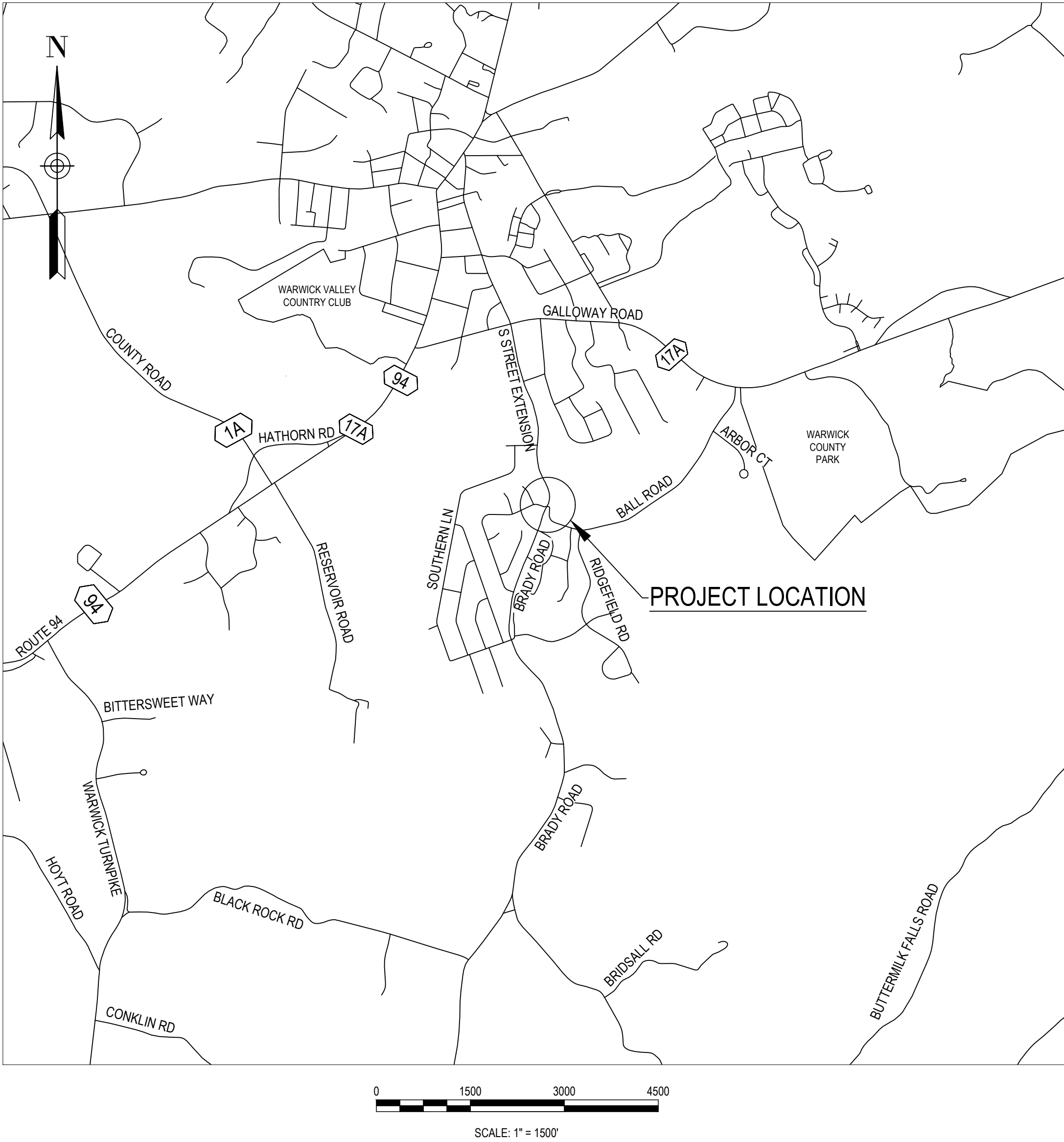


DEPARTMENT OF PUBLIC WORKS
TOWN OF WARWICK
ORANGE COUNTY, NEW YORK



Contract Drawings For

Ball Road Culvert Replacement

Removal and Replacement of Existing Culvert

Project No.
10400319

Town of Warwick, NY
February 2025

INDEX OF DRAWINGS

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RECOMMENDED BY:

BENJAMIN D. ASTORINO 02/19/25
TOWN OF WARWICK DATE
DEPARTMENT OF PUBLIC WORKS COMMISSIONER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAWINGS PREPARED BY:

JESSE R. JAECKEL, P.E. 02/19/25
HDR DATE
N.Y.S. P.E. NO. 092769

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH ALL PROVISIONS IN EFFECT AS OF NOVEMBER 2022, AND NEW YORK PRESTRESSED CONCRETE CONSTRUCTION MANUAL 4TH EDITION, MARCH 2023.
2. FOOTINGS ARE DESIGNED USING AASHTO STANDARD SPECIFICATIONS, 17TH EDITION.
3. LIVE LOAD: HL-93
4. CONSTRUCTION AND MATERIALS SPECIFICATIONS: STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, OFFICE OF ENGINEERING, JANUARY 1, 2025 AND ANY ASSOCIATED ADDENDUMS.
5. CONTRACTOR'S FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF THE PRECAST THREE SIDED CULVERT AND PRECAST WINGWALLS BASED ON THE THREE SIDED CULVERT DESIGN DATA AND OTHER DETAILS PROVIDED IN THE PROJECT PLANS. CONTRACTOR TO TAKE NOTICE THAT THIS STRUCTURE MUST BE CONSTRUCTED IN ACCORDANCE WITH NYSDOT REGULATIONS AND SPECIFICATIONS. DRAWINGS SHALL BE STAMPED AND SIGNED BY A NY STATE REGISTERED PE.
6. THE CONTRACTOR SHALL PREPARE AND SUBMIT A LIFTING PLAN IN ACCORDANCE WITH NYSDOT SECTION 107-05 SAFETY AND HEALTH REQUIREMENTS, 107-05 P, TYPE A - LIFTS OVER 20,000 LBS REQUIRE P.E. STAMP, TYPE B - 5000 TO 20,000 LBS REQUIRE PREP BY COMPETENT PERSON.
7. ALL SHOP DRAWINGS SUBMITTED FOR THIS PROJECT SHALL BE IN US CUSTOMARY.
8. THE COST OF ALL JOINT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICES BID FOR VARIOUS ITEMS IN THE CONTRACT, UNLESS OTHERWISE SPECIFIED IN THE PLANS.
9. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE TOWN, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE TOWN, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE TOWN ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
10. NO PAYMENT WILL BE MADE FOR WORK CALLED FOR BY NOTES, ON THE PLANS, OR IN THE SPECIFICATIONS UNLESS PAYMENT IS SPECIFICALLY INDICATED BY AN ITEM NUMBER. THE COST OF WORK FOR WHICH NO PAYMENT IS INDICATED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT.
11. ALL WORK ZONE TRAFFIC CONTROL, INCLUDING MAINTENANCE AND PROTECTION OF TRAFFIC PROCEDURES AND ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL COMPLY WITH NEW YORK STATE MANUAL OF TRAFFIC CONTROL DEVICES OR AS MODIFIED BY THE ENGINEER TO SUIT FIELD CONDITIONS.
12. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615 AND FURNISHED AS GRADE 60.
13. ALL REINFORCING STEEL TO BE EPOXY COATED.
14. REINFORCING SHALL HAVE 3" COVER UNLESS NOTED OTHERWISE.
15. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS.
16. BASED ON THE AVAILABLE DATA, THE DEPTH OF GROUND WATER IS APPROXIMATELY 7 TO 8 FEET BELOW THE EXISTING ROADWAY ELEVATION AT THE CULVERT AND MAY VARY. THE COST OF DEWATERING SHALL BE INCLUDED IN VARIOUS ITEMS IN THE CONTRACT. SEE THE FOUNDATION DESIGN REPORT FOR BALL ROAD CULVERT REPLACEMENT BY TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS, D.P.C. DATED DECEMBER 5, 2023 FOR GROUNDWATER MANAGEMENT MEASURES.
17. CONTRACTOR SHALL PERFORM HIS OPERATIONS TO MINIMIZE AREAS OF DISTURBANCE. ALL DISTURBED AREAS SHALL BE FULLY RESTORED TO THE ORIGINAL CONDITION. FOR CULVERT WORK, COST OF TOP SOIL, PERMANENT SEEDING, ETC. SHALL BE INCLUDED IN THE VARIOUS PAYMENT ITEMS. FOR STREAM RESTORATION WORK, TOPSOIL AND SEEDING PAY ITEMS ARE INCLUDED.
18. THE CONTRACTOR SHALL PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH APPLICABLE OSHA REQUIREMENTS.
19. THE PROJECT IS ANTICIPATED TO BE AUTHORIZED UNDER NYSDEC ARTICLE 15 AND USACE PERMIT, NATIONWIDE PERMIT #3 (MAINTENANCE). COPIES OF THE PERMITS SHALL BE POSTED AT THE PROJECT SITE. THE WORK SHOULD BE COMPLETED FOLLOWING THE GENERAL, REGIONAL AND ANY PROJECT-SPECIFIC CONDITIONS IN THE PERMITS. THE ENGINEER SHALL BE NOTIFIED WHEN ANY PERMIT CONDITIONS CANNOT BE MET.
20. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION, AND MAINTENANCE OF ALL SUPPORT OF EXCAVATION AND DEWATERING SYSTEMS REQUIRED FOR THE PROJECT.
21. CONTRACTOR SHALL SUBMIT A DEWATERING AND EROSION AND SEDIMENT CONTROL PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WORK.
22. EROSION CONTROL MEASURES NOT LISTED FOR PAYMENT UNDER THE SPECIFIC ITEMS UNDER THIS CONTRACT SHALL BE INCLUDED UNDER THE VARIOUS PAY ITEMS WITHIN THIS CONTRACT.
23. IF THE CONTRACTOR EXPOSES TRANSITE PIPE, JOINT CAULKING, OR SIMILAR ITEMS DURING DEMOLITION WHICH MAY CONTAIN HAZARDOUS MATERIALS, THE MATERIALS SHALL BE TESTED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
24. WORK OCCURRING AFTER SUNSET AND BEFORE SUNRISE SHALL BE CONSIDERED NIGHT TIME OPERATIONS. A NIGHT TIME LIGHTING PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WORK.

REMOVAL NOTES:

1. WHENEVER ITEMS IN THE CONTRACT REQUIRE MATERIALS TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THOSE ITEMS.
2. THE EXISTING 68"x72" CMP CULVERT SHALL BE REMOVED UNDER ITEM 202.19.
3. PRIOR TO SUBMISSION OF THE BID THE CONTRACTOR SHALL SURVEY THE PROJECT SITE TO ESTIMATE THE REQUIRED AMOUNT OF TREE REMOVAL WITHIN THE TOWN OF WARWICK AND THE VILLAGE OF WARWICK RIGHT-OF-WAY NECESSARY TO COMPLETE THE WORK. EVERY EFFORT WILL BE MADE TO RETAIN ANY TREE EXHIBITING CHARACTERISTICS THAT COULD PROVIDE ROOSTING HABITAT TO THE INDIANA BAT OR NORTHERN LONG-EARED BAT. IN ACCORDANCE WITH USF&WS, TREES EXHIBITING ANY OF THESE CHARACTERISTICS CAN NOT BE REMOVED BETWEEN APRIL 1ST AND OCTOBER 1ST UNLESS FURTHER STUDY HAS BEEN CONDUCTED AND DOCUMENTED.
4. ALL TREES, SHRUBS AND BRUSH REQUIRED TO BE REMOVED TO COMPLETE ITEMS UNDER THIS CONTRACT SHALL BE INCLUDED IN CONTRACTOR BID AND WILL BE PAID FOR UNDER ITEM 201.06. ALL REMOVALS SHALL BE APPROVED BY THE ENGINEER IN ADVANCE.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF SUBSECTION 202-3.01 GENERAL AND SAFETY REQUIREMENTS. A REMOVAL PLAN SHALL BE SUBMITTED TO THE ENGINEER FIFTEEN (15) DAYS PRIOR TO BEGINNING DEMOLITION. THE REQUIREMENT THAT IT BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IS WAIVED.
6. THE COST OF FURNISHING, INSTALLING, MAINTAINING, REMOVING AND DISPOSING OF ALL PLATFORMS, NETS, SCREENS, SHORING OR OTHER PROTECTIVE DEVICES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE APPROPRIATE ITEMS OF THE CONTRACT.

UTILITY NOTES:

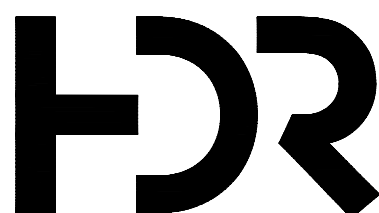
1. THE ACCURACY INDICATED FOR THE LOCATIONS OF OVERHEAD AND UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE DEFINED AS FOLLOWS:
 - A. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS UNDER SECTIONS 660 THROUGH 680 OF THE STANDARD SPECIFICATIONS, NOR DOES IT RELIEVE THE UTILITY OWNERS OF THEIR OBLIGATION TO ACCURATELY LOCATE THEIR FACILITIES.
 - B. ALL KNOWN PUBLIC AND PRIVATE UTILITY LINES WITHIN OR ADJACENT TO THE SITE OF THE WORK AND SHOWN IN THEIR EXISTING APPROXIMATE LOCATIONS ON THE CONTRACT PLANS. THE CONTRACTOR IS CAUTIONED THAT THESE LOCATIONS ARE NOT GUARANTEED NOR IS THERE A GUARANTEE THAT ALL SUCH LINES IN EXISTENCE HAVE BEEN SHOWN ON THE PLANS.
 - C. ADDITIONAL UTILITY LINES, WHETHER ABANDONED OR IN SERVICE, MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OPERATIONS AND TAKE THE NECESSARY PRECAUTIONS TO PREVENT INTERFERENCE WITH OR DAMAGE TO THESE OR OTHER FACILITIES DURING THE COURSE OF CONSTRUCTION.
 - D. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO PREVENT DAMAGE TO SUCH FACILITIES. HE SHALL MAKE SUCH EXPLORATIONS AS MAY BE NECESSARY TO DETERMINE THE DIMENSIONS AND LOCATIONS OF LINES THAT MAY BE SUBJECT TO DAMAGE. NOTIFICATION TO THE VARIOUS OWNERS OF FACILITIES SHALL BE IN ACCORDANCE WITH NEW YORK STATE INDUSTRIAL CODE 753, CURRENT EDITION.
 - E. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE EXACT LOCATION OF UTILITY LINES AND SHALL PROTECT AND SUPPORT IN A SUITABLE MANNER AT HIS OWN EXPENSE ALL UNDERGROUND UTILITIES ENCOUNTERED IN HIS EXCAVATING AND TRENCHING OPERATIONS. THE CONTRACTOR SHALL MAKE GOOD ANY DAMAGE TO THOSE UTILITIES CAUSED BY HIS OPERATIONS. IF THE NATURE OF THE DAMAGE IS SUCH AS TO ENDANGER THE SATISFACTORY OPERATIONS OF THE UTILITIES AND THE NECESSARY REPAIRS ARE NOT IMMEDIATELY MADE BY THE CONTRACTOR, THE WORK MAY BE DONE BY THE RESPECTIVE OWNING COMPANIES AND THE COST THEREOF CHARGED AGAINST THE CONTRACTOR.
 - F. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH ALL THE KNOWN PUBLIC AND PRIVATE UTILITY COMPANIES OCCUPYING THE WORK SITE. THE CONTRACTOR SHALL AT THIS MEETING INFORM THE UTILITY COMPANIES OF HIS SCHEDULE OF OPERATIONS AND SO COORDINATE HIS WORK WITH THESE COMPANIES.

STREAM PROTECTION NOTES:

1. ANY CONSTRUCTION IN THE STREAM MUST TAKE PLACE BETWEEN JUNE 1ST AND SEPTEMBER 30TH.
2. THE CREEK TRIBUTARY IS CLASSIFIED AS A CLASS C(T) WATERBODY AT THIS LOCATION.
3. STREAM FLOW SHALL BE MAINTAINED DURING THE WORK. CONTRACTOR SHALL PROVIDE METHOD OF MAINTAINING STREAM FLOW TO THE ENGINEER FOR APPROVAL PRIOR TO START OF CONSTRUCTION. THE COST OF MAINTAINING STREAM FLOW SHALL BE INCLUDED IN PAY ITEM 553.030001 TEMPORARY WATERWAY DIVERSION STRUCTURE.
4. DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO PREVENT ANY DAMAGE TO ANY STREAM FROM POLLUTION BY DEBRIS, SEDIMENTATION OR OTHER FOREIGN MATERIAL, OR FROM THE MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR SUCH STREAMS. NO WATER SHALL BE RETURNED DIRECTLY TO THE STREAM WHICH HAS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSE THE WATER TO BE CONTAMINATED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR USES THE WATER FROM ANY STREAM, THEY SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM AS REQUIRED TO PROTECT AND MAINTAIN WATER RIGHTS AND SUSTAIN FISH LIFE DOWNSTREAM.
5. DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT BE ALLOWED TO DROP CONCRETE WASTE, DEBRIS, AND OTHER MATERIAL INTO THE WATER COURSE, PLATFORMS, NETS, SCREENS, OR OTHER PROTECTIVE DEVICES SHALL BE USED TO CATCH THE MATERIAL IF THE ENGINEER DETERMINES THAT ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED. THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED. THE LOCATION FOR STOCKPILING OF MATERIAL SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER PRIOR TO REMOVAL OPERATIONS. STOCKPILING SHALL BE LOCATED OUTSIDE OF THE WATER COURSE AND EROSION CONTROL MEASURES SHALL BE DEPLOYED TO CONTAIN THE MATERIAL FROM MIGRATING.
6. THE EXISTING STREAMBED SHALL NOT BE DISTURBED BEYOND THE LIMITS SHOWN ON THE PLANS. STREAM DIVERSION OR CONTAINMENT METHODS SHOULD BE SIZED WITH REGARD TO THE SEASONAL FLOW OF THE STREAM. THE COST OF DEWATERING SHALL BE INCLUDED IN VARIOUS ITEMS IN THE CONTRACT.

