

PLANS FOR REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

TOWNSHIP OF EDISON
MIDDLESEX COUNTY, NEW JERSEY

PROJECT No. MDSX-00440
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PUBLIC UTILITIES	
1. TELEPHONE	VERIZON COMMUNICATIONS 6000 HADLEY ROAD SOUTH PLAINFIELD, NJ 07080 ATTN: GREG JOSLIN (732) 357-3016
2. ELECTRIC	PSE&G 472 WESTON CANAL ROAD SOMERSET, NJ 08873 ATTN: JOHN GRABENSTEIN (732) 764-3067
3. CABLE	COMCAST 40 PINE STREET TINTON FALLS, NJ 07753 ATTN: PETER MANN (732) 317-7366
4. FIBER OPTICS	VERIZON BUSINESS 110 S. JEFFERSON ROAD WHIPPANY, NJ 07981 ATTN: MR. SCOTT MILLER (732) 735-7577 AT&T 50 PATRICIA DRIVE FLANDERS, NJ ATTN: LOUIS MARELLO (973) 927-1114
5. WATER	NEW JERSEY AMERICAN WATER 1341 NORTH AVENUE PLAINFIELD, NJ 07061 ATTN: SCOTT SCHREIBER (908) 791-3464 MIDDLESEX WATER COMPANY P.O. BOX 1500 1500 RONSON ROAD ISELIN, NJ 08830 ATTN: MICHAEL HANNA (732) 638-7528
6. GAS	ELIZABETHTOWN GAS COMPANY 520 GREEN LANE UNION, NJ 07083 ATTN: GREGORY J. BALINT (908) 662-8321
7. SEWER	EDISON PUBLIC WORKS SEWER UTILITY 7 LANGSTAFF AVENUE EDISON, NJ 08817 ATTN: BARRY MILLER (732) 248-7382 WOODBRIDGE DEPARTMENT OF PUBLIC WORKS ONE MAIN STREET WOODBRIDGE, NJ 07095 ATTN: SCOTT LEE THOMPSON (732) 634-4500
LOCATIONS OF UTILITIES SHOWN ON THE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND ARE NOT WARRANTED AS TO EXACTNESS. CONTRACTOR IS TO DETERMINE EXACT LOCATION AND DEPTH OF UTILITIES AT ALL CROSSINGS PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.	
IN ADDITION, THE CONTRACTOR SHOULD CALL: GARDEN STATE UNDERGROUND PLANT LOCATION SERVICE PLAINFIELD, NJ 800-272-1000 BIDDERS ARE ADVISED TO VERIFY THE ABOVE INFORMATION AS ITS ACCURACY AND COMPLETENESS ARE NOT GUARANTEED BY THE COUNTY.	



BEGIN PROJECT
THORNALL STREET
PROJECT STA. 8+88

PROJECT SITE
THORNALL STREET
CULVERT 1-C-87

END PROJECT
THORNALL STREET
PROJECT STA. 10+61

PREPARED BY
DARREN FERLAZZO, P.E.
CONSULTING ENGINEER

Darren Ferlazzo

LICENSED PROFESSIONAL ENGINEER
STATE OF NEW JERSEY LICENSE No. 24GE0464100
11/18/2022
DATE



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NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS
AND LAND SURVEYORS
CERTIFICATE OF AUTHORIZATION 24GA2798750

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STRUCTURES IN THIS CONTRACT		
NO.	STRUCTURE NO.	DESCRIPTION
BRIDGES		
-	-	-
CULVERTS		
1	1-C-87	THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER
OTHER STRUCTURES		
-	-	-

DESIGN TRAFFIC DATA	
THORNALL STREET	
A.D.T. - 2 WAY	-
D	-%
T	-%
V	30 MPH

NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF 2019 AND ALL AMENDMENTS IN MIDDLESEX COUNTY FORMAT THERETO SHALL GOVERN.

STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL DETAILS BOOKLET, 2016, AND STANDARD ELECTRICAL DETAILS BOOKLET, 2007, ARE APPLICABLE TO THIS PROJECT EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.

APPROVED BY TOWNSHIP COUNCIL RESOLUTION # _____ DATED _____

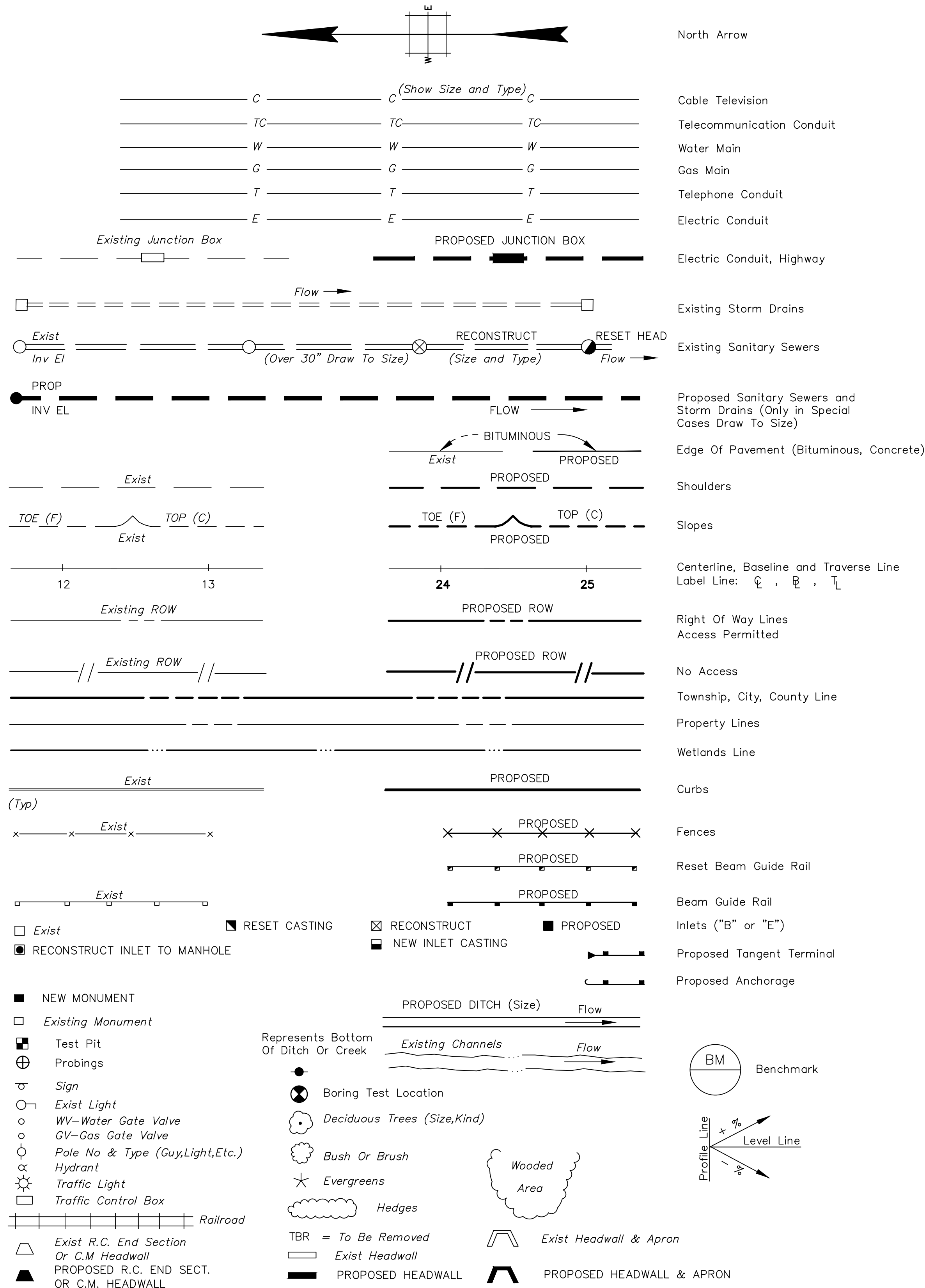
DATE OF AUTHORIZATION TO BID _____

COUNTY ENGINEER: *Ronald Sendner*

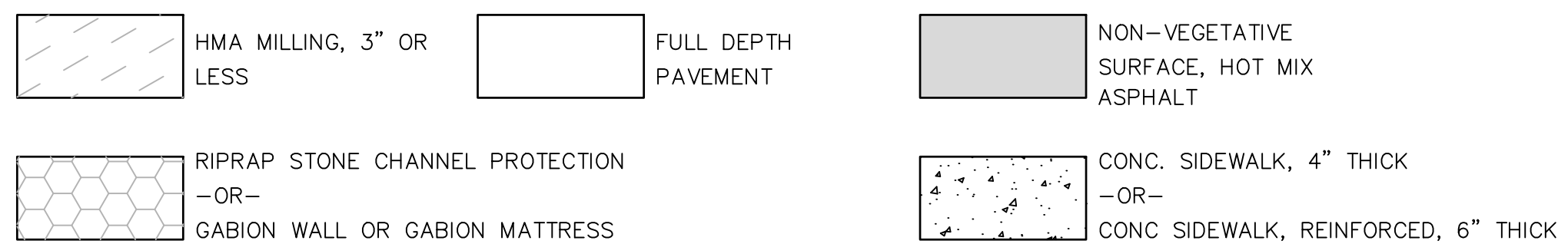
RONALD SENDNER, P.E. 11/18/22
DATE

TOWNSHIP OF EDISON

STANDARD LEGEND



HATCH PATTERNS



North Arrow

Cable Television
Telecommunication Conduit
Water Main
Gas Main
Telephone Conduit
Electric Conduit

Electric Conduit, Highway

Existing Storm Drains

Existing Sanitary Sewers

Proposed Sanitary Sewers and Storm Drains (Only in Special Cases Draw To Size)

Edge Of Pavement (Bituminous, Concrete)

Shoulders

Slopes

Centerline, Baseline and Traverse Line
Label Line: $\frac{C}{L}$, $\frac{B}{L}$, $\frac{T}{L}$

Right of Way Lines
Access Permitted

No Access

Township, City, County Line

Property Lines

Wetlands Line

Curbs

Fences

Reset Beam Guide Rail

Beam Guide Rail

Inlets ("B" or "E")

Proposed Tangent Terminal

Proposed Anchorage

Proposed Ditch (Size)
Flow

Existing Channels
Flow

Benchmark

Profile Line
Level Line

Existing Headwall & Apron

PROPOSED HEADWALL & APRON

Represents Bottom Of Ditch Or Creek

Boring Test Location

Deciduous Trees (Size, Kind)

Bush Or Brush

Evergreens

Hedges

Wooded Area

TBR = To Be Removed

Exist Headwall

PROPOSED HEADWALL

Exist Headwall & Apron

PROPOSED HEADWALL & APRON

COUNTY OF MIDDLESEX

GENERAL NOTES

- HORIZONTAL DATUM IS THE NEW JERSEY PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983.
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM, 1988.
- ALL DIMENSIONS, UNITS, ETC. ARE IN THE U.S. CUSTOMARY SYSTEM.
- THE CONTRACTOR SHALL PROTECT ALL SURVEY CONTROL POINT MARKS FROM DAMAGE AND SHALL ESTABLISH OFFSET POINTS AS REQUIRED FOR ITS WORK.
- LOCATIONS OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL UTILITY LOCATIONS IN THE FIELD PRIOR TO EXCAVATION.
- ALL SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO GROUND DISTURBANCE.
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- NO WORK SHALL BE PERFORMED IN THE STREAM FROM MAY 1 TO JUNE 30.
- ONLY PAY ITEMS LISTED IN THE PROPOSAL ARE APPLICABLE TO THIS PROJECT. PAY ITEMS NOT IN THE PROPOSAL WILL NOT BE USED.
- DEPRESSED CURB AT HANDICAP RAMPS SHALL BE FLUSH WITH THE PAVEMENT SURFACE.

ABBREVIATIONS

∠	ANGLE	FTG	FOOTING	PT	POINT OF TANGENCY
AD	ALGEBRAIC DIFFERENCE	G	GAS	PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
ACC	ASPHALT CEMENT CONCRETE	GAL	GALLON	PVI	POINT OF VERTICAL INTERSECTION
ACI	AMERICAN CONCRETE INSTITUTE	GIS	GEOGRAPHIC INFORMATION SYSTEM	PVT	POINT OF VERTICAL TANGENCY
ADA	AMERICANS WITH DISABILITIES ACT	GPS	GLOBAL POSITIONING SYSTEM	QNTY	QUANTITY
AGG	AGGREGATE	GR, GRT	GRATE	R	RADIUS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GRD	GRADE, GRADED	RCES	REINFORCED CONCRETE END SECTION
APPROX	APPROXIMATE, APPROXIMATELY	GUT	GUTTER	RCP	REINFORCED CONCRETE PIPE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GV	GAS VALVE	RD	ROAD
ATTN	ATTENTION	HC, HCR	HANDICAP RAMP	REINF	REINFORCED
AVE	AVENUE	HMA	HOT MIX ASPHALT	RF	REAR FACE
AVG	AVERAGE	HORIZ	HORIZONTAL	RMC	RIGID METALLIC CONDUIT
B	BOTTOM	HP	HIGH POINT	RNMC	RIGID NONMETALLIC CONDUIT
BIT	BITUMINOUS	IN	INCHES	ROW	RIGHT OF WAY
BL	BASELINE	INV	INVERT	RPM	RAISED PAVEMENT MARKER
BM	BENCHMARK	JCP&L	JERSEY CENTRAL POWER & LIGHT	RT	RIGHT
BO	BOTTOM OF	JOINT	JOINT	S, SO	SOUTH
BRK	BROOK	JT	LOCKING COVER	SB	SOUTHBOUND
BW, BOW	BOTTOM OF WALL	LF	LINEAR FEET	SCD	SOIL CONSERVATION DISTRICT
C	CUT, CABLE TELEVISION	LOD	LIMIT OF DISTURBANCE	SE	SOUTHEAST
CC	CURVE CENTER	LOM	LIMIT OF MILLING	SF	SQUARE FEET
CC, C TO C	CENTER-TO-CENTER	LOP	LIMIT OF PAVING	SHLDR	SHOULDER
CCA	CHROMATED COPPER ARSENATE	LP	LOW POINT	SHT	SHEET
CF	CUBIC FEET	LS	LUMP SUM	SHWT	SEASONAL HIGH WATER TABLE
CFS	CUBIC FEET PER SECOND	LT	LEFT	SI&A	STRUCTURE INVENTORY AND APPRAISAL
CIP	CAST IN PLACE, CAST IRON PIPE	MAX	MAXIMUM	SOD	SUBBASE OUTLET DRAIN
CL	CENTERLINE	MH	MANHOLE	SQ	SQUARE
CLF	CHAIN LINK FENCE	MHW	MEAN HIGH WATER	STA	STATION
CLR	CLEAR	MHHW	MEAN HIGH HIGH WATER	STAB	STABILIZED
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	SURF	SURFACE
COE	U.S. ARMY CORPS OF ENGINEERS	MLW	MEAN LOW WATER	SW	SOUTHWEST
CONC	CONCRETE	MLLW	MEAN LOW LOW WATER	SW, SDWK	SIDEWALK
CONTR	CONTRACTION	MP	MIDPOINT	SY	SQUARE YARDS
CONSTR	CONSTRUCTION	MPH	MILES PER HOUR	T	TOP, TELEPHONE
CP	CONTROL POINT	MPT	MAINTENANCE AND PROTECTION OF TRAFFIC	TAN	TANGENT
CR	COUNTY ROUTE	MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	TBA	TO BE ABANDONED
CRSE	COURSE	N	NORTH, NORTHING	TBR	TO BE REMOVED
CY	CUBIC YARDS	NAD	NORTH AMERICAN DATUM	TC	TOP OF CURB, TELECOMMUNICATION CABLE
DC	DEPRESSED CURB	NAVJ	NORTH AMERICAN VERTICAL DATUM	TEMP	TEMPORARY
DEP, NJDEP	NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION	NB	NORTHBOUND	TE	TEMP OF GRATE
DGA	DENSE GRADED AGGREGATE	NE	NORTHEAST	THK	THICK
DIA	DIAMETER	NGVD	NATIONAL GEODETIC VERTICAL DATUM	TL	TRAVERSE LINE
DIP	DUCTILE IRON PIPE	NO	NUMBER	TO	TOP OF
DOT, NJDOT	NEW JERSEY DEPARTMENT OF TRANSPORTATION	NTS	NOT TO SCALE	TPK	TURNPIKE
DS	DOWNSTREAM	NW	NORTHWEST	TRIB	TRIBUTARY
DWG	DRAWING	OC	ON CENTER	TS	TOPSOIL
DWS	DETECTABLE WARNING SURFACE	PAVT, PVMT	PAVEMENT	TW, TOW	TOP OF WALL
DWY	DRIVEWAY	PC	POINT OF CURVATURE	TYP	TYPICAL
E	EAST, ELECTRIC CONDUIT, EASTING	PCC	POINT OF COMPOUND CURVATURE, PORTLAND CEMENT CONCERE	UG	UNDERGROUND
EB	EASTBOUND	PE	PROFESSIONAL ENGINEER	US	UPSTREAM
EC	EDGE OF CONCRETE, EPOXY COATED	PED	PEDESTRIAN	UN	UNIT
EF	EACH FACE	PGL	PROFILE GRADE LINE	UP	UTILITY POLE
EL, ELEV	ELEVATION	PI	POINT OF INTERSECTION	VAR	VARIABLE, VARIABLE
EP	EDGE OF PAVEMENT	PK	MASONRY NAIL	VC	VERTICAL CURVE
ETC	ETCETERA	PL, $\frac{r}{L}$	PROPERTY LINE, PLATE	VERT	VERTICAL
EW	EACH WAY	POL	POINT ON LINE	VMS	VARIABLE MESSAGE SIGN
EX, EXIST	EXISTING	PP	PETROLEUM PIPELINE	W	WEST
EXP JT	EXPANSION JOINT	PROP	PROPOSED	W/	WITH
F	FILL	PROWAG	PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY	WB	WESTBOUND
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	PSE&G	PUBLIC SERVICE ELECTRIC AND GAS	W/O	WITHOUT
FERT	FERTILIZER, FERTILIZING	PSF	POUNDS PER SQUARE FOOT	WP	WORKING POINT
FF	FRONT FACE	PSI	POUNDS PER SQUARE INCH	WS	WATER SURFACE
FNMIC	FLEXIBLE NONMETALLIC CONDUIT			WSE, WSEL	WATER SURFACE ELEVATION
FO	FIBER OPTIC			WV	WATER VALVE
				WWM	WELDED WIRE MESH

PROJECT No. MIPSY-00440
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		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER
		DESIGNED BY: 11/18/22 DRAWN BY: RFS CHECKED BY: RFS APPROVED BY: HG PJC			
Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE0464100		LEGEND AND GENERAL NOTES			RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200

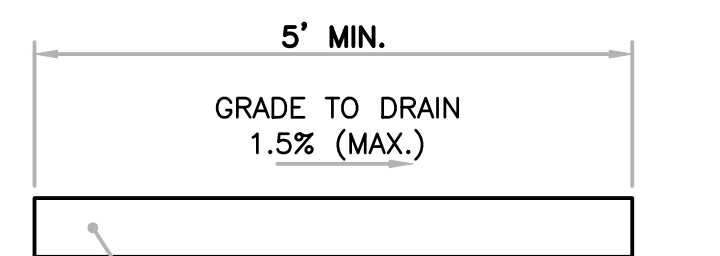
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GENERAL NOTES:

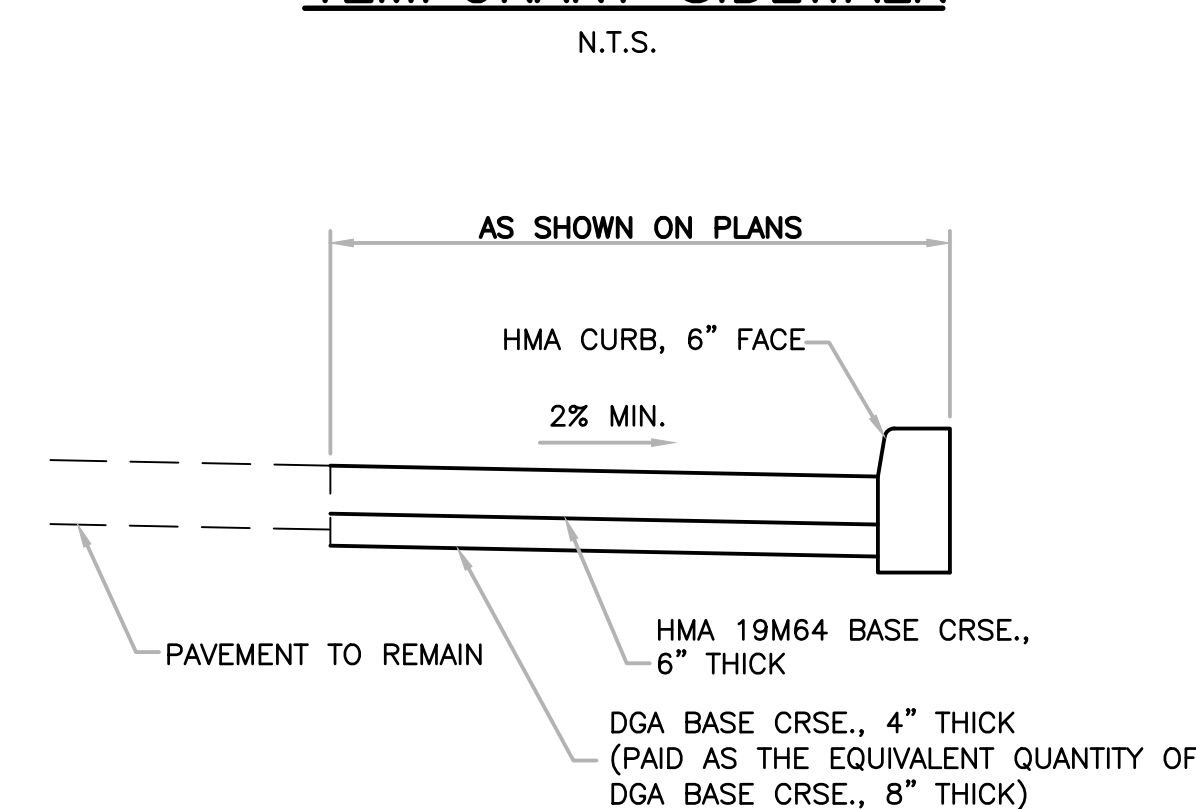
- ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED, AT DIRECTION OF THE ENGINEER, TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY.
- PRIOR TO ANY STAGE CONSTRUCTION ALL REQUIRED TRAFFIC CONTROL SIGNS AND TRAFFIC CONTROL DEVICES SHALL BE IN PLACE.
- ALL EXISTING SIGNS, PAVEMENT MARKINGS, SYMBOLS, STRIPES AND PAVEMENT REFLECTORS AND CASTINGS WHICH CONFLICT WITH THE PROPOSED STAGING PLANS SHALL BE COVERED, REMOVED AND/OR RELOCATED AS DIRECTED BY THE ENGINEER.
- MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES - PART 6 "TEMPORARY TRAFFIC CONTROL", UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE ENGINEER.
- CONSTRUCTION SIGNS W8-8 (ROUGH ROAD) AND W8-11 (UNEVEN LANES) SHALL BE USED WHEN SUCH PAVEMENT CONDITIONS EXIST. THE PLACEMENT OF THESE SIGNS SHALL BE AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL SUBMIT A PLAN FOR THE SAFE ACCESS OF CONSTRUCTION VEHICLES THROUGHOUT THE WORK SITE WHERE SPACE CONSTRAINTS PREVENT THE USE OF LANE CLOSURES. THE PLAN SHALL BE SUBMITTED TO THE ENGINEER IN ACCORDANCE WITH SECTION 159 OF THE STANDARD SPECIFICATIONS.
- TRAFFIC SAFETY SERVICES SHALL BE USED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL, SECTION 159.
- HOT MIX ASPHALT PLACED DURING THE VARIOUS CONSTRUCTION STAGES SHALL BE TRANSITIONED ON A MINIMUM 20H : 1V SLOPE TO MEET THE ADJACENT EXISTING GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF THE STAGE CONSTRUCTION AREAS UNLESS OTHERWISE NOTED ON THE STAGE CONSTRUCTION PLANS.
- TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
- CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE ENGINEER.
- TWO-WAY TRAFFIC IS TO BE MAINTAINED ALONG THORNALL STREET AT ALL TIMES, UNLESS OTHERWISE SPECIFIED.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN FROM DAMAGE DURING CONSTRUCTION. COST FOR UTILITY PROTECTION IS TO BE INCLUDED UNDER ITEM "CLEARING SITE."
- PAYMENT TO MAINTAIN THE SAFE PASSAGE OF TRAFFIC DURING CONSTRUCTION SHALL BE INCLUDED IN THE PAY ITEM, "CLEARING SITE."
- THE EXISTING TRAFFIC SIGNAL AT THORNALL STREET AND S. WOOD AVENUE SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING, MOVING, OR COVERING / UNCOVERING SIGNAL HEADS AND ADJUSTING THE IMAGE DETECTION CAMERAS WITH EACH STAGE SO THAT THEY CONTINUE TO FUNCTION APPROPRIATELY. ALL WORK TO MODIFY THE EXISTING SIGNAL DURING CONSTRUCTION, INCLUDING PREPARATION OF WORKING DRAWINGS, SHALL BE INCLUDED IN THE PAY ITEM, "TEMPORARY TRAFFIC SIGNAL SYSTEM, WOOD AVENUE AND THORNALL STREET."
- ALL TRAFFIC CONTROL DEVICES SHALL REMAIN ON SITE AND IN OPERATIONAL CONDITION FOR THE DURATION OF THE PROJECT.
- CONSTRUCTION SIGNS SHALL BE RELOCATED IF REQUIRED BY THE STAGING OF THE PROJECT OR IF DIRECTED BY THE ENGINEER AT NO COST TO THE COUNTY. PAYMENT FOR CONSTRUCTION SIGNS WILL BE IN ACCORDANCE WITH SECTION 159.
- SIGN "A" SHALL BE PLACED TWO WEEKS PRIOR TO START OF CONSTRUCTION. AND REMOVED UPON THE START OF WORK.
- LANE CLOSURES SHALL BE ALLOWED ONLY BETWEEN 9:00 A.M. AND 3:00 P.M. WEEKDAYS.
- VARIOUS SOIL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING RELOCATING THEM AS REQUIRED FOR STAGE CONSTRUCTION SHALL BE INSTALLED AND MAINTAINED DURING THE ENTIRE STAGE OF CONSTRUCTION.
- ALL EXCAVATED AREAS FOR PROPOSED PAVEMENT BOX ADJACENT TO TRAVEL AREA SHALL BE BACKFILLED WITH DENSE-GRADED AGGREGATE BASE COURSE. DENSE GRADED AGGREGATE SHALL BE GRADED ON A MINIMUM 1:6 SLOPE PRIOR TO THE END OF EACH WORKDAY. DENSE GRADED AGGREGATE SHALL BE FINE GRADED, CONTOURED AND COMPACTED TO THE PRESCRIBED PROFILE AND CROSS SLOPE AND THEN PAVED WITH HMA 19M64 BASE COURSE WHICH SHALL BE TRANSITIONED TO MEET THE ADJACENT EXISTING PAVEMENT GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF EACH STAGE CONSTRUCTION.
- PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE PEDESTRIAN ACCESS ROUTE SHALL BE IN COMPLIANCE WITH THE CURRENT ADA ACCESSIBILITY GUIDELINES FOR THE PUBLIC R.O.W. (PROWAG).
- DRIVEWAY ACCESS WITHIN THE WORK LIMITS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR SHALL PERFORM WORK IN SUCH A MANNER THAT THE GRADE OF PAVEMENT COURSES IS KEPT WELL DRAINED AT ALL TIMES TO AVOID THE CREATION OF SATURATED AND UNSTABLE AREAS WITHIN FULL DEPTH PAVEMENT BOX.
- THE PLACEMENT AND OR RELOCATION OF CONSTRUCTION BARRIER CURB SHALL BE DONE DURING APPROVED OFF-PEAK HOURS.
- THE EDISON AND WOODBRIDGE POLICE DEPARTMENTS SHALL BE NOTIFIED 72 HOURS PRIOR TO START OF CONSTRUCTION.
- NORMAL WORKING HOURS SHALL BE APPROVED BY EDISON AND WOODBRIDGE TOWNSHIPS POLICE DEPARTMENTS PRIOR TO CONSTRUCTION.
- IF ONE-WAY ALTERNATING TRAFFIC CONDITIONS ARE APPROVED BY THE ENGINEER, VARIABLE MESSAGE SIGNS SHALL BE PLACED 2 WEEKS PRIOR.
- ALL COST FOR TRAFFIC DIRECTORS, FLAGGERS INCURRED AS A RESULT OF THE CONTRACTOR EXTENDING THE CONTRACT DURATION ABOVE THE ALLOTTED CONTRACT PERIOD SHALL BE PAID FOR BY THE CONTRACTOR AT THEIR OWN EXPENSE.
- TRAFFIC CONTROL DEVICES FURNISHED FOR THIS PROJECT SHALL BE NEW OR IN LIKE-NEW CONDITION AND SHALL BE MAINTAINED IN GOOD CONDITION THROUGHOUT CONSTRUCTION. TRAFFIC CONTROL DEVICES THAT BECOME DAMAGED OR UNUSABLE SHALL BE REPLACED AT NO COST TO THE COUNTY. PAVEMENT MARKING TAPE AND PAINT SHALL BE REAPPLIED AS NECESSARY AT NO ADDITIONAL COST TO THE COUNTY.
- ALL TRAFFIC CONTROL DEVICES FURNISHED FOR THIS PROJECT SHALL BECOME THE PROPERTY OF MIDDLESEX COUNTY UPON COMPLETION.

RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS				RECOMMENDED SPACING ALONG TANGENTS
REGULATORY APPROACH SPEED OF TRAFFIC MILES/HOUR	MINIMUM TAPER RATIO IN LENGTH PER FOOT OF WIDTH	MINIMUM TAPER LENGTH L - FOR LANE WIDTHS	MAXIMUM DEVICE (B) SPACING ALONG TAPERS IN FEET	MAXIMUM DEVICE (D) SPACING ALONG TANGENTS IN FEET
25	10.5:1	105 115 125	25	50
30	15:1	150 165 180	30	60
35	20.5:1	205 225 245	35	70
40	27:1	270 300 325	40	80
45	45:1	450 495 540	45	90
50	50:1	500 550 600	50	100
55	55:1	550 605 660	55	110
60	60:1	600 660 720	60	120
65	65:1	650 715 780	65	130

NOTE:
THE MAXIMUM DEVICE SPACING ALONG CURVES SHALL BE AS DEFINED FOR TAPERS (B) IN THE ABOVE TABLE.



TEMPORARY SIDEWALK



TEMPORARY HMA CURB & PAVEMENT

CONSTRUCTION SIGN NOTES:

BACKING MATERIAL:

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY 5052-H38 OR 6061-T6 ALLOY, (SEE TRAFFIC NOTE #6.)
- WOOD BACKING SHALL NOT BE PERMITTED.

CONSTRUCTION SIGN SUPPORTS:

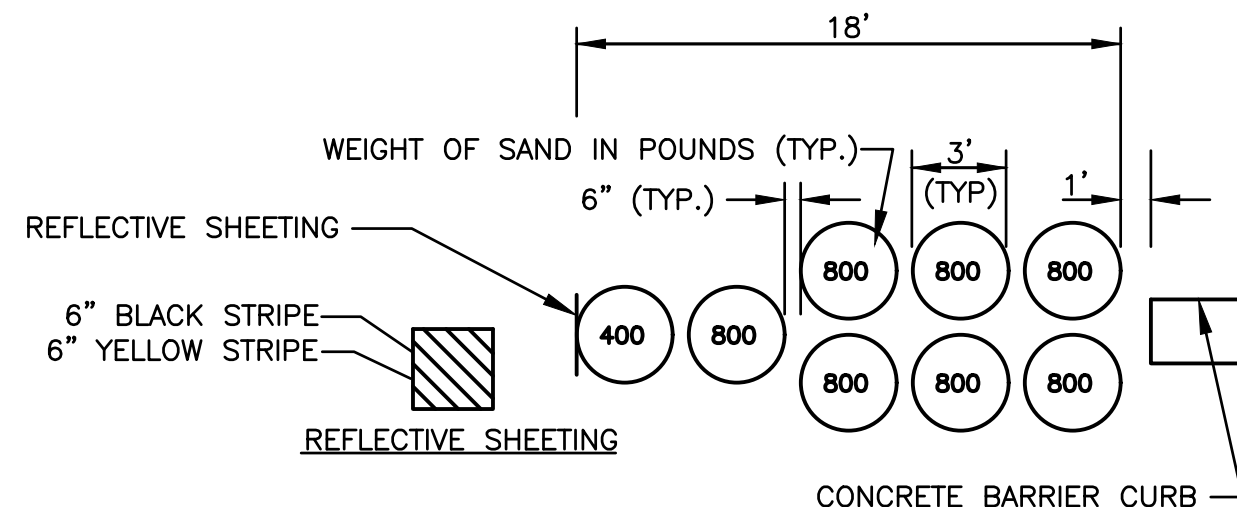
- SIGN SUPPORTS SHALL BE OF STEEL OR ALUMINUM COMPONENTS.
- WOOD POSTS SHALL NOT BE PERMITTED ON THIS JOB.
- NO BRACING IS PERMITTED.
- STEEL OR ALUMINUM POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR "SELECTIVE DIRECTIONAL SIGNS, CONSTRUCTION AND 'M', 'W', AND 'R' BENDAWAY SIGN SUPPORTS'.
- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHION.

SIGN FACES:

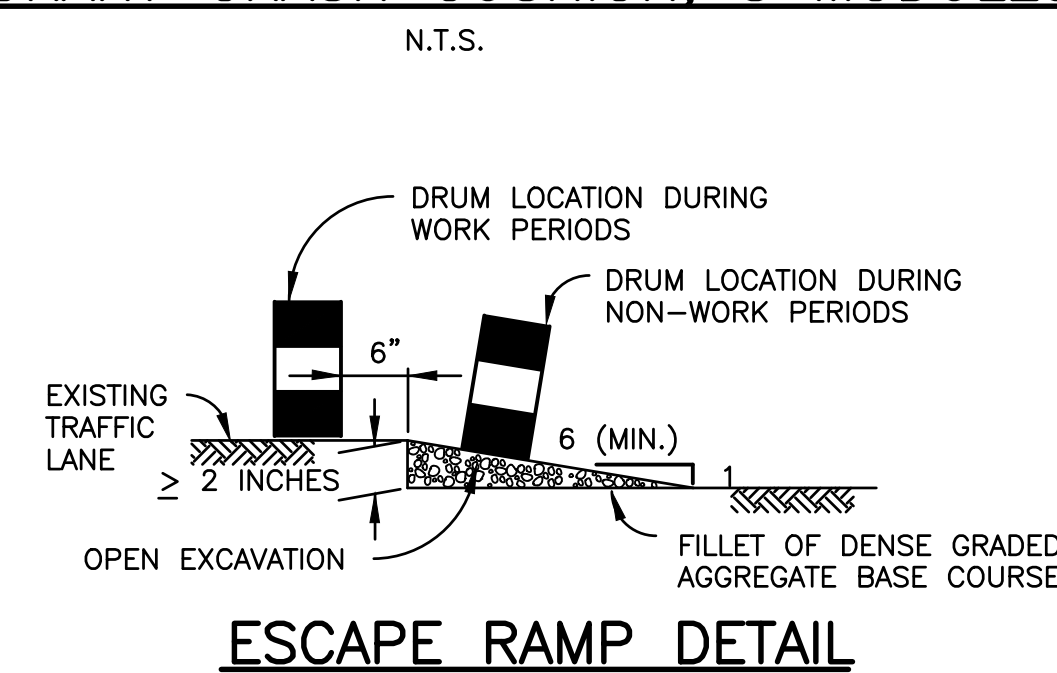
- W20 SERIES SIGN FACES SHALL BE RETROREFLECTIVE SHEETING TYPE IV, B. ALL OTHER SIGN FACES SHALL BE RETROREFLECTIVE SHEETING TYPE II.
- ALL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE GENERAL NOTES.

FASTENING:

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS, AND WASHERS OF ALUMINUM (2024-T4 ALLOY) OR HOT DIP GALVANIZED STEEL (A.S.T.M. A-307 & ASTM A-153).



TEMPORARY CRASH CUSHION, 8 MODULES



ESCAPE RAMP DETAIL
N.T.S.
FILLET OF MATERIAL TO BE USED WHEN WORK IN THE EXCAVATION IS DISCONTINUED FOR A SHORT PERIOD OF TIME, AS AT NIGHT, AND REMOVED WHEN WORK RESUMES. ALL COSTS FOR ESCAPE RAMP CONSTRUCTION SHALL BE INCLUDED IN THE PAY ITEM MAINTENANCE AND PROTECTION OF TRAFFIC.

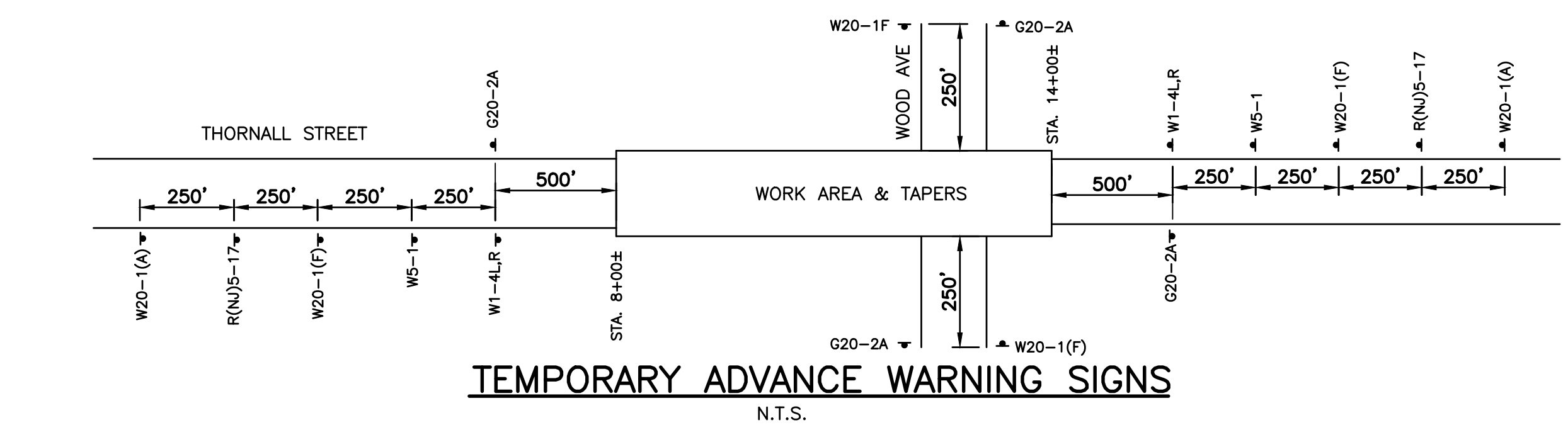
TEMPORARY CONSTRUCTION SIGNS FOR STAGED CONSTRUCTION					
SIGN DESIGNATION	MESSAGE	SIZE IN. x IN.	AREA IN SQ. FT.	REQUIRED QUANTITY IN NUMBER	TOTAL AREA IN SQ. FT.
G20-2A	END ROAD WORK	48x24	8.0	4	32
W1-4(L,R)	REVERSE CURVE	48x48	16.0	2	32
W1-6(R,L)	LARGE ARROW	48x24	8.0	2	16
W5-1	ROAD NARROWS	48x48	16.0	2	32
R11-2	ROAD CLOSED	48x30	10.0	1	10
W20-1(A)	ROAD WORK 1500 FT	48x48	16.0	2	32
W20-1(F)	ROAD WORK AHEAD	48x48	16.0	4	64
R(NJ)5-17	TRAFFIC FINES DOUBLED IN WORK AREA	64x36	16.0	2	32
W11-2	PEDESTRIAN SYMBOL	36x36	9.0	2	18
W16-7P(R)	DIAGONAL ARROW (RIGHT)	24x12	2.0	1	2
W16-7P(L)	DIAGONAL ARROW (LEFT)	24x12	2.0	1	2
R9-11a(R)	SIDEWALK CLOSED CROSS HERE (RIGHT)	24x12	2.0	1	2
R9-11a(L)	SIDEWALK CLOSED CROSS HERE (LEFT)	24x12	2.0	1	2
CONSTRUCTION SIGN SUB-TOTAL FOR STAGED CONSTRUCTION					285.0

TO BE CONSTRUCTED - ALL STAGES

PAY ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY
7	BREAKAWAY BARRICADE	UN	10
8	CONSTRUCTION SIGNS	SF	504
9	CONSTRUCTION BARRIER CURB	LF	140
10	DRUM	UN	16
11	TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM, 8 MODULES	UN	1
12	REMOVABLE BLACK LINE MASKING TAPE, 4"	LF	1,000
13	REMOVABLE BLACK LINE MASKING TAPE, 6"	LF	150
14	REMOVABLE BLACK LINE MASKING TAPE, 8"	LF	200
15	REMOVABLE BLACK LINE MASKING TAPE, 24"	LF	500
16	TEMPORARY PAVEMENT MARKING TAPE, 4" WIDE	LF	3,380
17	TEMPORARY PAVEMENT MARKING TAPE, 6" WIDE	LF	220
18	TEMPORARY PAVEMENT MARKING TAPE, 24" WIDE	LF	64
19	TEMPORARY TRAFFIC MARKINGS	UN	29
21	PROJECT IDENTIFICATION SIGN FABRICATION	UN	1
22	PROJECT IDENTIFICATION SIGN INSTALLATION	UN	1
33	DENSE GRADED AGGREGATE BASE COURSE, 8" THICK	SY	82
37	HOT MIX ASPHALT 19M64 BASE COURSE	TON	71
48	TEMPORARY STRUCTURE, PEDESTRIAN BRIDGE	LS	1
55	DETECTABLE WARNING SURFACE	SY	4
70	TEMPORARY TRAFFIC SIGNAL SYSTEM, WOOD AVENUE & THORNALL STREET	LS	1



CONSTRUCTION IDENTIFICATION SIGN

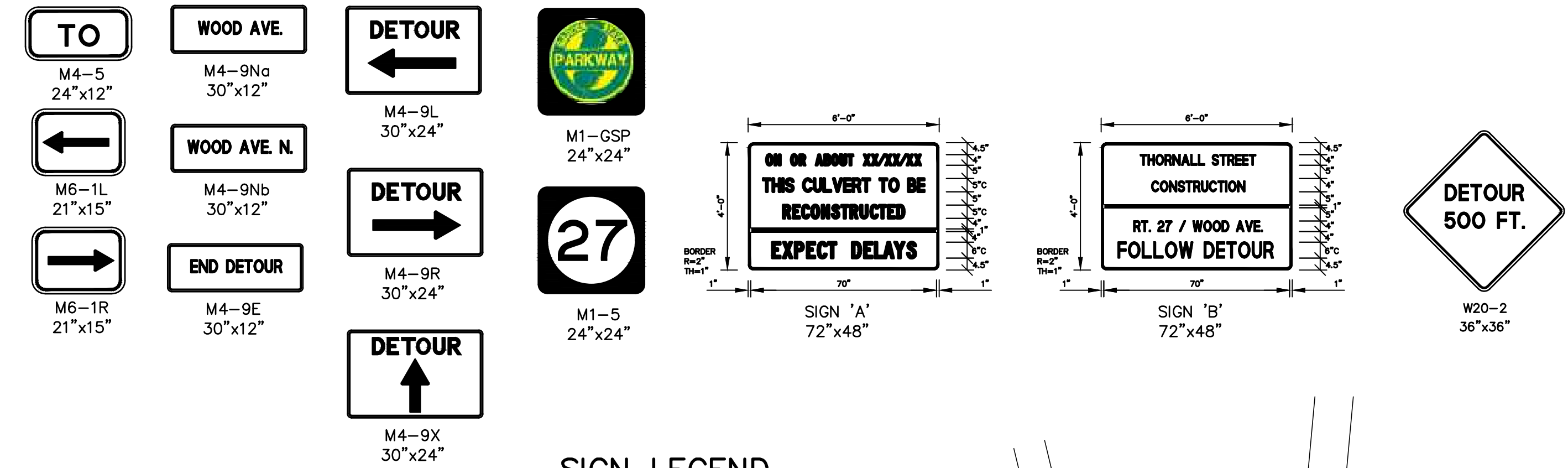


TEMPORARY ADVANCE WARNING SIGNS

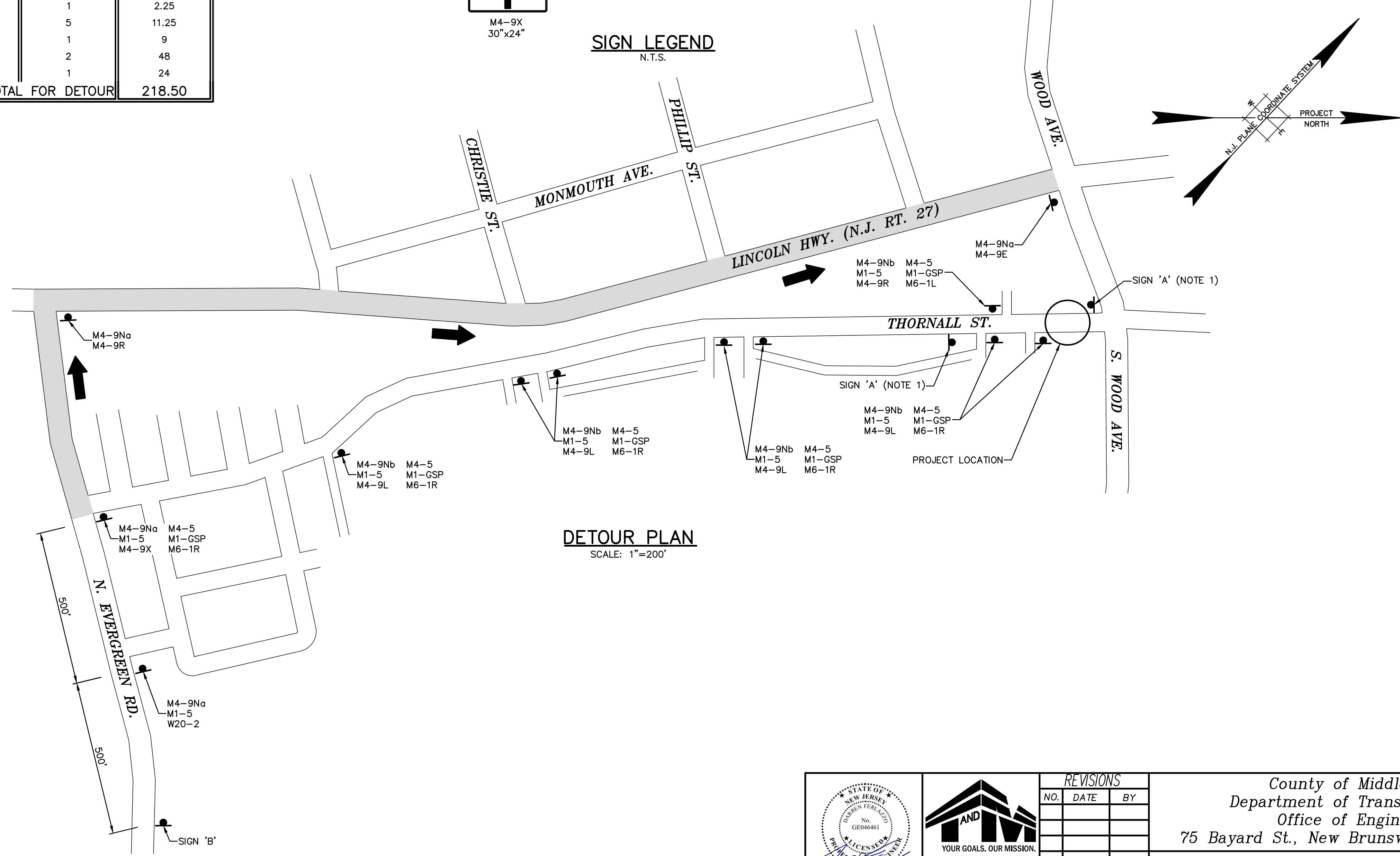
		REVISIONS		County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY RFS	DRAWN BY FC	Scale: NONE Sheet No: 4 of 32 Date: November 2022
		CHECKED BY BPK	APPROVED BY PJC	RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200

PROJECT No. MPOSY-004440
 FILENAME G:\Projects\MPOSY_004440\Plans\MPOSY004440_SFD004_RD_MPT.dwg
 TIME Nov 17, 2022 - 6:30pm
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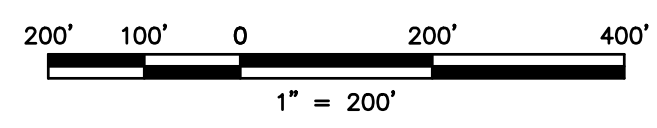
TEMPORARY CONSTRUCTION SIGNS FOR DETOUR					
SIGN DESIGNATION	MESSAGE	SIZE IN. x IN.	AREA IN SQ. FT.	REQUIRED QUANTITY IN NUMBER	TOTAL AREA IN SQ. FT.
M1-5	RT. 27	24x24	4.0	7	28
M1-GSP	GSP LOGO	24x24	4.0	6	24
M4-5	TO	24x12	2.0	6	12
M4-9L	DETOUR LEFT ARROW	30x24	5.0	4	20
M4-9R	DETOUR RIGHT ARROW	30x24	5.0	2	10
M4-9X	DETOUR AHEAD ARROW	30x24	5.0	1	5
M4-9Na	WOOD AVE.	30x12	2.5	4	10
M4-9Nb	WOOD AVE. N.	30x12	2.5	5	12.50
M4-9E	END DETOUR	30x12	2.5	1	2.50
M6-1L	LEFT ARROW	21x15	2.3	1	2.25
M6-1R	RIGHT ARROW	21x15	2.3	5	11.25
W20-2	DETOUR 500 FT.	36x36	9.0	1	9
SIGN 'A'	CULVERT RECONSTR. EXPECT DELAYS	72x48	24.0	2	48
SIGN 'B'	RT. 27 / WOOD AVE FOLLOW DETOUR	72x48	24.0	1	24
CONSTRUCTION SIGN SUB-TOTAL FOR DETOUR					218.50



NOTES:
 1. SIGN 'A' SHALL BE PLACED AT LEAST 2 WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL BE REMOVED UPON START OF WORK.



