

### **CIVIL DESIGN TYPICAL DETAILS**

The Civil Design typical details listed in Typical Details No.'s 000.001 - 000.004 titled "Typical Details Index 1 of 4" through "Typical Details Index 4 of 4" are provided for inclusion in contract drawings on projects as deemed applicable by the Architect/Engineer of Record (A/EOR). The typical details were created to be consistent with and to be used in conjunction with the Port Authority of New York & New Jersey (PANYNJ)'s Engineering Department's Standard Technical Specifications. Furthermore, the typical details and notes for designer were originally created for use by the PANYNJ's Engineering Department in-house staff. Information provided is only a starting point. The A/EOR is responsible for producing details that are applicable to their project, tailored for the scope of work, project-specific contract documents and comply with to all applicable codes, ordinances, statutes, rules, regulations, and laws.

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.      000.001
			<b>NOTES FOR DESIGNER:</b>	<b>TITLE:</b>  <b>TYPICAL DETAILS INDEX 1 OF 4</b>
			DETAIL SHEET 1 OF 4	

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				<b>TYPICAL DETAILS INDEX 2 OF 4</b>	
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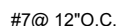
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>	TYPICAL DETAIL NO.	000.003
				<b>TYPICAL DETAILS INDEX 3 OF 4</b>	
				DETAIL SHEET 3 OF 4	

CIVIL DESIGN TYPICAL DETAILS INDEX OF DRAWINGS	
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101.007	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4L-22R
101.008	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4R-22L
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101.010	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 13R-31L
101.011	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4-22
101.012	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 13-31
101.013	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 11-29
101.014	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 9-27
101.015	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 16-34
101.016	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 6-24
101.017	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 1-19
101.018	SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - ILS
101.019A	INSCRIPTIONS FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND GEOGRAPHIC POSITION MARKINGS - DETAIL 1 OF 2
101.019B	INSCRIPTIONS FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND GEOGRAPHIC POSITION MARKINGS - DETAIL 2 OF 2





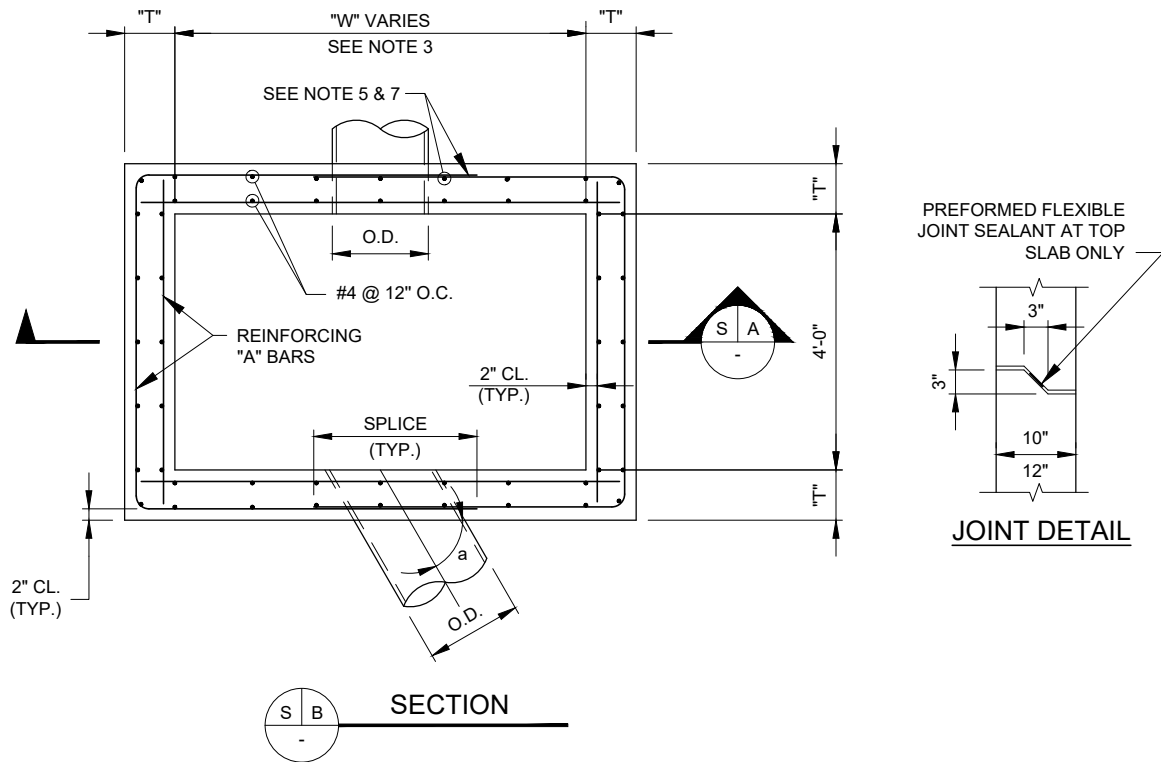
AIRBUS A380-800F 1,305,125 # MAXIMUM  
AIRBUS A340-600 807,330 # MAXIMUM  
BOEING 747-400 875,000 # MAXIMUM  
BOEING 747-8 978,000 # MAXIMUM  
BOEING 777-300 752,000 # MAXIMUM  
BOEING 777-BF 990,000 # MAXIMUM  
MD-11 630,500 # MAXIMUM GROSS WEIGHT DESIGN LOAD.



REINFORCING "A" BARS				WALL THICKNESS "T"	
DIMENSION "H"	DIMENSION "W"			PRECAST CONCRETE	CAST-IN PLACE
	4' TO 6'	6' TO 7'	7' TO 8'		
UP TO 10'	#5 @ 12"	#6 @ 12"	#7 @ 12"	10"	10"
10' TO 15'	#5 @ 10"	#6 @ 10"	#7 @ 10"	10"	12"
15' TO 20'	#6 @ 12"	#6 @ 9"	#7 @ 9"	10"	12"

NOT TO SCALE

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	NO.	DATE			
	#10	4/11/19			
		NOTES FOR DESIGNER: AIRBUS A380-800F 1,305,125 # MAXIMUM AIRBUS A340-600 807,330 # MAXIMUM BOEING 747-400 875,000 # MAXIMUM BOEING 747-8 978,000 # MAXIMUM BOEING 777-300 752,000 # MAXIMUM BOEING 777-BF 990,000 # MAXIMUM MD-11 630,500 # MAXIMUM GROSS WEIGHT DESIGN LOAD. CHECK IF VAPOR TIGHT TRAP IS REQUIRED, SEE GUIDELINES.	TITLE:  MANHOLE - AIRCRAFT	DETAIL SHEET 2 OF 2	

