROUTED WITHOUT SPLICE OF ANY KIND. IN HAZARDOUS AREAS THE TERMINAL BOX SHALL BE LOCATED OUTSIDE OF THE AREA AND CONDUIT SEALING SHALL BE INLINE WITH NEC REQUIREMENTS.

D. MAINTENANCE LOOP SHALL INCLUDE 3 FEET (1 METER) LENGTH OF CABLE SECURED WITH PVC-COATED SS TIE WRAPS, BEND RADIUS NO LESS THAN 8" (200mm).

E. PROVIDE MOUNTING BRACKET SUPPORT FOR EVERY 3FT (1M) OF PIPE LENGTH.

BILL OF MATERIALS				
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)
1	1	SUSPENDED BALL FLOAT SWITCH WITH INTEGRAL CABLE	MANF	PVC
2	AR	LOCKABLE SCREW LID TERMINAL JUNCTION BOX WITH DIN-RAIL MOUNTED TERMINAL BLOCK (MIN DIMENSIONS: 2" (53mm) (h) X 4" (110mm) (Ø))	MANF	NEMA 4X / GRP
3	AR	CABLE TIES	CONT	PVC COATED 316 SS
4	1	ADJUSTABLE STRAIN RELIEF	MANF	NEOPRENE
5	1	FLOAT SUPPORT PIPE	CONT	PVC (SCH 80)
6	AR	MOUNTING BRACKET WITH 5/8" (16mm) SS ANCHOR BOLTS (E)	CONT	316 SS
7	AR	SS BOLTS / ANCHORS	CONT	316 SS

I-1 FLOAT LEVEL DETECTION SWITCH

NOT TO SCALE

GENERAL NOTES:

1. POTENTIALLY WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
2. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.
3. SENSOR CABLE SPLICE OF ANY KIND SHALL NOT BE ACCEPTABLE.
4. CONTRACTOR SHALL VERIFY SUITABILITY OF STILLING WELL PERFORATION DENSITY AND SIZING WITH LEVEL SENSOR MANUFACTURER PRIOR TO FINAL ENGINEER APPROVAL FOR INSTALLATION.
5. USE PVC COATED SS TIE-WRAPS TO NEATLY COIL AND SECURE ANY EXCESS SENSOR CABLING AS SHOWN.

KEYNOTES:

A. MAINTENANCE LOOP SHALL INCLUDE 3FT (1 M) LENGTH OF CABLE SECURED WITH PVC-COATED SS TIE WRAPS, BEND RADIUS NO LESS THAN 8" (200mm).

B. PROVIDE MOUNTING BRACKET SUPPORT FOR EVERY 3FT (1M) OF PIPE LENGTH.

BILL OF MATERIALS				
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)
1	1	SUBMERSIBLE PRESSURE SENSOR	MANF	PER VENDOR
2	1	PERFORATED 4"(DN100) SCH 80 PVC PIPE STILLING WELL	CONT	PVC
3	AR	INTEGRAL UV-RESISTANT SENSOR SIGNAL CABLE	MANF	PER VENDOR
4	1	WALL-MOUNT ANGLE BRACKET	MANF	316 SS
5	AR	ANCHOR BOLTS AND MOUNTING HARDWARE	MANF	316 SS
6	AR	U-BOLTS AND MOUNTING BRACKET HARDWARE (B)	CONT	316 SS

I-2 SUBMERSIBLE (HYDROSTATIC) LEVEL TRANSMITTER

NOT TO SCALE

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Notes

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File Name: 195151140_I-501.dwg

Dwn.	Chkd.	Dsgn.	MM.DD.YY
PKR		PKR	06.06.26

Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

INSTRUMENTATION INSTALLATION DETAILS - I

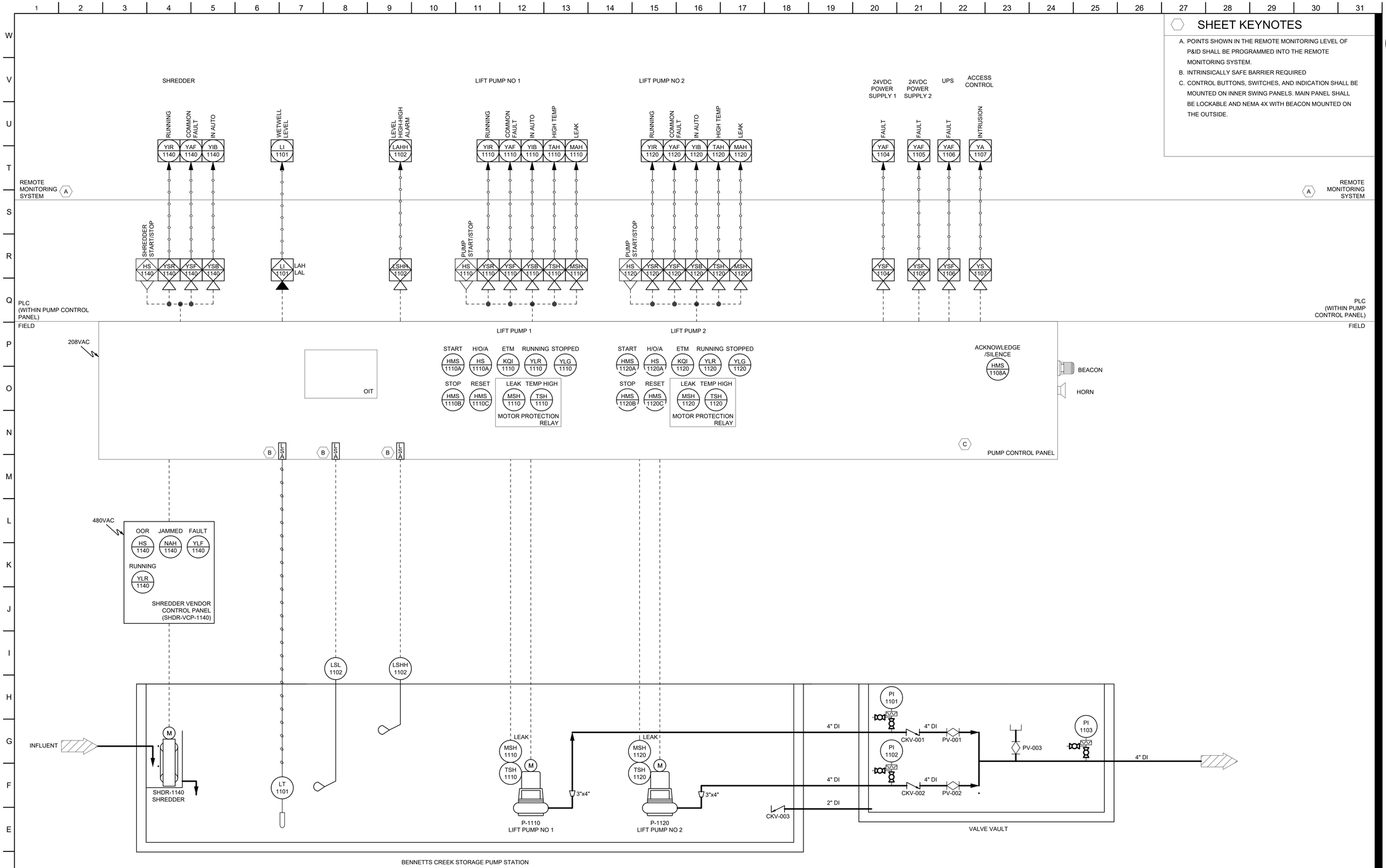
Drawing No.

I-501

ORIGINAL SHEET - ARCH D

SHEET KEYNOTES

A. POINTS SHOWN IN THE REMOTE MONITORING LEVEL OF P&ID SHALL BE PROGRAMMED INTO THE REMOTE MONITORING SYSTEM.
B. INTRINSICALLY SAFE BARRIER REQUIRED
C. CONTROL BUTTONS, SWITCHES, AND INDICATION SHALL BE MOUNTED ON INNER SWING PANELS. MAIN PANEL SHALL BE LOCKABLE AND NEMA 4X WITH BEACON MOUNTED ON THE OUTSIDE.



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COMMONWEALTH OF VIRGINIA
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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

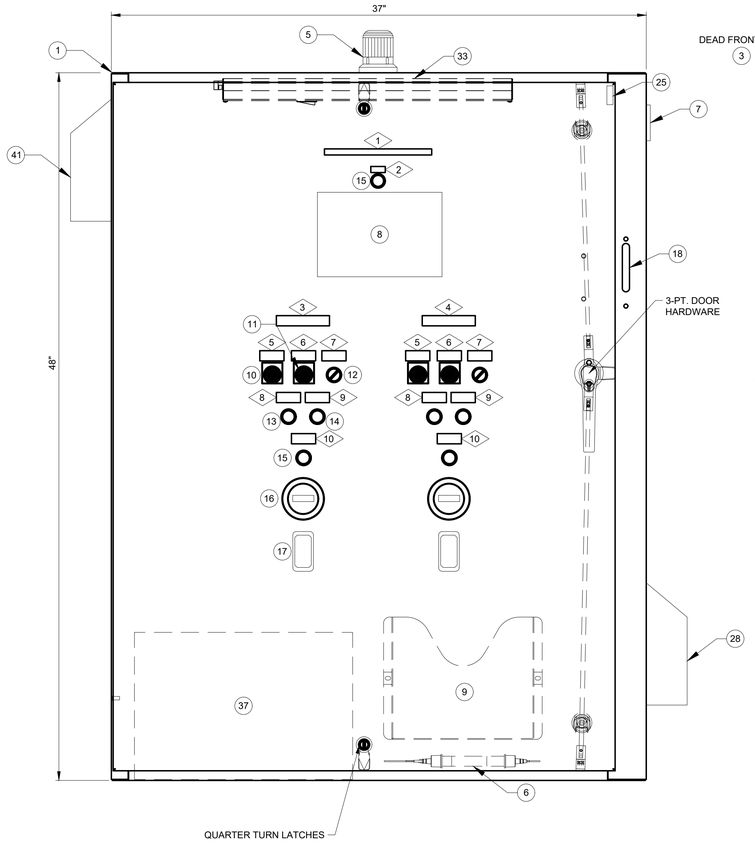
Title

INSTRUMENTATION PUMP STATION - P&ID

Drawing No.

I-601

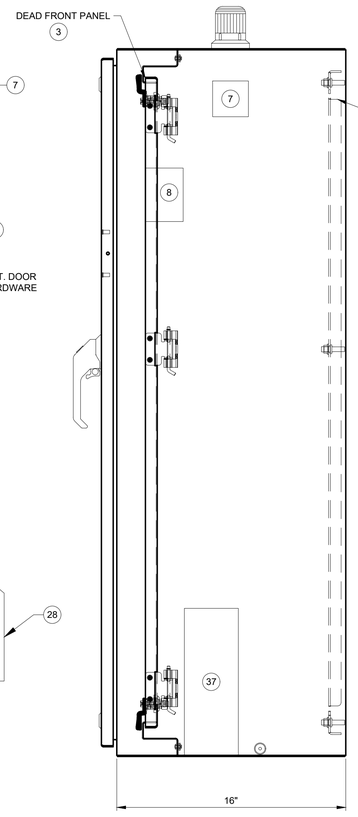
ORIGINAL SHEET - ARCH D



PUMP CONTROL PANEL

FRONT VIEW

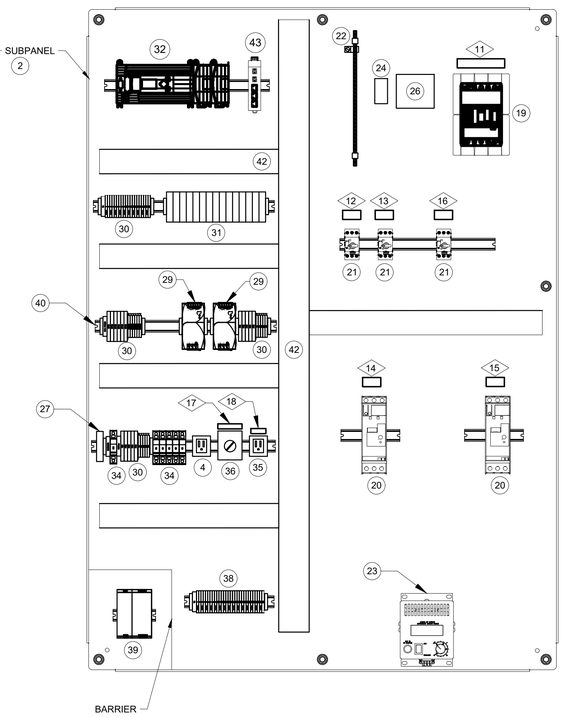
NOT TO SCALE



PUMP CONTROL PANEL

SIDE VIEW

NOT TO SCALE



PUMP CONTROL PANEL

INTERNAL VIEW

NOT TO SCALE

GENERAL SHEET NOTES

1. THIS LAYOUT IS TYPICAL - PANEL SHALL BE SIZED TO ACCOMMODATE ALL I/O.
2. COMPONENT MANUFACTURERS AND MODEL NUMBERS SPECIFIED IN 40 95 13 - CONTROL PANELS.
3. ALL PUSHBUTTONS, LIGHTS, SWITCHES, PUMP CONTROLLER, ELAPSED TIME METER, PUMP PROTECTION RELAY AND NAMEPLATES ARE LOCATED ON INTERNAL SWING DEAD FRONT PANEL.
4. PROVIDE PER NEC AND MEC REQUIRED ARC FLASH AND HIGH VOLTAGE LABELS. PROVIDED NAMEPLATE PER UL508A STANDARDS INCLUDING PANEL SHORT CIRCUIT RATING.

BILL OF MATERIALS

ITEM NO	QTY	DESCRIPTION
1	1	ENCLOSURE, NEMA 4 TYPE, 316SS
2	1	SUBPANEL
3	1	DEADFRONT PANEL
4	1	GFCI RECEPTACLE
5	1	BEACON
6	1	LEVEL SENSOR DESICCANT FILTER
7	1	HORN
8	1	OPERATOR INTERFACE TERMINAL
9	1	DOCUMENT HOLDER
10	2	PUSH TO TEST PILOT LIGHT - RED
11	2	PUSH TO TEST PILOT LIGHT - GREEN
12	2	HOA SWITCH
13	2	PUSHBUTTON - GREEN
14	2	PUSH BUTTON - RED
15	3	PUSH BUTTON - BLACK
16	2	ELAPSED TIME METER
17	2	PUMP PROTECTION RELAY
18	1	DISCONNECT SWITCH HANDLE
19	1	DISCONNECT SWITCH
20	2	PUMP RVSS
21	4	MOLDED CASE CIRCUIT BREAKER
22	1	EARTH BAR
23	1	HEATER
24	1	THERMOSTAT
25	1	DOOR SWITCH
26	1	480VAC SURGE SUPPRESSOR
27	1	120VAC SURGE SUPPRESSOR
28	1	VENT WITH FAN
29	2	24VDC POWER SUPPLY
30	AR	FUSED TERMINAL BLOCKS
31	AR	RELAYS
32	1	PLC CONTROLLER
33	1	LED LIGHT FIXTURE
34	AR	MINIATURE CIRCUIT BREAKER
35	1	UPS RECEPTACLE
36	1	UPS BYPASS SWITCH
37	1	UPS
38	AR	TERMINAL BLOCKS
39	2	INTRINSICALLY SAFE BARRIER / LIGHTNING BARRIER
40	AR	DIN RAIL
41	1	VENT
42	AR	WIRING DUCT
43	1	UNMANAGED ETHERNET SWITCH

NAMEPLATE SCHEDULE

ITEM	EQUIPMENT DESCRIPTOR
1	PUMP STATION CONTROL PANEL
2	ACKNOWLEDGE / SILENCE PUSHBUTTON
3	LIFT PUMP NO 1
4	LIFT PUMP NO 2
5	RUNNING LIGHT
6	STOPPED LIGHT
7	HOA SWITCH
8	START PUSHBUTTON
9	STOP PUSHBUTTON
10	FAULT RESET PUSHBUTTON
11	MAIN BREAKER
12	LIFT PUMP 1 CIRCUIT BREAKER
13	LIFT PUMP 2 CIRCUIT BREAKER
14	LIFT PUMP 1 RVSS
15	LIFT PUMP 2 RVSS
16	SHREDDER CONTROL PANEL CIRCUIT BREAKER
17	UPS BYPASS SWITCH
18	UPS ONLY

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Notes

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Permit/Seal

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MATTHEW B. HOGAN
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07/10/2026
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Client/Project
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BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

INSTRUMENTATION CONTROL PANEL LAYOUT

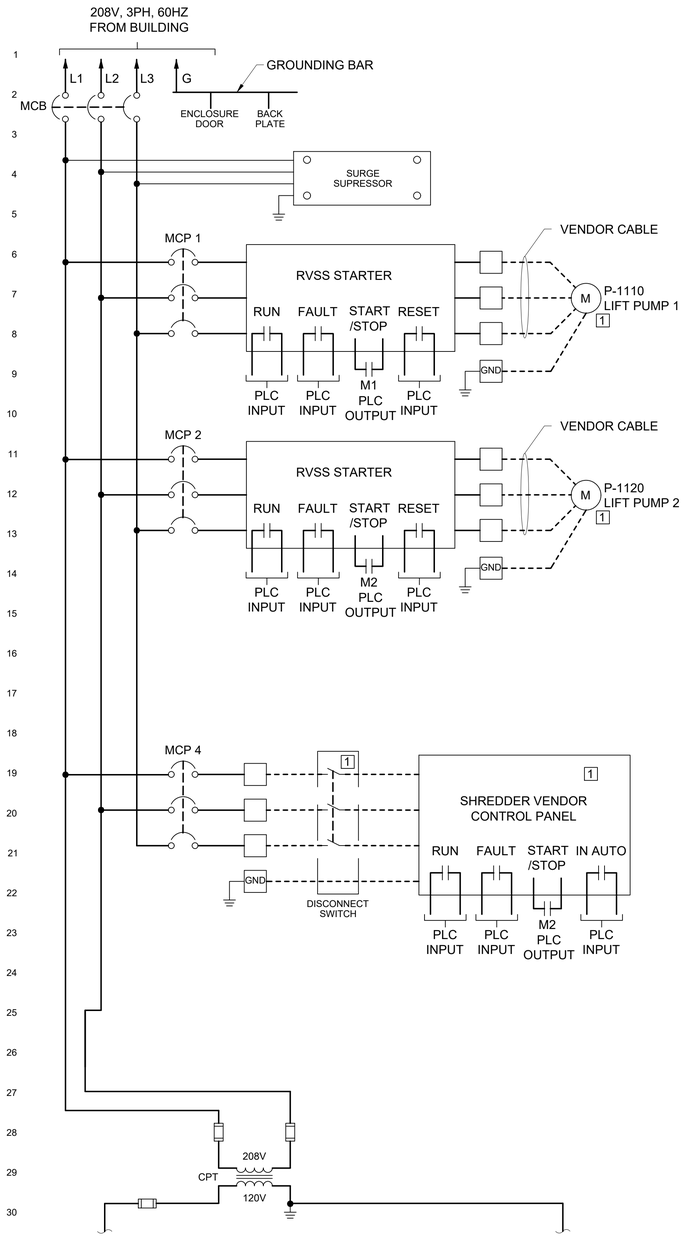
Drawing No.

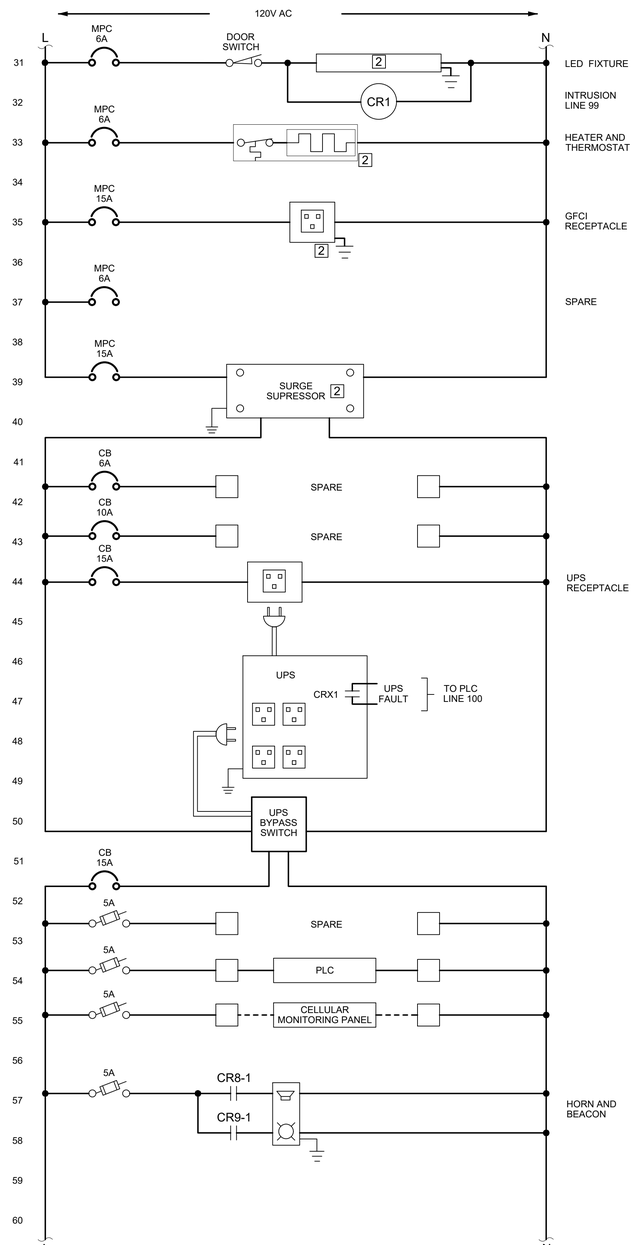
I-701

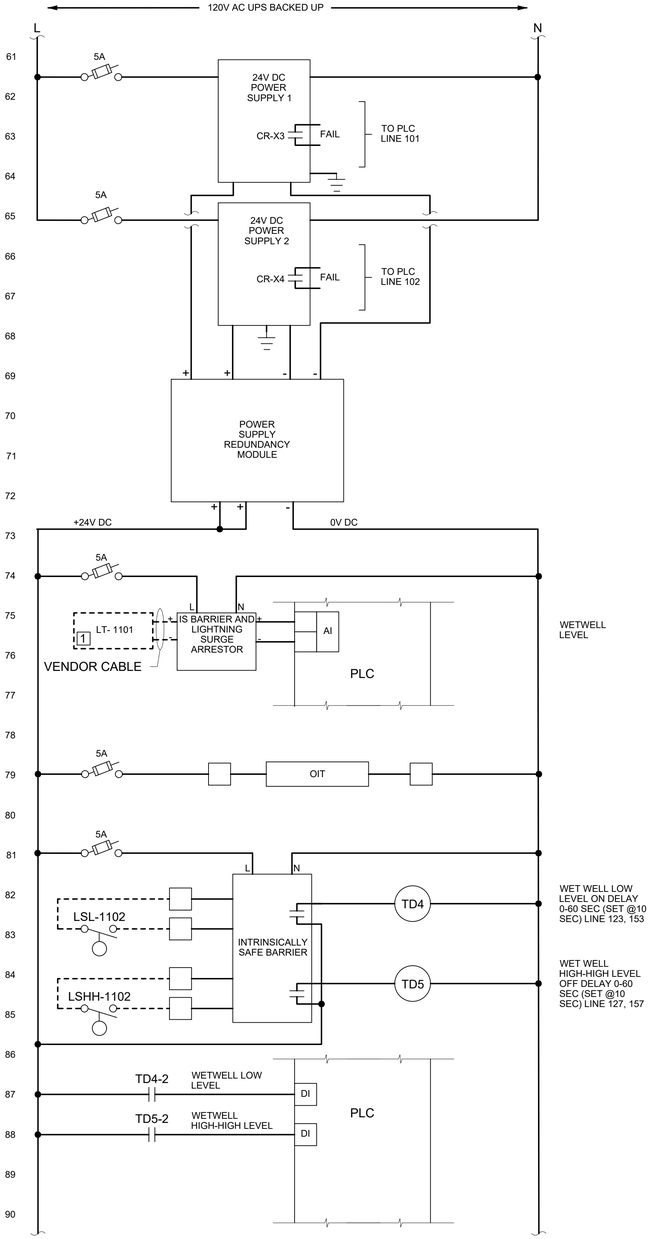
ORIGINAL SHEET - ARCH D

GENERAL SHEET NOTES

1. ALL COMPONENTS LOCATED WITHIN THE CONTROL PANEL UNLESS OTHERWISE NOTED.







LOCATION LEGEND

1 FIELD

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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

INSTRUMENTATION CONTROL PANEL SCHEMATIC -I

Drawing No.