ABBREVIATIONS:

GENERAL		GENERAL	
B	BASELINE	R&D	REMOVE AND DISPOSE
BW	BOTTOM OF WALL	R&R	REMOVE AND RESET
C	CENTERLINE	RCP	REINFORCED CONCRETE PIPE
INV	INVERT	RET	RETAIN
LF	LINEAR FEET	SPA	SPACE
MAX	MAXIMUM	STA	STATION
MIN	MINIMUM	TYP	TYPICAL
OFF	OFFSET	TW	TOP OF WALL
PROP	PROPOSE		

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PROJECT MANAGER	LAURA BARCA
PROJECT NUMBER	10400319



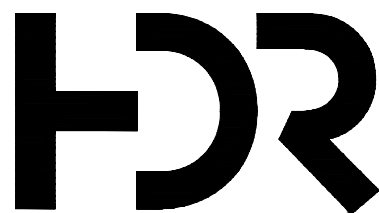
**TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS**

GENERAL NOTES AND ABBREVIATIONS BALL ROAD

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ESTIMATE OF QUANTITIES:

ESTIMATE OF QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
201.06	CLEARING AND GRUBBING	LS	1
202.19	REMOVAL OF SUBSTRUCTURES	CY	45
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	180
203.03	EMBANKMENT IN PLACE (CULVERT)	CY	1310
203.07	SELECT GRANULAR FILL	CY	40
207.21	GEOTEXTILE SEPARATION	SY	175
209.1003	SEED AND MULCH - TEMPORARY	SY	100
209.13	SILT FENCE-TEMPORARY	LF	410
209.1901	ROLLED EROSION CONTROL PRODUCT, CLASS II TYPE A, INTERMEDIATE	SY	100
210.3001	REMOVAL AND DISPOSAL OF CONCRETE-ENCASED PIPE ACM	LF	5
304.12	SUBBASE COURSE, TYPE 2 (12" DEPTH)	CY	100
404.0683	6.3 F3 TOP COURSE ASPHALT, 80 SERIES COMPACTION (1 1/4" DEPTH)	TON	25
404.1279	12.5 F9 BINDER COURSE ASPHALT, 70 SERIES COMPACTION (2 1/2" DEPTH)	TON	45
404.3779	37.5 F9 BASE COURSE ASPHALT, 70 SERIES COMPACTION (4" DEPTH)	TON	75
407.0102	DILUTED TACK COACT	GAL	350
552.17	SHIELDS AND SHORING	SF	1320
553.03001	TEMPORARY WATERWAY DIVERSION STRUCTURE	EACH	1
556.0202	EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES (REBAR IN CLOSURE POUR #5 BARS)	LB	321
556.0202	EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES (WINGWALL UNIT REINFORCEMENT #4 BARS)	LB	1123
562.0101	PRECAST THREE SIDE STRUCTURE	SY	65
562.03	WINGWALL WITH FOOTING (CONCRETE)	SY	46
595.98200018	SPRAY-APPLIED WATERPROOF MEMBRANE	SF	585
606.10	BOX BEAM GUIDE RAILING	LF	685
606.100002	BOX BEAM GUIDE RAILING (SHOP BENT)	LF	140
606.100003	BOX BEAM GUIDE RAILING (SHOP MITERED)	LF	45
606.120101	BOX BEAM END PIECE	EA	1
606.120201	BOX BEAM GUIDE RAILING , END ASSEMBLY, TYPE IIA	EA	3
606.71	REMOVE AND DISPOSE OF CORRUGATED BEAM GUIDE RAILING	LF	780
606.22	ANCHORAGE UNITS FOR CORRUGATED BEAM GUIDE RAILING	EA	11
608.020102	ASPHALT SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS,AND VEGETATION CONTROL STRIPS	TON	80
610.1402	4" TOPSOIL ROADSIDE	CY	30
610.1601	TURF ESTABLISHMENT - ROADSIDE	SY	270
615.01010108	MATERIAL FOR STREAM BED ESTABLISHMENT	CY	50
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1
619.04	TYPE III CONSTRUCTION BARRICADES	EA	5
619.1712	TEMPORARY POSITIVE BARRIER - CATEGORY 2 (PINNING PERMITTED)	LF	100
619.24	NIGHTTIME OPERATIONS (ENTIRE PROJECT)	LS	1
620.04	STONE FILL - MEDIUM (GENERALLY 100 LB MIN., 6")	CY	10
620.0801	BEDDING MATERIAL, TYPE 1	CY	10
623.12	CRUSHED STONE (IN-PLACE MEASURE)	CY	25
625.01	SURVEY OPERATIONS	LS	1
627.5014001	CUTTING PAVEMENT	LF	130
637.11	ENGINEER'S FIELD OFFICE - TYPE 1	MNTH	4
637.34	OFFICE TECHNOLOGY AND SUPPLIES	DC	
645.13080010	REINSTALL SIGN PANELS ASSEMBLIES	SF	2
645.81	TYPE A SIGN POSTS	EA	1
697.03	FIELD CHANGE PAYMENT	DC	
698.04	ASPHALT PRICE ADJUSTMENT	DC	
698.05	FUEL PRICE ADJUSTMENT	DC	
698.06	STEEL/IRON PRICE ADJUSTMENT	DC	
699.040001	MOBILIZATION	LS	1



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

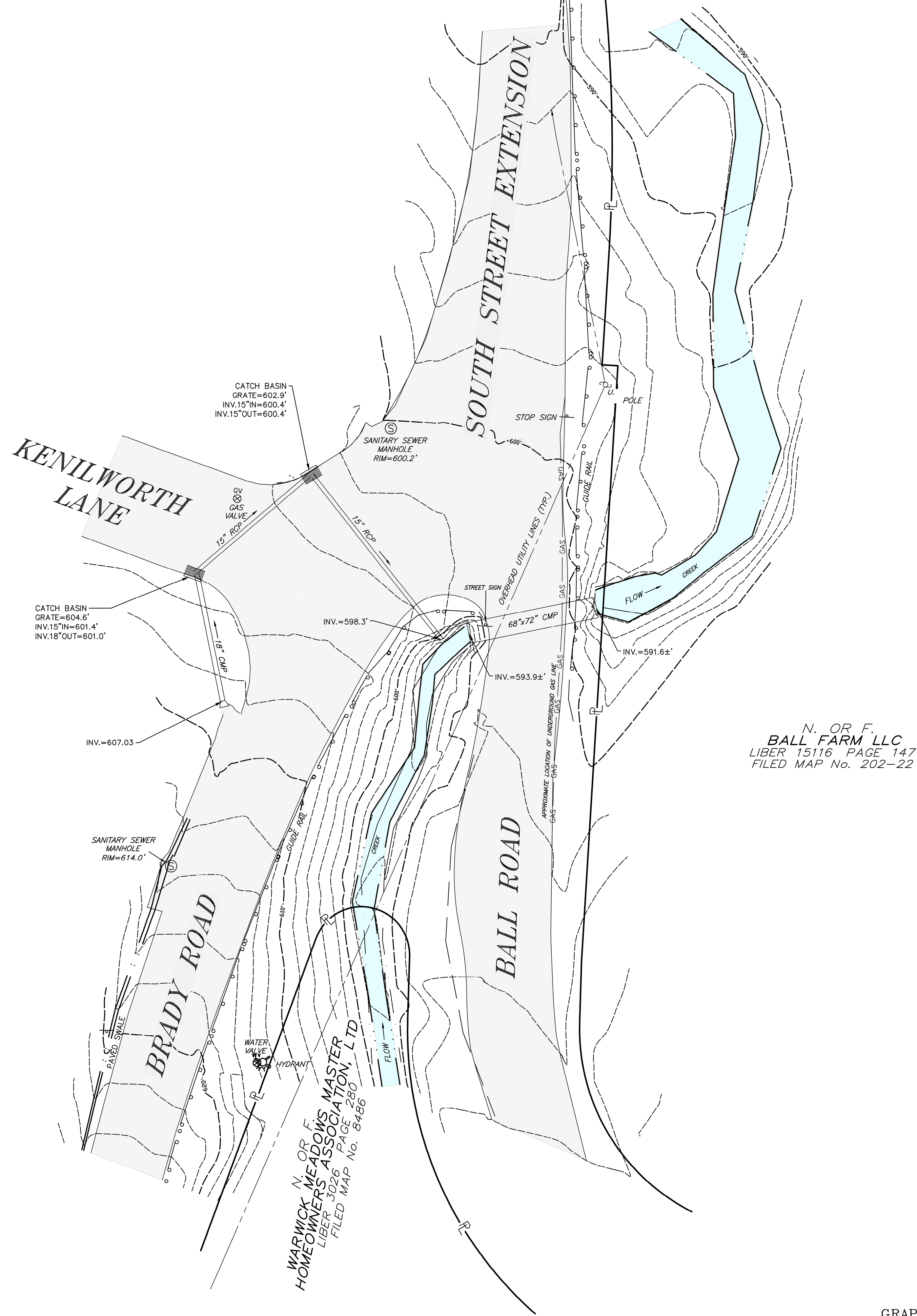
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TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

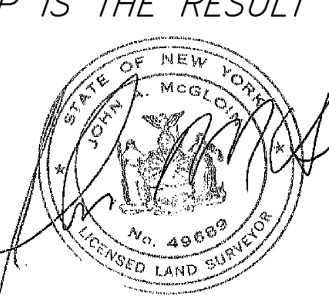
ESTIMATE OF QUANTITIES
BALL ROAD

SHEET
01G-1.03

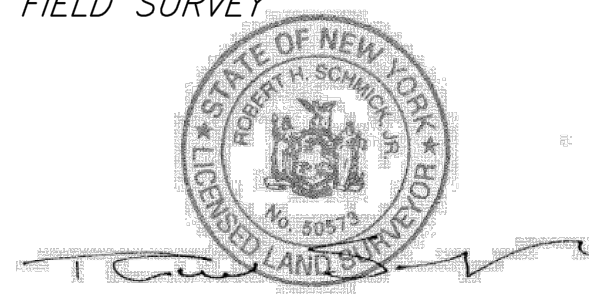


MAP NOTES

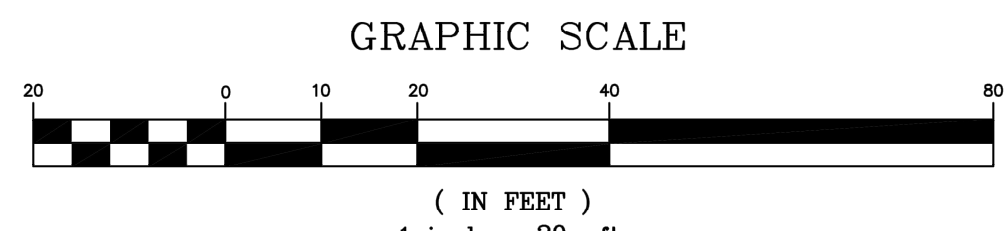
1. PROPERTY LINES SHOWN HEREON ARE BASED ON DEEDS OF RECORD AND MONUMENTATION FOUND IN THE FIELD
2. UNDERGROUND UTILITY LOCATIONS ARE BASED ON FIELD MARKINGS BY OTHERS. ALL UTILITY LOCATIONS SHALL BE VERIFIED. UTILITY LINE DEPTHS SHALL BE VERIFIED PRIOR TO ANY CONSTRUCTION COMMENCING.
3. HORIZONTAL DATUM: NEW YORK STATE PLANE.
4. VERTICAL DATUM: NAVD 1988
5. WE DO HEREBY CERTIFY THAT THIS MAP IS THE RESULT OF AN ACTUAL FIELD SURVEY COMPLETED ON SEPTEMBER 15, 2023



JOHN A. MCGLOIN, N.Y. LIC.#49689
PROFESSIONAL LAND SURVEYOR
32 COLONIAL AVENUE
WARWICK, NEW YORK 10990

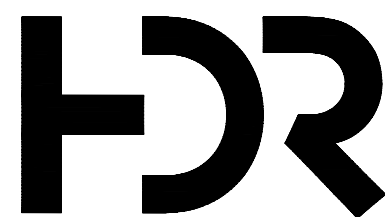


ROBERT H. SCHMICK N.Y. LIC. #50573
PROFESSIONAL LAND SURVEYOR
5 OVERLOOK DR.
WARWICK, NEW YORK 10990



COPIES OF THIS SURVEY NOT BEARING THE EMBOSSED SEAL OF THE LAND SURVEYOR SHALL NOT BE VALID. GUARANTEES OF CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. UNAUTHORIZED ALTERATION OF THIS DOCUMENT, IN ANY WAY, CONSTITUTES A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209, SUB-DIVISION 2.

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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

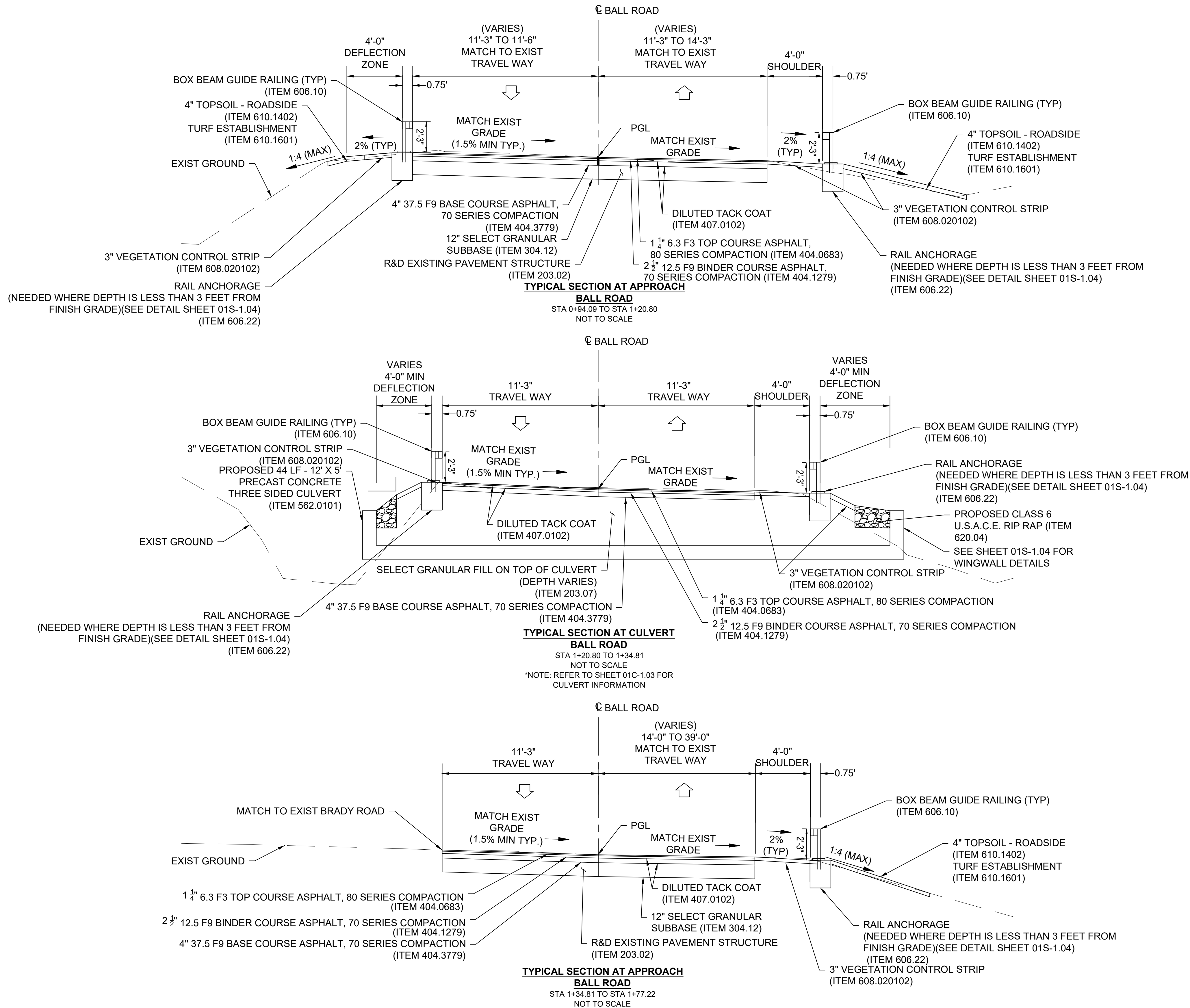
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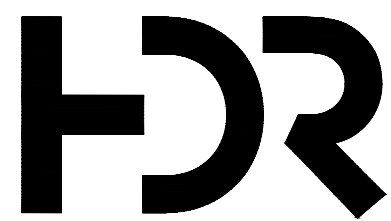
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

TYPICAL SECTIONS
BALL ROAD

SHEET
01C-1.01



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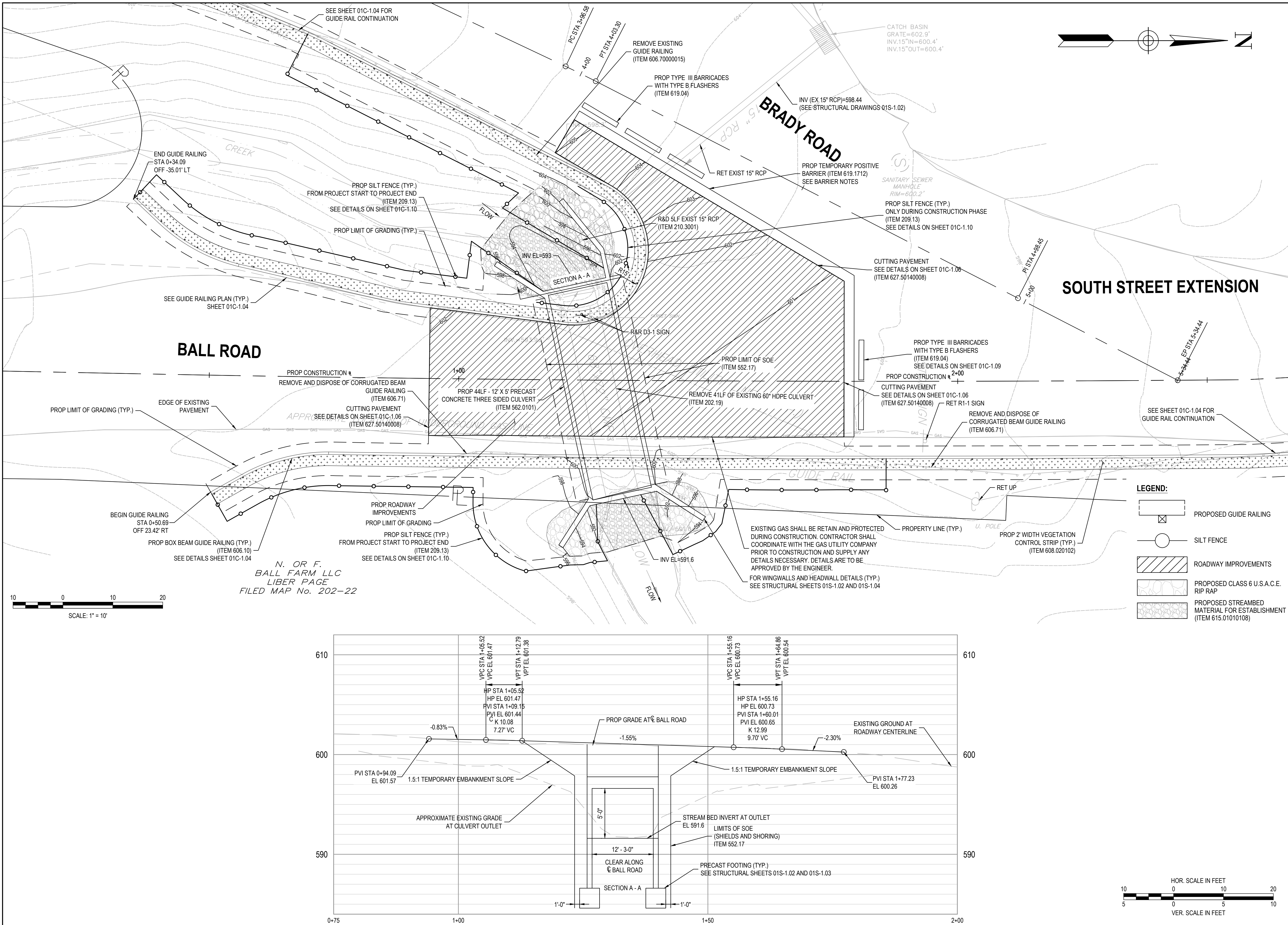
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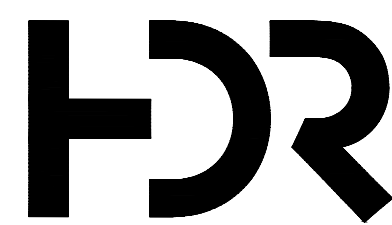
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

ROADWAY PLAN AND PROFILE
BALL ROAD

SHEET
01C-1.02



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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