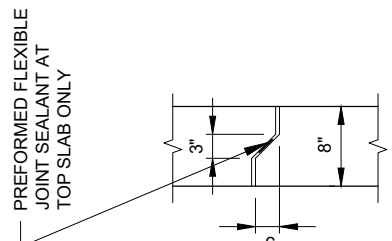
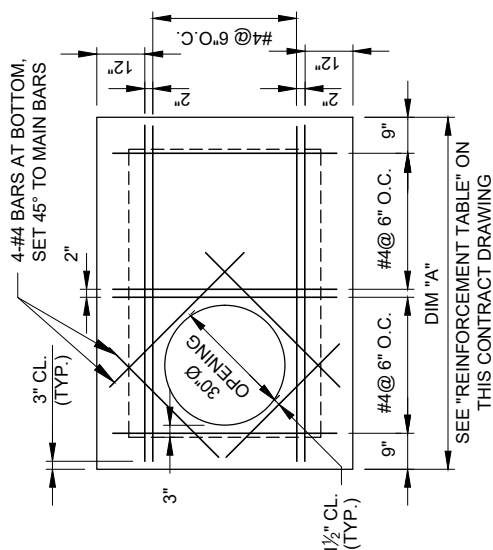


### MANHOLE-AIRCRAFT NOTES:

- BOLT ALL MANHOLE COVERS TO THE FRAME. FOR MANHOLE COVER SYMBOLS, SEE "MANHOLE FRAME AND COVER-AIRCRAFT TYPE" DETAIL AS SHOWN ON THE CONTRACT DRAWINGS.
- DETERMINE MINIMUM INSIDE WALL DIMENSION "W" BY THE FORMULA  
 $W = (O.D. / \sin \alpha) + 2'$ , BUT IN NO CASE SHALL THE DIMENSION "W" BE LESS THAN 4 FEET NOR MORE THAN 8 FEET: IN THE CASE OF A RECTANGULAR MANHOLE, USE THE LONGER WALL FOR THE DIMENSION "W" FOR THE PURPOSE OF DETERMINING THE REINFORCING STEEL ACCORDING TO THE "MANHOLE-AIRCRAFT REINFORCEMENT TABLE".
- OPENINGS IN THE WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO A MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL THE SPACE BETWEEN PIPE AND WALL PIPE WITH HYDRAULIC CEMENT GROUT (NON-SHRINK), MORTAR CEMENT OR USE AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
- WHERE A PIPE PASSES THROUGH A WALL, IN ADDITION TO THE REINFORCING INDICATED IN THE "REINFORCEMENT TABLE", PLACE 2 "A" BARS ABOVE, BELOW, AND TO EACH SIDE OF THE OPENING. VERTICAL "A" BARS SHALL EXTEND A MINIMUM OF 2'-0" ABOVE AND BELOW THE EDGES OF THE OPENING. THE ADDITIONAL REINFORCING SHALL BE PLACED AT BOTH THE INSIDE AND OUTSIDE LAYER OF REINFORCING.
- WHEN LIFTING THE PRECAST MANHOLE WITH LIFT DEVICES, PLACE A REINFORCING BAR HORIZONTALLY THROUGH THE LIFTING HOLES AT THE TIME OF MANUFACTURE. THE REINFORCING BAR AND LIFTING HOLES SHALL BE AS APPROVED BY THE ENGINEER. FILL THE LIFTING HOLES WITH HYDRAULIC CEMENT GROUT (NON-SHRINK) OR MORTAR CEMENT AFTER THE MANHOLE IS INSTALLED.
- SPLICE LENGTHS REQUIRED FOR REINFORCING BARS:  
#4 BAR, 1'-4"; #5 BAR, 1'-8"; #6 BAR, 2'-0"; #7 BAR, 2'-6".
- JOINT AND WATERSTOP ARE ACCEPTABLE FOR CAST-IN PLACE MANHOLES ONLY. PRECAST MANHOLES SHALL NOT BE JOINTED AT THIS LOCATION. WATERSTOP SHALL BE SWELLSEAL JOINT AS MANUFACTURED BY DENEFF CONSTRUCTION CHEMICALS, INC. OF WALLER TEXAS, HYDROLITE CJ-1020 AS MANUFACTURED BY MITSUBISHI INTERNATIONAL CORPORATION USA OR APPROVED EQUAL.
- ALL HOOKS SHALL BE STANDARD 90 DEGREES UNLESS OTHERWISE NOTED.
- ALL REINFORCING BARS SHALL BE EPOXY COATED.
- DEVELOPMENT LENGTH AND SPLICES OF BAR REINFORCEMENT SHALL CONFORM TO CLASS B, UNLESS OTHERWISE NOTED.