DETOUR PLAN
 SCALE: 1"=200'

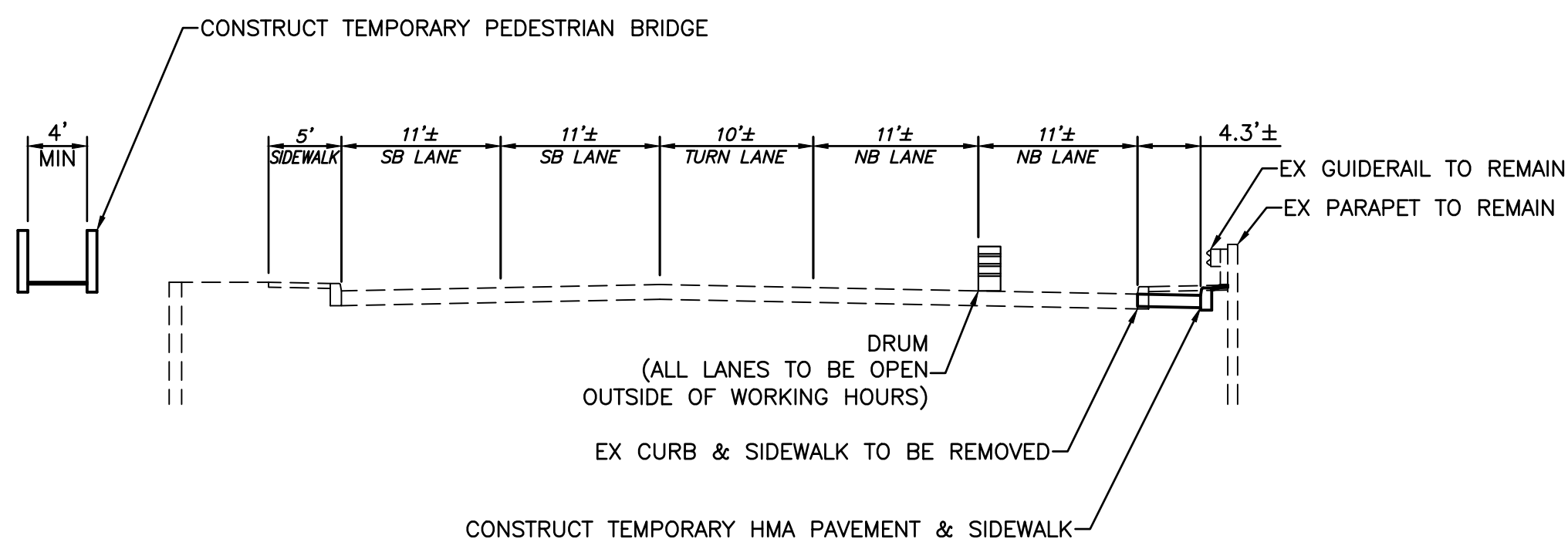
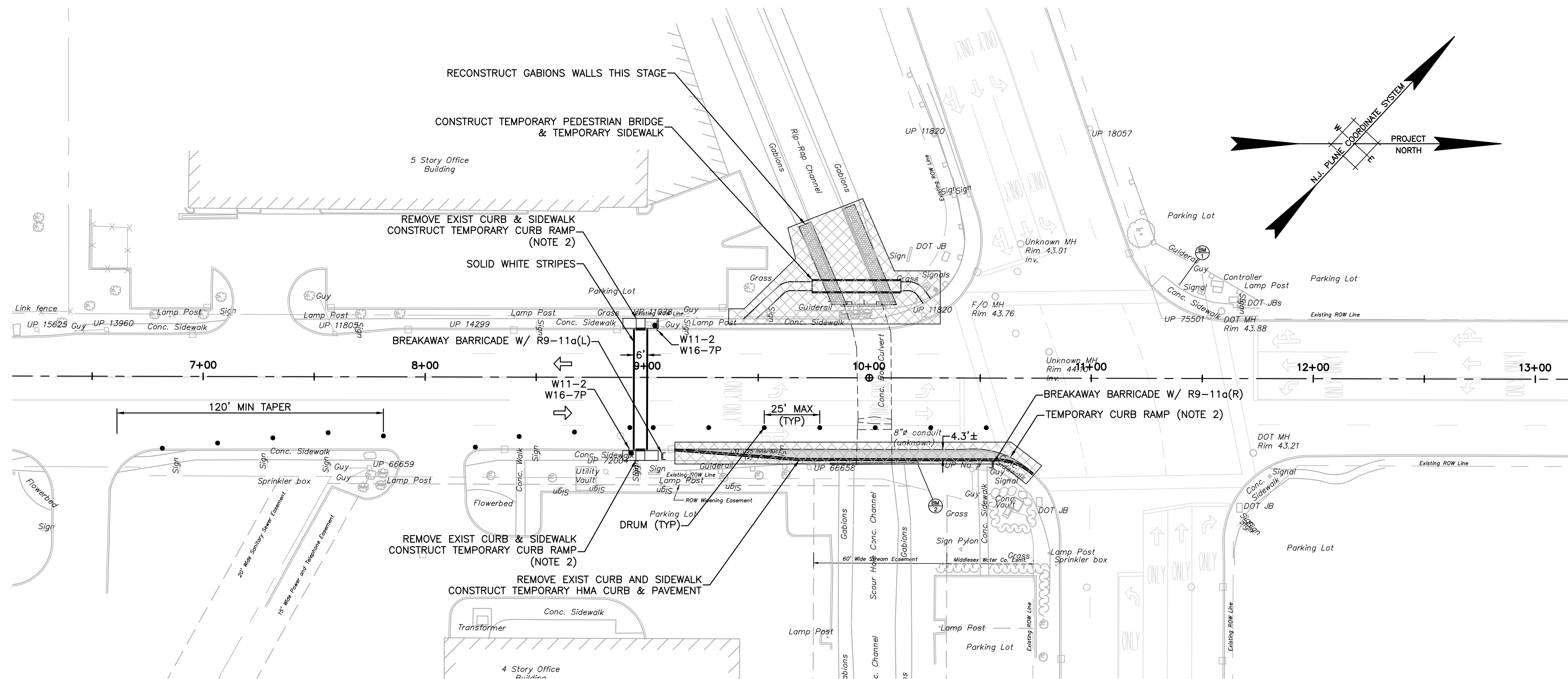


PROJECT No. MPT-04440
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 TIME Nov 17, 2022 - 6:30pm

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		DESIGNED BY RFS	DRAWN BY FC	CHECKED BY BPK	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		Scale: 1"=200' Sheet No: 5 of 32 Date: November 2022		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200	

MPT-2
 MPT-5



LEGEND:

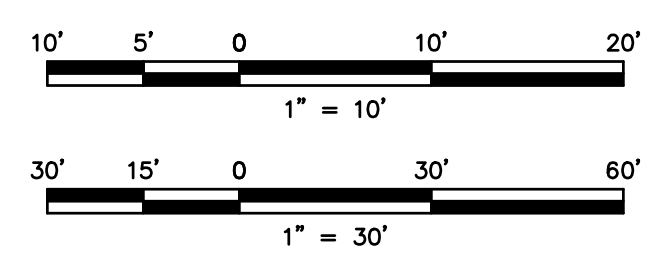
- [] BREAKAWAY BARRICADES
- [] BREAKAWAY BARRICADES WITH SIGN
- ▮ CONSTRUCTION SIGNS
- DRUMS
- ▬ CONSTRUCTION BARRIER CURB
- ← DIRECTION OF TRAFFIC FLOW
- FM FLAGGER
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM, 8 MODULES
- ▨ WORK AREA THIS STAGE

STAGE 1A CONSTRUCTION SEQUENCE:

1. RECONSTRUCT EXISTING GABIIONS UPSTREAM OF THORNALL STREET (SEE NOTE 3).
2. INSTALL TEMPORARY PEDESTRIAN BRIDGE AND SIDEWALK.
3. INSTALL TEMPORARY CURB RAMPS AND CROSSWALKS.
4. REMOVE EXISTING SIDEWALK ON EAST SIDE OF STRUCTURE AND CONSTRUCT TEMPORARY CURB AND PAVEMENT FOR USE IN STAGE 1B.

NOTES:

1. EXISTING TRAFFIC PATTERNS SHALL BE MAINTAINED IN THIS STAGE. WORK IN THIS STAGE SHALL BE COMPLETED USING DAILY LANE AND SIDEWALK CLOSURES AS APPROVED BY THE EDISON AND WOODBRIDGE POLICE DEPARTMENTS. ALL LANES SHALL BE OPEN TO TRAFFIC OUTSIDE OF WORKING HOURS.
2. PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE PEDESTRIAN ACCESS ROUTE SHALL BE IN COMPLIANCE WITH THE CURRENT ADA ACCESSIBILITY GUIDELINES FOR THE PUBLIC ROW (PROWAG).
3. THE PROPOSED CHANNEL ELEVATION AT THE UPSTREAM FACE OF THE STRUCTURE IS LOWER THAN EXISTING. BYPASS PUMPING, TEMPORARY FILL, OR TEMPORARY CUTOFF WALLS MAY BE REQUIRED BETWEEN STAGES 1A AND 1B TO PREVENT FLOW BENEATH THE EXISTING STRUCTURE. CONTRACTOR SHALL SUBMIT HIS MEANS AND METHODS TO THE ENGINEER FOR APPROVAL PRIOR TO EXCAVATION.

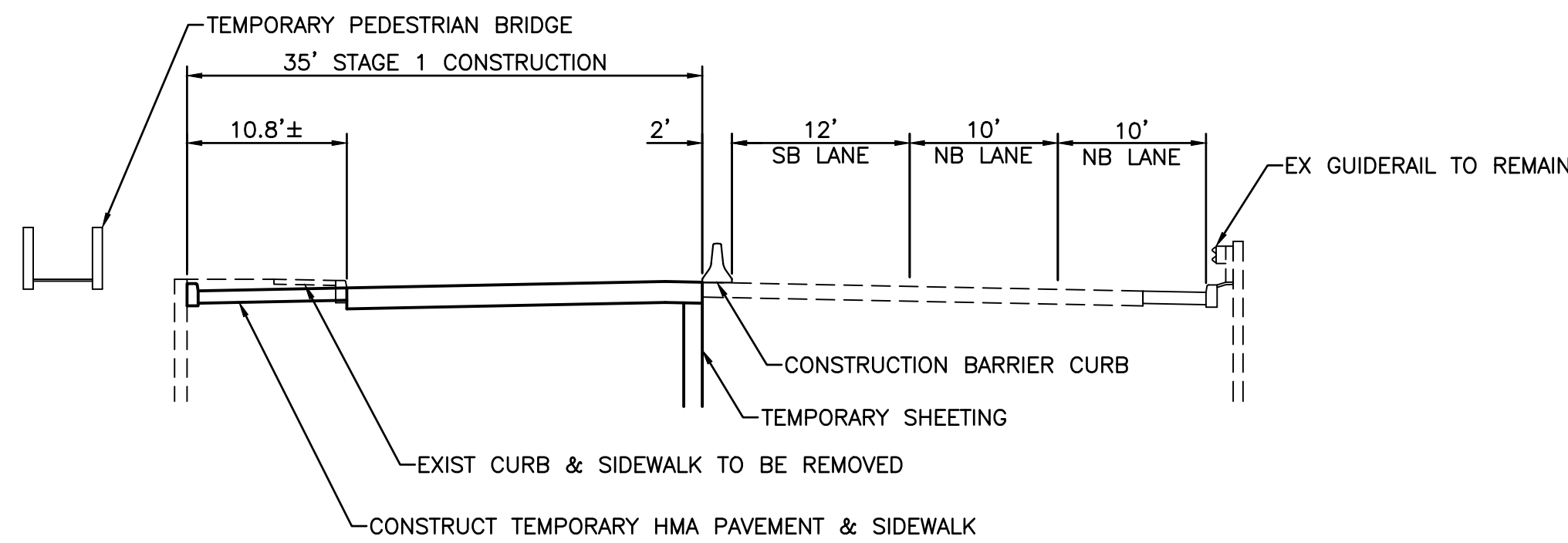
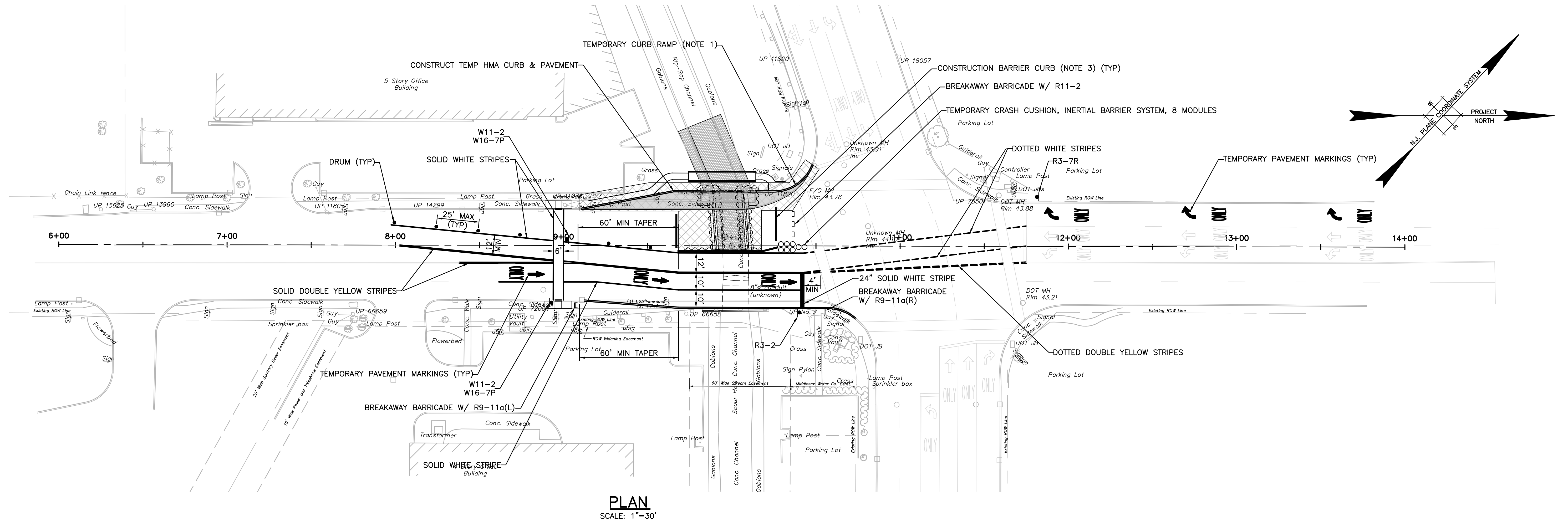


		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY RFS	DRAWN BY RFS	Scale: AS SHOWN Sheet No: 5A of 32 Date: November 2022	
11/18/22 Date Ronald Sendner County Engineer N.J.P.E. NO. 24GE03162200		CHECKED BY BPK	APPROVED BY PJC	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200	

PROJECT No. MPTSX-00440
 FILENAME G:\Projects\MPTSX\00440\Plans\MPTSX00440_SHT006_RD_MPT.dwg
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MPT-3
MPT-5



STAGE 1B SECTION

SCALE: 1"=10'

LEGEND:

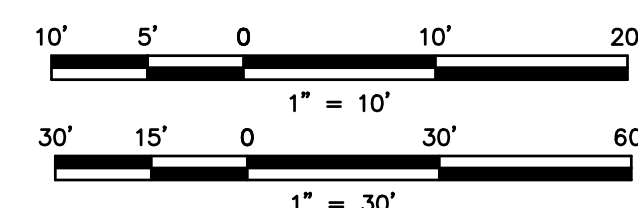
- [] BREAKAWAY BARRICADES
- [] BREAKAWAY BARRICADES WITH SIGN
- CONSTRUCTION SIGNS
- DRUMS
- ▬ CONSTRUCTION BARRIER CURB
- ← DIRECTION OF TRAFFIC FLOW
- FM FLAGGER
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM, 8 MODULES
- ▨ WORK AREA THIS STAGE

STAGE 1B CONSTRUCTION SEQUENCE:

1. INSTALL MAINTENANCE AND PROTECTION OF TRAFFIC MEASURES AND MODIFY EXISTING TRAFFIC SIGNAL TIMING AS REQUIRED BY THE RE.
2. SHIFT TRAFFIC TO THE EAST SIDE OF THORNALL STREET / MIDDLESEX-ESSEX TURNPIKE.
3. DEMOLISH WESTERLY HALF OF EXISTING CULVERT AND CONSTRUCT PORTION OF PROPOSED CULVERT.
4. CONSTRUCT UPSTREAM WINGWALLS, PARAPETS, AND STREAM CHANNEL IMPROVEMENTS.
5. CONSTRUCT TEMPORARY HMA CURB AND PAVEMENT FOR USE IN STAGE 2.

NOTES:

1. PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE PEDESTRIAN ACCESS ROUTE SHALL BE IN COMPLIANCE WITH THE CURRENT ADA ACCESSIBILITY GUIDELINES FOR THE PUBLIC ROW (PROWAG).
2. THE CONTRACTOR SHALL USE TEMPORARY PAVEMENT MARKING TAPE AND REMOVABLE BLACK LINE MASKING TAPE OUTSIDE THE PROPOSED LIMITS OF PAVING. WITHIN THE PROPOSED LIMITS OF PAVING, THE CONTRACTOR MAY USE LATEX OR EPOXY PAINT IF APPROVED BY THE RE. TAPE AND PAINT SHALL BE MAINTAINED IN GOOD CONDITION THROUGHOUT CONSTRUCTION, SHALL BE INSPECTED REGULARLY, AND SHALL BE REAPPLIED AS NECESSARY. NO ADDITIONAL PAYMENT WILL BE MADE FOR MAINTENANCE OF TRAFFIC CONTROL MEASURES.
3. CONSTRUCTION BARRIER CURBS SHALL BE PLACED TO PREVENT VEHICULAR ACCESS AT THE END OF EACH WORK DAY.

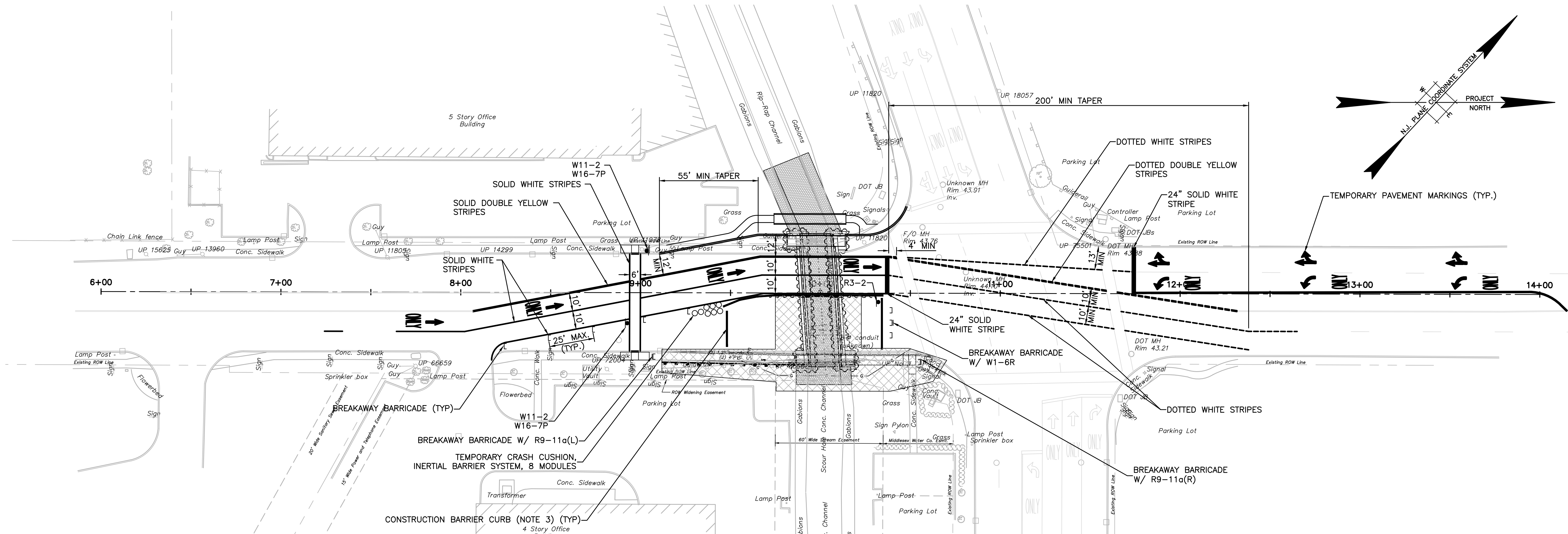


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 TIME Nov 17, 2022 - 6:51pm

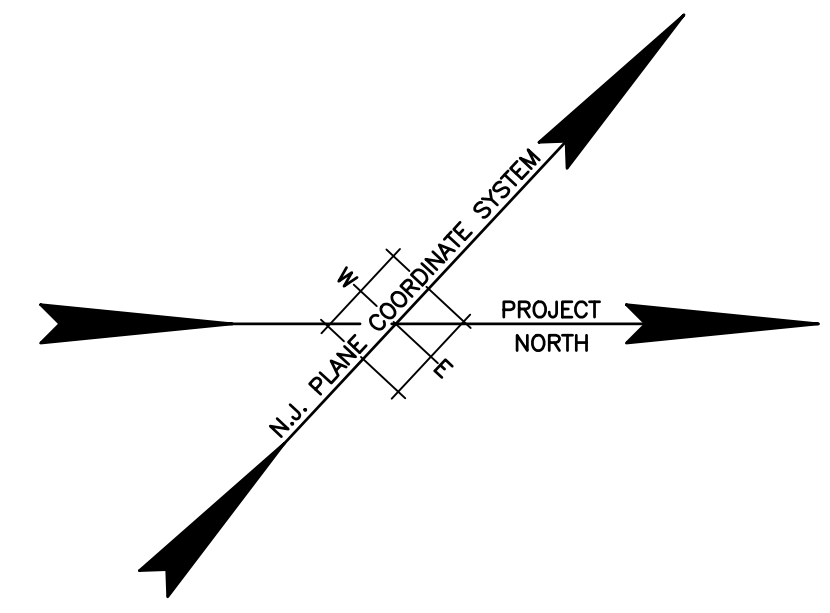
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MPT-4
MPT-5

		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY	DRAWN BY	Scale: AS SHOWN Sheet No: 6 of 32 Date: November 2022	
		CHECKED BY	APPROVED BY	RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200	
		BPK	PJC		

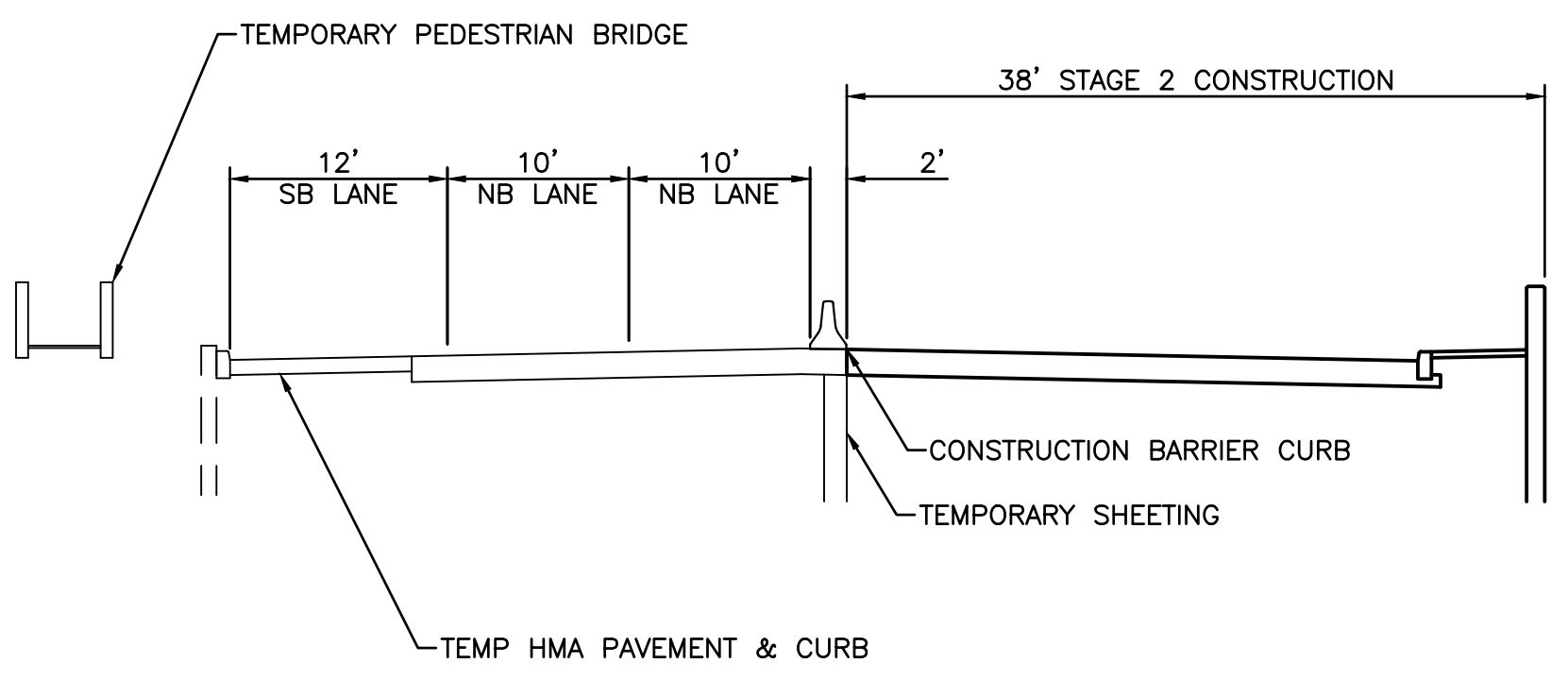


PLAN
SCALE: 1"=30'



STAGE 2 CONSTRUCTION SEQUENCE:

1. INSTALL MAINTENANCE AND PROTECTION OF TRAFFIC MEASURES AND MODIFY EXISTING TRAFFIC SIGNAL TIMING AS REQUIRED.
2. SHIFT TRAFFIC TO THE WEST SIDE OF THORNALL STREET / MIDDLESEX-ESSEX TURNPIKE.
3. DEMOLISH EASTERLY PORTION OF EXISTING CULVERT AND CONSTRUCT REMAINDER OF PROPOSED CULVERT.
4. CONSTRUCT DOWNSTREAM WINGWALLS AND PARAPETS.
5. REMOVE TEMPORARY CURB AND PAVEMENT CONSTRUCTED IN STAGE 1A AND CONSTRUCT PERMANENT CURB, SIDEWALK, AND ROADWAY IMPROVEMENTS.



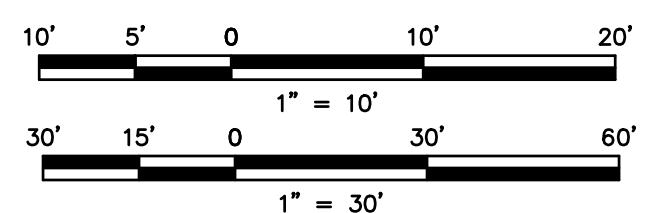
STAGE 2 AND 3 SECTION
SCALE: 1"=10'

STAGE 3 CONSTRUCTION SEQUENCE:

1. SHIFT TRAFFIC TO ITS ORIGINAL CONFIGURATION AND MODIFY TRAFFIC SIGNAL AS DIRECTED BY THE RE.
2. REMOVE TEMPORARY CURB AND PAVEMENT CONSTRUCTED IN STAGE 1B AND CONSTRUCT PERMANENT CURB, SIDEWALK, AND ROADWAY IMPROVEMENTS. USE DAILY LANE CLOSURES AS APPROVED BY THE EDISON AND WOODBRIDGE POLICE DEPARTMENTS.
3. CONSTRUCT PROPOSED PAVEMENT BOX, SIGNING, AND STRIPING USING DAILY LANE CLOSURES AS APPROVED BY THE EDISON AND WOODBRIDGE POLICE DEPARTMENTS.
4. REMOVE TEMPORARY PEDESTRIAN BRIDGE AND TEMPORARY SIDEWALK.
5. INSTALL TOPSOIL AND SEED AND RESTORE DISTURBED AREAS.

NOTES:

1. PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE PEDESTRIAN ACCESS ROUTE SHALL BE IN COMPLIANCE WITH THE CURRENT ADA ACCESSIBILITY GUIDELINES FOR THE PUBLIC ROW (PROWAG).
2. THE CONTRACTOR SHALL USE TEMPORARY PAVEMENT MARKING TAPE AND REMOVABLE BLACK LINE MASKING TAPE OUTSIDE THE PROPOSED LIMITS OF PAVING. WITHIN THE PROPOSED LIMITS OF PAVING, THE CONTRACTOR MAY USE LATEX OR EPOXY PAINT IF APPROVED BY THE RE. TAPE AND PAINT SHALL BE MAINTAINED IN GOOD CONDITION THROUGHOUT CONSTRUCTION, SHALL BE INSPECTED REGULARLY, AND SHALL BE REAPPLIED AS NECESSARY. NO ADDITIONAL PAYMENT WILL BE MADE FOR MAINTENANCE OF TRAFFIC CONTROL MEASURES.
3. CONSTRUCTION BARRIER CURBS SHALL BE PLACED TO PREVENT VEHICULAR ACCESS AT THE END OF EACH WORK DAY.



LEGEND:

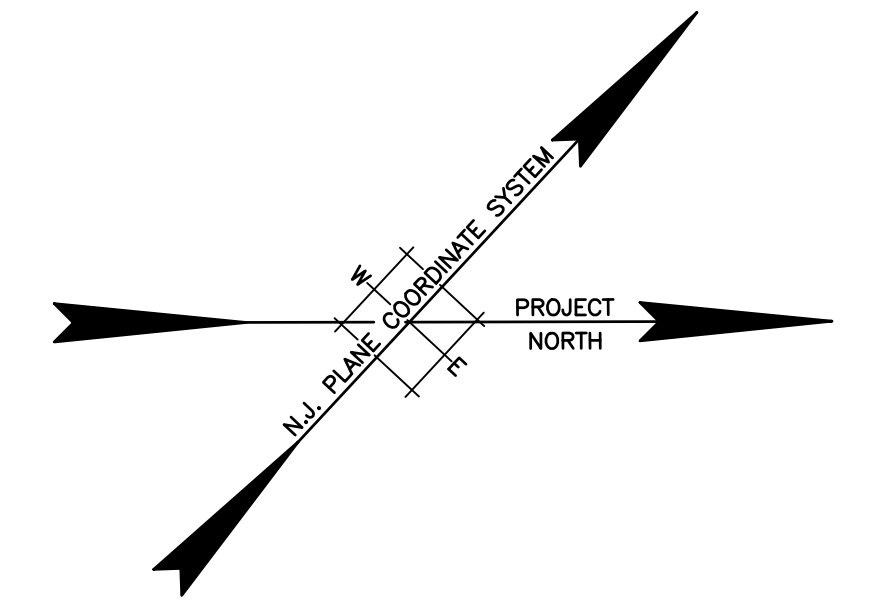
- [] BREAKAWAY BARRICADES
- [] BREAKAWAY BARRICADES WITH SIGN
- ▲ CONSTRUCTION SIGNS
- DRUMS
- CONSTRUCTION BARRIER CURB
- ← DIRECTION OF TRAFFIC FLOW
- FM FLAGGER
- TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM, 8 MODULES
- ▨ WORK AREA THIS STAGE

PROJECT No. MPTS-04440
 FILENAME G:\Projects\MIDEX\04440\Plans\MIDEX00440_SHT008_RD_MPT.dwg
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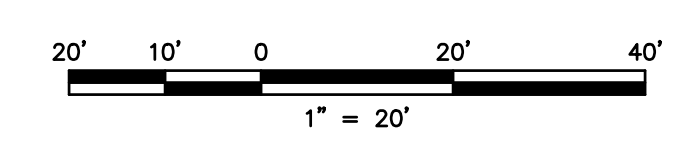
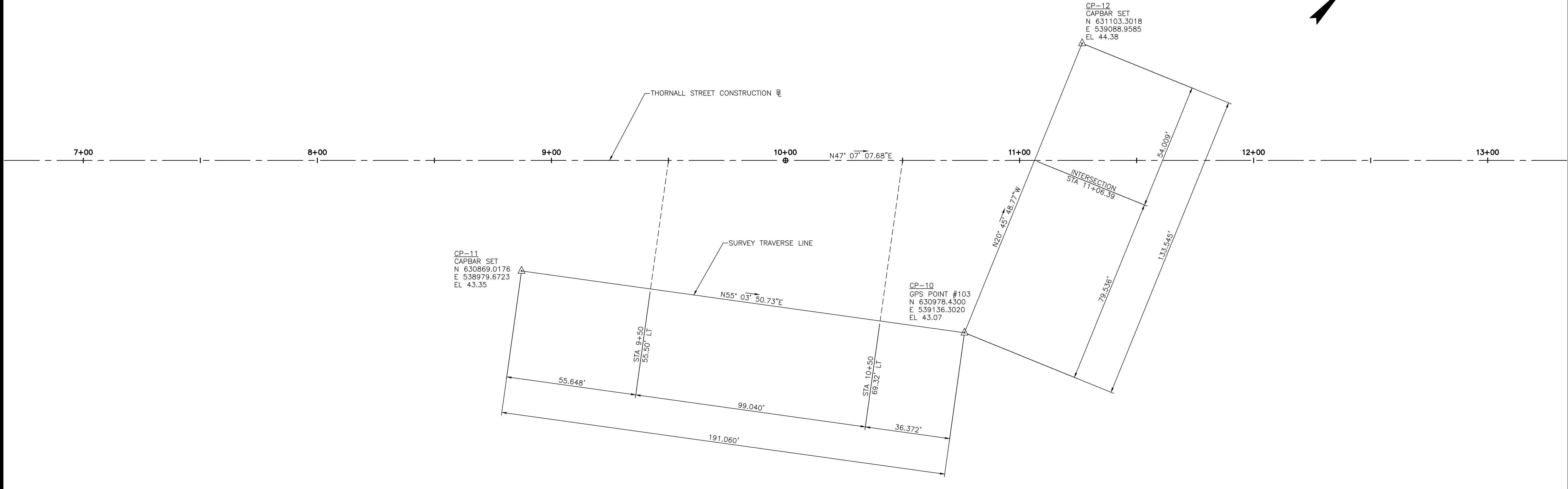
		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER MAINTENANCE AND PROTECTION OF TRAFFIC PLAN - STAGES 2 & 3
		DESIGNED BY RFS	DRAWN BY RFS	CHECKED BY BPK	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		Scale: AS SHOWN Sheet No: 7 of 32 Date: November 2022		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200	

MPT-5
MPT-5



PROJECT No. MFSX-00440
 FILENAME G:\Projects\MFSX\00440\Plans\MFSX00440_SHT009_RD_TIE.dwg
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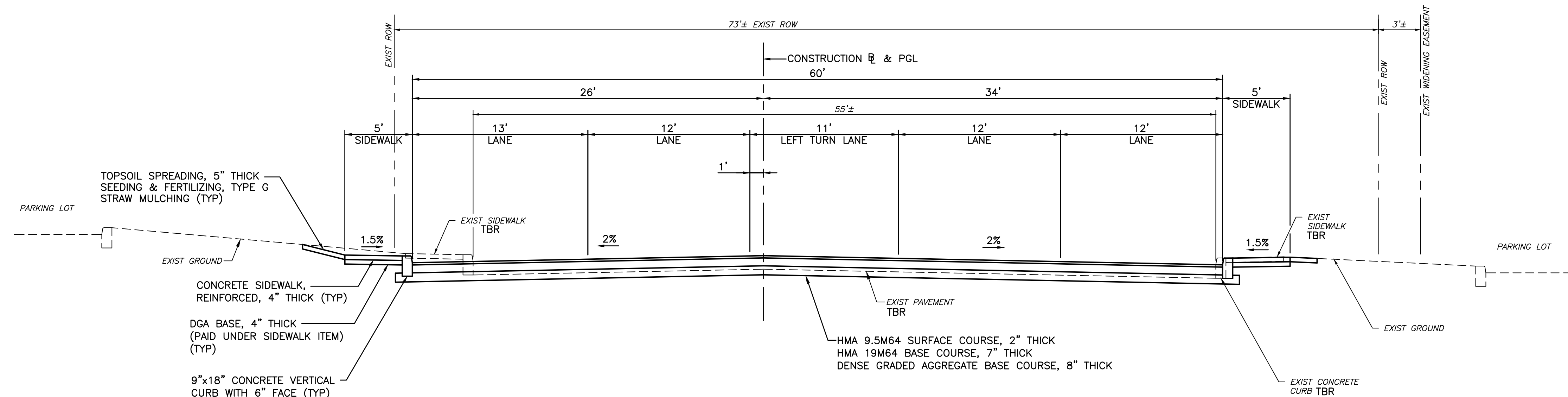


		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY	DRAWN BY	Scale: AS SHOWN Sheet No: 9 of 32 Date: November 2022	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200
		RFS	RFS		
		CHECKED BY	APPROVED BY		
		BPK	PJC		

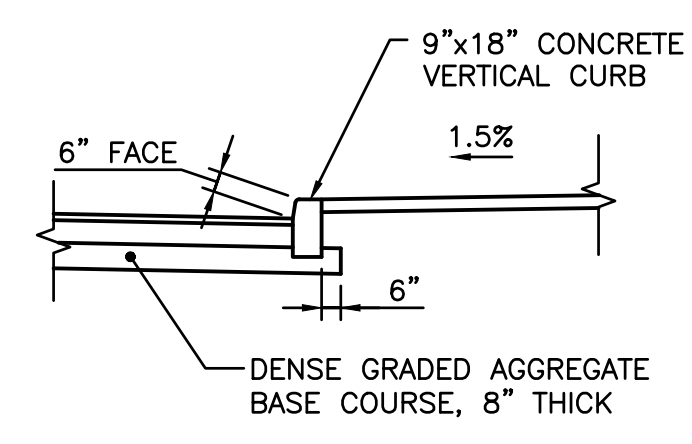
REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

BASELINE TIE SHEET

PROJECT No. MDSX-00440
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 TIME Nov 17, 2022 - 6:51pm

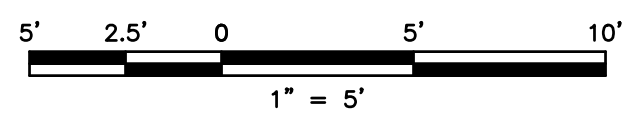


THORNALL STREET TYPICAL SECTION
 SCALE: 1" = 5'

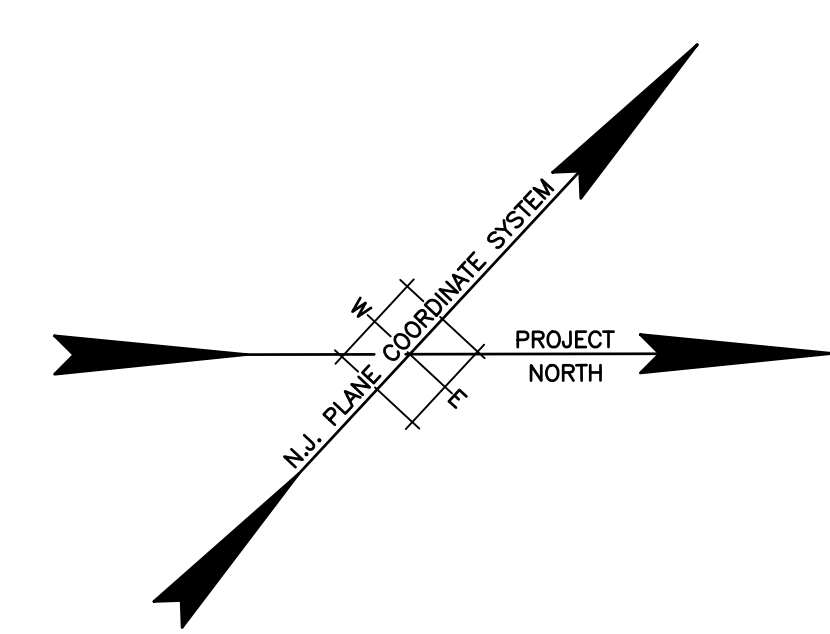
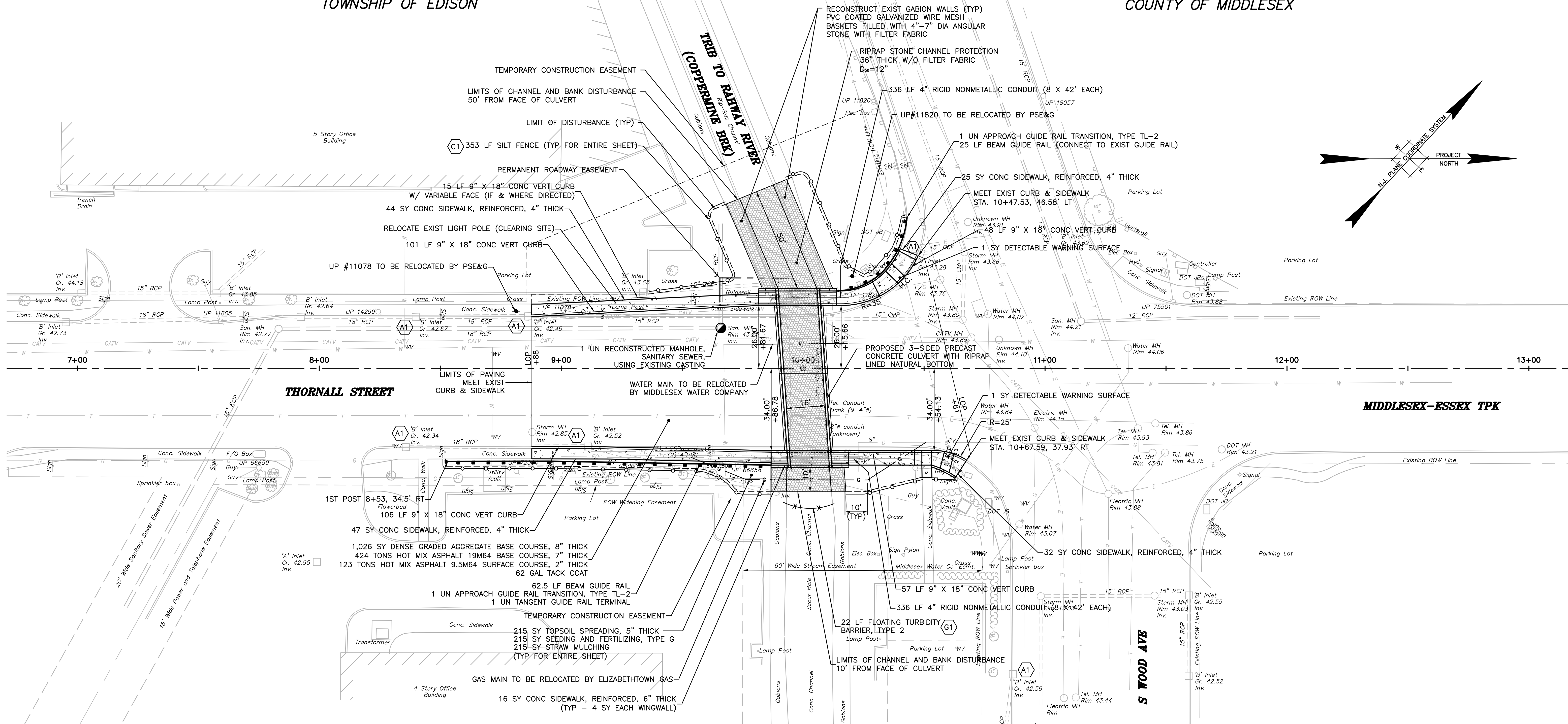


PAVEMENT STEPPING DETAIL WITH CURB
 NTS

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		DESIGNED BY: RFS DRAWN BY: FC CHECKED BY: BPK APPROVED BY: PJC			
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		Scale: AS SHOWN Sheet No: 10 of 32 Date: November 2022			RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200



NOTES:

- GUIDERAIL POST SPACING NOT SHOWN TO SCALE. REFER TO THE NJDOT STANDARD DETAILS FOR PROPER POST LENGTHS AND SPACING.
- SIGNING AND STRIPING QUANTITIES ARE SHOWN ON THE SIGNING AND STRIPING PLAN.
- REMOVAL AND REPLACEMENT AND/OR RELOCATION OF EXISTING SIGNS, TREES, AND/OR ANY OTHER OBSTRUCTION WILL NOT BE MEASURED. PAYMENT WILL BE INCLUDED IN UNDER THE ITEM "CLEARING SITE".
- CONCRETE CURB AND SIDEWALKS SHALL BE POURED SEPARATELY. MONOLITHIC POURS ARE NOT PERMITTED.
- PROPOSED CURB RAMPS AND LANDINGS ARE TO CONFORM TO THE LATEST ADA REGULATIONS IMPLEMENTING TITLE II AND THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, AND TO THE CONSTRUCTION DETAILS INCLUDED IN THESE PLANS. REFER TO SECTION 606.03.02 OF THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- REFER TO THE GRADING PLANS FOR CURB RAMP LAYOUT.
- NO FRESHWATER WETLANDS ARE PRESENT ON SITE. LIMITS OF STATE OPEN WATERS ARE COINCIDENT WITH THE EDGE OF STREAM.
- SOIL STOCKPILING WILL NOT BE ALLOWED ON SITE.

LEGEND:

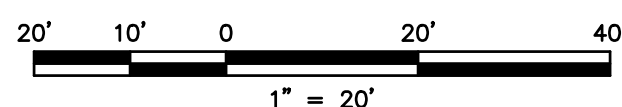
A1 SOIL EROSION AND SEDIMENT CONTROL MEASURE (SEE DWG SE-1)

TO BE CONSTRUCTED

PAY ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY
2	SILT FENCE	LF	353
3	INLET FILTER, TYPE 1	SF	48
4	FLOATING TURBIDITY BARRIER, TYPE 2	LF	22
33	DENSE GRADED AGGREGATE BASE COURSE, 8" THICK	SY	1,026
35	TACK COAT	GAL	62
36	HOT MIX ASPHALT 9.5M64 SURFACE COURSE	TON	123
37	HOT MIX ASPHALT 19M64 BASE COURSE	TON	424
50	RECONSTRUCTED MANHOLE, SANITARY SEWER, USING EXISTING CASTING	UN	1
53	CONCRETE SIDEWALK, REINFORCED, 4" THICK	SY	148
54	CONCRETE SIDEWALK, REINFORCED, 6" THICK	SY	16
55	DETECTABLE WARNING SURFACE	SY	2
56	9" X 18" CONCRETE VERTICAL CURB	LF	327
57	BEAM GUIDE RAIL	LF	88
58	TANGENT GUIDE RAIL TERMINALS	UN	1
59	APPROACH GUIDE RAIL TRANSITION, TYPE TL-2	UN	2
69	4" RIGID NONMETALLIC CONDUIT	LF	672
71	TOPSOIL SPREADING, 5" THICK	SY	215
72	SEEDING AND FERTILIZING, TYPE G	SY	215
73	STRAW MULCHING	SY	215

REFERENCES:

- FOR STANDARD LEGEND AND ABBREVIATIONS, SEE DWG LEG-1.