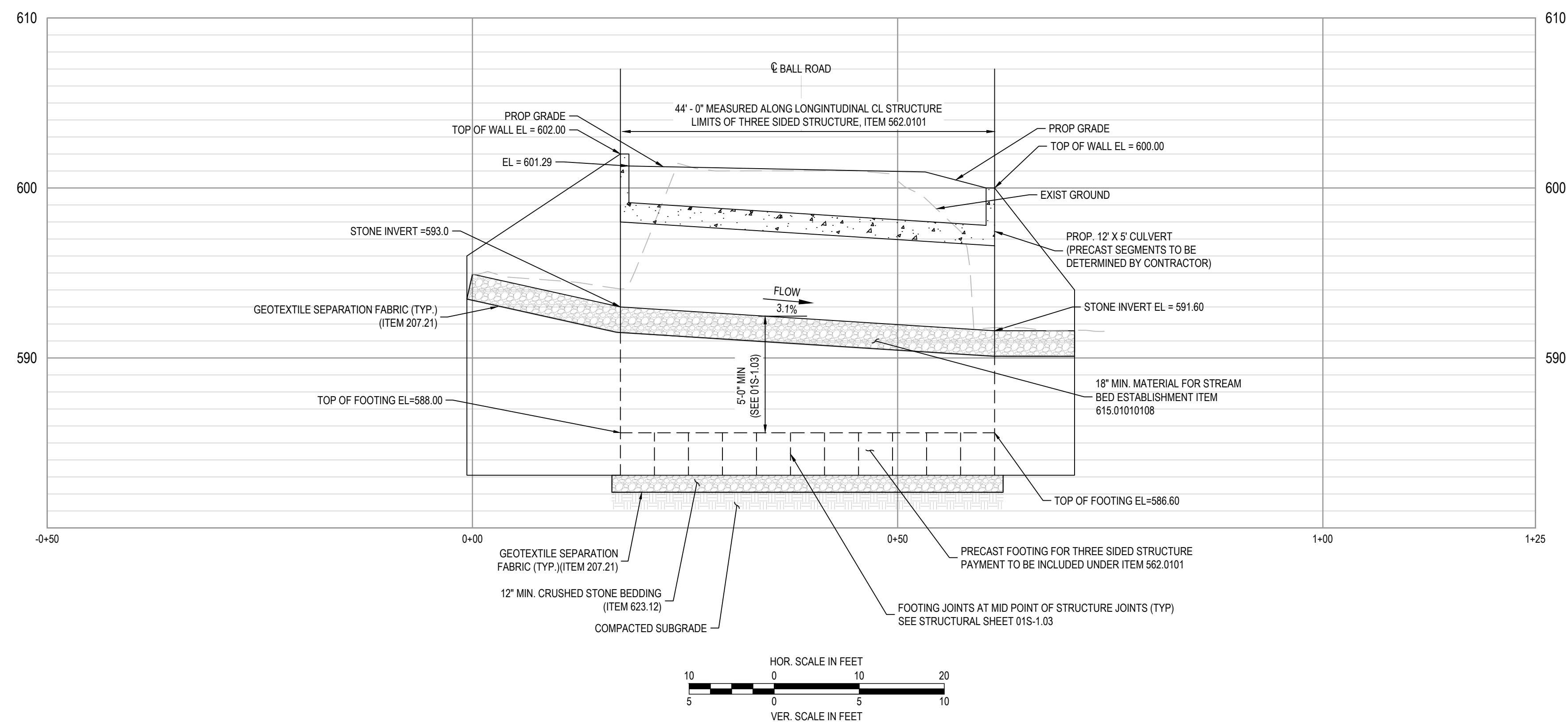
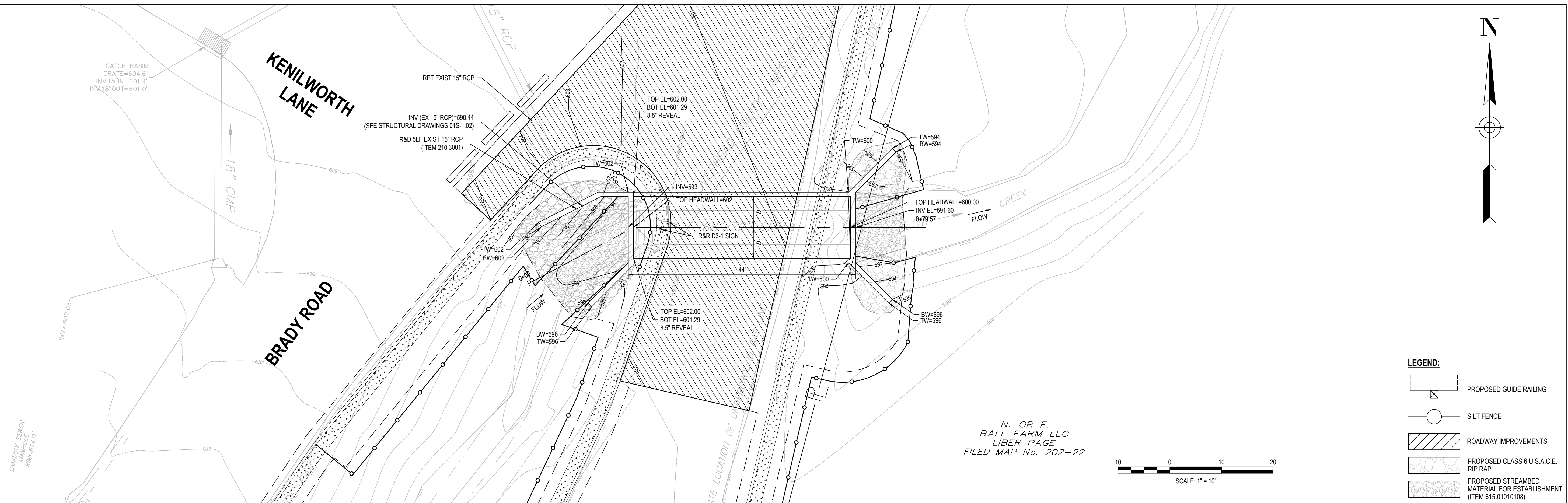
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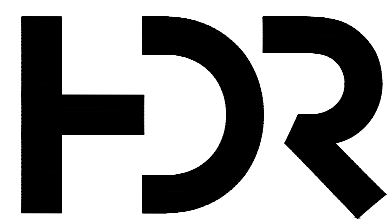
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

CULVERT PLAN AND PROFILE
BALL ROAD

SHEET
01C-1.03



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ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER LAURA BARCA

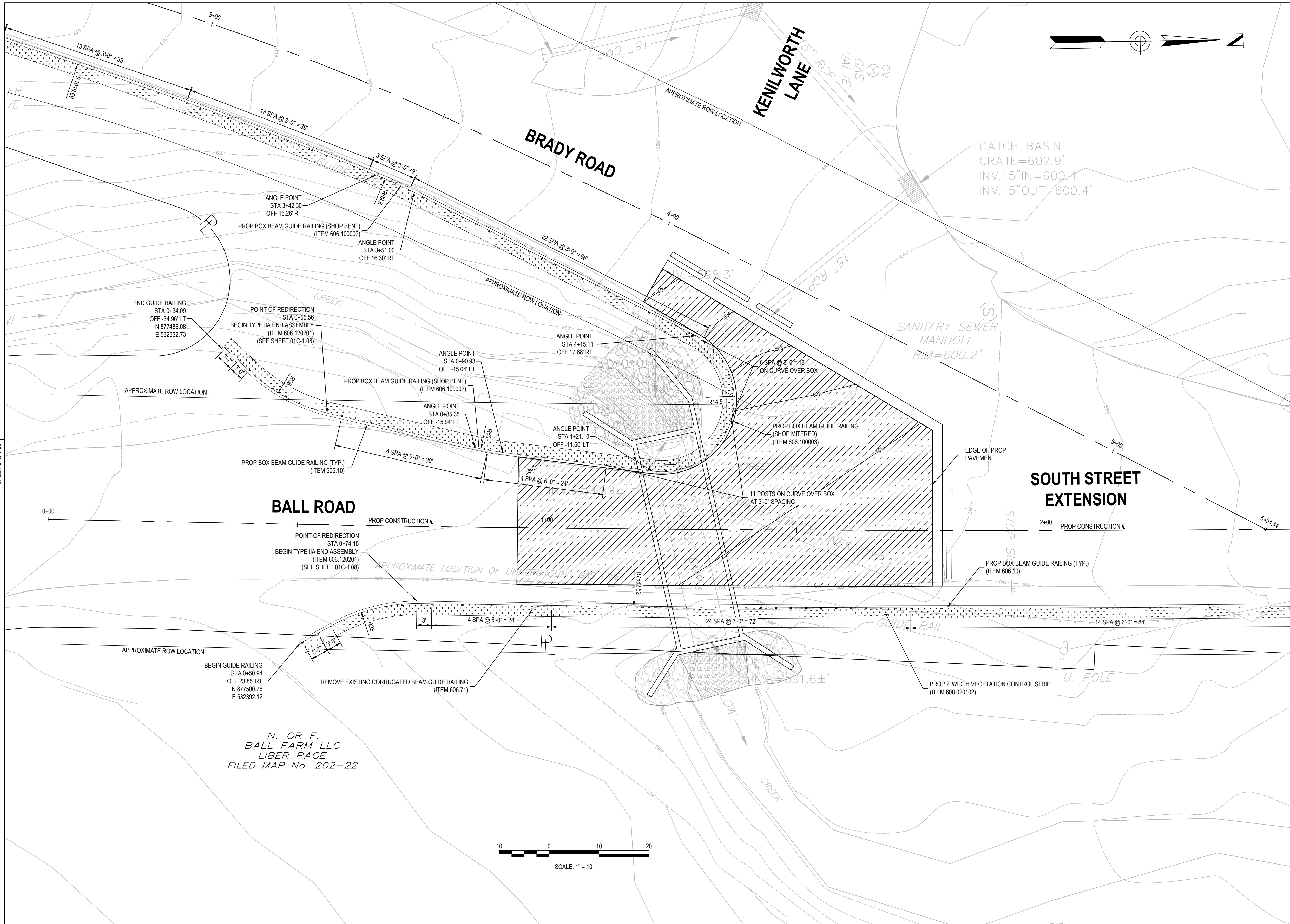
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TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

GUIDE RAILING PLAN - 1
BALL ROAD

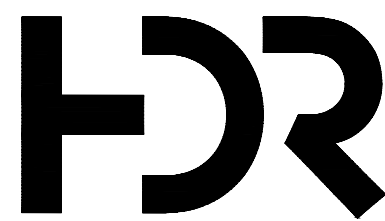
SHEET
01C-1.04



GUIDERAILING NOTES

1. POST SPACING SHALL BE 6'-0" EXCEPT WHERE REDUCED POST SPACING IS INDICATED ON THE CONTRACT PLANS. FOR RUNS UNDER 130 FEET IN LENGTH, BACKUP POSTS ARE ARE REQUIRED TO REDUCE POST SPACING TO 3'-0" AND SHALL BE FASTENED TORAILING, EXCEPT AT SPLICE LOCATIONS.
2. THE LINE OF BOX BEAM GUIDE RAILING, WHEN COMPLETED, SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES. BOX BEAM WITH RADIUS OF 720'-0" OR LESS SHALL BE SHOP WORKED TO THE REQUIRED CURVATURE. PAYMENT FOR SUCH CURVED LENGTHS SHALL BE MADE UNDER THE APPROPRIATE ITEM.
3. THE END MAY BE EXTENDED BY ONE 18'-0" STRAIGHT SECTION, PLACED BETWEEN THE CURVED SECTION AND THE END PIECE, TO MOVE THE END CLOSER TO THE EDGE OF THE CLEAR ZONE. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEM.
4. BACKUP MAY REMAIN IN PLACE.
5. THE RAILING MOUNTING HEIGHT OF ALL GUIDE RAILING OR MEDIAN BARRIER PLACED BEHIND CURB (REGARDLESS OF THE CURB HEIGHT OR SPEED) SHALL BE MEASURED FROM THE PAVEMENT SURFACE WHEN THE OFFSET IS 12" OR LESS AND TO THE GROUND SURFACE UNDER THE FACE OF THE RAILING WHEN THE OFFSET IS GREATER.
6. FOR DESIGN SPEEDS UNDER 50 MPH THE POINT OF REDIRECTION WILL BE AT THE POINT OF TANGENCY.
7. THE CONTOURS SHOWN WITH CONTINUOUS LINES ARE TAKEN FROM THE NYS CONTOUR DATA AND ARE USED AS A REFERENCE FOR THE TOPOGRAPHY OF THE END ASSEMBLIES.

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2/17/2025 10:41:32 AM



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

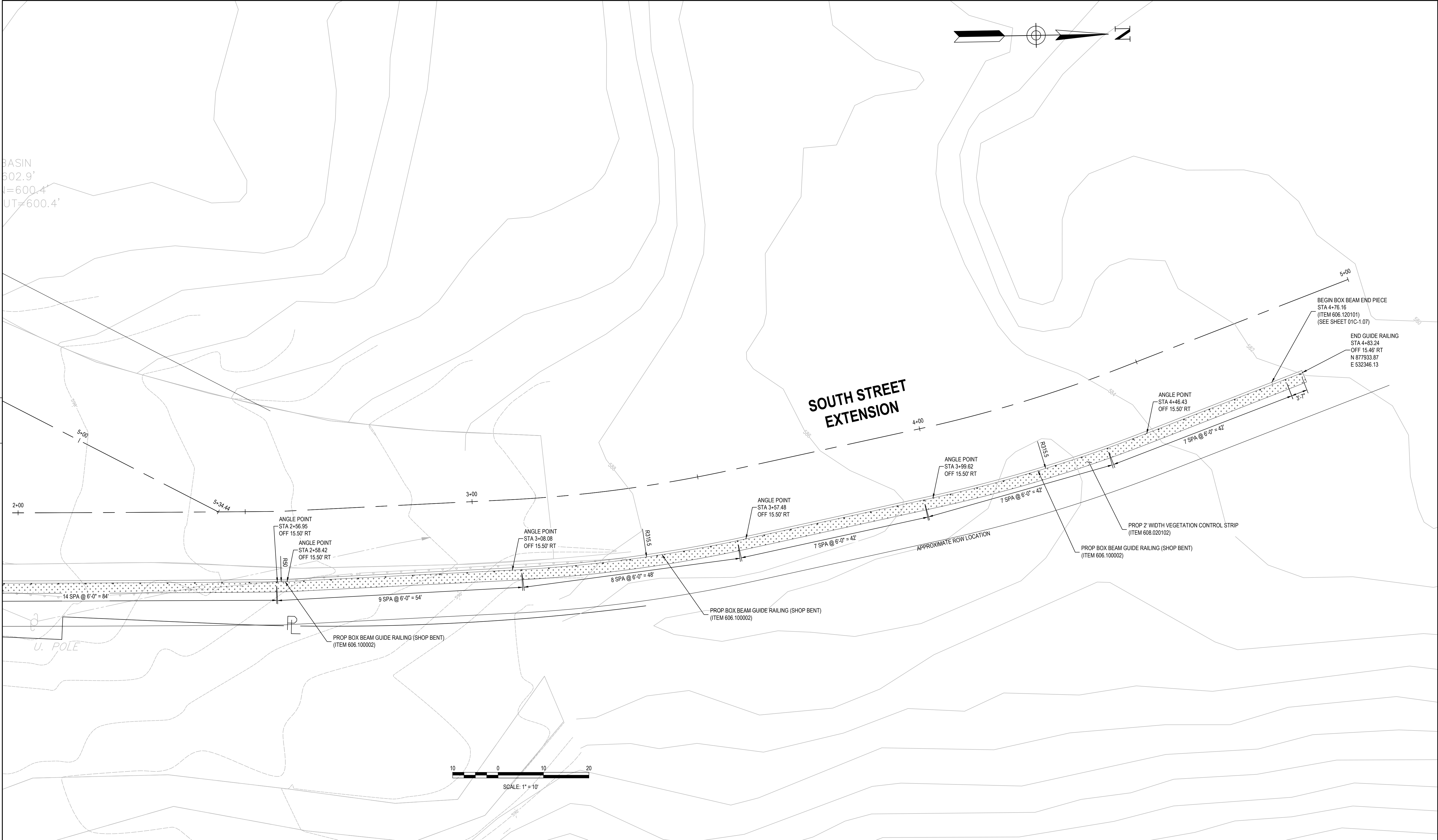
PROJECT NUMBER	10400319



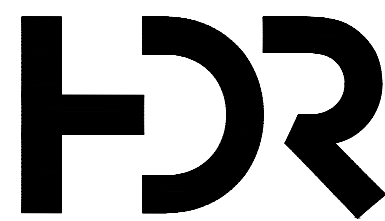
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

GUIDE RAILING PLAN - 3
BALL ROAD

SHEET
01C-1.06



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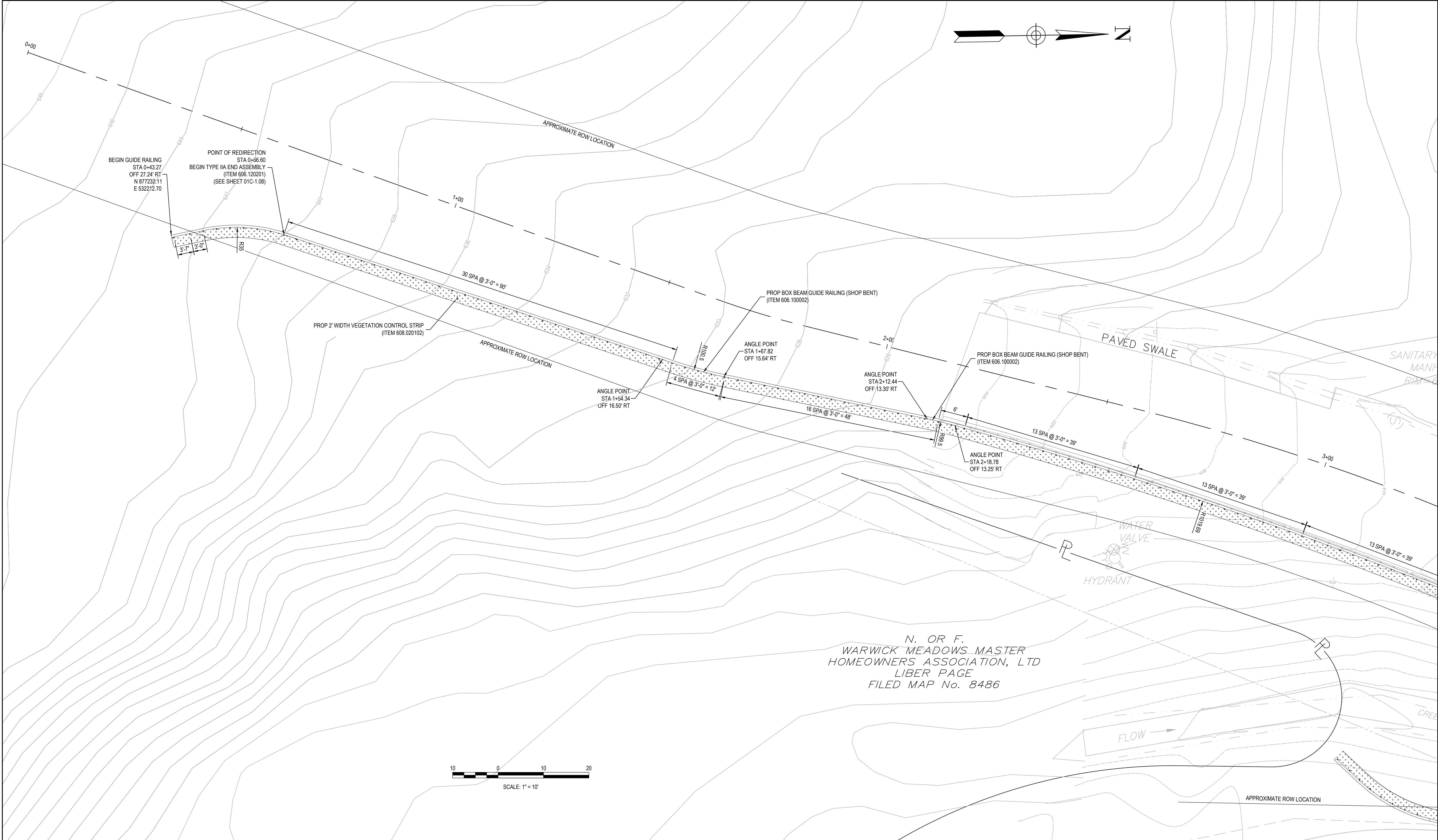
PROJECT MANAGER LAURA BARCA	
PROJECT NUMBER	10400319