I-702

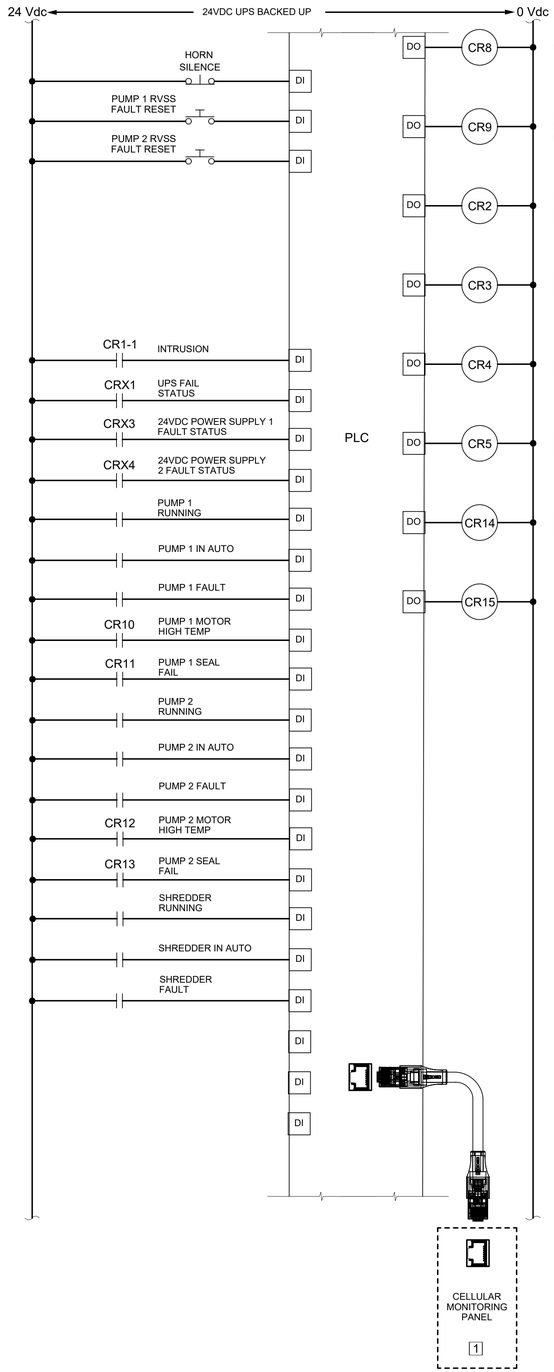
ORIGINAL SHEET - ARCH D

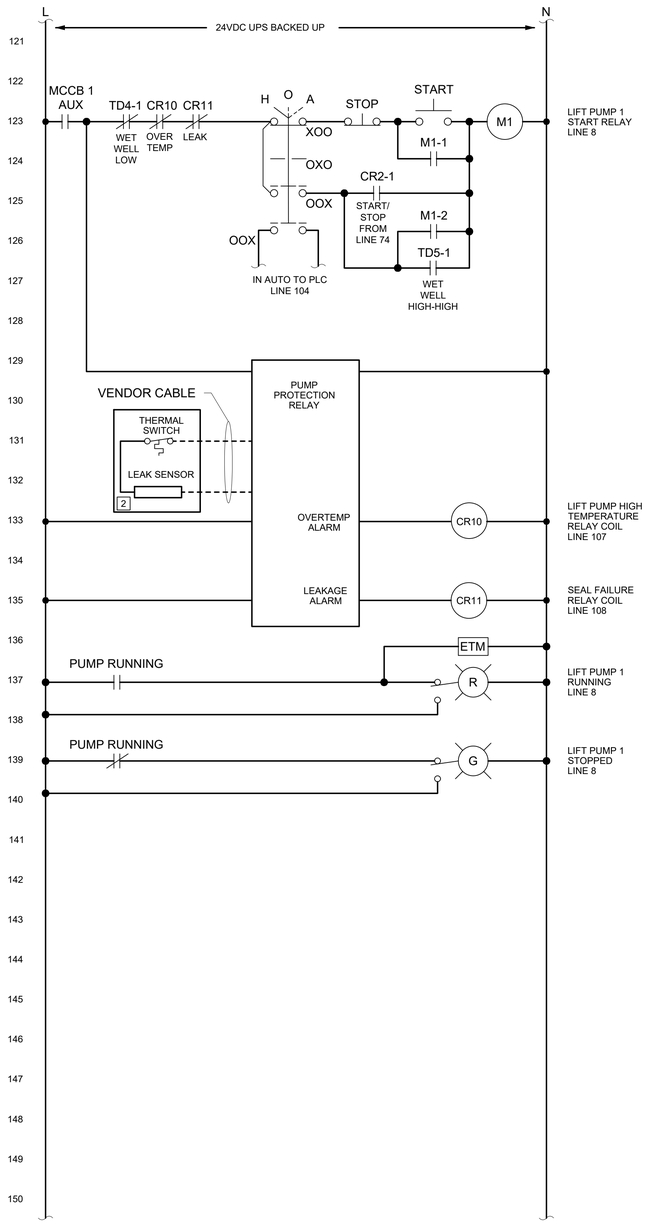
GENERAL SHEET NOTES

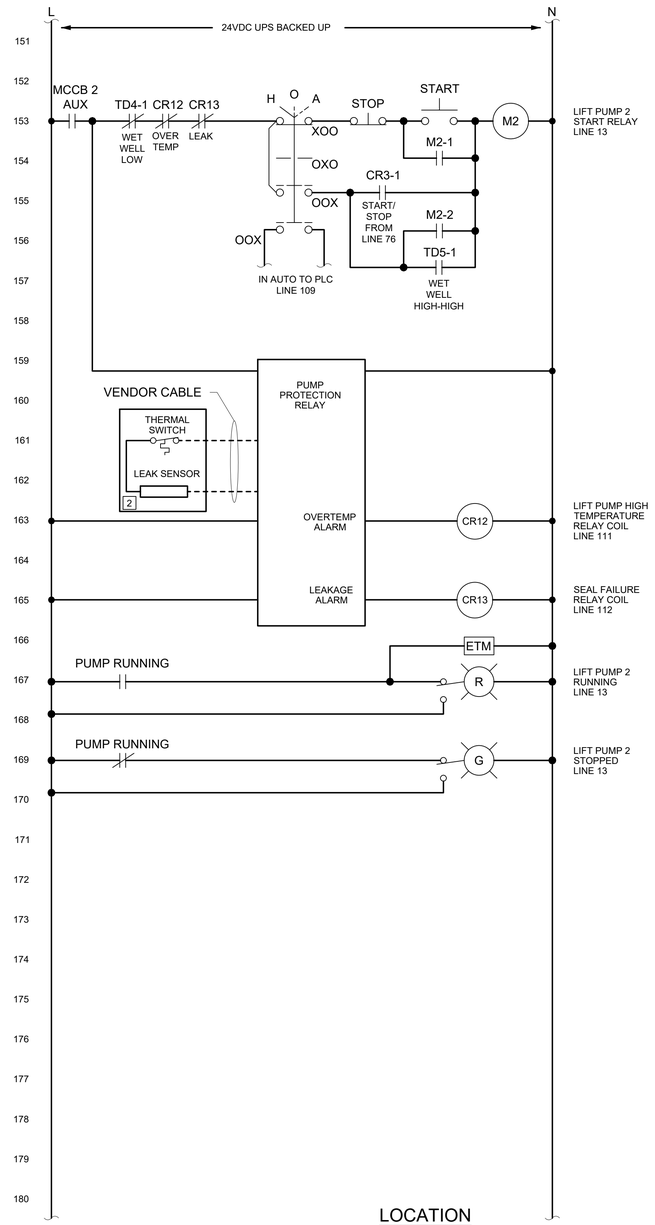
1. ALL COMPONENTS LOCATED WITHIN THE CONTROL PANEL UNLESS OTHERWISE NOTED.

SHEET KEYNOTES

A. POINTS SHOWN IN THE REMOTE MONITORING LEVEL OF P&ID SHALL BE PROGRAMMED INTO THE REMOTE MONITORING SYSTEM VIA THE COMMUNICATIONS CONNECTION FROM THE PLC TO THE CELLULAR MONITORING PANEL.







LOCATION LEGEND

1 FIELD

2 PUMP HOUSING

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BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

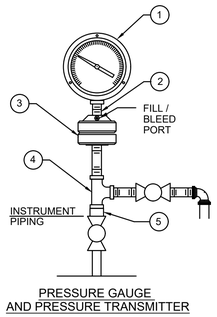
Title

INSTRUMENTATION CONTROL PANEL SCHEMATIC -II

Drawing No.

I-703

ORIGINAL SHEET - ARCH D



PRESSURE GAUGE
AND PRESSURE TRANSMITTER

GENERAL NOTES:

1. POTENTIALLY WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
2. REFER TO CONTRACT DRAWINGS FOR PROCESS PIPING SIZE AND MATERIAL.
3. PIPING SIDE ISOLATION VALVES FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
4. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.

BILL OF MATERIALS				
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER / AIR)
1	1	LIQUID-FILLED PRESSURE GAUGE	MANF	PHENOLIC ENCASED
2	AR	1/2" MALE TO MALE NIPPLE	CONT	COPPER
3	1	ISOLATION DIAPHRAGM SEAL; SILICONE OIL FILL FLUID	MANF	316 SS
4	1	TEE 1/2" (15mm)	CONT	316 SS
5	1	HEX REDUCING BUSHING 1"x1/2" (25mmx15mm)	CONT	316 SS
6	1	ELBOW	CONT	316 SS

I-3 PRESSURE GAUGE
NOT TO SCALE

ORIGINAL SHEET - ARCH D

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CONTACT: MICHAEL COYNE

Project No.: 195151140

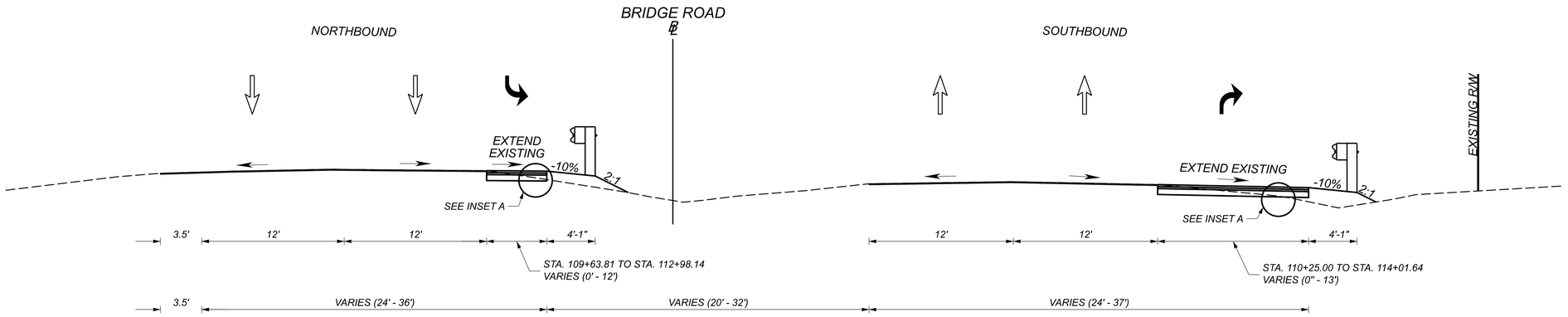
Scale: AS SHOWN

Title

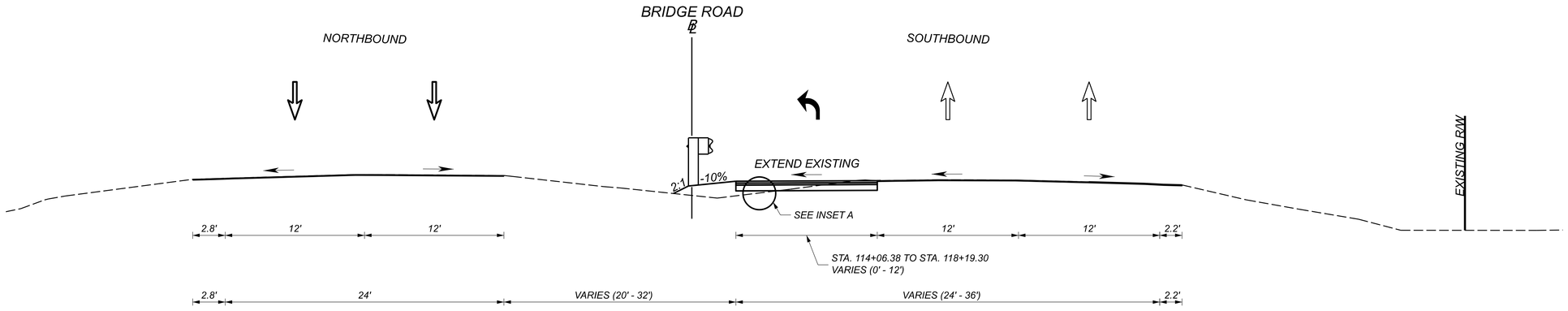
INSTRUMENTATION INSTALLATION DETAILS - II

Drawing No.

I-502



STA. 108+98.22 TO STA. 114+06.41



STA. 114+06.41 TO STA. 118+19.30

PRIVATE AND COMMERCIAL ENTRANCES

TYPE I
Crusher Run Aggr.

6" Crusher Run
Aggr. 25 or 26

TYPE II
Concrete

Concrete Entrance Pavement
7" HES
4" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

NOT TO SCALE

TYPE III
Asphalt

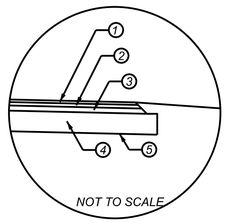
Asphalt Conc. Type
SM-9.5A or SM-9.5D @ 220 Lbs. per S.Y.
4" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

TYPE IV
Asphalt Commercial

Asphalt Conc. Type
SM-9.5A or SM-9.5D @ 165 Lbs. per S.Y.
4" Asphalt Conc. Base Course
BM-25.0
6" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

The type of entrance (I, II, III, IV) to be constructed will be determined by the existing condition at the time of construction.

INSET A



NOT TO SCALE

PAVEMENT LEGEND

1. 1.5" ASPHALT SURFACE TYPE SM-9.5D
2. 2.0" ASPHALT INTERMEDIATE COURSE TYPE IM-19A
3. 3.0" ASPHALT BASE COURSE TYPE BM-25A
4. 12.0" AGGREGATE BASE MATERIAL, TYPE 1 NO.21B OR 21A
5. GEOTEXTILE FABRIC

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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title

TYPICAL SECTIONS

Drawing No.
CP-100

ORIGINAL SHEET - ARCH D

Horizontal Alignment Review Report

Report Created: Monday, April 13, 2026
Time: 10:55:00 AM

Project: Default
Description:
File Name: \\us0702-ppfss01\shared_projects\195151140\08_Working Files\Roadway\195151140_Design.dgn
Last Revised: 4/13/2026 10:50:12

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: Bridge Road - Baseline
Alignment Description:
Alignment Style: Linear\Road Design\Alignments\Horizontal\25 Scale Baselines

		Station	Northing	Easting
Element: Linear				
START	(START)	100+00.000 R1	3493128.3275	12069250.3321
PC	(PC)	116+82.953 R1	3491469.8900	12069536.5421
Tangential Direction:		S09°47'29.58"E		
Tangential Length:		1682.953		
Element: Circular				
PC	(PC)	116+82.953 R1	3491469.8900	12069536.5421
HPI	(HPI)	118+19.489 R1	3491335.3433	12069559.7619
CC	(CC)		3492320.2109	12074463.7070
PT	(PT)	119+55.957 R1	3491202.2642	12069590.2698
Radius:		5000.000		
Delta:		3.128 Left		
Degree of Curvature (Arc):		1.146		
Length:		273.004		
Tangent:		136.536		
Chord:		272.970		
Middle Ordinate:		1.863		
External:		1.864		
Back Tangent Direction:		S09°47'29.58"E		
Back Radial Direction:		S80°12'30.42"W		
Chord Direction:		S11°21'20.68"E		
Ahead Radial Direction:		S77°04'48.22"W		
Ahead Tangent Direction:		S12°55'11.78"E		
Element: Linear				
PT	(PT)	119+55.957 R1	3491202.2642	12069590.2898
PC	(PC)	122+97.814 R1	3490869.0614	12069666.7255
Tangential Direction:		S12°55'11.78"E		
Tangential Length:		341.857		
Element: Circular				
PC	(PC)	122+97.814 R1	3490869.0614	12069666.7255

HPI	(HPI)	123+40.204 R1	3490827.7445	12069676.2035
CC	(CC)		3490645.4721	12068692.0421
PT	(PT)	123+82.543 R1	3490785.7737	12069682.1509
Radius:		1000.000		
Delta:		4.855 Right		
Degree of Curvature (Arc):		5.730		
Length:		84.729		
Tangent:		42.390		
Chord:		84.704		
Middle Ordinate:		0.897		
External:		0.898		
Back Tangent Direction:		S12°55'11.78"E		
Back Radial Direction:		S77°04'48.22"W		
Chord Direction:		S10°29'33.44"E		
Ahead Radial Direction:		S81°56'04.91"W		
Ahead Tangent Direction:		S08°03'55.09"E		
Element: Linear				
PT	(PT)	123+82.543 R1	3490785.7737	12069682.1509
END	(END)	126+35.078 R1	3490535.7371	12069717.5819
Tangential Direction:		S08°03'55.09"E		
Tangential Length:		252.535		

Horizontal Alignment Review Report

Report Created: Monday, April 13, 2026
Time: 10:54:06 AM

Project: Default
Description:
File Name: \\us0702-ppfss01\shared_projects\195151140\08_Working Files\Roadway\195151140_Design.dgn
Last Revised: 4/13/2026 10:50:12

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: Bridge Road - NB Alignment
Alignment Description:
Alignment Style: Linear\Road Design\Alignments\Horizontal\25 Scale Baselines

		Station	Northing	Easting
Element: Linear				
START	(START)	20+00.000	3492320.2778	12069419.2164
END	(END)	25+50.000	3491778.3174	12069512.9123
Tangential Direction:		S09°48'30.73"E		
Tangential Length:		550.000		

Horizontal Alignment Review Report

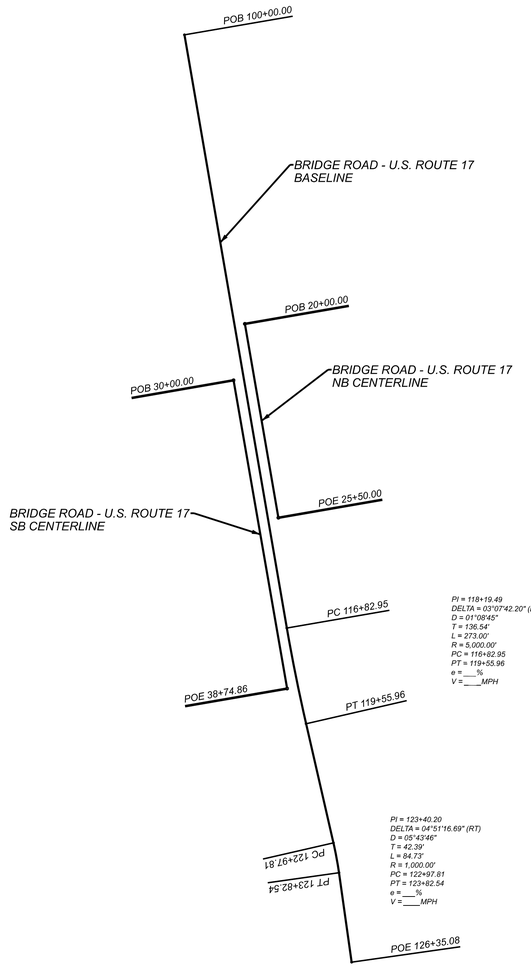
Report Created: Monday, April 13, 2026
Time: 10:50:17 AM

Project: Default
Description:
File Name: \\us0702-ppfss01\shared_projects\195151140\08_Working Files\Roadway\195151140_Design.dgn
Last Revised: 4/13/2026 10:50:12

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: Bridge Road - SB Alignment
Alignment Description:
Alignment Style: Linear\Road Design\Alignments\Horizontal\25 Scale Baselines

		Station	Northing	Easting
Element: Linear				
START	(START)	30+00.000	3492162.6047	12069387.6034
END	(END)	38+74.864	3491300.6093	12069537.1071
Tangential Direction:		S09°50'22.01"E		
Tangential Length:		874.864		



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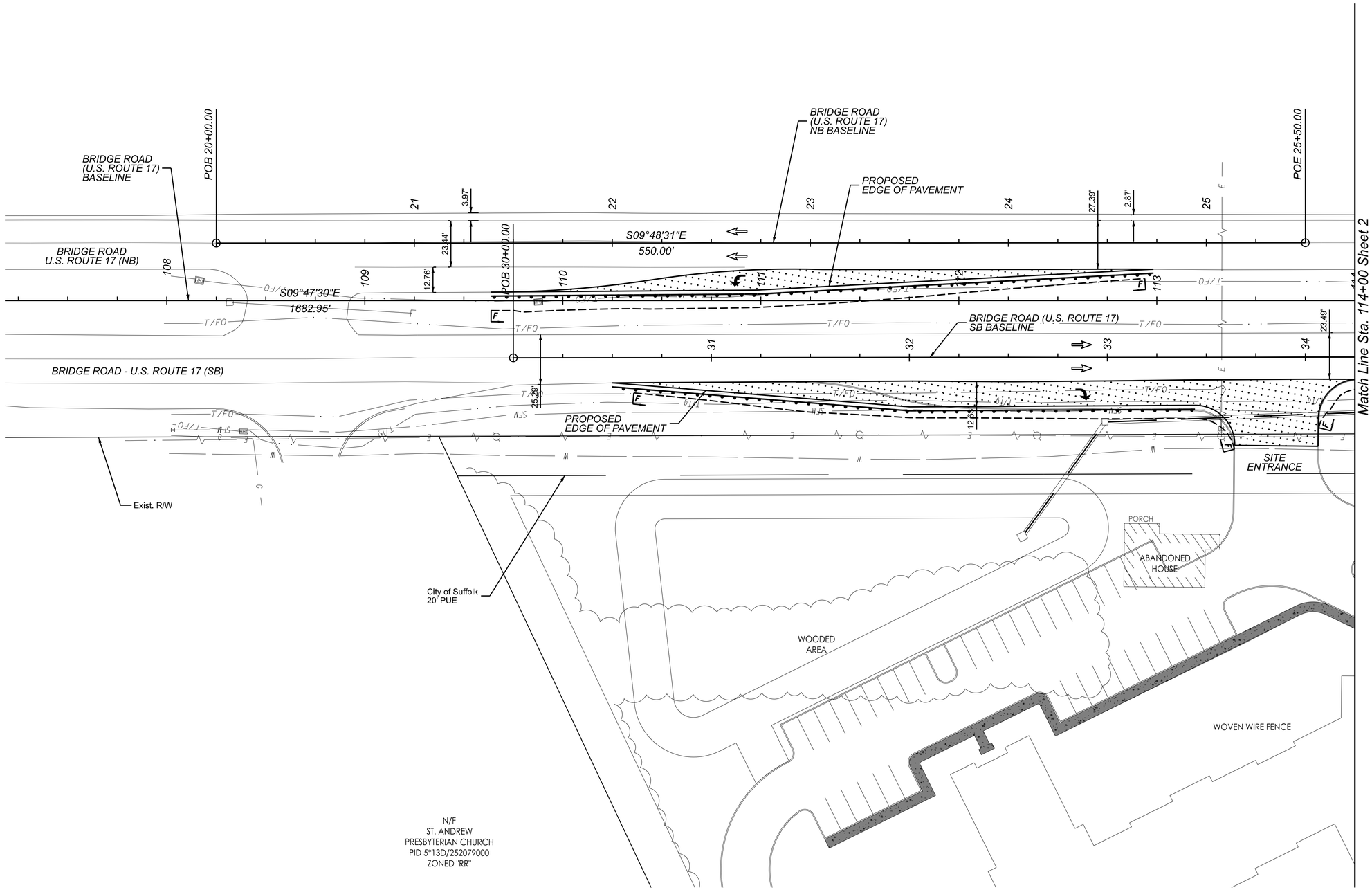
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title
HORIZONTAL ALIGNMENT

Drawing No.
CP-101



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07/10/2026
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23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

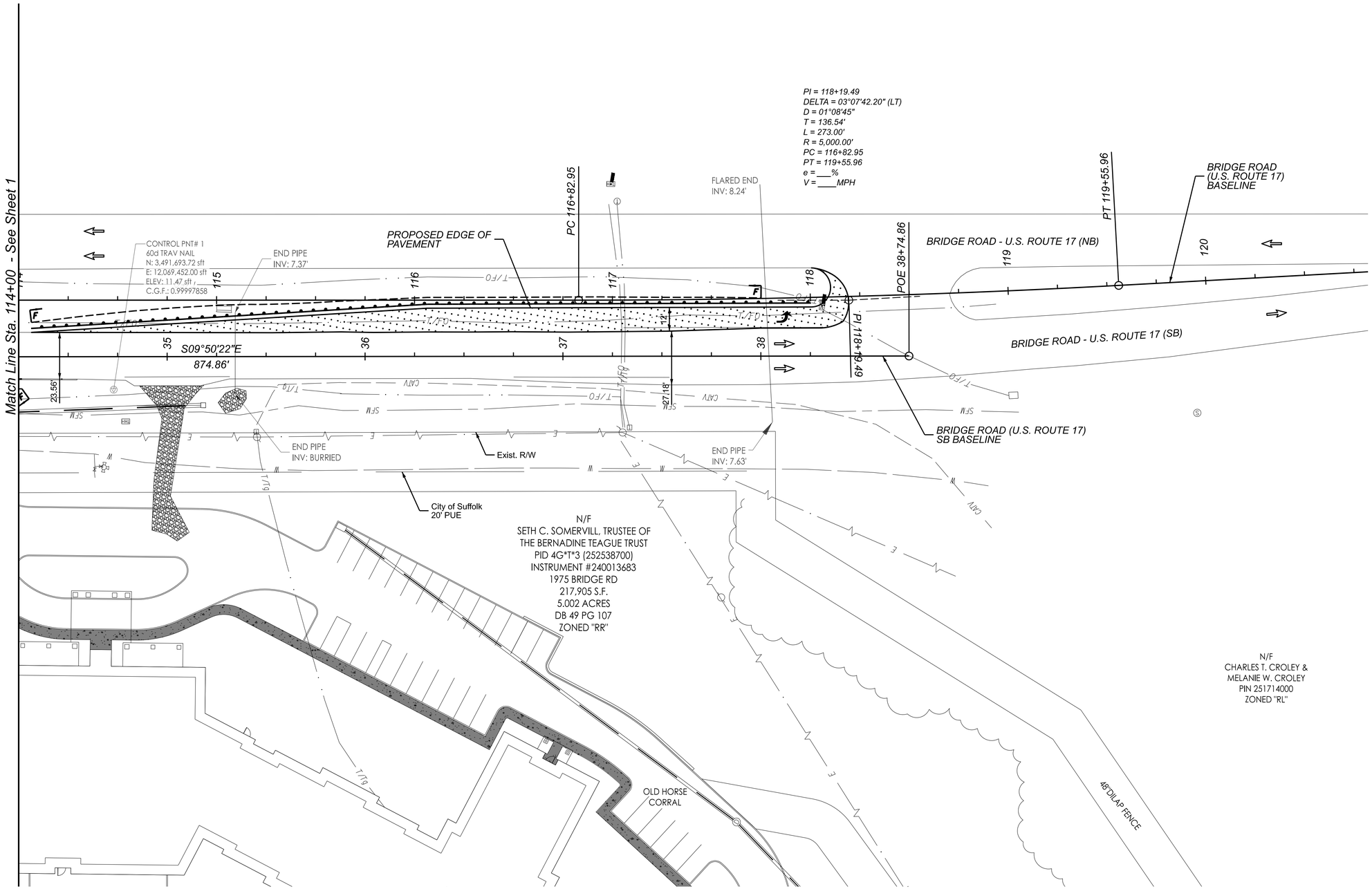
Title

ROADWAY PLAN

Drawing No.