NOT TO SCALE

## PLAN



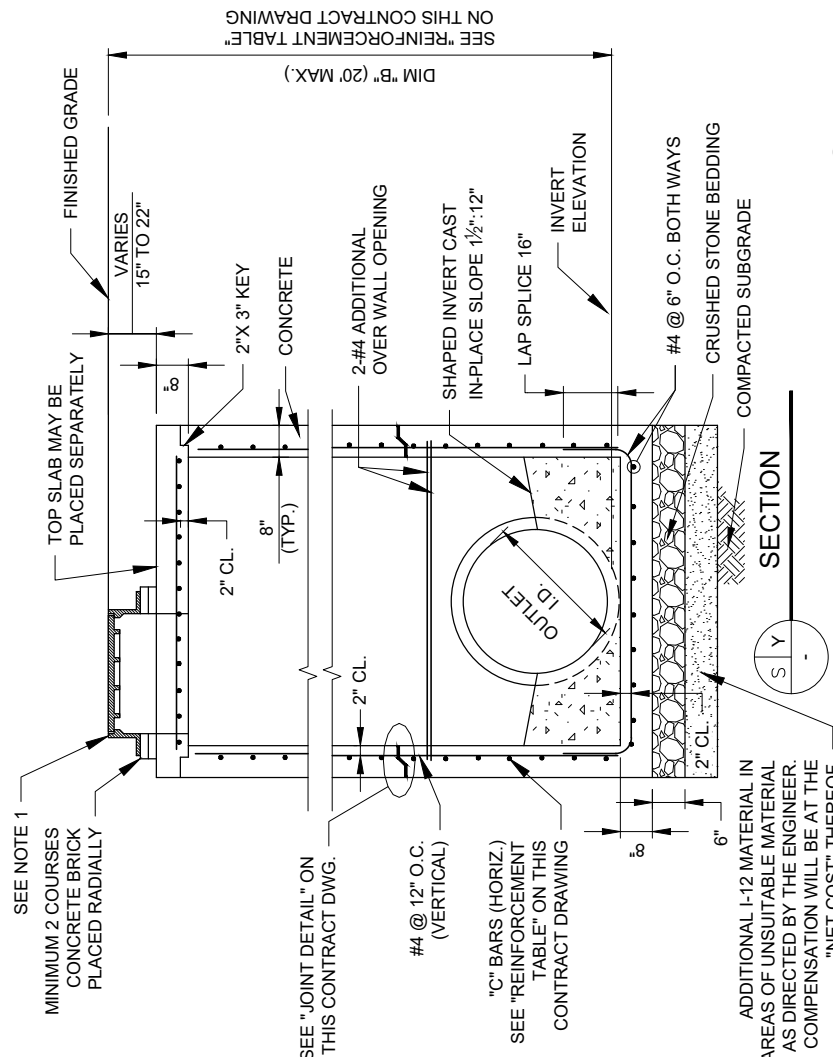
TOP SLAB

## JOINT DETAIL

MANHOLE TYPE 'A' PRECAST REINFORCEMENT TABLE		
I.D.	OUTLET DIM.	"C" BARS
	"A"	DIM. "B" ≤ 9'-0" DIM. "B" > 9'-0"
42"	6'-0"	#4 @ 12" O.C. #4 @ 12" O.C.
48"	7'-0"	#4 @ 12" O.C.
54"	7'-6"	#4 @ 10" O.C. #4 @ 6" O.C.
60"	8'-0"	#4 @ 9" O.C. #6 @ 12" O.C.
66"	9'-0"	#4 @ 6" O.C. #6 @ 8" O.C.

MANHOLE TYPE 'A' PRECAST NOTES:

1. FRAME AND COVER SHALL BE CAMPBELL FOUNDRY CATALOG NO. 1012B, EJ NO. 1234 OR APPROVED EQUAL. VENTED COVER AND CAST ALUMINUM SILT BUCKET REQUIRED FOR SANITARY SEWER MANHOLE.
2. FOR MANHOLE COVER SYMBOLS, SEE "MANHOLE FRAME AND COVER" DETAIL AS SHOWN ON THE CONTRACT DRAWINGS.
3. OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL THE SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NON-SHRINK). MORTAR CEMENT OR USE AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
4. WHEN LIFTING THE PRECAST MANHOLE WITH LIFT DEVICES, PLACE A REINFORCING BAR HORIZONTALLY THROUGH THE LIFTING HOLES AT THE TIME OF MANUFACTURE. THE REINFORCING BAR AND LIFTING HOLES SHALL BE AS APPROVED BY THE ENGINEER. FILL THE LIFTING HOLES WITH HYDRAULIC CEMENT GROUT (NON-SHRINK) OR MORTAR CEMENT AFTER THE MANHOLE IS INSTALLED.



## SECTION

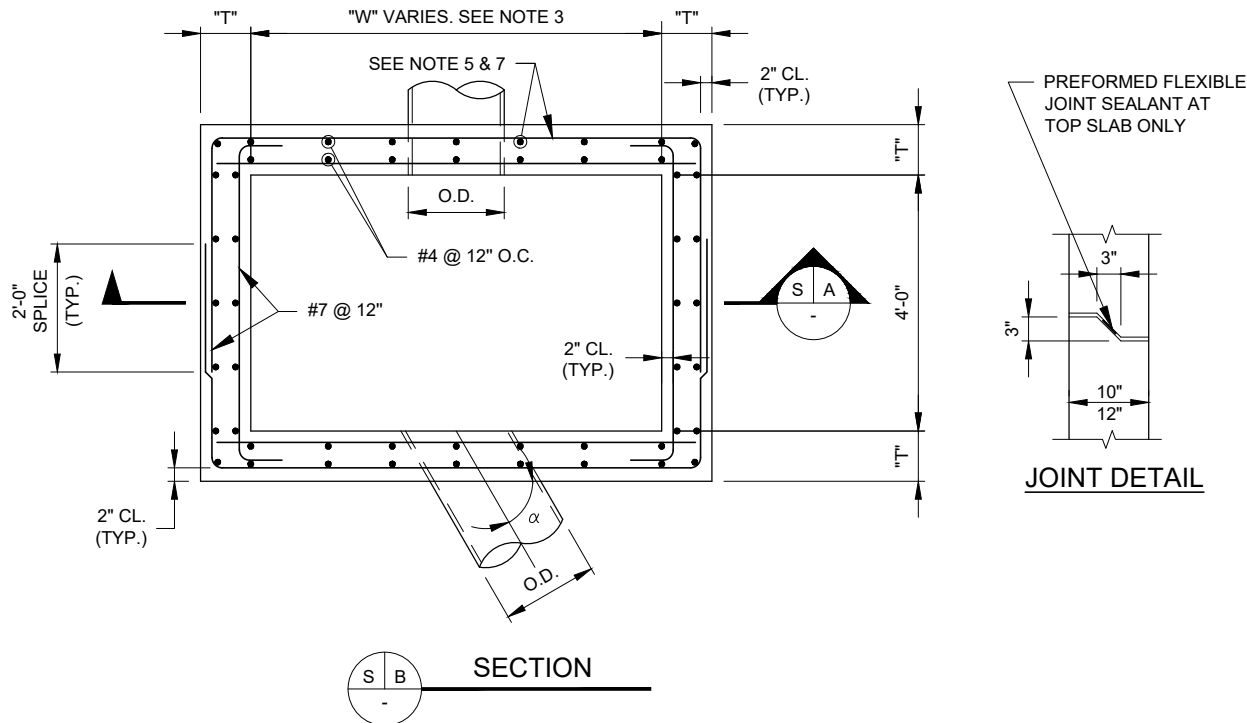
ADDITIONAL I-12 MATERIAL IN AREAS OF UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER. COMPENSATION WILL BE AT THE "NET COST" THEREOF.