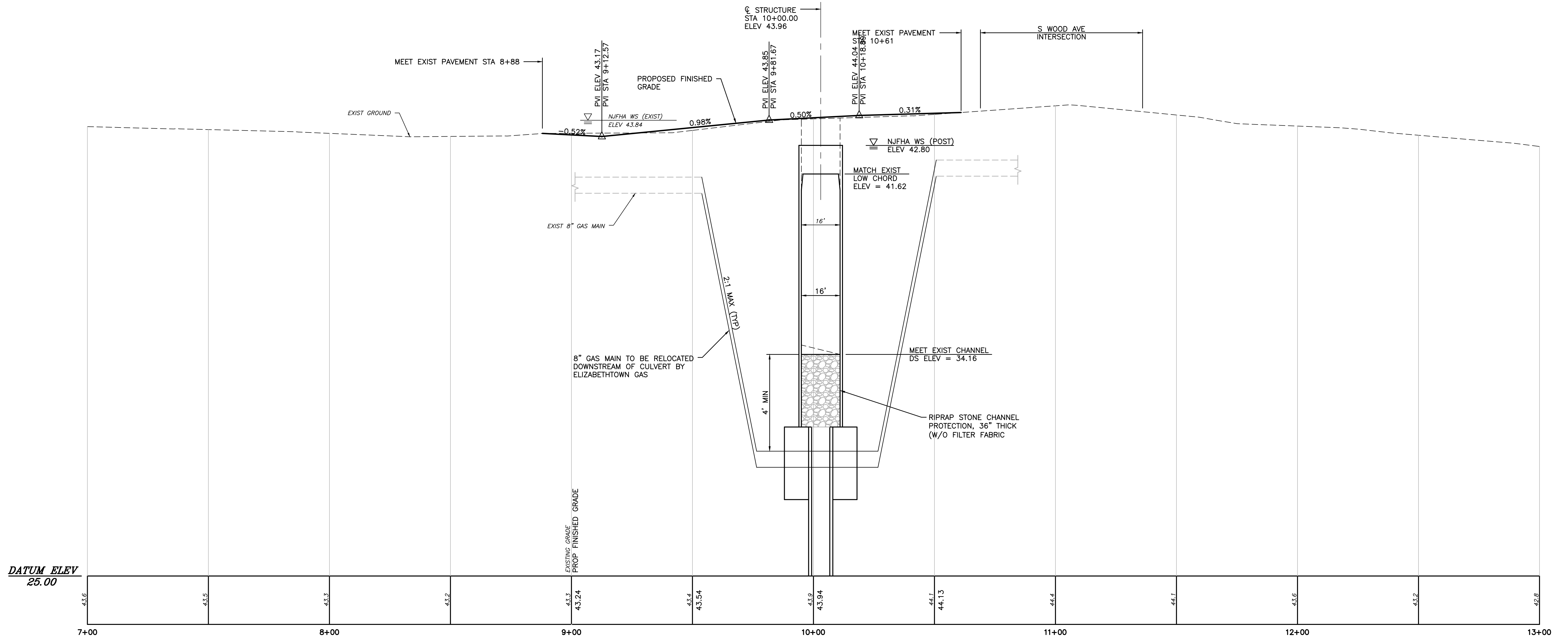


SOIL EROSION AND SEDIMENT CONTROL PLAN

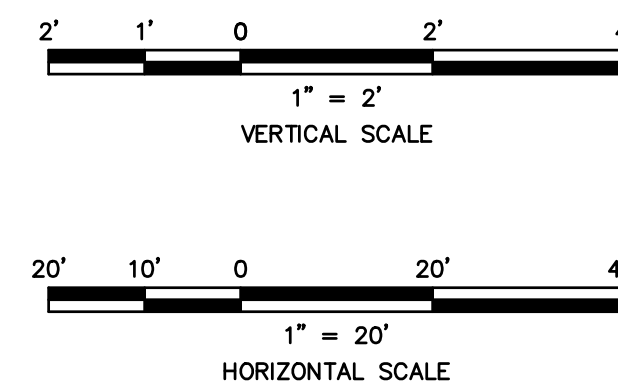
		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY	DRAWN BY	Scale: AS SHOWN Sheet No: 11 of 32 Date: November 2022	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200
		RFS	FC		
		CHECKED BY	APPROVED BY		
		BPK	PJC		

PROJECT No. MDP52-00440
 FILENAME G:\Projects\MDP52-00440\Plans\MDP5200440_SFI011_RD_CSP.dwg
 TIME Nov 17, 2022 6:52am

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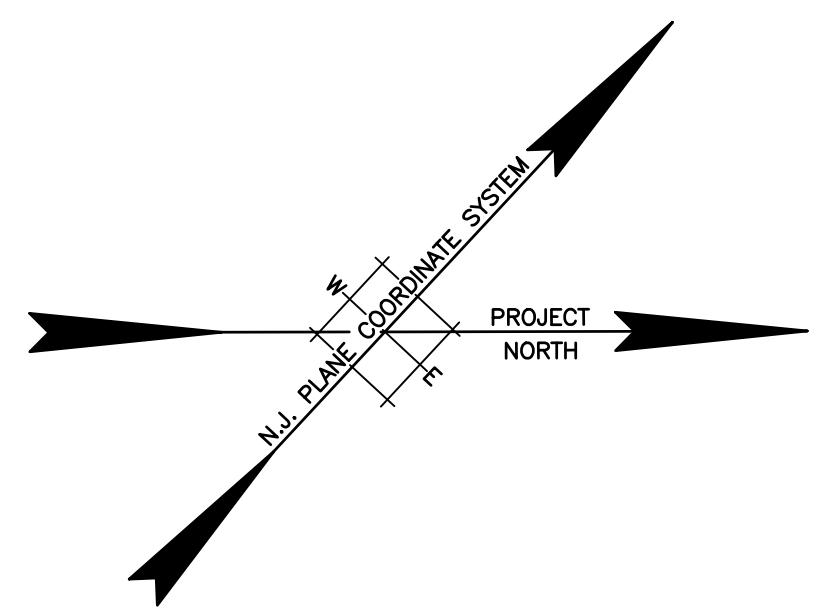
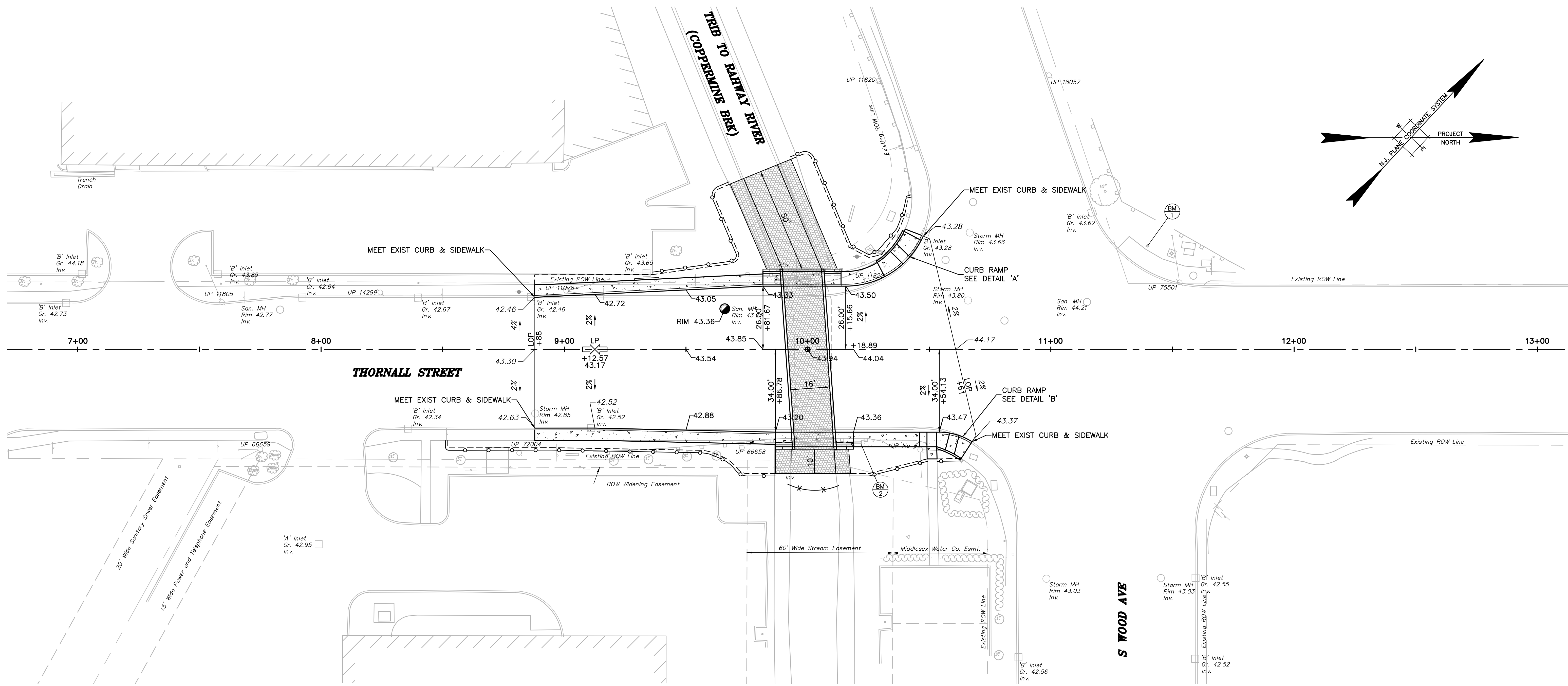
THORNALL STREET PROFILE



PROJECT No. MPSX-00440
 FILENAME C:\Projects\MPSX\00440\Plans\MPSX00440_SHT012_RD_PRO.dwg
 TIME Nov 17, 2022 - 6:52pm

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		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER PROFILE
		DESIGNED BY	DRAWN BY	Scale: AS SHOWN	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		RFS	RFS	Sheet No: 12 of 32	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200
		CHECKED BY	APPROVED BY	Date: November 2022	
		BPK	PJC		



PROJECT No. MDP52-00440
 FILENAME G:\Projects\MIDEX\00440\Plans\MIDEX00440_SHT013_RD_GRP.dwg
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BENCHMARKS:

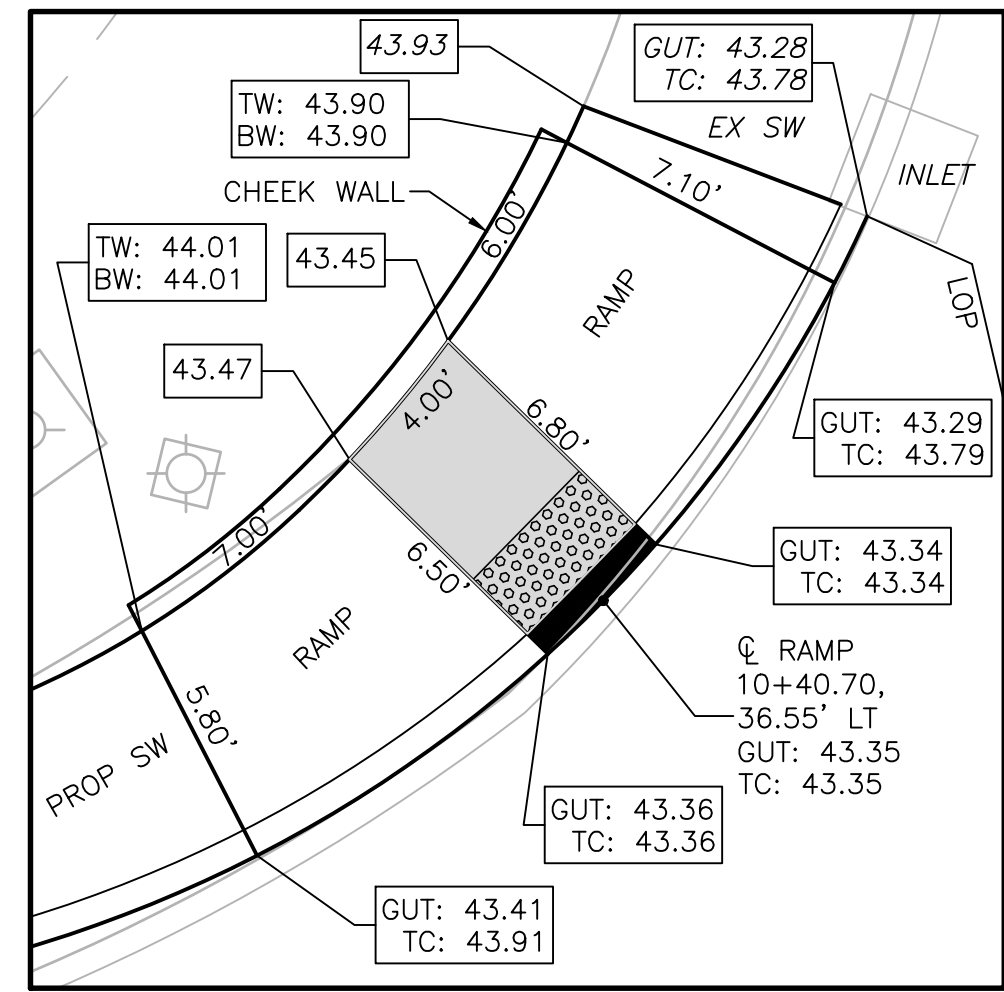
1. 'M' IN 'MUELLER' ON FIRE HYDRANT ELEV 46.33
2. BOX CUT ON TOP OF PARAPET WALL ELEV 45.49

DATUM INFORMATION:

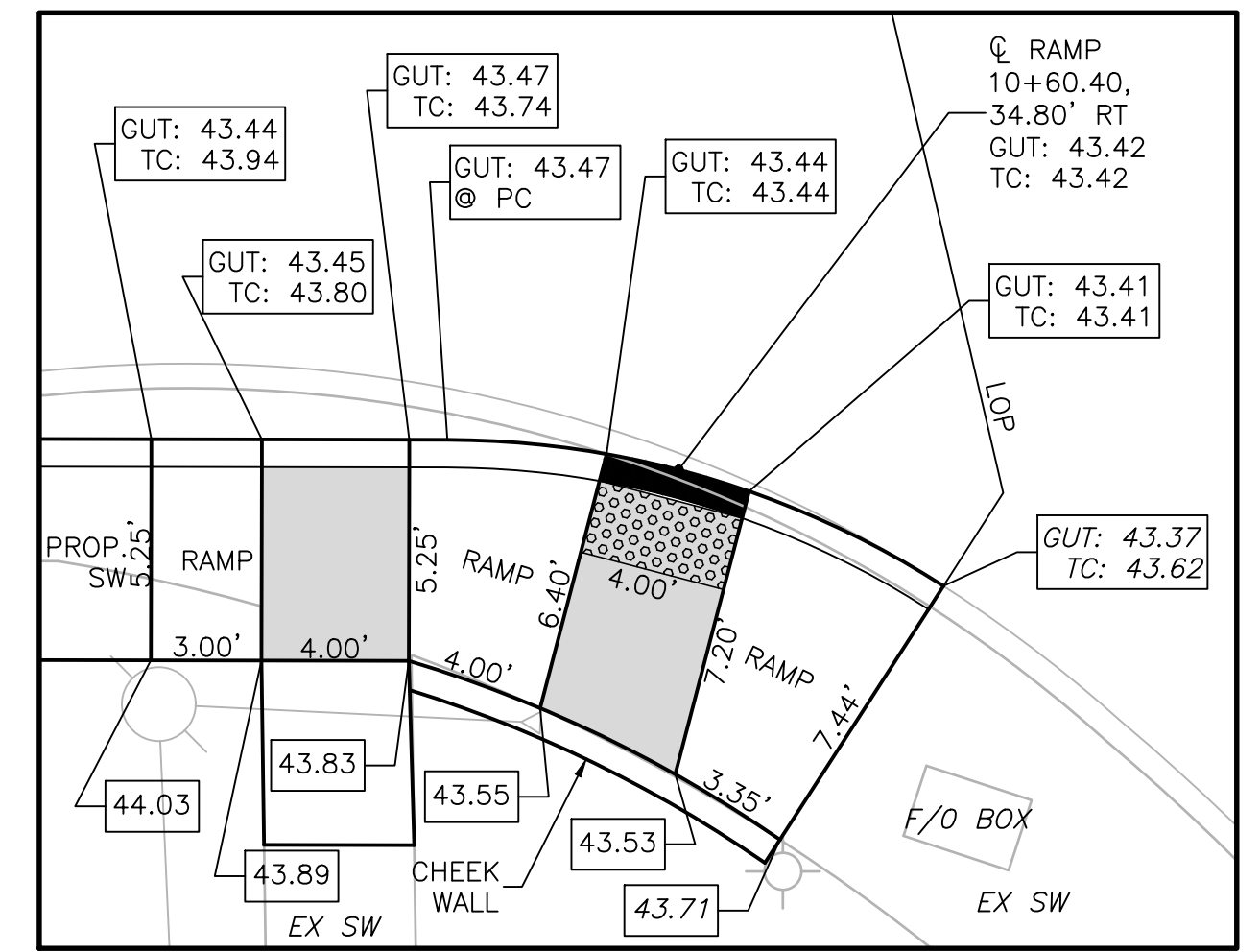
HORIZONTAL DATUM = NAD 1983
 VERTICAL DATUM = NAVD 1988
 NGVD 1929 = NAVD 1988 + 1.00'

LEGEND:

- TURNING SPACE
- DETECTABLE WARNING SURFACE
- DEPRESSED CURB
- GUT GUTTER ELEVATION
- TC TOP OF CURB ELEVATION
- BW BOTTOM OF WALL ELEVATION
- TW TOP OF WALL ELEVATION



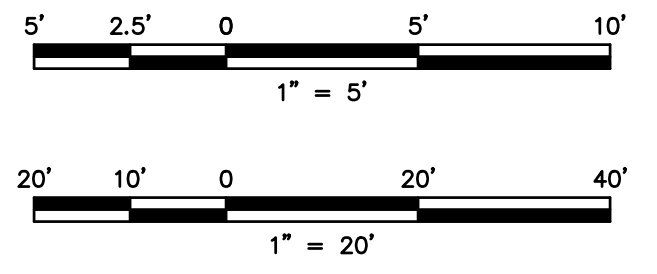
DETAIL 'A'
SCALE: 1" = 5'



DETAIL 'B'
SCALE: 1" = 5'

REFERENCES:

1. FOR STANDARD LEGEND AND ABBREVIATIONS, SEE DWG LEG-1.

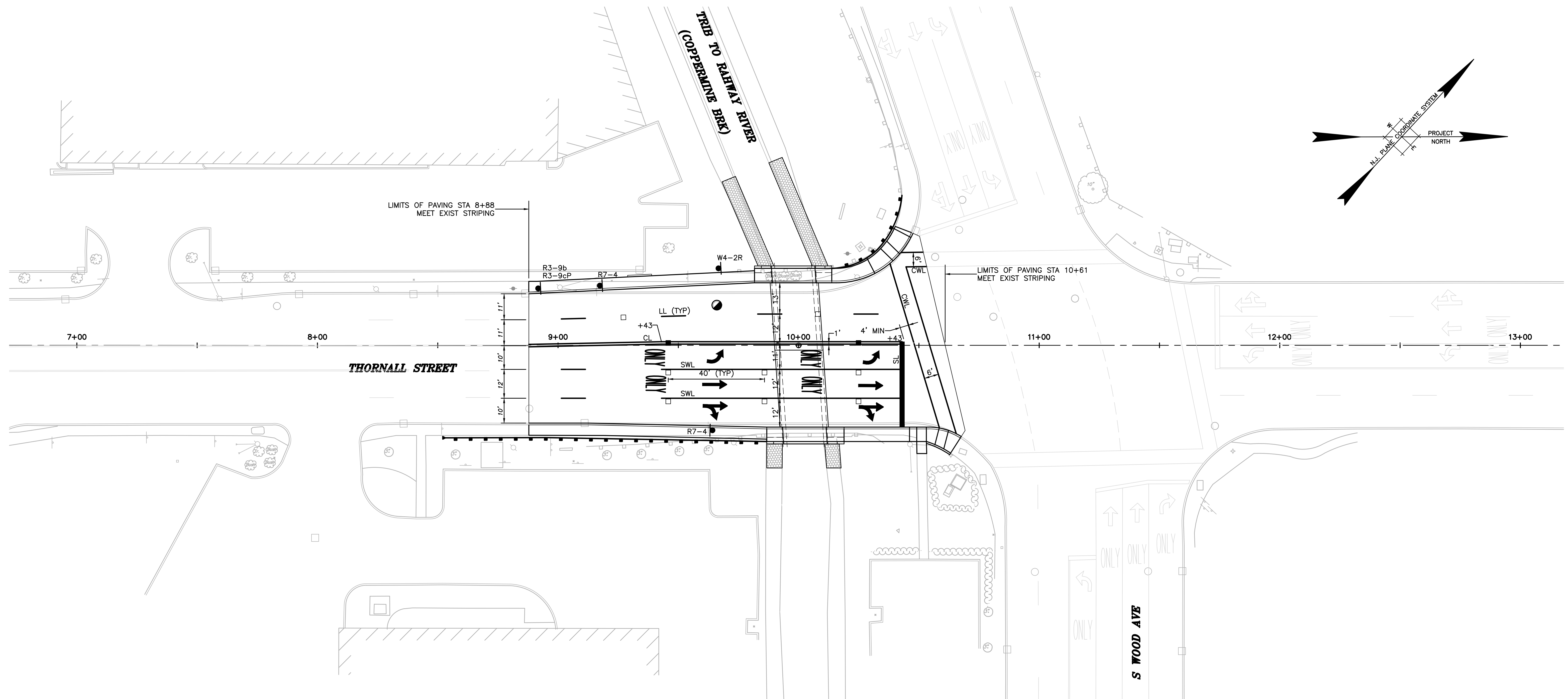


Darren Ferlazzo
 Licensed Professional Engineer
 NJPE No. 24GE04646100

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 www.tandmassociates.com
 NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
 CERTIFICATE OF AUTHORIZATION 06A078690

REVISIONS		
NO.	DATE	BY

County of Middlesex
 Department of Transportation
 Office of Engineer
 75 Bayard St., New Brunswick, N.J. 08901
REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER
 GRADING PLAN
 11/18/22 Date
 Scale: AS SHOWN
 Sheet No: 13 of 32
 Date: November 2022
RONALD SENDNER
 County Engineer
 N.J.P.E. No. 24GE03162200



PROJECT No. MPSX-00440
 FILENAME C:\Projects\MPSX\00440\Plans\MPSX00440_SHT01.dwg
 TIME Nov 17, 2022 - 6:52am

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NOTES:

1. RELOCATION AND/OR REMOVAL OF EXISTING SIGNS SHALL BE PAID FOR UNDER "CLEARING SITE".
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF SIGNS.
3. LAYOUT OF STRIPING AND PAVEMENT MARKINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
4. REFER TO THE CONSTRUCTION DETAILS FOR COORDINATION BETWEEN CROSSWALK STRIPING AND CURB RAMPS.

SIGNING LEGEND:

- Sign EXISTING SIGN TO BE REMOVED OR RESET (AS NOTED ON PLANS)
- R1-1 PROPOSED SIGN
- RPM, BI-DIRECTIONAL, AMBER LENS
 - RPM, MONO-DIRECTIONAL, WHITE LENS

PAVEMENT MARKING LEGEND

UNLESS OTHERWISE SHOWN, STRIPING SHALL CONFORM TO THE FOLLOWING:

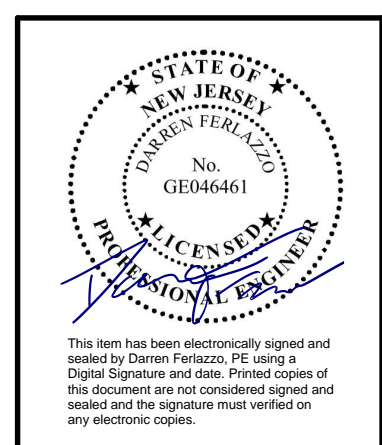
PAVEMENT STRIPING	MATERIAL	DESCRIPTION	LEGEND
STOP LINE	THERMOPLASTIC	24" WIDE WHITE	SL
CENTER LINE	THERMOPLASTIC	2-4" WIDE YELLOW SPACED 6" O.C.	CL
EDGE LINE	THERMOPLASTIC	4" WIDE WHITE	EL
LANE LINE	THERMOPLASTIC	4" WIDE WHITE LINES 10' LONG, SPACED 30'	LL
CROSSWALK LINE	THERMOPLASTIC	6" WIDE WHITE LINES SPACED 6' APART.	CWL

TO BE CONSTRUCTED

PAY ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY
60	TRAFFIC MARKINGS LINES, 4"	LF	370
61	TRAFFIC MARKINGS LINES, 6"	LF	162
62	TRAFFIC MARKINGS LINES, 8"	LF	200
63	TRAFFIC MARKINGS LINES, 24"	LF	36
64	TRAFFIC MARKINGS SYMBOLS	SF	192
65	RPM, MONO-DIRECTIONAL, WHITE LENS	UN	8
66	RPM, BI-DIRECTIONAL, AMBER LENS	UN	2
67	REGULATORY AND WARNING SIGN	SF	24

REFERENCES:

1. FOR STANDARD LEGEND AND ABBREVIATIONS, SEE DWG LEG-1.



REVISIONS		
NO.	DATE	BY

County of Middlesex
 Department of Transportation
 Office of Engineer
 75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

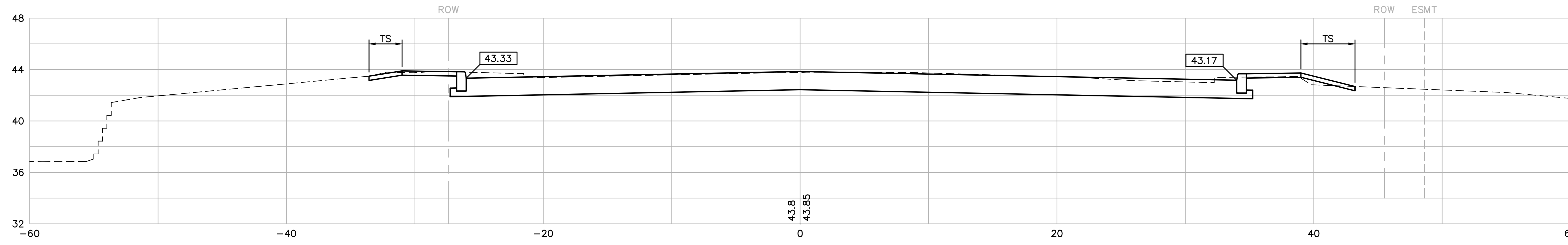
11/18/22
 Date
 Darren Ferlazzo
 Licensed Professional Engineer
 NJPE No. 24GE04646100

DESIGNED BY	DRAWN BY
RFS	FC
CHECKED BY	APPROVED BY
BPJ	PJC

SIGNING & STRIPING PLAN

Scale: AS SHOWN
 Sheet No: 14 of 32
 Date: November 2022

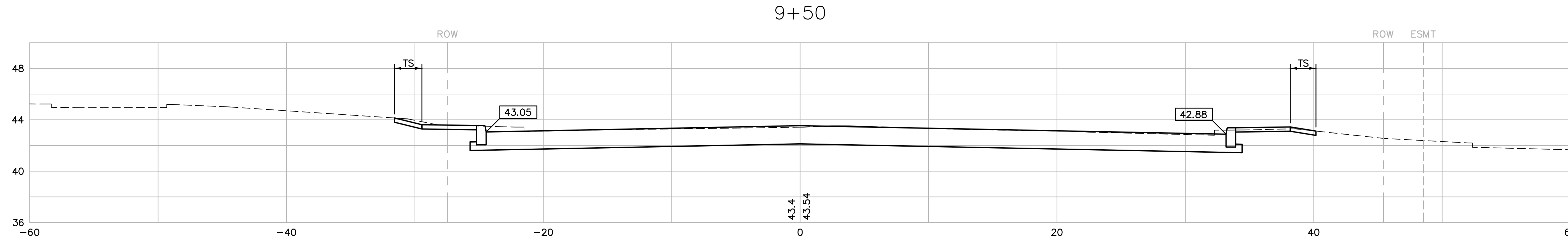
RONALD SENDNER
 County Engineer
 N.J.P.E. No. 24GE03162200



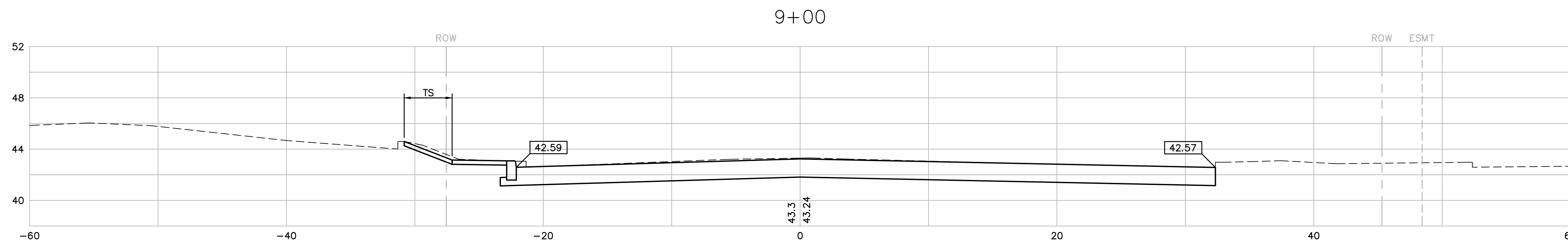
CUT= 91 SF
 FILL= 0 SF
 TS= 7 LF

EARTHWORK SUMMARY

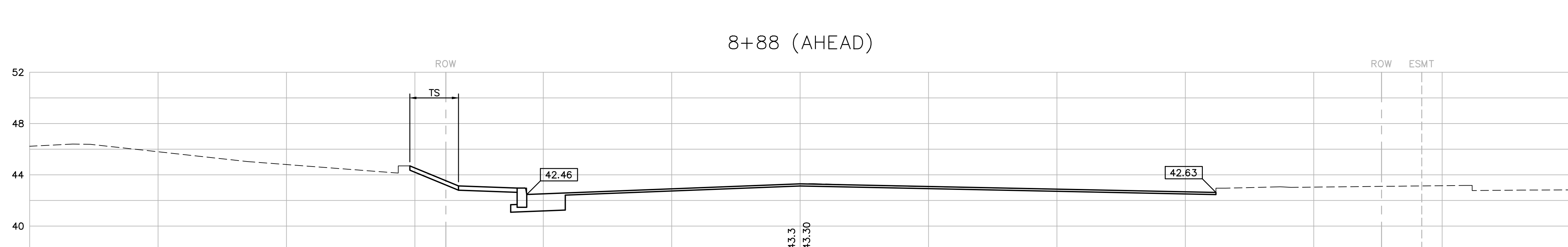
EXCAVATION		TOTAL
Roadway Excavation From Cross Sections	=	460 C.Y.
Roadway Excavation From Plan Sheets	= +	0 C.Y.
Roadway Excavation From Calculations	= +	0 C.Y.
Total Roadway Excavation	=	460 C.Y.
Total Roadway Excavation	=	460 C.Y.
Roadway Excavation Unsuitable for Embankment	= -	430 C.Y.
Subtotal	=	30 C.Y.
Total Excavation Available For Embankment (With 0.10 Shrinkage)	=	27 C.Y. x 0.90 =
EMBANKMENT		
Embankment From Cross Sections	=	0 C.Y.
Embankment From Plan Sheets	= +	0 C.Y.
Embankment From Calculations	= +	0 C.Y.
Total Embankment Required	=	0 C.Y.
Total Excavation Available For Embankment	= -	27 C.Y.
Total I-14 Soil Aggregate	=	0 C.Y.
TOPSOILING		
Topsoiling From Cross Sections	=	60 S.Y.
Topsoiling From Plan Sheets	= +	0 S.Y.
Topsoiling From Calculations	= +	0 S.Y.
Total Topsoiling, 4" Thick	=	60 S.Y.



CUT= 89 SF
 FILL= 0 SF
 TS= 4 LF



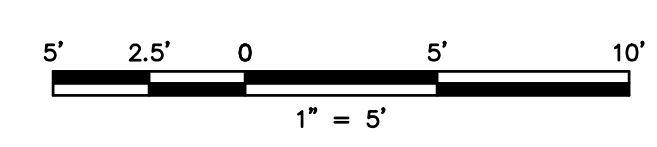
CUT= 87 SF
 FILL= 0 SF
 TS= 4 LF



CUT= 9 SF
 FILL= 0 SF
 TS= 4 LF

PROJECT No. MDSY-00440
 FILENAME C:\Projects\MDSY\09440\Plans\MDSY00440_SHT015_016_RD_XS.dwg
 TIME Nov 17, 2022 - 6:52pm

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NO.	DATE	BY
1	4-9-14	SGA

County of Middlesex
 Department of Transportation
 Office of Engineer
 75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

CROSS SECTIONS

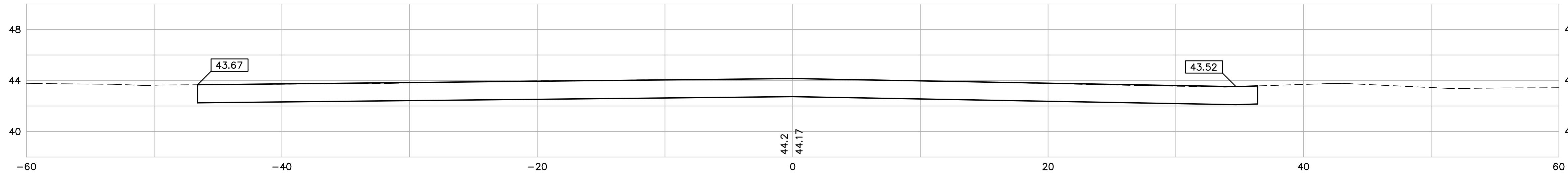
DESIGNED BY: Darren Ferlazzo DATE: 11/18/22
 DRAWN BY: RFS
 CHECKED BY: RFS
 APPROVED BY: RFS
 DATE: 11/18/22

Scale: 1" = 5'
 Sheet No: 15 of 32
 Date: November 2022

RONALD SENDNER
 County Engineer
 N.J.P.E. No. 24GE03162200

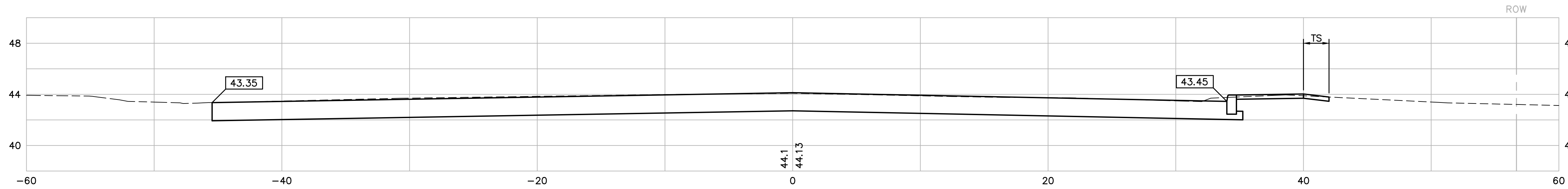
X-1
 X-2

10+61 (BACK) (SKEW)



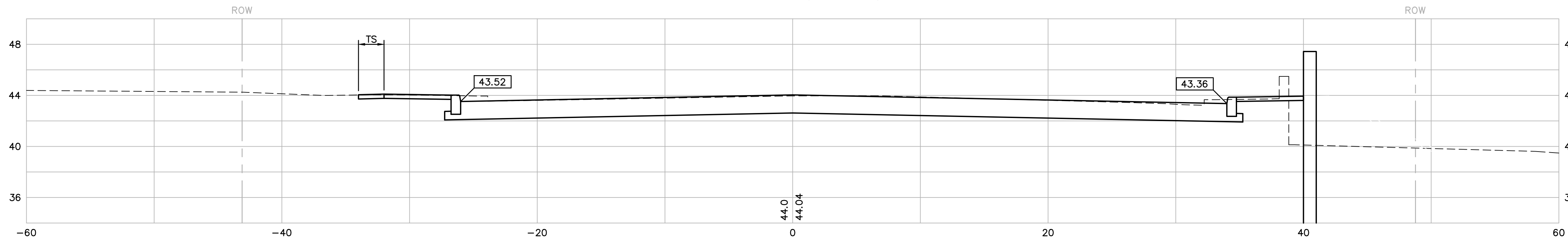
CUT= 113 SF
FILL= 0 SF
TS= 0 LF

10+50



CUT= 114 SF
FILL= 0 SF
TS= 2 LF

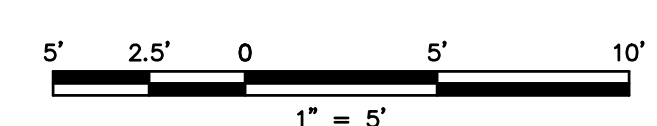
10+18.89 (AHEAD)



CUT= 91 SF
FILL= 0 SF
TS= 2 LF

PROJECT No. MPSX-00440
FILENAME C:\Projects\MPSX\00440\Plans\MPSX00440_SHT015_016_RD_XS.dwg
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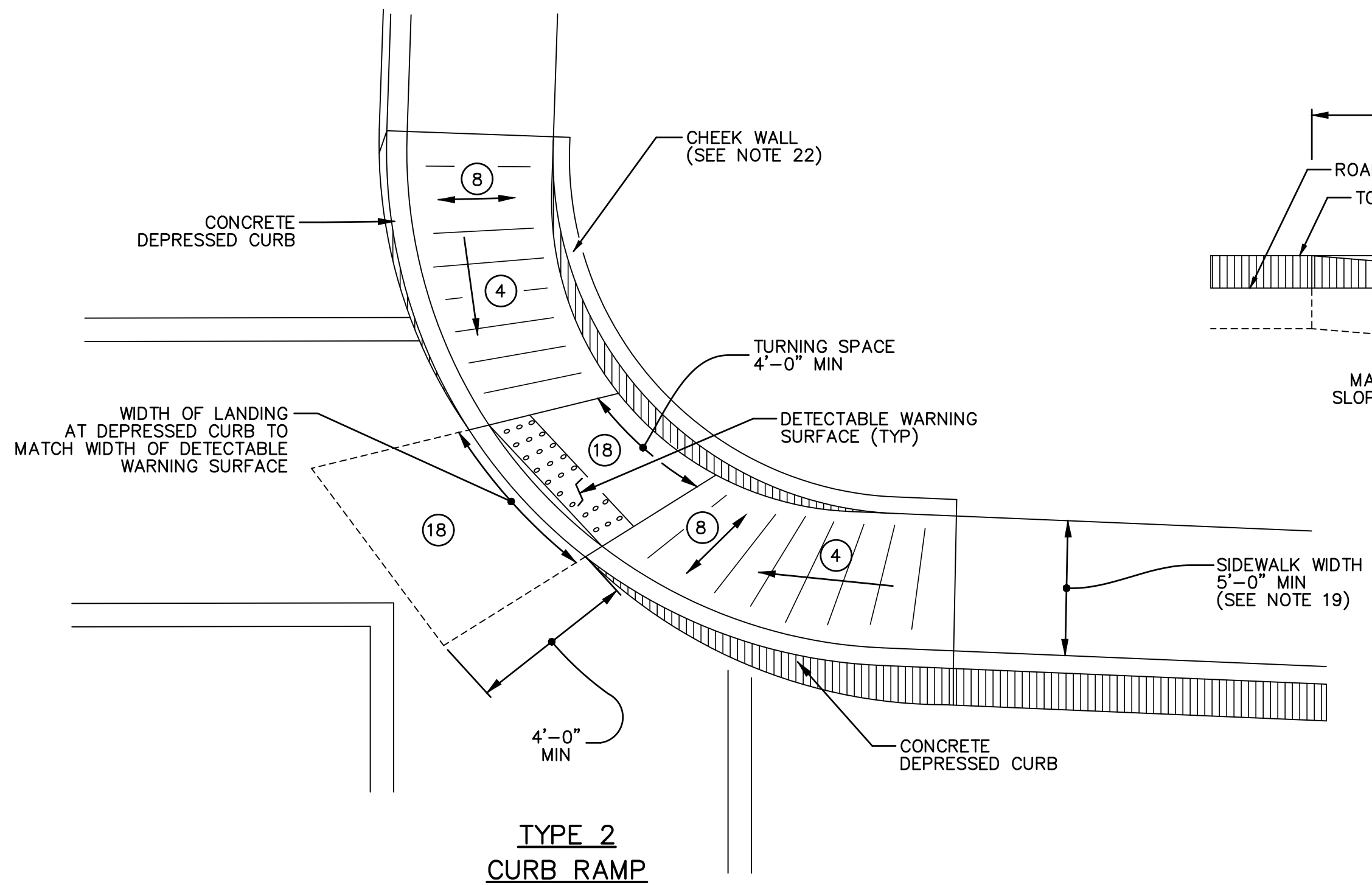


X-2
X-2

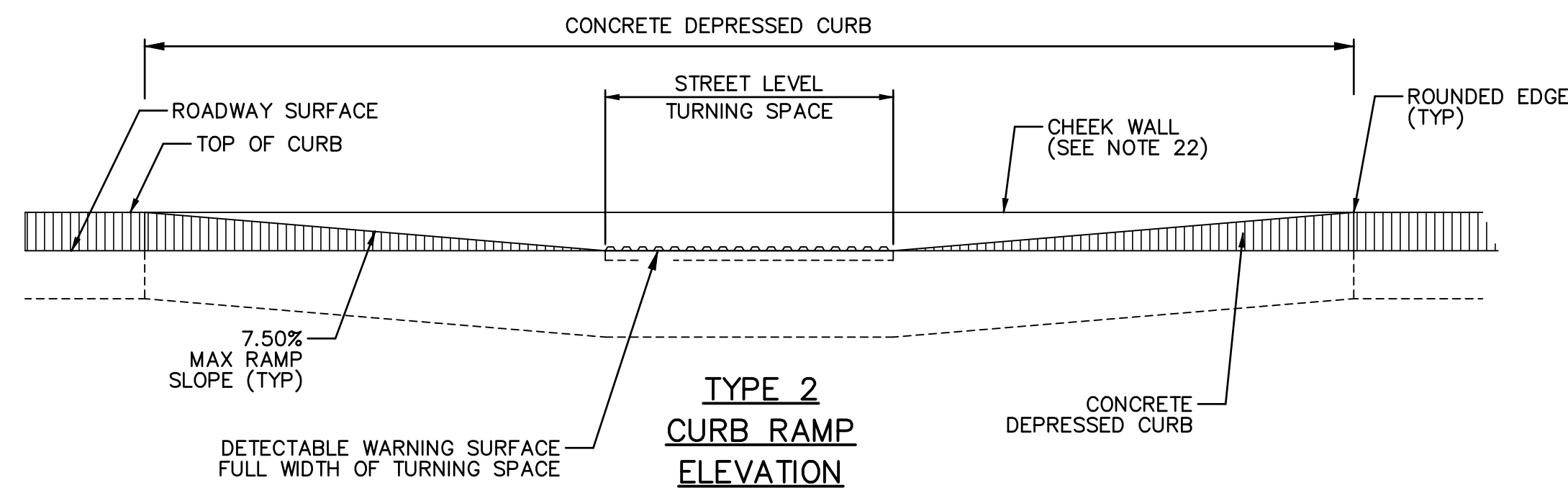
		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY	DRAWN BY	Scale: 1" = 5' Sheet No: 16 of 32 Date: November 2022	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200
		RFS	RFS		
		CHECKED BY	APPROVED BY		
		BPK	PJC		

NOTES:

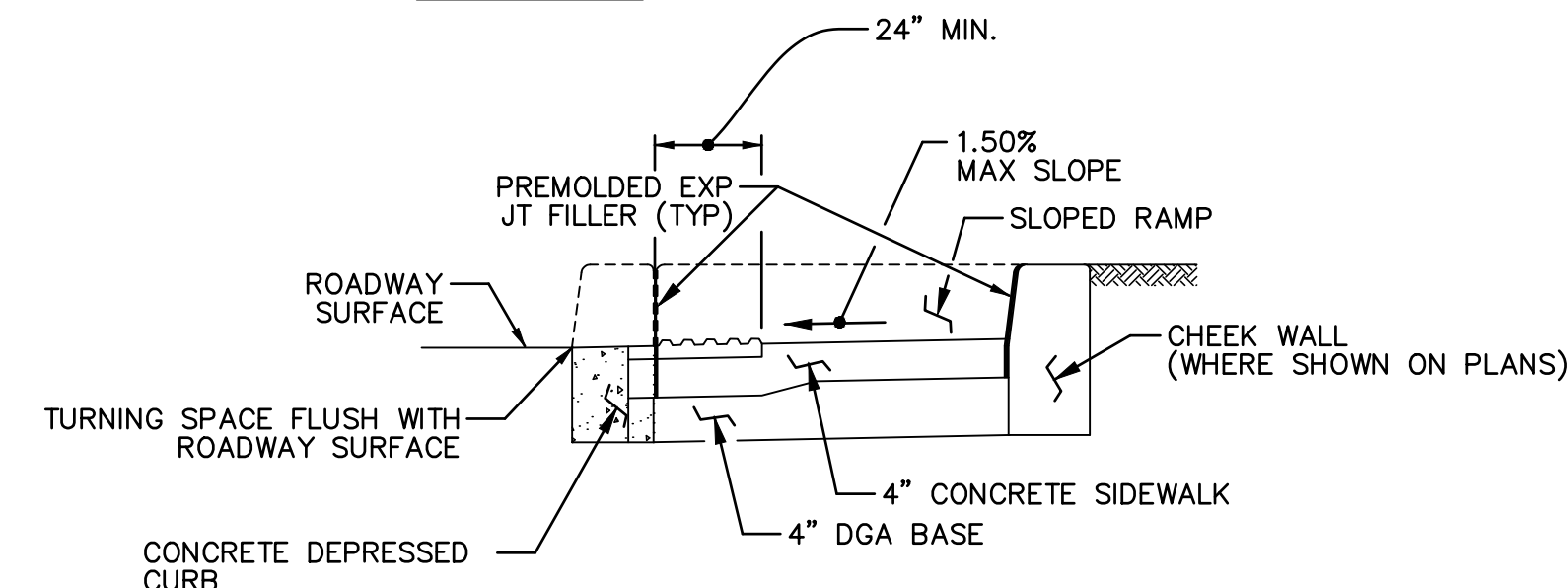
1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF THE 2007 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS MODIFIED BY THE SUPPLEMENTAL SPECIFICATIONS. CONSTRUCT ALL PROPOSED PEDESTRIAN FACILITIES TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) AND 2010 ADA STANDARDS WITH CURRENT REVISIONS.
2. PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE. CONSTRUCT THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
3. CONSTRUCT CURB RAMP WITH A MINIMUM 4'-0" X 4'-0" CLEAR SPACE BEYOND THE CURB FACE, WITHIN THE WIDTH OF THE CROSSWALK, AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.
4. SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
5. PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING FLARED SIDE RAMP.
6. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB HEIGHTS WHERE THE CURB IS LESS OR GREATER THAN THE TYPICAL HEIGHT.
7. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
8. TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB, RAMP LENGTH NOT TO EXCEED 15'-0". ADJUST RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE.
9. A "NON-WALK AREA" IS AN OBSTRUCTED OR GRASS/NON-PAVED AREA ADJACENT TO THE PEDESTRIAN ACCESS ROUTE THAT IS NOT USED BY THE PEDESTRIAN FOR ACCESS.
10. ALL DIMENSIONS ARE IN U.S. CUSTOMARY UNITS.
11. ALIGN DETECTABLE WARNING SURFACE TRUNCATED DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO THE CURB.
12. PROVIDE DETECTABLE WARNING SURFACES (DWS) 24" MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
13. FOR NEW CONSTRUCTION, DO NOT EXCEED 1.5% CROSS SLOPE ON THE CURB RAMP OR PEDESTRIAN ACCESSIBLE ROUTE.
14. FOR NEW CONSTRUCTION AND ALTERATIONS, THE SLOPES INDICATED IN THE DETAILS SHOW THE MAX SLOPE ALLOWABLE. SLOPES THAT EXCEED THOSE INDICATED IN THE DETAILS, OR CONTRACT DOCUMENTS AS APPLICABLE, WILL NOT BE ACCEPTED AND WILL BE RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE.
15. CONSTRUCT SIDEWALKS AT A LONGITUDINAL SLOPE NOT TO EXCEED 5.00%. FOR ROADWAY PROFILE SLOPES THAT EXCEED 5.00%, CONSTRUCT PARALLEL SIDEWALKS ADJACENT TO ROADWAY AT A LONGITUDINAL SLOPE NOT TO EXCEED ROADWAY PROFILE SLOPE.
16. THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJOINING ROAD SURFACE IS NOT TO EXCEED AN ALGEBRAIC DIFFERENCE OF 11.00%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP, LANDING OR BLENDED TRANSITION IS NOT TO EXCEED 5.00%.
17. THE CONSTRUCTION STANDARDS DEPICTED ARE MOST APPROPRIATE FOR NEW CONSTRUCTION. ALL CONSTRUCTION MUST MEET THE STANDARDS CONTAINED HEREIN UNLESS OTHERWISE NOTED OR DIRECTED.
18. ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF RAMP IS NOT SOLELY DEPENDANT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 6" CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 6'-0" FOR A 12:1 (1:12) SLOPE).
19. SIDEWALK WIDTH MAY BE REDUCED TO 4'-0", WHEN PASSING AREAS 5'-0" X 5'-0" ARE PROVIDED EVERY 200'.
20. THE TRAVEL LANE IS DEFINED BY THE OUTSIDE EDGE OF THE WHITE PAVEMENT MARKING LINE. IF A WHITE PAVEMENT MARKING LINE DOES NOT EXIST, THE TRAVEL LANE IS DEFINED BY THE CONTRACT DOCUMENTS.
21. CONSTRUCT DEPRESSED CURB FOR CURB RAMPS FLUSH TO ADJACENT ROADWAY. GRADE EDGE OF ROAD ELEVATIONS AT THE FLOW LINE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING. FOR LEVEL TURNING SPACE BEHIND DEPRESSED CURB, ADJUST SLOPES TO PROVIDE POSITIVE DRAINAGE.
22. CHEEK WALLS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES CANNOT BE ACCOMMODATED BY FLARES OR GRADING. GRADE GRASS AREAS OR OTHER NON-WALK AREAS AT 3:1 (1:3) MAXIMUM. DO NOT INSTALL CHEEK WALLS THAT INTERSECT THE PEDESTRIAN ACCESS ROUTE.
23. CONSTRUCT TOP OF CONCRETE DEPRESSED CURB TO BE FLUSH WITH ADJACENT SURFACES (RAMPS, SIDEWALKS, FLARES).
24. FOR CURB RAMPS THAT LEAD TO A SINGLE CROSSWALK, THE RAMP (EXCLUDING FLARES) TO BE FULLY INSIDE OF MARKED CROSSWALK LINES.
25. A 4'-0" MAXIMUM DIGITAL DISPLAY LEVEL WILL BE USED TO VERIFY THE SLOPES OF CURB RAMPS AND SIDEWALKS.
26. A MINIMUM TURNING SPACE AREA OF 4' X 4' (48" X48") MUST BE PROVIDED WHERE PEDESTRIANS PERFORM TURNING MANEUVERS OR REQUIRE RESTING AREAS. WHEN THE TURNING SPACE IS CONFINED BY WALLS, CURBS OR OTHER OBSTRUCTIONS, THE LANDING MUST BE 5' X 5' (60" X60"). A MINIMUM TURNING SPACE AREA OF 4' X 5' IS REQUIRED WHEN DESIGN OR CONSTRUCTING TYPE 2 AND 6 CURB RAMPS.
27. ONCE THE CURB RAMPS ARE CONSTRUCTED THE CONTRACTOR WILL SUBMIT A SIGNED AND SEALED AS-BUILT CERTIFICATION BY A LICENSED ENGINEER IN THE STATE OF NEW JERSEY TO THE RESIDENT ENGINEER FOR REVIEW AND ACCEPTANCE.
28. IF A CURB RAMP OR OTHER ADA ACCESSIBILITY FEATURE CANNOT BE DESIGNED OR CONSTRUCTED TO THE APPROPRIATE STANDARDS, THEN A TECHNICALLY INFEASIBLE FORM MUST BE PREPARED BY THE CONTRACTOR DESCRIBING THE EXISTING SITE CONSTRAINTS, DESIGN ALTERNATIVES EVALUATED AND THE DESIGN ALTERNATIVE SELECTED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE. THE FORM MUST BE REVIEWED, APPROVED BY THE RESIDENT ENGINEER AND PLACED IN THE PROJECT DESIGN DOCUMENT FILE.
29. IN THE EVENT THAT THERE ARE ANY DISCREPANCIES FOUND BETWEEN THE PROPOSED SLOPES, DISTANCES, ELEVATIONS AND SITE CONSTRAINTS, THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. ANY MODIFICATIONS NECESSARY TO ENSURE A COMPLIANT RAMP WILL BE CONSTRUCTED AT NO ADDITIONAL COST TO THE COUNTY.
30. ALL COSTS FOR SAW-CUTTING OF DETECTABLE WARNING SURFACE, SIDEWALK, CURB, AN ASPHALT ETC. SHALL BE INCLUDED IN THE RESPECTIVE BID ITEMS WITHIN THE CONTRACT DOCUMENTS. NO SEPARATE PAYMENT SHALL BE MADE FOR SAW-CUTTING.