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

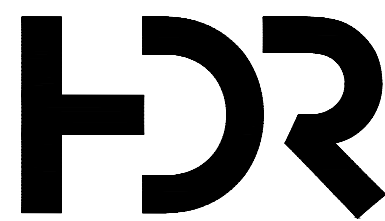
GUIDE RAILING PLAN - 2
BALL ROAD

SHEET
01C-1.05



CONTINUE ON
SHEET 01C-1.04

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PROJECT MANAGER LAURA BARCA

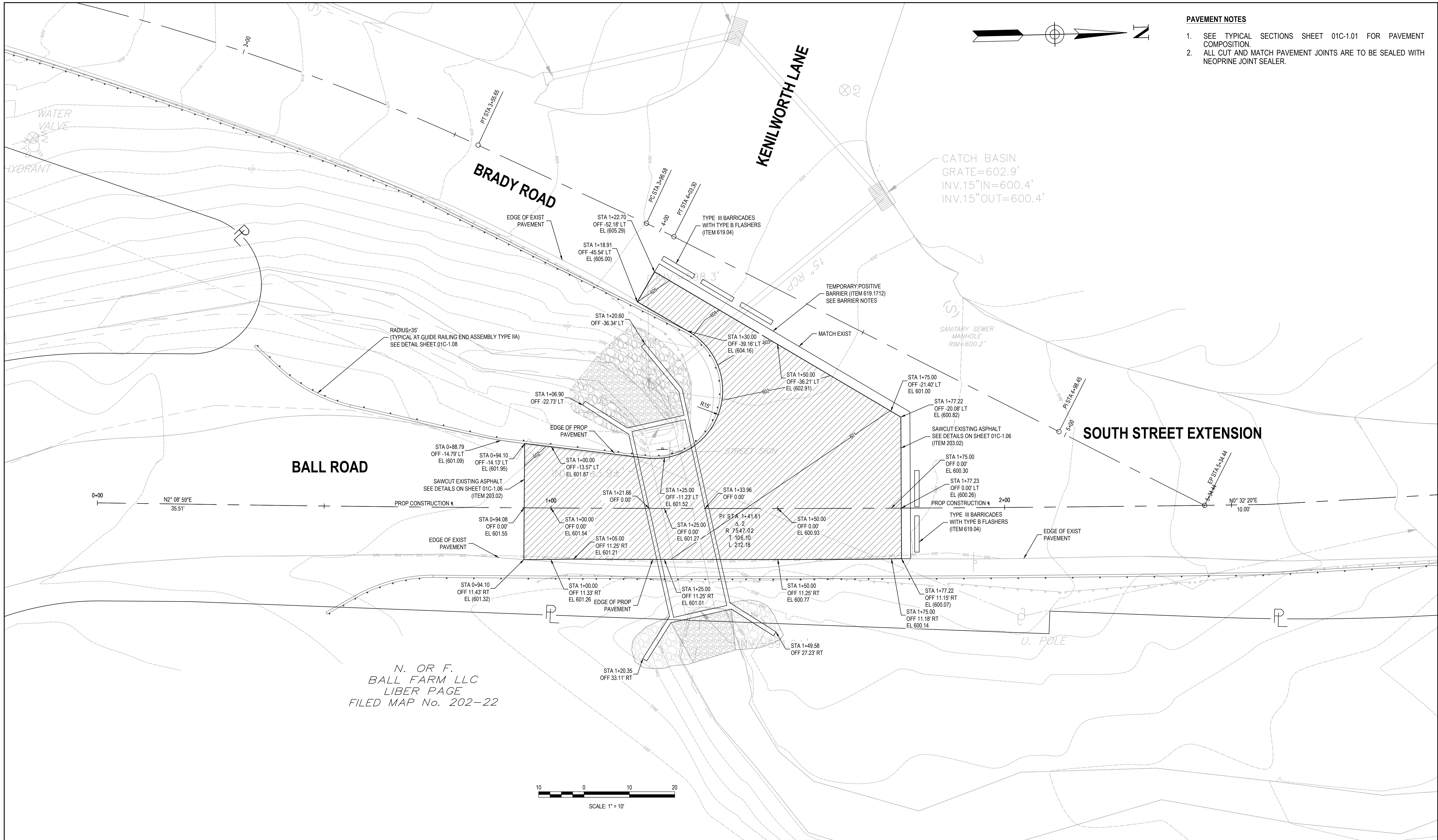
PROJECT NUMBER	10400319
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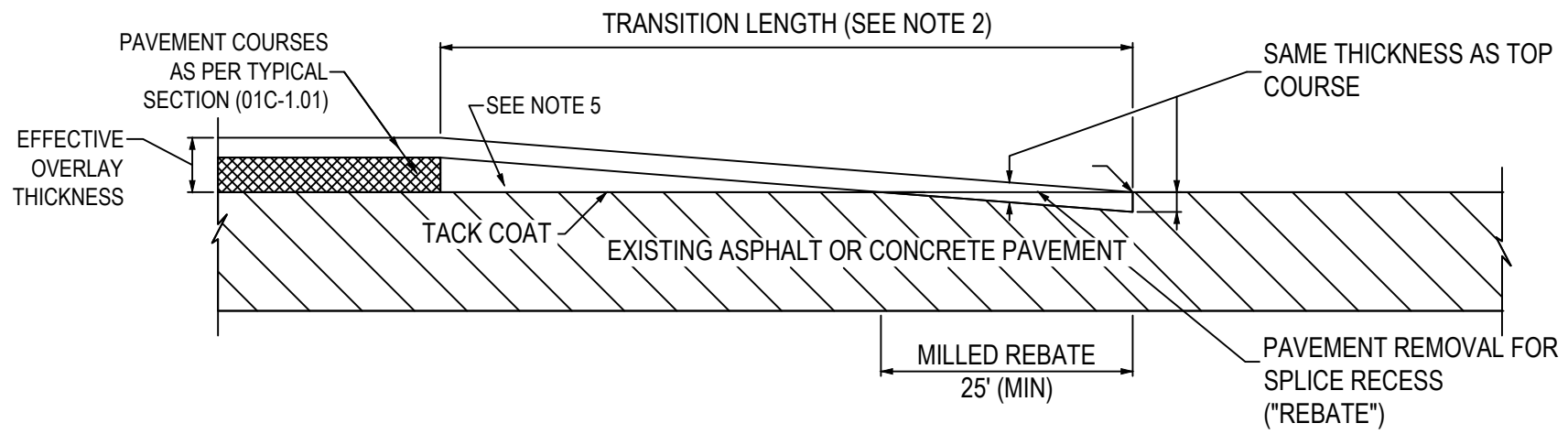
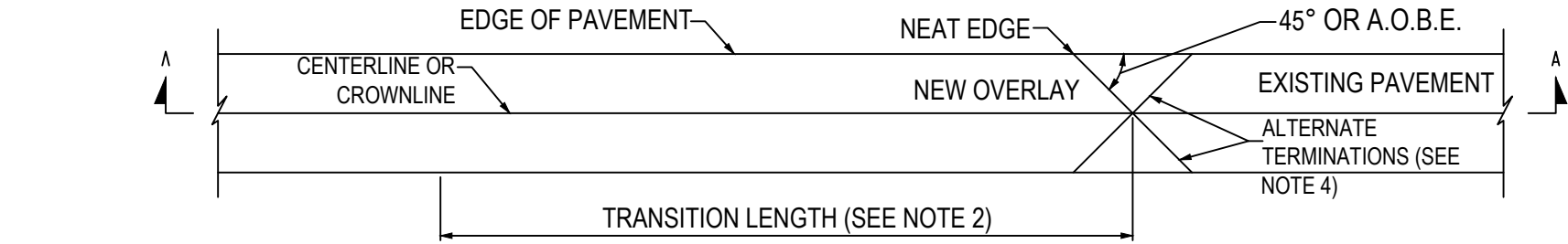


TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

PAVEMENT LAYOUT PLAN
BALL ROAD

SHEET
01C-1.07



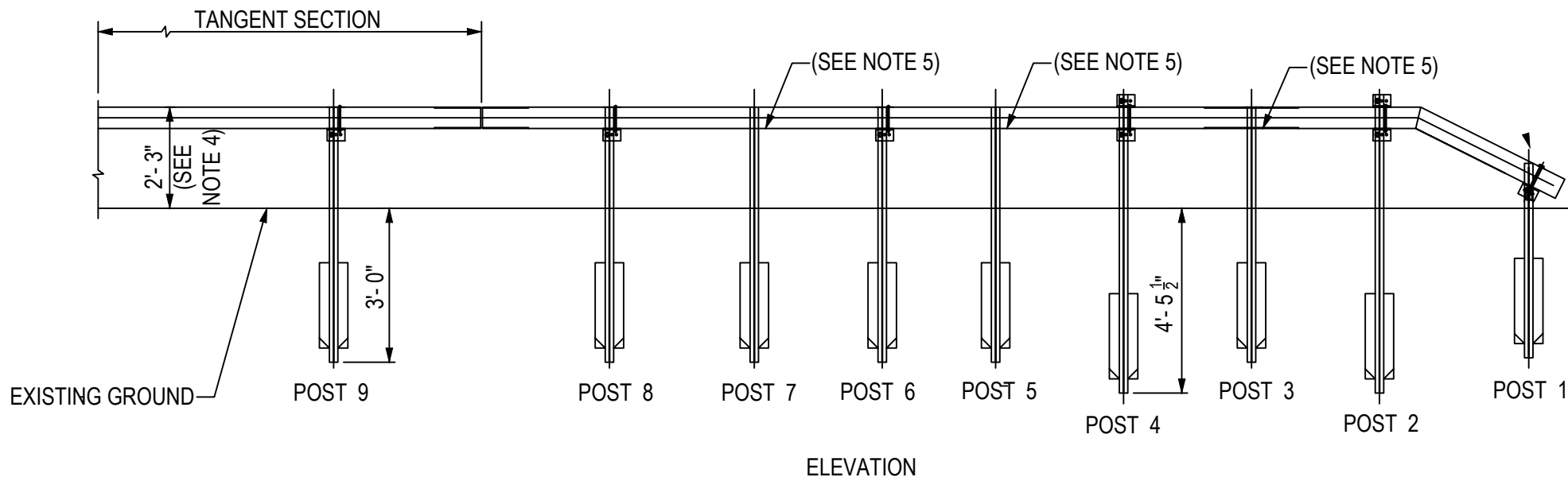
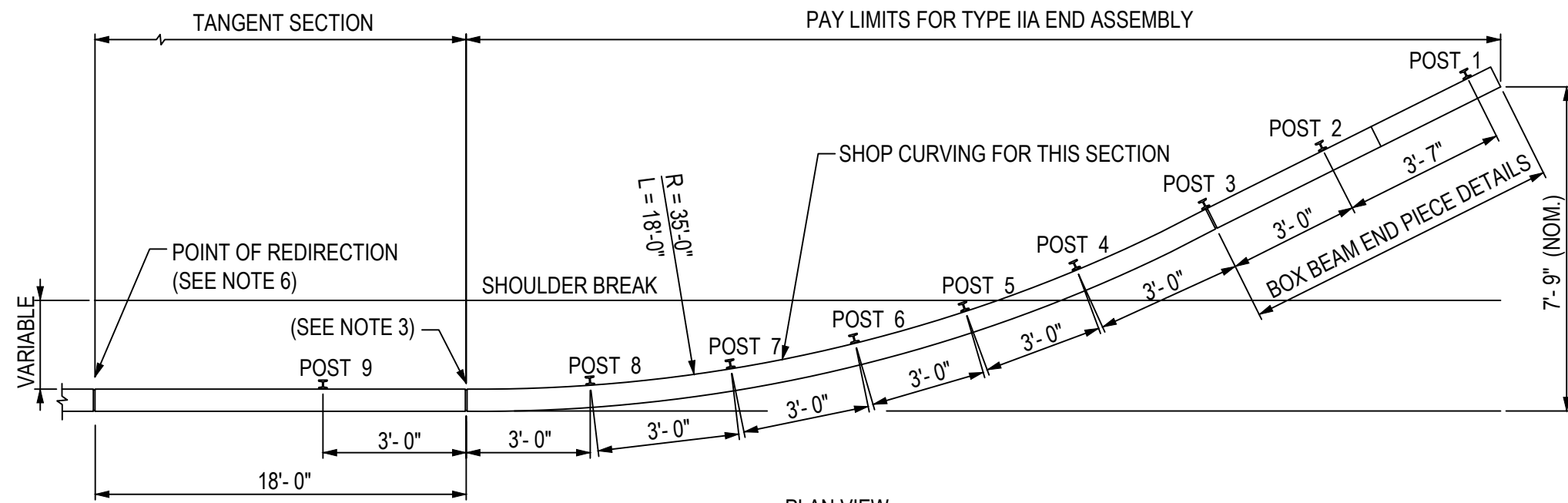


SECTION A-A
PAVEMENT TERMINATION DETAIL
NOT TO SCALE

NOTES

- ASPHALT OVERLAY SPLICES SHALL BE USED AT: ENDS OF ASPHALT OVERLAY HIGHWAY SECTIONS, MAJOR INTERSECTIONS, AND OTHER LOCATIONS INDICATED IN THE PLANS.
- THE TRANSITION LENGTH IN FEET SHALL NOT BE LESS THAN THE VALUE OBTAINED BY MULTIPLYING THE EFFECTIVE OVERLAY THICKNESS IN INCHES (DIFFERENCE BETWEEN THE EXISTING AND THE OVERLAID ELEVATIONS) BY THE K VALUE FROM THE TABLE FOR THE POSTED SPEED OF THE HIGHWAY. THE MINIMUM TRANSITION LENGTH IS 30'.
EXAMPLE: IF THE POSTED SPEED IS 55 MPH,
EFFECTIVE OVERLAY THICKNESS = 2"
THEN THE MINIMUM TRANSITION LENGTH
= 2 INCHES x 30 FT/IN = 60 FEET
- ALL SURFACES OF THE ASPHALT OVERLAY SPLICE TRANSITION AREA SHALL BE CLEANED AND TACK-COATED PRIOR TO ASPHALT PLACEMENT. THE COST OF MILLING REBATES, AND TACK COAT IN THE ASPHALT OVERLAY SPLICE TRANSITION AREA SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS. COST OF LEAVING A NEAT EDGE SHALL BE INCLUDED IN THE MILLING ITEM.
- SAW CUTS SHALL BE MADE SO THAT SURFACE RUNOFF IS DIRECTED TO THE EDGE OF PAVEMENT.
- IN THE TRANSITION AREA, PAVEMENT COURSES OTHER THAN THE TOP COURSE SHALL BE FEATHERED OUT USING TOP COURSE OR OTHER APPROPRIATE MATERIAL. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEM.
- SEE STANDARD SHEET 402-01 IN BOOK 1 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.

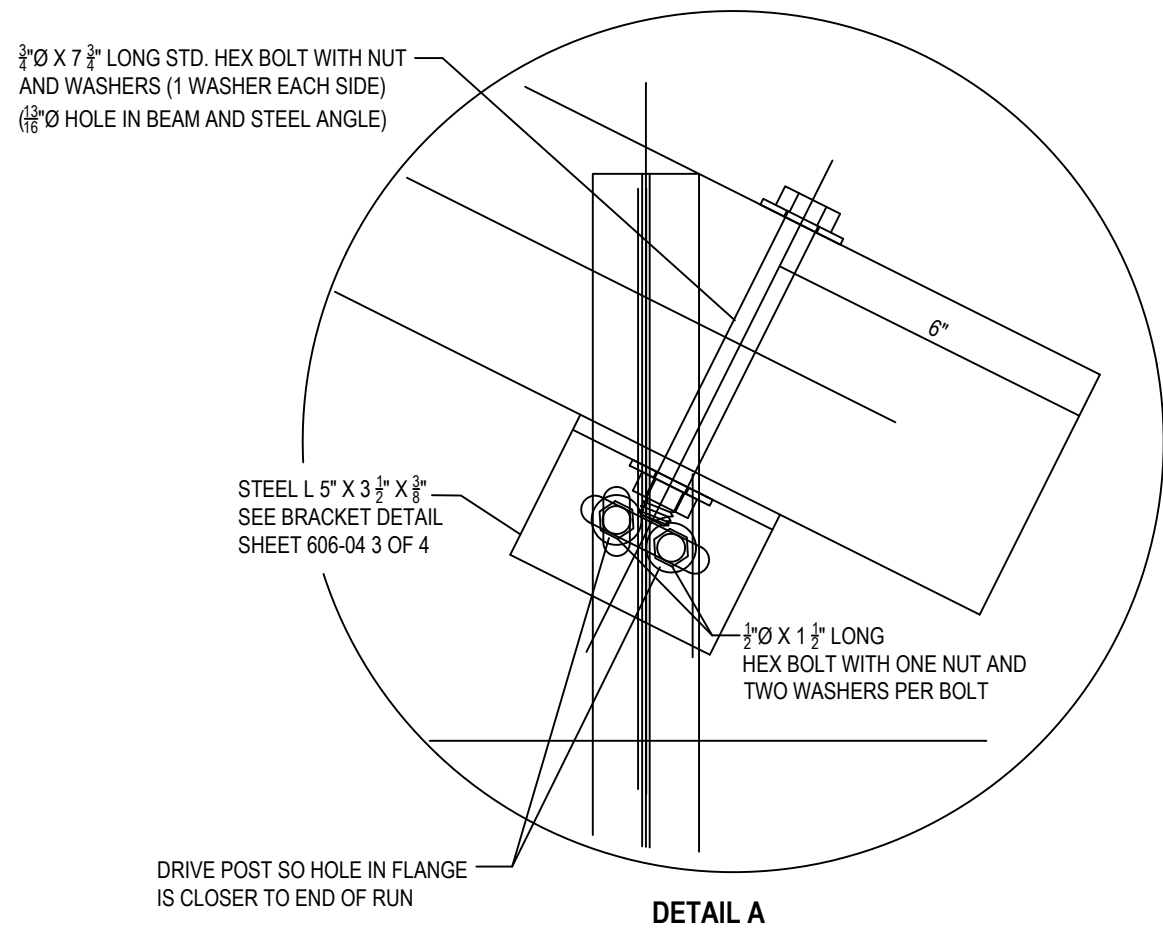
K VALUE TABLE FT/IN									
POSTED SPEED MPH	30	35	40	45	50	55	60	65	
K	16.67	19.17	21.67	24.17	26.67	29.17	31.67	34.17	



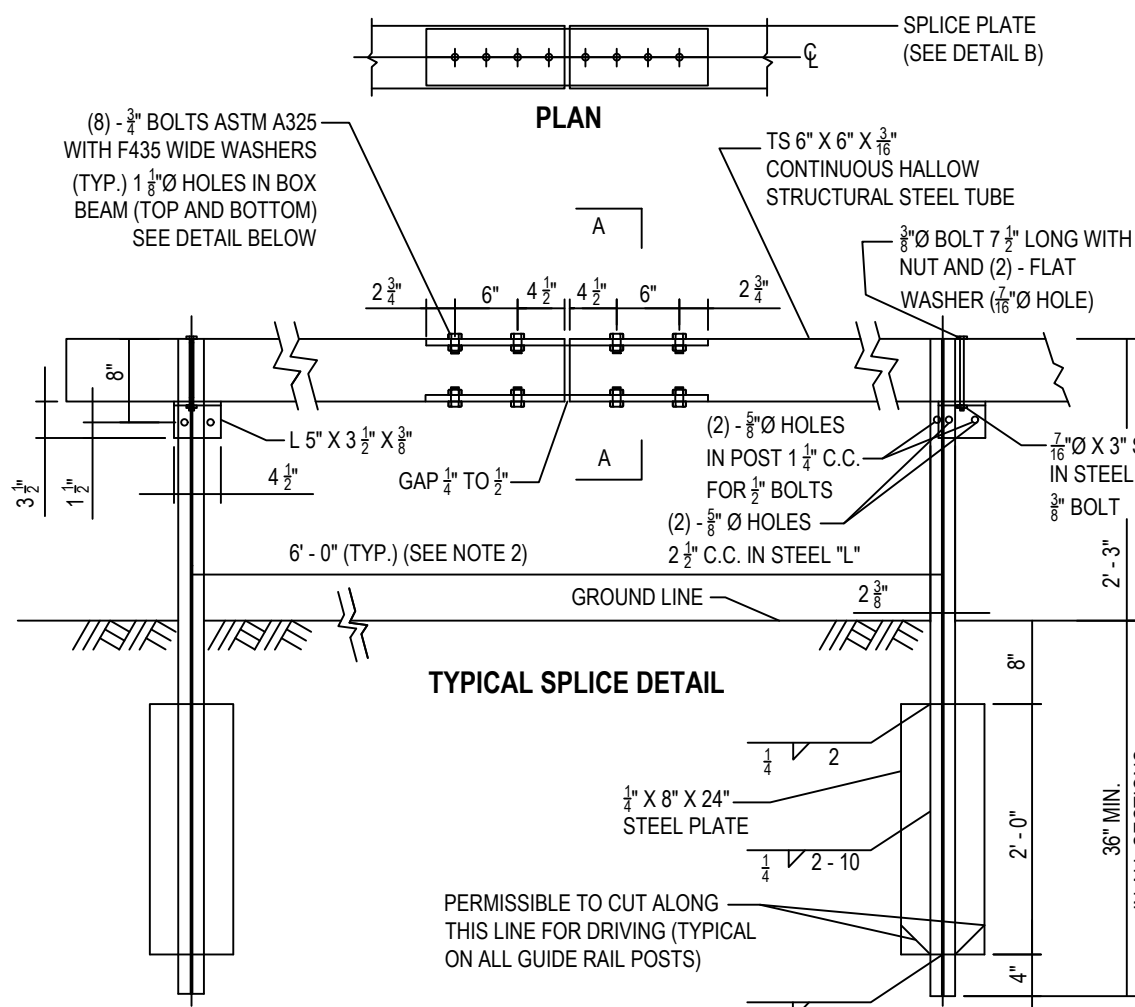
END ASSEMBLY TYPE IIA
NOT TO SCALE

NOTES:

- POSTS 2, AND 4 SHALL BE EXTRA LONG POSTS. POSTS 3, 5, 6, 7, 8, AND 9 SHALL BE STANDARD LENGTH.
- POSTS 2 AND 4 SHALL BE FASTENED TO THE RAIL USING DETAIL "A".
- FOR SIDE SLOPES 1:5 OR FLATTER, THE 18' OF CURVED BOX BEAM MAY BE PROVIDED IN A CURVED PORTION OF A 24' OR 36' PIECE. OTHERWISE, AN 18' SECTION IS TO BE SPLICED AT THE POINT OF TANGENCY.
- THE DRAWING INDICATES THE TERMINAL INSTALLED ON LEVEL GROUND. WHEN INSTALLED OVER A SLOPE OR DITCH, THE TERMINAL END SHOULD BE PUSHED DOWN WITH THE EQUIVALENT OF APPROXIMATELY 100 LBS EFFORT TO DEPRESS THE TERMINAL DOWN.
- POSTS 3, 5, AND 7 SHALL NOT BE CONNECTED TO BOX BEAM GUIDE RAIL. HOWEVER, FOR RUNS LESS THAN 130' IN LENGTH, ALL BACKUP POSTS SHALL BE FASTENED TO THE RAIL.
- FOR DESIGN SPEEDS UNDER 50 MPH THE POINT OF REDIRECTION WILL BE AT THE POINT OF TANGENCY.
- SEE STANDARD SHEET 606-04 IN BOOK 2 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.