CP-102

ORIGINAL SHEET - ARCH D



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07/10/2026
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23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

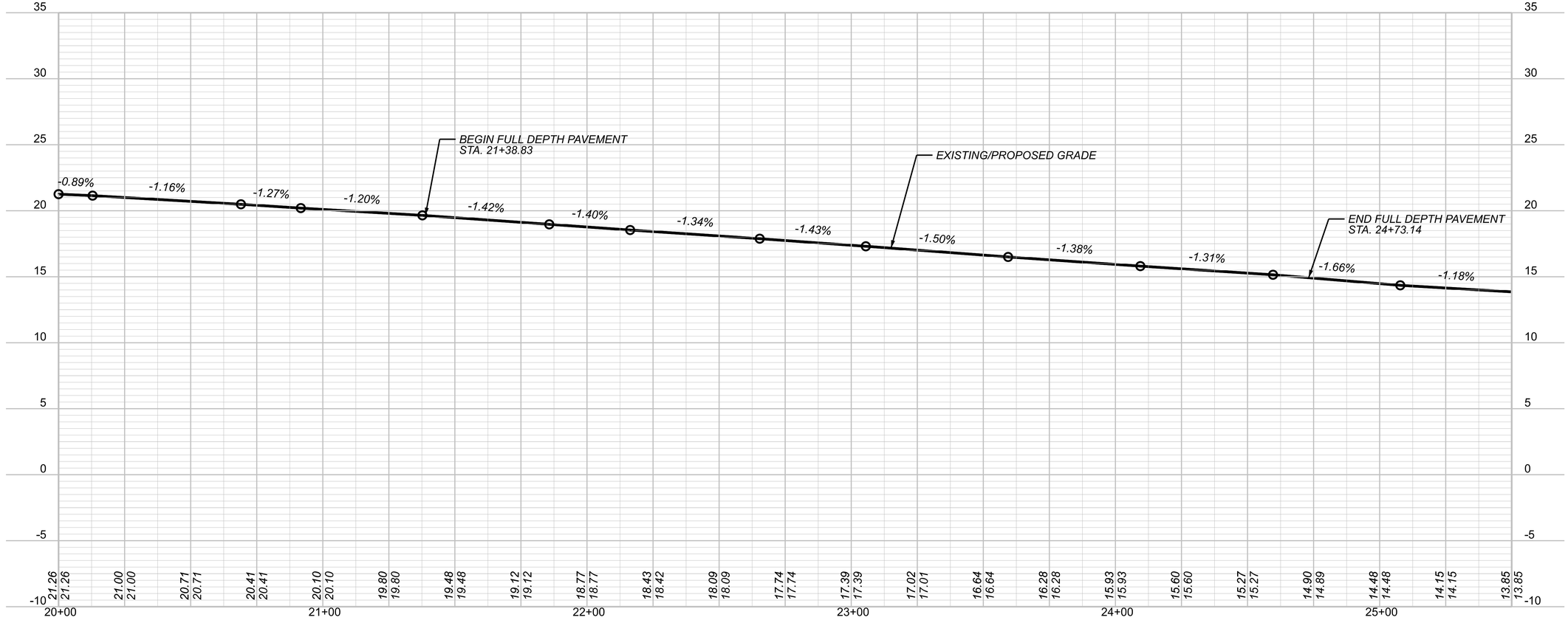
ROADWAY PLAN

Drawing No.

CP-103

ORIGINAL SHEET - ARCH D

BRIDGE ROAD - NORTHBOUND PROFILE



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SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

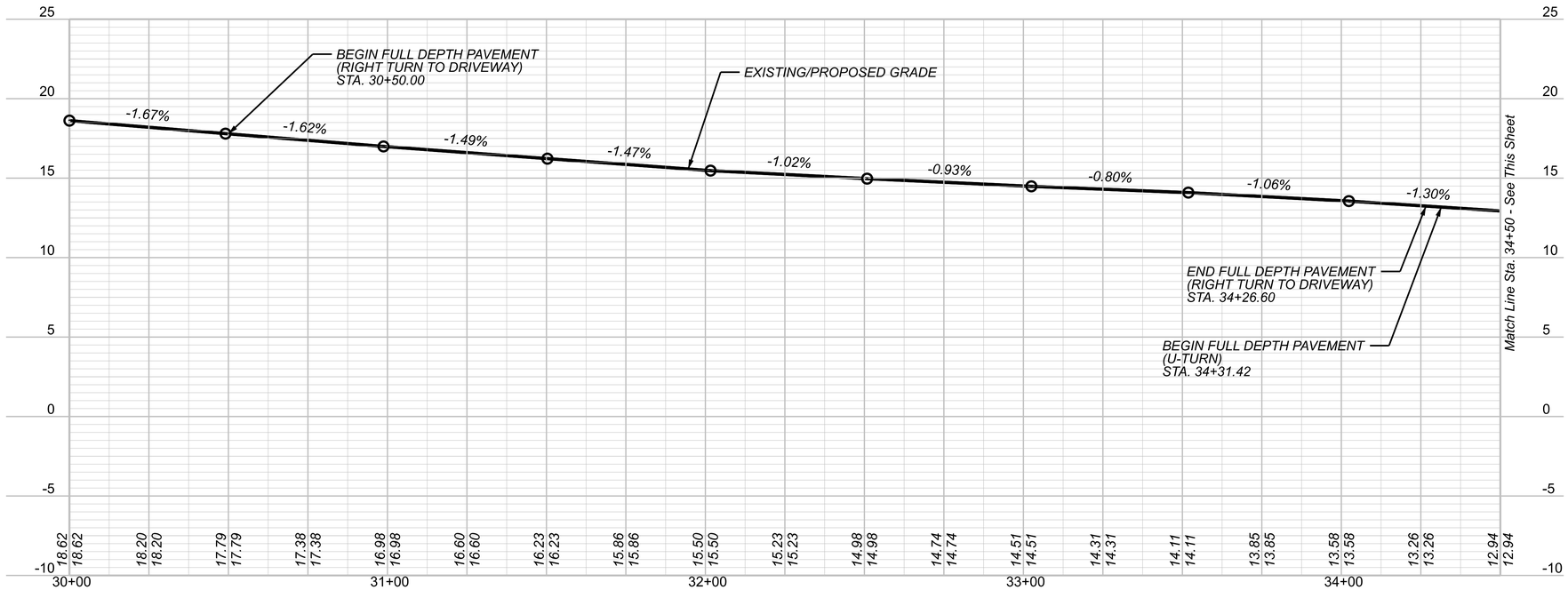
ROADWAY PROFILE

Drawing No.

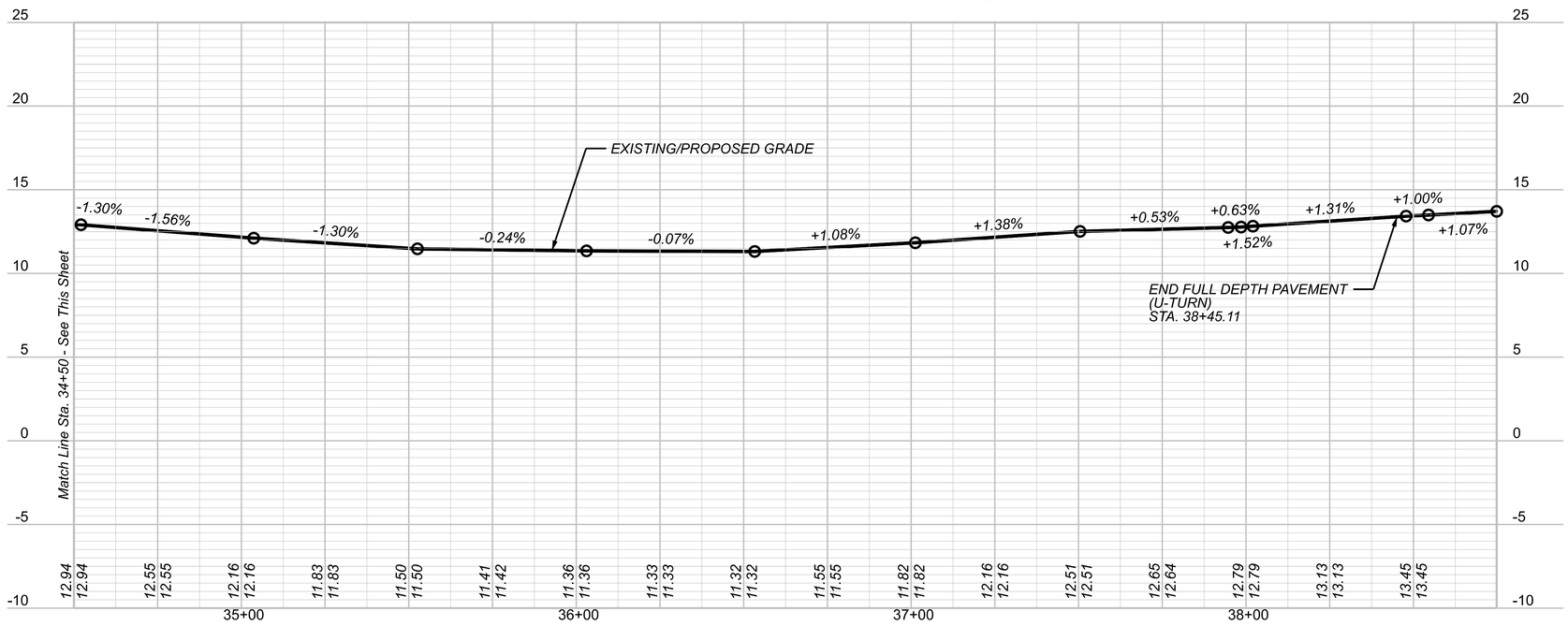
CP-104

ORIGINAL SHEET - ARCH D

BRIDGE ROAD - SOUTHBOUND PROFILE



BRIDGE ROAD - SOUTHBOUND PROFILE



SCALE
0 25' 50'

ORIGINAL SHEET - ARCH D

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23700 COMMERCE PARKWAY
BEACHWOOD, OHIO 44122
216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

ROADWAY PROFILE

Drawing No.

CP-105

DGN

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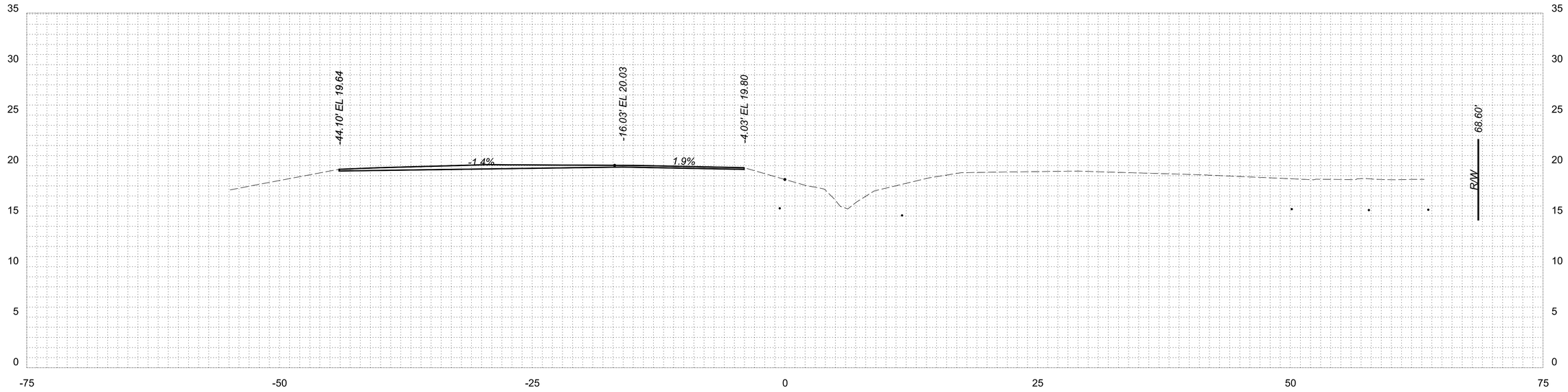
CROSS SECTIONS

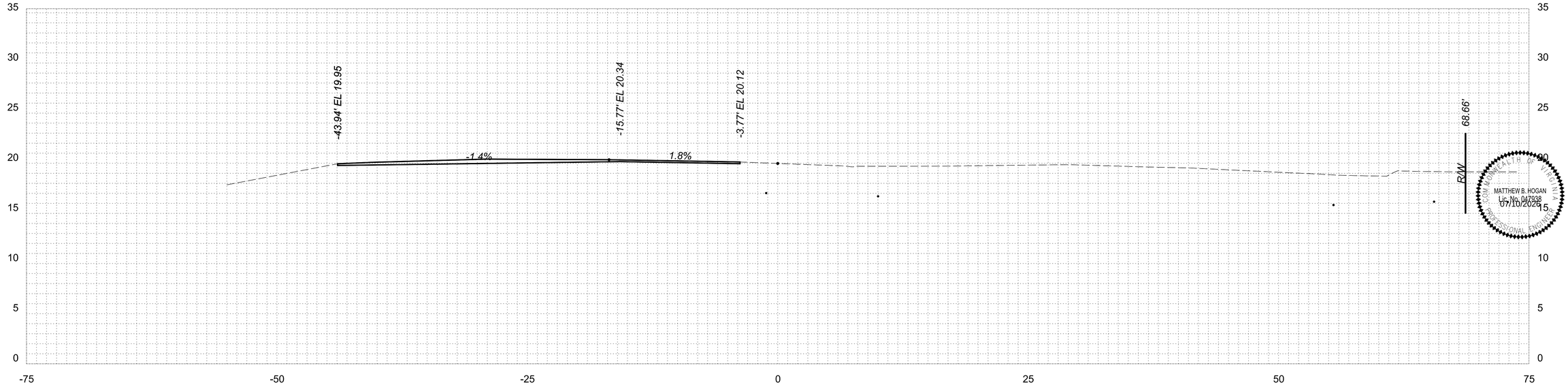
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 109+25.00



STA 109+00.00

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Project No.: 195151140
Drawing No. CP-106

SHEET NO.
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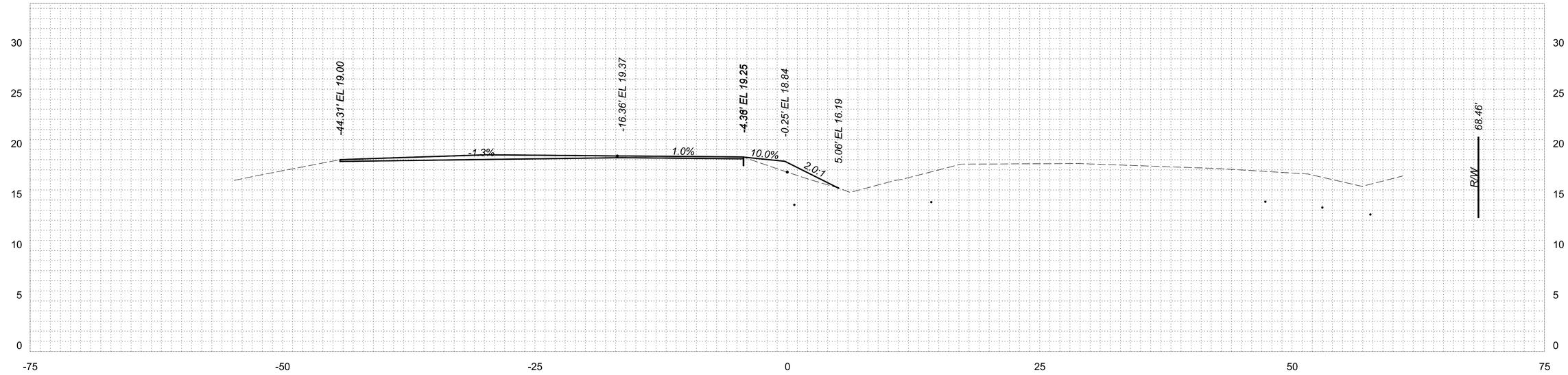
CROSS SECTIONS

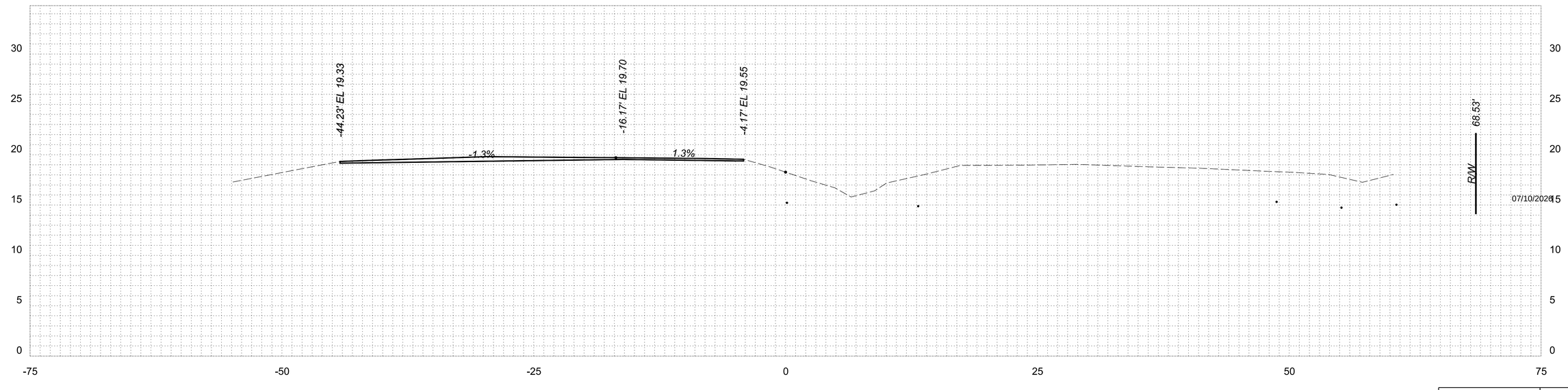
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 109+75.00



STA 109+50.00

07/10/2026

Project No.: 195151140 Drawing No. CP-107	SHEET NO. 000

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CROSS SECTIONS

SCALE 1 IN. = 5 FT

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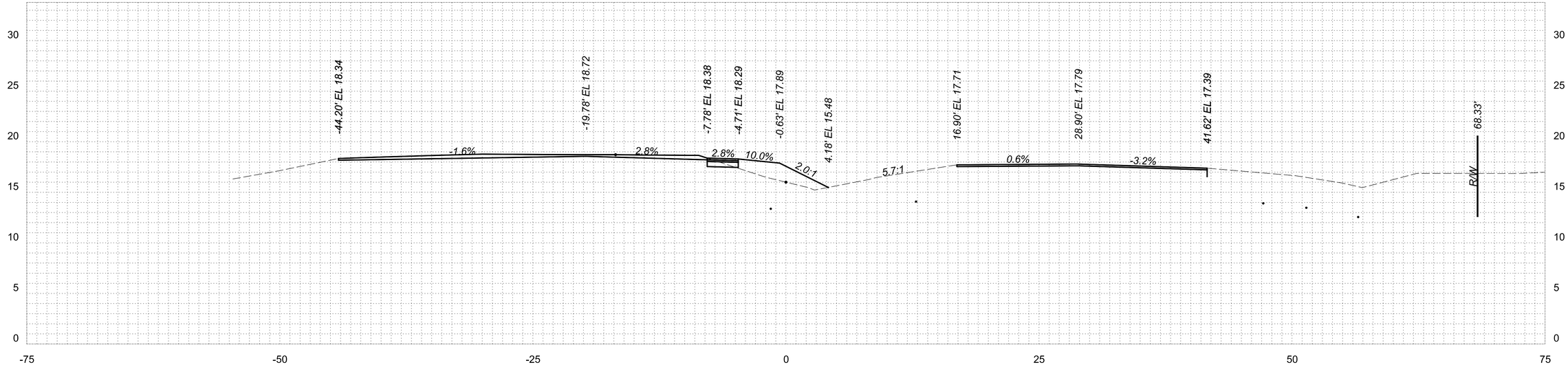
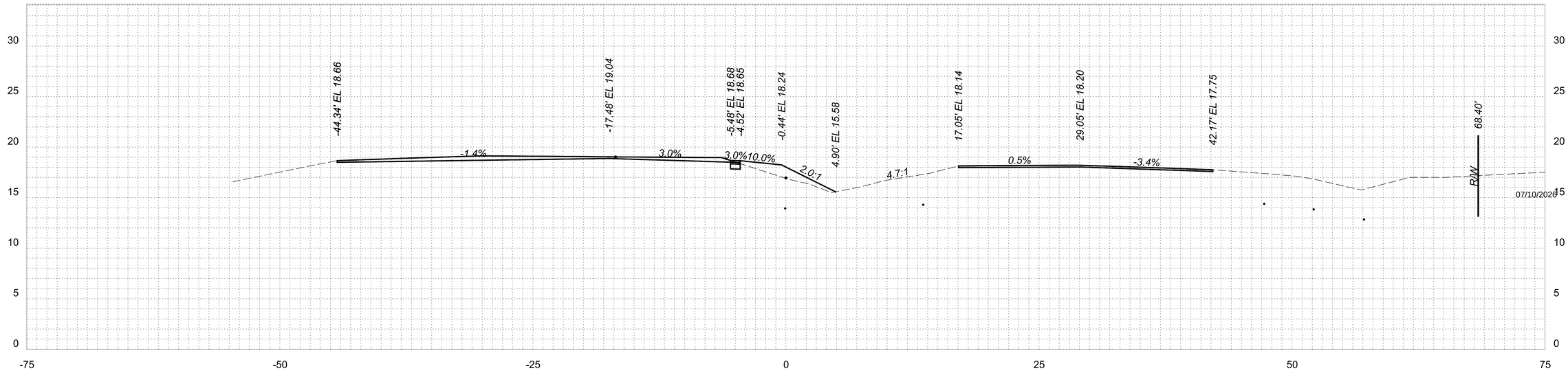
REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 110+25.00



STA 110+00.00

Project No.: 195151140 Drawing No. CP-108	SHEET NO. 000

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CROSS SECTIONS

SCALE 1 IN. = 5 FT

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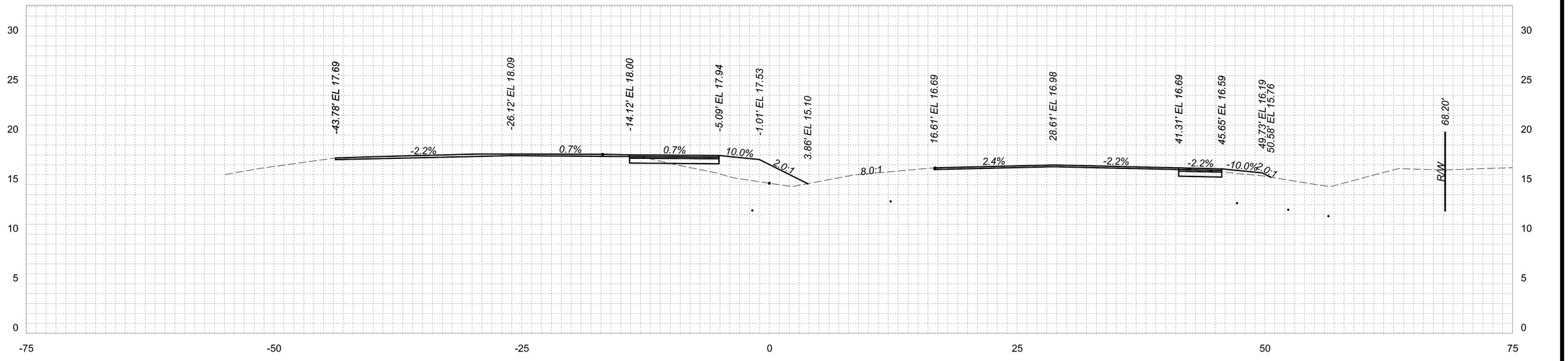
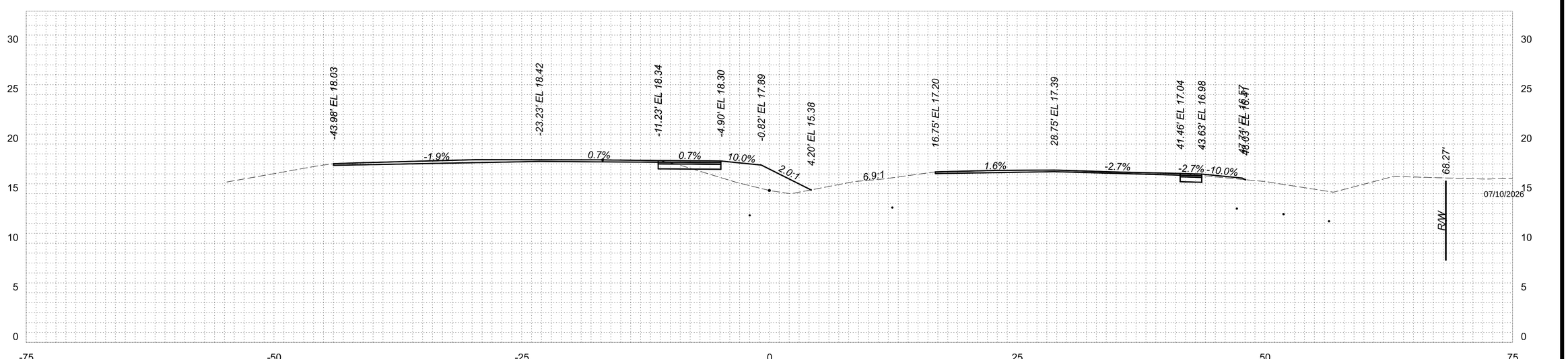
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 110+75.00



STA 110+50.00

Project No.: 195151140 Drawing No. CP-109	SHEET NO. 000

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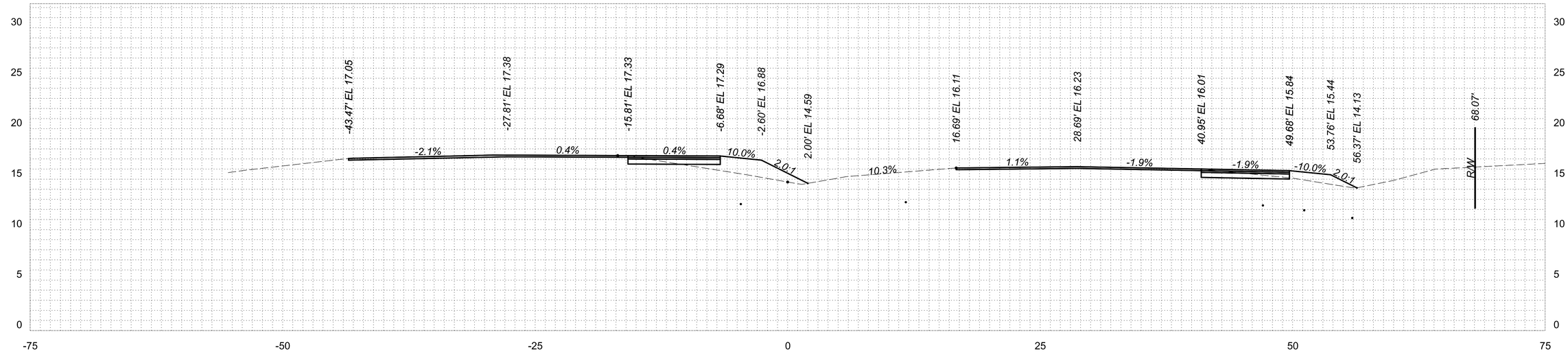
CROSS SECTIONS