MANHOLE TYPE 'A' PRECAST

**NOT TO SCALE**

NOT TO SCALE

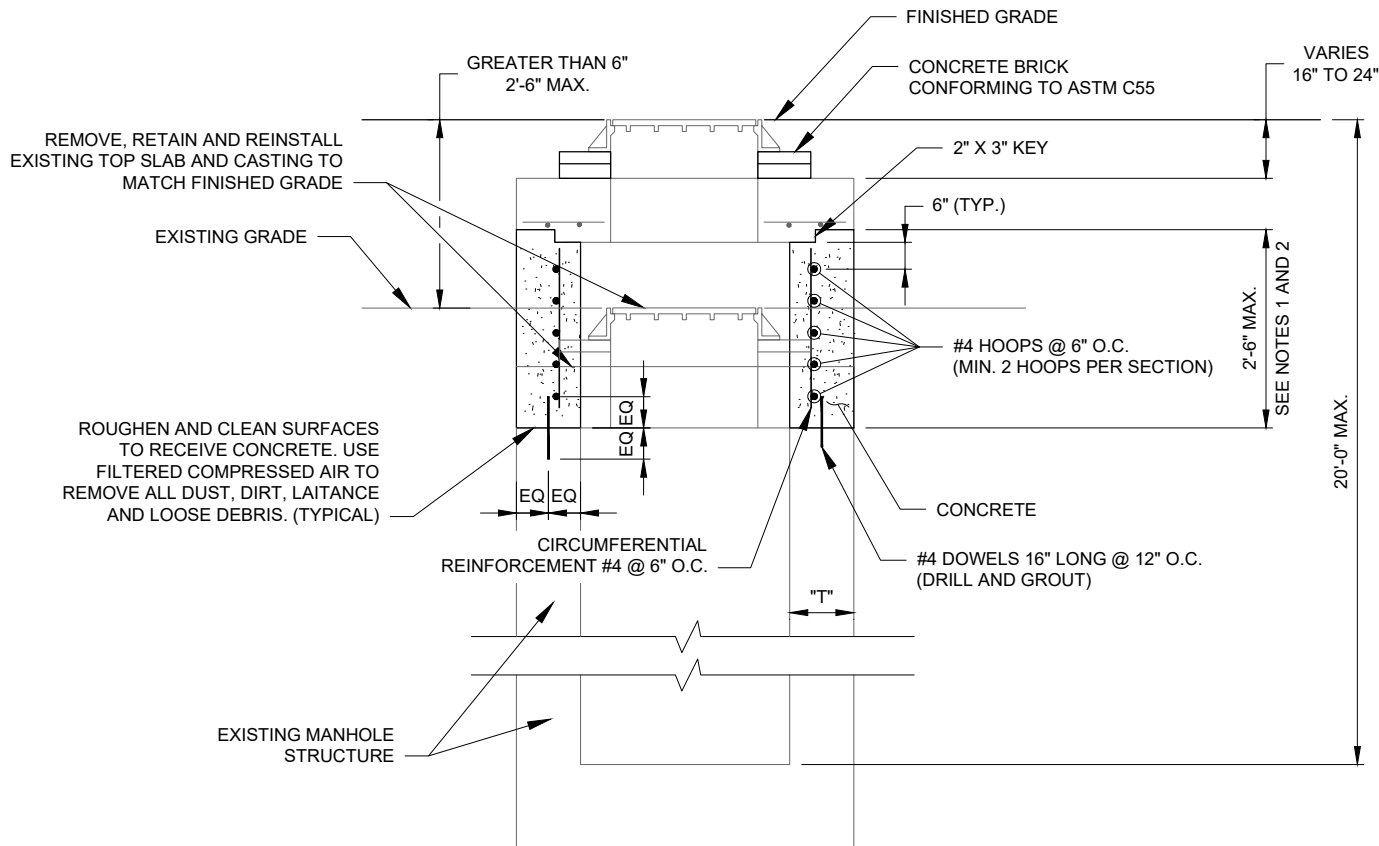
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. DESIGN LOADS FOR: CONTAINER HANDLERS: TAYLOR TEC-950L (215 KIP D.W. AXLE). STRADDLE CARRIERS: KALMAR 4011135(8 WHEEL @ 37.4 KIP EA.) 2. CONTAINER STACKING: 5-HIGH(1250 PSF). REACH STACKER: MIJACK RS50(226 KIP D.W. AXLE) INCLUDE CIVIL STDET 010.014-A PMH-1.	<b>TYPICAL DETAIL NO.</b>	010.014-B
	#9	4/11/19		<b>TITLE:</b>  <b>MANHOLE - TYPE I</b>	
				<b>DETAIL SHEET 2 OF 2</b>	



**MANHOLE TYPE I NOTES:**

- CAST IRON FRAME WITH DUCTILE IRON COVER SHALL BE CAMPBELL NO. 1511, EJ NO. 1240 OR APPROVED EQUAL. VENTED COVER AND CAST ALUMINUM SILT BUCKET REQUIRED FOR SANITARY MANHOLE.
- BOLT ALL MANHOLE COVERS TO THE FRAME. FOR MANHOLE COVER SYMBOLS, SEE "MANHOLE FRAME AND COVER-AIRCRAFT TYPE" DETAIL AS SHOWN ON THE CONTRACT DRAWING.
- DETERMINE MINIMUM INSIDE WALL DIMENSION "W" BY THE FORMULA  $W=(O.D./\sin \alpha )+2'$ , BUT IN NO CASE SHALL THE DIMENSION "W" BE LESS THAN 4 FEET NOR MORE THAN 8 FEET:  
IN THE CASE OF A RECTANGULAR MANHOLE, USE THE LONGER WALL FOR THE DIMENSION "W"  
FOR THE PURPOSE OF DETERMINING THE REINFORCING STEEL ACCORDING TO THE "REINFORCEMENT TABLE".
- OPENINGS IN THE WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO A MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL THE SPACE BETWEEN PIPE AND WALL PIPE WITH HYDRAULIC CEMENT GROUT (NON-SHRINK), MORTAR CEMENT OR USE AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
- WHERE A PIPE PASSES THROUGH A WALL, IN ADDIIONAL TO THE REINFORCING INDICATED IN THE "REINFORCEMENT TABLE", PLACE 2 "A" BARS ABOVE, BELOW, AND TO EACH SIDE OF THE OPENING. VERTICAL "A" BARS SHALL EXTEND A MINIMUM OF 2'-0" ABOVE AND BELOW THE EDGES OF THE OPENING. THE ADDITIONAL REINFORCING SHALL BE PLACED AT BOTH THE INSIDE AND OUTSIDE LAYER OF REINFORCING.
- WHEN LIFTING THE PRECAST MANHOLE, PLACE A REINFORCING BAR HORIZONTALLY THROUGH THE LIFTING HOLES AT THE TIME OF MANUFACTURE. THE LIFTING DEVICES ONLY ON THAT REINFORCING BAR. THE REINFORCING BAR AND HOLES SHALL BE AS APPROVED BY THE ENGINEER. FILL THE LIFTING HOLES WITH HYDRAULIC CEMENT GROUT (NON-SHRINK) OR MORTAR CEMENT AFTER THE MANHOLE IS INSTALLED.
- SPLICE LENGTHS REQUIRED FOR REINFORCING BARS: #4 BAR, 1'-4": #5 BAR, 1'-8": #6 BAR, 2'-0": #7 BAR, 2'-6".
- JOINT AND WATERSTOP ARE ACCEPTABLE FOR CAST-IN PLACE MANHOLES ONLY. PRECAST MANHOLES SHALL NOT BE JOINTED AT THIS LOCATION. WATERSTOP SHALL BE SWELLSEAL JOINT AS MANUFACTURED BY DENEFF CONSTRUCTION CHEMICALS, INC. OF WALLER TEXAS, HYDROLITE CJ-1020 AS MANUFACTURED BY MITSUBISHI INTERNATIONAL CORPORATION USA OR APPROVED EQUAL.
- ALL HOOKS SHALL BE STANDARD 90 DEGREES UNLESS OTHERWISE NOTED.