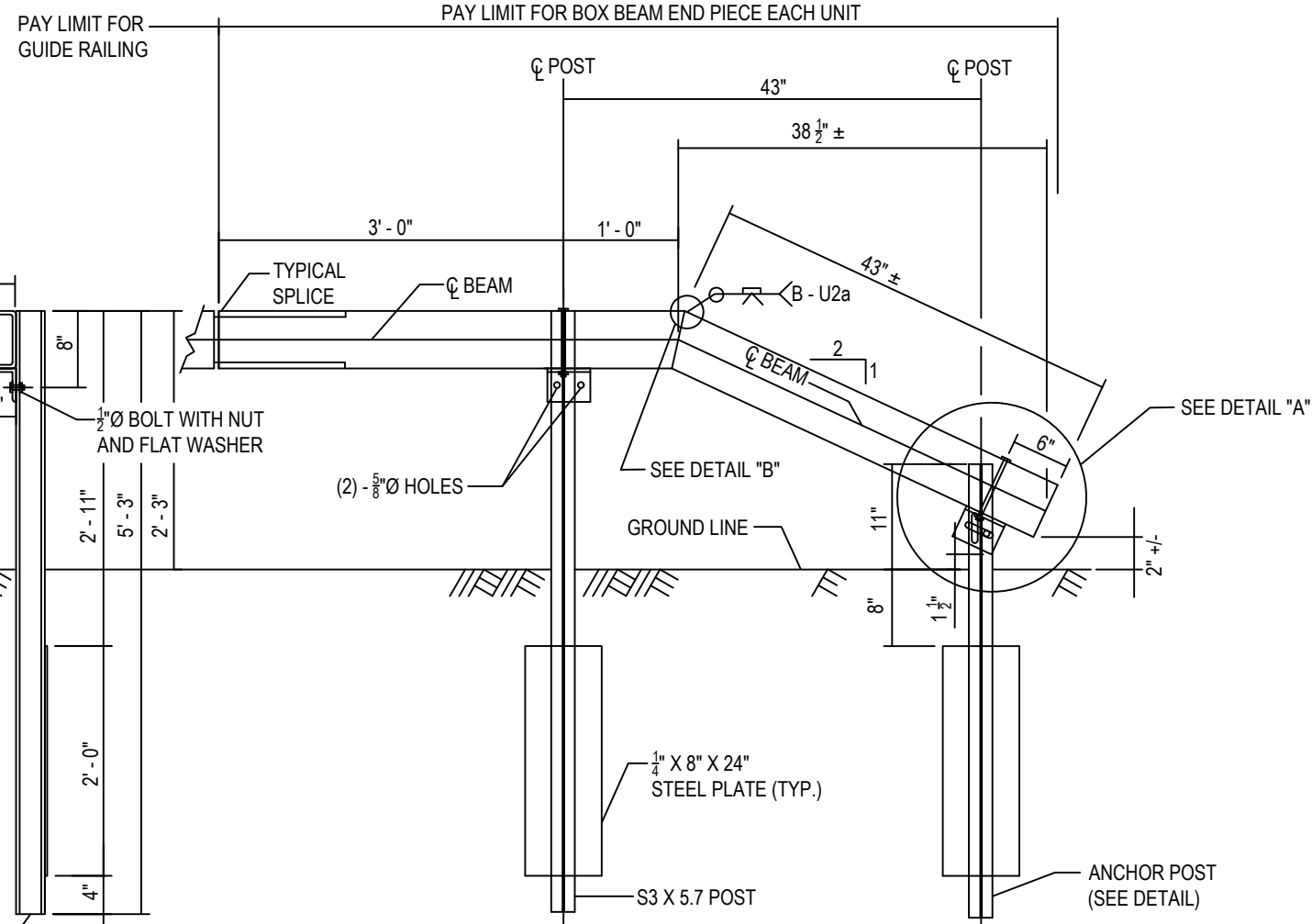


DETAIL A



TYPICAL SPLICE DETAIL

(CONTRACTOR'S OPTION)



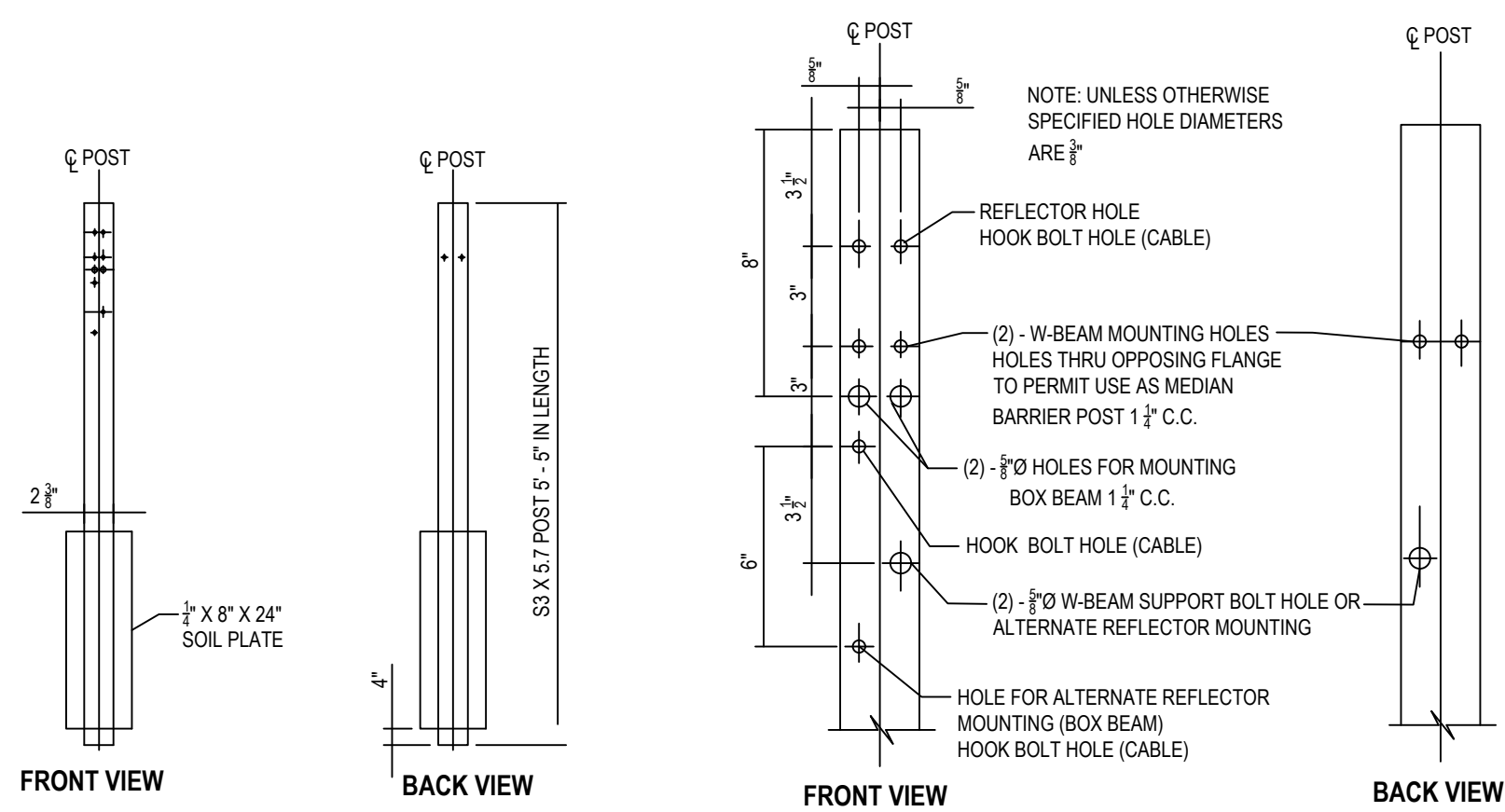
**ELEVATION
BOX BEAM END PIECE**

(CONTRACTOR'S OPTION)

BOX BEAM END PIECE DETAIL

NOTES:

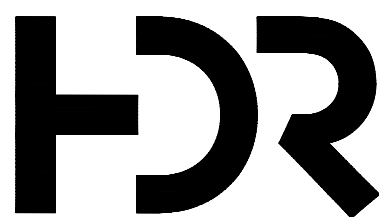
- SEE STANDARD SHEET 606-04 IN BOOK 2 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



UNIVERSAL POST
NOT TO SCALE

NOTES:

- SEE STANDARD SHEET 606-04 IN BOOK 2 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

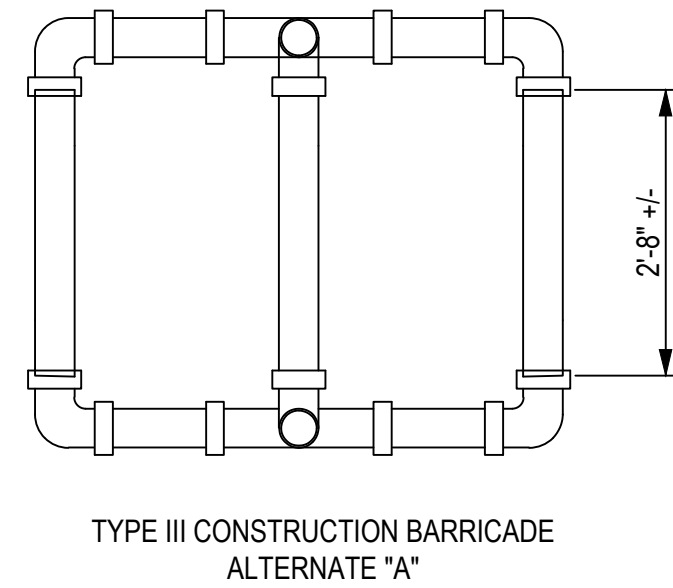
PROJECT NUMBER 10400319



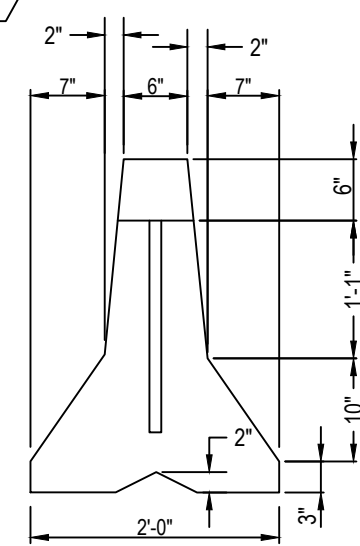
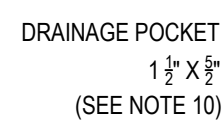
**TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS**

**CONSTRUCTION DETAILS - 1
BALL ROAD**

**SHEET
01C-1.08**



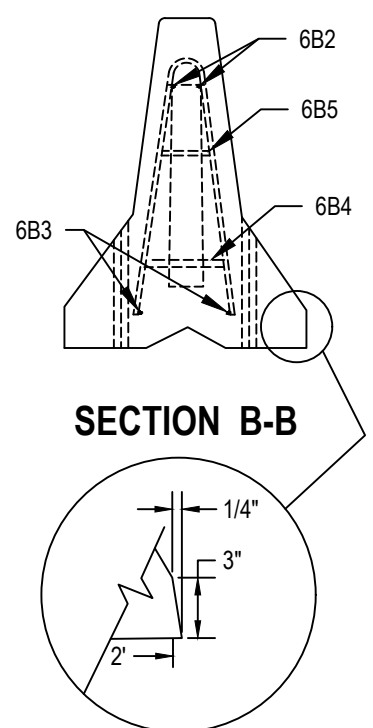
1. THE DETAILS AND MATERIALS FOR TYPE III CONSTRUCTION BARRICADES ARE NCHRP 350 APPROVED. IF THE CONTRACTOR ELECTS TO USE AN ALTERNATE DESIGN OR MATERIALS, THE ALTERNATE SHALL BE NCHRP 350 APPROVED.
2. THE ALTERNATES SHOWN ON SHEET 619-002 IN THE NY STANDARD SHEETS ARE EQUALLY ACCEPTABLE AND THE CONTRACTOR MAY USE ANY ONE OR A MIXTURE OF TYPES. PANELS SHALL HAVE 6" WIDE REFLECTORIZED ORANGE AND WHITE DIAGONAL STRIPES OF TYPE I OR TYPE II SHEETING SLOPING AT AN ANGLE OF 45° IN ACCORDANCE WITH \$729-08, TYPE III CONSTRUCTION BARRICADES. THE STRIPES SHALL SLOPE DOWNWARD TOWARD THE SIDE ON WHICH TRAFFIC IS TO PASS.
4. BALLAST MAY BE PLACED ON THE BASE MEMBERS OF THE BARRICADE. BALLAST SHALL NOT EXTEND INTO THE ACCESSIBLE PASSAGE WIDTH OF 5' WHERE BARRICADES ARE USED TO CHANNELIZE PEDESTRIANS.
5. PANELS FOR BARRICADES MAY BE WOOD, PLASTIC, OR ALUMINUM. PIPE FOR BARRICADES SHALL USE SDR SIZES 21 TO 32.5.
6. WHEN THE BATTERY AND LIGHT WEIGHT MORE THAN 7 LBS, THE BATTERY SHALL BE MOUNTED ON THE BOTTOM OF THE BARRICADE.
7. ALL PIPES SHALL BE WHITE. WHITE FITTINGS ARE PREFERRED, BLACK MAY BE USED. ALL JOINTS IN ALTERNATE "A" SHALL BE GLUED WITH A SOLVENT CEMENT COMPATIBLE WITH THE P.V.C. PIPE.
8. ALL JOINTS IN ALTERNATE "B" SHALL BE FREE TO SEPARATE UPON VEHICLE IMPACT. SHADED PIPES AND FITTINGS SHALL BE TIED TOGETHER WITH A MINIMUM 3/16" DIA. NYLON, OR EQUIVALENT ROPE THREADED INTO THE PIPE AND FITTING INTERIOR.
9. IF BARRICADES ARE USED TO TEMPORARILY CHANNELIZE PEDESTRIANS, THERE SHALL BE A CONTINUOUS DETECTABLE BOTTOM AND TOP RAILS WITH NO GAP BETWEEN INDIVIDUAL BARRICADES TO BE DETECTABLE TO BLIND OR VISUALLY IMPAIRED USERS OF LONG CANES. THE BOTTOM OF THE BOTTOM RAIL SHALL BE NO HIGHER THAN 2" ABOVE THE GROUND AND THE TOP OF THE TOP RAIL SHALL BE NO LOWER THAN 3' ABOVE THE GROUND.
10. SEE STANDARD SHEET 619-002 IN BOOK 3 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



SECTION A-A

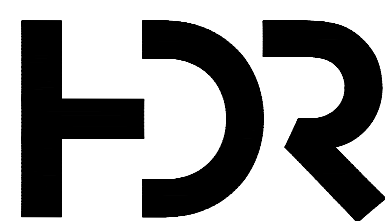
FULL SECTION BAR LIST								
MARK	SIZE	NUMBER PER SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	4	6	4'-11"	I	0'-5"	2'-4"	0'-1"	STIRRUPS
4B4	4	1 PER RECESS	3'-1"	II	0'-4"	1'-3 1/2"		ANCHOR RECESS HOOPS
4B5	4	SEE TABLE	4'-11"	I	0'-5"	2'-4"	0'-1"	STIRRUPS
6B2	6	2	SEE NOTE 7	STR.				LONGITUDINAL (TOP)
6B3	6	2	SEE NOTE 7	STR.				LONGITUDINAL (BOTTOM)
6B4	6	2	1'-2"	STR.				TRANSVERSE (BOTTOM)
6B5	6	2	0'-6"	STR.				TRANSVERSE (TOP)

NOMINAL LENGTH OF BARRIER UNIT	X	NO. EACH SECTION
20'	6'-11"	2
18'	6'-5"	2
16'	5'-11"	2
14'	7'-0"	1
12'	6'-0"	1
10'	5'-0"	1
8'	N/A	0
"X" DISTANCE FROM END OF BARRIER TO 4B5 BAR		

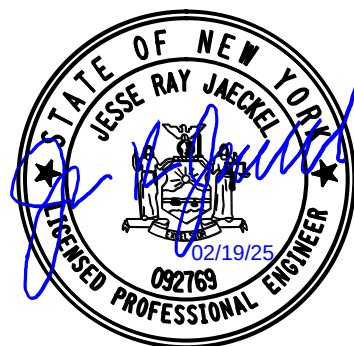


OPTIONAL BATTERED BOTTOM CORNER DETAIL

1. TEMPORARY POSITIVE BARRIER SHALL BE PRECAST IN ACCORDANCE WITH THE REQUIREMENTS OF §704-05 PRECAST CONCRETE BARRIER.
2. TEMPORARY POSITIVE BARRIER SHALL BE PRECAST UNITS OF ONE OF THE FOLLOWING NOMINAL LENGTHS 8', 10', 12', 14', 16', 18', 20'.
3. STEEL PLATE REINFORCEMENT SHALL BE ASTM A36M, A572M, GRADE 345 STEEL, TUBE REINFORCEMENT SHALL BE ASTM A500, GRADE B OR C, AND REINFORCING BARS SHALL BE A615, GRADE 420. EPOXY BARS ARE NOT REQUIRED.
4. ALL WELDING SHALL BE PERFORMED BY A WELDER QUALIFIED IN ACCORDANCE WITH SECTION 8 OF THE NYS STEEL CONSTRUCTION MANUAL.
5. SURFACES TO BE WELDED SHALL BE FREE OF SLAG, RUST, MOISTURE, GREASE OR ANY OTHER MATERIAL THAT WILL PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES.
6. WELDING SHALL BE SHIELDED METAL ARC WELDING USING PROPERLY DRIED 5/32" E7018 ELECTRODES CONFORMING TO THE REQUIREMENTS OF SECTION 7 OF THE NYS STEEL CONSTRUCTION MANUAL.
7. THE LENGTH OF THE 682 AND 683 BARS WILL VARY WITH THE LENGTH OF THE BARRIER SEGMENT.
8. CONCRETE CLEAR COVER FOR REINFORCING BARS SHALL BE 1/2" (MIN.) UNLESS OTHERWISE SPECIFIED.
9. A MINIMUM OF (2) TWO RECESSED LIFTING DEVICES, EACH WITH THE CAPACITY TO LIFT A MASS OF 6 TONS (MINIMUM), SHALL BE INSTALLED ON EACH SEGMENT. SEGMENT MASS IS APPROXIMATELY 400 LBS/FT.
10. ONE DRAINAGE POCKET SHALL BE INCLUDED IN THE CENTER OF 8'-0" AND 10'-0" SEGMENTS, TWO DRAINAGE POCKETS IN ALL OTHER SEGMENTS.
11. CONNECTION KEY COVER PLATE SHALL BE INSTALLED FLUSH WITH THE BARRIER TOP.
12. 1" ASTM A36M ANCHOR PINS SHALL BE PLACED IN FOUR ANCHOR HOLES OF EACH SEGMENT TO BE PINNED. PINS SHALL BE PLACED ON THE WORKZONE SIDE OF THE BARRIER, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER.
13. BASED ON SEGMENT LENGTH AND MAXIMUM JOINT ROTATION, TEMPORARY POSITIVE BARRIER CANNOT BE INSTALLED ON RADII TIGHTER THAN THE FOLLOWING MINIMUMS: 8' 92", 10' 115", 12' 138", 14' 161", 16' 184", 18' 207", 20' - 230'.
14. SEE STANDARD SHEET 619-001 IN BOOK 3 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



			PROJECT MANAGER		LAURA BARCA
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	10400319	