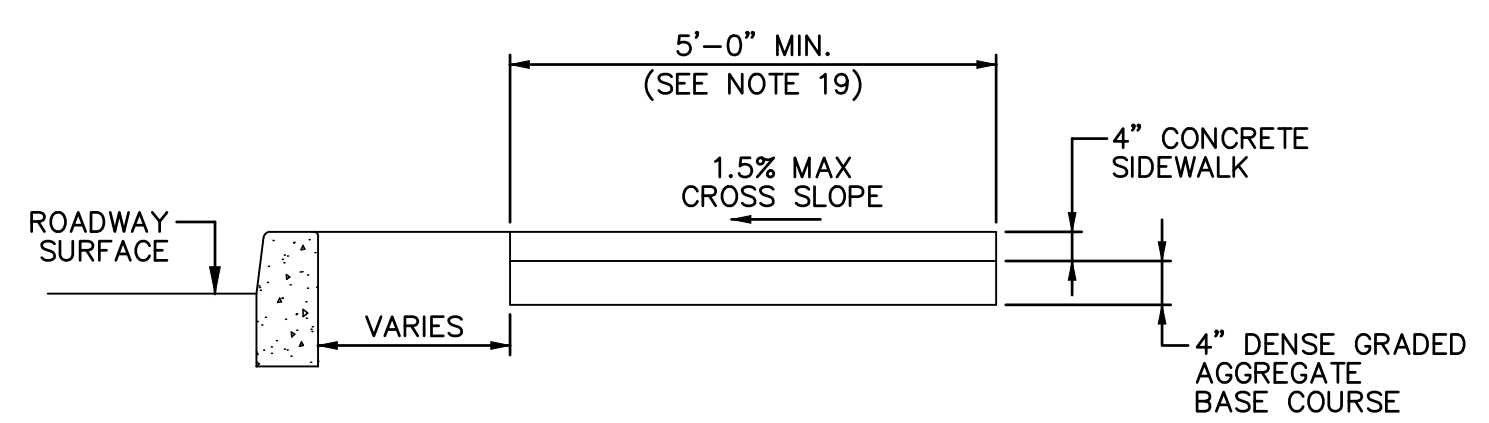
TYPE 2 CURB RAMP



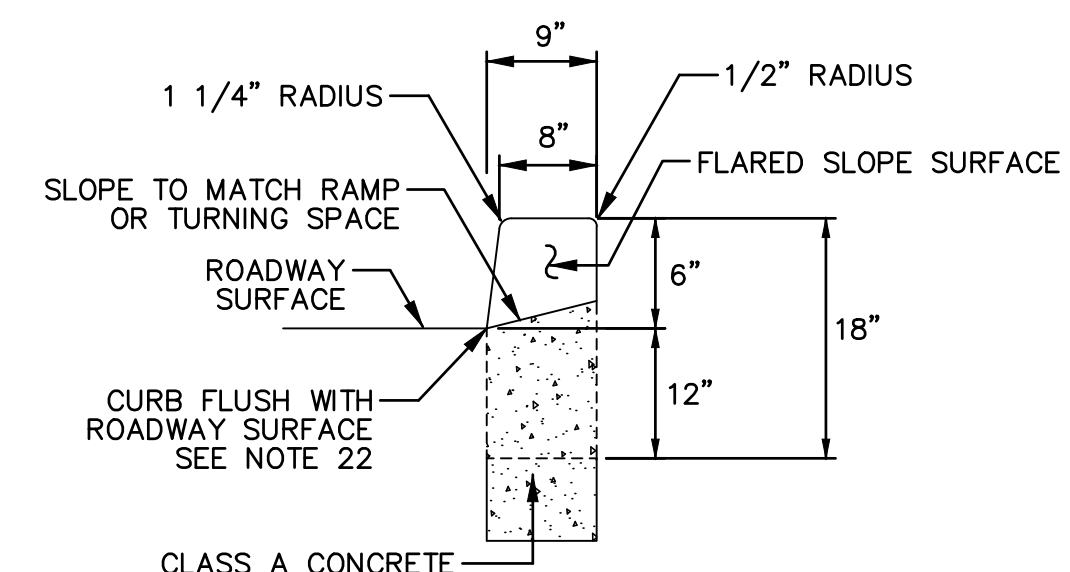
TYPE 2 CURB RAMP ELEVATION



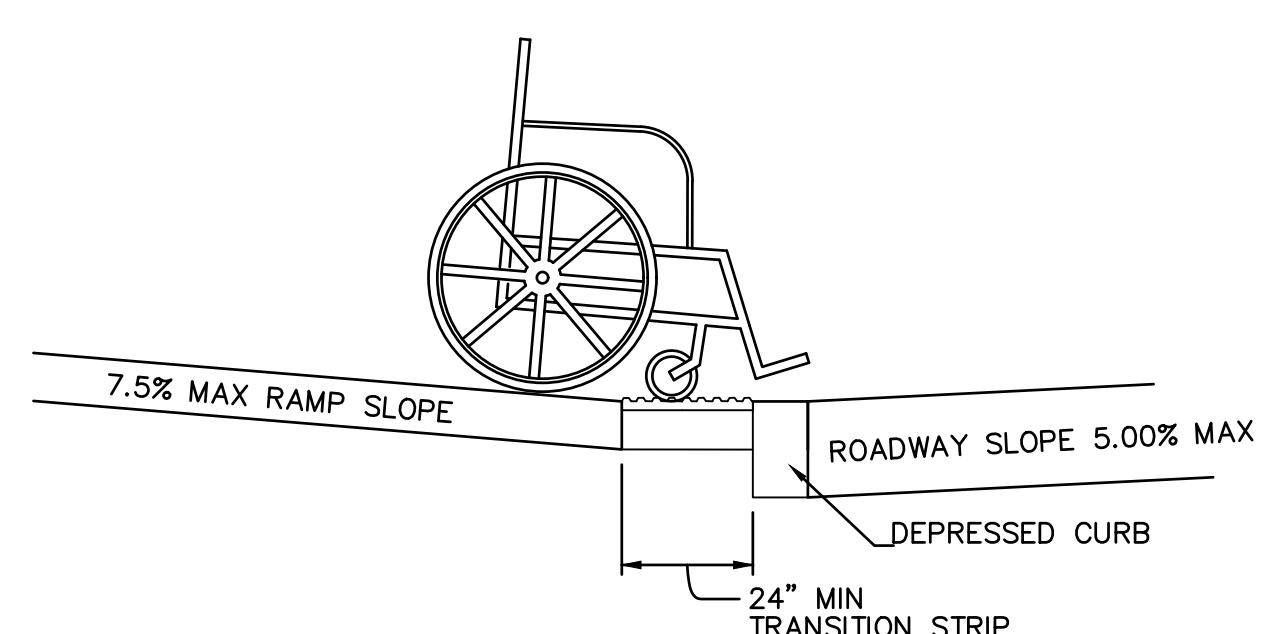
TYPE 2 CURB RAMP SECTION



SIDEWALK TYPICAL SECTION



DEPRESSED CURB FOR CURB RAMPS

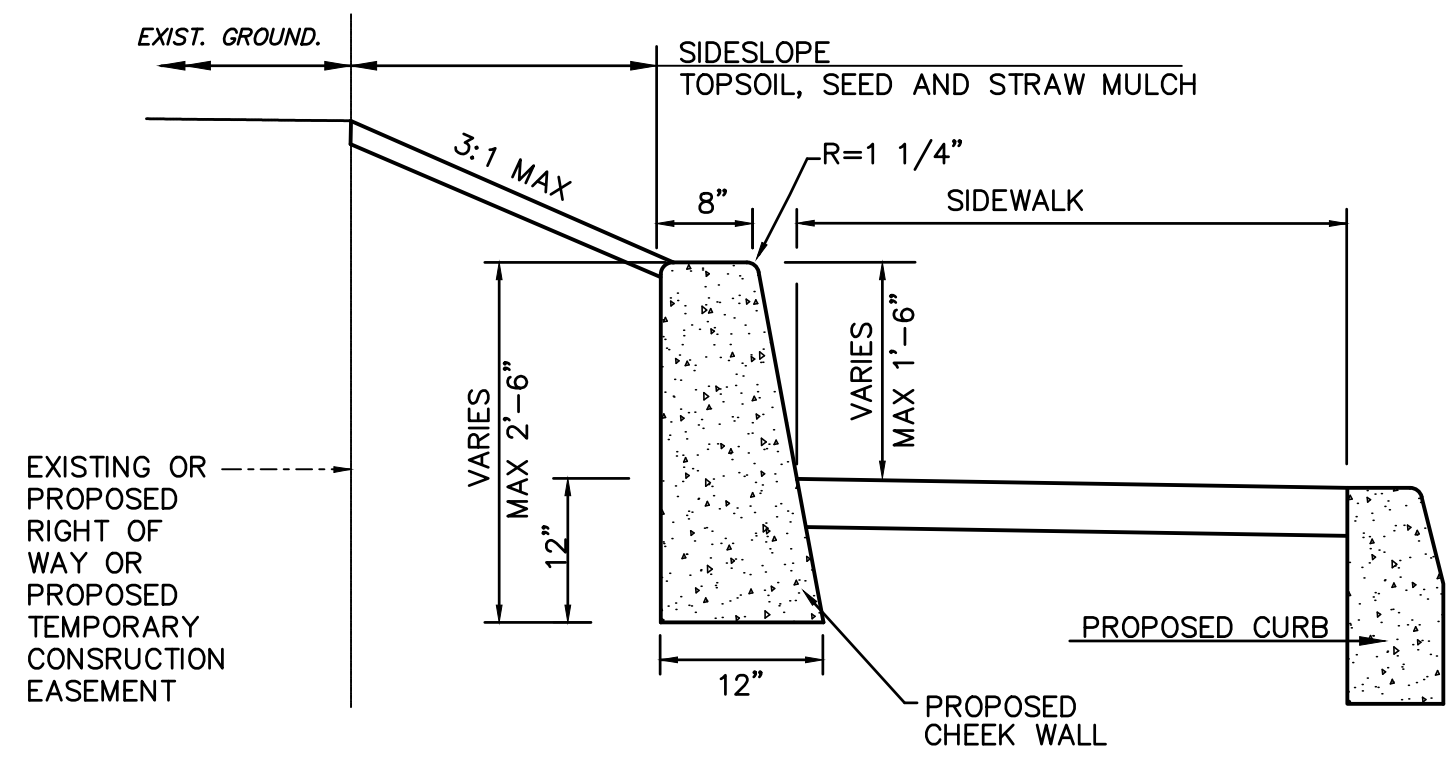


ALGEBRAIC DIFFERENCES BETWEEN ROADWAY SLOPE AND CURB RAMP SLOPE GREATER THAN 11.00% NOT PERMITTED.
 PROVIDE A 24" MIN TRANSITION STRIP IF ALGEBRAIC DIFFERENCES BETWEEN ROADWAY SLOPE AND CURB RAMP SLOPE ARE GREATER THAN 11.00%.
 TRANSITION STRIP SLOPE NOT TO EXCEED 1.5%
CHANGE OF GRADE LIMITATIONS

PERCENT SLOPE	EQUIVALENT SLOPE
10.00%	10:1 (1:10)
8.33%	12:1 (1:12)
7.14%	14:1 (1:14)
5.00%	20:1 (1:20)
2.00%	50:1 (1:50)
1.00%	100:1 (1:100)

EQUIVALENT SLOPES

- ④ 7.5% MAX RAMP SLOPE
- ⑧ SLOPE: ZERO ±1.5%
- ⑱ CURB RAMPS REQUIRE A 4'-0" (5'-0" IN LENGTH WITH CHEEK WALLS OR OBSTRUCTIONS) MINIMUM TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 1.5% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.



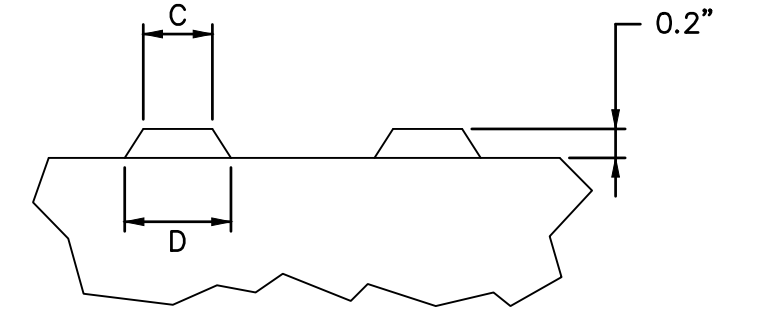
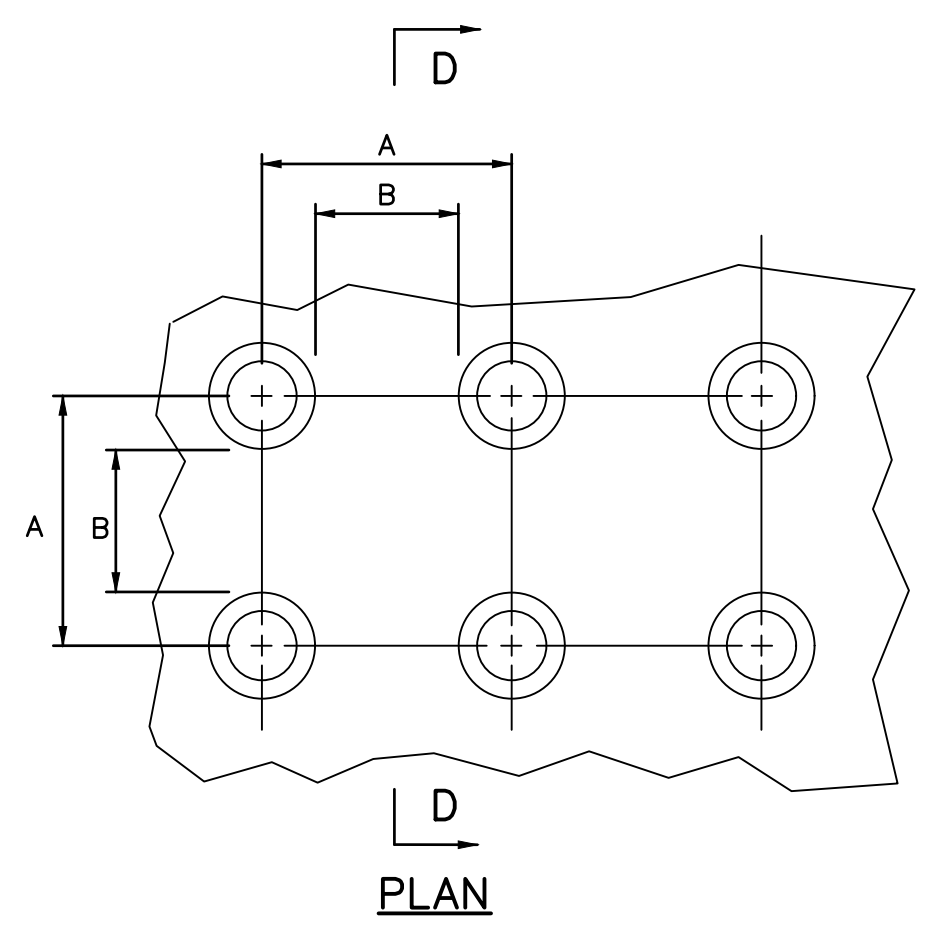
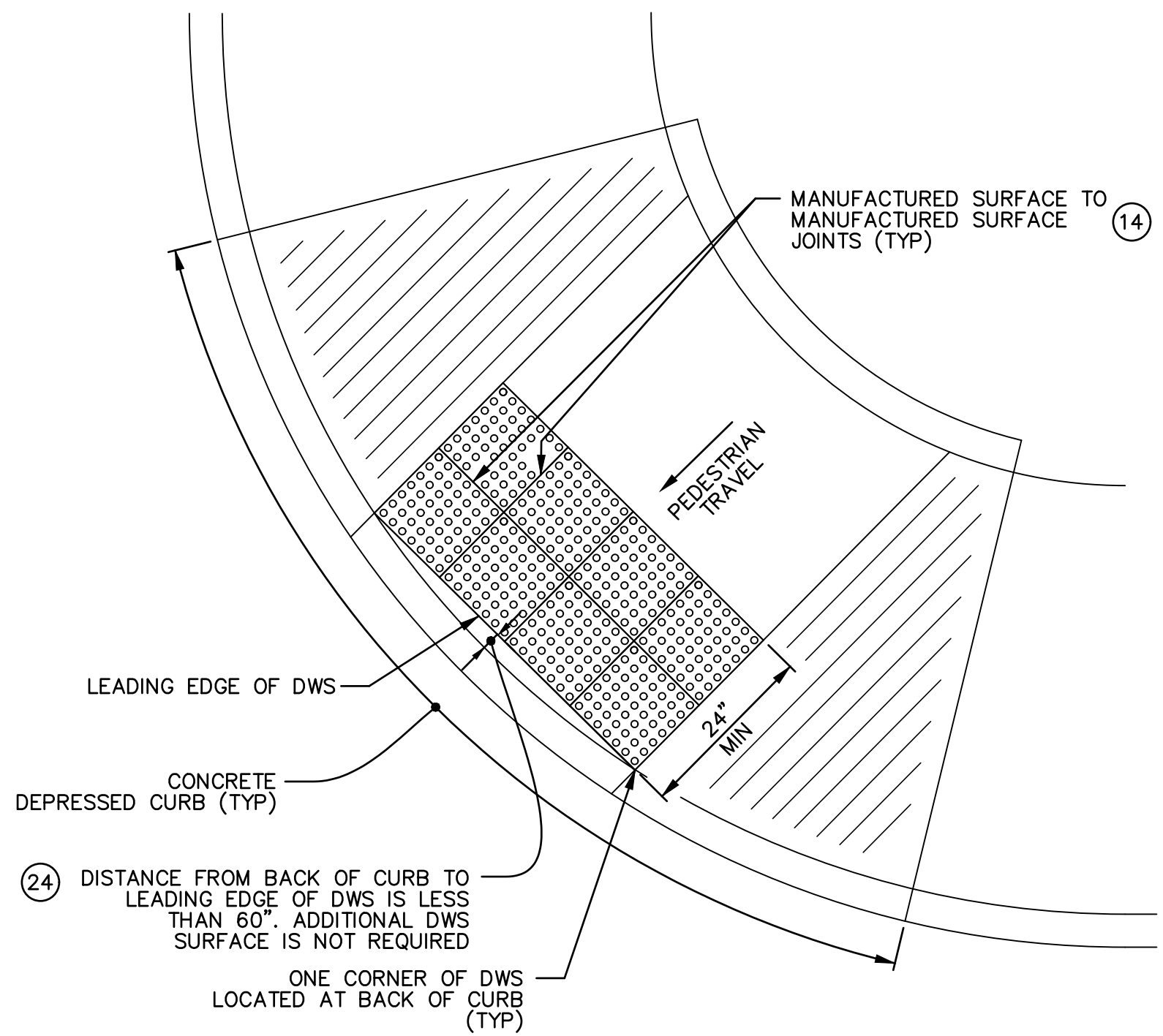
CHEEK WALL

- GENERAL NOTES:
1. CONCRETE TO BE N.J.D.T. CLASS "B"
 2. PROVIDE PREFORMED BITUMINOUS FIBER EXPANSION JOINTS 1/2" THICK @ 20'-0" (MAX.) INTERVALS, MATCH JOINTS IN ADJACENT WALK.
 3. ALL SURFACES TO BE RUBBED AND FLOATED.
 4. ALL EXPOSED SURFACES TO HAVE 1" RADIUS.

PROJECT No. MFSX-00440
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 TIME Nov 17, 2022 - 6:53pm
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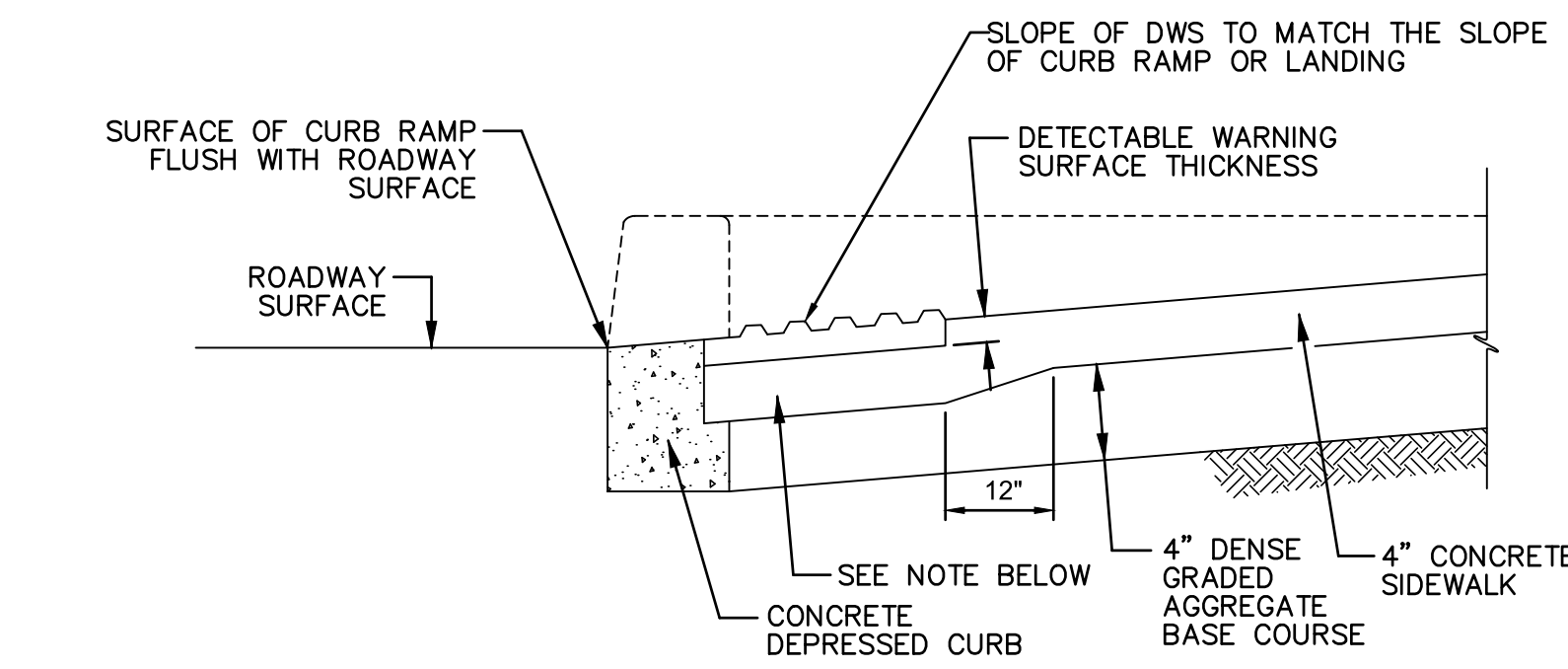
		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER
		DESIGNED BY AJL	DRAWN BY FC	CHECKED BY RFS	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE0464100		Scale: NONE Sheet No: 17 of 32 Date: November 2022		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200	

CD-1
CD-2



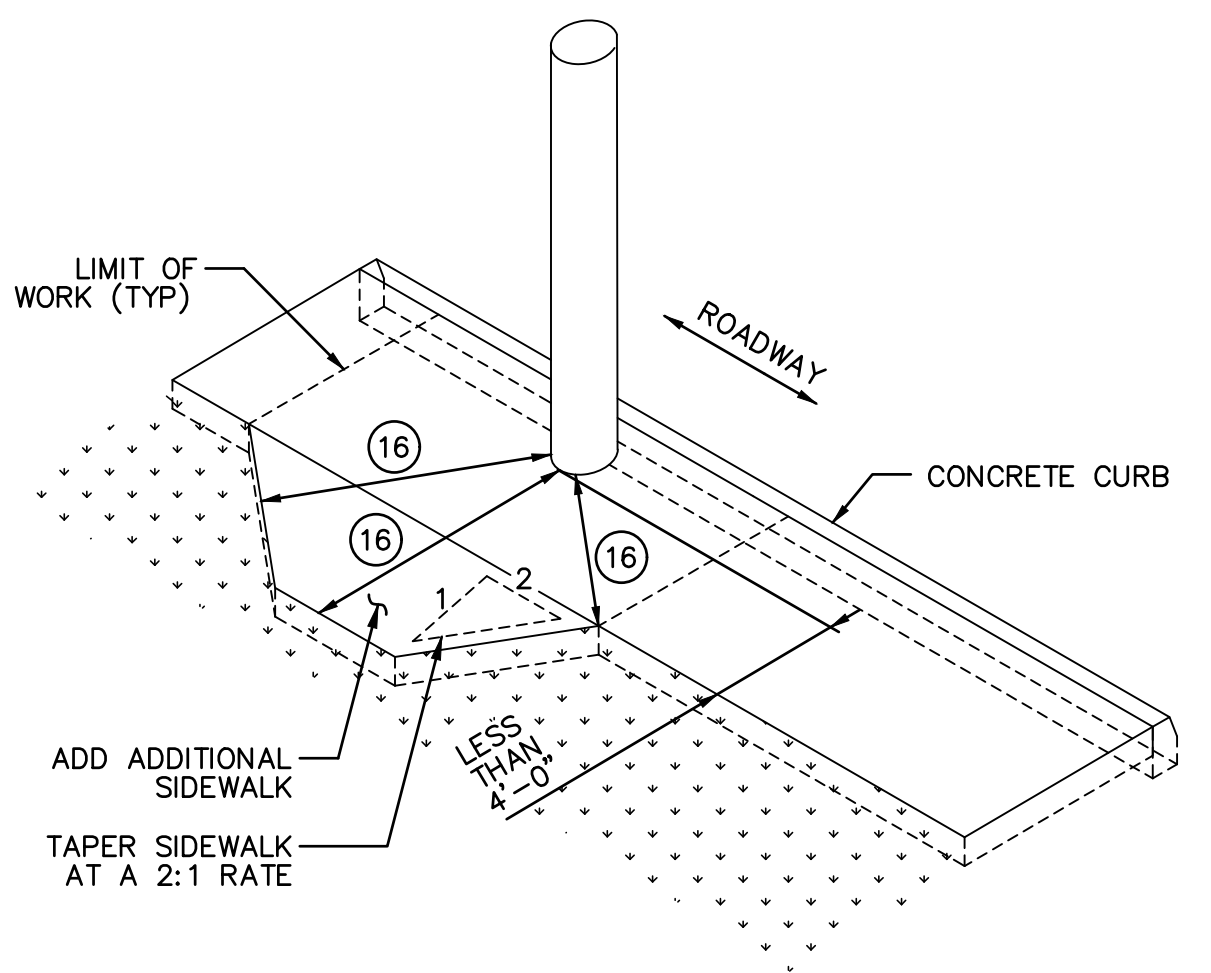
SECTION D-D

TRUNCATED DOME DIMENSIONS		
DIM	MIN inch	MAX inch
A	1.6"	2.4"
B	0.65"	1.5"
C	(13)	(13)
D	0.9"	1.4"



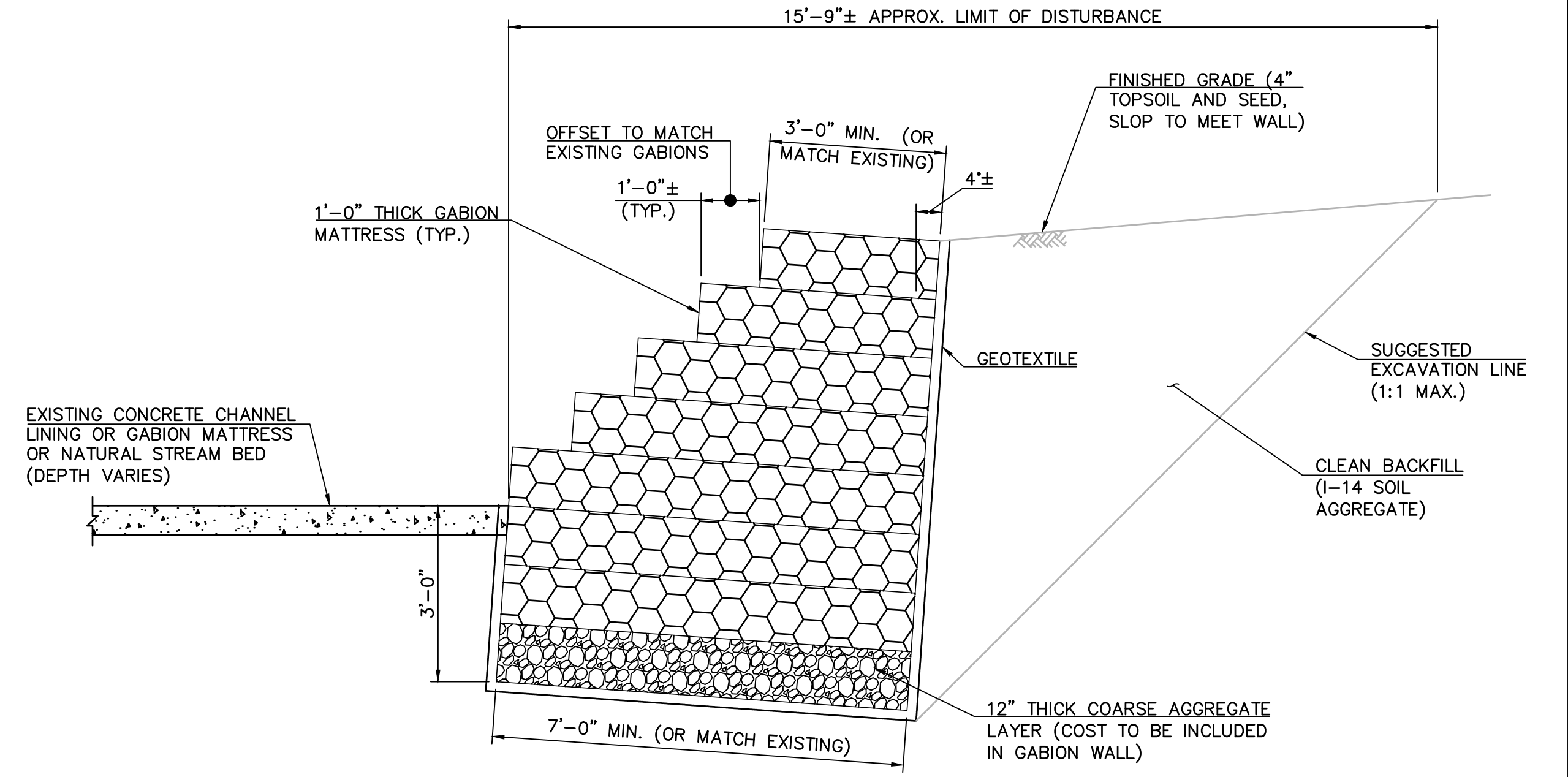
DETECTABLE WARNING SURFACE EMBEDDING DETAIL

DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAILS

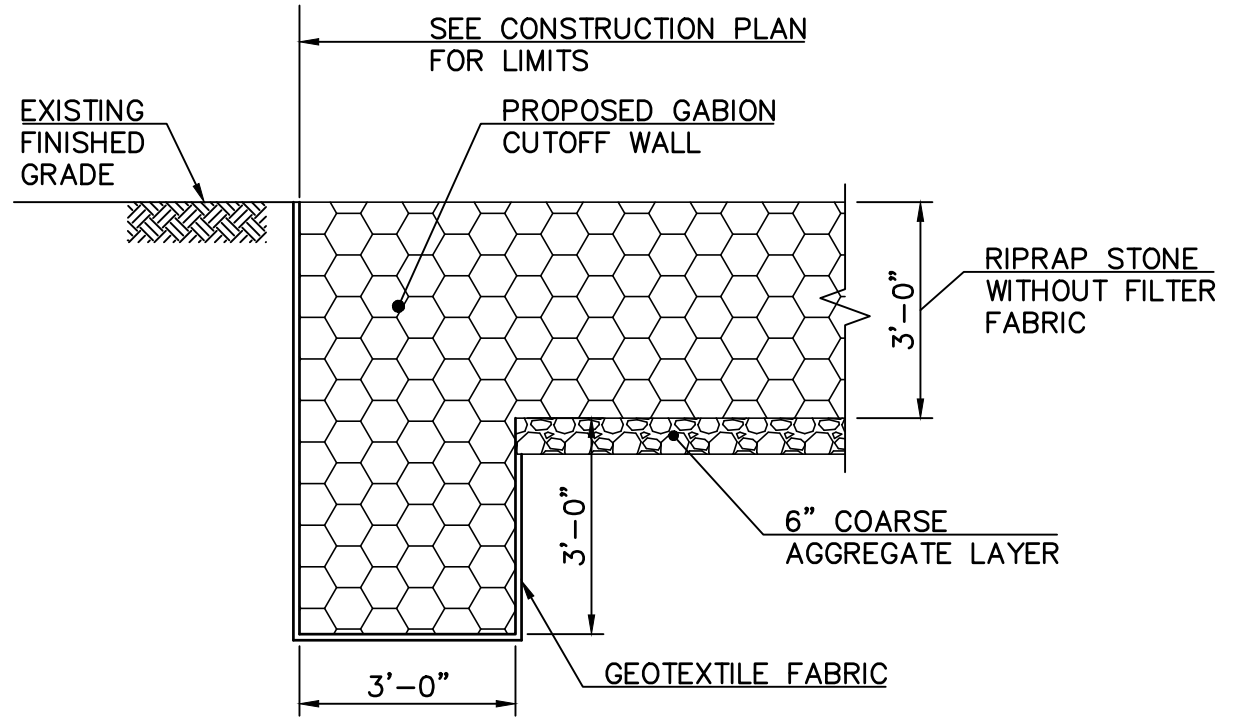


SIDEWALK ADDITION DUE TO OBSTRUCTIONS

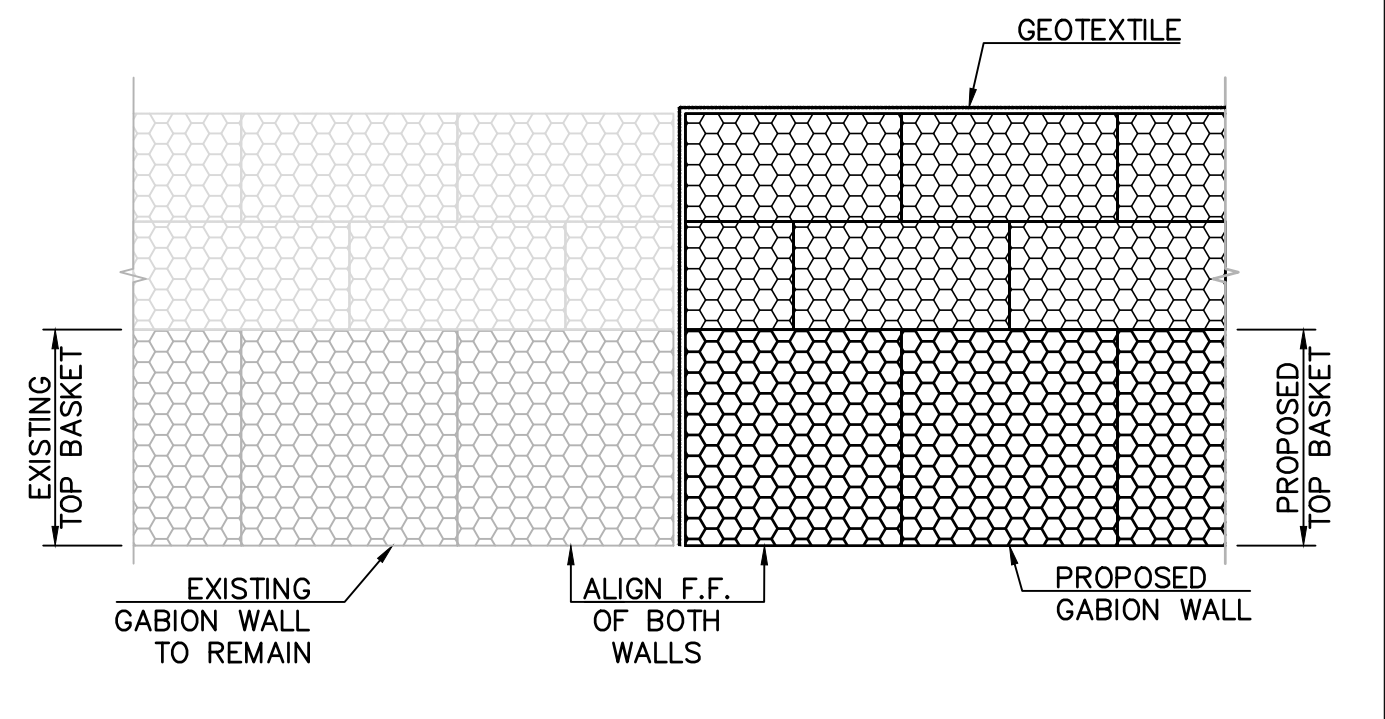
- 13 THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.
- 14 PLACE ADJACENT DWS TILES WITH MANUFACTURED SURFACE TO MANUFACTURED SURFACE. CUT TILES ALONG THE PERIMETER ONLY.
- 16 4'-0" MIN ACCESSIBLE PATH WIDTH
- 24 LOCATE ONE CORNER OF THE DWS AT THE BACK OF CURB. NO OTHER POINT ON THE LEADING EDGE OF THE DWS MAY BE MORE THAN 60" AWAY FROM THE BACK OF CURB.



GABION WALL DETAIL
SCALE: 1/2" = 1'-0"



TYPICAL GABION CUTOFF DETAIL
N.T.S.



GABION WALL TO GABION WALL CONNECTION DETAIL (PLAN VIEW)
N.T.S.

GABION WALL NOTES:

1. GABION BASKETS/ MATTERESS WIRE MESH SHALL BE GALVANIZED STEEL AND PVC COATED UNITS (SIZE AS INDICATED ON THE SECTIONS) MANUFACTURED BY MACCAFERRI, INC., WILLIAMSPORT, MD, OR APPROVED EQUAL.
2. ALL GABION BASKETS SHALL HAVE D50 = 4" TO 7" STONES FILLED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS. ALL STONES SHALL BE ANGULAR IN SHAPE AND CONFIGURATION. ALL STONES SHALL BE HAND STACKED IN THE BASKETS TO PROVE TIGHT SECURE FIT IN THE BASKET. DUMPING OF STONES IN THE BASKETS SHALL NOT BE PERMITTED.
4. THE WIRE MESH SHALL BE GALVANIZED STEEL WIRE NO. 12 GAUGE WIRE CORE FOR HEIGHTS 12" OR OVER. THE MAXIMUM LINEAR DIMENSION OF THE MESH OPENING SHALL NOT EXCEED 4 1/2" AND THE MESH OPENING AREA SHALL NOT EXCEED 8 SQUARE INCHES.
5. GEOTEXTILE USED SHALL BE MACCAFERRI MACTEX GEOTEXTILE MANUFACTURED BY MACCAFERRI, INC., WILLIAMSPORT, MD, OR APPROVED EQUAL. THERE SHALL BE NO SEPARATE PAYMENT FOR GEOTEXTILE. THE COST SHALL BE INCLUDED IN THE PAY ITEM FOR GABION WALLS.
6. THE COST OF EXCAVATION AND REMOVAL OF SOIL AND/OR OBSTRUCTIONS REQUIRED TO CONSTRUCT ANY OF THE GABION PROTECTION SHALL BE INCLUDED IN THE VARIOUS GABION PROTECTION PAY ITEMS IN THE PROPOSAL AND WILL NOT BE MEASURED FOR PAYMENT.
7. THE COST OF GABION CUTOFF WALL SHALL BE INCLUDED IN THE PAY ITEM FOR GABION WALLS.

PROJECT No. MDSX-00440
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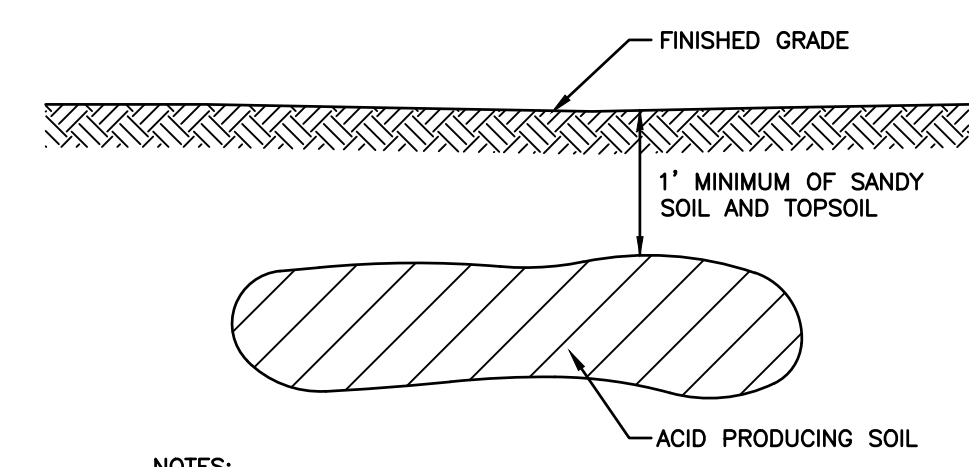
		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER CONSTRUCTION DETAILS
		NO.	DATE	BY	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE0464100		Scale: NONE Sheet No: 18 of 32 Date: November 2022			RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200

CD-2
CD-2

SOIL EROSION AND SEDIMENT CONTROL NOTES

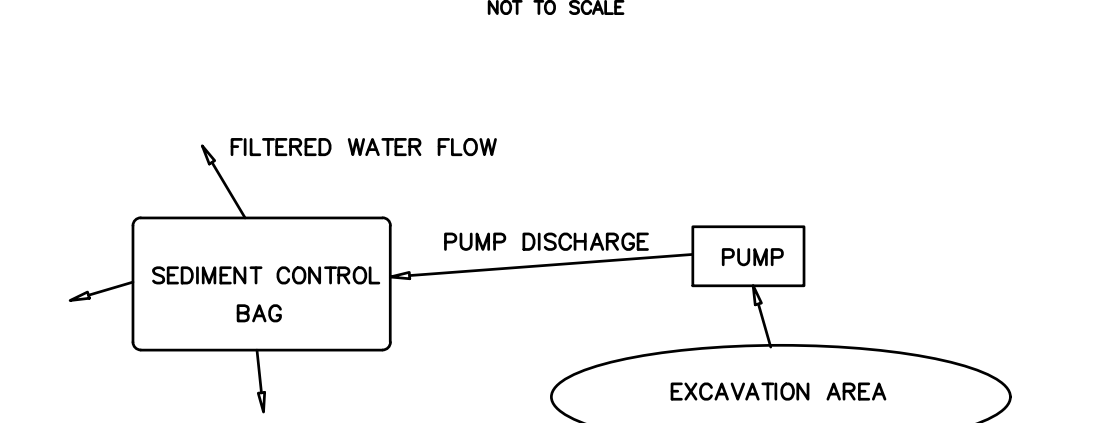
- THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
- N.J.S.A. 4:24-39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT-BY-LOT OR SECTION-BY-SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING, IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 1/2 TONS PER ACRE, ACCORDING TO STATE STANDARD FOR STABILIZATION WITH MULCH ONLY.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
- THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF ONE INCH TO TWO INCH (1" - 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
- PERMANENT VEGETATION IS TO BE SEEDING OR SODDING ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
- AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
- IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE, (OR 450 LBS/SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24" WHERE TREES OR SHRUBS ARE TO BE PLANTED.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
- SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
- STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
- ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
- THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

(Revised March 2014)
 FREEHOLD SOIL CONSERVATION DISTRICT
 4000 KOZLOSKI ROAD - PO BOX 5033
 FREEHOLD, NJ 07728-5033
 TEL. (732) 683-8500
 FAX. (732) 683-9140
 INFO@FREEHOLDSCD.ORG



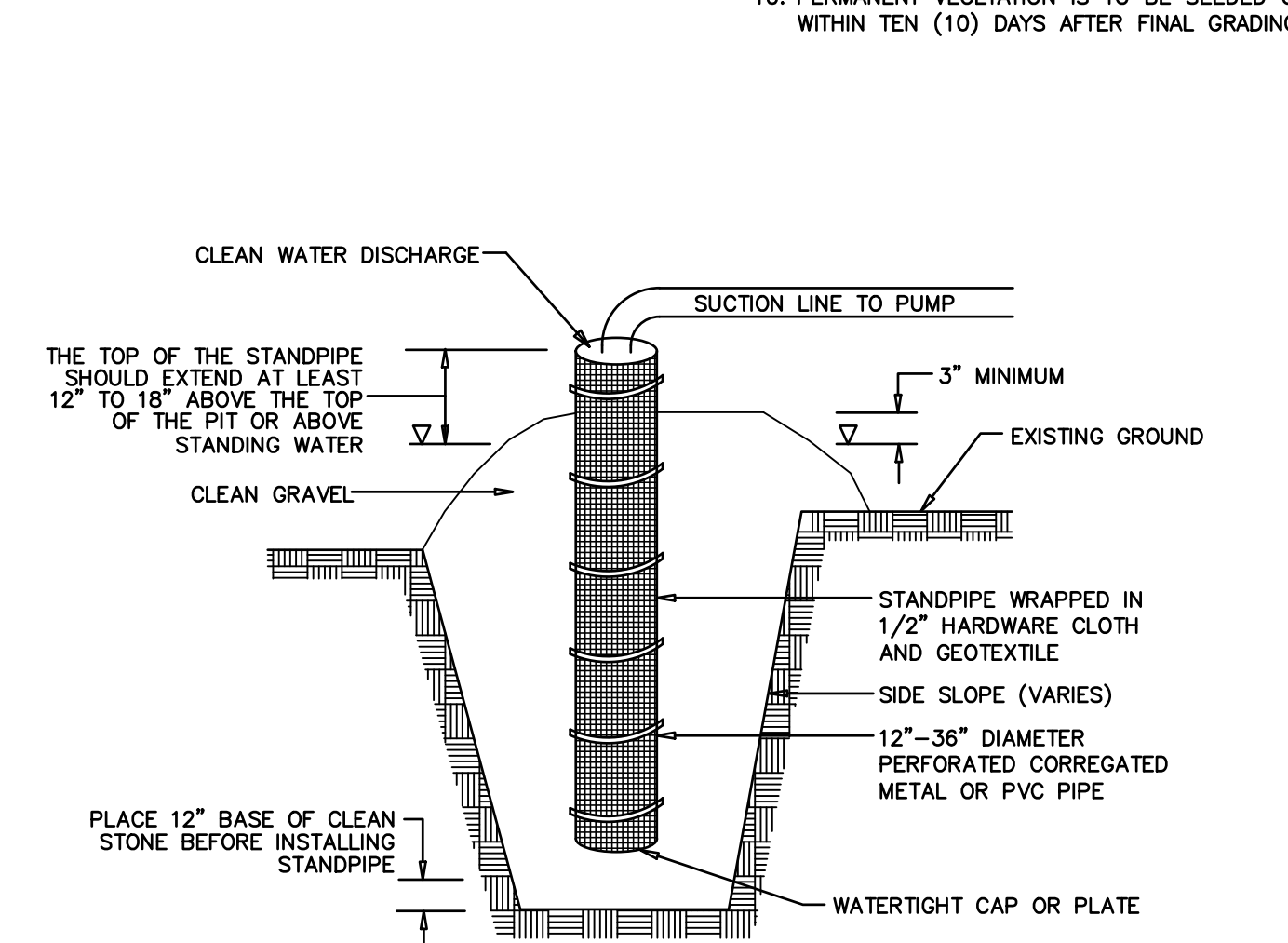
- NOTES:
- ACID PRODUCING SOILS ARE DEFINED AS SOILS CONTAINING IRON SULFIDE MATERIALS OR WITH A PH OF 4.0 OR LESS.
 - IRON SULFIDE MINERALS WILL PRODUCE SULFURIC ACID WHEN EXPOSED TO AIR OR SURFACE WATERS.
 - SOIL USED TO COVER ACID PRODUCING SOILS SHALL HAVE A PH OF 5.0 OR MORE.

BURIAL OF ACID PRODUCING SOILS



- NOTES:
- BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS AND/OR CONSTRUCTION ACTIVITIES.
 - BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS. BAGS MAY NOT BE REUSED.