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 08/02/1994 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. VERIFY EXISTING CASTINGS ARE IN GOOD CONDITION. IF NOT, MODIFY DETAIL TO CALL FOR REPLACEMENT. 2. FOR HEAVY LOAD AREAS OTHER THAN AIRFIELDS MODIFY NOTE 2 AS REQUIRED. 3. ENSURE TOTAL DEPTH AFTER ADJUSTMENT DOES NOT EXCEED 20'-0".	<b>TYPICAL DETAIL NO.</b>	010.020-A
	#4	4/11/19		<b>TITLE:</b> <b>ADJUST (RAISE) MANHOLE CASTING TO FINISHED GRADE</b>	<b>DETAIL SHEET 1 OF 2</b>



**ADJUST (RAISE) MANHOLE CASTING TO FINISHED GRADE NOTES:**

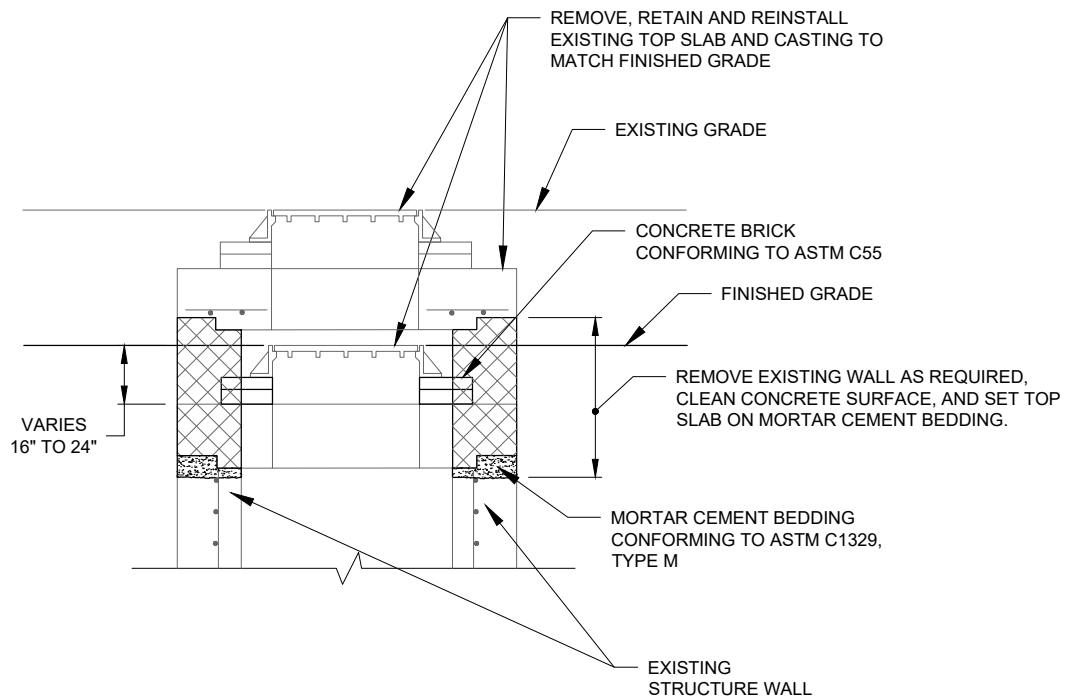
- AS REQUIRED REMOVE EXISTING WALLS AND BUILD UP WITH CONCRETE.
- IN LIEU OF CAST IN PLACE CONCRETE, REINFORCED PRECAST CONCRETE MANHOLE RISER MAY BE USED. SUBMIT DETAILS AND DESIGN CALCULATIONS PREPARED BY A LICENSED PROFESSIONAL ENGINEER FOR APPROVAL.
- PLACE HOOPS AND CIRCUMFERENTIAL REINFORCEMENT IN MIDDLE THIRD OF THE RISER WALL.
- T = THICKNESS OF EXISTING MANHOLE WALL VARIES 6" TO 12".
- REINFORCING BARS: ASTM 615 GRADE 60.

**ADJUST (RAISE) MANHOLE CASTING TO FINISHED GRADE**

NOT TO SCALE

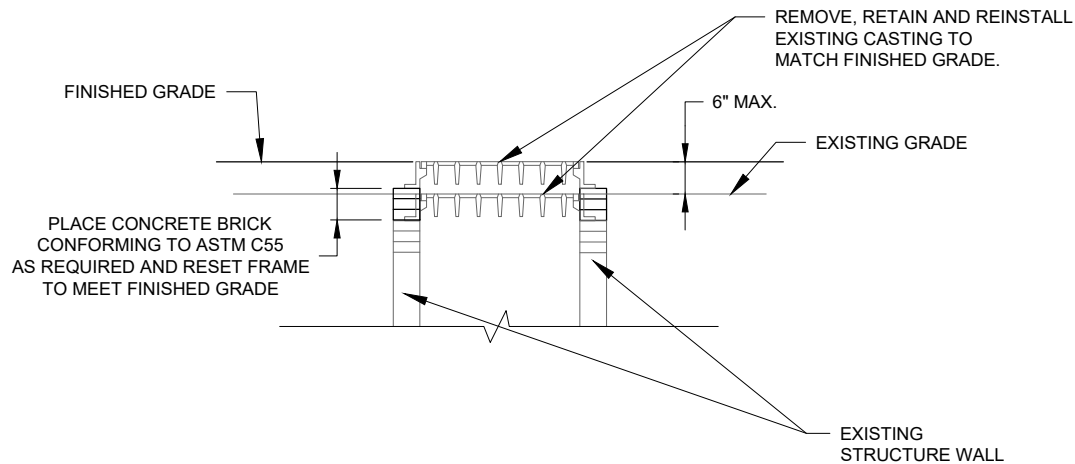


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 08/02/1994 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. VERIFY EXISTING CASTINGS ARE IN GOOD CONDITION. IF NOT, MODIFY DETAIL TO CALL FOR REPLACEMENT. 2. CHECK EXISTING INCOMING / OUTGOING PIPE ELEVATIONS TO ENSURE THE STRUCTURE CAN BE LOWERED. 3. FOR ELECTRICAL MANHOLE / HANDHOLE CONFIRM IF DETAIL IS PERMANENT.	<b>TYPICAL DETAIL NO.</b>	010.020-B
	#4	4/11/19		<b>TITLE:</b> <b>ADJUST (LOWER) MANHOLE CASTING TO FINISHED GRADE</b>	DETAIL SHEET 2 OF 2