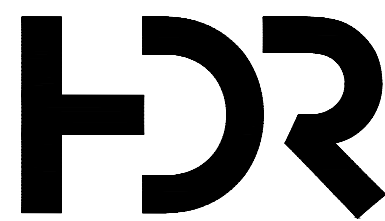
**TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS**

CONSTRUCTION DETAILS - 2

BALL ROAD

SHEET
01C-1.09

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PROJECT MANAGER LAURA BARCA

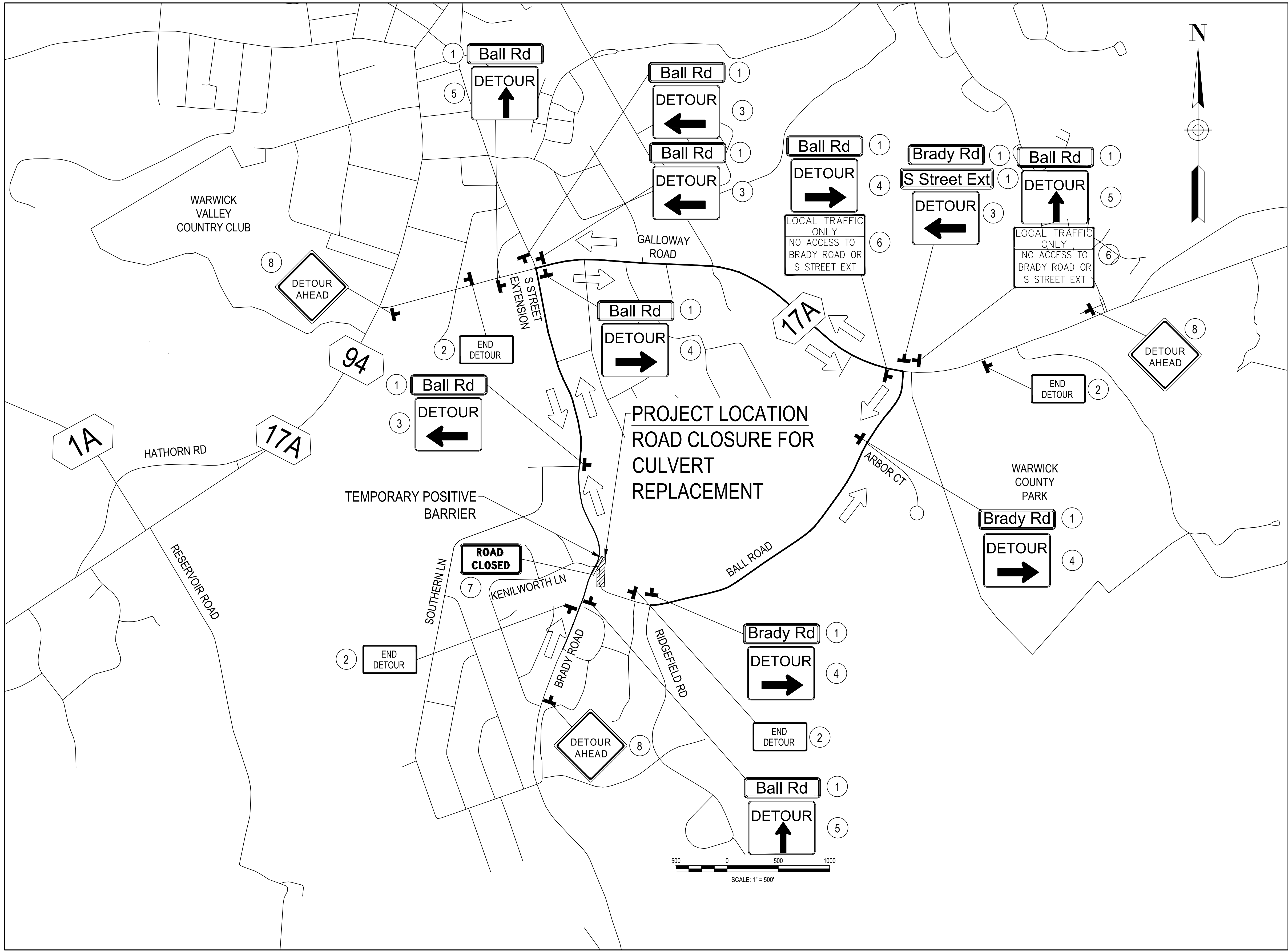
PROJECT NUMBER 10400319



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

DETOUR PLAN
BALL ROAD

SHEET
01C-1.11



MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

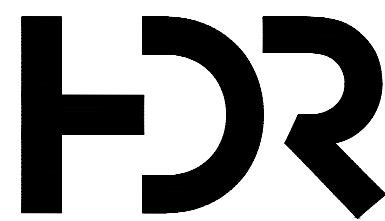
1. MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE COMPLIED WITH THROUGHOUT THE LENGTH AND DURATION OF THE CONTRACT IN ACCORDANCE WITH "THE NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND THE CONTRACT DOCUMENTS.
2. DISTANCES SHOWN ARE APPROXIMATE ONLY AND MAY BE REVISED BY THE ENGINEER TO MEET FIELD CONDITIONS (DRIVEWAYS, HIGHWAY ALIGNMENT, ETC.)
3. THE SIGNING SHOWN IS A MINIMUM ONLY, ADDITIONAL SIGNING MAY BE REQUIRED TO MEET TRAFFIC AND/OR FIELD CONDITIONS. ANY ADDITIONAL SIGNS UP TO 6, TO BE PROVIDED AT NO ADDITIONAL COST.
4. DURING NON-WORKING HOURS, ALL CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED IN THE CLOSED PORTION OF THE ROADWAY BEHIND THE CONCRETE BARRIERS.
5. WORK ZONE TRAFFIC CONTROL, INCLUDING NECESSARY SIGNS, ETC. AND REMOVAL, STORAGE AND REINSTALLING EXISTING SIGNS PAID FOR UNDER ITEM 619.01.
6. NO ADDITIONAL PAYMENT WILL BE MADE FOR MOVEMENT OF TEMPORARY POSITIVE BARRIERS AFTER INITIAL PLACEMENT. COST FOR MOVEMENT OF EXISTING TEMPORARY POSITIVE BARRIERS SHALL BE CONSIDERED AS PART OF THE MOBILIZATION COST.
7. TYPE B FLASHERS SHALL BE MOUNTED ON SIGN TYPE 6 AND MAINTAINED FOR THE DURATION OF THE ROAD CLOSURE, TO BE INCLUDED IN ITEM 619.01.

LEGEND:

- DETOUR ROUTE DIRECTIONS
— DETOUR ROUTE

SIGN	NO. REQ'D.	SIGN NO.	TEXT	SIZE
①	8	D3-1a	Ball Rd	VARIES" X 12"
①	3	D3-1a	Brady Rd	VARIES" X 12"
①	1	D3-1a	S Street Ext	VARIES" X 12"
②	4	M4-8a	END DETOUR	30" X 24"
③	3	M4-9L	DETOUR ←	30" X 24"
④	5	M4-9R	DETOUR →	30" X 24"
⑤	3	M4-9S	DETOUR ↑	30" X 24"
⑥	2	R2-10f	LOCAL TRAFFIC ONLY NO ACCESS TO BRADY ROAD OR S STREET EXT	48" X 36"
⑦	1	R11-2	ROAD CLOSED	48" X 30"
⑧	3	W20-2	DETOUR AHEAD	36" X 36"

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ISSUE	DATE	DESCRIPTION

LAURA BARCA

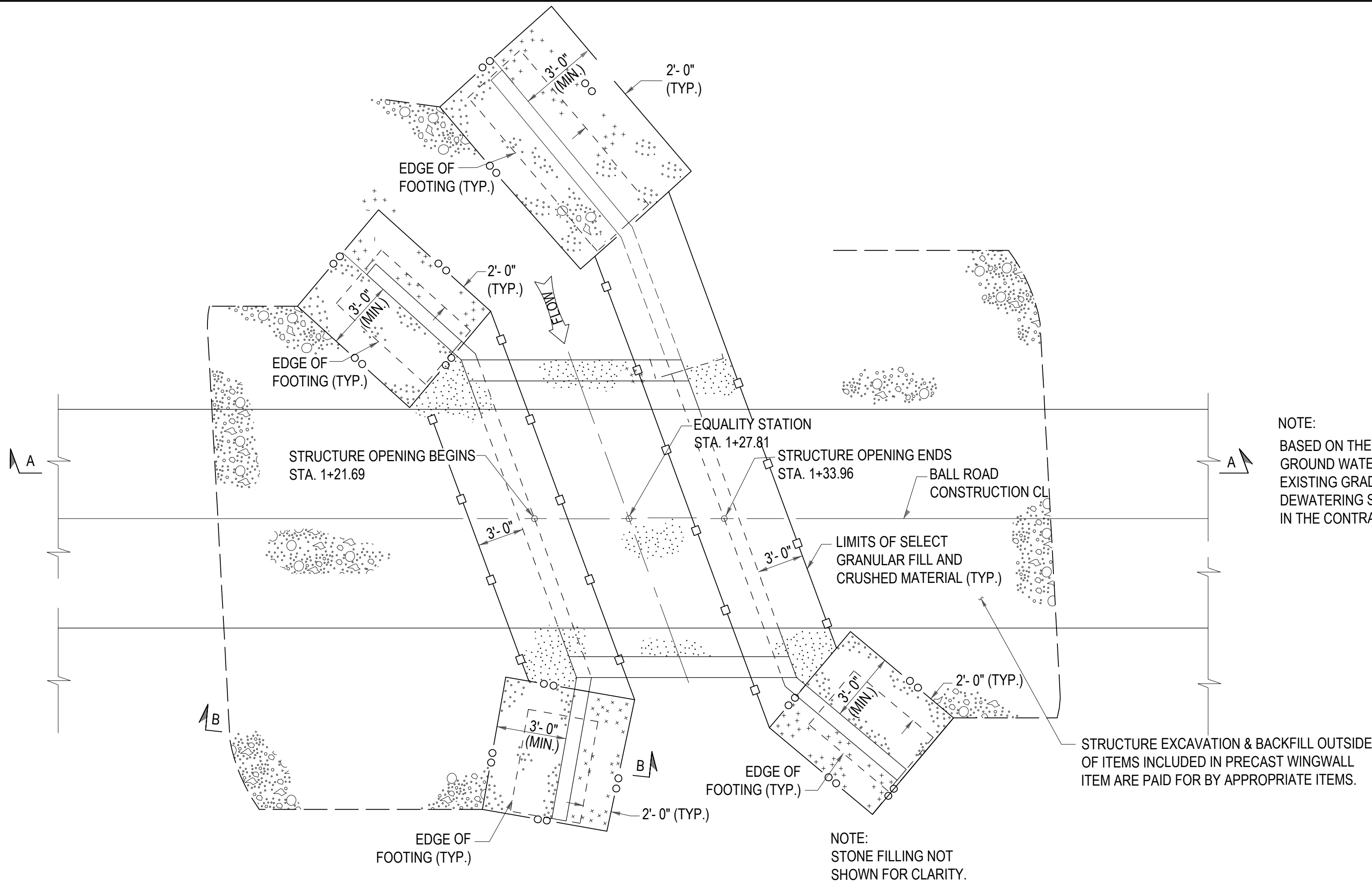
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TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

CULVERT EARTHWORK DETAILS
BALL ROAD

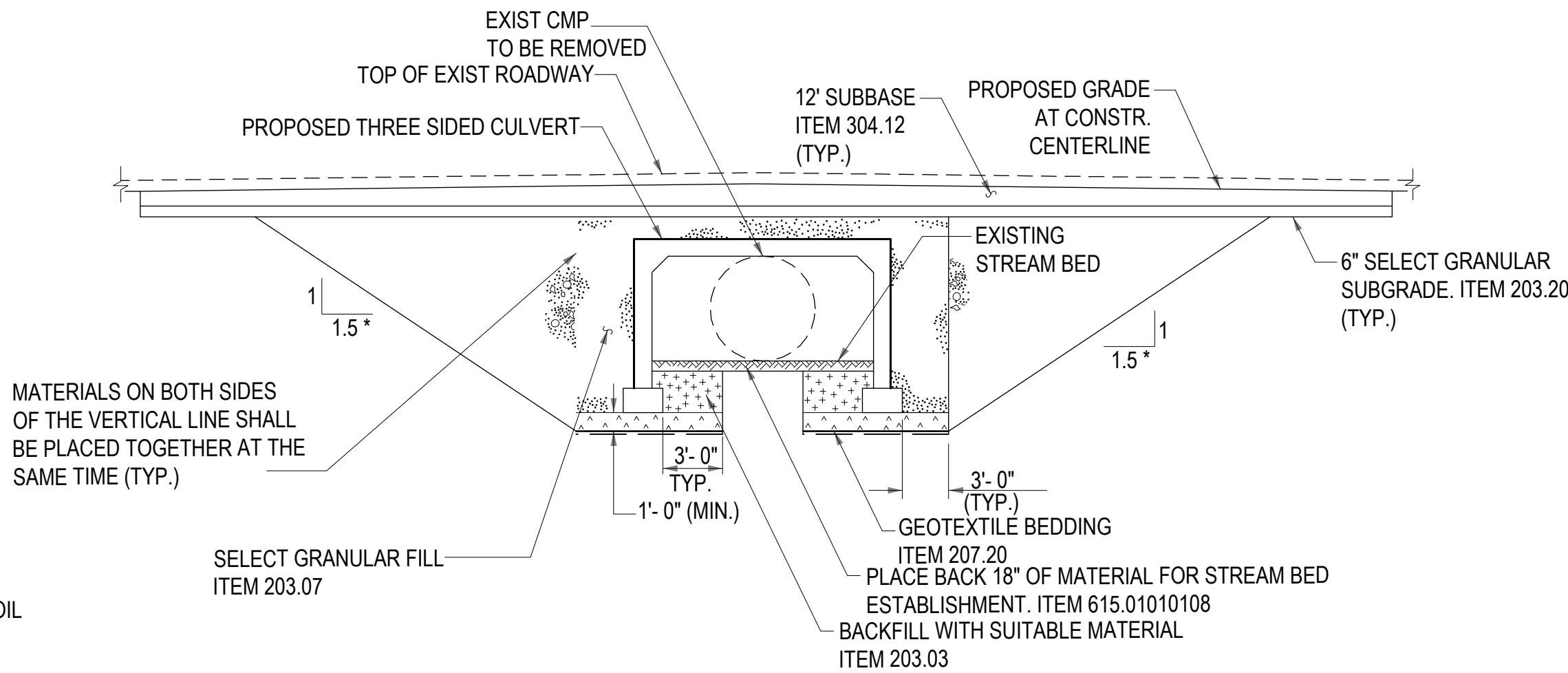
SHEET
01S-1.01



PLAN

NOT TO SCALE

EARTHWORK DETAILS ARE GENERIC VIEWS OF STRUCTURE.
SEE SHEETS 01S-1.02 TO 01S-1.04 FOR CULVERT DIMENSIONS
AND DETAILS.



SECTION A-A

NOT TO SCALE

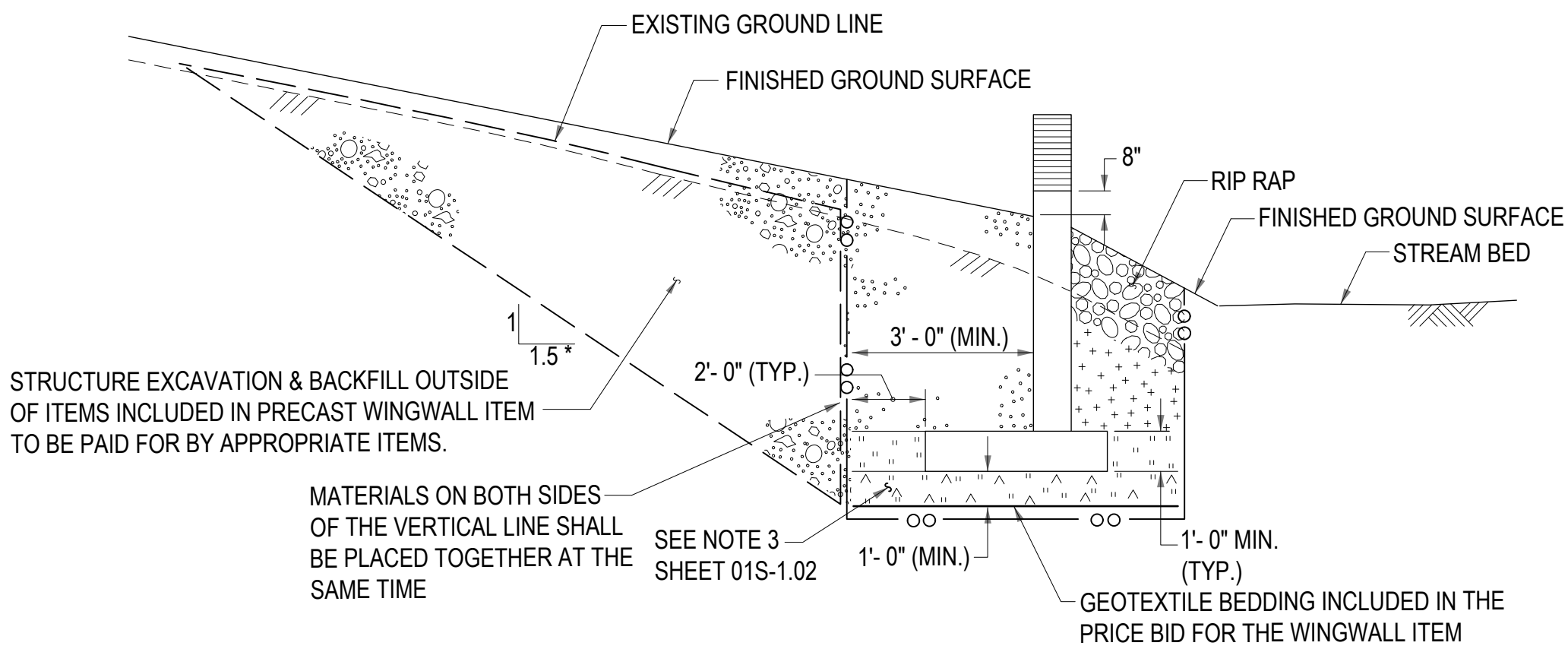
* 1 TO 1.5 SLOPE MAY VARY AS
NECESSARY BASED ON THE SOIL
CONDITIONS

LEGEND

- EXISTING GROUND SURFACE
 - SELECT GRANULAR FILL, (ITEM 203.07).
 - EMBANKMENT IN PLACE, (ITEM 203.03).
 - BACKFILL WITH SUITABLE EXCAVATED MATERIAL AS APPROVED BY THE ENGINEER UNDER ITEM 203.03.
 - CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2. (ITEM 623.12)
 - CONTROLLED LOW STRENGTH MATERIAL (CLSM) MEETING THE REQUIREMENTS OF SECTION 204. CLSM SHALL BE DESIGNED SO THAT IT FLOWS INTO THE VOIDS OF THE CRUSHED MATERIAL AND SETS UP SUFFICIENTLY WITHIN 24 HOURS TO ALLOW PLACEMENT OF ADDITIONAL MATERIAL. COST TO BE INCLUDED IN PRECAST ITEMS.
 - AREA ENCLOSED WITHIN THESE LINES DESIGNATES PAYMENT LINES FOR STRUCTURE EXCAVATION AND BACKFILL TO BE PAID FOR BY APPROPRIATE ITEMS.
 - WORK ENCLOSED WITHIN THE AREA OUTLINED BY THESE LINES SHALL BE PAID FOR IN THE CONTRACTOR PRICE BID FOR THE WINGWALL ITEM 562.03.
 - LIMITS OF SELECT GRANULAR FILL AND CRUSHED MATERIAL.
- METHOD OF EXCAVATION AND BACKFILL WITHIN THESE TWO LIMITS SHALL BE AS FOLLOWS:
- STRUCTURE EXCAVATION - EXCAVATE IN ACCORDANCE WITH ITEM 206.01
 - BACKFILL - BACKFILL IN ACCORDANCE WITH SELECT GRANULAR FILL WITH ITEM 203.07 SUITABLE EXCAVATED MATERIAL AND CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2.