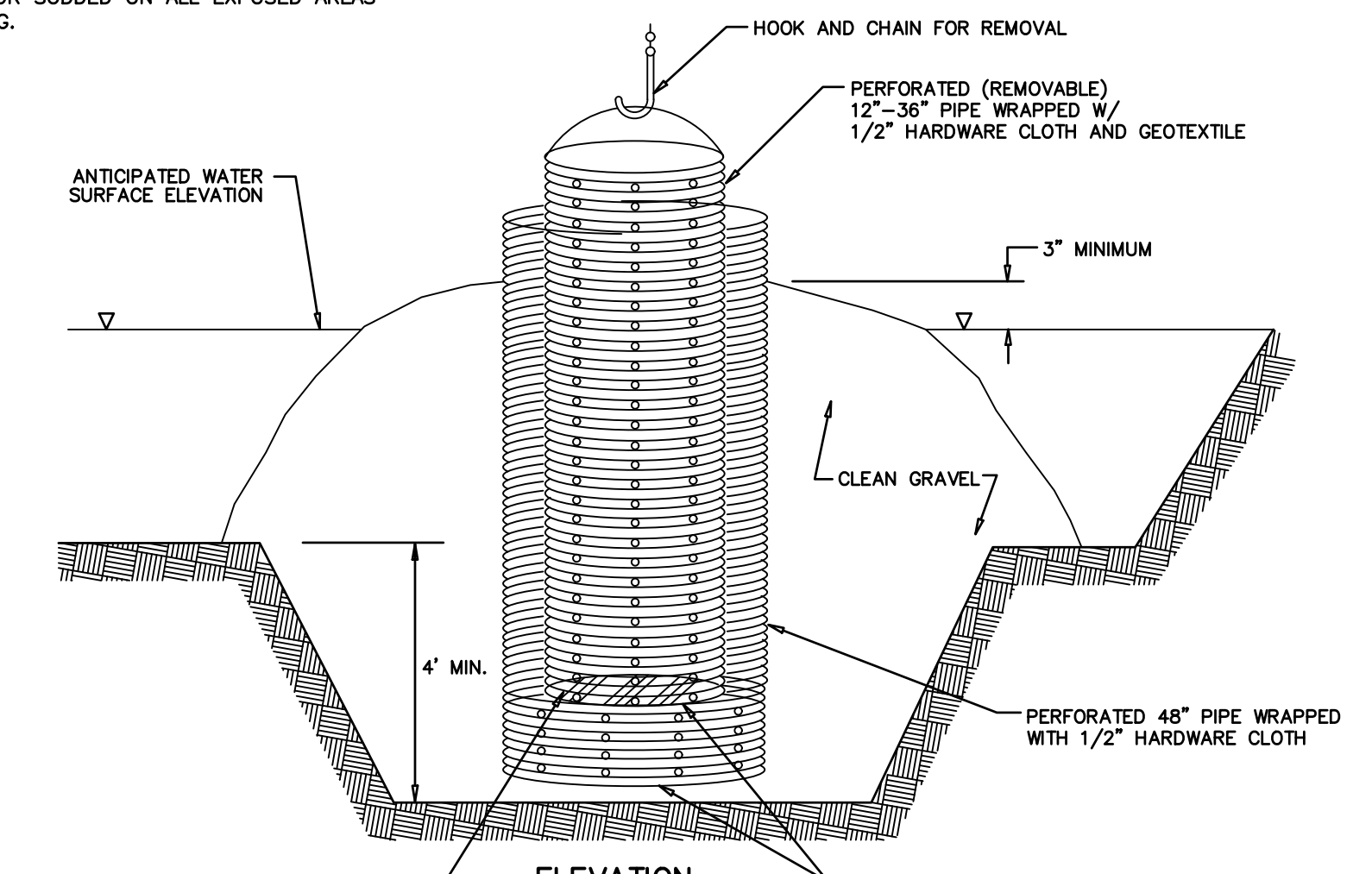
SEDIMENT CONTROL BAG FOR DEWATERING



- PIT DIMENSIONS ARE VARIABLE, WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
- THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORMING A 12" TO 24" DIAMETER PVC PIPE, THEN WRAPPING WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE PERFORATIONS SHALL BE 1/2" x 6" SLITS OR 1" DIAMETER HOLES.
- A BASE OF FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR ASTM C33 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
- THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREST ELEVATION (BASIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.

SUMP PIT

N.T.S.



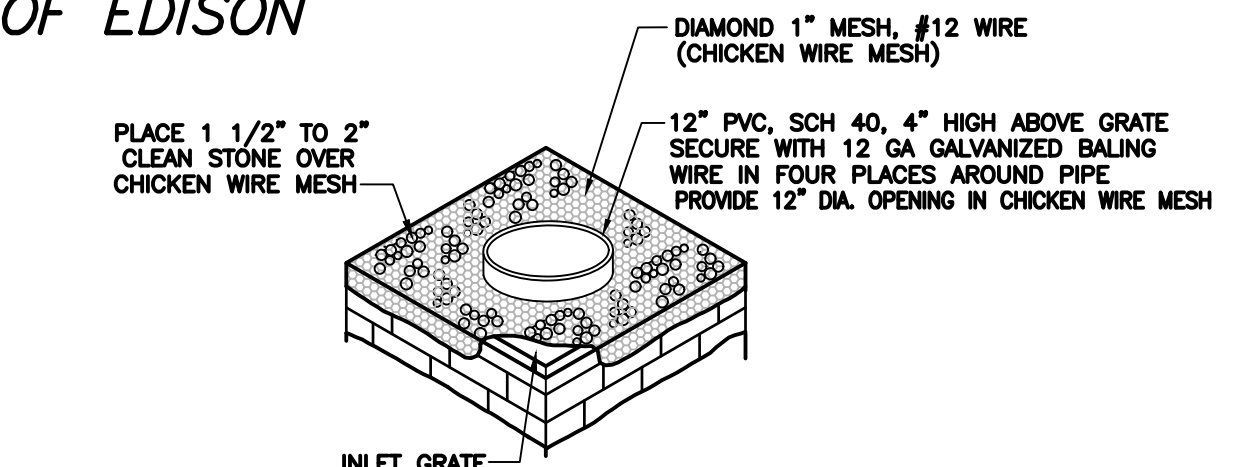
- THE OUTER PIPE SHOULD BE 48" DIA. OR SMALL, IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
- AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND THE OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
- THE INSIDE STANDPIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORMING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" x 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
- THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

MOVEABLE PUMPING STATION

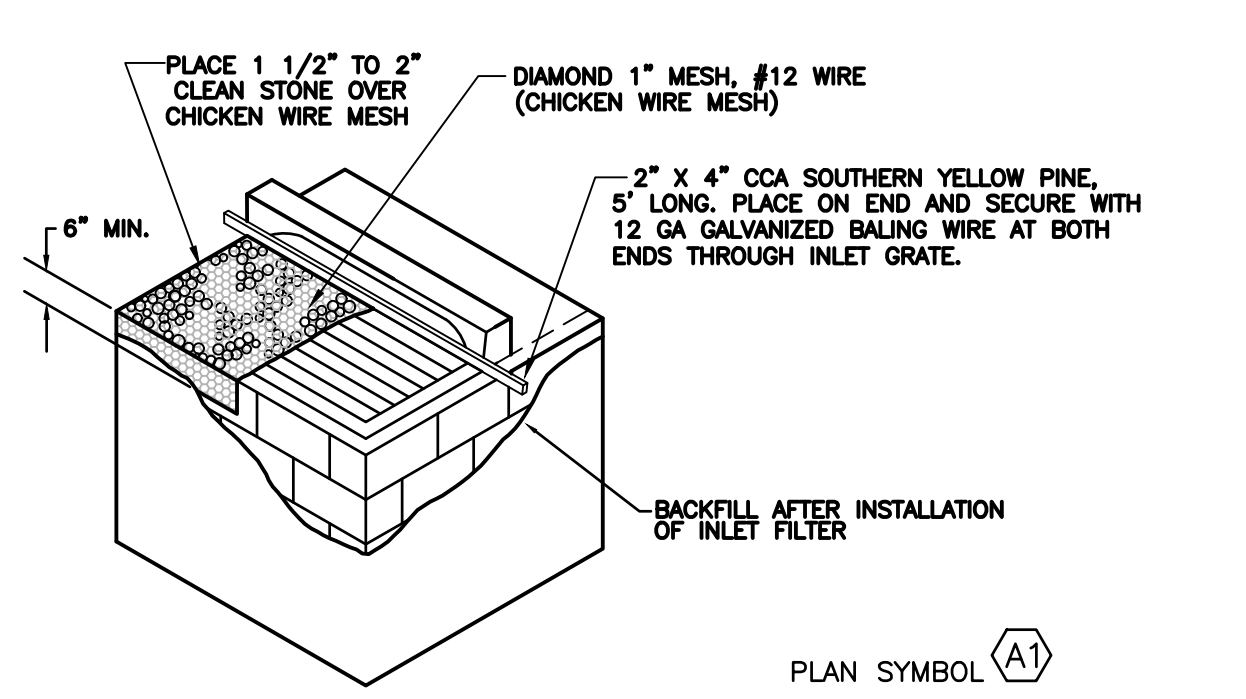
N.T.S.

SOIL EROSION AND SEDIMENT CONTROL PLAN

		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER SOIL EROSION AND SEDIMENT CONTROL DETAILS
		NO.	DATE	BY	
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	Scale: NONE Sheet No: 19 of 32 Date: November 2022	RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200

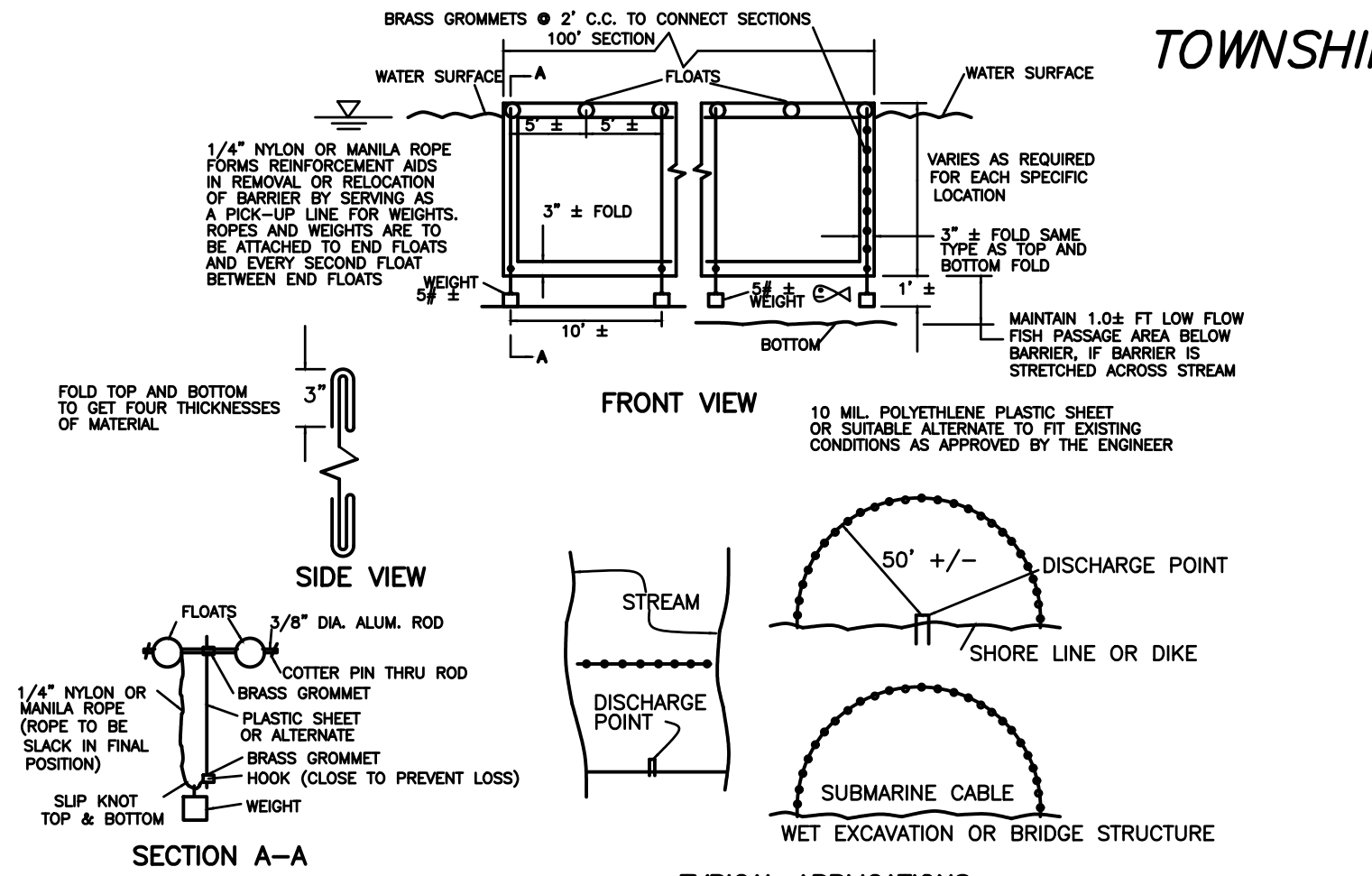


- GENERAL NOTES:
- CONTRACTOR TO CLEAN INLET FILTER AFTER EVERY STORM.
 - FILTER FABRIC, WOOD PIECE OR PVC PIPE TO BE REMOVED AFTER PAVING OR FINAL GRADING AND ESTABLISHMENT OF VEGETATION.



INLET FILTERS, TYPE 1

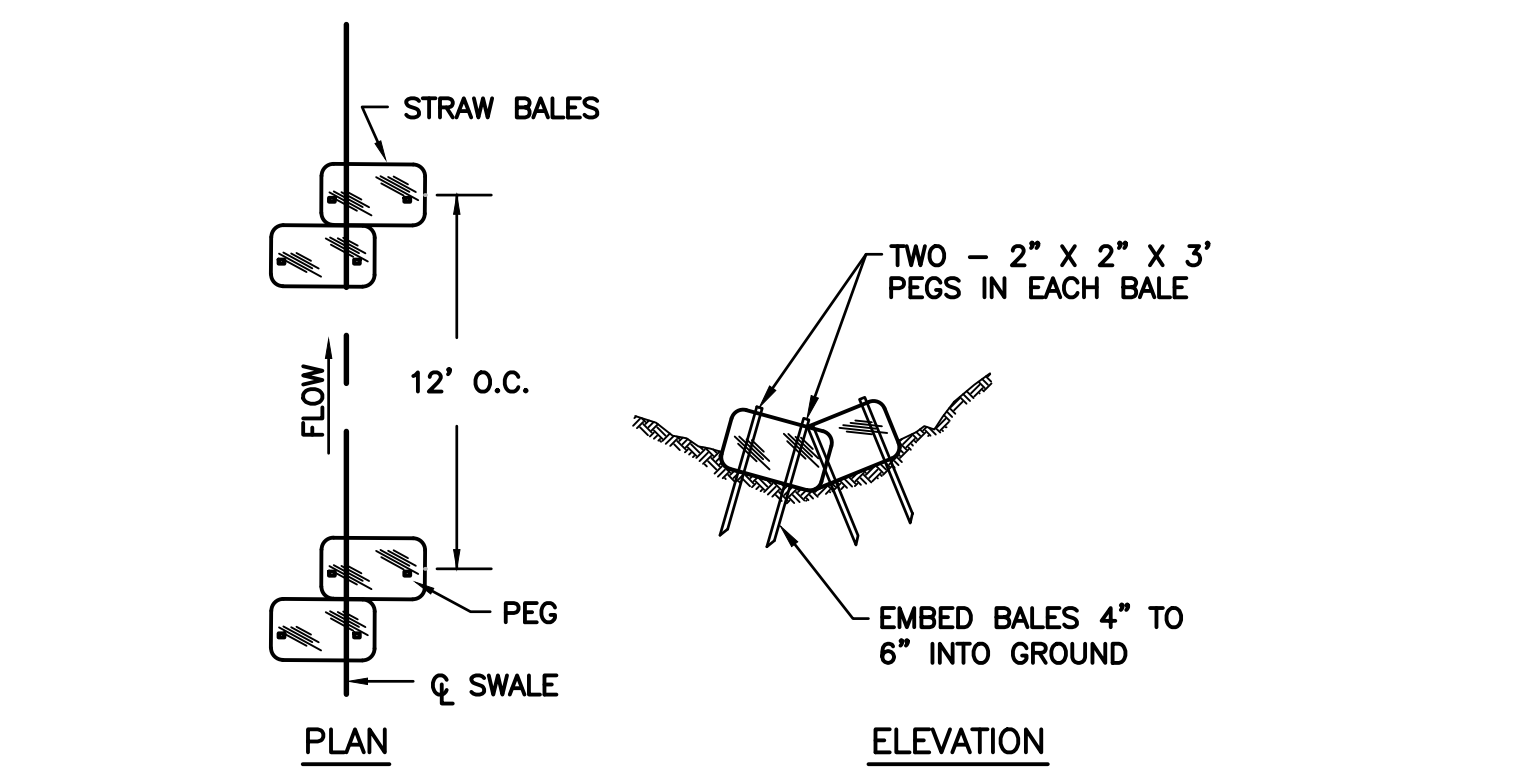
NOT TO SCALE



- NOTE:
- AT SHALLOW WATER LOCATIONS THE PLASTIC SHEET OR SUITABLE ALTERNATE MAY BE FASTENED TO STAKES DRIVEN INTO THE BOTTOM IN LIEU OF FLOATS AND WEIGHTS.
- GENERAL NOTES:
- SILT BARRIER TO PREVENT DRIFTING OF SILT CAUSED BY DISCHARGE OF STORM SEWERS DURING CONSTRUCTION, DREDGING OR FILLING OPERATIONS. EXACT PLACEMENT OF SILT BARRIER SHALL BE SO AS TO EFFECTIVELY CONTROL SILT DISPERSION UNDER THE CONDITIONS PRESENT ON A PARTICULAR PROJECT. THE DETAILS SHOWN ON THIS SHEET ARE SUGGESTED METHODS ONLY. ALTERNATE SOLUTIONS AND USAGE OF MATERIALS MAY BE USED AS APPROVED BY THE ENGINEER.
- PLACEMENT:
- BARRIER WILL BE SET ON A 50' RADIUS FROM THE POINT OF DISCHARGE WHEN DISCHARGING THROUGH A CONDUIT. IF THE RADIUS CANNOT BE ACCOMMODATED, BARRIER SHALL BE PLACED IN ACCORDANCE WITH NOTE NO. 3 BELOW.
 - BARRIER WILL EXTEND PARALLEL TO THE CHANNEL BANK(S) FOR THE FULL LENGTH OF THE WORK AREA FOR SHORELINE DISTURBANCES.
 - BARRIER WILL EXTEND ACROSS THE ENTIRE CHANNEL WHEN WORK IS PERFORMED WITHIN THE CHANNEL.

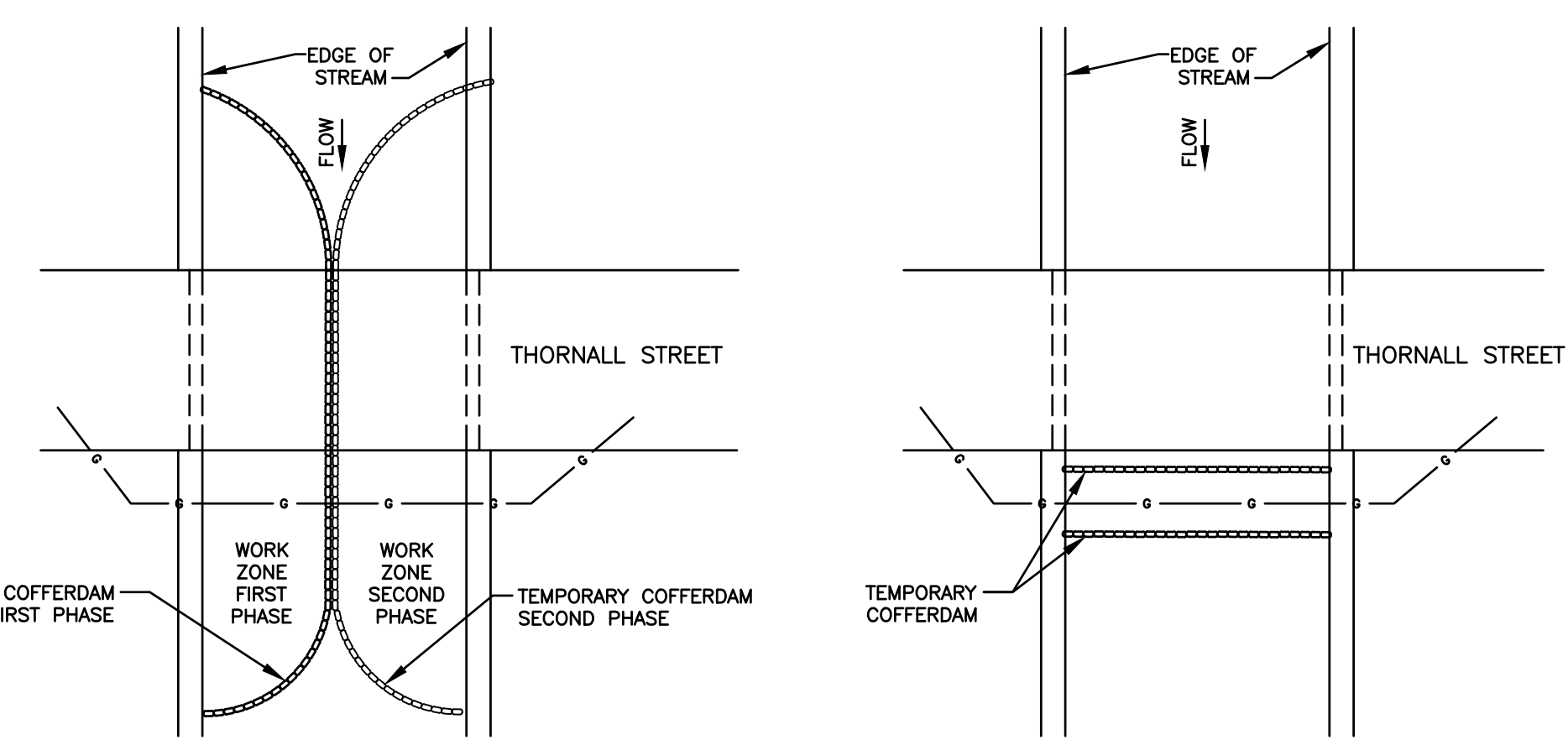
FLOATING TURBIDITY BARRIER, TYPE 2

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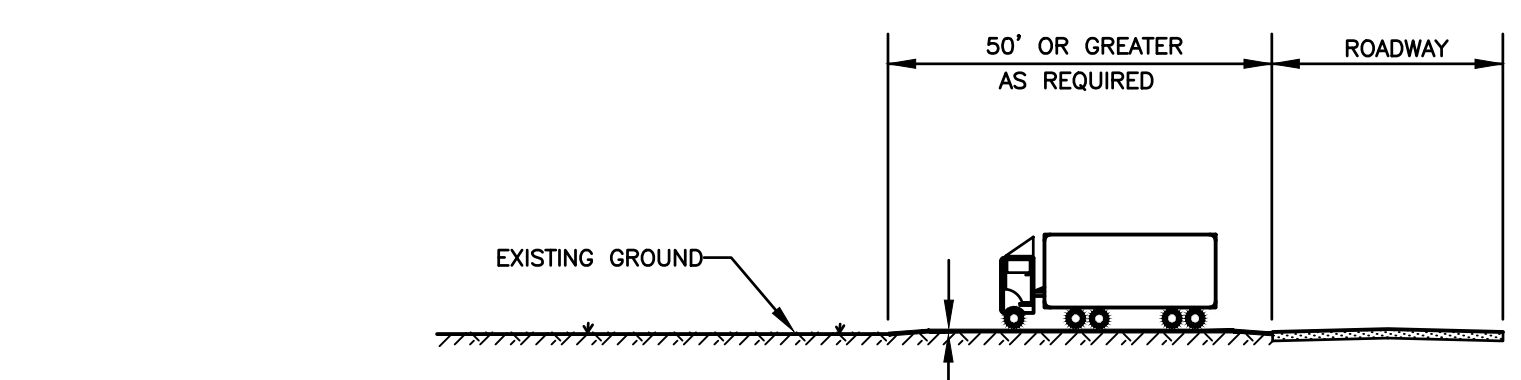
BALED STRAW EROSION CHECK

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TEMPORARY COFFERDAMS FOR UTILITY RELOCATION

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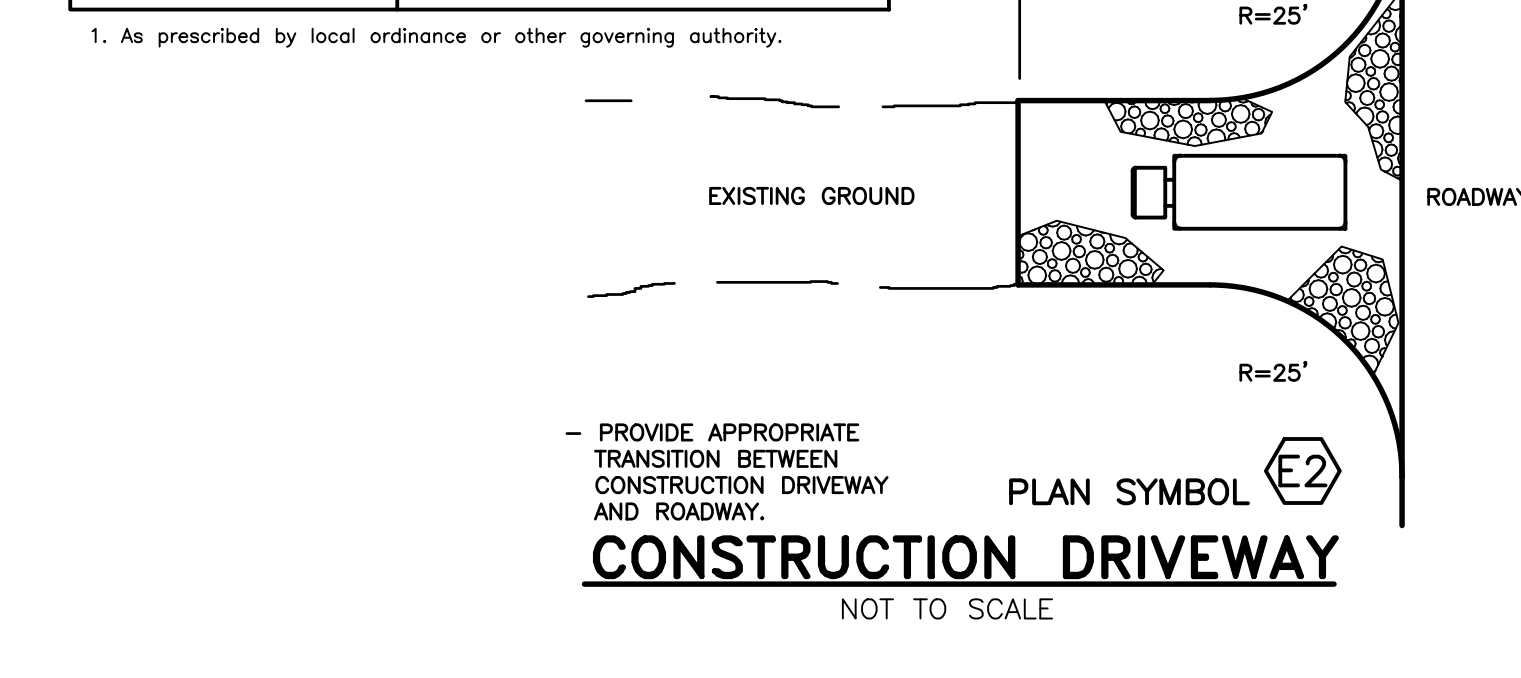


CONSTRUCTION DRIVEWAY

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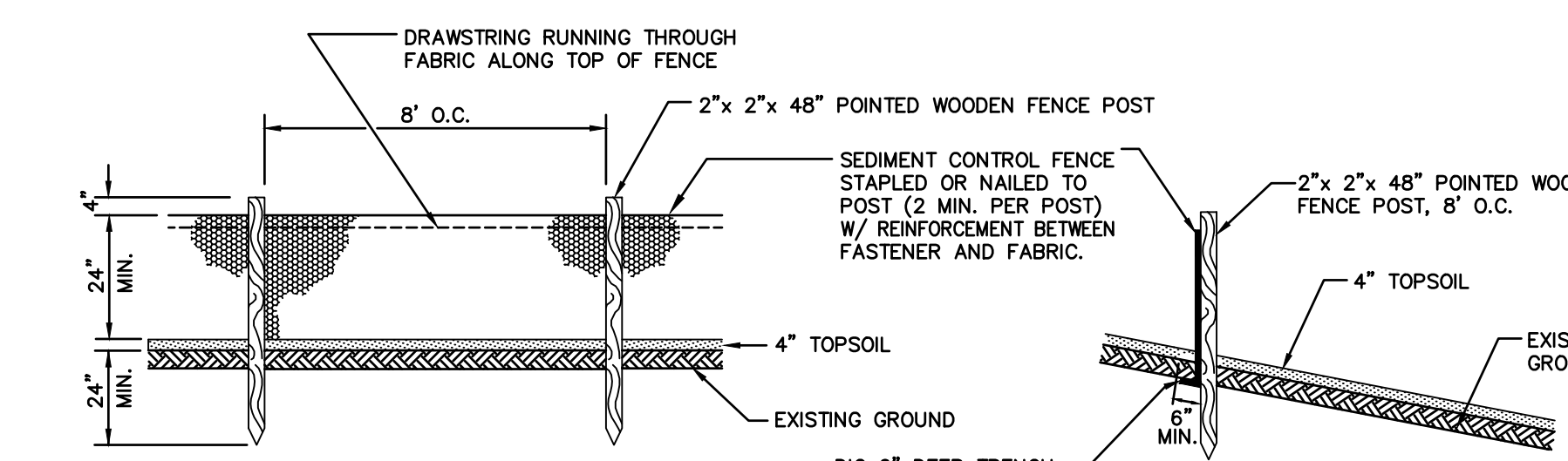
Table 29-1: Lengths of Construction Exits on Sloping Roadbeds

Percent Slope of Roadway	Length of Stone Required	
	Coarse Grained Soils	Fine Grained Soils
0 to 2%	50 Feet	100 Feet
2 to 5%	100 Feet	200 Feet
> 5%	Entire surface stabilized with FABC base course ¹	



CONSTRUCTION DRIVEWAY

NOT TO SCALE



SILT FENCE

NOT TO SCALE

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 FILENAME: C:\Projects\MDPX\00440\Plans\MDX00440_S11019_020_RD_SE.dwg
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STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

Definition
Establishment of temporary vegetative cover on soils exposed for periods of two to 6 months which are not being graded, not under active construction or not scheduled for permanent seeding within 60 days.

Purpose
To temporarily stabilize the soil and reduce damage from wind and water erosion until permanent stabilization is accomplished.

Water Quality Enhancement
Provides temporary protection against the impacts of wind and rain, slows the overland movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

Where Applicable
On exposed soils that have the potential for causing off-site environmental damage.

Methods and Materials

- I. **Site Preparation**
 - A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, p. 19-1.
 - B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.
 - C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

II. **Seedbed Preparation**

- A. Apply ground limestone and fertilizer according to soil test recommendations such as those offered by Rutgers Co-operative Extension. Soil sample mailers are available from the local Rutgers Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-20-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise. Apply limestone at the rate of 2 tons/acre unless soil test indicates otherwise. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes. Table below is a general guideline for limestone application.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.
Clay, clay loam, and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

Pulverized dolomitic limestone is preferred for most soils south of the New Brunswick-Trenton line.

- B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
- C. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retiled as above.
- D. Soils high on sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils, pg. 1-1 of the Standards for Soil Erosion and Sediment Control in New Jersey.

III. **Seeding**
A. Select seed from recommendations in Table.

SEED TYPES	SEEDING RATES 1/ (pounds)		OPTIMUM SEEDING DATE 2/ Based on Plant Hardiness Zone 3/			OPTIMUM SEED DEPTH 4/ (inches)
	Per Acre	Per 1,000 Sq. Ft.	ZONE 5	ZONE 6	ZONE 7	
COOL SEASON GRASSES						
Perennial ryegrass	100	1.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	0.5
*** Spring Oats	86	2.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	1.0
Winter Barley	96	2.2	8/1-9/15	8/15-10/1	8/15-10/15	1.0
Winter Cereal Rye	112	2.8	8/1-11/1	8/1-11/15	8/1-12/15	1.0
WARM SEASON GRASSES						
Pearl millet	20	0.5	6/1-8/1	5/15-8/15	5/1-9/1	1.0
Millet (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-9/1	1.0
Weeping lovegrass	5	0.2	6/1-8/1	5/15-8/15	5/1-9/1	0.25

- 1/ Seeding rate for warm season grass, shall be adjusted to reflect the amount of Pure Line Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.
- 2/ May be planted throughout summer if soil moisture is adequate or can be irrigated
- 3/ Plant Hardiness Zone (see below)
- 4/ Twice the depth for sandy soils

- Zone 5b (-10 to -15) Portions of Sussex and Warren Counties
 Zone 6a (-5 to -10) Portions of Sussex, Warren, Passaic, Morris, Somerset and Hunterdon counties.
 Zone 6b (0 to -5) Portions of Bergen, Camden, Essex and Gloucester, Hunterdon, Mercer, Middlesex, Hudson, Monmouth, Ocean, Burlington, Morris, Passaic, Somerset, Union, Atlantic, Cumberland, and Cape May counties.
 Zone 7a (5 to 0) Portions of Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.
 Zone 7b (10 to 5) Portions of Cape May, Atlantic, Ocean and Monmouth counties.

- B. Conventional Seeding - Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.
- C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.
- D. After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improve seeding emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

IV. **Mulching**

Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. (The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.)

- A. Straw or Hay. Unrotted small grain straw, hay free of seeds, or salt hay to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread uniformly by hand mechanically so that approximately 85% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square foot sections and distribute 70 to 90 pounds within each section.

Anchoring should be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

1. **Peg and Twine** - Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.
2. **Mulch Nettings** - Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.
3. **Crimper (mulch anchoring tool)** - A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.
4. **Liquid Mulch-Binders** - May be used to anchor salt hay or straw mulches.
 - a. Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.
 - b. Use one of the following:
 - (1) Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 0.04 gal./sq. yd. or 194 gal./acre on flat slopes less than 8 feet high. On slopes 8 feet or more high, use 0.075 gal./sq. yd. or 363 gal./acre. These materials may be difficult to apply uniformly and will discolor surfaces.
 - (2) Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

- (3) Synthetic binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

- B. Wood-fiber or paper-fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with the seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.
- C. Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs/1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed-seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

THE TOTAL ESTIMATED TIME OF CONSTRUCTION IS 300 DAYS

PROPOSED CONSTRUCTION SEQUENCE	APPROX. DURATION:
1. APPLICATION OF PROPER MEASURES FOR THE CONTROL OF SOIL EROSION & SEDIMENT CONTROL.	1 DAY
2. INSTALLATION OF TRAFFIC CONTROL MEASURES.	1 DAY
3. STAGE 1A SITE CLEARING & DEMOLITION.	10 DAYS
4. TEMPORARY STABILIZATION OF DISTURBED AREAS IN A ROUGH GRADED CONDITION SHALL BE MAINTAINED BY SEEDING AND /OR MULCHING UNTIL PROPER WEATHER CONDITIONS EXIST FOR THE ESTABLISHMENT OF A PERMANENT VEGETATIVE COVER.	1 DAY
5. INSTALL TEMPORARY MAINTENANCE OF STREAM FLOW MEASURES.	2 DAYS
6. CONSTRUCT GABION CHANNEL WALLS.	10 DAYS
7. CONSTRUCT CHANNEL BOTTOM RIP RAP.	8 DAYS
8. MAINTENANCE OF SOIL EROSION PROCEDURES.	1 DAY
9. STAGE 1B SITE CLEARING & DEMOLITION.	10 DAYS
10. MAINTENANCE OF SOIL EROSION PROCEDURES.	1 DAY
11. STAGE 1B INSTALL COFFERDAM SHEETING.	10 DAYS
12. STAGE 1B BRIDGE CONSTRUCTION AND CHANNEL IMPROVEMENTS.	110 DAYS
13. STAGE 2 SITE CLEARING & DEMOLITION.	10 DAYS
14. MAINTENANCE OF SOIL EROSION PROCEDURES.	1 DAY
15. STAGE 2 INSTALL COFFERDAM SHEETING	10 DAY
16. STAGE 2 BRIDGE CONSTRUCTION AND CHANNEL IMPROVEMENTS.	110 DAYS
17. INSTALLATION OF PAVEMENT.	2 DAYS
18. INSTALLATION OF TOPSOILING, FERTILIZING, SEEDING, AND MULCHING.	1 DAY
19. REMOVAL OF SOIL EROSION AND SEDIMENT CONTROL DEVICES AFTER ESTABLISHED VEGETATIVE GROWTH HAS OCCURRED.	1 DAY
TOTAL:	300 DAYS

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

Definition
Establishment of permanent vegetative cover on exposed soils where perennial vegetation is needed for long term protection.

Purpose
To permanently stabilize the soil, assuring conservation of soil and water, and to enhance the environment.

Water Quality Enhancement
Slows the overland movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

Where Applicable
On exposed soils that have a potential for causing off-site environmental damage.

Methods and Materials

I. **Site Preparation**

- A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, p. 19-1.
- B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.
- C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

II. **Seedbed Preparation**

A. Apply ground limestone and fertilizer according to soil test recommendations such as those offered by Rutgers Co-operative Extension. Soil sample mailers are available from the local Rutgers Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-20-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise. Apply limestone in accordance with the table below and the results of soil testing. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes. Table below is a general guideline for limestone application rates.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.
Clay, clay loam, and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

Pulverized dolomitic limestone is preferred for most soils south of the New Brunswick-Trenton line.

- B. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonably uniform seedbed is prepared.
- C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).
- D. High acid producing soil. Soils having a pH of 4 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5 or more before initiating seedbed preparation. See standard for Management of High Acid Producing Soils.

III. **Seeding**

- A. Seed mix shall be as follows:
NJDOT Type 'A-3' Seed Mixture
- | Kind of Seed | Minimum Purity-% | Minimum Germination-% | % of Total Weight Mixture | Planting Rate Pounds/Acre |
|--------------------|------------------|-----------------------|---------------------------|---------------------------|
| Tall Fescue | 95 | 80 | 60 | 120 |
| Kentucky Bluegrass | 85 | 75 | 10 | 20 |
| Chewing Fescue | 95 | 85 | 20 | 40 |
| Perennial Ryegrass | 98 | 85 | 10 | 20 |
- B. Conventional Seeding - Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil within 24 hours of seedbed preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.
 - C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.
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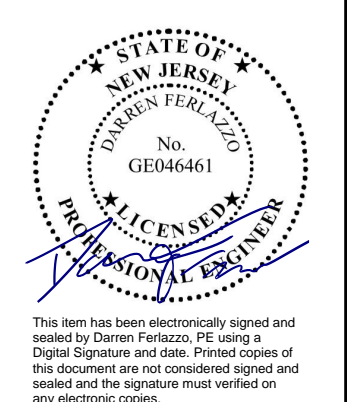

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NOTE: All page numbers and Standards references refer to "Standards for Soil Erosion and Sediment Control in New Jersey", January 2014, by the NEW JERSEY STATE SOIL CONSERVATION COMMITTEE.

SOIL EROSION AND SEDIMENT CONTROL PLAN

County of Middlesex
Department of Transportation
Office of Engineer
75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

SOIL EROSION AND SEDIMENT CONTROL NOTES

REVISIONS		
NO.	DATE	BY

11/18/22
Date
Darren Ferlazzo
Licensed Professional Engineer
NJPE No. 24GE0464100

DESIGNED BY: FC
DRAWN BY: FC
CHECKED BY: RFS
APPROVED BY: PJC

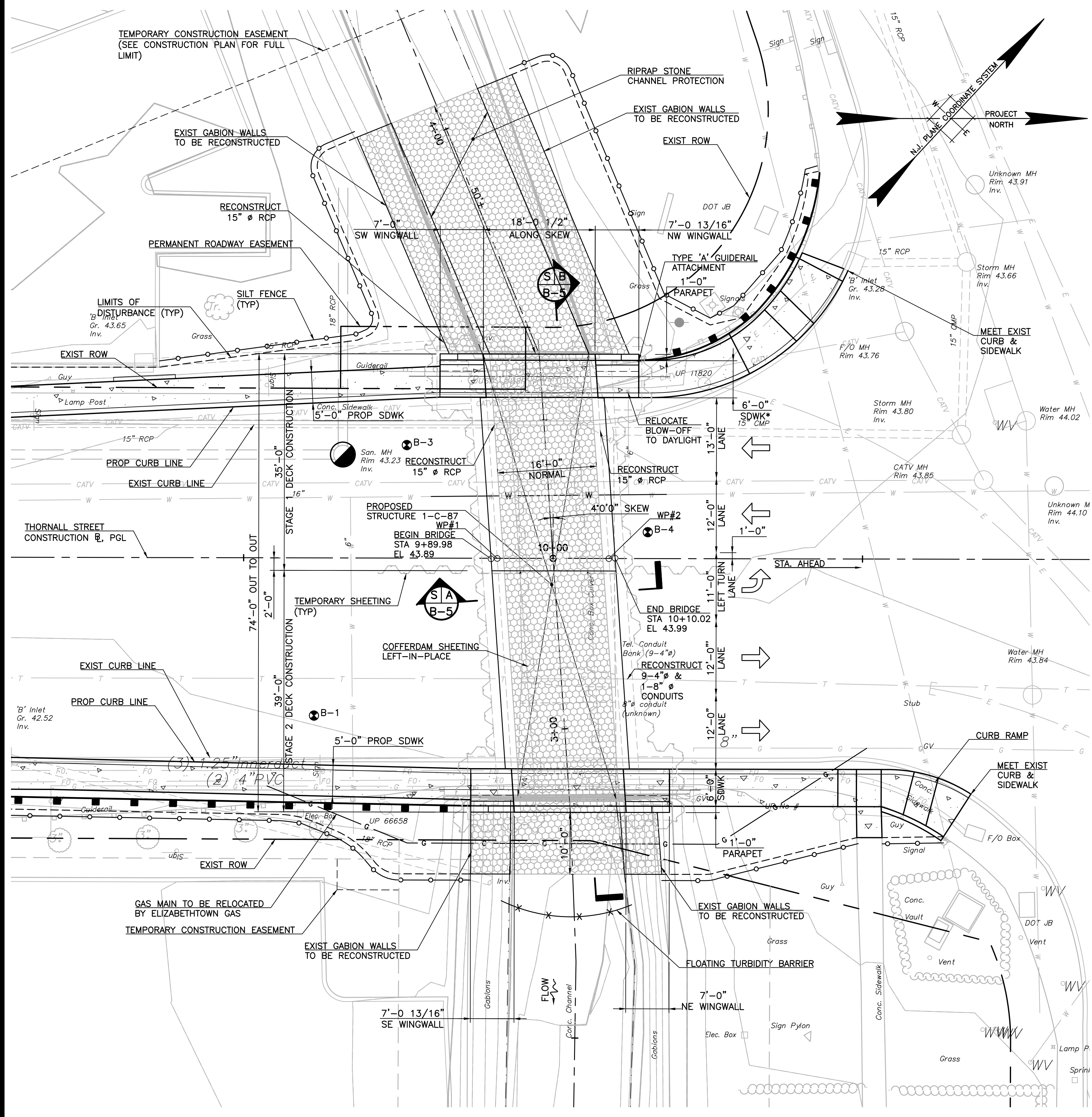
Scale: NONE
Sheet No: 20 of 32
Date: November 2022
RONALD SENDNER
County Engineer
N.J.P.E. NO. 24GE0316220

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SE-2

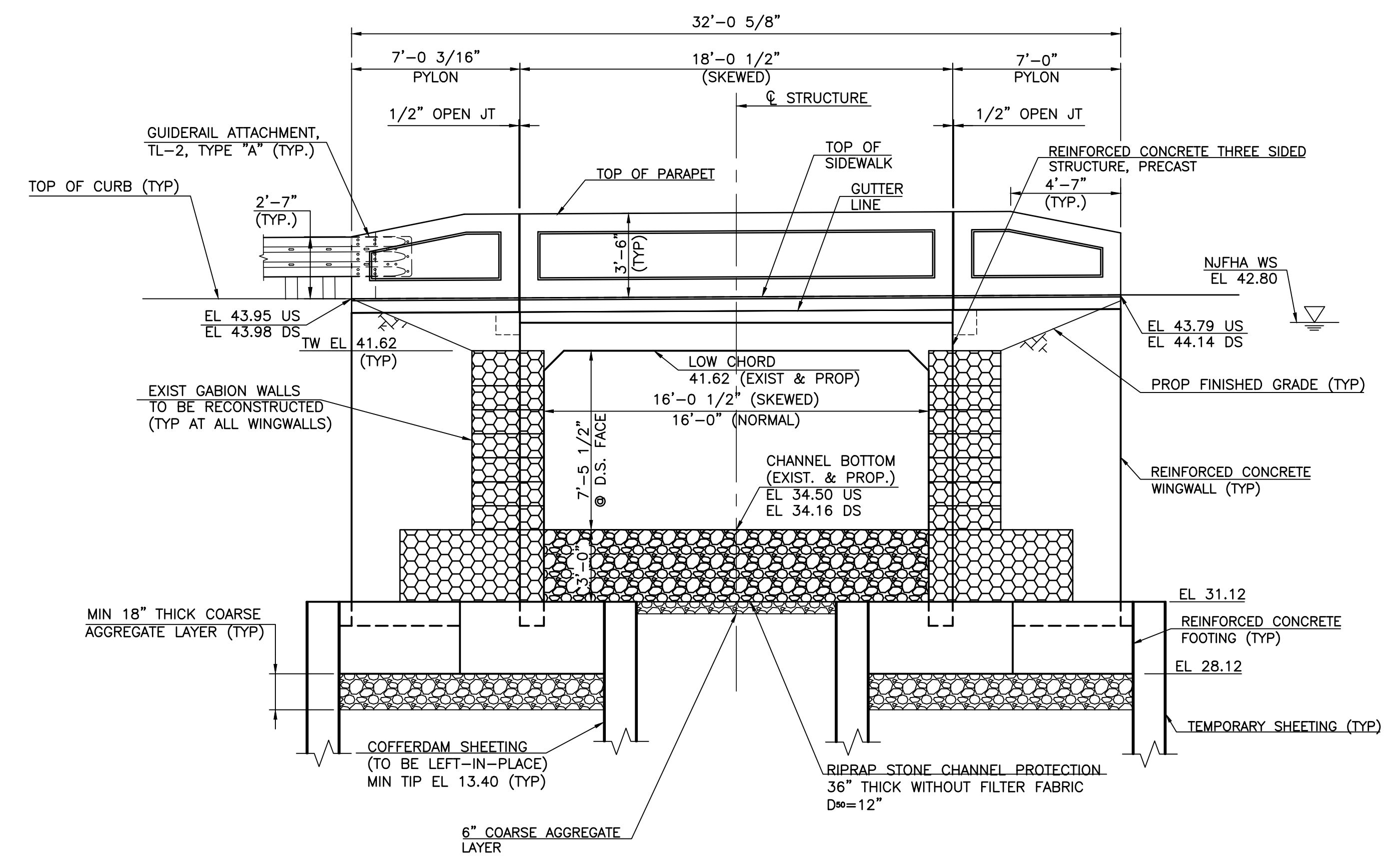
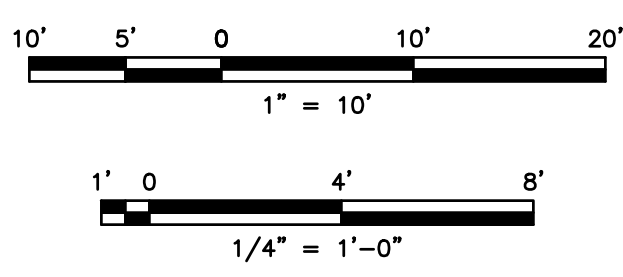
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PLAN

SCALE: 1" = 10'-0"
 * WEST SIDEWALK TO BE CONSTRUCTED IN STAGE 2.



UPSTREAM ELEVATION

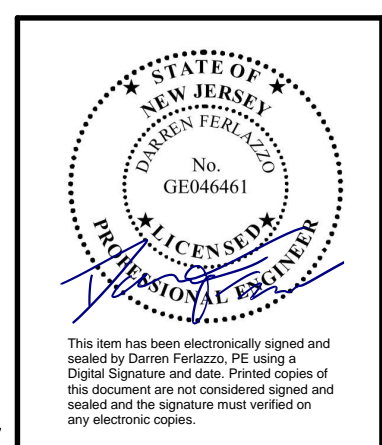
(LOOKING EAST)
 (DOWNSTREAM FACE SIMILAR & OPPOSITE)
 SCALE: 1/4" = 1'-0"

HYDRAULIC & HYDROLOGIC DATA

DESIGN DISCHARGE	913 CFS
DESIGN WATER SURFACE ELEVATION	42.80' AT US
ENERGY GRADE LINE ELEVATION	43.54' AT US
FREQUENCY	100 YR. + 25% (NJFHA)

REFERENCES:

- FOR STANDARD LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG LEG-1.
- FOR STRUCTURAL NOTES, SEE DWG B-2.
- FOR BRIDGE DRAWING INDEX AND QUANTITIES TABLE, SEE DWG B-2.
- FOR PROFILE AND WORKING POINT LAYOUT, SEE DWG. B-4.