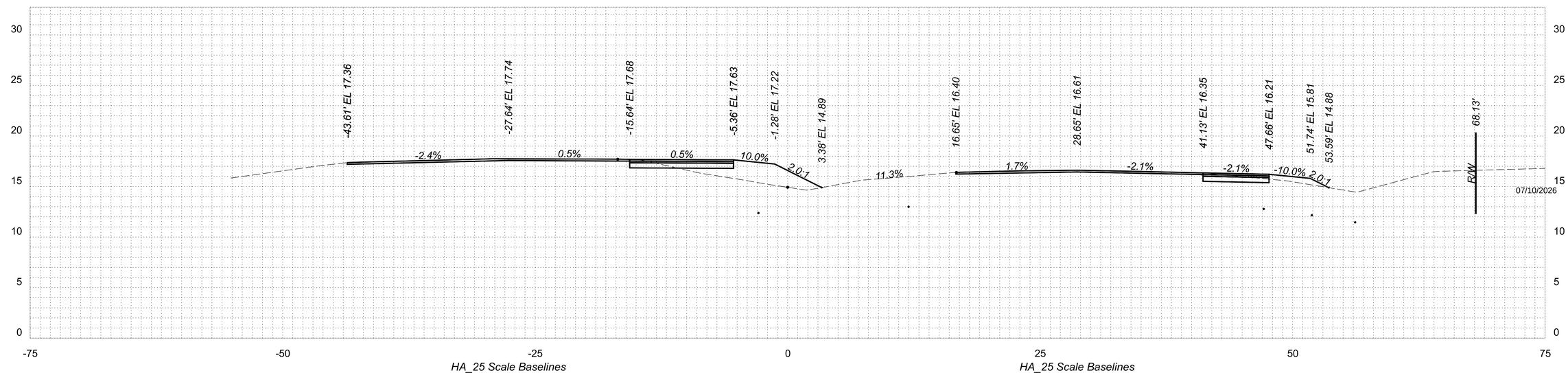
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 111+25.00



STA 111+00.00

07/10/2026

Project No.: 195151140 Drawing No. CP-110	SHEET NO. 000

$TIME$STAMP$

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CROSS SECTIONS

SCALE 1 IN. = 5 FT

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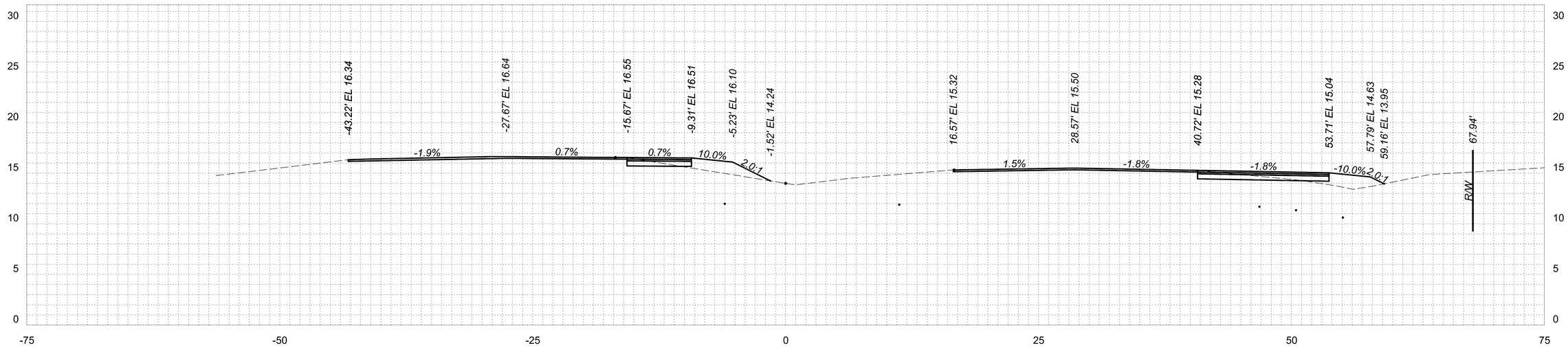
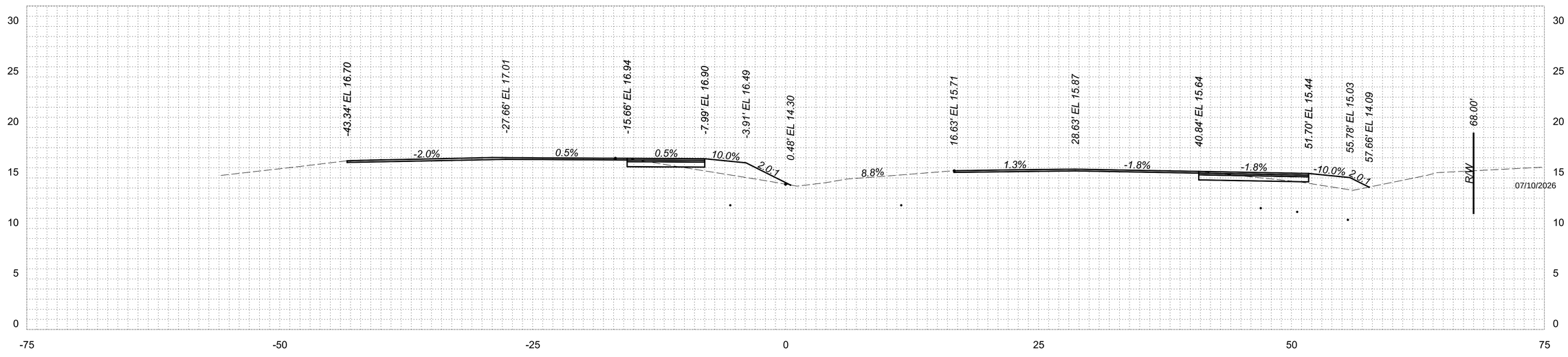
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 111+75.00



STA 111+50.00

Project No.: 195151140 Drawing No. CP-111	SHEET NO. 000

$TIME$STAMP$

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$DGNLEV
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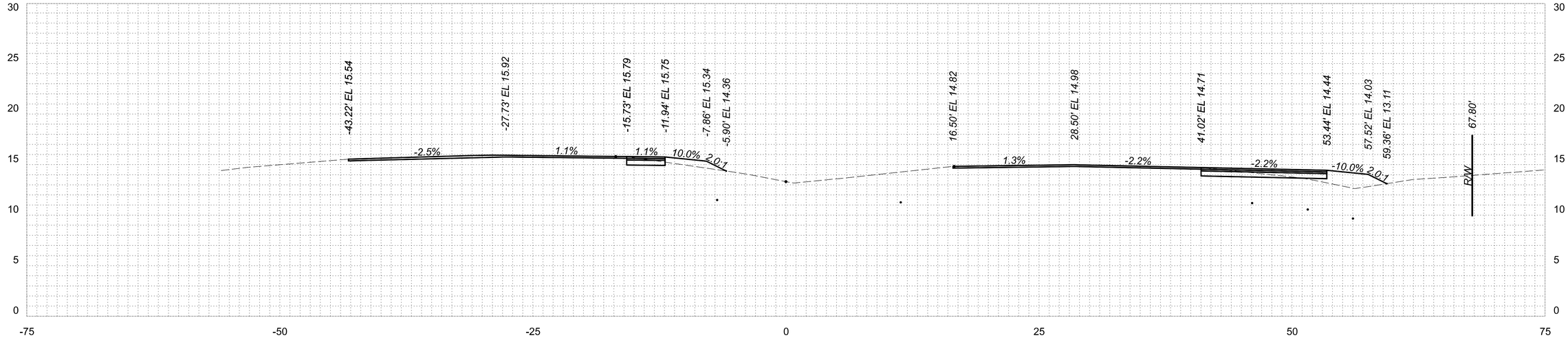
CROSS SECTIONS

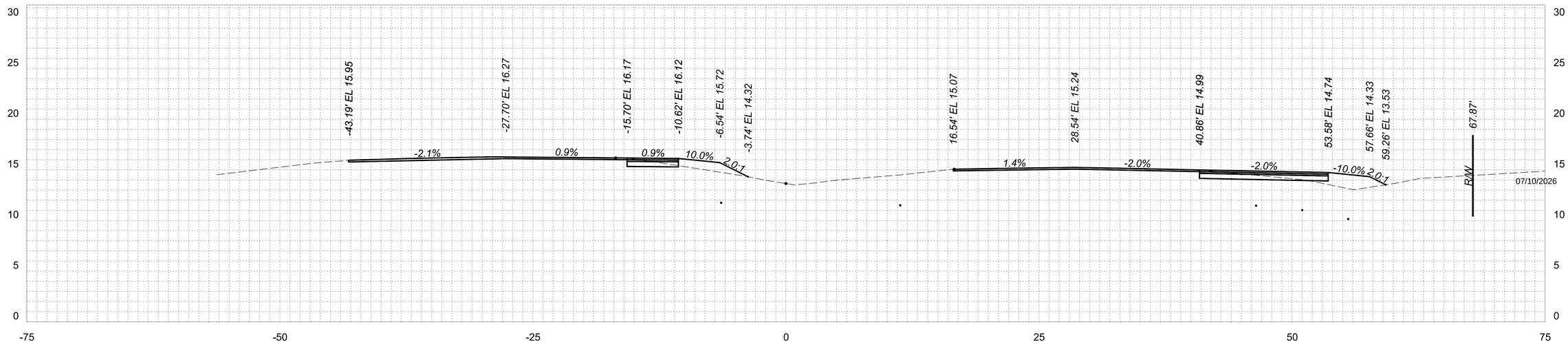
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 112+25.00



STA 112+00.00

Project No.: 195151140 Drawing No. CP-112	SHEET NO. 000

$TIME$STAMP$

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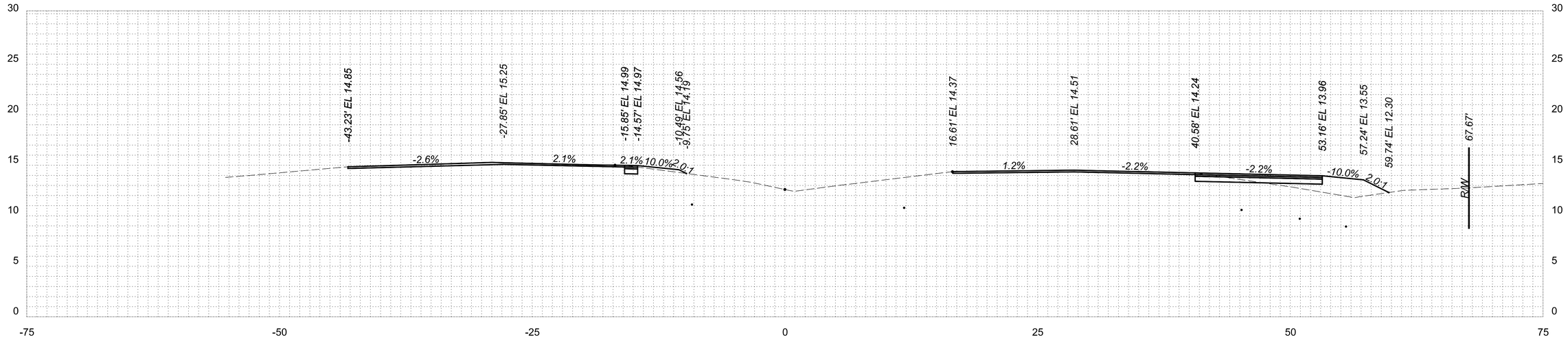
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

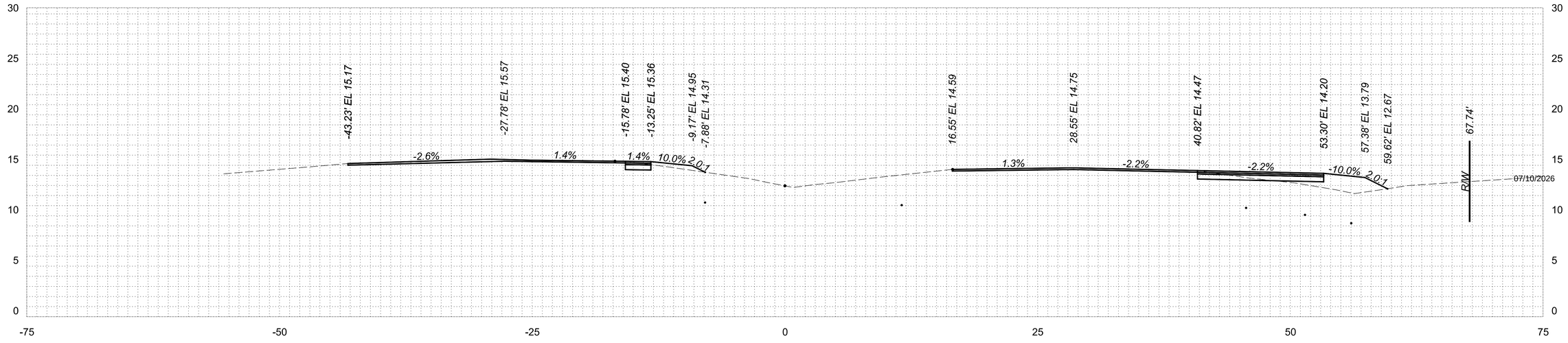
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 112+75.00



STA 112+50.00

Project No.: 195151140 Drawing No. CP-113	SHEET NO. 000

$TIME$STAMP$

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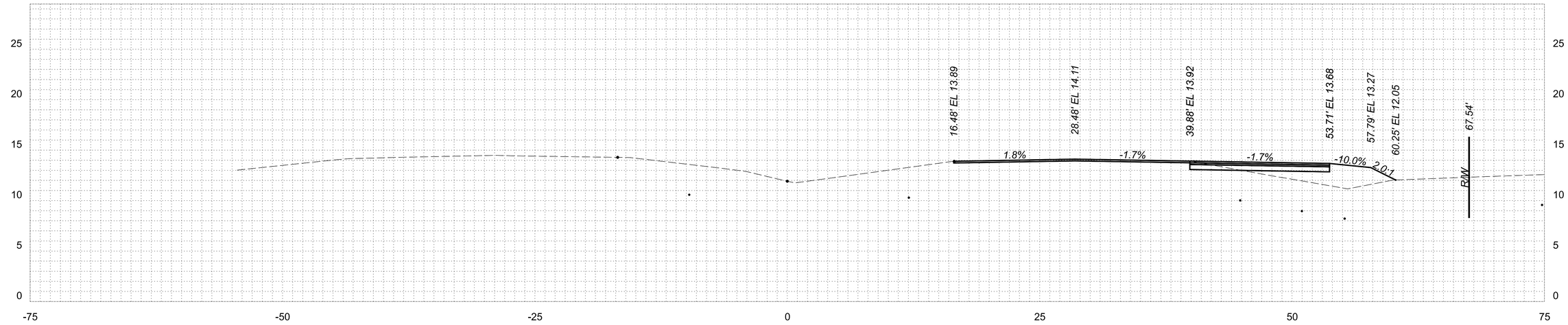
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

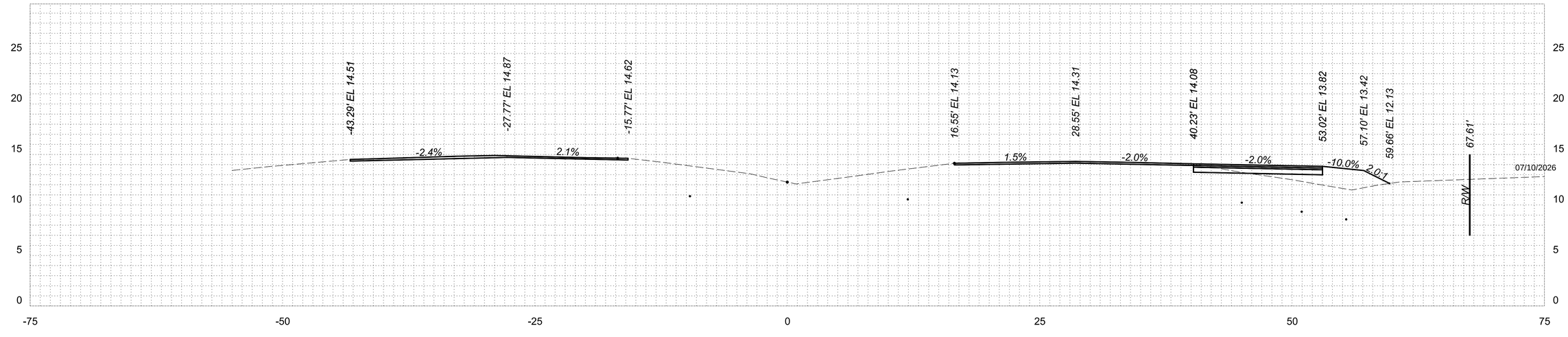
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 113+25.00



STA 113+00.00

Project No.: 195151140 Drawing No. CP-114	SHEET NO. 000

$TIME$STAMP$

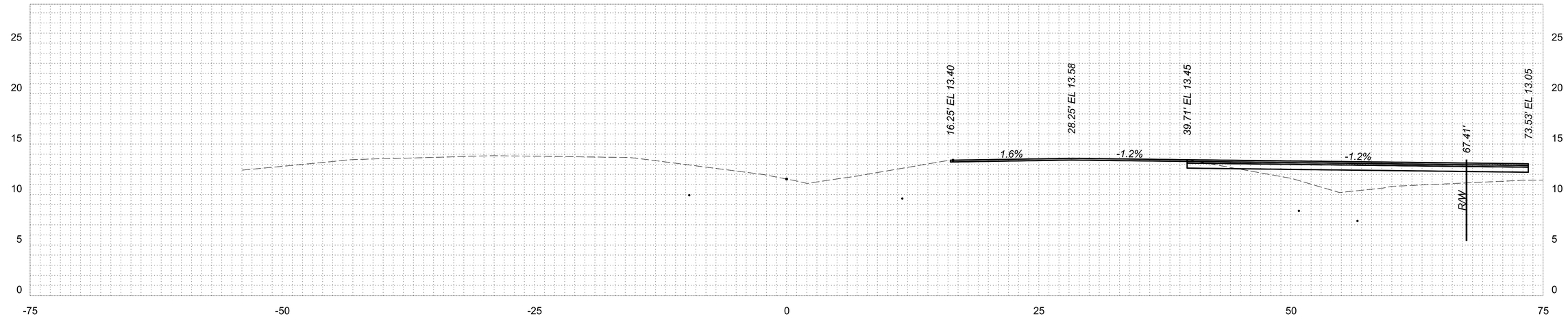
COMMONWEALTH OF VIRGINIA
DGN
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

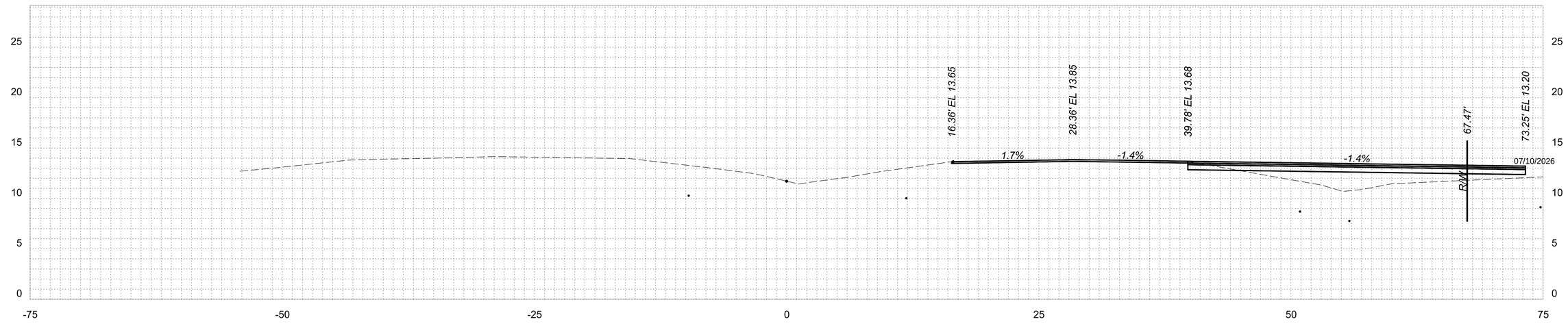
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 113+75.00



STA 113+50.00

Project No.: 195151140 Drawing No. CP-115	SHEET NO. 000

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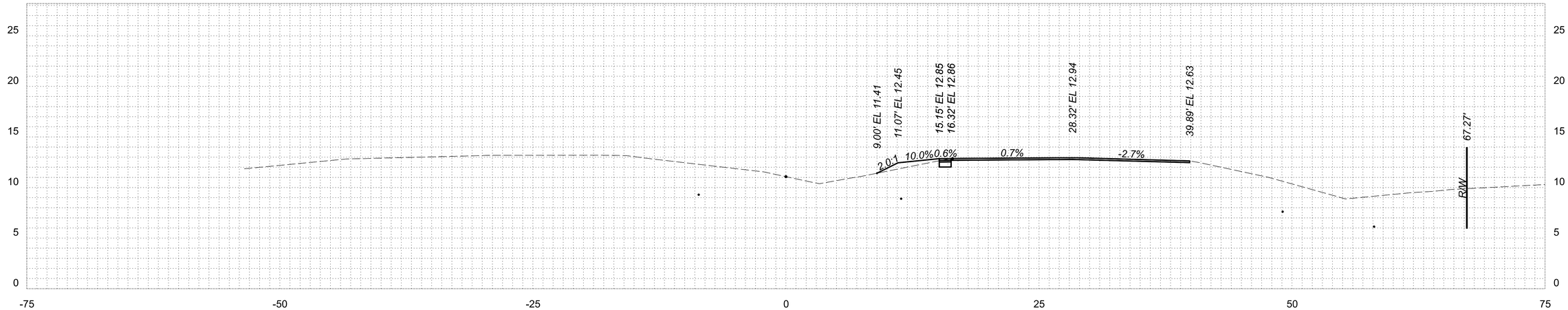
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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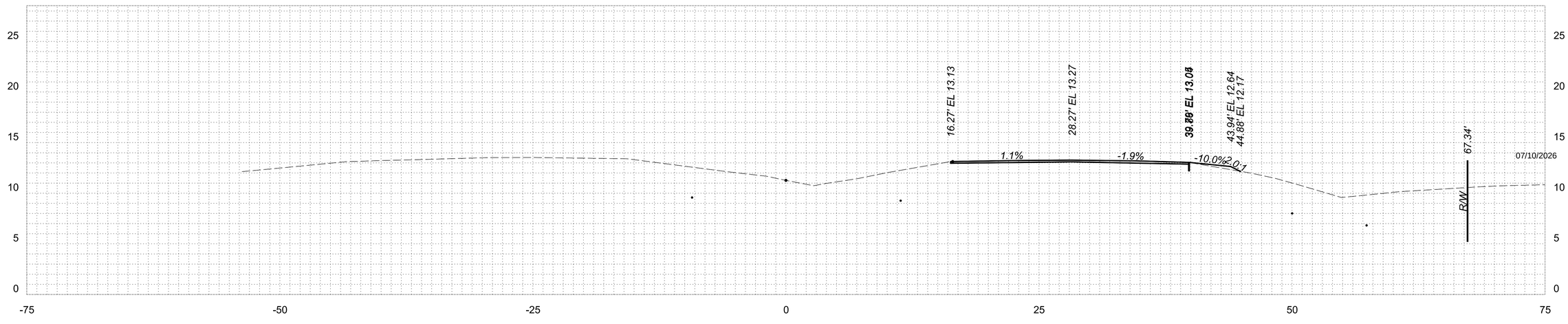


STA 114+00.00

Project No.: 195151140 Drawing No. CP-116	SHEET NO. 000

$TIME$STAMP$

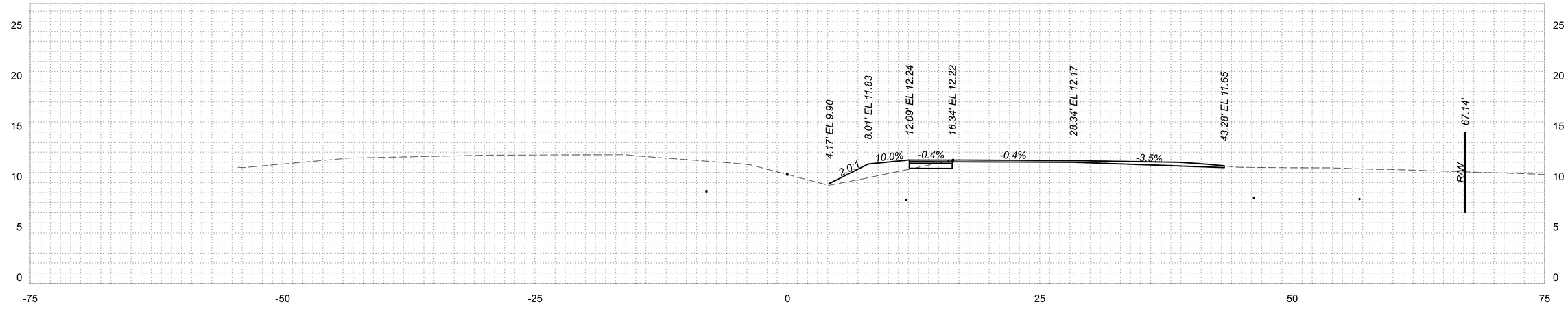
COMMONWEALTH OF VIRGINIA
DGN
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

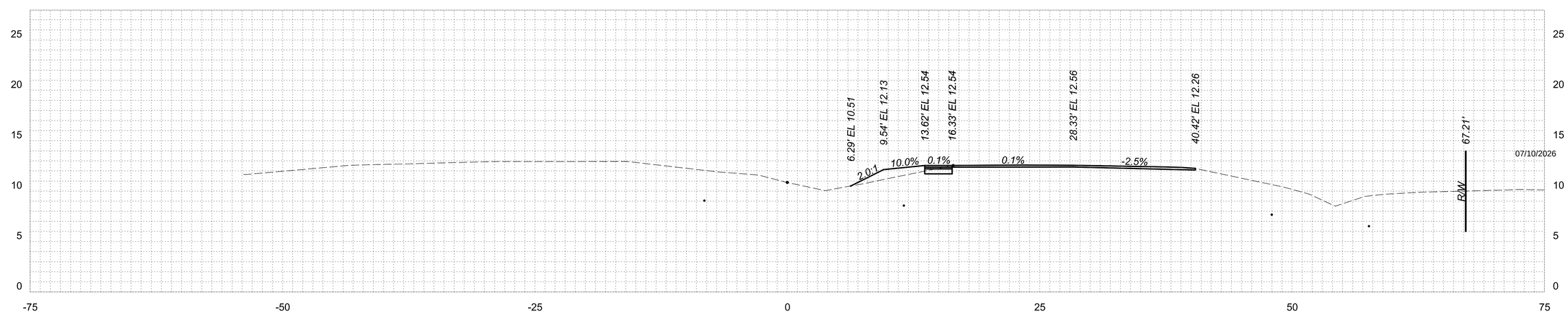
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 114+75.00