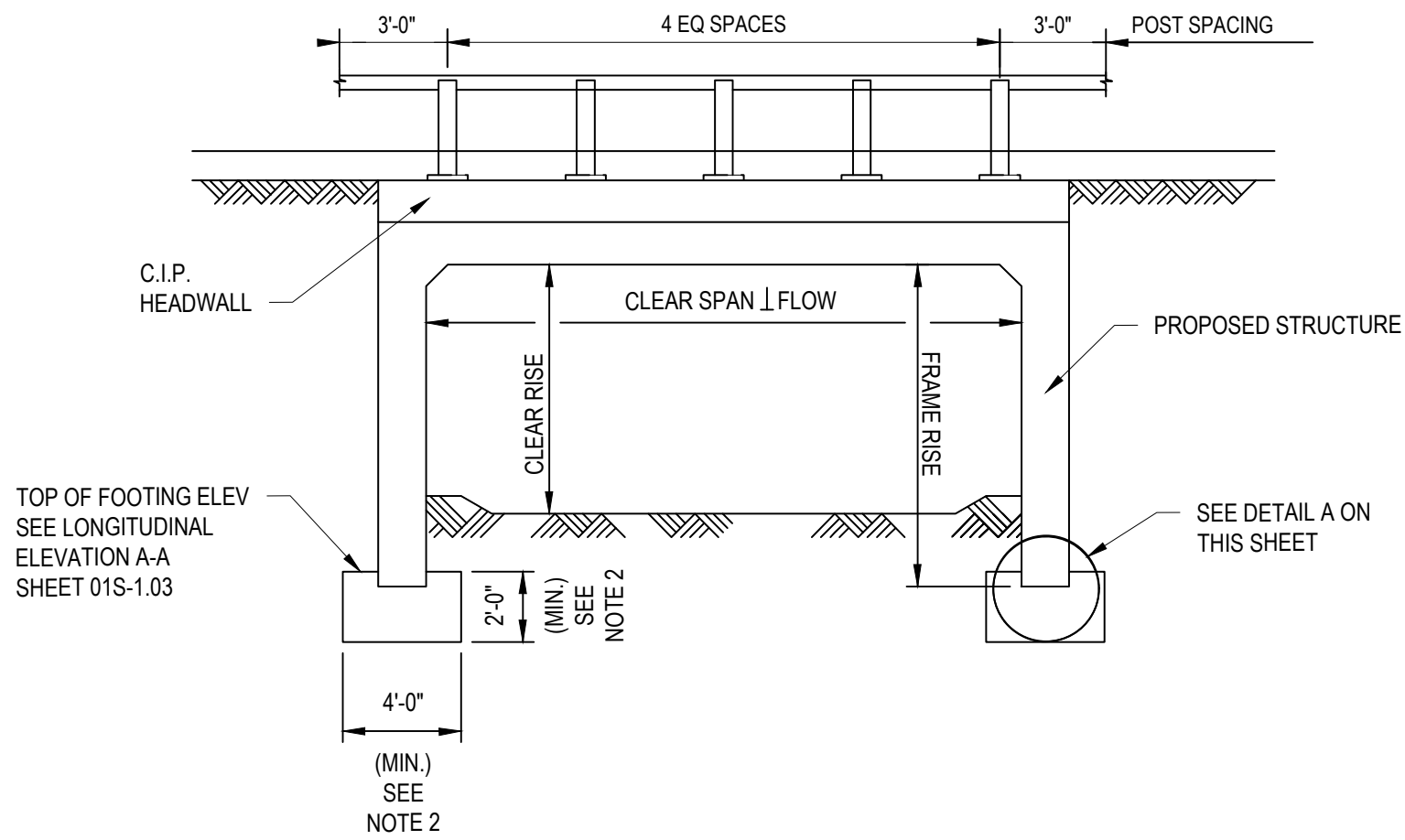
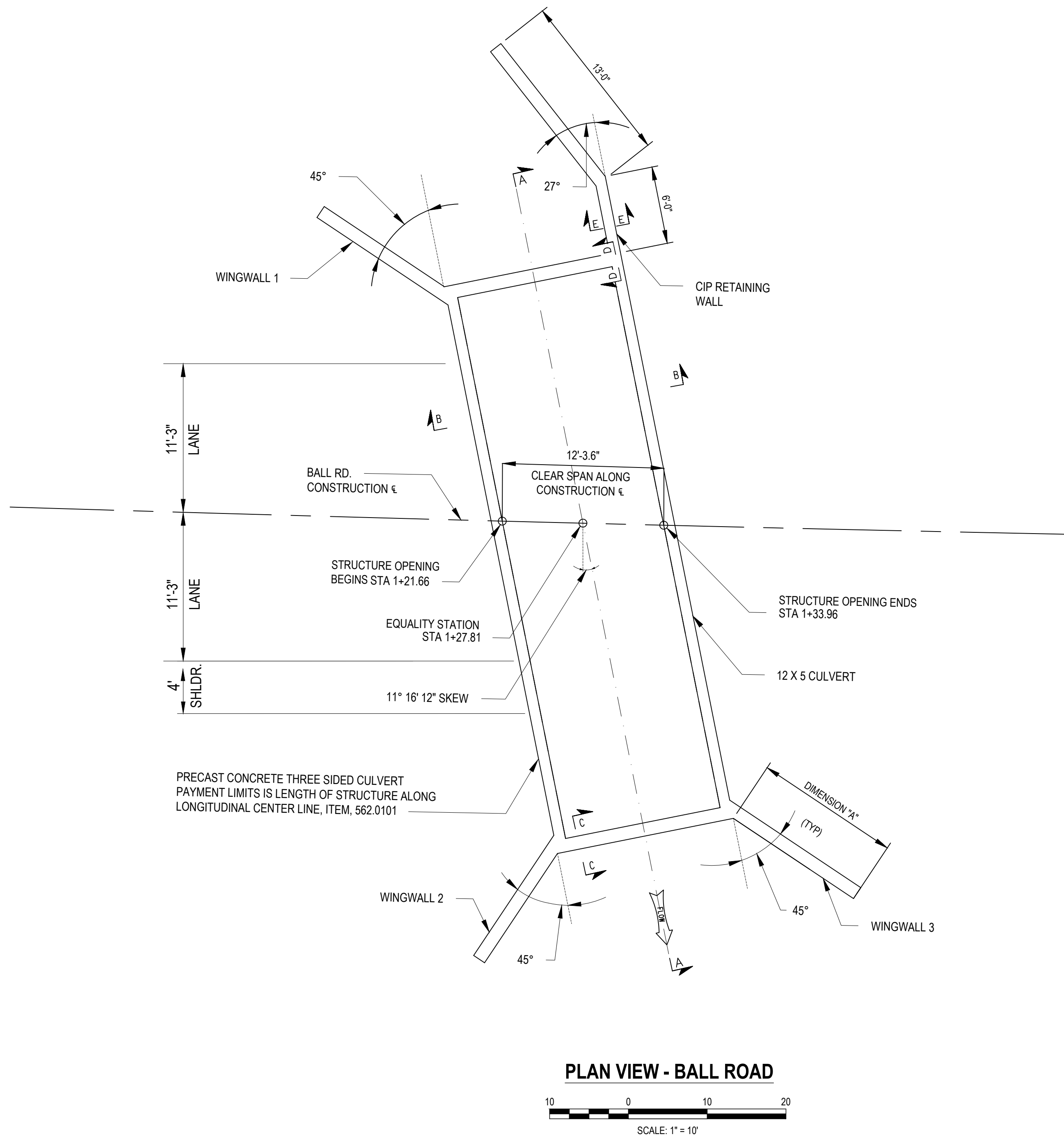
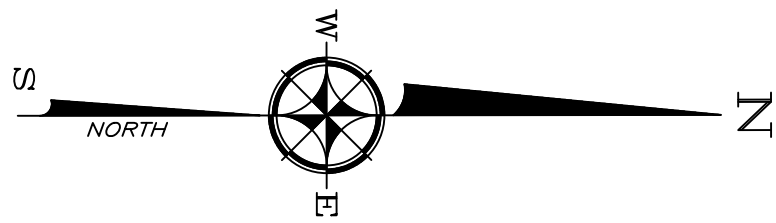
NOTE:
BASED ON THE AVAILABLE DATA, THE DEPTH OF
GROUND WATER IS APPROXIMATELY 12 FEET BELOW
EXISTING GRADE LINE AND MAY VARY. THE COST OF
DEWATERING SHALL BE INCLUDED IN VARIOUS ITEMS
IN THE CONTRACT.

NOTE:
STONE FILLING NOT
SHOWN FOR CLARITY.



**SECTION B-B
PRECAST CANTILEVER WINGWALL**

NOT TO SCALE



THREE SIDED STRUCTURE DESIGN DATA	
CLEAR SPAN, ft.	12' - 0"
CLEAR RISE, ft.	5' - 0"
FRAME RISE, ft.	10' - 0"
*MIN. FILL HEIGHT, ft.	0' - 6"
*MAX. FILL HEIGHT, ft.	4' - 0"
(CSKEW) SKEW ANGLE TO ϵ OF ROADWAY, DEG.	11° 16' 12"
LIVE LOAD	HL-93
RAILING / BARRIER TEST LEVEL	TL-1

* BASED ON ASSUMED TOP SLAB THICKNESS OF 14".
FABRICATOR SHALL ADJUST BASED ON ACTUAL TOP SLAB
THICKNESS.

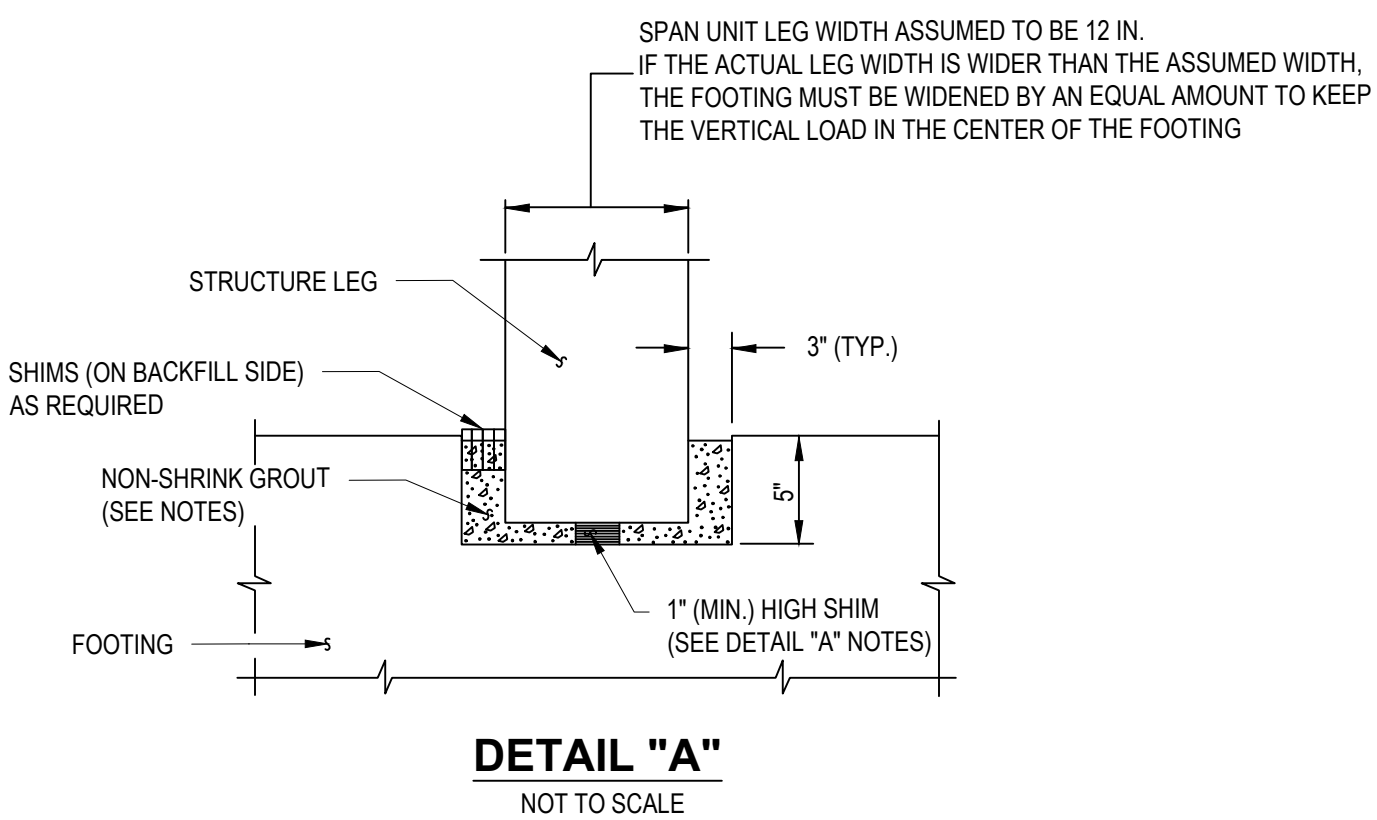
*ASSUMED FOOTING LOADS	
VERTICAL KIP/FT	13.05
HORIZONTAL KIP/FT	5.87

GEOTECHNICAL WINGWALL DESIGN DATA	
ALLOWABLE BEARING CAPACITY, ksf	6.0 ksf
SOIL UNIT WT., pcf	140 PCF
FRICTION ANGLE, DEG.	36°
COEFFICIENT OF SLIDING FRICTION	0.35

* FOR THREE SIDED STRUCTURE
AND FOOTING SELF WEIGHT.
ALSO INCLUDES FILL ON TOP
SLAB.

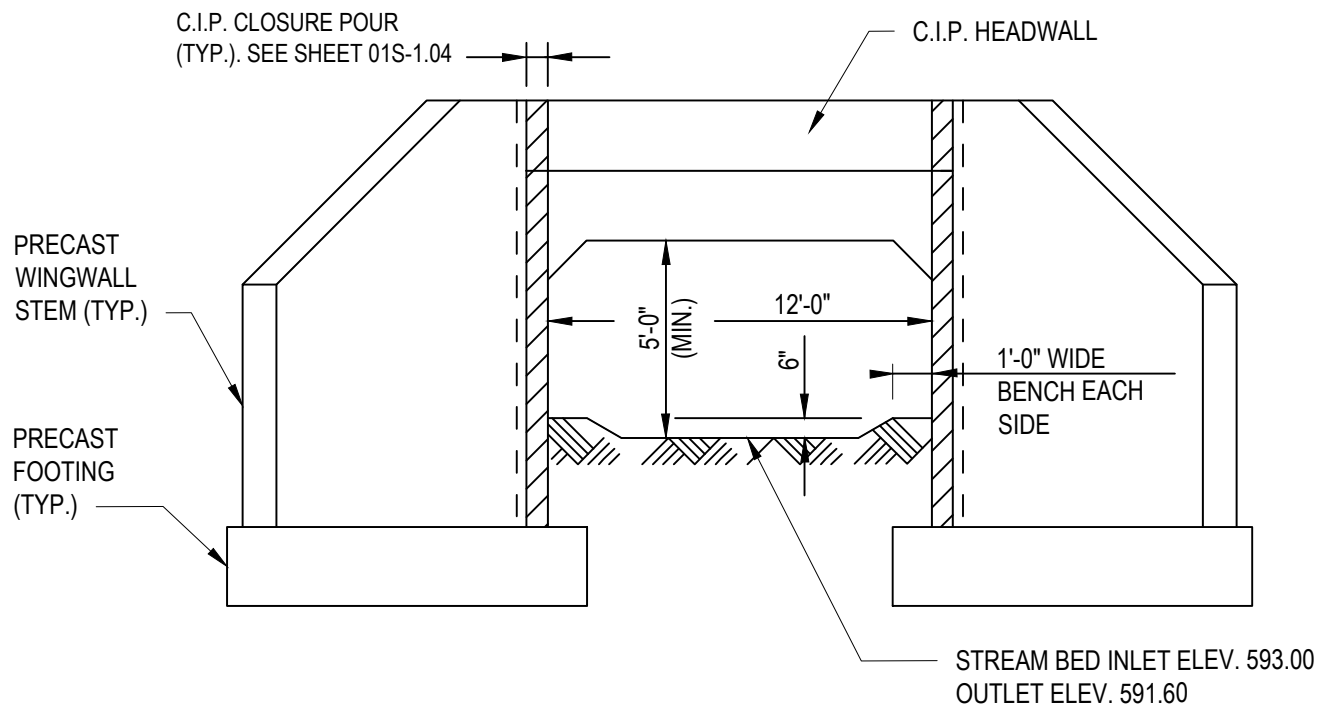
NOTES:

- THE LENGTH OF EACH CULVERT SEGMENT SHALL BE DETERMINED BY THE CONTRACTOR. IF STAGED CONSTRUCTION IS EMPLOYED, THE PRECAST BOX CULVERT SEGMENT LENGTH MUST BE COMPATIBLE WITH STAGING REQUIREMENTS.
- PRECAST FOOTING FOR CULVERT SHALL BE DESIGNED AND SIZED BY CONTRACTOR'S FABRICATOR.
- PRECAST FOOTINGS AND WINGWALLS SHALL BE PLACED ON A LEVELING BED OF CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2. AFTER PLACING AND LEVELING THE PRECAST UNITS, THE AREAS BENEATH AND BEHIND THE UNITS SHALL BE GROUTED WITH CONTROLLED LOW STRENGTH MATERIAL MEETING THE REQUIREMENTS OF SECTION 204.
- PRECAST FOOTING JOINTS MUST BE AT THE MID-POINT OF THE STRUCTURE SEGMENT JOINTS.
- FOR LONGITUDINAL ELEVATION A-A AND SECTION C-C SEE SHEET 01S-1.03.
- DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
- SEE SHEET 01S-1.04 FOR WINGWALL DIMENSION A.

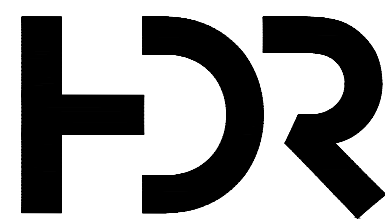
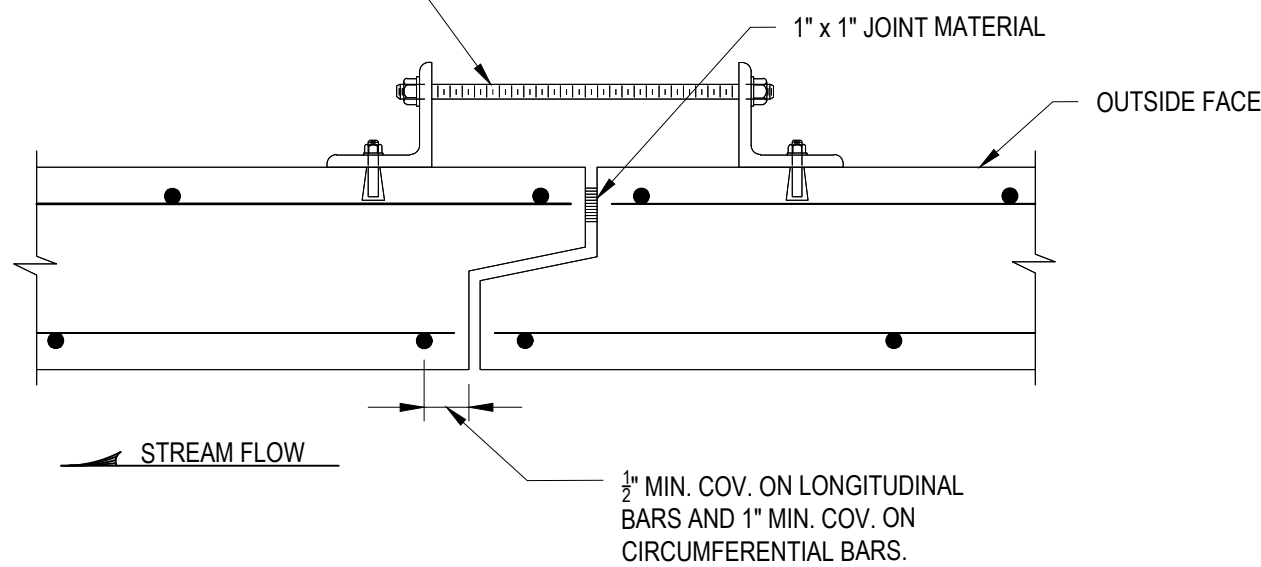


DETAIL "A" NOTES:

- ADDITIONAL SHIMS ARE ALLOWED AT THE CONTRACTORS OPTION AS APPROVED BY THE ENGINEER.
- SHIMS SHALL BE GALVANIZED METAL.
- GROUT SHALL MEET THE REQUIREMENTS OF NYSDOT STANDARD SPECIFICATIONS 701-05 OR 701-06



TYPICAL DRAW CONNECTOR (OTHER
CONNECTOR TYPES PERMISSIBLE AS
APPROVED BY THE ENGINEER)



ISSUE	DATE	DESCRIPTION

LAURA BARCA	
PROJECT NUMBER	10400319



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

PRECAST CULVERT PLAN
AND ELEVATION
BALL ROAD

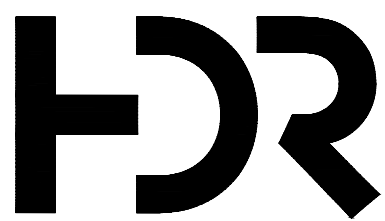
SHEET
01S-1.02



- NOTES:
1. DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
 2. FOR WINGWALL DIMENSIONS AND ELEVATIONS SEE SHEET 01S-1.04.
 3. PLACE MATERIAL FOR STREAM BED ESTABLISHMENT, ITEM 615.01010108, WITHIN THE NEW CULVERT TO THE STREAM ELEVATIONS SHOWN.
 4. SPECIAL CARE SHALL BE GIVEN WITH REGARDS TO THE APPLICATION OF THE SPRAY-APPLIED WATERPROOF MEMBRANE (ITEM 595.98200018) AT AND AROUND THE JOINTS AND TYPICAL DRAW CONNECTIONS (SEE DETAIL SHEET 01S-1.02) AS ORDERED BY THE ENGINEER.