REVISIONS

NO.	DATE	BY

County of Middlesex
 Department of Transportation
 Office of Engineer
 75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER


11/18/22
 Darren Ferlazzo
 Licensed Professional Engineer
 NJPE No. 24GE04646100

DESIGNED BY: ES
 DRAWN BY: FC
 CHECKED BY: JL
 APPROVED BY: HG

Scale: AS SHOWN
 Sheet No: 21 of 32
 Date: November 2022

RONALD SENDNER
 County Engineer
 N.J.P.E. NO. 24GE03162200

GENERAL NOTES:

1. **DESIGN SPECIFICATIONS:**
2012 (6TH EDITION) AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS WITH CURRENT INTERIMS, AS MODIFIED BY SECTION 3 AND 3A OF THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES.
2. **CONSTRUCTION SPECIFICATIONS:**
2007 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS MODIFIED BY THE SUPPLEMENTARY SPECIFICATIONS.
3. **LIVE LOAD:**
AASHTO HL-93 VEHICULAR LIVE LOAD OR NJDOT PERMIT VEHICLE, WHICHEVER GOVERNS.
4. **SUPERSTRUCTURE:**
 - (a) DEAD LOAD INCLUDES 25 LBS/SQ FT. PROVISION FOR FUTURE 2" THICK OVERLAY ON BRIDGE DECK.
5. **CONCRETE DESIGN STRESSES:**
 - (a) SPECIFIED DESIGN COMPRESSIVE STRENGTH (f'_c)
CLASS A..... 4,000 PSI
CLASS B..... 3,000 PSI
CLASS P (3-SIDED STRUCTURE)..... 5,000 PSI
 - (b) CLASS DESIGN STRENGTHS (IN ACCORDANCE WITH SECTION 903.03.06-3 OF THE SPECIFICATIONS)
CLASS A..... 4,600 PSI
CLASS B..... 3,700 PSI
CLASS P (3-SIDED STRUCTURE)..... 5,500 PSI
 - (c) CONCRETE PROVIDED FOR FOOTINGS AND WINGWALLS SHALL BE CLASS B. CONCRETE IN 3-SIDED STRUCTURE SHALL BE CLASS P. ALL OTHER CONCRETE ITEMS SHALL BE CLASS A.
 - (d) CHAMFER ALL EXPOSED CONCRETE EDGES $\frac{3}{4}$ " X $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.
6. **REINFORCEMENT STEEL:**
 - (a) ALL REINFORCEMENT STEEL SHALL CONFORM TO ASTM A615 (GRADE 60), $f_s = 24,000$ PSI
 - (b) ALL REINFORCEMENT STEEL SHALL BE EPOXY COATED AFTER FABRICATION.
 - (c) BAR LAPS SHALL BE MINIMUM 30 BAR DIAMETER UNLESS OTHERWISE NOTED.
7. **SEISMIC LOAD:**
 - (a) SEISMIC ACCELERATION COEFFICIENT, "A" = 0.18
 - (b) SEISMIC PERFORMANCE CATEGORY = B
 - (c) SITE SOIL COEFFICIENT, S = 1.0
 - (d) SITE CLASS = C
8. **BORINGS:**
 INDICATES LOCATION OF BORINGS.
LOG NO.
9. **FOUNDATION DESIGN CRITERIA:**
 - (a) BORING LOGS ARE PART OF BID DOCUMENTS. THE GEOTECH REPORT WILL BE AVAILABLE AT COUNTY ENGINEER'S OFFICE.
 - (b) SPREAD FOOTINGS FOR PROPOSED STRUCTURE SHALL BE FOUNDED ON THE NATURAL SOIL/ CLEAN STONE WITH MINIMUM NET ALLOWABLE SOIL BEARING CAPACITY OF 4000 PSF (2.0 TSF)
 - (c) ALL FOOTING SUBGRADE SHALL BE INSPECTED BY A QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF STONE.
10. **SHEETING NOTES:**
 - (a) ALL SHEETING AND COFFERDAMS SHALL BE DESIGNED FOR MINIMUM EQUIVALENT FLUID PRESSURE OF 35 PSF. FOR ADDITIONAL FOUNDATION DESIGN INFORMATION SEE SUPPLEMENTARY SPECIFICATIONS.
 - (b) ALL SHEETING SHALL BE DESIGNED AND MODIFIED AS NECESSARY TO ACCOMMODATE EXIST AND RELOCATED UTILITY LOCATIONS. NO SEPARATE PAYMENT WILL BE MADE FOR THESE MODIFICATIONS ALL COST TO BE INCLUDED IN THE PRICE BID FOR THE ITEM "CLEARING SITE".
 - (c) STEEL SHEETING SHALL BE PZC-18 (SECTION MODULUS, S = 33.5 IN.²/3/FT) OR EQUAL SECTION, A572 GRADE 50 WITH COAL TAR EPOXY TO MINIMUM DRY COATING THICKNESS OF 20 MILS.
 - (d) THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS FOR THE SHEETING INCLUDING ALL NECESSARY DETAILS AND SUBMIT TO THE ENGINEER FOR APPROVAL PRIOR TO ANY FABRICATION.
 - (e) TOP OF COFFERDAM SHEETING (TO BE LEFT-IN-PLACE) SHALL BE CUT AT A MINIMUM OF 12" BELOW FINAL GRADE, UNLESS NOTED OTHERWISE.
11. **DATUM:**
HORIZONTAL DATUM IS THE NEW JERSEY PLANE, COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983.
ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM, 1988.

12. **UTILITIES:**
 - (a) UTILITY LOCATIONS SHOWN HEREON ARE FROM ABOVE GROUND OBSERVATIONS AND RECORD INFORMATION PROVIDED BY THE VARIOUS UTILITY COMPANIES.
 - (b) THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES IS NOT GUARANTEED TO BE ACCURATE NOR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATIONS OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE POTENTIAL FOR CONFLICTS IN ORDER TO AVOID DISRUPTION OF SERVICE.
 - (c) IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ARRANGE FOR ALL UTILITY WORK ESSENTIAL FOR THE COMPLETION OF THE PROJECT AND TO COORDINATE THE WORK CARRIED ON BY THE PUBLIC UTILITIES WITH HIS OWN WORK. THE CONTRACTOR SHALL COOPERATE WITH UTILITY COMPANIES IN THE REMOVAL, RELOCATION AND REPLACEMENT OF UTILITIES. LOCATIONS OF RELOCATED UTILITIES SHALL BE VERIFIED WITH RESPECTIVE UTILITY COMPANIES.
 - (d) THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES WITHIN THE PROJECT LIMITS OR WHICH MAY AFFECT THE INSTALLATION OF ANY SHEETING BEFORE BEGINNING ANY SHEETING INSTALLATION.
13. **OVERHEAD UTILITIES:**
PSE&G, ALTICE, AND VERIZON HAVE OVERHEAD FACILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL COORDINATE THE TEMPORARY AND PERMANENT RELOCATIONS OF THESE FACILITIES BY THE UTILITY COMPANIES AS NECESSARY INCLUDING SPLICING, BRACING, EQUIPMENT AND ALL WORK NECESSARY FOR THE INSTALLATION OF THE COFFERDAM. THE CONTRACTOR SHALL STAGE HIS WORK TO ALLOW THE REMOVAL OR DE-ENERGIZATION OF OVERHEAD FACILITIES PRIOR TO THE START OF ANY WORK REQUIRING THE USE OF CRANES AND SHALL MEET ALL OSHA STANDARDS. ALL COSTS ASSOCIATED WITH DE-ENERGIZATION OR MODIFICATIONS TO THE OVERHEAD ELECTRICAL LINES SHALL BE PAID BY THE CONTRACTOR WITH THE UTILITY COMPANY.
ALL COSTS FOR OVERHEAD UTILITY RELOCATION SUPPORT ACTIVITIES SHALL BE INCLUDED IN THE PRICE BID FOR ITEM "CLEARING SITE".
14. **UNDERGROUND UTILITIES:**
NEW JERSEY AMERICAN WATER, MIDDLESEX WATER COMPANY, EDISON PUBLIC WORKS SEWER AUTHORITY, ELIZABETHTOWN GAS, AT&T, ALTICE USA, VERIZON, AND VERIZON BUSINESS HAVE UNDERGROUND FACILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL COORDINATE THE TEMPORARY RELOCATIONS OF THESE FACILITIES BY THE UTILITY COMPANIES AS NECESSARY INCLUDING SPLICING, BRACING, EQUIPMENT AND ALL WORK NECESSARY FOR THE INSTALLATION OF THE COFFERDAM AND CULVERT. THE CONTRACTOR SHALL STAGE HIS WORK TO ALLOW THE REMOVAL OF UNDERGROUND FACILITIES PRIOR TO THE START OF ANY WORK.
CONTRACTOR SHALL COORDINATE WITH ELIZABETHTOWN GAS AND MIDDLESEX WATER COMPANY, FOR THE RELOCATION OF THE 8" GAS LINE AND THE 16" WATERMAIN, RESPECTIVELY. ALL WORK SHALL BE IN ACCORDANCE WITH THE SUPPLEMENTARY SPECIFICATIONS. EXIST FIBER OPTIC CONDUITS DESIGNATED TO REMAIN SHALL BE TEMPORARILY SUPPORTED DURING CONSTRUCTION, CONTRACTOR TO COORDINATE WITH UTILITY OWNERS REGARDING TYPE AND SIZE OF TEMPORARY SUPPORTS. COSTS INCLUDED UNDER "CLEARING SITE".
ELIZABETHTOWN GAS COMPANY WILL INSTALL ALL PIPES AND FITTINGS REQUIRED FOR THE RELOCATION EFFORT.
THE CONTRACTOR SHALL PROVIDE THE FOLLOWING: MAINTENANCE OF STREAM FLOW, DEWATERING, PIPE SUPPORT, AND ANY OTHER MEASURES NECESSARY FOR THE RELOCATION EFFORT AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE ALL UTILITY COMPANY FORCES WITH ADEQUATE ROOM AND STAGING AREAS AS NECESSARY TO COMPLETE THE REQUIRED WORK.
ELIZABETHTOWN GAS REQUIRE ADVANCE NOTICE AT 12 WEEKS AND 3 WEEKS, IN WRITING, FROM THE CONTRACTOR INDICATING THE SPECIFIC DAY THAT THEY ARE REQUESTED TO START THEIR RELOCATION EFFORT.
THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING AFTER ALL NECESSARY TEST PITS HAVE BEEN PERFORMED DETAILING THE EXACT LAYOUT OF THE UTILITY RELOCATIONS INCLUDING THE STATIONS, OFFSETS, AND ELEVATIONS OF ALL UTILITY COMPONENTS. THE CONTRACTOR SHALL VERIFY THAT THE NEW GAS MAINS HAVE NO CONFLICTS. THE CONTRACTOR SHALL COORDINATE THE SHOP DRAWING WITH THE RESPECTIVE UTILITY COMPANIES AND THEIR DESIGN REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS INCLUDING, BUT NOT LIMITED TO, THE MAINTENANCE OF STREAM FLOW, DEWATERING, AND TEMPORARY SHEETING. THESE MEANS AND METHODS SHALL BE DETAILED IN THE SHOP DRAWING. ALL WORK WITHIN THE VICINITY OF THE STREAM SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE PERMITS LISTED IN THE SPECIFICATIONS. ALL SHEETING SHALL BE DESIGNED AND MODIFIED AS NECESSARY TO ACCOMMODATE EXIST AND RELOCATED UTILITY LOCATIONS INCLUDING SPLICING, BRACING, EQUIPMENT AND ALL WORK NECESSARY FOR THE INSTALLATION OF THE COFFERDAM. NO SEPARATE PAYMENT WILL BE MADE FOR THESE MODIFICATIONS. ALL COSTS TO BE INCLUDED IN THE BID PRICE FOR THE RESPECTIVE PAY ITEMS IN THE PROPOSAL.
COORDINATION FOR ALL GAS MAIN, SANITARY MAIN, AND WATER MAIN RELOCATION SUPPORT ACTIVITIES WILL BE INCLUDED IN THE PRICE BID FOR ITEM "CLEARING SITE".
15. NO SEPARATE PAYMENT SHALL BE MADE FOR "REMOVE" OR "RELOCATE" AND RECONSTRUCTION OF THE SANITARY MAIN ITEMS. ALL COSTS THEREOF ARE TO BE INCLUDED IN THE BID PRICE FOR THE ITEM "CLEARING SITE".
16. THE CONTRACTOR SHALL EXAMINE AND VERIFY IN THE FIELD ALL EXIST CONDITIONS AND DIMENSIONS WITH THOSE SHOWN ON THE PLANS. IF FIELD CONDITIONS AND DIMENSIONS DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL USE THE FIELD CONDITIONS AND DIMENSIONS AND MAKE THE APPROPRIATE CHANGES TO THOSE SHOWN ON THE PLANS AS APPROVED BY THE ENGINEER. THE RESULTS OF THIS CHECK OF CONDITIONS AND DIMENSIONS SHALL BE SO NOTED ON THE DRAWINGS SUBMITTED FOR APPROVAL.
17. THERE SHALL BE NO CLAIM AGAINST THE COUNTY MADE BY THE CONTRACTOR FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCES BETWEEN ACTUAL FIELD CONDITIONS AND THE DETAILS AND DIMENSIONS SHOWN ON THE CONTRACT PLANS.

INDEX OF BRIDGE SHEETS		
SHEET NO	BRIDGE SHEET NO	TITLE
21	B-1	GENERAL PLAN AND ELEVATION
22	B-2	STRUCTURES GENERAL NOTES
23	B-3	DEMOLITION PLAN
24	B-4	PROFILE AND WORKING POINTS
25	B-5	CULVERT SECTIONS
26	B-6	FOOTING PLAN
27	B-7	WINGWALL ELEVATIONS AND DETAILS
28	B-8	MISCELLANEOUS DETAILS
29	B-9	FRAMING PLAN
30	B-10	PARAPET AND PLAQUE DETAILS
31	B-11	REINFORCEMENT SCHEDULE-STAGE 1
32	B-12	REINFORCEMENT SCHEDULE-STAGE 2

TO BE CONSTRUCTED (B-1 TO B-11)			
ITEM NO	ITEM DESCRIPTION	UNIT	QUANTITY
PAY ITEM NO.	DESCRIPTION	UNIT	PLAN QUANTITY
27	CLEARING SITE, BRIDGE (STRUCTURE No. 1-C-87)	LS	1
28	EXCAVATION, UNCLASSIFIED	CY	680
32	1-9 SOIL AGGREGATE	CY	212
38	TEMPORARY SHEETING	SF	5650
39	MAINTENANCE OF STREAM FLOW (INCLUDING TEMPORARY COFFERDAMS)	LS	1
40	REINFORCEMENT STEEL, EPOXY COATED	LBS	20470
41	CONCRETE FOOTING	CY	114
42	CONCRETE WING WALL	CY	31
43	REINFORCED CONCRETE THREE-SIDED STRUCTURE, PRECAST	LF	75
44	CONCRETE BRIDGE DECK	CY	46
45	CONCRETE BRIDGE SIDEWALK	CY	6
46	CONCRETE BRIDGE PARAPET	LF	65
47	COARSE AGGREGATE LAYER	CF	375
49	8" CORRUGATED STEEL UNDERDRAIN PIPE	LF	175
51	RIPRAP STONE CHANNEL PROTECTION, 36" THICK, D50=12"	SY	239
52	GABION WALL	CY	180
68	BRONZE NAME PLAQUE	UN	1

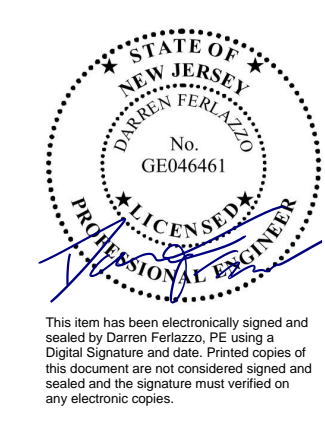

REFERENCE:

1. FOR STANDARD LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG LEG-1.
2. FOR WORKING POINT DATA, SEE DWG. B-4
3. FOR BRIDGE PROFILE, SEE DWG. B-5
4. FOR PRECAST STRUCTURE NOTES AND NOTES TO FABRICATOR, SEE DWG B-9.

PROJECT No. M152-0444
FILENAME: G:\Projects\M152-0444\Plans\M1520444_S11022_BR_S1.dwg
TIME: Nov 17, 2022 - 6:53pm

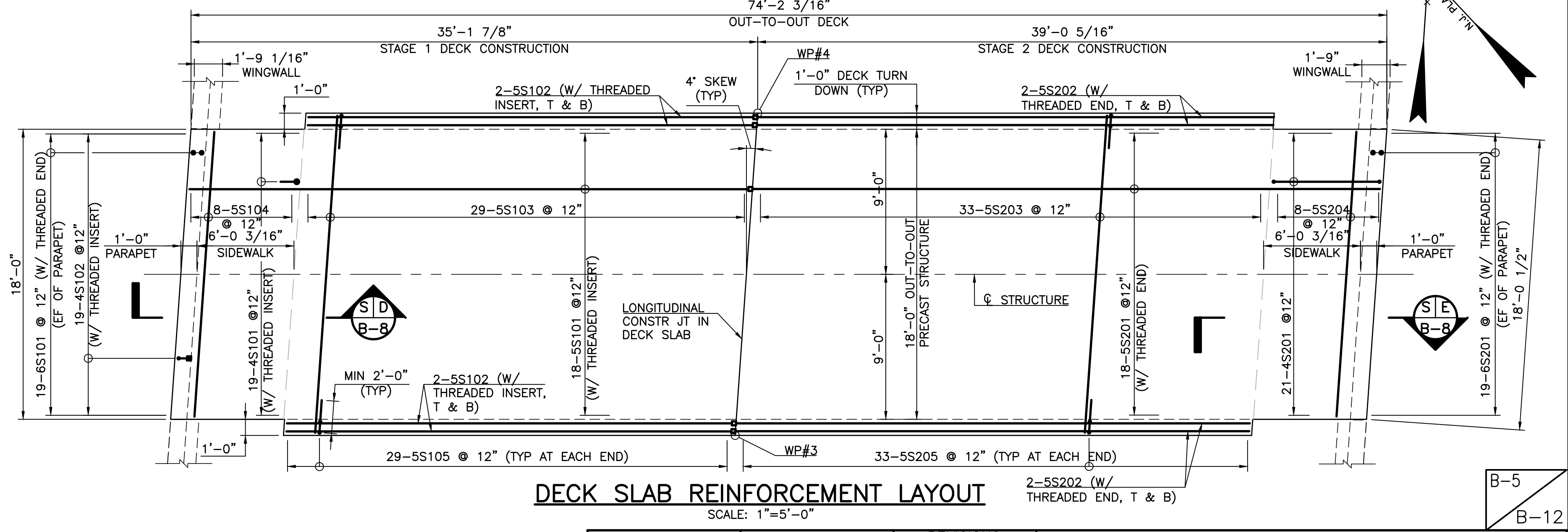
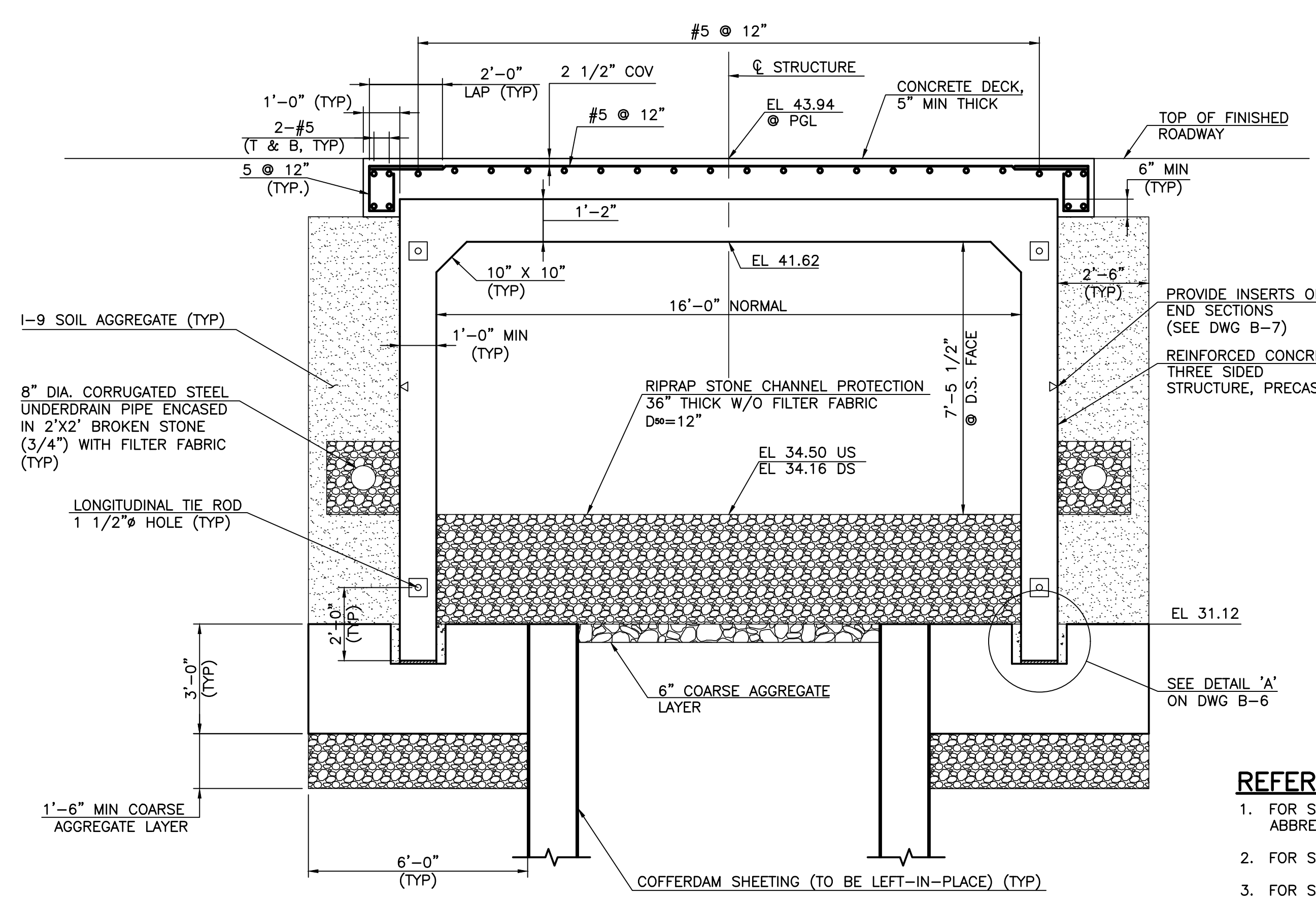
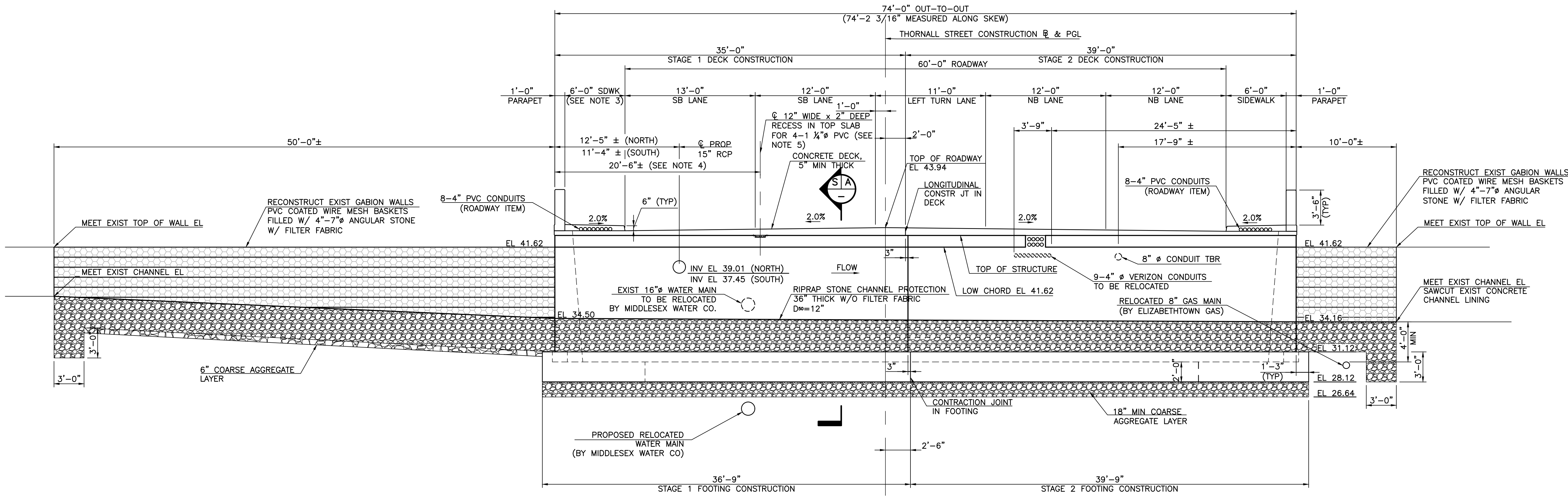
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B-2
B-12

		REVISIONS			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	BY	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE0464100		DESIGNED BY	DRAWN BY	Scale: NONE Sheet No: 22 of 32 Date: November 2022	RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200
		ES	FC		
		CHECKED BY	APPROVED BY		
		JL	HG		

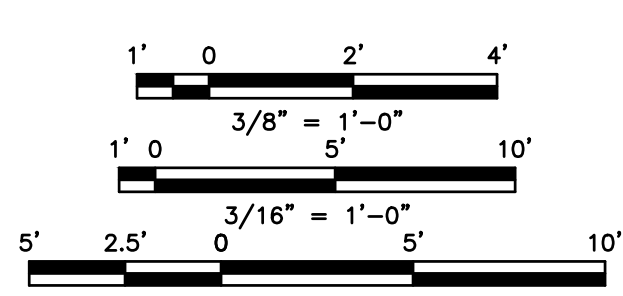
NOTES:

- DIMENSIONS SHOWN ON SECTION VIEW ARE PERPENDICULAR TO THE CONSTRUCTION BASELINE, UNLESS OTHERWISE NOTED.
- SUPERSTRUCTURE ELEVATIONS SHOWN ARE AT CENTERLINE OF THE STRUCTURE.
- WEST SIDEWALK TO BE CONSTRUCTED DURING STAGE 2 CONSTRUCTION.
- THE EXACT LOCATION OF THE EXISTING CABLE TV DUCT BANK SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD AND SHALL BE COORDINATED WITH THE FABRICATOR TO PROVIDE RECESS IN TOP OF TOP SLAB OF THE PRECAST STRUCTURE.
- A RECESS SHALL BE PROVIDED IN TOP SLAB OF THE PRECAST STRUCTURE FOR CONDUITS. THE RECESS SHALL BE COVERED WITH A CONTINUOUS 16" WIDE X 3/8" THICK HOT-DIPPED GALVANIZED STEEL PLATE. THE PLATE SHALL BE SECURED TO TOP SLAB WITH (8) 3/4" HOT-DIPPED GALVANIZED ANCHORS. WORKING DRAWINGS WITH THE DETAILS SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE ENGINEER. COST OF ALL WORK RELATED TO INSTALLATION OF THE PLATE SHALL BE INCLUDED IN THE PRICE BID FOR THE PAY ITEM "CONCRETE BRIDGE DECK".



REFERENCES:

- FOR STANDARD LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE LEG-1.
- FOR STRUCTURAL NOTES AND UTILITY NOTES SEE, DWG B-2.
- FOR SHEETING NOTES, SEE DWG B-2.
- FOR PRECAST STRUCTURE SECTION NUMBER, DIMENSION AND NOTES, SEE DWG B-9.
- FOR REINFORCEMENT SCHEDULE, SEE DWG B-11.



REVISIONS

NO.	DATE	BY

11/18/22
Darren Ferlazzo
 Licensed Professional Engineer
 NJPE No. 24GE0466100

County of Middlesex
 Department of Transportation
 Office of Engineer
 75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

CULVERT SECTIONS AND DECK SLAB PLAN

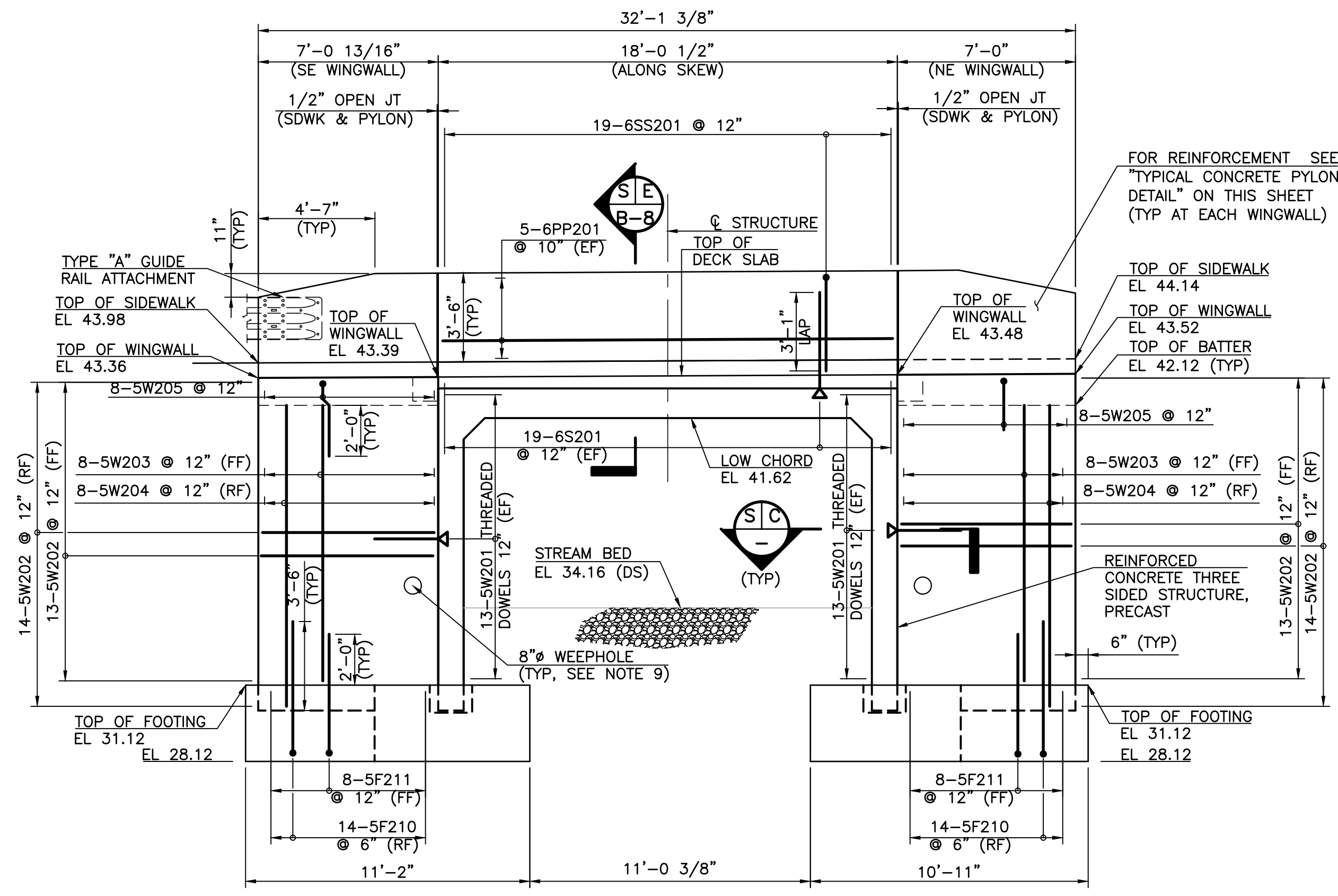
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 Sheet No: 25 of 32
 Date: November 2022

RONALD SENDNER
 County Engineer
 N.J.P.E. NO. 24GE03162200

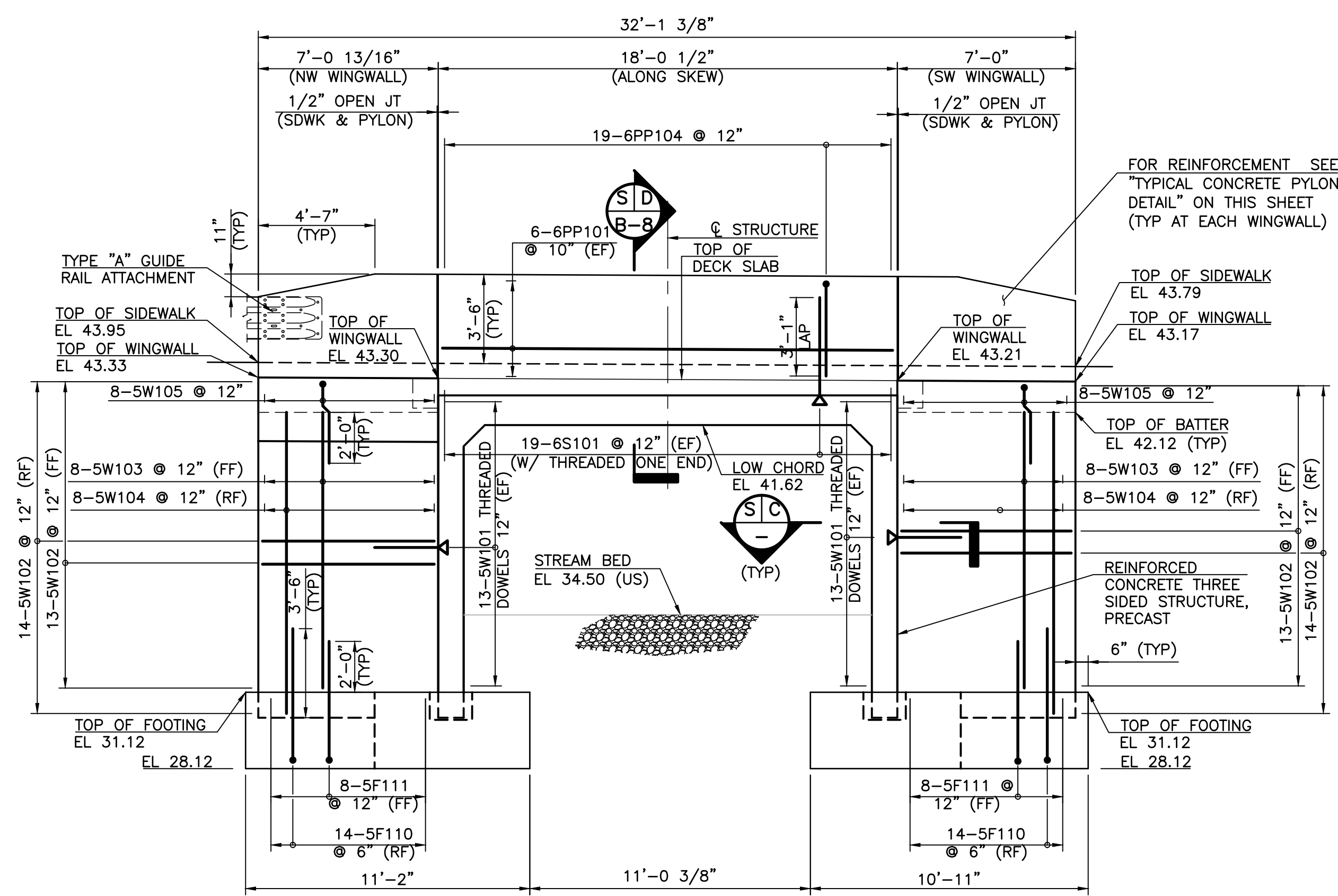
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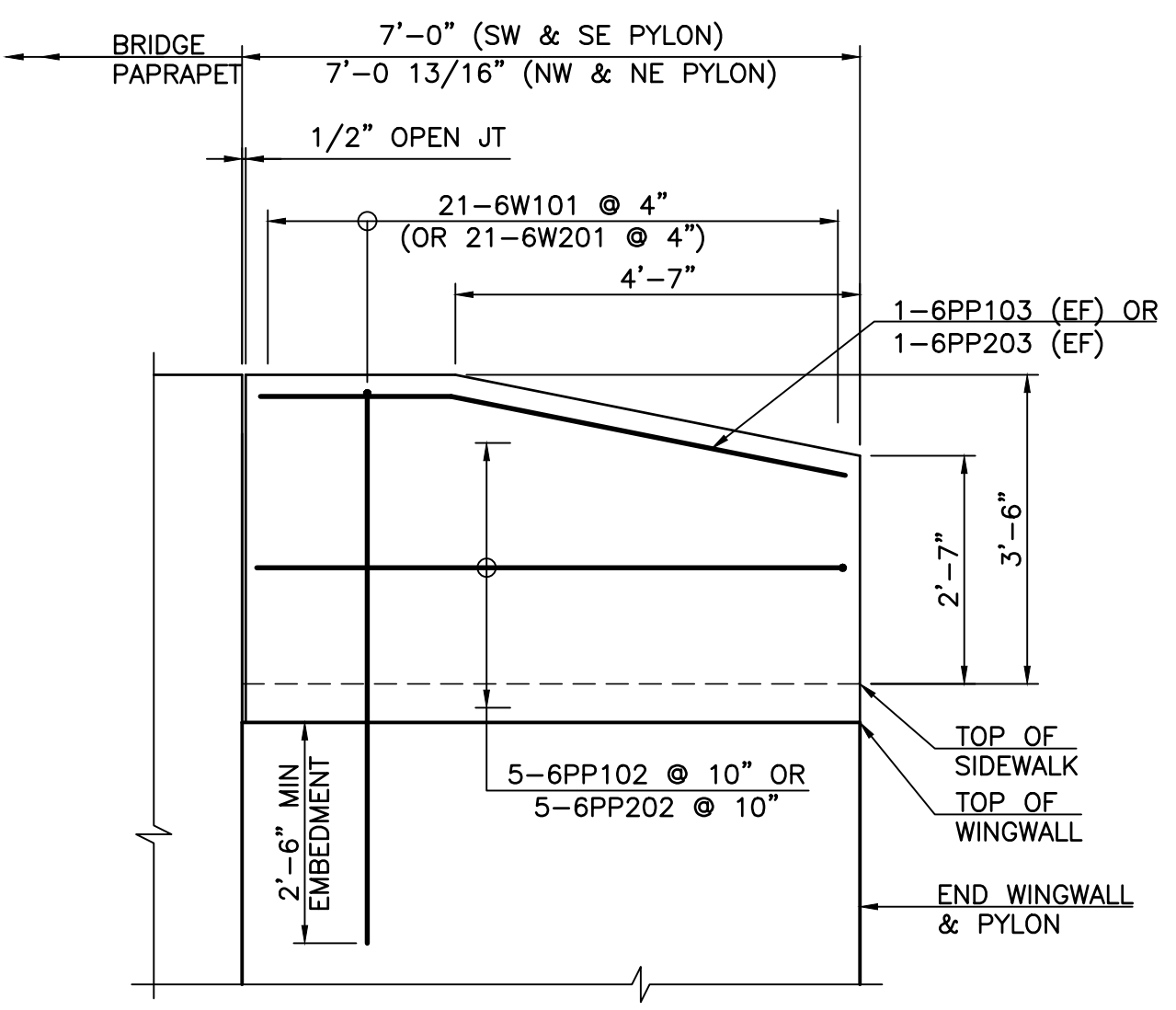
TOWNSHIP OF EDISON



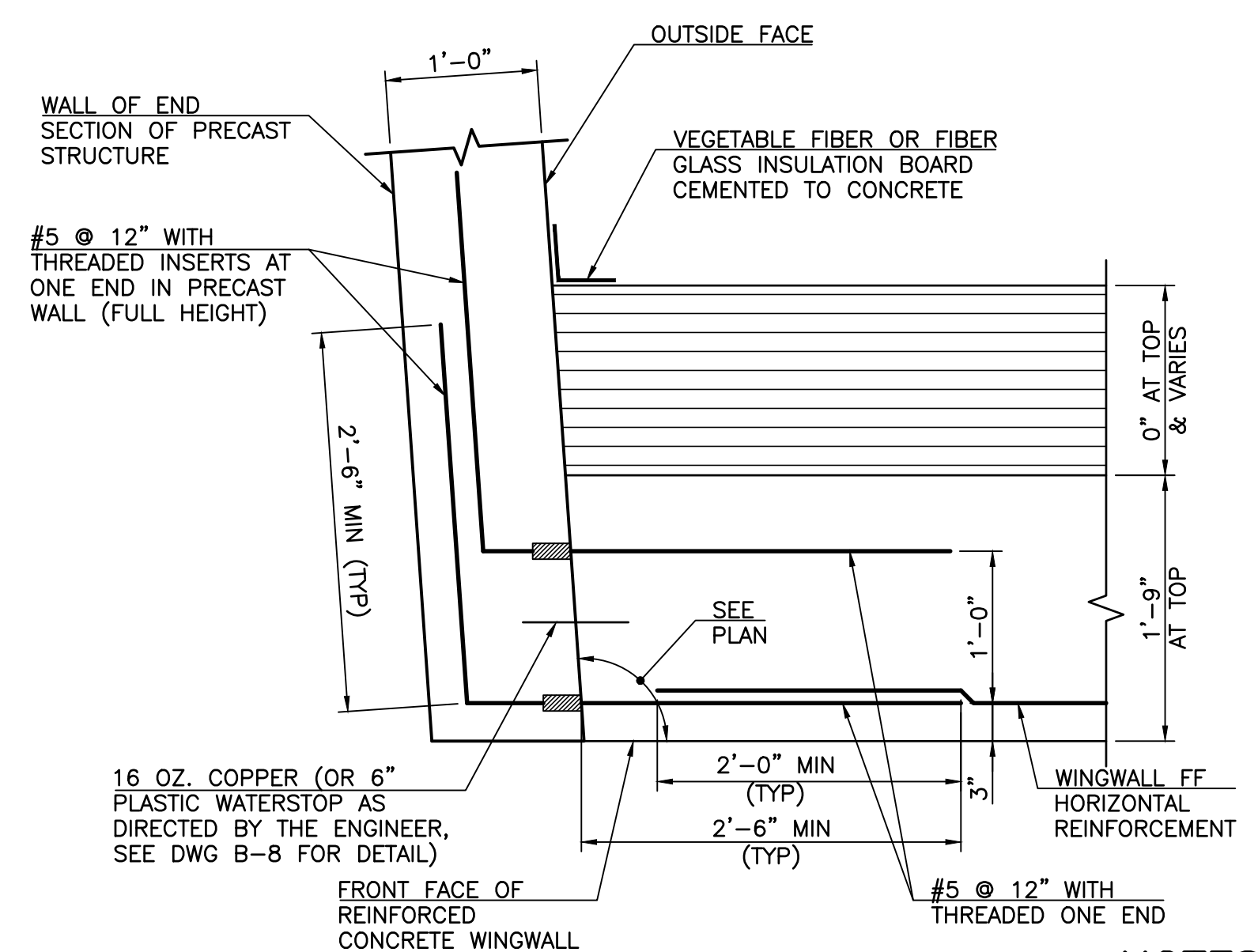
EAST (DOWNSTREAM) ELEVATION
(STAGE 2 CONSTRUCTION)
SCALE: 1/4" = 1'-0"



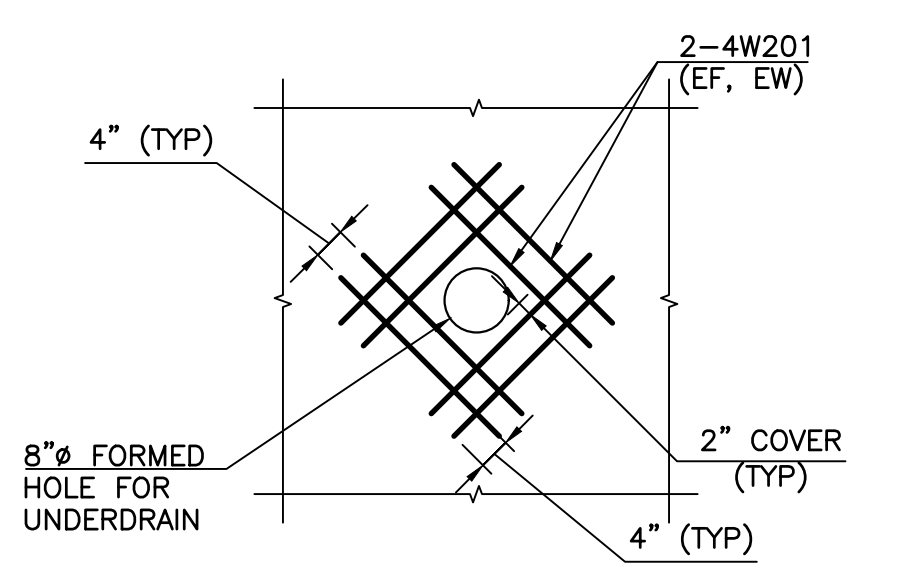
WEST (UPSTREAM) ELEVATION
(STAGE 1 CONSTRUCTION)
SCALE: 1/4" = 1'-0"



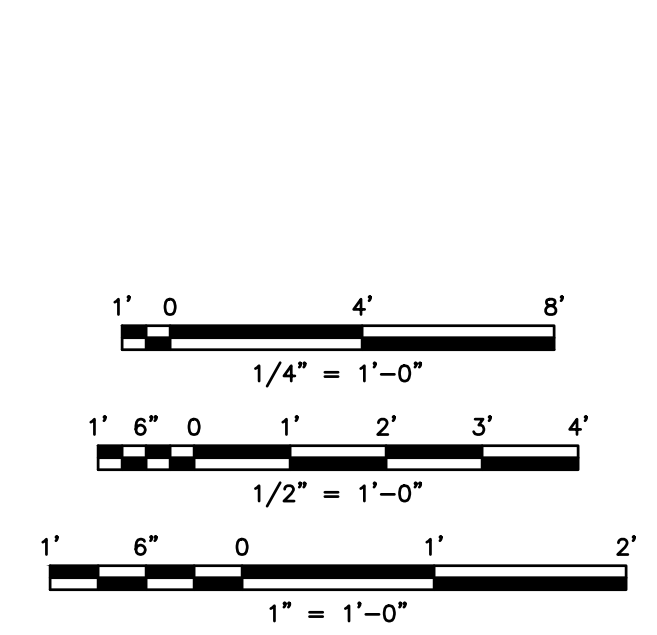
TYPICAL CONCRETE PYLON DETAIL
SCALE: 1/2" = 1'-0"



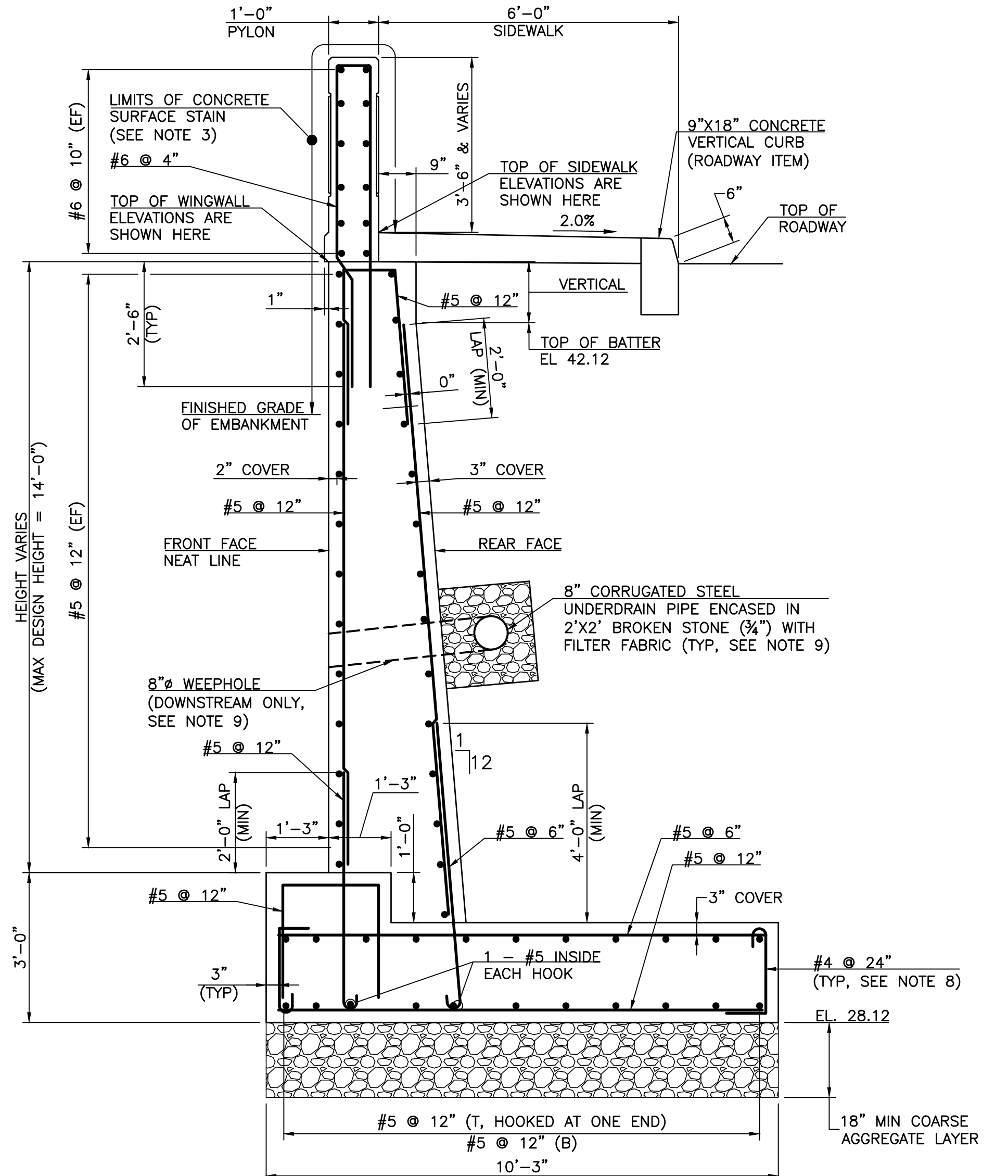
SECTION
SCALE: 1" = 1'-0"



WEEP HOLE REINFORCEMENT
NTS



COUNTY OF MIDDLESEX



TYPICAL WINGWALL SECTION
SCALE: 1/2" = 1'-0"

NOTES:

- ON WINGWALL ELEVATIONS COFFERDAM SHEETING (TO BE LEFT-IN- PLACE) AND COARSE AGGREGATE LAYER ARE NOT SHOWN FOR CLARITY.
- ON WINGWALL ELEVATIONS GABION WALLS ARE NOT SHOWN FOR CLARITY.
- APPLY CONCRETE STAIN TO EXPOSED SURFACES AND AS DIRECTED BY ENGINEER. THE COST OF THE STAIN SHALL BE INCLUDED IN THE PRICE BID ITEM "CONCRETE SIDEWALK REINFORCED, 6" THICK (ROADWAY ITEM).
- THE COST FOR 6" CONCRETE SIDEWALK ALONG WINGWALLS SHALL BE INCLUDED IN PRICE BID FOR THE ITEM "CONCRETE SIDEWALK REINFORCED, 6" THICK (ROADWAY ITEM).
- THE COST FOR CONCRETE PYLON AND/OR PARAPET ON WINGWALLS SHALL BE INCLUDED IN PRICE BID FOR THE ITEM "CONCRETE BRIDGE PARAPET".
- FOR GUIDERAIL ATTACHMENT DETAILS SEE 2007 STANDARD ROADWAY CONSTRUCTION - TRAFFIC CONTROL - BRIDGE CONSTRUCTION DETAILS CD-609-15.
- THE COST OF COARSE AGGREGATE LAYER UNDER C.I.P. CONCRETE WINGWALL SHALL BE INCLUDED IN PRICE BID ITEM "COARSE AGGREGATE LAYER".
- ALTERNATE 90° HOOK AND 135° HOOK AT TOP FOR #4 STIRRUPS.
- UNDERDRAIN NOTES:**
 - THE COST FOR THE GEOTEXTILE AND STONE POCKET SHALL BE IN THE PAYMENT FOR "8" CORRUGATED STEEL UNDERDRAIN."
 - FOR UNDERDRAIN INVERT ELEVATIONS, SEE FOOTING PLAN ON DWG B-6.