STA 114+50.00

Project No.: 195151140
Drawing No. CP-117

SHEET NO. 000

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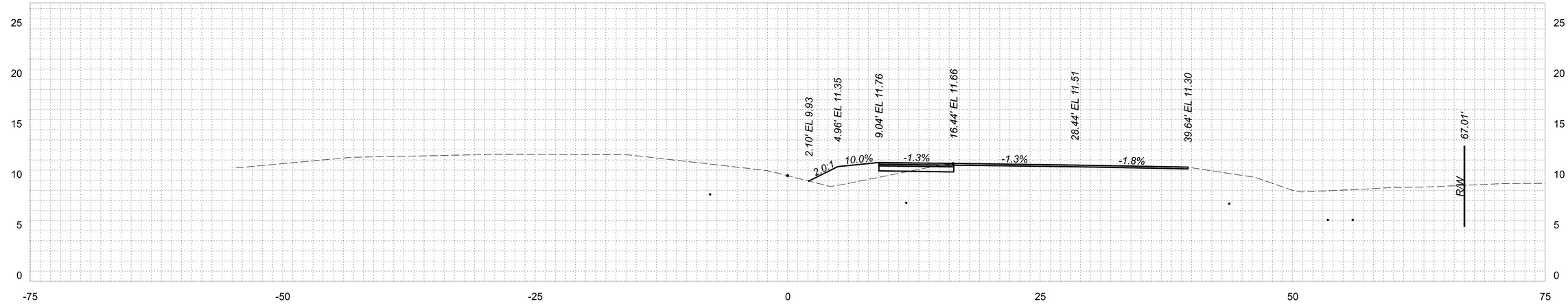
DGN
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

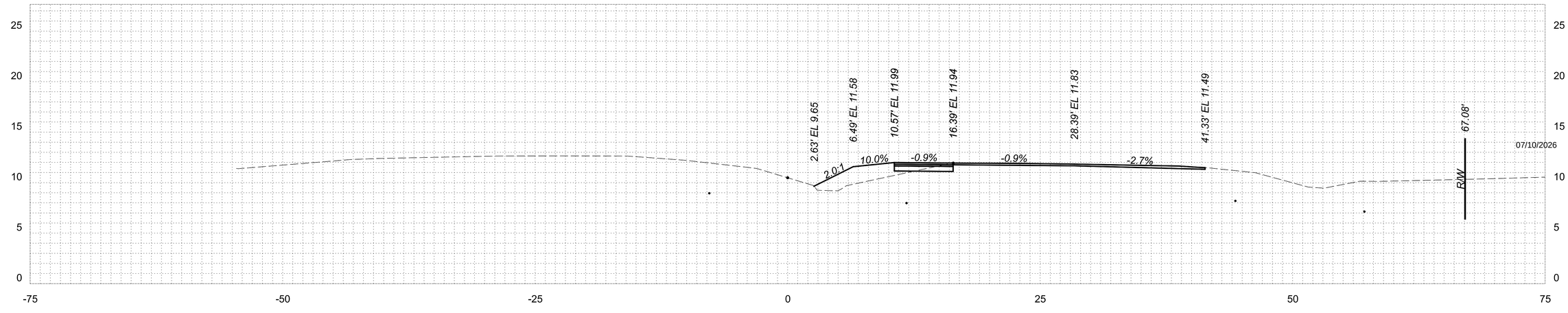
SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



STA 115+25.00



STA 115+00.00

Project No.: 195151140 Drawing No. CP-118	SHEET NO. 000

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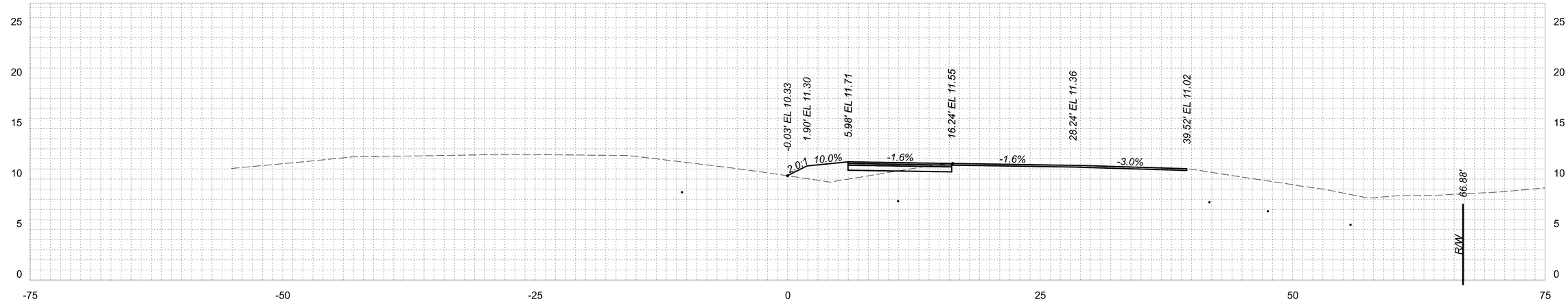
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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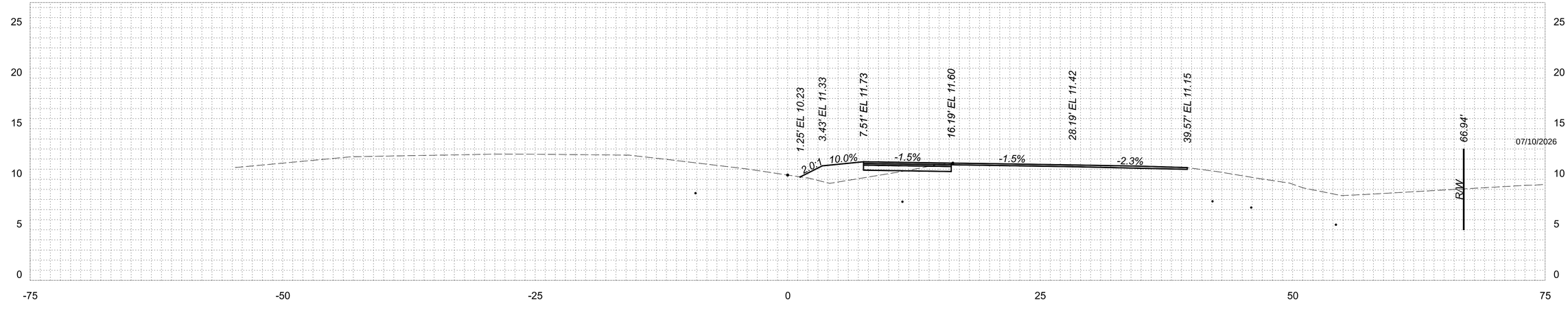

STA 115+50.00

Project No.: 195151140 Drawing No. CP-119	SHEET NO. 000

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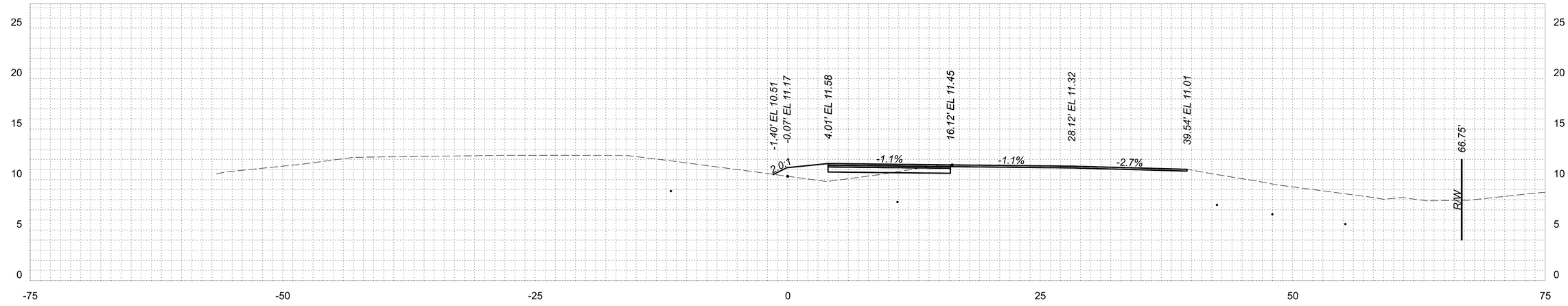
PROFESSIONAL ENGINEER

CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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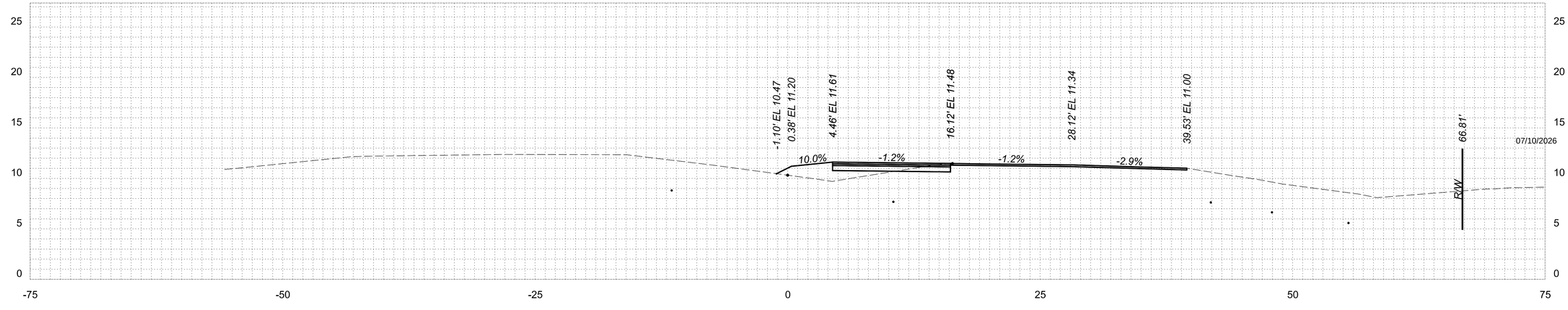

STA 116+00.00

07/10/2026

Project No.: 195151140 Drawing No. CP-120	SHEET NO. 000

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CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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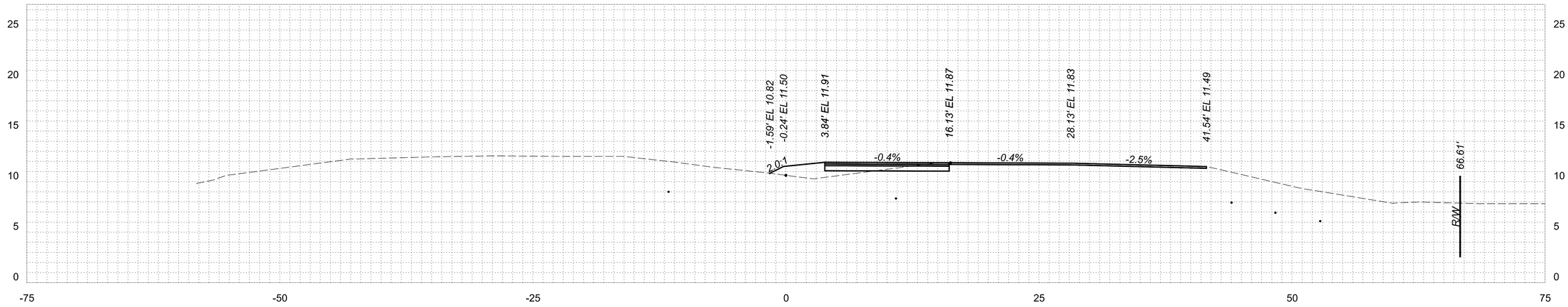
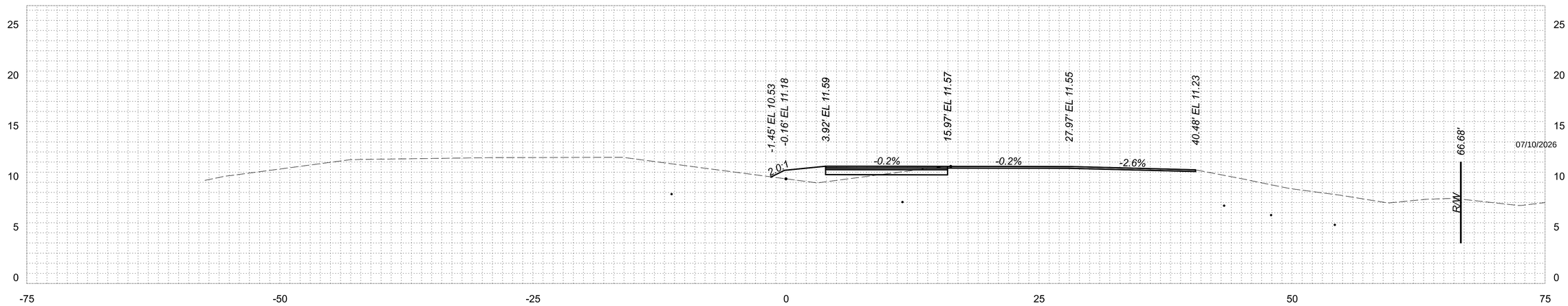


STA 116+75.00



STA 116+50.00

Project No.: 195151140
Drawing No. CP-121

SHEET NO.
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Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

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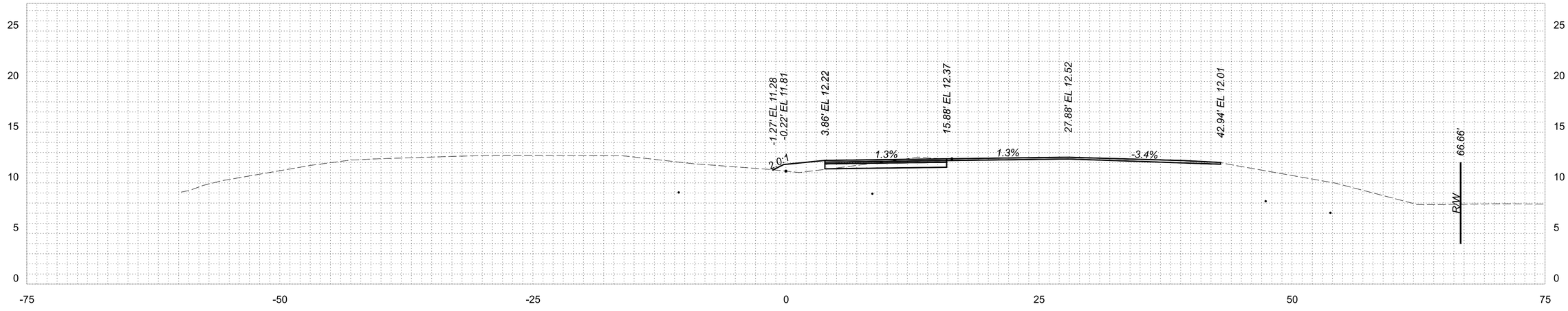
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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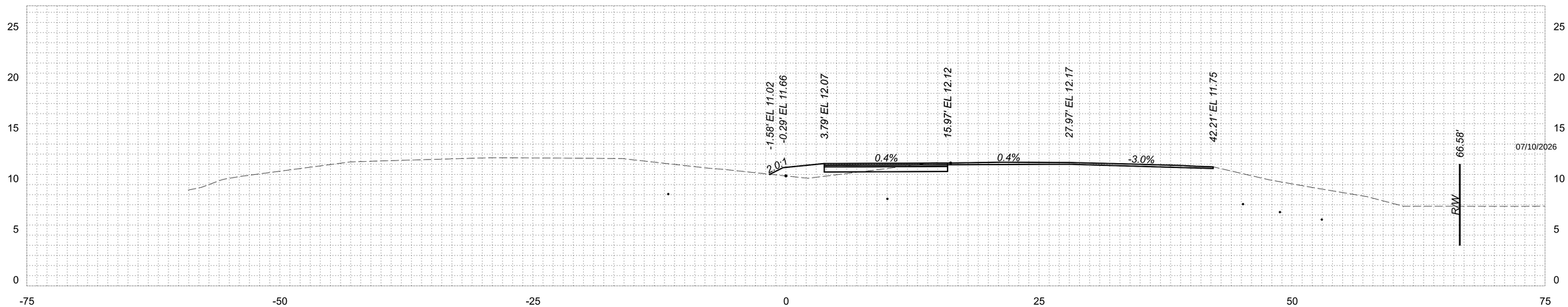


STA 117+00.00

Project No.: 195151140 Drawing No. CP-122	SHEET NO. 000

$TIME$ST AMP$

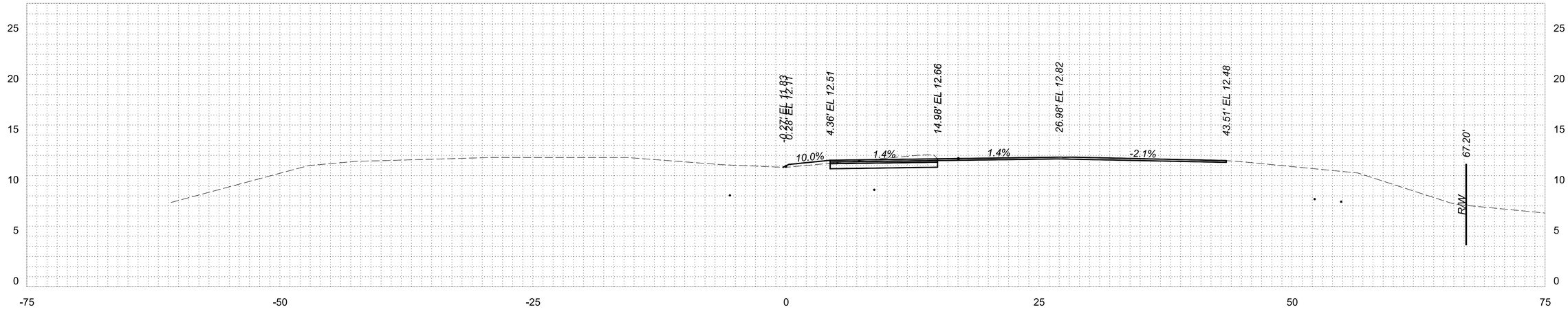
COMMONWEALTH OF VIRGINIA
DGN
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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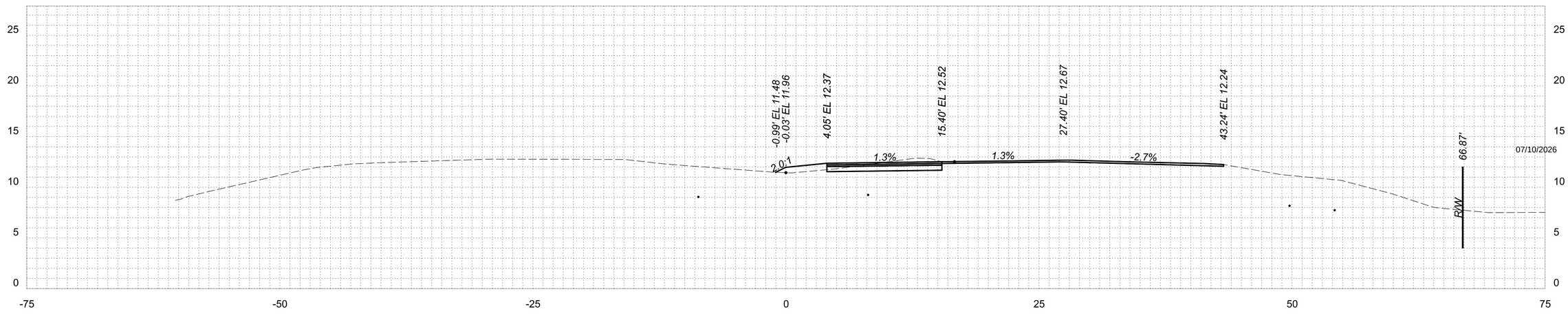

STA 117+50.00

Project No.: 195151140
Drawing No. CP-123

SHEET NO.
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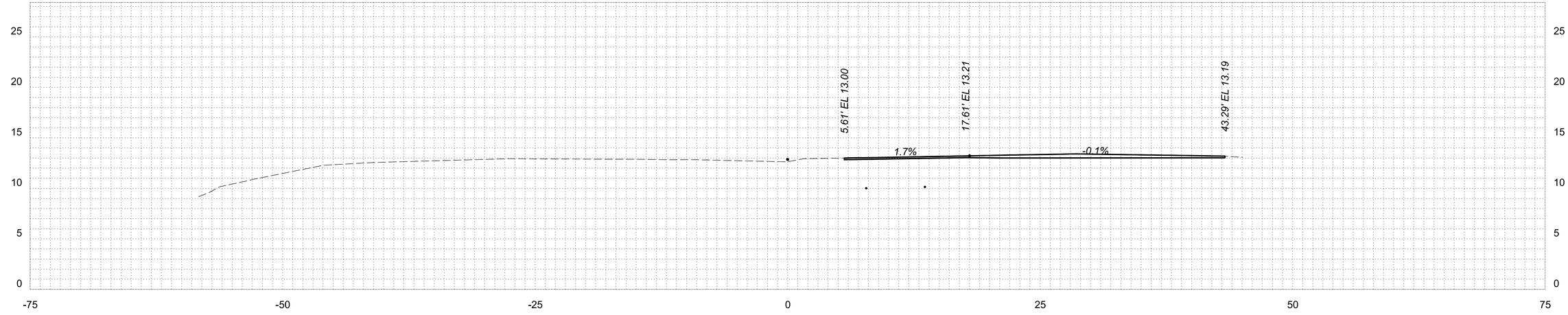
$DGNLEV
MATTHEW B. HOGAN
Lic. No. 047938
PROFESSIONAL ENGINEER

CROSS SECTIONS

SCALE 1 IN. = 5 FT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	000	(000) 0000-000-000 000-0000(000) PE-000, RW-000, C-000	000



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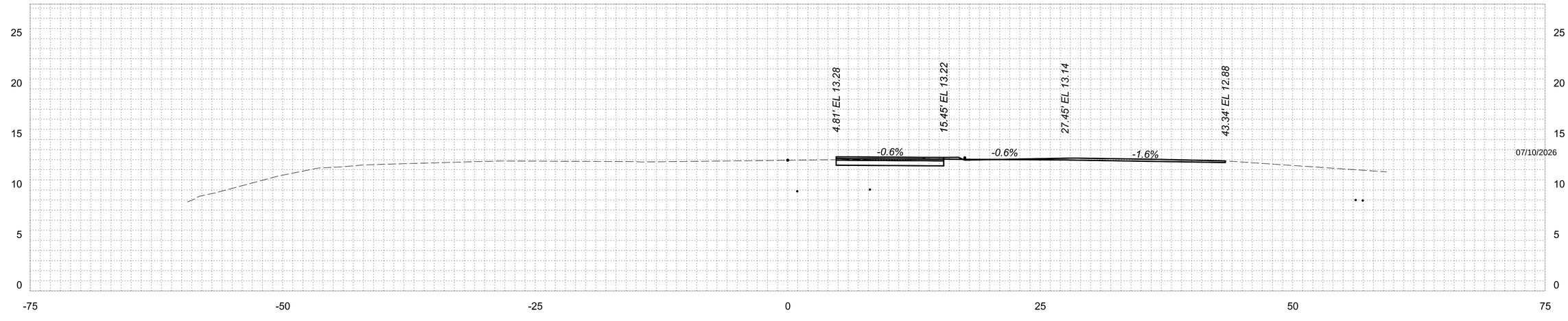


STA 118+00.00

Project No.: 195151140 Drawing No. CP-124	SHEET NO. 000

$TIME$STAMP$

Intersection Sight Distance

The following table shows intersection sight distance requirements for various speeds along major roads:

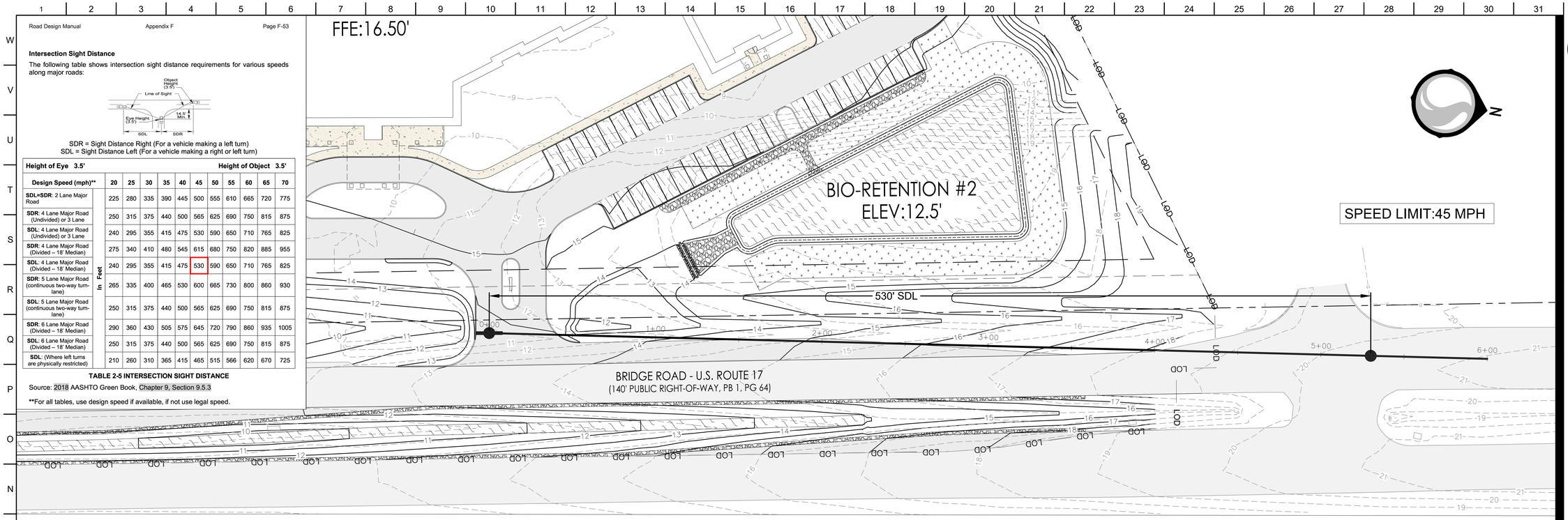
SDR = Sight Distance Right (For a vehicle making a left turn)
SDL = Sight Distance Left (For a vehicle making a right or left turn)