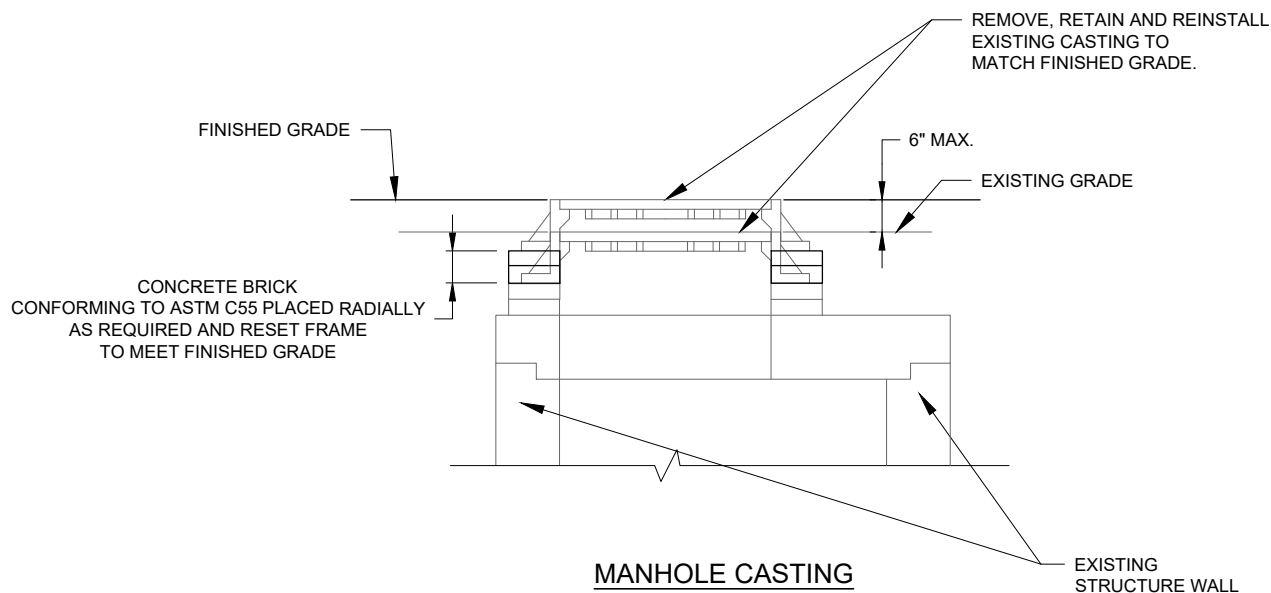


ADJUST (LOWER) MANHOLE CASTING TO FINISHED GRADE  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 08/02/1994 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> VERIFY EXISTING CASTINGS ARE IN GOOD CONDITION. IF NOT, MODIFY DETAIL TO REQUIRE FOR REPLACEMENT. THIS DETAIL IS ONLY FOR RAISING MH OR CB CASTING A MAX OF 6 INCHES. FOR RAISING MH OR CB MORE THAN 6" SEE DETAIL 010.020-A.	<b>TYPICAL DETAIL NO.</b>	010.021-A
	#4	4/11/19		<b>TITLE:</b> <b>ADJUST (RAISE) MANHOLE OR CATCH BASIN CASTING TO FINISHED GRADE</b>	DETAIL SHEET 1 OF 2



CATCH BASIN CASTING

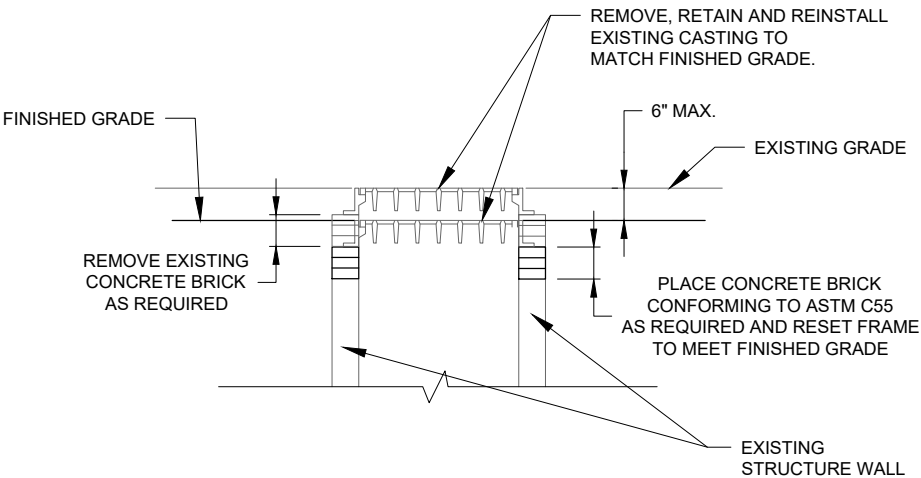


MANHOLE CASTING

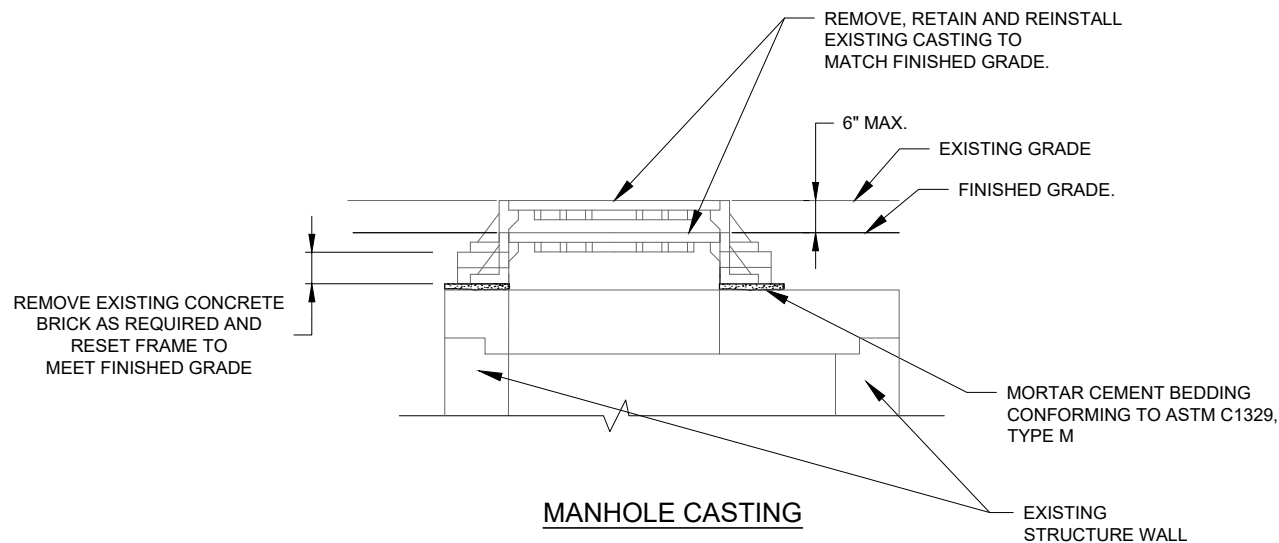
ADJUST (RAISE) MANHOLE OR CATCH  
BASIN CASTING TO FINISHED GRADE

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 08/02/1994  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.   DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> VERIFY EXISTING CASTINGS ARE IN GOOD CONDITION. IF NOT, MODIFY DETAIL TO REQUIRE FOR REPLACEMENT. THIS DETAIL IS ONLY FOR LOWERING MH OR CB CASTING A MAX OF 6 INCHES. FOR LOWERING MH OR CB MORE THAN 6" SEE DETAIL 010.020-B.	TYPICAL DETAIL NO.	010.021-B
	#4	4/11/19		<b>TITLE:   ADJUST (LOWER) MANHOLE OR CATCH BASIN CASTING TO FINISHED GRADE</b>	
					DETAIL SHEET 2 OF 2