REFERENCE:

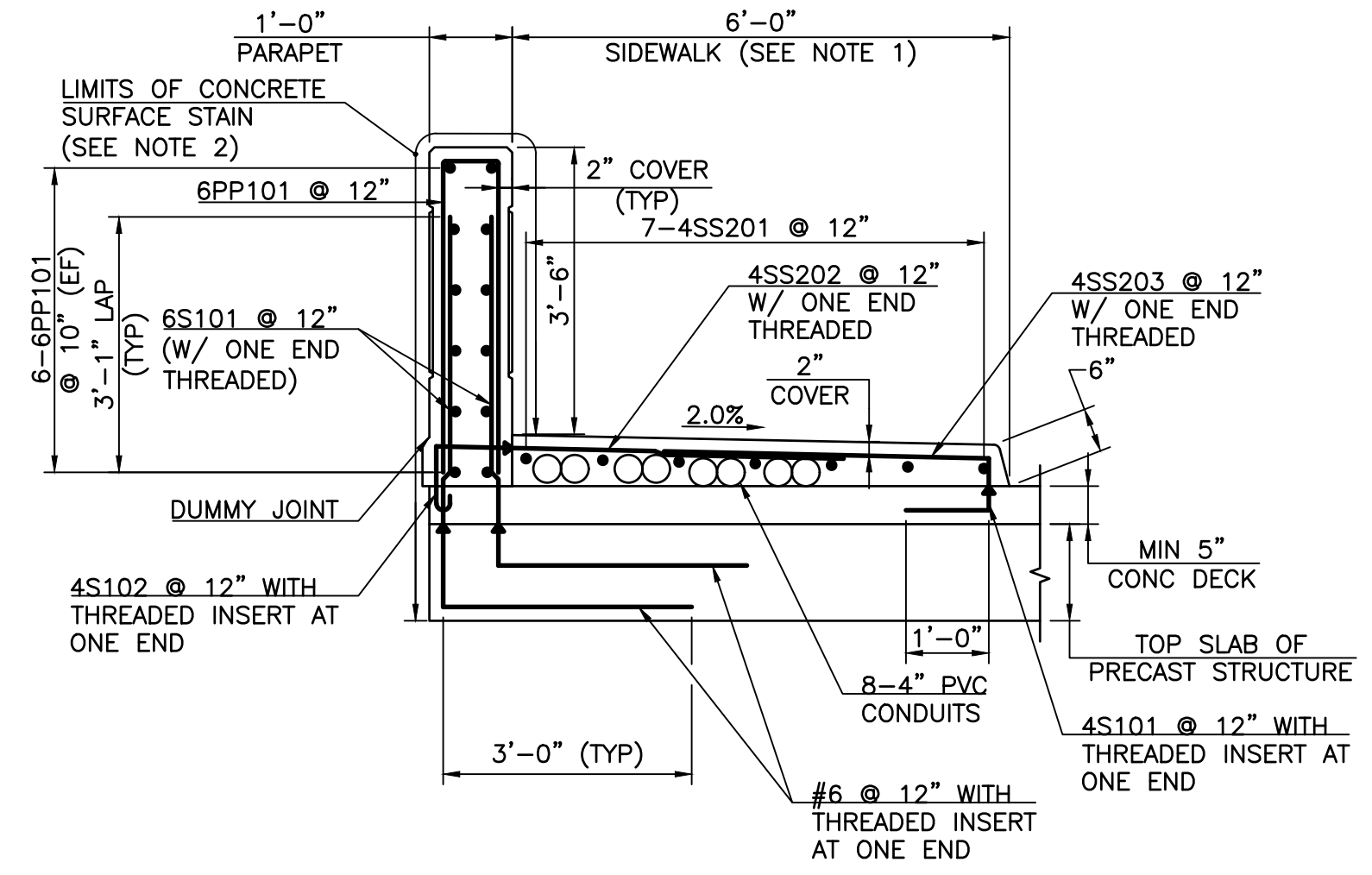
- FOR SIDEWALK AND PARAPET DETAILS, SEE SHEET NO. B-8.
- FOR FOOTING REINFORCEMENT, SEE SHEET NO. B-6.

		REVISIONS		County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		NO.	DATE	
11/18/22 Date Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY ES	DRAWN BY FC	REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER WINGWALL ELEVATIONS AND DETAILS Scale: AS SHOWN Sheet No: 27 of 32 Date: November 2022
		CHECKED BY JL	APPROVED BY HG	

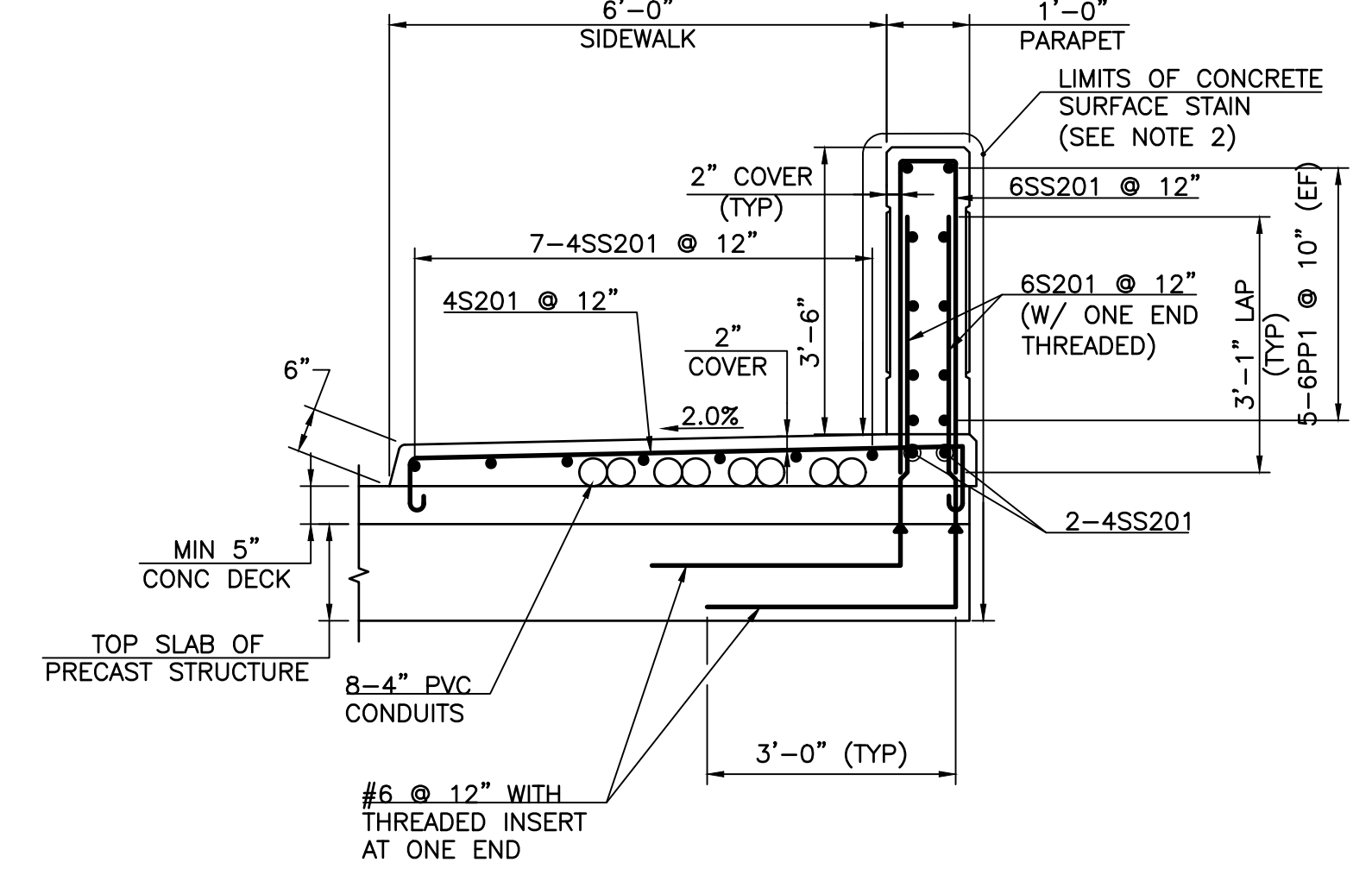
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 TIME Nov 17, 2022 - 6:55pm

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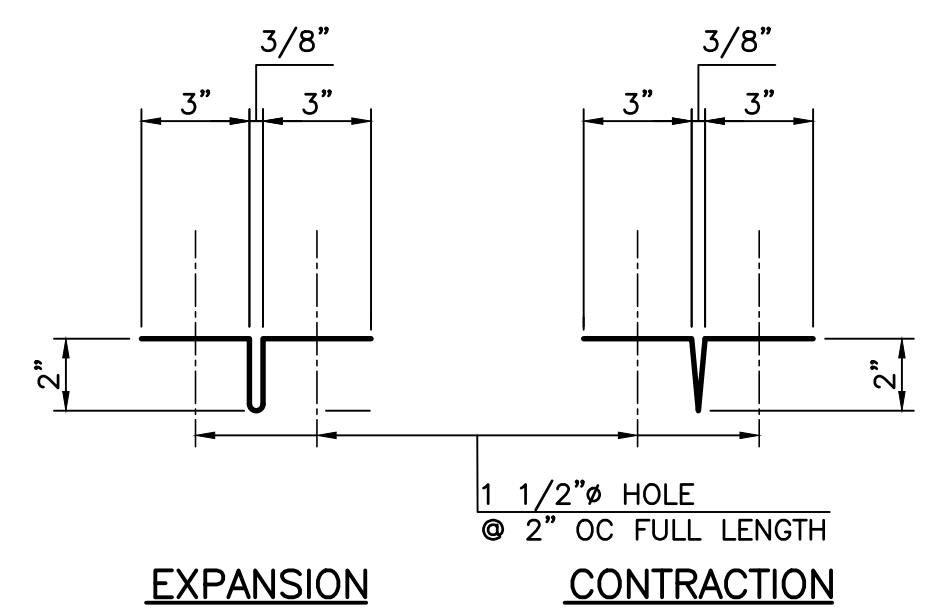
NOTE:
KEY NOT SHOWN. SIMILAR TO EXPANSION JOINT



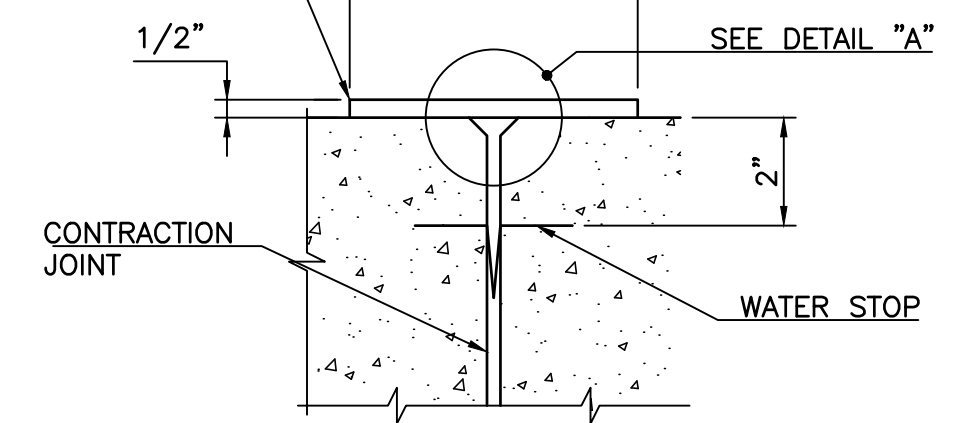
SECTION B-5
SCALE: 1/2" = 1'-0"



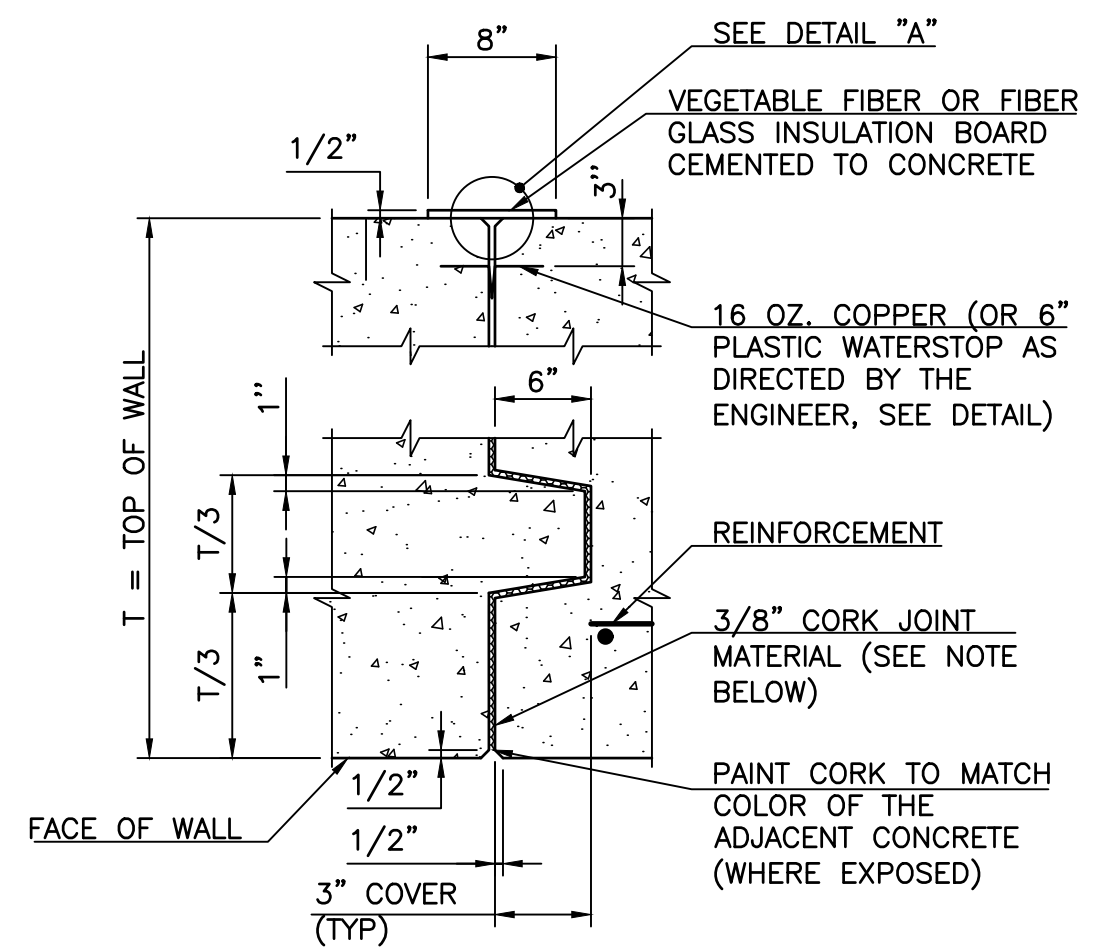
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SCALE: 1/2" = 1'-0"



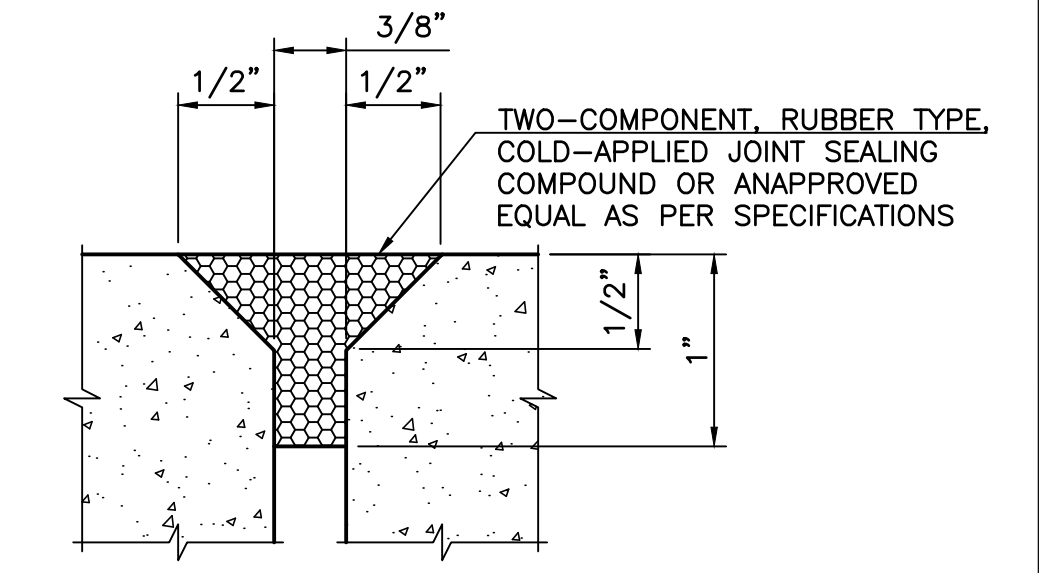
16 OZ. COPPER WATERSTOP - 10" WIDE
NTS



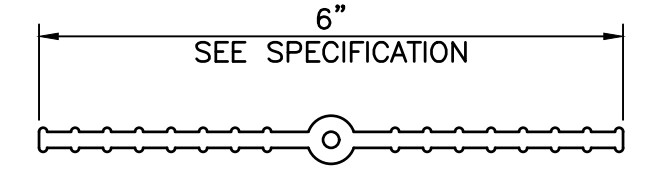
CONTRACTION JOINT
NTS



SECTION THROUGH EXPANSION JOINT
NTS



DETAIL "A" - SEALER
NTS

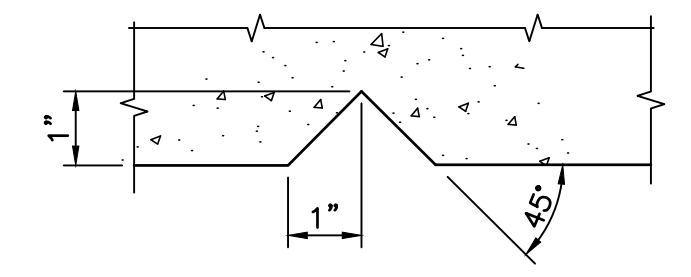


6" PLASTIC WATERSTOP DETAIL
NTS

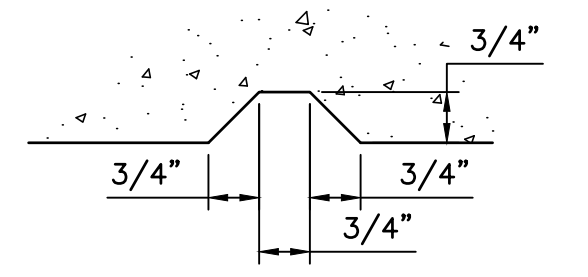
JOINT NOTES:

1. CORK JOINT MATERIAL CONFORMING TO AASHTO SPECIFICATIONS, DESIGNATION M153, TYPE 2, WHERE JOINT IS NOTED AS EXPANSION JOINT.
2. CONTRACTION JOINTS SHALL BE TIGHT AND SHALL BE PARAFFIN COATED. DISCONTINUE KEY AND WATERSTOP 6" BELOW TOP OF WALL.
3. REINFORCING STEEL TO DISCONTINUE AT CONTRACTION & EXPANSION JOINTS. PROVIDE 3" COVER HORIZONTALLY.

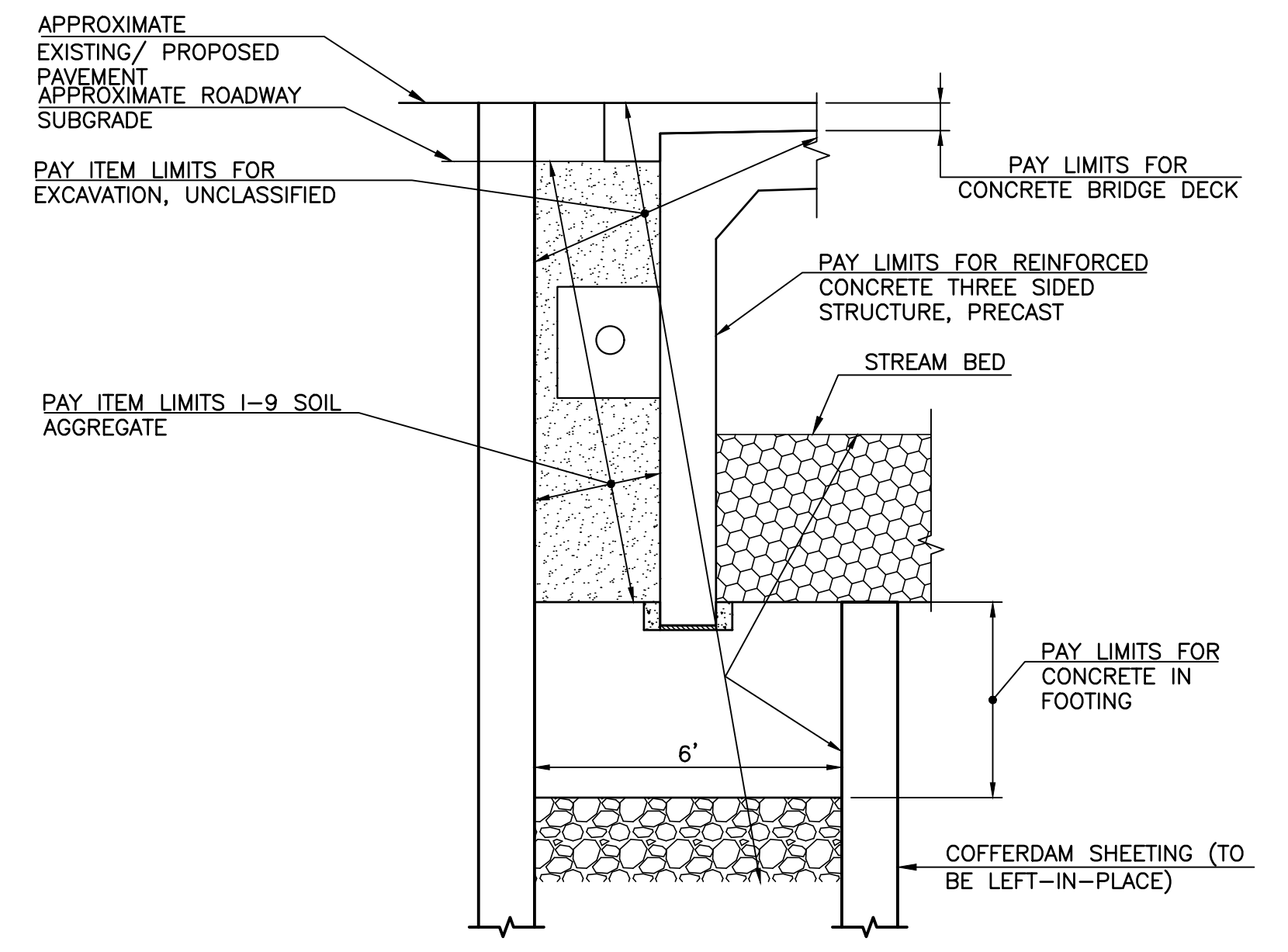
JOINT DETAILS



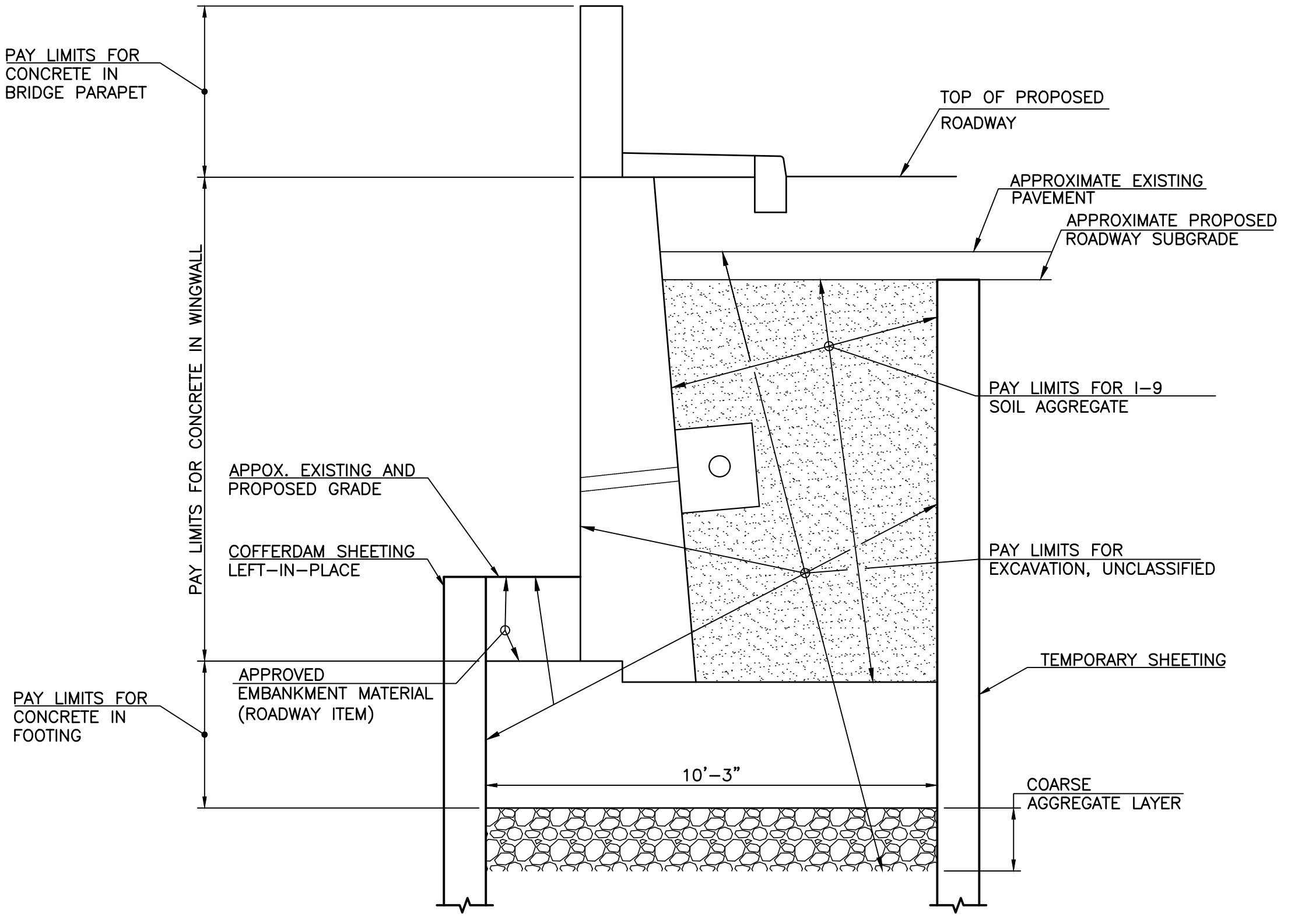
1" X 1" V-GROOVE DETAIL
NTS



DUMMY JOINT DETAIL
NTS



PAY LIMITS FOR REINFORCED CONCRETE THREE SIDED STRUCTURE, PRECAST
NTS



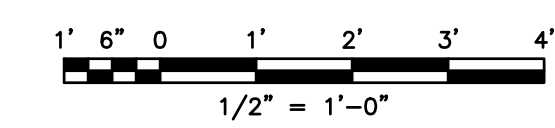
PAY LIMITS FOR WINGWALL
NTS

NOTES:

1. SIDEWALK TO BE CONSTRUCTED DURING STAGE 2 CONSTRUCTION.
2. APPLY CONCRETE STAIN TO EXPOSED SURFACES AND AS DIRECTED BY ENGINEER. THE COST OF THE STAIN SHALL BE INCLUDED IN THE PRICE BID ITEM "CONCRETE BRIDGE PARAPET".

REFERENCES:

1. FOR STANDARD LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE DWG LEG-1.
2. FOR STRUCTURAL NOTES AND SHEETING NOTES, SEE DWG B-2.
3. FOR ALL SIDEWALK SECTIONS, SEE DWG. B-5 WITH DWG. B-7.



PROJECT No. MDSX-00440
FILENAME G:\Projects\MDSX\00440\Plans\MDSX00440_S11029_BR_SND.dwg
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		NO.	DATE	BY	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		DESIGNED BY	DRAWN BY	Scale: AS SHOWN Sheet No: 28 of 32 Date: November 2022	
		CHECKED BY	APPROVED BY		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200
		JL	HG		

B-8
B-12

TOWNSHIP OF EDISON

THORNALL STREET
CONSTRUCTION

COUNTY OF MIDDLESEX

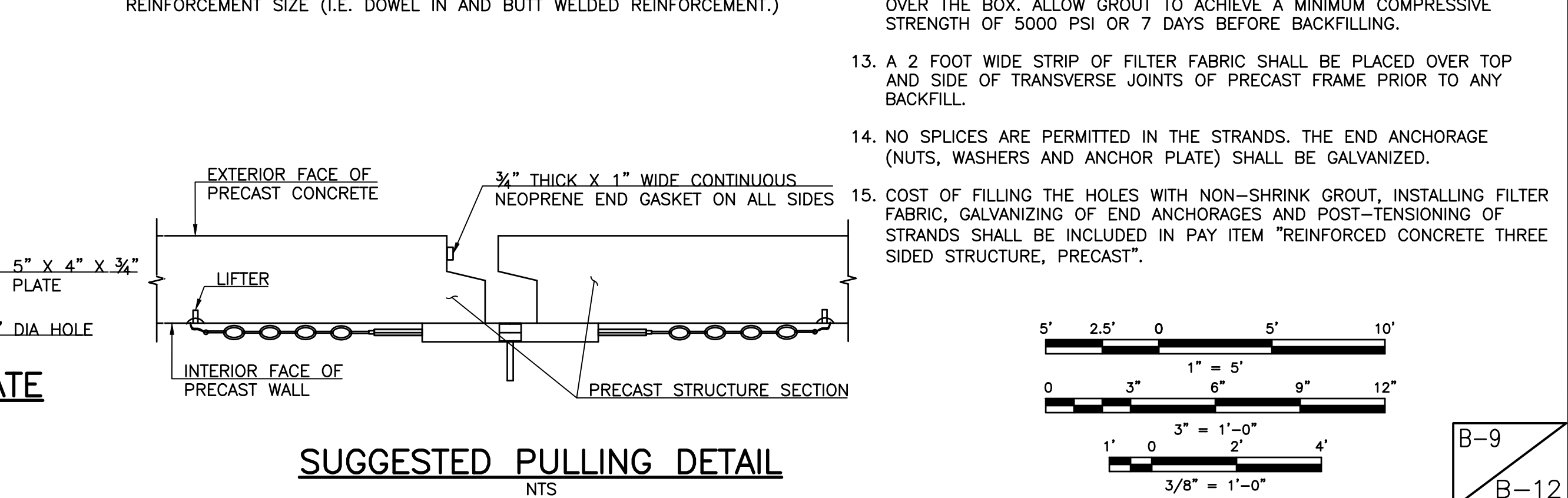
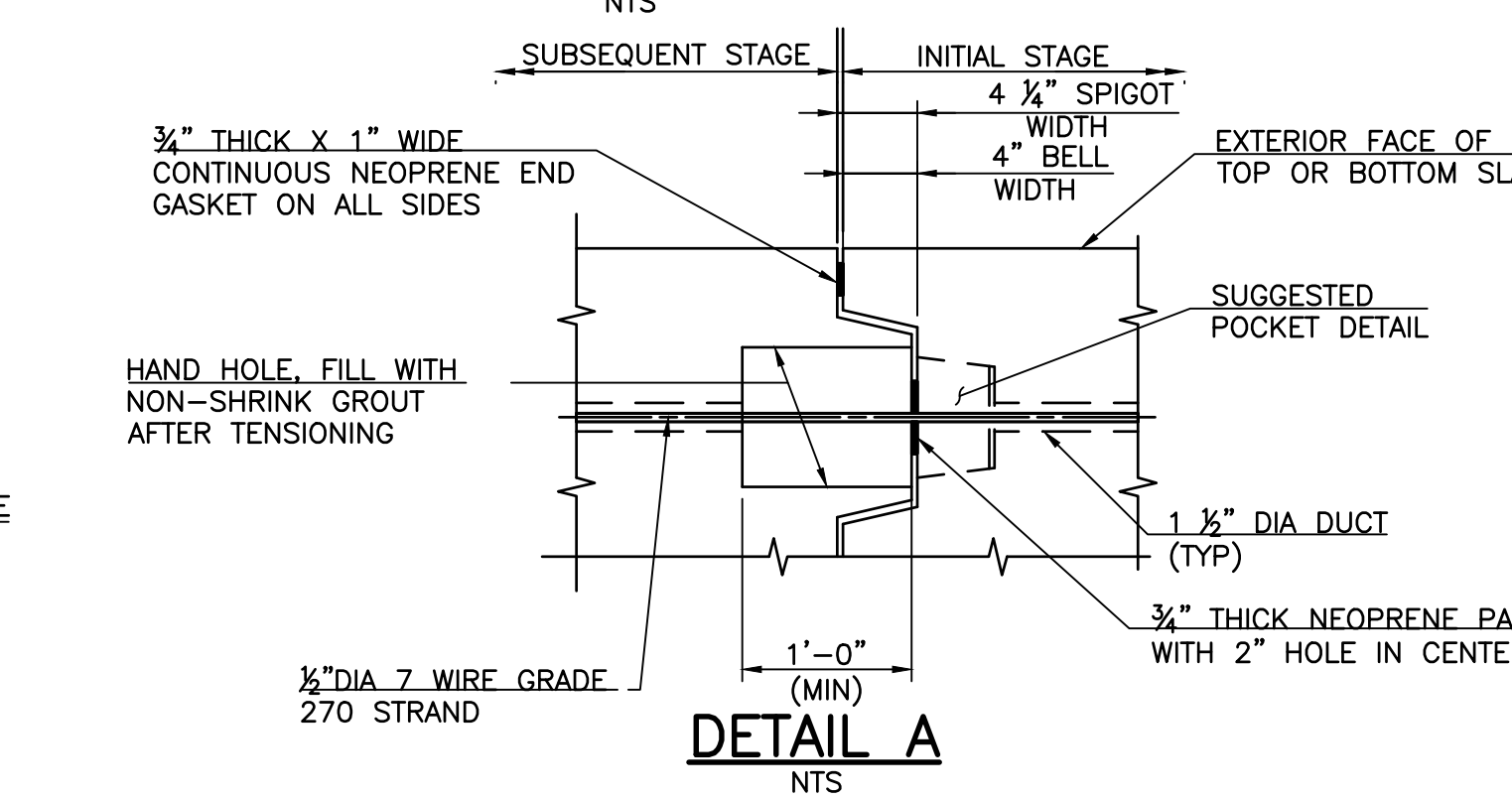
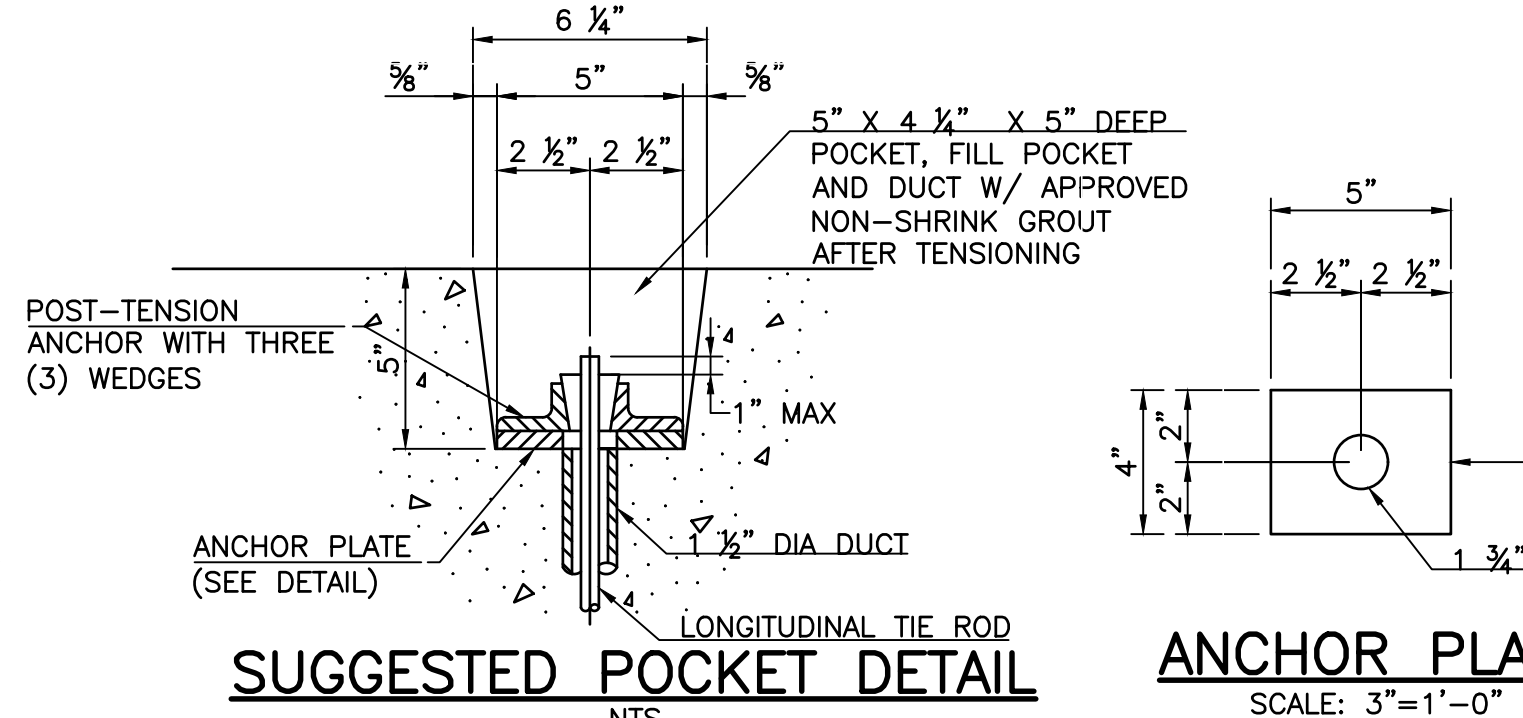
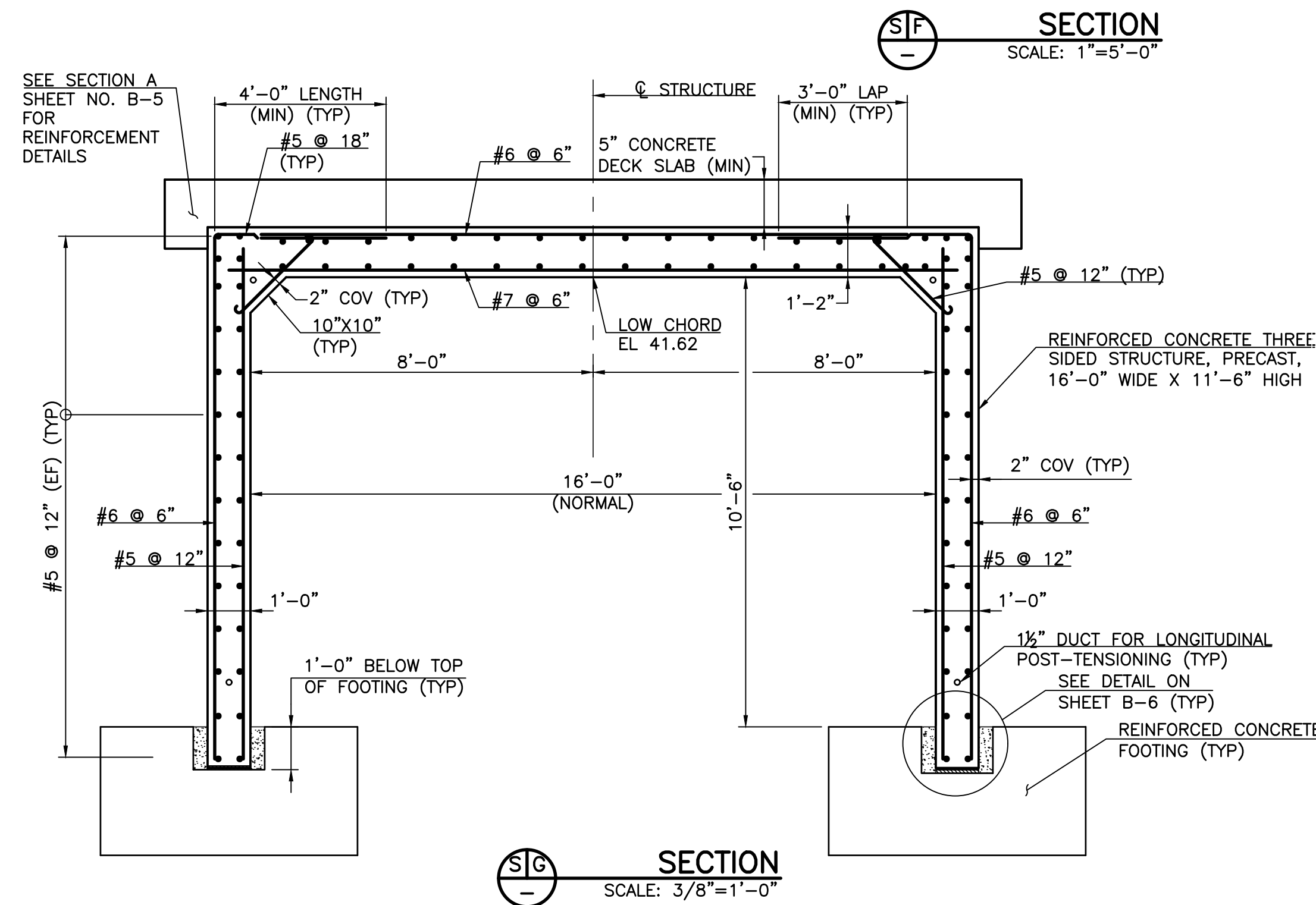
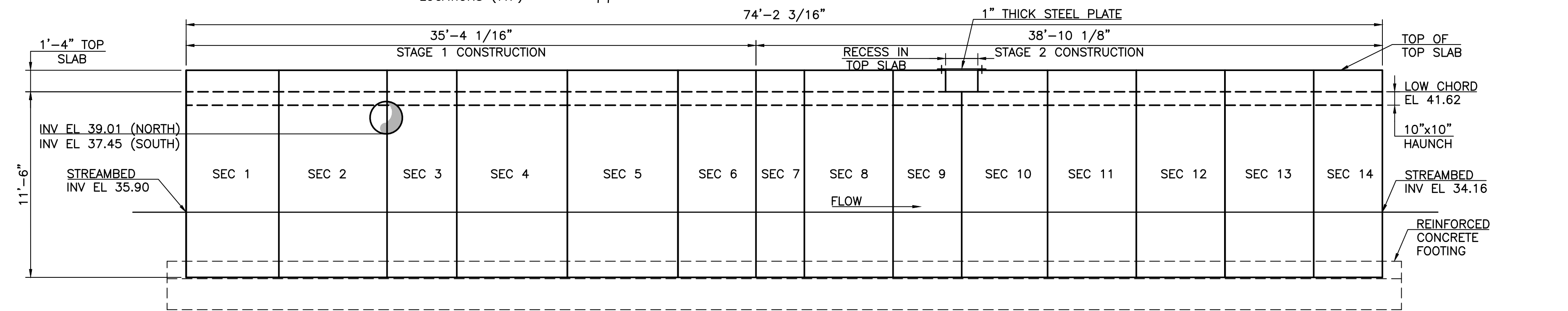
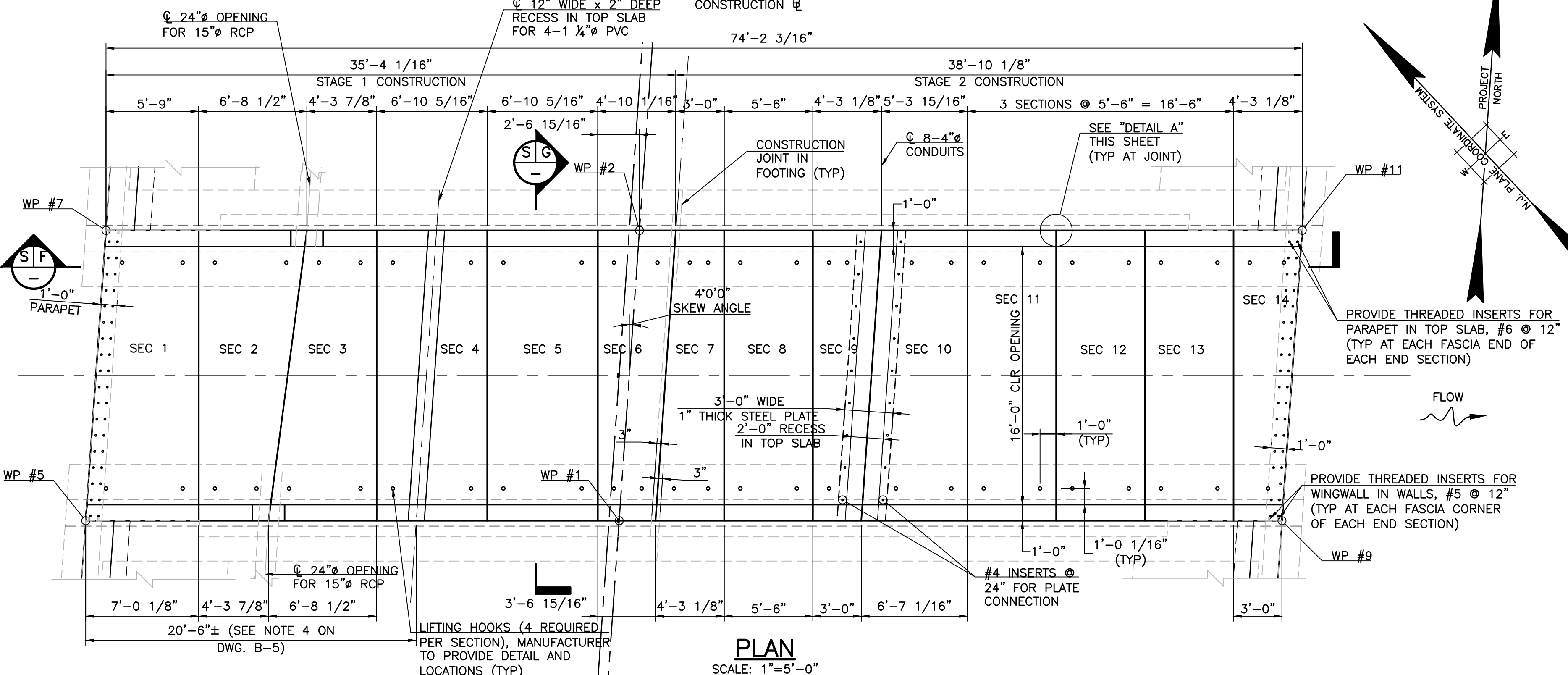
PRECAST NOTES (TO FABRICATOR):

- PRECAST THREE SIDED RIGID FRAME STRUCTURE SECTIONS SHALL BE DESIGNED BY THE CONTRACTOR/MANUFACTURER IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2020, 9TH EDITION AS MODIFIED BY THE NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES, 6TH EDITION, 2016 AND 2019 NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH THE CURRENT SUPPLEMENTARY SPECIFICATIONS, AS MODIFIED BY THE SPECIAL PROVISIONS.
- LIVE LOAD: AASHTO HL-93 VEHICULAR LIVE LOAD OR NJDOT PERMIT VEHICLE, WHICHEVER GOVERNS. 2'-0" OF LIVE LOAD SURCHARGE
- CONCRETE DESIGN STRESSES:
 - SPECIFIED DESIGN COMPRESSIVE STRENGTH (f'c)
CLASS P.....5,000 PSI
 - CLASS DESIGN STRENGTHS AT 28 DAYS (IN ACCORDANCE WITH TABLE 903.03.06-3 OF THE NJDOT STANDARD SPECIFICATIONS)
CLASS P.....5,500 PSI
- ALL REINFORCEMENT, INSERTS FOR REINFORCEMENT, AND NECESSARY DETAILS AND PLANS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE ENGINEER AND THE COUNTY ENGINEER.
- LOAD RESISTANCE FACTOR DESIGN (LRFD) SHALL BE USED FOR THE DESIGN.
- THE MINIMUM CONCRETE COVER OVER THE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 1-1/2 INCHES EXCEPT ON THE EXTERIOR SIDE OF THE TOP SLAB WHERE IT SHALL BE 2 INCHES.
- THE MANUFACTURING PLANT SHALL BE CERTIFIED BY EITHER THE NATIONAL PRECAST CONCRETE ASSOCIATION OR BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM. CERTIFICATIONS SHALL LIST THE PROPER PRODUCT BEING SUPPLIED. WRITTEN PLANT CERTIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER AND THE COUNTY ENGINEER FOR REVIEW AND FINAL APPROVAL.
- THE FABRICATOR CHOSEN TO SUPPLY THE PRECAST STRUCTURE IS REQUIRED TO SUPPLY A COPY OF STRUCTURAL CALCULATIONS AND DETAILED SHOP DRAWINGS FOR REVIEW AND APPROVAL OF THE ENGINEER AND THE COUNTY ENGINEER. CALCULATIONS AND DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY. THE WALL THICKNESS AND REINFORCEMENT SHOWN ARE THE MINIMUM TO BE PROVIDED. THE PRECAST MANUFACTURER SHALL VERIFY THE SIZES AND AMEND THEM AS REQUIRED.
- WORKING DRAWINGS SHALL BE IN FORMAT SPECIFIED IN NJDOT STANDARD SPECIFICATIONS.
- ALL REINFORCEMENT IN STRUCTURE SHALL BE DEFORMED BARS HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A767. WELDED WIRE FABRIC SHALL NOT BE PERMITTED IN THE CONSTRUCTION OF THE PRECAST 3 SIDED STRUCTURE.
- ALL EXPOSED EDGES OF CONCRETE (PRECAST AND CAST-IN-PLACE) TO BE CHAMFERED 3/4".
- TOP OF TOP SLAB SHALL HAVE RAKED FINISH TO PROVIDE FOR BONDING WITH CONCRETE FOR DECK SLAB.
- A FLEXIBLE WATER TIGHT RUBBER GASKET SHALL BE PROVIDED AT THE JOINT BETWEEN THE PRECAST UNITS. THE GASKET SHALL BE CONTINUOUS AROUND THE CIRCUMFERENCE OF THE JOINTS. DETAILS OF THE TRANSVERSE JOINT BETWEEN THE STRUCTURE SECTIONS SHALL BE PROVIDED ON THE STRUCTURE SHOP DRAWING.
- ALL INSERTS SHALL BE THREADED MECHANICAL INSERTS, INSTALLED PRIOR TO CASTING OF CONCRETE. GROUTED ANCHORS WILL NOT BE PERMITTED. THE INSERT SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE NOMINAL REINFORCEMENT SIZE (I.E. DOWEL IN AND BUTT WELDED REINFORCEMENT.)