Height of Eye 3.5'										Height of Object 3.5'		
Design Speed (mph)**		**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
SDL=SDR: 2 Lane Major Road	In Feet	225	280	335	390	445	500	555	610	665	720	775
SDR: 4 Lane Major Road (Undivided) or 3 Lane	In Feet	250	315	375	440	500	565	625	690	750	815	875
SDL: 4 Lane Major Road (Undivided) or 3 Lane	In Feet	240	295	355	415	475	530	590	650	710	765	825
SDR: 4 Lane Major Road (Divided – 18' Median)	In Feet	275	340	410	480	545	615	680	750	820	885	955
SDL: 4 Lane Major Road (Divided – 18' Median)	In Feet	240	295	355	415	475	530	590	650	710	765	825
SDR: 5 Lane Major Road (continuous two-way turn-lane)	In Feet	265	335	400	465	530	600	665	730	800	860	930
SDL: 5 Lane Major Road (continuous two-way turn-lane)	In Feet	250	315	375	440	500	565	625	690	750	815	875
SDR: 6 Lane Major Road (Divided – 18' Median)	In Feet	290	360	430	505	575	645	720	790	860	935	1005
SDL: 6 Lane Major Road (Divided – 18' Median)	In Feet	250	315	375	440	500	565	625	690	750	815	875
SDL: (Where left turns are physically restricted)	In Feet	210	260	310	365	415	465	515	566	620	670	725

TABLE 2-5 INTERSECTION SIGHT DISTANCE

Source: 2018 AASHTO Green Book, Chapter 9, Section 9.5.3

**For all tables, use design speed if available, if not use legal speed.



SIGHT DISTANCE PLAN

SCALE: HORIZONTAL 1"=30'

0 30' 60'
HORIZONTAL SCALE: 1"=30'

SIGHT DISTANCE PROFILE

SCALE: HORIZONTAL 1"=30' VERTICAL 1"=5'

0 30' 60'
HORIZONTAL SCALE: 1"=30'

0 5' 10'
VERTICAL SCALE: 1"=5'

ORIGINAL SHEET - ARCH D

Stantec

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Notes

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140
Scale: AS SHOWN
Title

SIGHT DISTANCE PLAN

Drawing No.
CP-125

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
CP-101	PAVEMENT MARKING AND SIGNING INDEX OF SHEETS, NOTES & LEGENDS
CP-102	CITY OF SUFFOLK TRAFFIC GENERAL NOTES
CP-103	SIGN SCHEDULE
CP-104	PAVEMENT MARKING AND SIGNING PLAN

GENERAL NOTES - PAVEMENT MARKING

1. INSTALLATION AND MATERIALS FOR ALL PAVEMENT MARKINGS AND LEGENDS WILL BE IN ACCORDANCE WITH THE CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS/TRAFFIC ENGINEERING DIVISION SPECIFICATIONS SET FORTH IN THIS DOCUMENT UNLESS OTHERWISE STATED ON THE PLANS OR IN CONTRACT DOCUMENTS.
2. THE CONTRACTOR WILL NOTE ALL SPECIAL PROVISIONS OF THE CONTRACT ON THE PLANS, SUCH AS THE RATE OF APPLICATION, MAINTENANCE OF TRAFFIC, RESTRICTED WORKING HOURS, AND/OR RESTRICTED WEATHER CONDITIONS. NO DEVIATION FROM THIS WILL BE PERMITTED.
3. THE CONTRACTOR WILL REMOVE ALL PREVIOUS PAVEMENT MARKINGS WHICH IN THE OPINION OF THE ENGINEER WILL CONFLICT WITH THE NEW PAVEMENT MARKINGS. ALL ERADICATION WILL BE IN CONFORMANCE WITH THE VDOT SPECIFICATIONS.
4. THERMOPLASTIC PAVEMENT MARKINGS OR PREFORMED POLYMER MARKINGS WILL NOT BE INSTALLED WITHIN A 48-HOUR PERIOD FOLLOWING A RAINFALL.
5. ALL PAVEMENT MARKINGS WILL BE REFLECTORIZED ACCORDING TO VDOT ROAD AND BRIDGE SPECIFICATIONS, (2020) SECTION 246.
6. PAVEMENT MARKINGS WILL BE INSTALLED ACCORDING TO THE REGULATIONS GOVERNING THE DESIGN, LOCATION, AND OPERATION OF ALL OFFICIAL TRAFFIC SIGNS, SIGNALS, AND MARKINGS ON AND ALONG HIGHWAYS WITHIN THE COMMONWEALTH OF VIRGINIA.
7. ALL PAVEMENT MARKINGS WILL BE REFLECTORIZED ACCORDING TO VDOT ROAD AND BRIDGE SPECIFICATIONS, (2020) SECTION 246.
8. ALL PAVEMENT MARKINGS INSTALLED IN THE CITY'S RIGHT OF WAY WHETHER "TEMPORARY OR PERMANENT" WILL CONTAIN GLASS BEADS.
9. THE CONTRACTOR WILL PREPARE THE PAVEMENT SURFACE FOR PROPER ADHESION. ANY SWEEPING OR REMOVAL OF DEBRIS, GRAVEL, DIRT, OR OTHER FOREIGN MATERIALS WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION. NO SEPARATE PAYMENT WILL BE MADE FOR THIS.
10. UNLESS OTHERWISE SPECIFIED, THE BASIS OF MEASUREMENT WILL BE ALONG THE LONGITUDINAL CENTERLINE OF THE PAVEMENT MARKINGS. MEASUREMENT FOR LEGENDS WILL BE ACCORDING TO THE MESSAGE; COMPLETE, AND IN PLACE.
11. BEFORE THE APPLICATION, THE CONTRACTOR WILL "FIELD CHECK" AND PLACE ALL PAVEMENT MARKINGS, TO THE SATISFACTION OF THE ENGINEER.
12. BEFORE ANY MARKINGS WILL BE APPLIED IN THE RIGHT OF WAY, THE CITY TRAFFIC ENGINEER'S OFFICE MUST BE NOTIFIED 72 HOURS IN ADVANCE. IF THIS OFFICE IS NOT NOTIFIED AND THE MARKINGS DO NOT MEET WITH WHAT THE CITY TRAFFIC ENGINEER'S OFFICE CONSIDERS PROPER, THE MARKINGS WILL BE ERADICATED AND REPLACED AT THE SOLE EXPENSE OF THE CONTRACTOR.
13. ALL MARKINGS IMPROPERLY APPLIED OR LOCATED WILL BE COMPLETELY REMOVED AND CORRECTLY REAPPLIED AT THE EXPENSE OF THE CONTRACTOR.
14. WHERE BITUMINOUS SEALANTS PREVENT OR MAKE IT IMPRACTICAL TO EXTEND THE LINES TO EDGE OF PAVEMENT, THE CONTRACTOR WILL EXTEND THE LINES TO END OF THE SEALED AREA OR WITHIN ONE (1) FOOT OF THE EDGE OF PAVEMENT.
15. THE MARKINGS WILL BE PROVIDED IN SPECIFIED WIDTH AND SHAPES. PREFORMED WORDS AND SYMBOLS WILL CONFORM TO THE APPLICABLE SHAPES AND SIZES AS OUTLINED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, OR AS MODIFIED.
16. THE COLORS WILL NOT CHANGE THROUGHOUT THE EXPECTED LIFE OF THE FILM.
17. MARKING MATERIAL WILL BE APPLIED AT SPECIFIED DIMENSIONS AT A RATE RESULTING IN A MARKING THICKNESS OF 90 MILS +/- 5 MILS, NOT INCLUDING GLASS BEAD TOP DRESSING.
18. PROPOSED MARKINGS SHALL TIE-INTO EXISTING PAVEMENT MARKINGS AND MATCH ANY EXISTING PATTERNS.
19. PERMANENT PAVEMENT MARKINGS SHALL BE VDOT TYPE B, CLASS I.

GENERAL NOTES - SIGNING

1. SIGN LOCATIONS ARE TO BE STAKED BY THE CONTRACTOR AND APPROVED BY THE CITY INSPECTOR PRIOR TO INSTALLATION.
2. UNLESS OTHERWISE APPROVED BY THE ENGINEER, EXISTING TRAFFIC SIGNS WHICH ARE TO BE REMOVED SHALL REMAIN IN PLACE UNTIL THE NEW SIGN STRUCTURE AND CRITICAL SIGN MESSAGE ARE IN PLACE.
3. EXISTING SIGNS WITHIN THE LIMITS OF THE CONTRACT WHICH HAVE NOT BEEN ACCOUNTED FOR IN THE SIGNING AND MOT PLANS SHALL BE RELOCATED OR REMOVED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.

NOTE:
CONTACT MISS UTILITY OF VIRGINIA AT LEAST 72 HOURS BEFORE GROUND PENETRATION OR EXCAVATION AT 811.

STANDARD SIGN LEGEND

PLAN ITEM	PLAN SYMBOL PROPOSED	PLAN SYMBOL EXISTING
Single Post Sign Support		
Double Post Sign Support		
Triple Post Sign Support		
Flashing Beacon		
O/H Cantilever Sign Support		
O/H Span Sign Support		

SIGN CALL-OUTS

Existing Sign to Remain or to be Relocated — WESTBOUND 95

Existing Sign to be Removed — WESTBOUND 95

Proposed Sign Panel — WESTBOUND 95

SIGN LABELS

Proposed Sign Assemblies

2808
3

denotes Sign Assembly No.
denotes Text No.

Relocated Sign Assemblies

2808
3

denotes Sign Assembly No.
denotes Text No.

Sign Relocation or Payable Sign Disposal/Salvage

A

denotes Existing Sign Structure and/or Sign Panel Type

STRUCTURE & SIGN PANEL
GM – Ground Mounted
OM – Overhead Mounted
CM – Cantilever Mounted

SIGN PANEL
SP-GM – Ground Mounted Sign Panel
SP-OH – Overhead Mounted Sign Panel

STRUCTURE ONLY
ST-GM – Ground Mounted

denotes Action and Measurement & Payment Item

A – Remove & Dispose
B – Remove & Salvage
C – Relocate
D – Overlay Sign Panel

Signs noted on plans to be removed that do not have an accompanying sign label shall not be measured separately for payment. Removal and disposal for such signs shall be incidental to other contract items.

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Notes

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
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07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
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216-292-5706
CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title
PAVEMENT MARKING AND SIGNING INDEX OF SHEETS NOTES AND LEGEND

Drawing No.
CP-126

ORIGINAL SHEET - ARCH D

CITY OF SUFFOLK TRAFFIC ENGINEERING GENERAL NOTES

1. A LAND USE PERMIT MUST BE OBTAINED FROM THE CITY OF SUFFOLK, DEPARTMENT OF PUBLIC WORKS, ROAD MAINTENANCE DIVISION AT 757-514-7625 BEFORE ANY CONSTRUCTION IS STARTED WITHIN THE EXISTING CITY RIGHT OF WAY, CONTACT THE CITY FOR THE PERMIT FEE AND BOND AMOUNT. ALL LAND USE PERMIT APPLICATIONS MUST HAVE TWO (2) SETS OF APPROVED PLANS, A CHECK FOR THE PROCESSING FEE MADE PAYABLE TO THE CITY TREASURER, AND SURETY IN THE REQUIRED AMOUNT.

2. THE DEVELOPER IS RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES OR PAVEMENT MARKINGS WITHIN THE EXISTING RIGHT OF WAY OR PROPOSED RIGHT OF WAY REQUIRED BY THE DEVELOPMENT OF THE SITE/SUBDIVISION.

3. THE DEVELOPER IS RESPONSIBLE FOR THE COST OF A TRAFFIC SIGNAL OR ANY MODIFICATIONS TO AN EXISTING TRAFFIC SIGNAL THAT ARE DETERMINED TO BE NECESSARY, THIS WORK MAY BE BY A CONTRACTOR HIRED BY THE DEVELOPER, WITH TRAFFIC ENGINEERING INSPECTION AND APPROVAL OF WORK. SOME WORK MAY BE CHARGED UNDER AN OPERATIONAL PROJECT (ACCOUNTS RECEIVABLE) NUMBER AND PERFORMED BY CITY STAFF, CONTACT THE CITY TRAFFIC ENGINEER FOR THE PROPER PROCEDURE TO BE FOLLOWED ON THIS PROJECT.

4. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONSULT WITH THE DEVELOPER'S ENGINEER TO VERIFY THE FINAL APPROVAL OF THE PLANS, OR ANY REVISED PLANS, BY THE VARIOUS AGENCIES (PUBLIC UTILITIES, PUBLIC WORKS, ETC.).

5. CITY OF SUFFOLK APPROVAL OF THESE PLANS WILL EXPIRE IN FIVE (5) YEARS FROM THE DATE OF APPROVAL.

6. THE TRAFFIC ENGINEER IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY TRAFFIC ENGINEERING RELATED WORK, A PRE -CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO ANY TRAFFIC ENGINEERING RELATED WORK ON THE SITE. THE CONTRACTOR SHALL ATTEND THE PRE -CONSTRUCTION MEETING, THE DEVELOPER'S CONTRACTOR SHALL HAVE A PROPOSED PROGRESS SCHEDULE OF WORK.

7. ANY ERRORS, CONFLICTS, OR DISCREPANCIES FOUND ON THE APPROVED PLANS SHALL BE REPORTED TO THE DEVELOPER'S ENGINEER AND THE CITY TRAFFIC ENGINEER FOR RESOLUTION BEFORE PROCEEDING FURTHER WITH WORK.

8. THE DEVELOPER'S ENGINEER AND CONTRACTOR (SUB-CONTRACTOR) SHALL VERIFY IN THE FIELD THE ELEVATIONS OF ALL POINTS OF CONNECTION OF PROPOSED WORK TO EXISTING ITEMS, PRIOR TO THE CONSTRUCTION IN THE FIELD.

9. ALL MATERIALS AND CONSTRUCTION WITHIN THE PROPOSED PUBLIC RIGHT OF WAY, SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF SUFFOLK SPECIFICATIONS AND STANDARDS.

10. ANY REQUEST FOR A CHANGE OF SPECIFIED MATERIALS OR DESIGN FROM THE APPROVED PLANS WILL NEED TO BE SUBMITTED TO THE CITY TRAFFIC ENGINEER, A LETTER MUST ACCOMPANY THE PROPOSED CHANGES AND INCLUDE REVISED PLAN SHEETS AND/OR DESIGN CALCULATIONS FOR REVIEW AND APPROVAL BY THE CITY TRAFFIC ENGINEER.

11. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING THE GEOTECHNICAL (SOILS) REPORT, A PROFESSIONAL ENGINEER OR PROFESSIONAL GEOLOGIST SHALL SUBMIT A COMPLETE REPORT WITH BORING DATA AND RECOMMENDATIONS TO THE CITY FOR APPROVAL OF THE PROPOSED METHOD OF CONSTRUCTION, THIS REPORT SHALL BE IN CONFORMANCE WITH VDOT ROAD AND BRIDGE SPECIFICATION 700, THE REPORT WILL SHOW THE BORE LOCATIONS, TYPES OF SOILS ENCOUNTERED AND ANY RECOMMENDATIONS.

12. WHEN SOILS OCCUR THAT ARE UNSUITABLE FOR FOUNDATIONS, BACKFILL, OR OTHER WORK REQUIREMENT PURPOSES, THE DEVELOPER'S CONTRACTOR SHALL EXCAVATE SAID MATERIAL UNDER DIRECTION OF THE DEVELOPER'S SOILS ENGINEER BY UNDERCUTTING SUCH MATERIAL BELOW THE PROPOSED GRADES SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE DEVELOPER'S ENGINEER AND THE CITY TRAFFIC ENGINEER UPON DISCOVERY OF THE UNSUITABLE MATERIAL, CONCURRENCE OF THE ENGINEER SHALL BE OBTAINED BEFORE ADDITIONAL WORK IS UNDERTAKEN.

13. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, ALL EROSION CONTROL MEASURES WILL BE IN PLACE AND REVIEWED BY THE CONTRACTOR DAILY AND AFTER ALL INCLEMENT WEATHER TO INSURE COMPLIANCE FOR THE CONTROL OF ANY EROSION AND SILTATION, ANY CORRECTIONS OR REPAIRS WILL BE MADE IMMEDIATELY, IN ACCORDANCE WITH CITY OF SUFFOLK PFM (PUBLIC FACILITIES MANUAL), THE CITY REQUIRES AN INDIVIDUAL CERTIFIED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION, HOLDING A RESPONSIBLE LAND DISTURBER CERTIFICATION TO BE IN CHARGE OF THE LAND DISTURBING ACTIVITY AND ON THE WORK SITE AT ALL TIMES.

14. THE CONTRACTOR AND SUBCONTRACTOR(S) SHALL HAVE A COPY OF THE CURRENT PROJECT STANDARDS AND SPECIFICATIONS AT THE SITE, THE CONTRACTOR SHALL HAVE AT LEAST ONE (1) SET OF APPROVED PLANS WITH ALL APPROVED REVISIONS, THE LAND USE PERMIT WILL BE AT THE SITE AT ALL TIMES.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS AT THEIR EXPENSE FOR ANY UTILITIES DAMAGED BY THEIR CONSTRUCTION METHODS, MISS UTILITY MUST BE CONTACTED AT 1-800-552-7001 AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, CURB AND GUTTER, DRIVEWAY PIPE, SIDEWALK, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION OF THE PROJECT.

17. CERTIFICATION AND SOURCE OF MATERIALS ARE TO BE SUBMITTED TO THE CITY TRAFFIC ENGINEER. ALL MATERIALS MUST MEET CITY OF SUFFOLK SPECIFICATIONS AND STANDARDS.

18. THE DEVELOPER'S GEOTECHNICAL ENGINEER AND/OR CERTIFIED MATERIALS TECHNICIANS WILL PERFORM COMPACTION (DENSITY) TESTS FOR REVIEW BY THE CITY OF SUFFOLK, ALL TESTS WILL BE PERFORMED IN ACCORDANCE WITH THE CURRENT PFM SPECIFICATIONS AND STANDARDS. BACKFILL MATERIAL FOR PIPE, STRUCTURES AND UTILITIES LOCATED WITHIN THE PROPOSED RIGHT OF WAY WILL BE COMPACTED AND TESTED AS THE FILL MATERIAL IS PLACED IN UNIFORM LIFTS, A MINIMUM OF 95% DENSITY WITH THE SOILS STANDARD PROCTOR WILL BE OBTAINED WITH THE PROPER MOISTURE CONTENT ON EMBANKMENT AND FILLS MATERIAL. FOR THE FINAL 6' OF THE FINISHED SUBGRADE, 100%. DENSITY WILL BE OBTAINED. THE TEST RESULTS WILL BE SUBMITTED TO THE CITY OF SUFFOLK FOR REVIEW AND COMPLIANCE OF THE MATERIALS PRIOR TO THE DEVELOPER'S CONTRACTOR REQUESTING AN INSPECTION FOR A PROOF ROLL ON THE SUBGRADE, AGGREGATE STONE, BASE MIX (ASPHALT) OR THE PLACEMENT OF THE SURFACE MIX.

19. ALL TRAFFIC ENGINEERING EASEMENTS SHALL BE LABELED AS 'TRAFFIC CONTROL EASEMENTS' AND SHALL BE DEDICATED TO THE CITY OF SUFFOLK.

20. ALL CONCRETE SHALL BE CLASS A3 (3000PSI WITH AIR ENTRAINED ADDITIVE) AND TESTED BY THE DEVELOPER'S GEOTECHNICAL ENGINEER FOR CONFORMANCE TO CITY OF SUFFOLK PFM SPECIFICATIONS AND STANDARDS.

21. THERE SHALL BE A MINIMUM OF 6' OF COMPACTED 21-B AGGREGATE MATERIAL OR STONE DEPTH SHALL MATCH THE EXISTING PAVEMENT TYPICAL UNDER THE CURB AND GUTTER; THIS MATERIAL SHALL EXTEND 1' BEYOND THE BACK OF THE CURB AND GUTTER, DENSITY TESTS SHALL BE TAKEN PRIOR TO A PROOF ROLL OF THE MATERIAL AND PLACEMENT OF THE CURB/CURB AND GUTTER, UNDERDRAINS WILL BE INSTALLED ON RAISED CURB MEDIANS IN ACCORDANCE WITH CURRENT CITY OF SUFFOLK PFM SPECIFICATIONS AND STANDARDS.

22. ALL STREETS WITH CURB AND GUTTER SHALL HAVE A STANDARD CG ENTRANCE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY PFM, THE CURB AND GUTTER PAN SHALL BE REMOVED PRIOR TO THE INSTALLATION OF THE ENTRANCE UNLESS A WIPE-DOWN OF THE CURB *W* AS MADE DURING THE INSTALLATION OF THE CURB AND GUTTER. THE SAW CUTTING AND REMOVAL OF ONLY THE CURB PORTION IS NOT ALLOWED. IT IS THE DEVELOPER'S RESPONSIBILITY TO INSURE THAT THE BUILDERS HAVE INSTALLED ALL CONCRETE ENTRANCES IN ACCORDANCE WITH CITY OF SUFFOLK SPECIFICATION AND STANDARDS.

23. ALL UNDERGROUND UTILITIES ARE TO BE IN PLACE PRIOR TO THE PLACEMENT OF THE BASE MATERIAL AND SHALL HAVE A MINIMUM COVERING OF 36', □ N CURB AND GUTTER STREETS, THE AREA DIRECTLY BEHIND THE CURB TO THE RIGHT OF W AY LINE SHALL BE RELATIVELY FLAT AT THE PRIVATE ENTRANCE LOCATION, THE DEVELOPER'S CONTRACTOR SHOULD CUT EMBANKMENTS TO THE RIGHT OF WAY LINE PRIOR TO THE INSTALLATION OF ALL UNDERGROUND UTILITIES TO INSURE A MINIMUM 36' OF COVER.

24. ALL HOT MIX (ASPHALT) COURSES SHALL BE PLACED IN ACCORDANCE WITH CITY PFM. THE WEATHER LIMITATIONS OF A 40O F SURF ACE TEMPERATURE OR 50O F AND RISING AIR TEMPERATURE SHALL BE FOLLOWED, THE DEVELOPER'S GEOTECHNICAL ENGINEER SHALL TEST THE MATERIAL TO INSURE COMPLIANCE WITH CURRENT PFM SPECIFICATION AND THE SUPPLIER'S JOB MIX DESIGN, THE DEVELOPER'S GEOTECHNICAL ENGINEER SHALL ALSO PERFORM A ROLLER PATTERN AND A CONTROL STRIP FOR THE THEORETICAL DENSITY (COMPACTION) OF THE MATERIAL IN CONFORMANCE WITH THE CURRENT CITY PFM SPECIFICATIONS.

25. ALL UTILITY CABINETS, PEDESTALS, AND STREETLIGHTS SHALL BE LOCATED IN ACCORDANCE WITH CLEAR ZONE REQUIREMENTS, AS NOTED IN THE CURRENT PFM, THERE SHALL NOT BE ANY CABINETS, PEDESTALS, OR FIRE HYDRANTS LOCATED ON THE SHOULDER.

26. ALL STORM PIPE, OROP INLET STRUCTURES, DITCHES, AND CURB AND GUTTER SHALL BE CLEANED OF DEBRIS AND SILT DURING THE LAST STAGES OF CONSTRUCTION.

27. FLOWERS, SHRUBS, AND TREES SHALL NOT BE PLACED WITHIN THE PROPOSED RIGHT OF WAY BY THE DEVELOPER OR HOMEOWNER WITHOUT AN APPROVED SET OF PLANS AND/OR APPROVED PLANTING AGREEMENT. NO IRRIGATION (SPRINKLER) SYSTEMS SHALL BE LOCATED WITHIN THE PROPOSED R/W, ANY IRRIGATION SYSTEM FOUND WITHIN THE R/W WILL BE REMOVED PRIOR TO THE ACCEPTANCE OF THE STREETS AND ALL COSTS WILL BE BORNE BY THE OWNER, NO BRICK COLUMNS, ENDWALLS AND/OR BRICK MAILBOXES WILL BE CONSTRUCTED OR INSTALLED IN THE PROPOSED R/W, ANY OF THE ABOVE ITEMS FOUND IN THE PROPOSED R/W WILL BE REMOVED AND ALL COSTS OF REMOVAL WILL BE BORNE BY THE OWNER AND/OR DEVELOPER, THE DEVELOPER IS RESPONSIBLE FOR INSTALLING MAILBOX POSTS.

28. NO EASEMENTS SHALL ENCROACH UPON THE PROPOSED R/W, ANY EASEMENTS LOCATED WITHIN THE PROPOSED R/W MUST BE REMOVED FROM THE PLAT PRIOR TO RECORDATION OF THE PLAT, A DEED OF QUIT CLAIM WILL BE REQUIRED ON ANY EASEMENTS LOCATED WITHIN THE PROPOSED R/W PRIOR TO THE ACCEPTANCE OF THE STREETS INTO THE CITY ROAD SYSTEM.

29. CONTACT CITY TRAFFIC ENGINEER 72 HOURS IN ADVANCE OF ALL PAVEMENT MARKINGS/SIGN INSTALLATIONS AT (757) 514-7603, FAILURE TO DO SO MAY RESULT IN ADDITIONAL COST TO THE DEVELOPER

30. CONTACT THE CITY TRAFFIC ENGINEER AT (757) 514-7603 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER AN OPEN CUT OR BORING OF A UTILITY LINE ACROSS A ROAD IS WITHIN 400 FEET OFA TRAFFIC SIGNAL SO THE LINES CAN BE MARKED, FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

31. TRAFFIC ON EXISTING ROADWAYS MUST BE MAINTAINED DURING CONSTRUCTION WHEN ANY WORK IS BEING PERFORMED WITHIN THE EXISTING R/W, THE MAINTENANCE OF TRAFFIC PLAN FOR THIS WORK MUST BE IN CONFORMANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND ANY OTHER SPECIAL PROVISIONS LISTED IN THE CITY LAND USE PACKAGE FOR THIS SITE.

32. DURING CONSTRUCTION, THE OWNER/DEVELOPER SHALL RECORD ON A SET OF PLANS THE AS-BUILT LOCATIONS AND DIMENSIONS OF ALL TRAFFIC FACILITIES CONSTRUCTED, THE OWNER/DEVELOPER SHALL FURNISH THE TRAFFIC ENGINEER A COMPLETE SET OF REPRODUCIBLE DRAWINGS AND ELECTRONIC FILES IN A VERSION OF AUTOCAD NO OLDER THAN RELEASE 14 SHOWING THE AS-BUILT LOCATIONS AND DIMENSIONS, EACH SHEET SHALL BE MARKED 'AS-BUILT' OR 'RECORD DRAWINGS' AND DATED, ALL AS-BUILT INFORMATION SHALL BE 'BLOCKED' OR 'FRAMED' FOR IDENTIFICATION AS FINAL AS-BUILT INFORMATION.