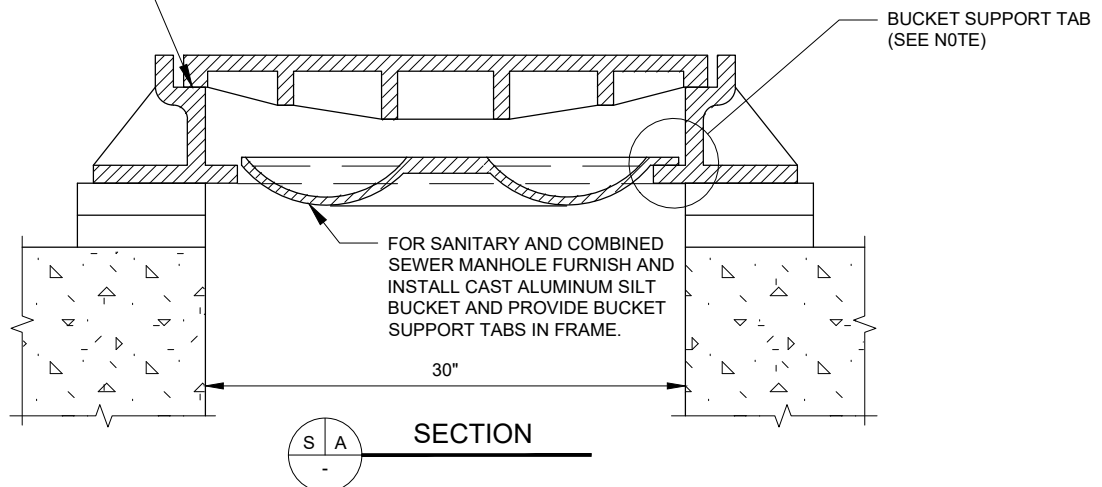
CATCH BASIN CASTING



MANHOLE CASTING

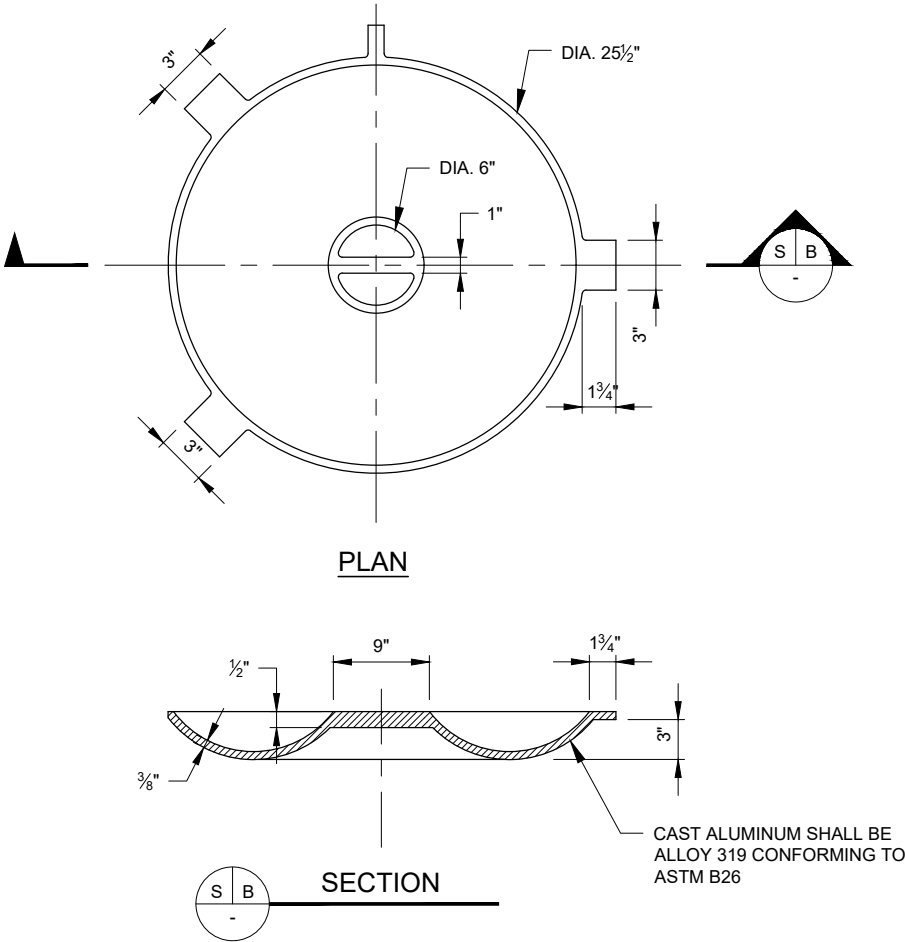
ADJUST (LOWER) MANHOLE OR CATCH  
 BASIN CASTING TO FINISHED GRADE

NOT TO SCALE



NOT TO SCALE

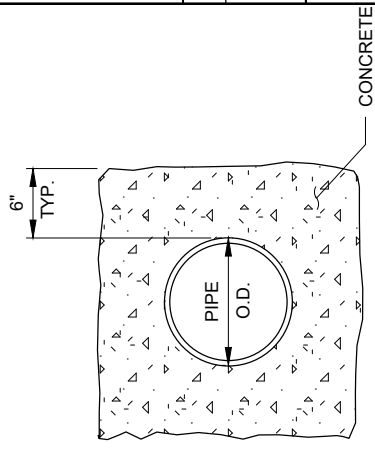
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER: FOR USE WITH SANITARY SEWER MANHOLES.	TYPICAL DETAIL NO.	011.003
	NO.	DATE		TITLE: <b>MANHOLE CAST ALUMINUM SILT BUCKET</b>	
	#4	4/11/19		DETAIL SHEET 1 OF 1	