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ISSUE DATE DESCRIPTION

PROJECT NUMBER 10400319

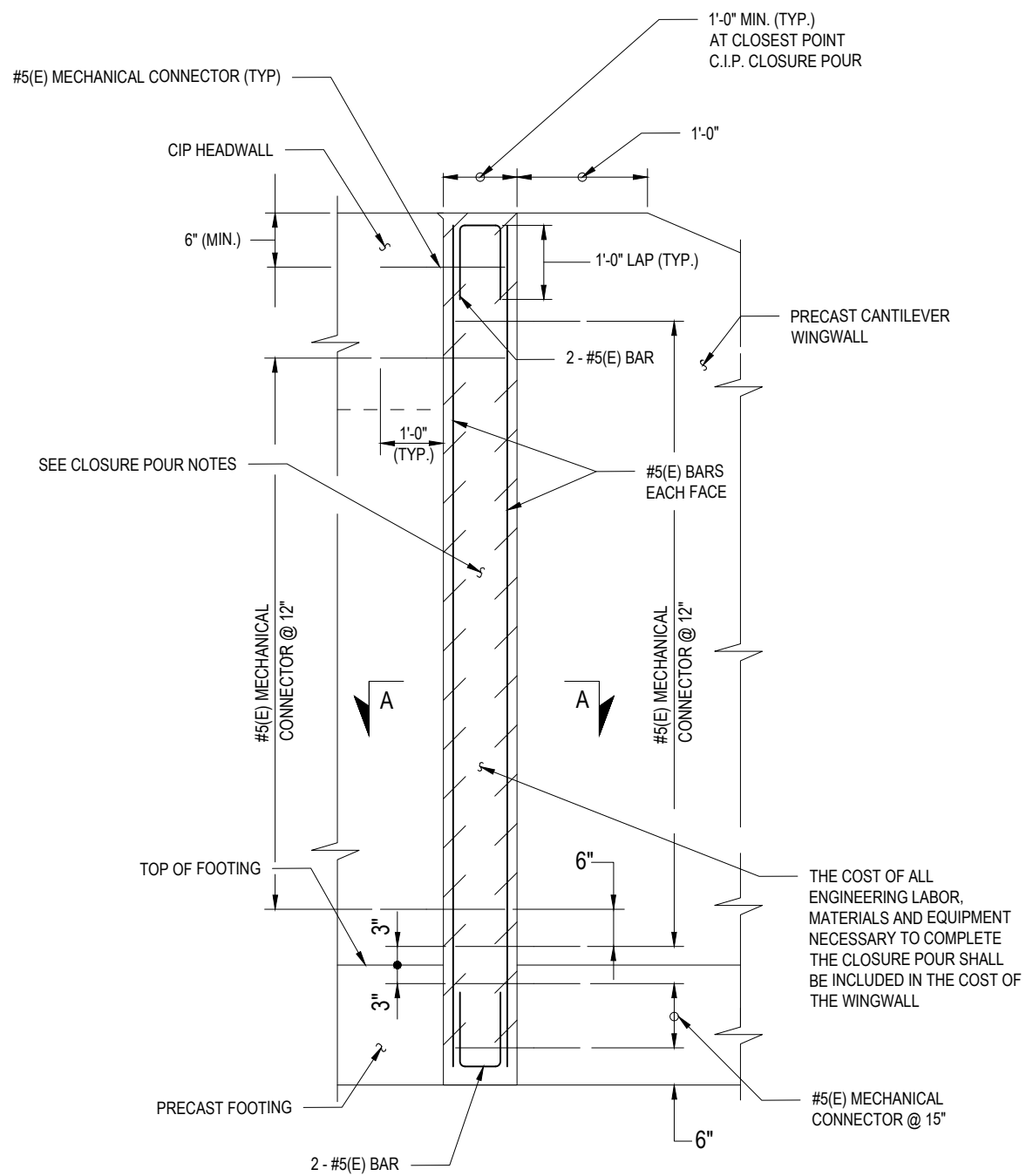
LAURA BARCA



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

PRECAST WINGWALL DETAILS
BALL ROAD

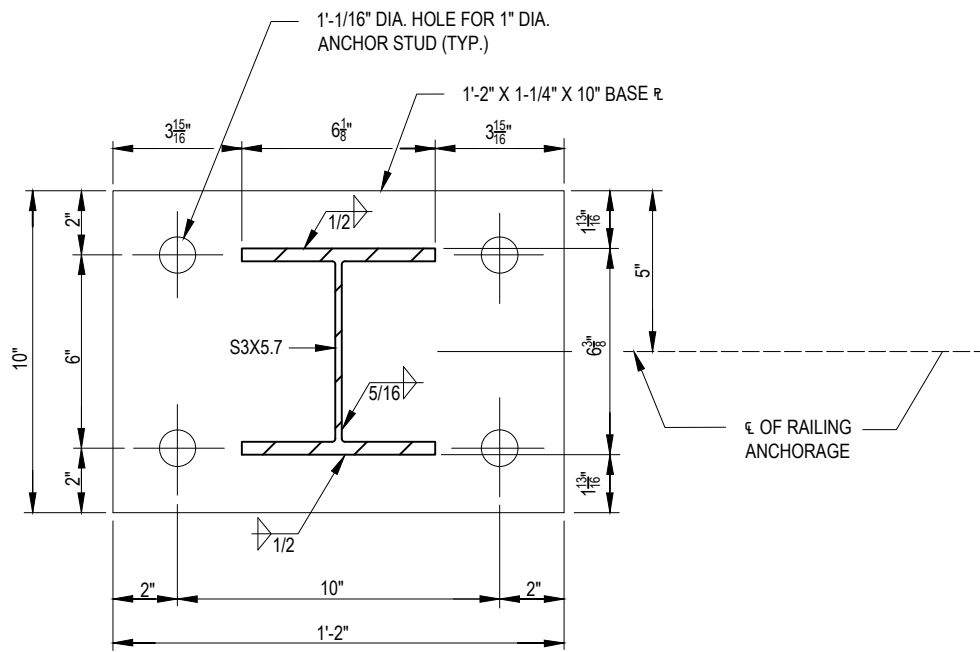
SHEET
01S-1.04



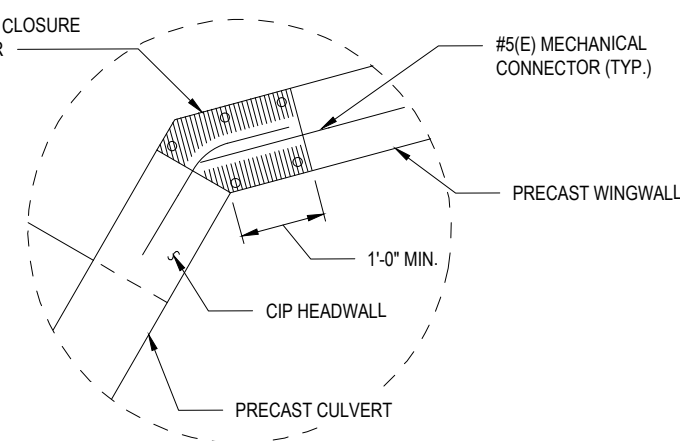
CLOSURE POUR DETAIL
NOT TO SCALE

CLOSURE POUR NOTES:

1. THE CLOSURE POUR MAY BE CAST WITH THE HEADWALL AFTER PRECAST WINGWALLS HAVE BEEN PLACED.



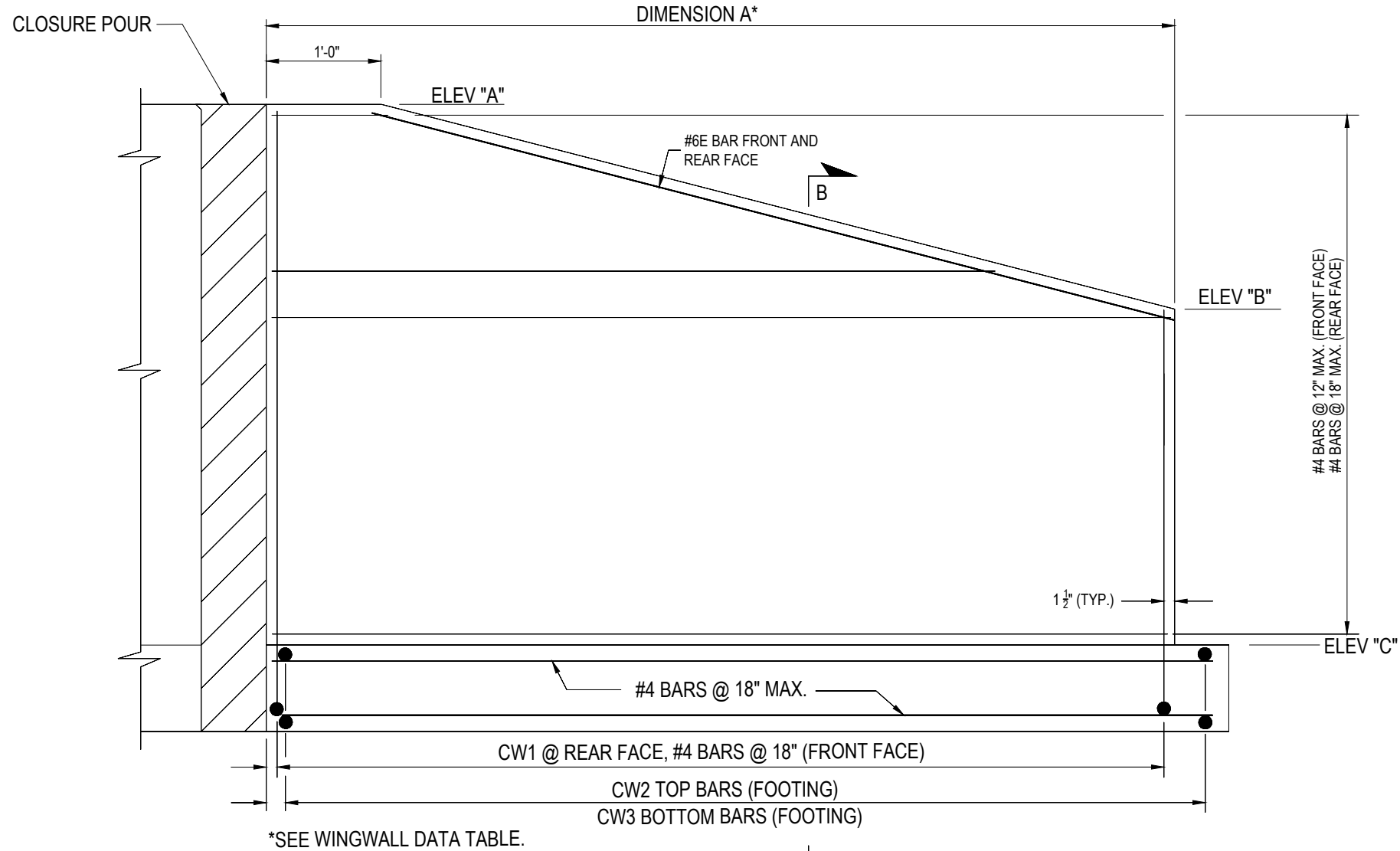
BASE PLATE DETAIL
NOT TO SCALE



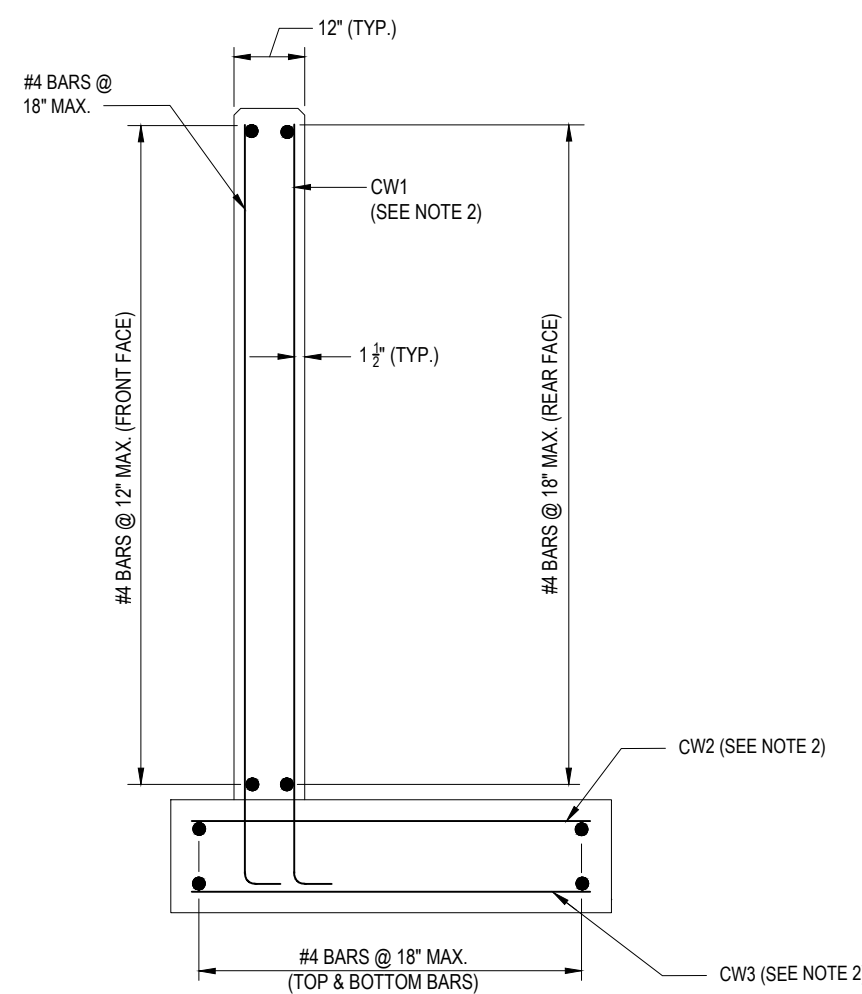
SECTION A-A
NOT TO SCALE

WINGWALL DATA				
LOCATION	DIMENSION "A"	ELEV "A"	ELEV "B"	ELEV "C"
WINGWALL 1	12'-0"	602.00	602.00	593.00
WINGWALL 2	10'-0"	600.00	600.00	591.60
WINGWALL 3	11'-0"	600.00	600.00	591.60

DIMENSION "A" MEASURED ALONG FRONT FACE OF WINGWALL.



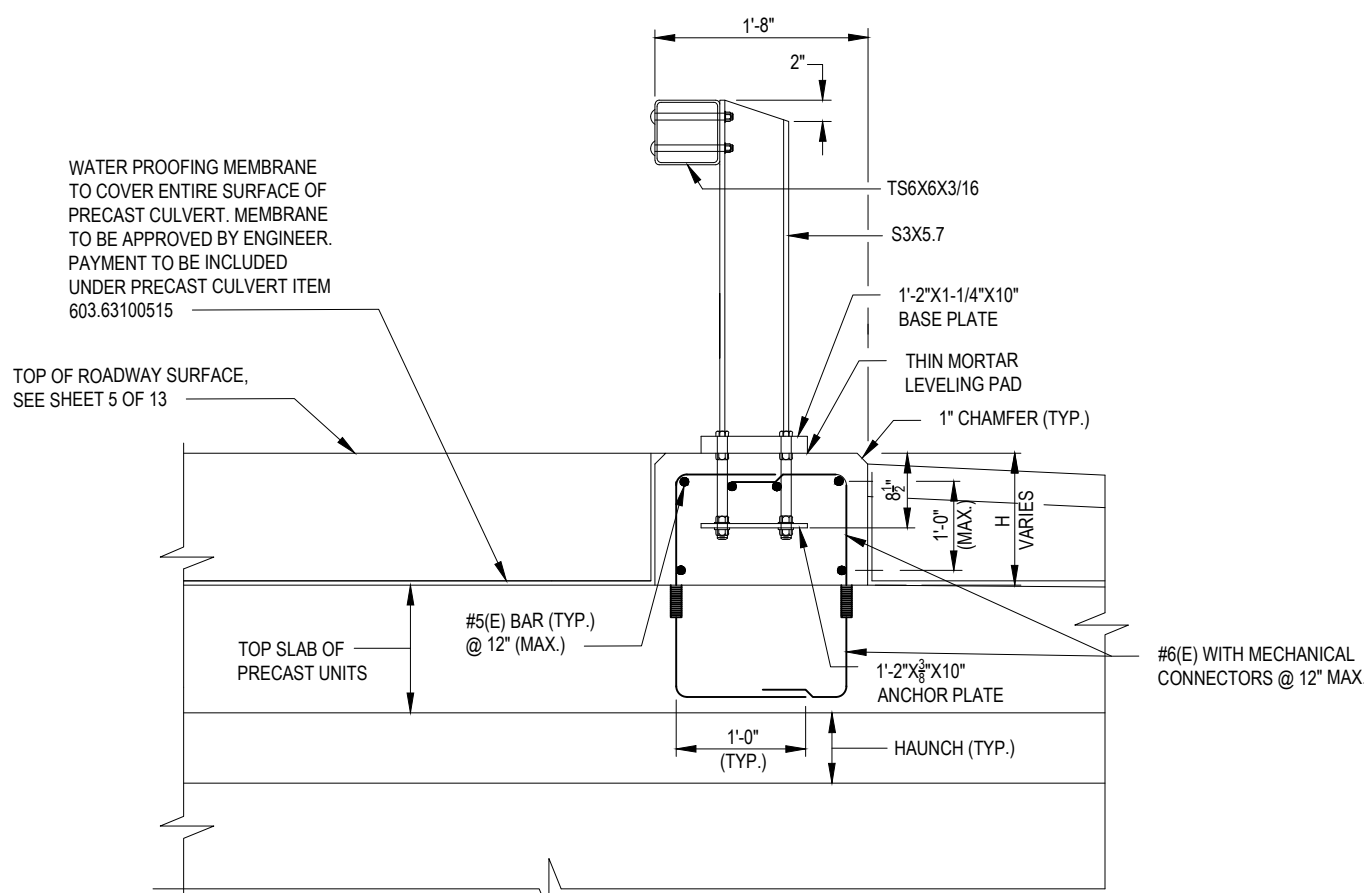
TYPICAL WALL UNIT REINFORCING
NOT TO SCALE



SECTION B-B
WINGWALL UNIT REINFORCEMENT
NOT TO SCALE

NOTES:

1. ACTUAL WALL AND FOOTING THICKNESS, REINFORCEMENT SIZE AND SPACINGS TO BE DETERMINED BY FABRICATORS ENGINEER.
2. BAR SIZE AND SPACING CALLED OUT AS CW TO BE DETERMINED BY FABRICATOR.
3. TALL WALLS MAY USE A DOWEL BAR IN FOOTING LAPPED TO A VERTICAL BAR.
4. ALL REINFORCEMENT COVER ON PRECAST UNITS SHALL BE 2" UNLESS OTHERWISE NOTED.
5. ALL REINFORCEMENT COVER ON CAST IN PLACE CONCRETE SHALL BE 2" UNLESS OTHERWISE NOTED.
6. ALL REINFORCING SHALL BE EPOXY COATED.
7. DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
8. CLOSURE POUR CONCRETE FINISHED SURFACE SHALL BE CONSISTENT WITH PRECAST CONCRETE UNITS TO PROVIDE UNIFORM FINISH



RAIL ANCHORAGE DETAIL
NOT TO SCALE

NOTES:

1. WHERE DEPTH IS LESS THAN 3 FT FROM FINISHED GRADE, CONTRACTOR SHALL ANCHOR GUIDERAIL TO HEADWALL PER DETAIL ABOVE.