33. TRAFFIC FACILITIES SHALL BE LOCATED BY A DISTANCE MEASURED FROM THE CENTERLINE OF THE STREET, WHERE APPLICABLE, AND A DISTANCE OVER TO THE STRUCTURE, ALSO MEASURED FROM THE CENTERLINE OF THE STREET. A TOLERANCE OF TEN FEET (10') FOR DRAWINGS AT A SCALE OF TWENTY FEET (20') OR MORE AND FIVE FEET (5') FOR A DRAWING AT A SCALE LESS THAN TWENTY FEET (20') WILL BE ALLOWED FOR THE DRAWN LOCATION OF STRUCTURES, WHERE THE AS-BUILT LOCATION OF A STRUCTURE IS AT A GREATER DISTANCE THAN THAT INDICATED ABOVE FROM IT'S PLANNED LOCATION, THE STRUCTURE SHALL BE REDRAWN AT ITS AS-BUILT LOCATION, ERASING OR HATCHING OUT THE STRUCTURE AT ITS PLANNED LOCATION.

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Permit/Seal

COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
SABER HEALTH CARE GROUP
23700 COMMERCE PARKWAY
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216-292-5706
CONTACT: MICHAEL COYNE

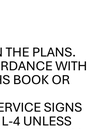
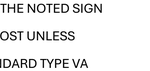
Project No.: 195151140
Scale: AS SHOWN
Title

CITY OF SUFFOLK TRAFFIC GENERAL NOTES

Drawing No.
CP-127

ORIGINAL SHEET - ARCH D

SIGN SCHEDULE

TEXT NO.	SIGN ASSEMBLY NO(s).	TEXT	SIGN ASSEMBLY COMPONENTS: MUTCD ST'D.	PANEL SIZE W	PANEL SIZE H	QTY.	SIGN PANEL AREA (s.f.): per ASSEMBLY	SIGN PANEL AREA (s.f.): ALL ASSEMBLIES	PROP. SIGN STRUCTURE ST'D.	REMARKS
1	1		R1-1	30	30	1	6.25	6.25	STP-1 2 1/2" 12 GA.	
2	2, 3		R2-1	24	30	2	5	10	STP-1 2 1/2" 12 GA.	
3	4		R6-1	36	12	1	3	3	STP-1 2 1/2" 12 GA.	

NOTES:

1. ALL SIGNS SHALL BE ORIENTATED AS SHOWN ON THE PLANS.
2. SIGN COLOR COMBINATIONS SHALL BE IN ACCORDANCE WITH THE FHWA SHS BOOK AND THE 2011 VIRGINIA SHS BOOK OR AS NOTED IN THE PLANS.
3. ALL POSITIVE CONTRAST GUIDE AND SPECIFIC SERVICE SIGNS SHALL UTILIZE FABRICATION LETTER TYPE L-3 OR L-4 UNLESS OTHERWISE NOTED IN THE REMARKS. ALL OTHER SIGNS SHALL UTILIZE FABRICATION LETTER TYPE L-1 OR L-2 UNLESS OTHERWISE NOTED IN THE REMARKS.
4. ALL BLACK SHEETING SHALL BE NON-REFLECTIVE.
5. SIGN STRUCTURES SHALL BE INSTALLED PER THE NOTED SIGN ST'D.
6. ALL ST'D. STP-1 STRUCTURES TO BE SINGLE POST UNLESS OTHERWISE NOTED.
7. IF APPLICABLE, SEE SHEET 2D FOR NON-STANDARD TYPE VA AND VIA SIGN STRUCTURE DETAILS.

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COMMONWEALTH OF VIRGINIA
MATTHEW B. HOGAN
Lic. No. 0402047938
07/10/2026
PROFESSIONAL ENGINEER

Client/Project
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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title

SIGN SCHEDULE

Drawing No.

CP-128

PAVEMENT MARKING LEGEND

- (A) TYPE B, CLASS I, YELLOW PAVEMENT LINE MARKING, 4" WIDTH
- (B) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH
- (C) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH (10? LINE, 30? SPACE)
- (D) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 4" WIDTH (2? LINE, 4? SPACE)
- (E) TYPE B, CLASS I, WHITE PAVEMENT LINE MARKING, 24" WIDTH

OR PAVEMENT SYMBOL MARKING ELONGATED ARROW SINGLE

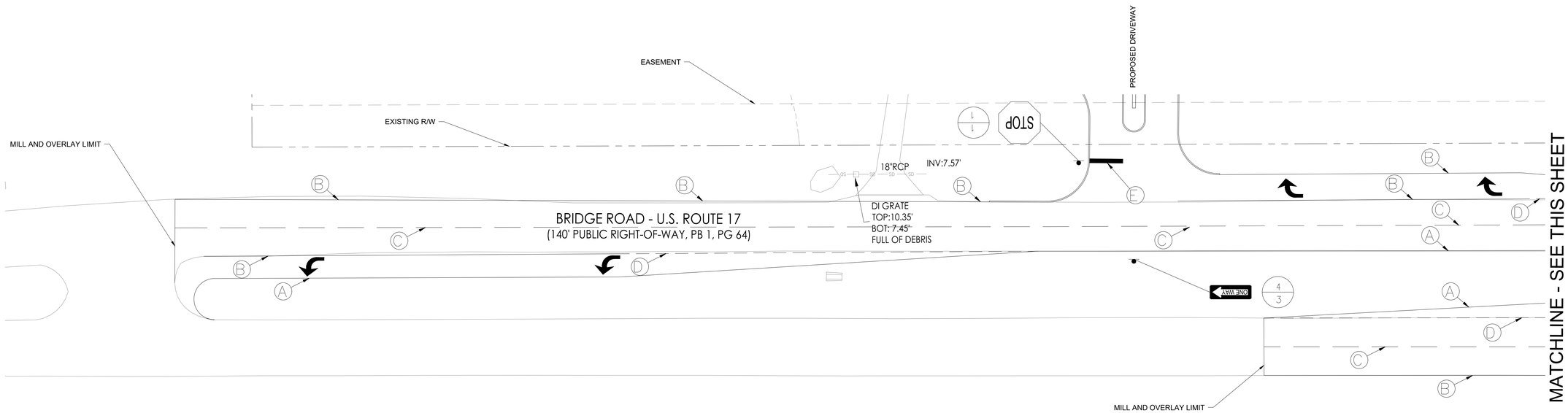
N

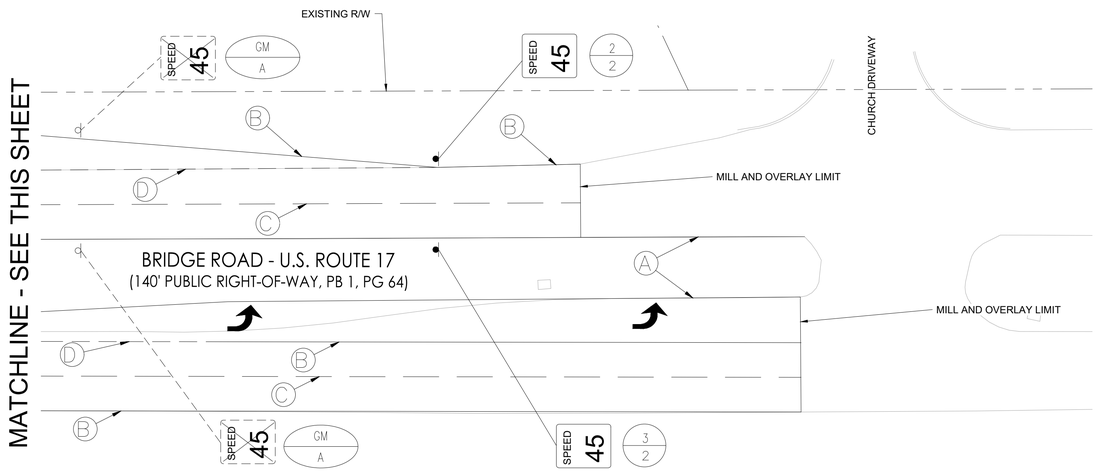
GRAPHIC SCALE

30 0 30 60

(IN FEET)

1 inch = 30 ft.





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Title

PAVEMENT MARKING AND SIGNING PLAN

Drawing No.

CP-129

ORIGINAL SHEET - ARCH D

MAINTENANCE OF TRAFFIC AND SEQUENCE OF CONSTRUCTION NOTES

GENERAL NOTES:

1. IT IS NOT THE INTENT OF THE SEQUENCE OF CONSTRUCTION PLAN TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN THE CONSTRUCTION OF EACH STAGE BUT ONLY TO SHOW THE GENERAL HANDLING OF TRAFFIC.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VIRGINIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), CURRENT VIRGINIA WORK AREA PROTECTION MANUAL (VIRGINIA WAPM) AND THE CURRENT ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS.
3. UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PLAN AND PROSECUTE THE WORK IN ACCORDANCE WITH THE FOLLOWING SEQUENCE OF CONSTRUCTION AND TEMPORARY TRAFFIC CONTROLS PLANS.
4. THE CONTRACTOR SHALL SUBMIT REVISED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PRIOR TO THE BEGINNING OF ANY REVISED PHASE. THE TRAFFIC CONTROL PLAN SHALL SHOW ALL NECESSARY TRAFFIC CONTROL DEVICES INCLUDING SIGNS, PAVEMENT MARKINGS AND CHANNELIZING DEVICES.
5. WORK ZONES SHOULD BE LIMITED TO ONE SIDE OF THE TRAVELED WAY AT A TIME ALONG BRIDGE ROAD UNLESS APPROVED BY THE OWNER. WORK ZONE IS DEFINED AS THE AREA IN WHICH TRAFFIC IS RESTRICTED BECAUSE OF CONSTRUCTION ACTIVITIES OR THAT AREA WHICH INVOLVES A DROP OFF NEXT TO THE PAVEMENT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ZONE SIGNING, DELINEATING PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES NECESSARY TO PERFORM THE WORK. WHICH INCLUDES BAGGING ANY EXISTING SIGN THAT MAY HAVE A CONFLICTING MESSAGE OR ERADICATING CONFLICTING PAVEMENT MARKINGS. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL SUCH TEMPORARY DEVICES.
7. ALL AREAS EXCAVATED BELOW EXISTING PAVEMENT SURFACE, WHICH THE TRAVELING PUBLIC IS ON AND WITHIN THE CLEAR ZONE AND NOT PROTECTED BY A POSITIVE BARRIER AT THE CONCLUSION OF EACH WORKDAY SHALL BE BACKFILLED TO FORM AN APPROXIMATE 6:1 WEDGE AGAINST THE EXISTING PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF THE TRAVELING PUBLIC. COST OF PLACING, MAINTAINING AND REMOVING THE WEDGE SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS IN THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
8. THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE AS REQUIRED TO PREVENT PONDING OF WATER ON THE ROADWAY AND ADJACENT PROPERTIES. ANY TEMPORARY DRAINAGE STRUCTURES INSTALLED ON THE PROJECT ARE THE CONTRACTOR'S RESPONSIBILITY. THE COST OF SUCH STRUCTURES IS TO BE INCLUDED IN THE COST OF OTHER ITEMS.
9. ACCESS AND ADEQUATE SIGHT DISTANCE TO AND FROM PROPERTIES SHALL BE MAINTAINED AT ALL TIMES. VEHICULAR ACCESS TO AND FROM PROPERTIES SHALL BE MAINTAINED AT ALL TIMES UNTIL CONSTRUCTION OF PROPOSED PRIVATE ENTRANCE IS COMPLETE. PRIVATE ENTRANCE CONSTRUCTION SHALL BE COORDINATED WITH THE PROPERTY OWNER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK.
10. THE CONTRACTOR SHALL PROVIDE A MINIMUM LANE WIDTH OF 10 FEET AT ALL TIMES. WHENEVER POSSIBLE, CONTRACTOR SHALL PROVIDE LANE WIDTHS WIDER THAN 10 FEET.
11. THE CONTRACTOR SHALL PLAN THE TRANSFER OF MATERIALS AND EQUIPMENT IN A MANNER THAT MINIMIZES THE IMPACT ON TRAFFIC MOVEMENT, AS MUCH AS PRACTICAL. THE CONTRACTOR SHALL CHECK ALL TRAFFIC MAINTENANCE AND CONTROL DEVICES AND WORK ZONES BEFORE, DURING, AND AFTER EACH WORK DAY TO ENSURE PROPER OPERATION. ON WEEKENDS, HOLIDAYS, OR ANY NON-WORKING DAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE TEMPORARY TRAFFIC CONTROL DEVICES DAILY FOR PROPER OPERATION.
12. THE CONTRACTOR SHALL MAINTAIN ONE LANE IN EACH DIRECTION AT ALL TIMES. THE TEMPORARY CLOSURE OF ONE LANE WILL BE ALLOWED DURING TEMPORARY LANE CLOSURE HOURS ONLY OR AS DIRECTED BY THE ENGINEER OR AS DEEMED NECESSARY DURING TIMES OF CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT.
13. AT NIGHT OR DURING NON-CONSTRUCTION HOURS, ALL EXCAVATED AREAS THAT AFFECT THE MOVEMENT OF PEDESTRIAN, BICYCLIST, OR MOTOR VEHICLE TRAFFIC ARE TO BE BACKFILLED OR SECURED AND PROTECTED BY USING APPROVED SAFETY DEVICES OR MATERIALS.
14. FOR ALL APPROVED CONSTRUCTION/TRUCK ENTRANCES, THE CONTRACTOR WILL INSTALL "TRUCKS ENTERING HIGHWAY" (48" X 48" ORANGE AND BLACK) WARNING SIGNS ON 6" X 6" WOODEN GROUND MOUNTED POSTS. THESE SIGNS SHALL BE INSTALLED APPROXIMATELY 500 FEET IN ADVANCE OF ALL APPROVED CONSTRUCTION ACCESS/ENTRANCE POINTS.
15. ANY TRAFFIC CONTROL DEVICES INCLUDING BUT NOT LIMITED TO PAVEMENT MARKINGS AND SIGNS DAMAGED OR DESTROYED BY THE CONTRACTOR MUST BE REPLACED AT THE CONTRACTOR'S EXPENSE UNLESS THEIR REMOVAL OR DESTRUCTION IS CALLED FOR BY THE PLANS.
16. COORDINATE CONSTRUCTION SEQUENCING AND MAINTENANCE OF TRAFFIC WITH ADJACENT CONCURRENT CONSTRUCTION PROJECTS.
17. ALL TEMPORARY PAVEMENT MARKINGS AND MARKERS SHALL FOLLOW THE GUIDELINES AS OUTLINED IN FIGURE TTC-60.0 OF THE VIRGINIA WORK AREA PROTECTION MANUAL.
18. ALLOWABLE WORK ZONE SHALL BE DEFINED AS 9 A.M. TO 4 P.M. OFF PEAK HOURS SHALL BE DEFINED AS 9 P.M. TO 5 A.M.

PHASE 1 NOTES:

1. COMMENCE MOBILIZATION AND SETTING UP STAGING AREA AS DIRECTED BY THE OWNER.
2. CONTRACTOR TO ESTABLISH EROSION AND SEDIMENT CONTROLS FOR CURRENT PHASE, AS APPROPRIATE PER THE EROSION AND SEDIMENT CONTROL PLAN SHEETS.
3. ESTABLISH ALL TEMPORARY TRAFFIC CONTROL DEVICES AS INDICATED ON PLAN SHEETS 1J(3) TO 1J(5) AND IN ACCORDANCE WITH THE CURRENT VIRGINIA WAPM (REFERENCE FIGURES TTC-4.0 AND 16.0).
4. CONSTRUCT PROPOSED DRIVEWAY AND SOUTHBOUND RIGHT TURN LANE UP TO PAVEMENT EDGE. UTILIZE LANE CLOSURE DURING OFF PEAK WORK HOURS FOR TIE IN WORK ALONG BRIDGE ROAD.
5. CONSTRUCT STORMWATER MANAGEMENT (SWM) IMPORVEMENTS, REFER TO SITE PLANS FOR IMPROVEMENTS BEYOND EASEMENT.
6. AT COMPLETION OF PROPOSED DRIVEWAY CONSTRUCTION, DEMOLISH EXISTING DRIVEWAY

PHASE 2 NOTES:

1. CONTRACTOR TO ESTABLISH EROSION AND SEDIMENT CONTROLS FOR CURRENT PHASE, AS APPROPRIATE PER THE EROSION AND SEDIMENT CONTROL PLAN SHEETS.
2. ESTABLISH ALL TEMPORARY TRAFFIC CONTROL DEVICES AS INDICATED ON PLAN SHEETS 1J(6) TO 1J(9) AND IN ACCORDANCE WITH THE CURRENT VIRGINIA WAPM (REFERENCE FIGURES TTC-4.0 AND 16.0).
3. CONSTRUCT SOUTHBOUND LEFT TURN LANE, LENGTHEN EXISTING NORTHBOUND LEFT TURN LANE. CONSTRUCT SWM IMPROVEMENTS IN MEDIAN AS SHOWN ON THE SWM PLANS. UTILIZE LANE CLOSURE DURING OFF PEAK WORK HOURS FOR TIE IN WORK ALONG BRIDGE ROAD.
4. AT COMPLETION OF IMPROVEMENTS, MILL AND OVERLAY ROADWAY AS SHOWN ON ROADWAY PLANS, INSTALL PAVEMENT MARKINGS.

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CONTACT: MICHAEL COYNE

Project No.: 195151140

Scale: AS SHOWN

Title
MAINTENANCE OF TRAFFIC SEQUENCE OF CONSTRUCTION NOTES

Drawing No.
MT-001

ORIGINAL SHEET - ARCH D

Notes for Stationary Work on a Shoulder (Figure TTC-4.0) *(MUTCD TA-3)*

Guidance:

1. [Paragraph Deleted]

Standard:

1a. For long-term stationary work (more than 3 days) on divided highways having a median wider than 8 feet, sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W20-1), RIGHT SHOULDER CLOSED AHEAD (W21-5bR), RIGHT SHOULDER CLOSED (W21-5aR)), even though only one shoulder is being closed.

Option:

1b. Sign assemblies on the side opposite the shoulder closure may be may be omitted if the operation will be 3 days or less in duration.

2. [Paragraph Deleted]

3. [Paragraph Deleted]

4. The SHOULDER WORK (W21-5) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

5. [Paragraph Deleted]

6. [Paragraph Deleted]

Standard:

7. [Paragraph Deleted]

8. [Paragraph Deleted]

9. See Table 6P-V5 for Taper Lengths and Table 6P-V8 for channelizing device spacing.

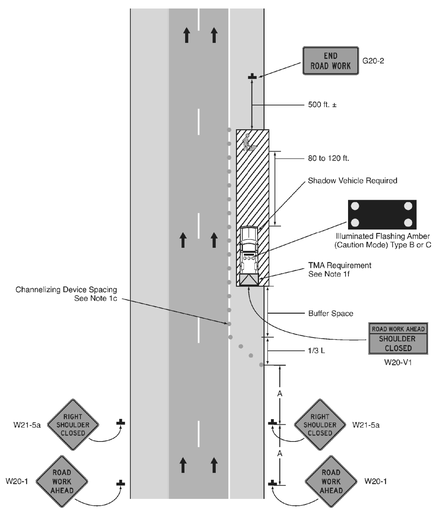
10. On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

11. The buffer space length shall be as shown in Table 6P-V4 for the posted speed limit.

12. A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph for operations with a duration greater than 60 minutes.

13. When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

Stationary Work on a Shoulder
Figure TTC-4.0 *(MUTCD TA-3)*



Note: See Table 6P-2 for the meanings of the symbols used in this figure.
See Table 6P-V3 for sign spacing requirements ("A").
See Tables 6P-V5 through 6P-V7 for taper length requirements.
See Table 6P-V8 for channelizing device spacing requirements.

Notes for Stationary Lane Closure on a Divided Highway (Figure TTC-16.0) *(MUTCD TA-33B)*

Standard:

1. [Paragraph Deleted]

1a. On divided highways having a median wider than 8 feet, right and left sign assemblies shall be required.

2. [Paragraph Deleted]

Guidance:

3. [Paragraph Deleted]

3a. When closing a lane, a PCMS should be used in advance of the first warning sign if all of the left side signs cannot be installed.

3b. Care should be exercised when establishing the limits of the work zone to ensure maximum possible sight distance in advance of the transition, based on the posted speed limit and at least equal to or greater than the values in Table 6P-V4. For Limited Access highways a minimum of 1,000 feet is desired.

3c. All vehicles, equipment, workers, and their activities should be restricted to one side of the pavement.

Option:

4. [Paragraph Deleted]

5. [Paragraph Deleted]

Support:

6. [Paragraph Deleted]

Standard:

6a. See Table 6P-V5 for taper lengths.

6b. See Table 6P-V8 for channelizing device spacing.

7. An arrow board shall be used when a freeway lane is closed. When more than one freeway lane is closed, a separate arrow board shall be used for each closed lane (see Figure TTC-18).

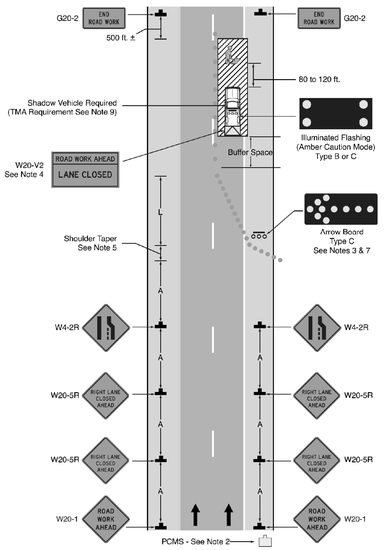
8. The buffer space length shall be as shown in Table 6P-V4 for the posted speed limit.

9. A shadow vehicle with either a Type B or C arrow board operating in the caution mode shall be parked 80 to 120 feet in advance of the first work crew. When the posted speed limit is 45 mph or greater, a TMA shall be used.

10. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights but can be used to supplement the amber rotating, flashing, or oscillating lights.

11. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.

Stationary Lane Closure on a Divided Highway
Figure TTC-16.0 *(MUTCD TA-33B)*



Note: See Table 6P-2 for the meanings of the symbols used in this figure.
See Table 6P-V3 for sign spacing requirements ("A").
See Tables 6P-V5 through 6P-V7 for taper length requirements.
See Table 6P-V8 for channelizing device spacing requirements.

Notes for Logging Work (V) (Figure TTC-63.0)

Standard:

1. Prior to the installation of the entrance and placement of any traffic control devices, the appropriate state/local agencies shall be notified.

Guidance:

2. Care should be exercised when establishing the location of the permitted temporary entrance to ensure maximum possible sight distance in advance of the entrance and should be based on the posted speed limit and at least equal to or greater than the values in Table 6N-1, Intersection Sight Distance for Construction Entrances. If the minimum distances in Table 6N-1 cannot be obtained, a flagging operation should be implemented for exiting and entering vehicles.

Standard:

3. TRUCKS ENTERING HIGHWAY (W11-V4) sign shall be used to warn of logging trucks entering roadways. LOG TRUCKS ENTERING HIGHWAY sign is not allowed for use.

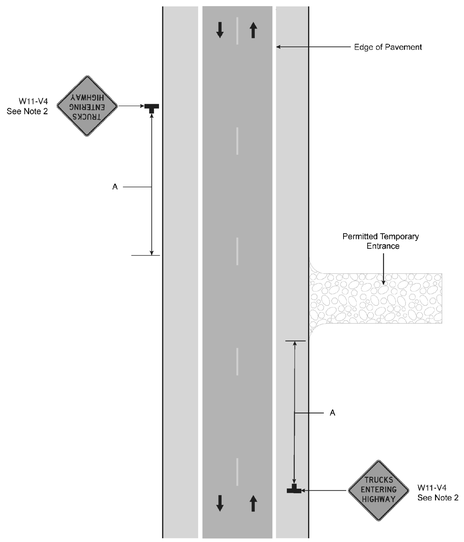
4. On divided highways having a median wider than 8 feet, right and left sign assemblies shall be used. Median width is measured from left edge line to left edge line, inclusive of the portion of the median occupied by the median barrier.

5. Mobile operations (see Figure TTC-11.0 through 14.0), Flagging (see Figure TTC-23), or lane closures (see Figure TTC-25.0A and 25.0B) shall be used whenever it is necessary to disrupt traffic to clean up debris on the highway. Mobile operation TTCs shall only be used when the work can be accomplished within 15 minutes (such as with a broom tractor), or if the debris cleanup equipment can be moved every 15 minutes to allow traffic to return to normal before resuming cleanup operations.

6. Flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6D.01).

7. The organization receiving the entrance permit shall be responsible for the removal of all debris (gravel, mud, dust, hauled materials, etc.), obstructions and irregularities caused by the operation in accordance with Section 105 of the Road and Bridge Specifications.

Logging Work
Figure TTC-63.0



Note: See Table 6P-2 for the meanings of the symbols used in this figure.
See Table 6P-V3 for sign spacing requirements ("A").
See Tables 6P-V5 through 6P-V7 for taper length requirements.
See Table 6P-V8 for channelizing device spacing requirements.