- CONTINUOUS WATERSTOP SHALL BE CAST INTO THE PRECAST SIDEWALLS FOR CONNECTION WITH CAST-IN-PLACE WINGWALLS AS INDICATED ON DETAILS.
- THE FABRICATOR SHALL UTILIZE FORMWORK THAT MEETS THE PRECAST UNIT DIMENSIONS AND SPECIFICATIONS AS SHOWN ON THE CONTRACT PLANS.
- FABRICATOR MAY ALTER NUMBER OF SECTIONS AND SECTION LENGTH OF PRECAST FRAME TO THE EASE OF SHIPPING OR INSTALLATION AT NO ADDITIONAL COST TO THE OWNER.
- FABRICATOR SHALL PROVIDE ALL DETAILS FOR POST-TENSIONING CONNECTIONS AND SHOW POST-TENSIONING PROCEDURES INCLUDING STRESSING SEQUENCE STEPS.
- PRECAST CONCRETE STRUCTURE UNITS SHALL NOT BE SHIPPED UNTIL 72 HOURS AFTER FABRICATION AND THE 28 DAY COMPRESSIVE STRENGTH REQUIREMENT IS MET.

PRECAST NOTES (TO CONTRACTOR):

- WINGWALLS, WINGWALL FOOTINGS, 3 SIDED STRUCTURE FOOTING, AND PARAPETS SHALL BE CAST-IN-PLACE, PRECASTING OF THESE STRUCTURES WILL NOT BE PERMITTED.
- PROVIDE LONGITUDINAL TIE RODS 3/4" HIGH TENSILE STRENGTH STEEL BAR CONFORMING TO AASHTO M 275M (ASTM A 722). THE USE OF 3/4" GRADE 270 POLYSTRANDS CONFORMING TO AASHTO M203 OR APPROVED EQUAL SHALL BE PERMITTED FOR USE AS LONGITUDINAL TIE RODS IN LIEU OF THE 3/4" STEEL BARS.
- INSTALL LONGITUDINAL TIE RODS IN PRECAST SECTIONS. EACH TIE ROD SHALL BE STRESSED TO A TENSION OF 30,000 LBS. OVER THE CROSS SECTION OF ANY SECTION. INSTALL STRANDS IN PRECAST SECTIONS. STRESS EACH STRAND TO A TENSION OF 28.9 KSI OVER THE CROSS SECTION OF ANY SECTION.
- ANY TOP SLAB POCKETS OR HOLES SHALL BE GROUTED IN THE FIELD. THE COST OF GROUTING TO BE INCLUDED IN PAY ITEM "REINFORCED CONCRETE THREE-SIDED STRUCTURE, PRECAST".
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING AND PROPOSED UTILITIES AND SHALL COORDINATE WITH THE PRECAST MANUFACTURER PRIOR TO THE FABRICATION OF THE CULVERT.
- ALL JOINTS SHALL BE SNUG FIT BEFORE POST-TENSIONING.
- AFTER TENSIONING, THE EXPOSED ENDS OF THE TIES SHALL BE REMOVED SO THAT NO PART OF THE TIES, OR OF THE END FITTINGS, EXTEND BEYOND A POINT 1" INSIDE THE ANCHORAGE POCKET.
- AFTER STRESSING, GROUT ALL STRAND VOIDS USING AN APPROVED COMPOUND.
- PROVIDE SEALS OR GASKETS AROUND THE DUCTS AT THE JOINTS TO MAKE THE JOINTS GROUT TIGHT.
- ALL POST-TENSIONING MUST BE WITNESSED AND APPROVED BY THE ENGINEER.
- AFTER POST-TENSIONING IS APPROVED, CUT STRANDS TO PROVIDE A MINIMUM OF 2 1/4" CLEAR FROM OUTSIDE FACE OF CONCRETE, COAT ANCHORAGE AND STRANDS WITH COAL TAR EPOXY AND COAT RECESS WITH EPOXY BONDING COMPOUND AND FILL WITH APPROVED NON-SHRINK GROUT. THE USE OF EPOXY BONDING COMPOUND SHALL BE IN CONFORMANCE WITH NJDOT STANDARD SPECIFICATIONS, SUBSECTION 518.04 SUBPART 2(A).
- POST-TENSION AND GROUT BEFORE BACKFILLING AND PLACING TRAFFIC OVER THE BOX. ALLOW GROUT TO ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI OR 7 DAYS BEFORE BACKFILLING.
- A 2 FOOT WIDE STRIP OF FILTER FABRIC SHALL BE PLACED OVER TOP AND SIDE OF TRANSVERSE JOINTS OF PRECAST FRAME PRIOR TO ANY BACKFILL.
- NO SPLICES ARE PERMITTED IN THE STRANDS. THE END ANCHORAGE (NUTS, WASHERS AND ANCHOR PLATE) SHALL BE GALVANIZED.
- COST OF FILLING THE HOLES WITH NON-SHRINK GROUT, INSTALLING FILTER FABRIC, GALVANIZING OF END ANCHORAGES AND POST-TENSIONING OF STRANDS SHALL BE INCLUDED IN PAY ITEM "REINFORCED CONCRETE THREE SIDED STRUCTURE, PRECAST".



NEW JERSEY
STATE ENGINEER
No. GE046461
LICENSED PROFESSIONAL ENGINEER
NJPE No. 24GE04646100

11/18/22
Date

DESIGNED BY: Darren Ferlazzo
DRAWN BY: ES
CHECKED BY: JL
APPROVED BY: HG

County of Middlesex
Department of Transportation
Office of Engineer
75 Bayard St., New Brunswick, N.J. 08901

REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER

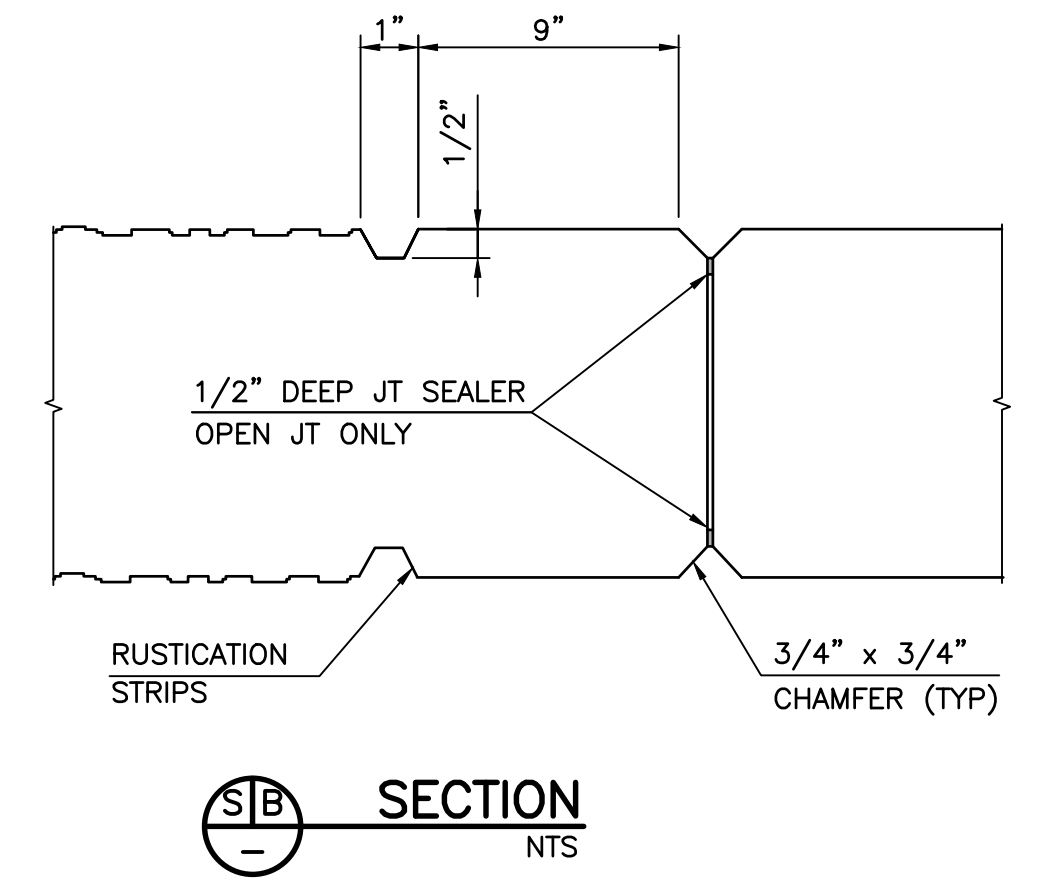
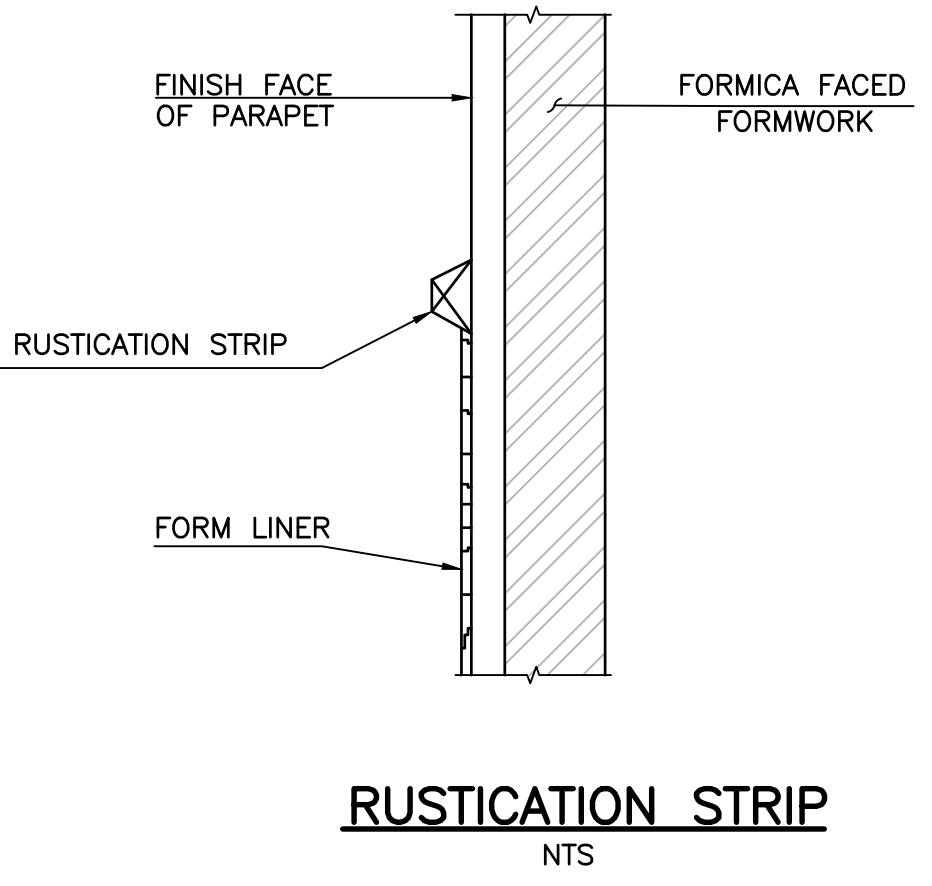
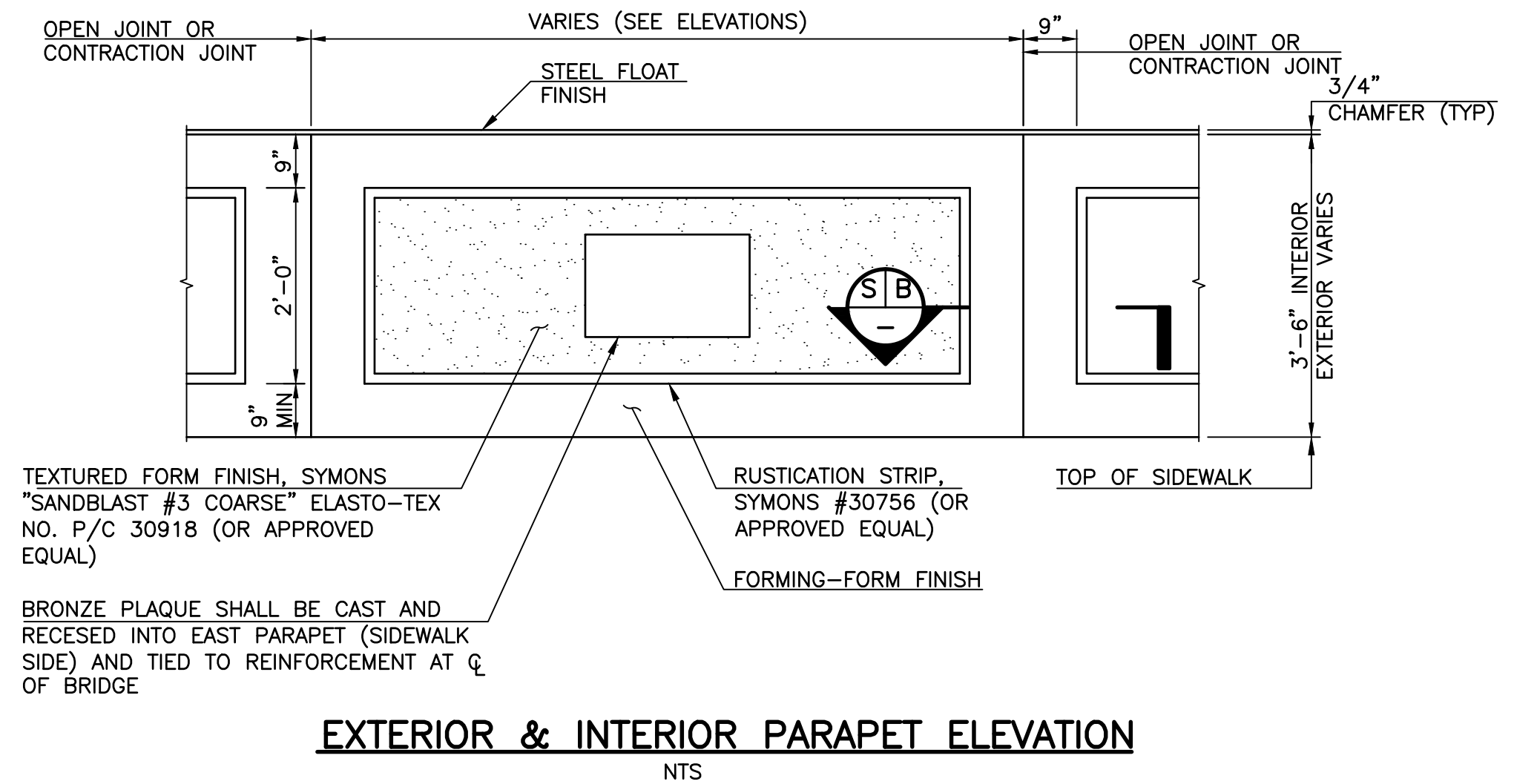
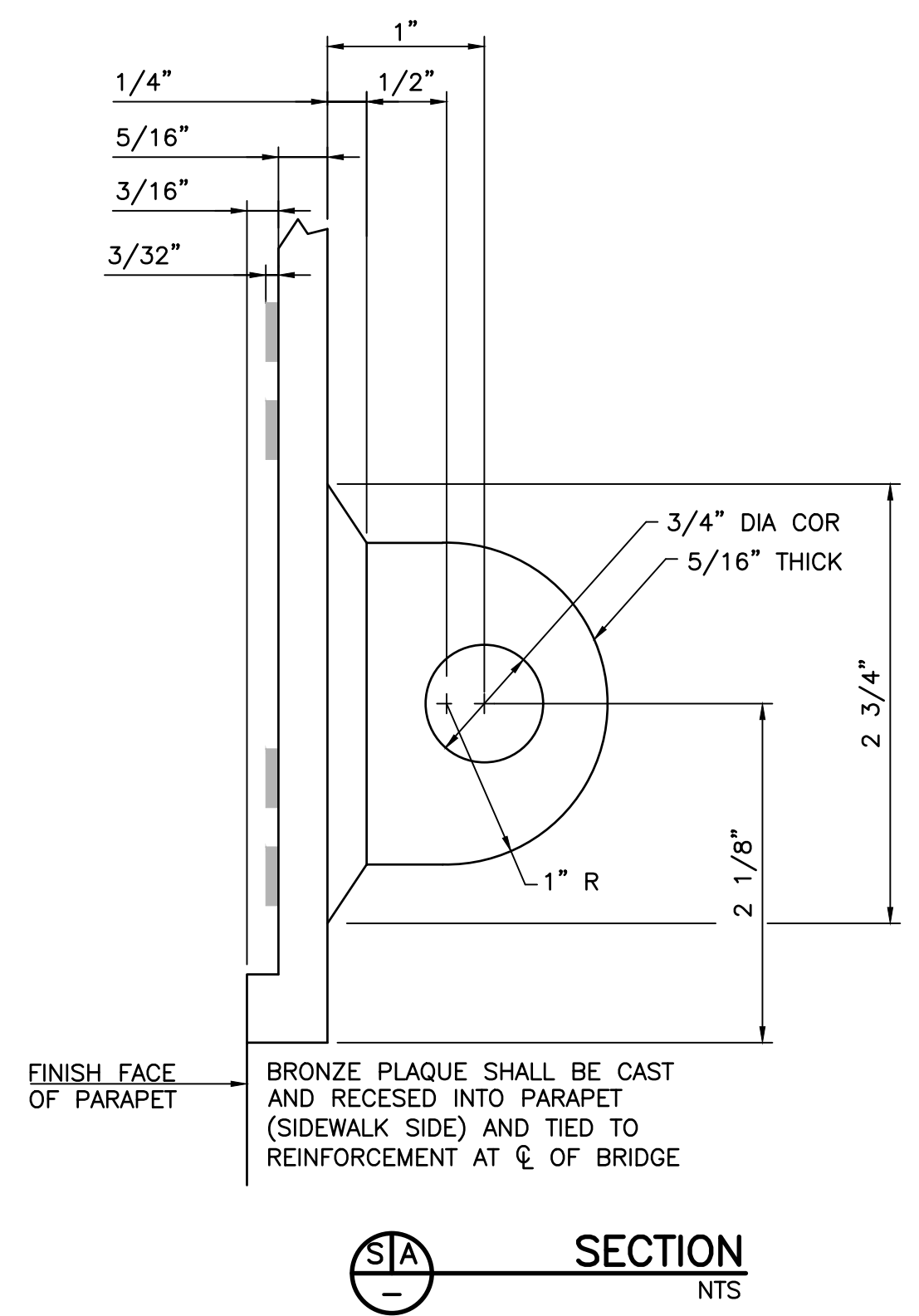
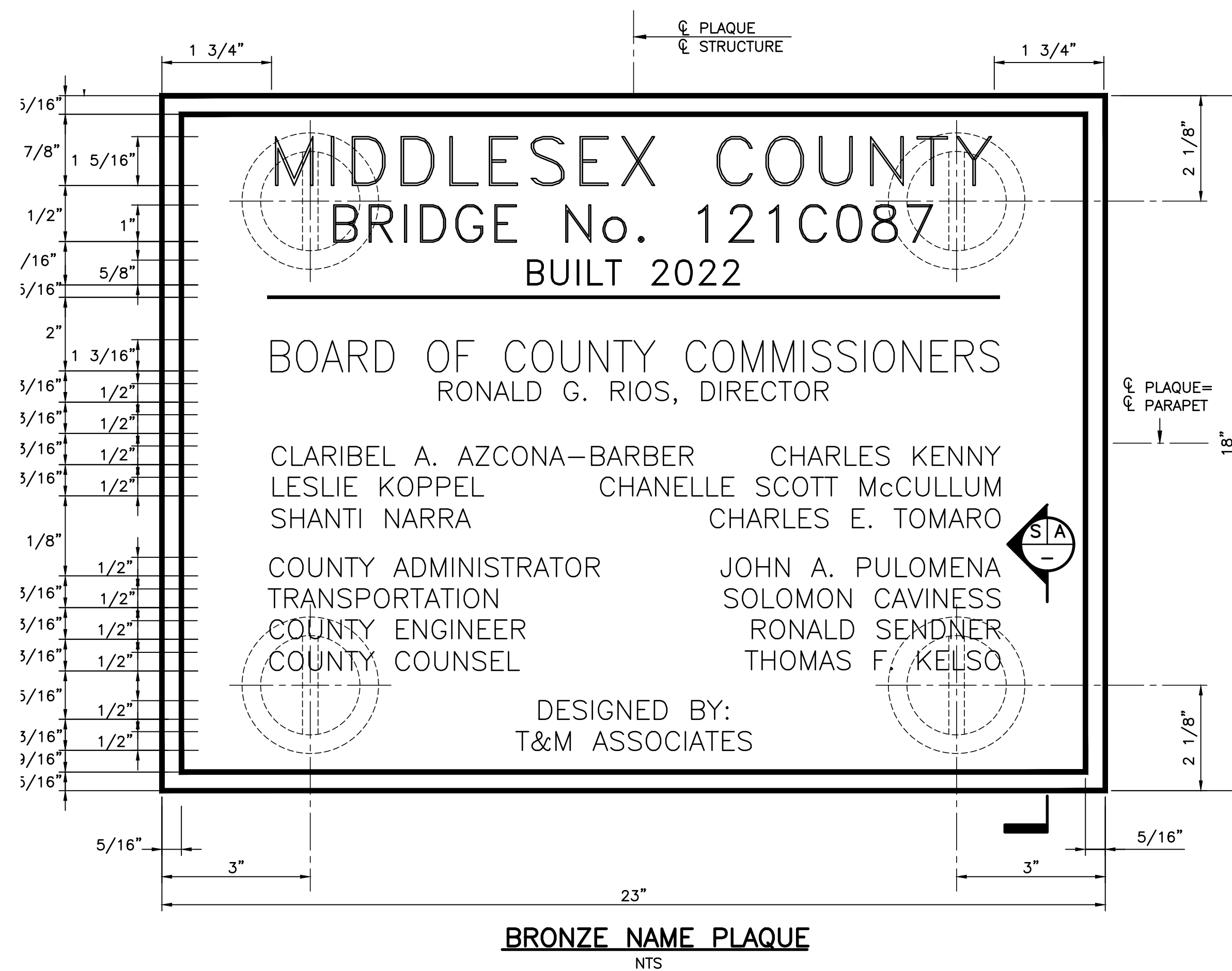
FRAMING PLAN

Scale: AS SHOWN
Sheet No: 29 of 32
Date: November 2022

RONALD SENDNER
County Engineer
N.J.P.E. No. 24GE03162200

PROJECT No. MDSX-00440
FILENAME: G:\Projects\MDSX\00440\Plans\MDSX00440_SFD029_BR_FRM.dwg
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NOTES:

1. PLAQUE ALPHA NUMERIC DIMENSIONS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. SUBMIT SHOP DRAWING FOR APPROVAL PRIOR TO FABRICATION.
2. RUSTICATION PARAPET & WINGWALLS A DURABLE, WATERPROOF, COLORED ARCHITECTURAL COATING SHALL BE USED ON THE EXPOSED SURFACE OF PARAPETS AND WINGWALLS (TO 2" BELOW FINISHED GRADE). COATING SHALL BE APPLIED IN A MINIMUM OF TWO COATS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. COATING SHALL BE A COLORED, ACRYLIC-BASED STAIN SPECIFICALLY INTENDED FOR SEALING OF CONCRETE. COATING SHALL BE ACRYLIC PEN TWO-COMPONENT SILANE/ACRYLIC SEALER MANUFACTURED BY NOX-CRETE PRODUCTS GROUP, OMAHA, NE., PHONE (402) 341-1976 OR (800) 669-2738, OR APPROVED EQUAL. THE COLOR SHALL BE "LIGHT BROWN" AND A COLOR SAMPLE SHALL BE PROVIDED TO THE ENGINEER FOR VERIFICATION PRIOR TO PLACEMENT. PRIOR TO COATING ALL SPECIFIED SURFACE, THE AREA TO BE CLEANED OF ALL LATENCE BY A POWER WASH ROTATING-NOZZLE WATER JET. A 3"x6" TEST PANEL OF CONCRETE SHALL BE CAST AND STAINED FOR APPROVAL OF THE COLOR AND FINISH BY THE ENGINEER. NO SEPARATE PAYMENT WILL BE MADE FOR RUSTICATION, TEXTURED FINISH & STAINING. THE COST THEREOF SHALL BE INCLUDED IN THE ITEM OF PARAPETS AND WINGWALLS.

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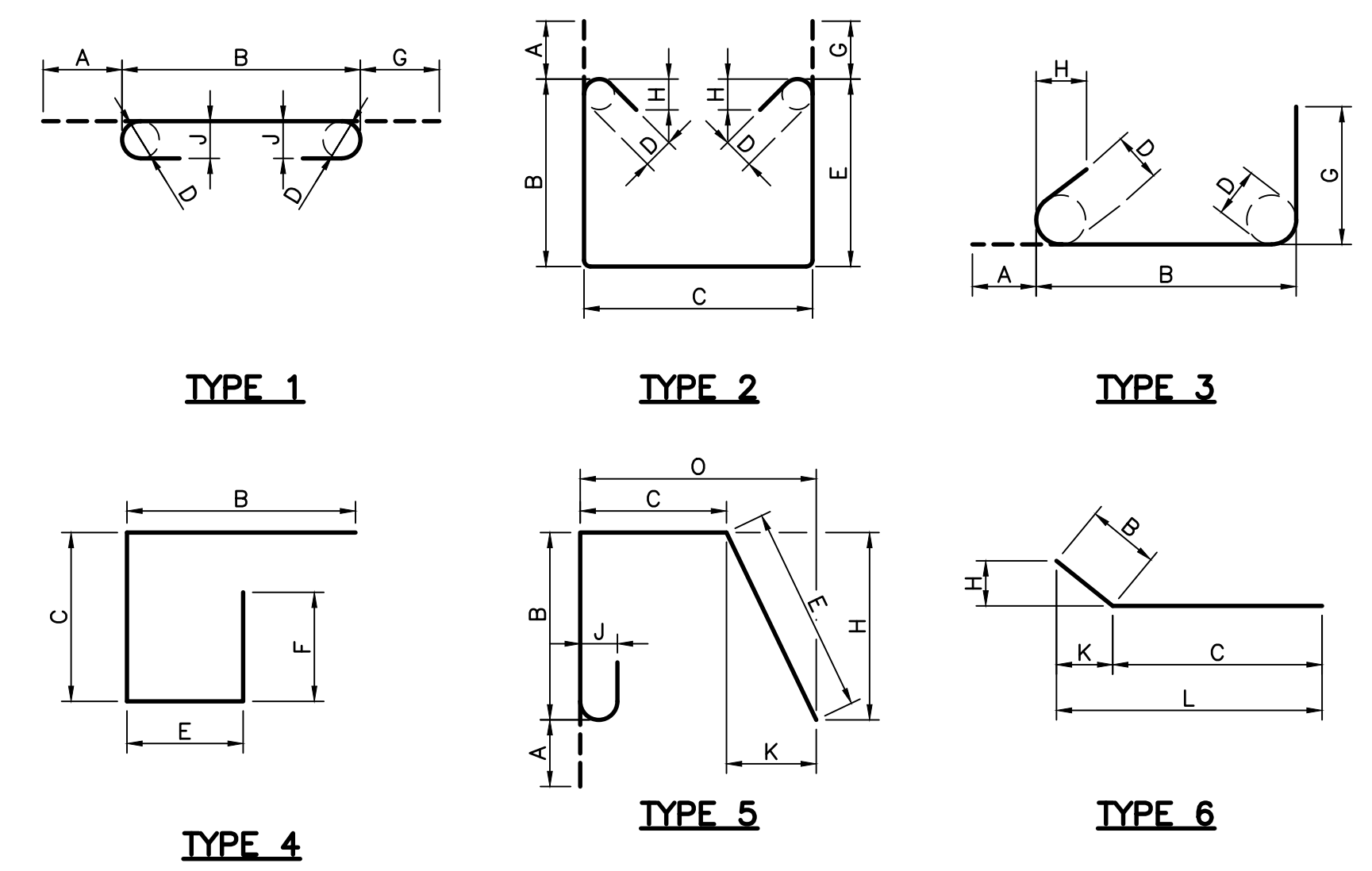
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B-10
B-12

		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901 REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER PARAPET AND PLAQUE DETAILS
		DESIGNED BY ES	DRAWN BY FC	CHECKED BY JL	
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		Scale: AS SHOWN Sheet No: 30 of 32 Date: November 2022		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200	

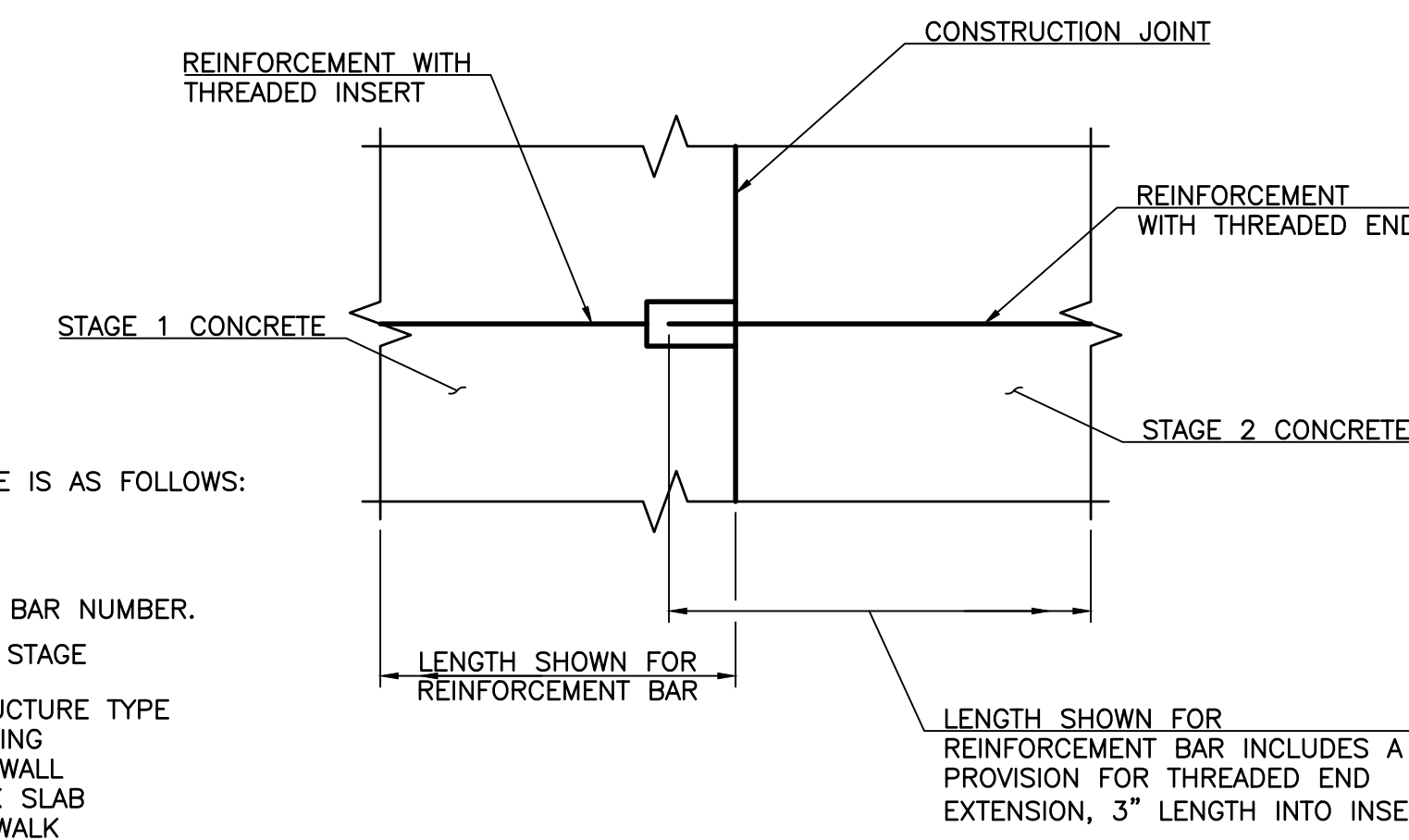
REINFORCEMENT SCHEDULE

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	K	L	R	REMARKS
FOOTING - STAGE 1																	
4F101	4	32	3'-6"	3	0'-4 1/2"	2'-6"		0'-2"			0'-7 1/2"	0'-3"					WW FTG-SEISMIC STIRRUPS
5F101	5	36	36'-4"	STR													CULVERT FTG-LONGITUDINAL
5F102	5	76	10'-6"	2		2'-6"	5'-6"		2'-6"								CULVERT FTG-TRANSVERSE
5F103	5	56	6'-8"	1	0'-7"	5'-6"					0'-7"						CULVERT FTG-TRANSVERSE
5F104	5	152	5'-11 1/2"	2	0'-5 1/2"	1'-9"	1'-3"	0'-2 1/2"	2'-6"			0'-3 3/4"					CULVERT FTG-TRANSVERSE
5F105	5	31	9'-9"	STR													WW FTG-TRANSVERSE
5F106	5	12	5'-9"	2		2'-0"	1'-9"		2'-0"								WW FTG STEP
5F107	5	11	11'-0"	1	0'-7"	10'-5"											WW FTG-LONG-TOP (VARIES BY 3/4")
			VARIES			VARIES											
5F108	5	11	11'-3"	1	0'-7"	10'-8"											WW FTG-LONG-TOP (VARIES BY 3/4")
			VARIES			VARIES											
			10'-6 1/4"			9'-11 1/4"											
5F109	5	22	7'-10 1/2"	STR													WW FTG-LONG-BOT
5F110	5	28	5'-4"	1	0'-7"	4'-9"											WW DOWELS-RF
5F111	5	16	5'-10"	1	0'-7"	5'-3"											WW DOWELS-FF
WINGWALL - STAGE 1																	
5W101	5	52	2'-9"	STR													THREADED END @ CULVERT WALLS
5W102	5	54	6'-5 1/2"	STR													E.F. HORIZONTAL
5W103	5	16	11'-0"	STR													F.F. VERTICAL
5W104	5	16	12'-0"	STR													R.F. VERTICAL
5W105	5	16	7'-10 1/8"	5		3'-3"	1'-3 7/8"		3'-3 1/4"		3'-3"	0'-3 1/4"					HAIRPIN AT TOP OF WW
6W101	6	42	13'-8"	2		6'-6"	0'-8"		6'-6"								HAIRPIN IN PYLON
DECK SLAB - STAGE 1																	
4S101	4	19	1'-3"	4		1'-0"	0'-3"										FOR WEST SIDEWALK, W/ THREADED INSERT
4S102	4	19	2'-2"	5	0'-6"	0'-10"	0'-10"										FOR WEST SIDEWALK, W/ THREADED INSERT
5S101	5	18	34'-11 7/8"	STR													TRANSVERSE W/ THREADED INSERTS
5S102	5	8	27'-11 5/8"	STR													TRANS. W/ THREADED INSERTS (IN TURN DOWN)
5S103	5	29	19'-8 1/2"	STR													LONGITUDINAL
5S104	5	8	17'-8 1/2"	STR													LONGITUDINAL
5S105	5	58	3'-10"	4		2'-0"	0'-9"		0'-8"	0'-5"							IN TURN DOWN DECK, EACH END
			VARIES			VARIES				VARIES							
			4'-10"			1'-4"				0'-10"							
6S101		38	4	STR													FOR WEST PARAPET, W/ THREADED END
PARAPET - STAGE 1																	
6PP101	6	12	17'-8 1/2"	STR													E.F. HORIZONTAL
6PP102	6	10	14'-0"	2		6'-8"	0'-8"		6'-8"								HORIZONTAL IN PYLON
6PP103	6	4	6'-8 1/2"	6		4'-6 5/8"	2'-1 7/8"				0'-10 3/4"	4'-5 5/8"	6'-7 1/2"				HORIZONTAL IN PYLON TOP
6PP104	6	19	8'-2"	2		3'-9"	0'-8"		3'-9"								HAIRPIN IN PARAPET



- NOTES:**
- UNLESS NOTED OTHERWISE, ALL REINFORCEMENT BAR FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", ASTM A615.
 - ALL BARS SHALL BE GRADE 60, UNLESS NOTED OTHERWISE.
 - FOR TYPICAL BENDING DETAILS, RECOMMENDED P.I.N. DIAMETER "D" OF BENDS, HOOKS AND OTHER STANDARD PRACTICES, SEE ACI 318 & THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICES" (MSP).
 - ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "R" WHICH IS SHOWN TO THE INSIDE OF THE BAR AND "A" AND "G" ON STANDARD 180° AND 135° HOOKS.
 - DIMENSIONS "A", "G" AND "J" ARE STANDARD BENDING DIMENSIONS PER EACH SIZE OF BAR. REFER TO C.R.S.I.-M.S.P. FOR DETAILS.
 - FIELD CUT ENDS OF COATED REINFORCING STEEL SHALL BE REPAIRED AS PER STANDARD SPECIFICATIONS. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID ITEM FOR THE REINFORCING STEEL.

- REFERENCES:**
- FOR STANDARD LEGEND, GENERAL NOTES AND ABBREVIATIONS, SEE LEG-1.



LEGEND:
 BAR MARK PROCEDURE IS AS FOLLOWS:
 4 F 1 01
 4 - SEQUENTIAL BAR NUMBER.
 F - CONSTRUCTION STAGE
 1 - INDICATES STRUCTURE TYPE
 F = FOOTING
 W = WINGWALL
 S = DECK SLAB
 SS = SIDEWALK
 PP = PARAPET
 - INDICATES BAR SIZE

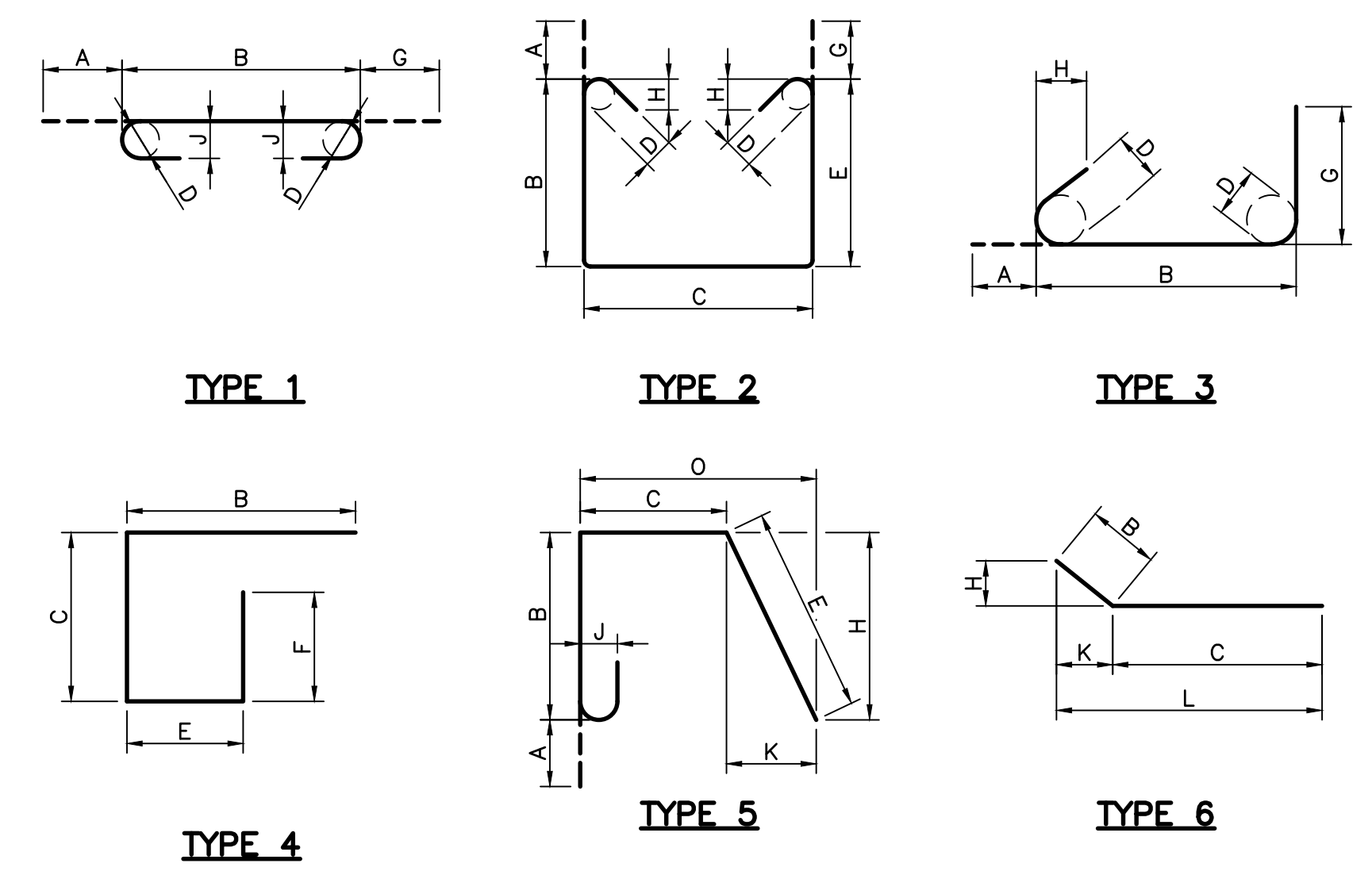
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		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		DESIGNED BY: <u>ES</u> DRAWN BY: <u>FC</u> CHECKED BY: <u>JL</u> APPROVED BY: <u>HG</u>			
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		REPLACEMENT OF CULVERT 1-C-87 THORNALL STREET OVER A TRIBUTARY OF RAHWAY RIVER REINFORCEMENT SCHEDULE-STAGE 1			RONALD SENDNER County Engineer N.J.P.E. NO. 24GE03162200

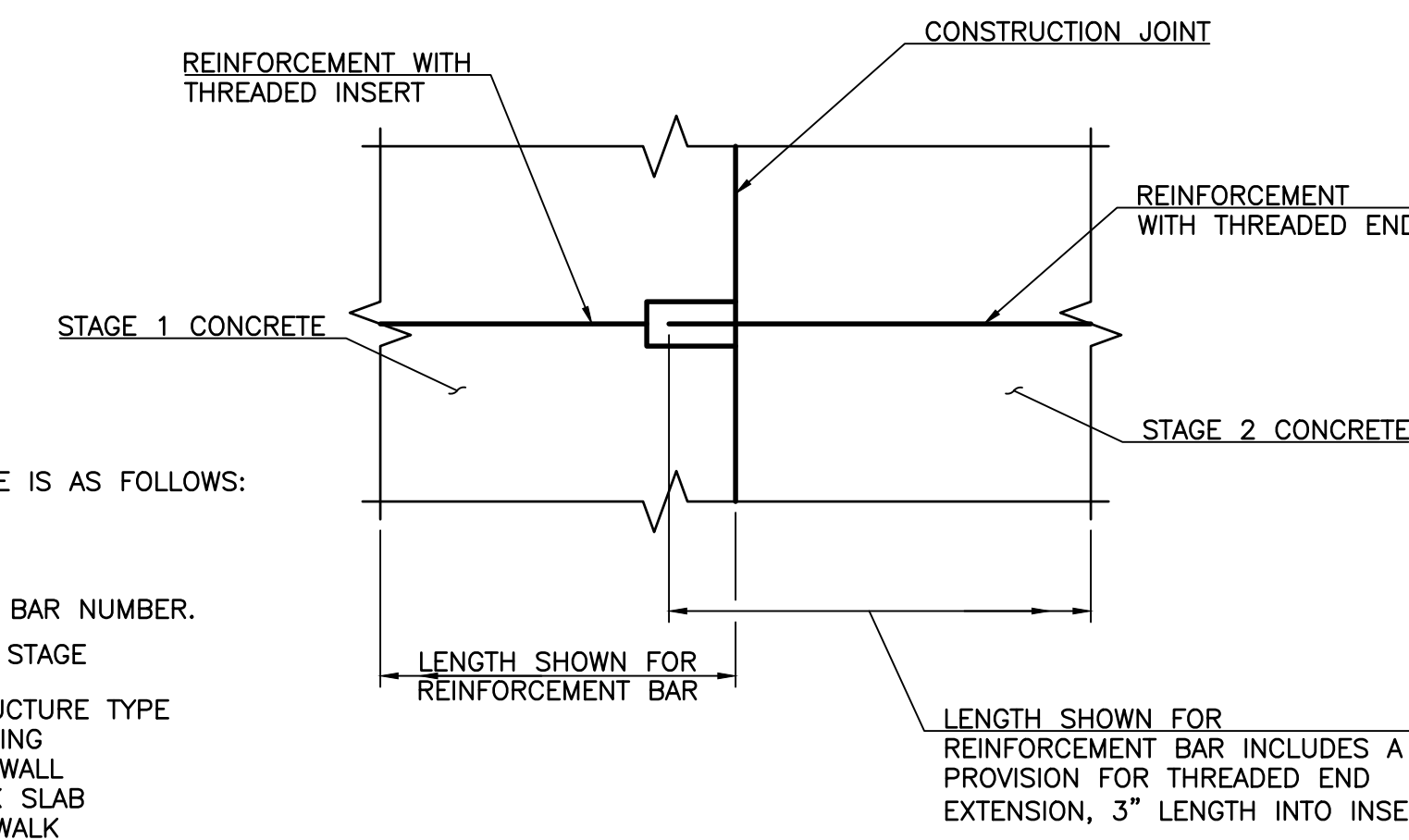
REINFORCEMENT SCHEDULE

MARK	SIZE	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	K	L	R	REMARKS
FOOTING - STAGE 2																	
4F201	4	32	3'-6"	3	0'-4 1/2"	2'-6"		0'-2"			0'-7 1/2"	0'-3"					WW FTG-SEISMIC STIRRUPS
5F201	5	36	39'-4"	STR													CULVERT FTG-LONGITUDINAL
5F202	5	82	10'-6"	2		2'-6"	5'-6"		2'-6"								CULVERT FTG-TRANSVERSE
5F203	5	62	6'-8"	1	0'-7"	5'-6"					0'-7"						CULVERT FTG-TRANSVERSE
5F204	5	164	5'-11 1/2"	2	0'-5 1/2"	1'-9"	1'-3"	0'-2 1/2"	2'-6"			0'-3 3/4"					CULVERT FTG-TRANSVERSE
5F205	5	31	9'-9"	STR													WW FTG-TRANSVERSE
5F206	5	12	5'-9"	2		2'-0"	1'-9"		2'-0"								WW FTG STEP
5F207	5	11	11'-0"	1	0'-7"	10'-5"											WW FTG-LONG-TOP (VARIES BY 3/4")
			VARIES			VARIES											
			11'-8 1/2"			11'-1 1/2"											
5F208	5	11	11'-3"	1	0'-7"	10'-8"											WW FTG-LONG-TOP (VARIES BY 3/4")
			VARIES			VARIES											
			10'-6 1/4"			9'-11 1/4"											
5F209	5	22	7'-10 1/2"	STR													WW FTG-LONG-BOT
5F210	5	28	5'-4"	1	0'-7"	4'-9"											WW DOWELS-RF
5F211	5	16	5'-10"	1	0'-7"	5'-3"											WW DOWELS-FF
WINGWALL - STAGE 2																	
4W201	4	32	2'-4"	STR													WEEPHOLE REINFORCEMENT
5W201	5	52	2'-9"	STR													THREADED END @ CULVERT WALLS
5W202	5	54	6'-5 1/2"	STR													E.F. HORIZONTAL
5W203	5	16	11'-0"	STR													F.F. VERTICAL
5W204	5	16	12'-0"	STR													R.F. VERTICAL
5W205	5	16	7'-10 1/8"	5		3'-3"	1'-3 7/8"		3'-3 1/4"			3'-3"		0'-3 1/4"			HAIRPIN AT TOP OF WW
6W201	6	42	13'-8"	2		6'-6"	0'-8"		6'-6"								HAIRPIN IN PYLON
DECK SLAB - STAGE 2																	
4S201	4	19	8'-11"	2	0'-6"	0'-7"	6'-8"		0'-8"		0'-6"						FOR EAST SIDEWALK
5S201	5	18	39'-1 1/4"	STR													TRANSVERSE W/ THREADED ONE END
5S202	5	8	32'-1"	STR													TRANS. W/ THREADED ONE END (IN TURN DOWN)
5S203	5	33	19'-8 1/2"	STR													LONGITUDINAL
5S204	5	8	17'-8 1/2"	STR													LONGITUDINAL
5S205	5	66	3'-10"	4		2'-0"	0'-9"		3'-10"	0'-8"	0'-5"						IN TURN DOWN DECK, EACH END
6S201	6	38	4'-0"	STR													FOR EAST PARAPET, W/ THREADED END
PARAPET - STAGE 2																	
6PP201	6	10	17'-8 1/2"	STR													E.F. HORIZONTAL
6PP202	6	10	14'-0"	2		6'-8"	0'-8"		6'-8"								HORIZONTAL IN PYLON
6PP203	6	4	6'-8 1/2"	6		4'-6 5/8"	2'-1 7/8"				0'-10 3/4"	4'-5 5/8"	6'-7 1/2"				HORIZONTAL IN PYLON TOP
SIDEWALK - STAGE 2																	
4SS201	4	16	17'-8 1/2"	STR													LONGITUDINAL
4SS202	4	19	4'-3"	STR													TRANS., W/ ONE END THREADED
4SS203	4	19	4'-4"	2		0'-4"	4'-0"										HORIZONTAL IN PYLON
6SS201	6	19	8'-2"	2		3'-9"	0'-8"		3'-9"								HAIRPIN IN PARAPET



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MECHANICAL SPLICE SYSTEM DETAIL
 NTS
 B-12
 B-12

PROJECT No. MDSX-00440
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		REVISIONS NO. DATE BY			County of Middlesex Department of Transportation Office of Engineer 75 Bayard St., New Brunswick, N.J. 08901
		DESIGNED BY: ES DRAWN BY: FC CHECKED BY: JL APPROVED BY: HG			
11/18/22 Darren Ferlazzo Licensed Professional Engineer NJPE No. 24GE04646100		RONALD SENDNER County Engineer N.J.P.E. No. 24GE03162200			