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Project No.: 195151140

Scale: AS SHOWN

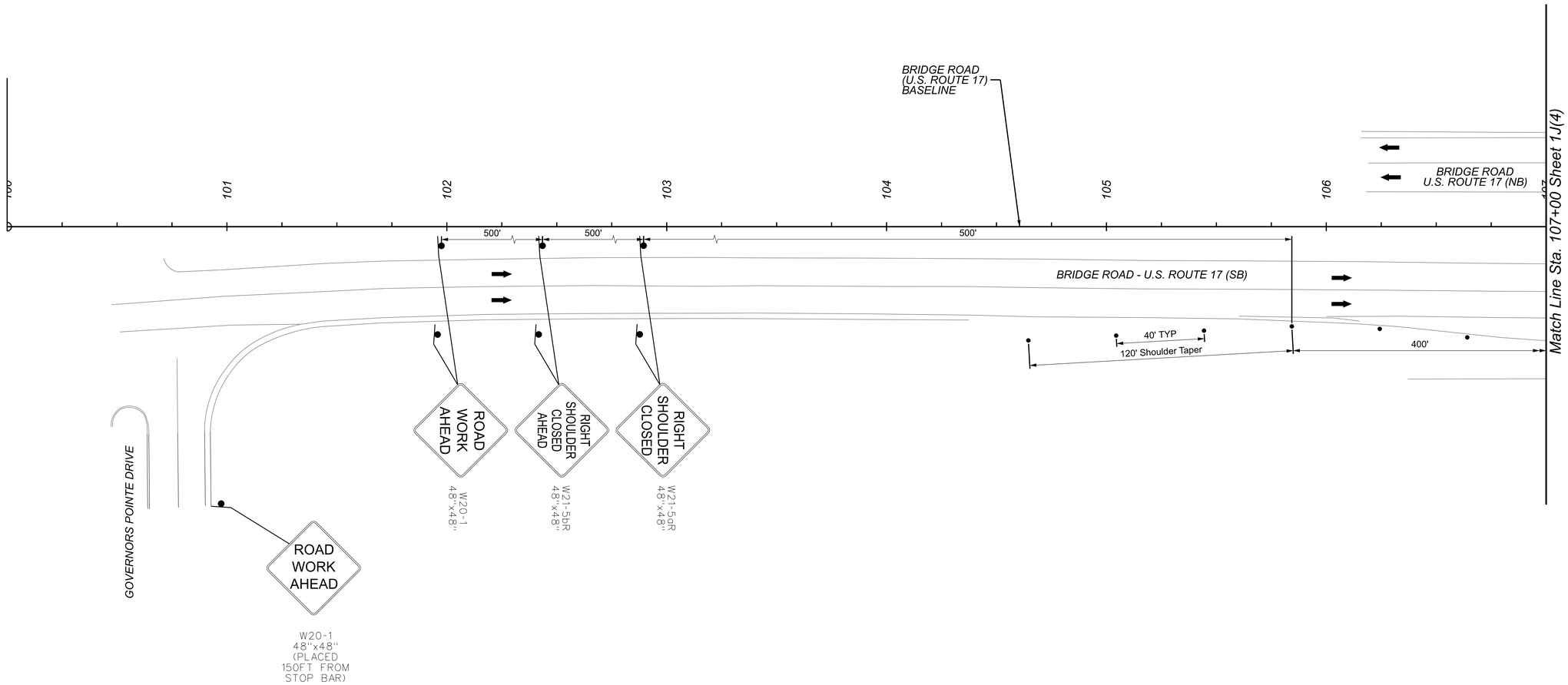
Title
MAINTENANCE OF TRAFFIC STANDARD DETAILS

Drawing No.
MT-002

ORIGINAL SHEET - ARCH D

PHASE 1

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



LEGEND

- DRUMS
- TEMPORARY TRAFFIC SIGN AND SUPPORT
- WORK ZONE
- OFF-PEAK WORK AREA
- TEMPORARY TRAFFIC FLOW ARROW
- TRUCK MOUNTED ATTENUATOR

SCALE
0 25' 50'

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

Scale: AS SHOWN

Title

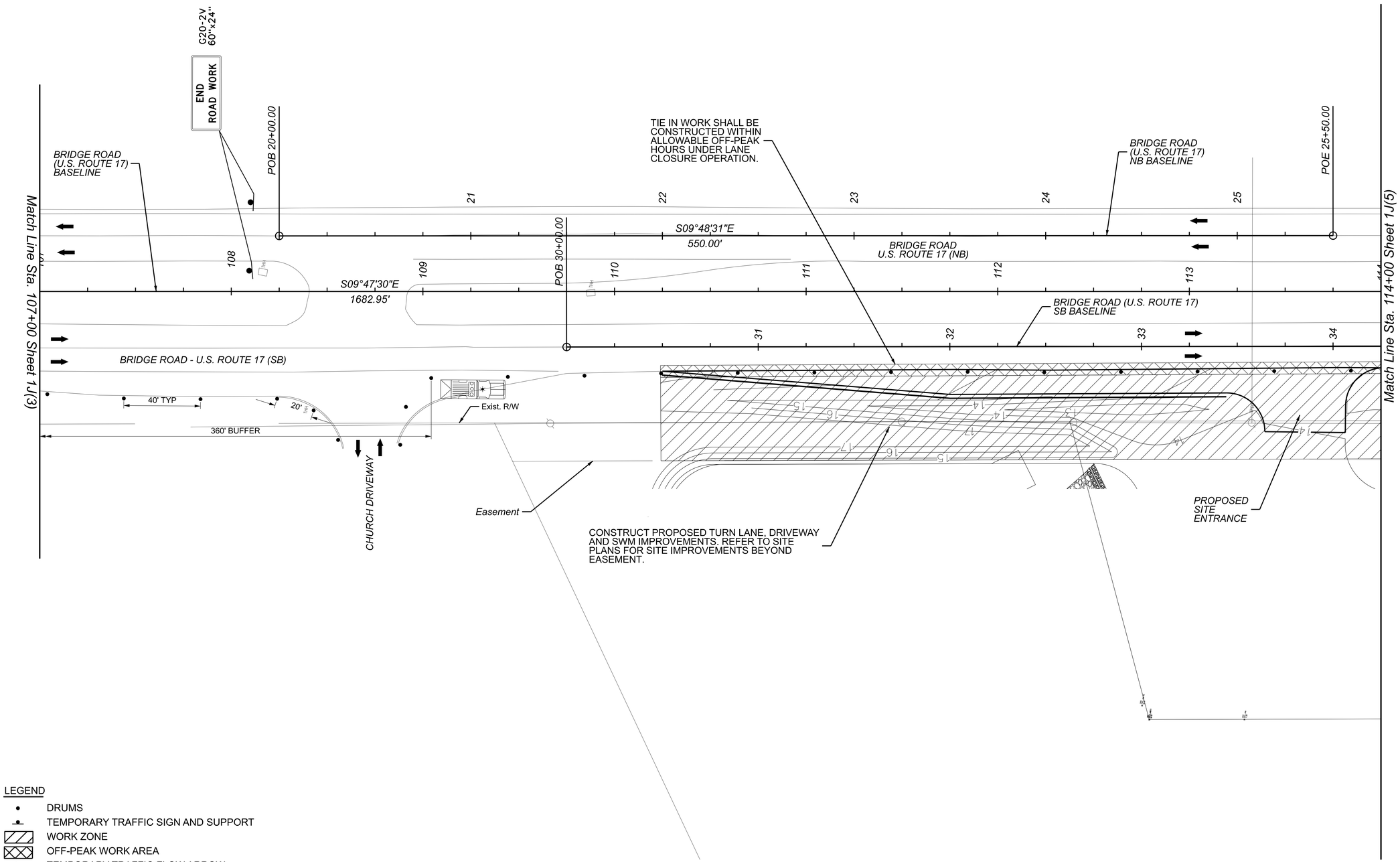
MAINTENANCE OF TRAFFIC PLAN

Drawing No.

MT-101

PHASE 1

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



LEGEND

- DRUMS
- TEMPORARY TRAFFIC SIGN AND SUPPORT
- WORK ZONE
- OFF-PEAK WORK AREA
- TEMPORARY TRAFFIC FLOW ARROW
- TRUCK MOUNTED ATTENUATOR

SCALE
0 25' 50'

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

Scale: AS SHOWN

Title

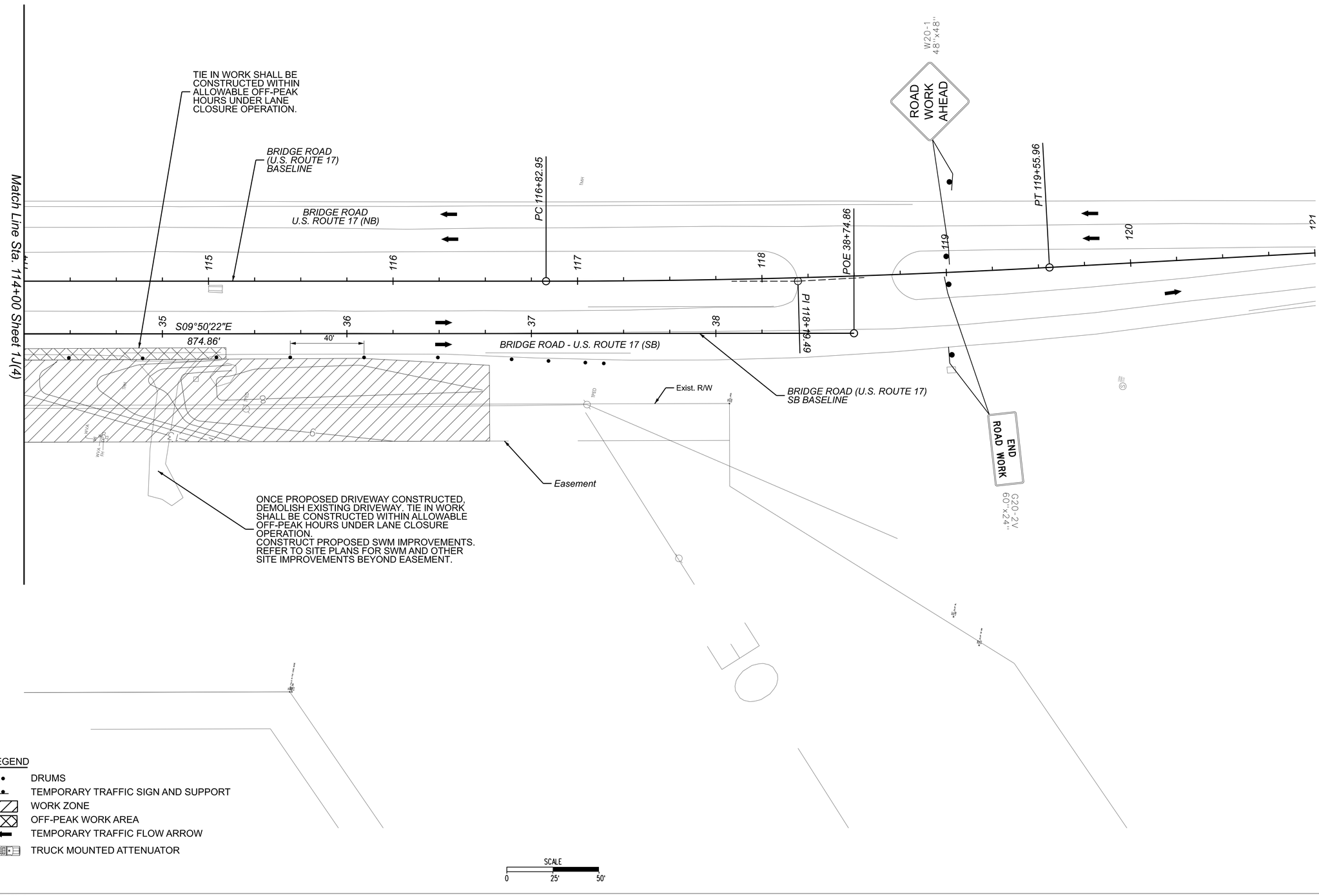
MAINTENANCE OF TRAFFIC PLAN

Drawing No.

MT-102

PHASE 1

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



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Project No.: 19515140

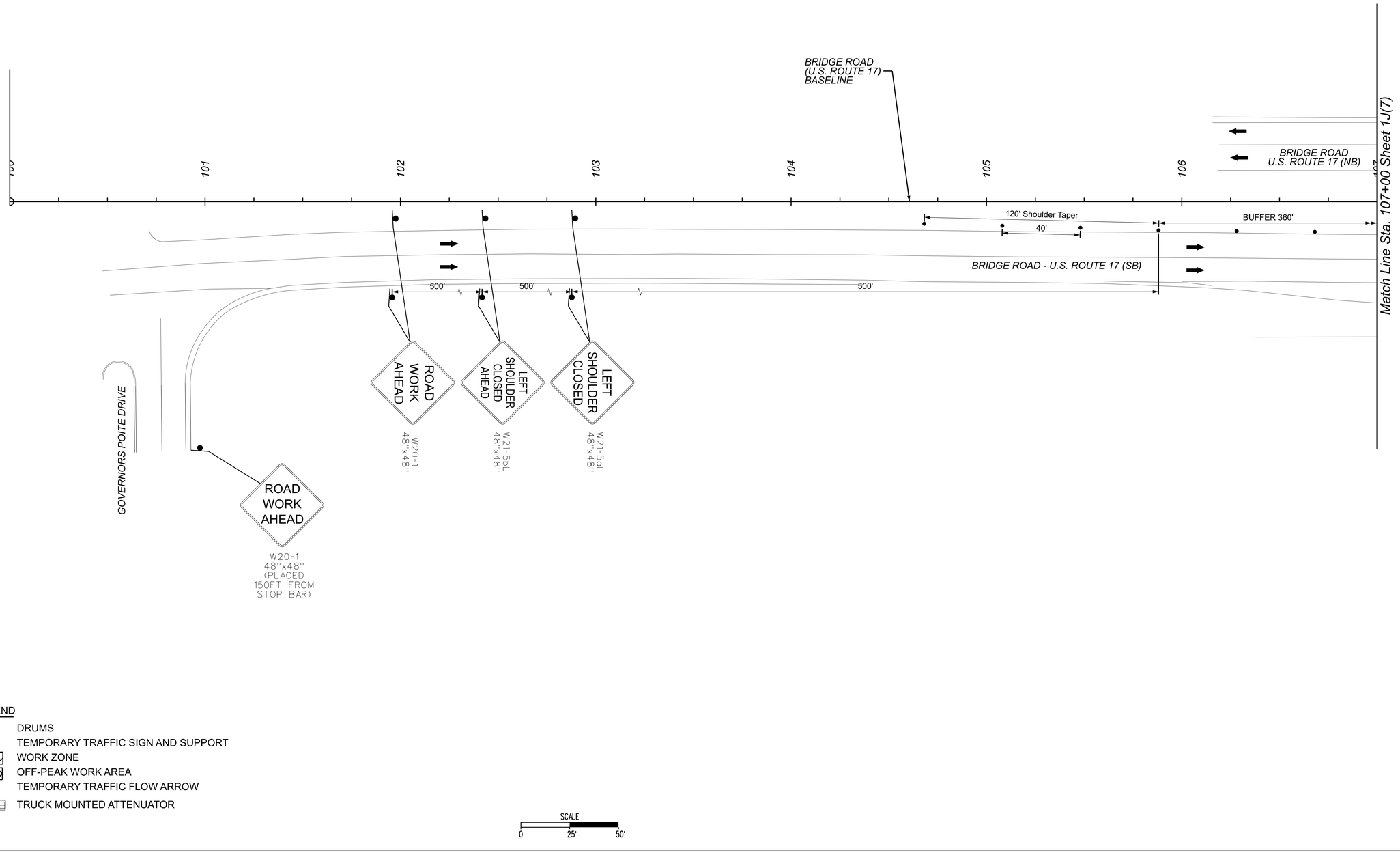
Scale: AS SHOWN

Title
MAINTENANCE OF TRAFFIC PLAN

Drawing No.
MT-103

PHASE 2

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



LEGEND

- DRUMS
- TEMPORARY TRAFFIC SIGN AND SUPPORT
- WORK ZONE
- OFF-PEAK WORK AREA
- TEMPORARY TRAFFIC FLOW ARROW
- TRUCK MOUNTED ATTENUATOR

SCALE
0 25' 50'

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

Scale: AS SHOWN

Title

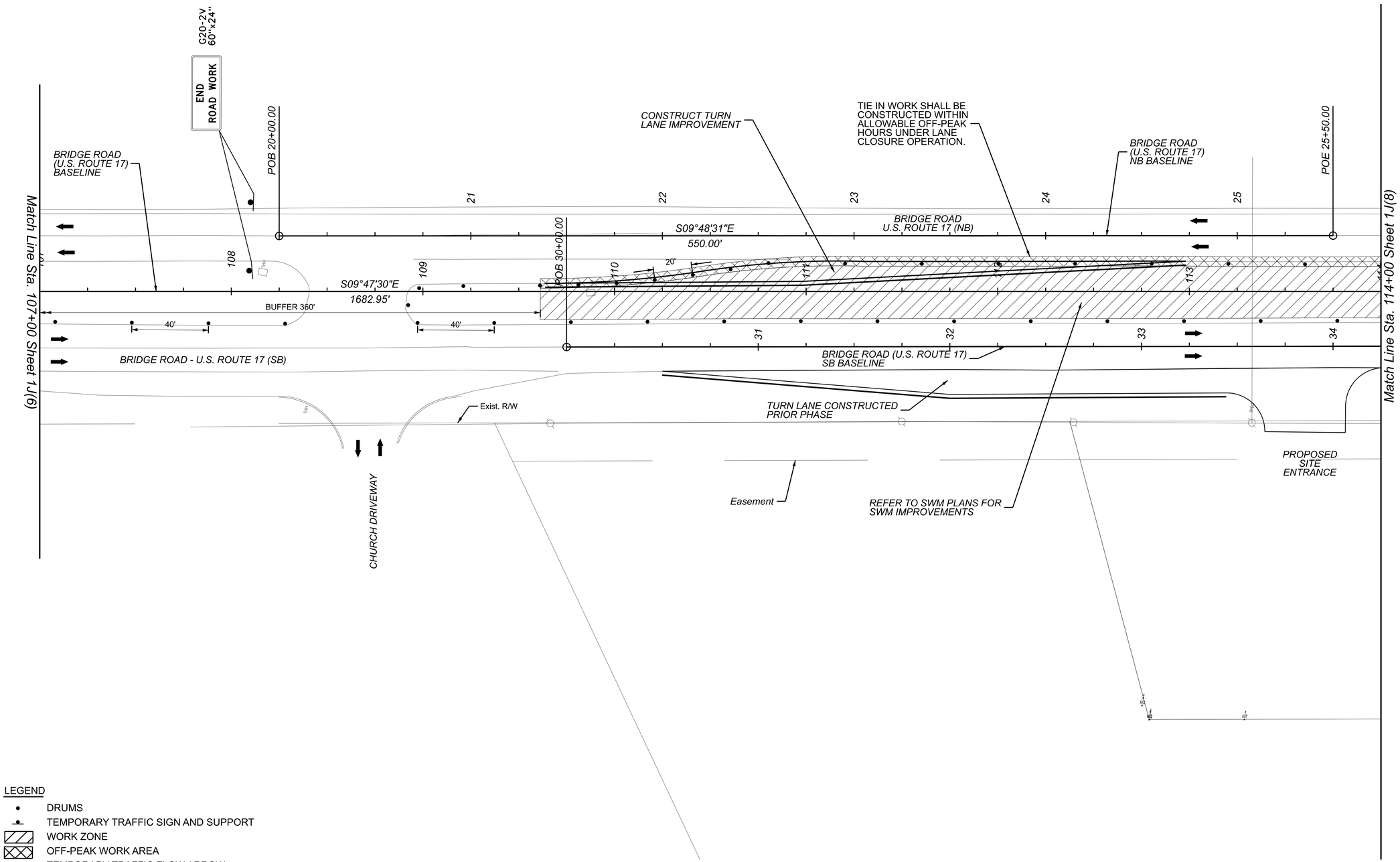
MAINTENANCE OF TRAFFIC PLAN

Drawing No.

MT-104

PHASE 2

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



LEGEND

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SCALE
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ORIGINAL SHEET - ARCH D

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Project No.: 19515140

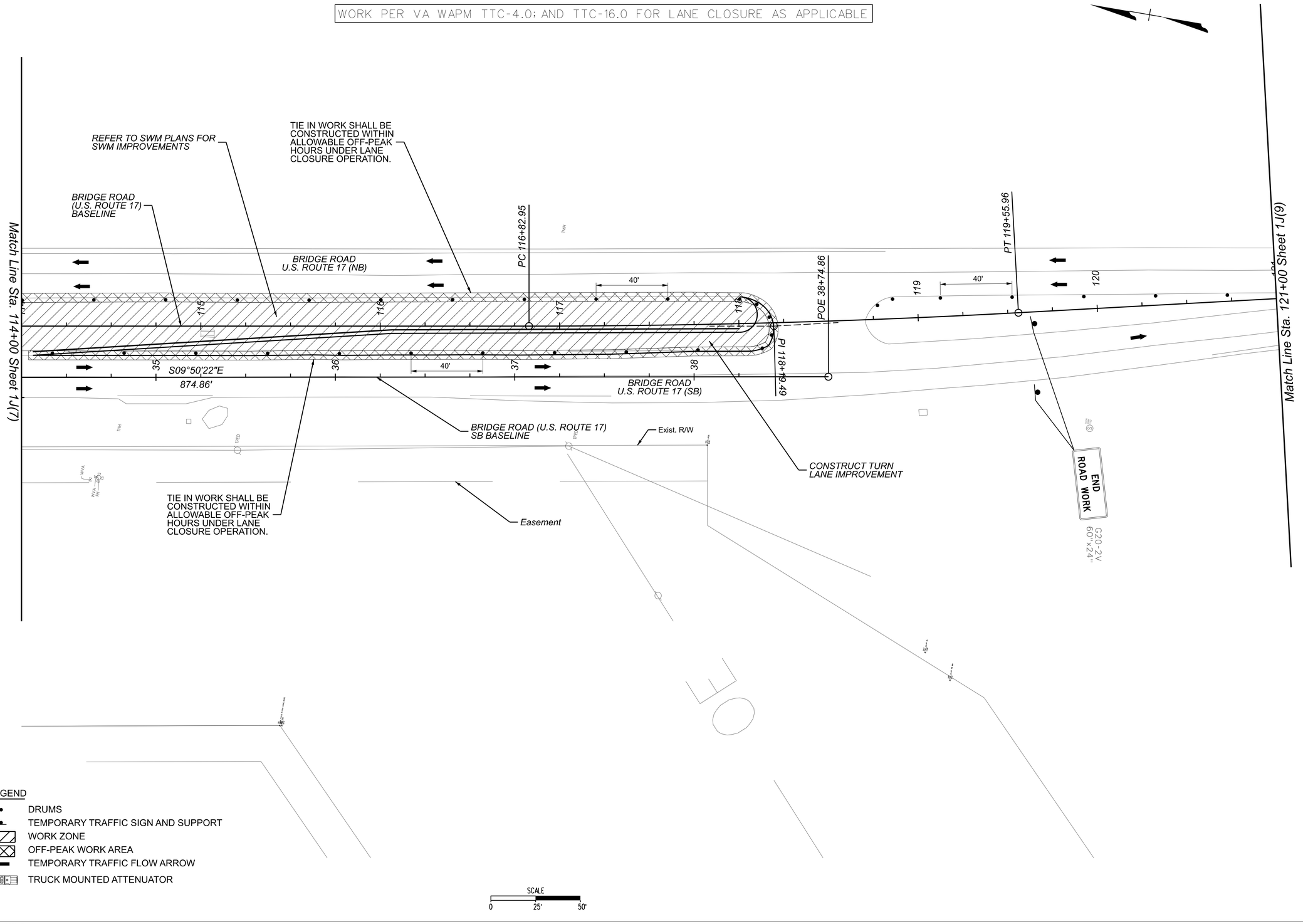
Scale: AS SHOWN

Title
MAINTENANCE OF
TRAFFIC PLAN

Drawing No.
MT-105

PHASE 2

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



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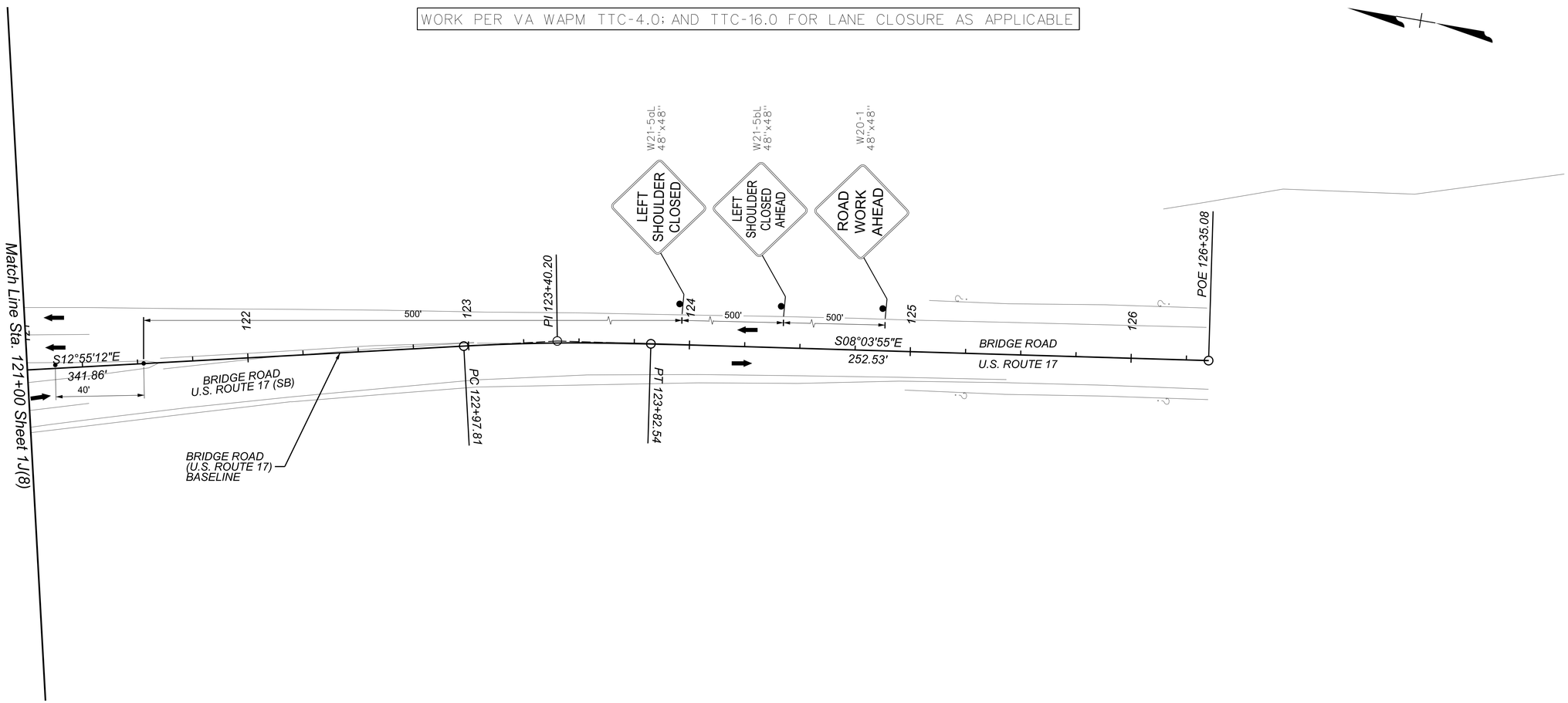
MAINTENANCE OF TRAFFIC PLAN

Drawing No.

MT-106

PHASE 2

WORK PER VA WAPM TTC-4.0; AND TTC-16.0 FOR LANE CLOSURE AS APPLICABLE



LEGEND

- DRUMS
- TEMPORARY TRAFFIC SIGN AND SUPPORT
- WORK ZONE
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- TEMPORARY TRAFFIC FLOW ARROW
- TRUCK MOUNTED ATTENUATOR

SCALE
0 25' 50'

ORIGINAL SHEET - ARCH D

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Project No.: 195151140

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Title

MAINTENANCE OF TRAFFIC PLAN

Drawing No.

MT-107