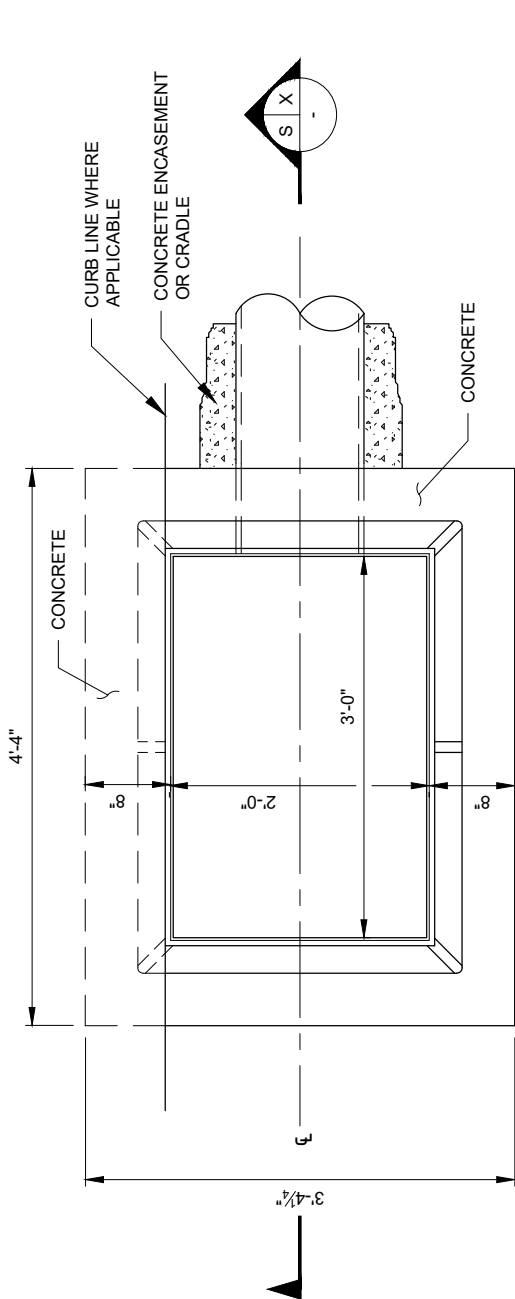
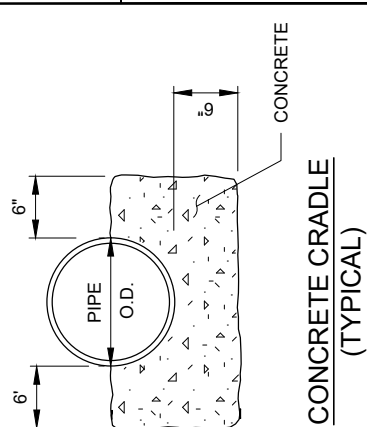
**MANHOLE CAST ALUMINUM SILT BUCKET**  
NOT TO SCALE



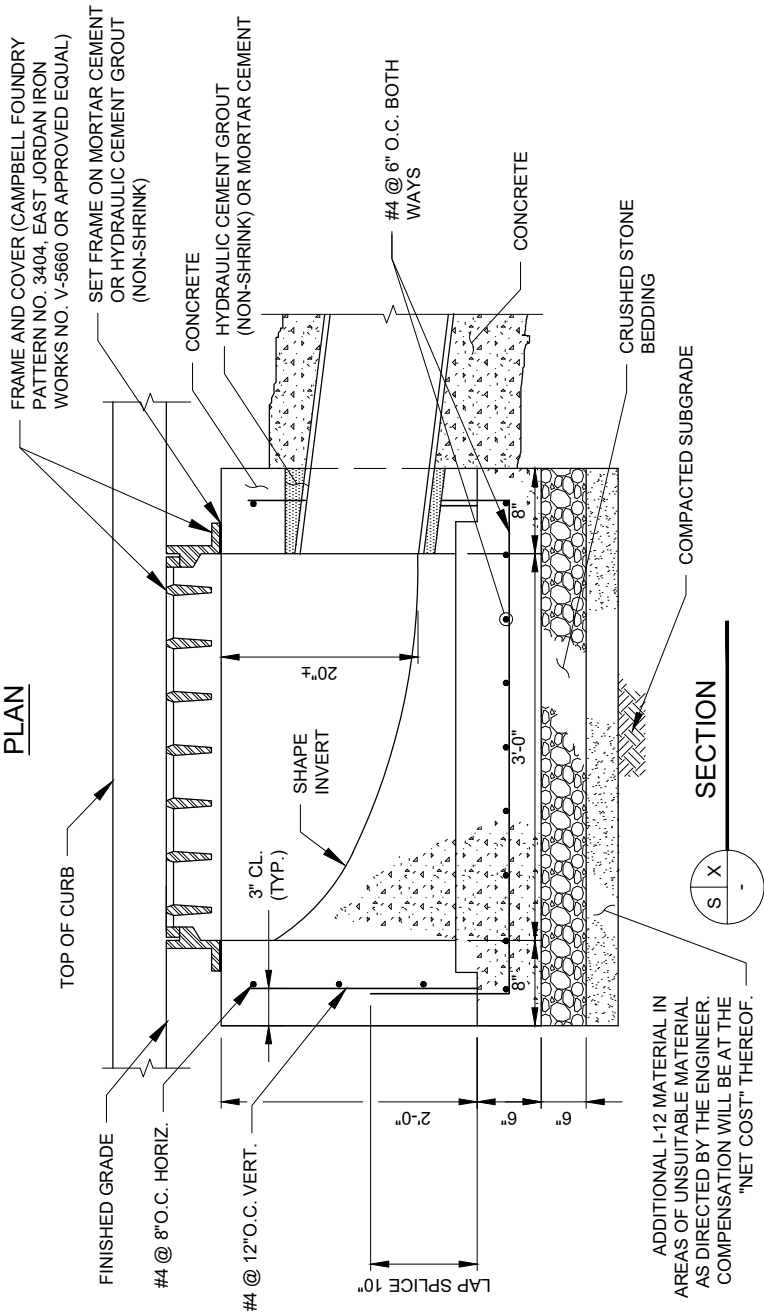
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	NO.	DATE		<b>TITLE:</b>  <b>STORM SEWER INLET</b>	
	#9	4/11/19			
				DETAIL SHEET 1 OF 1	



CONCRETE ENCASEMENT  
FOR COVER 3 FEET OR LESS



PLAN



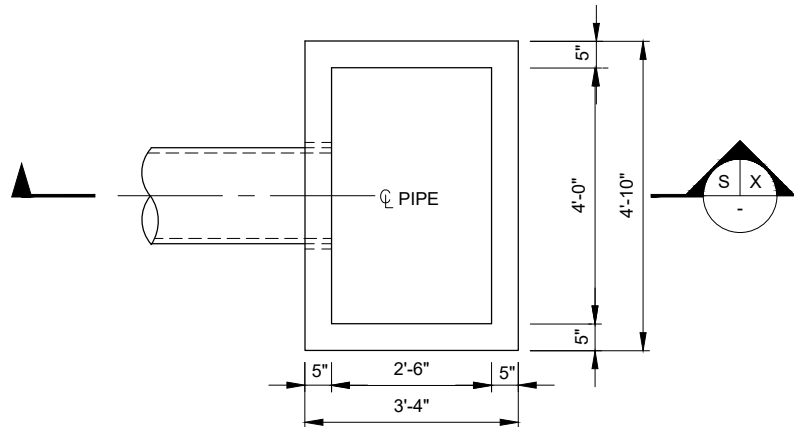
SECTION

STORM SEWER INLET  
NOT TO SCALE

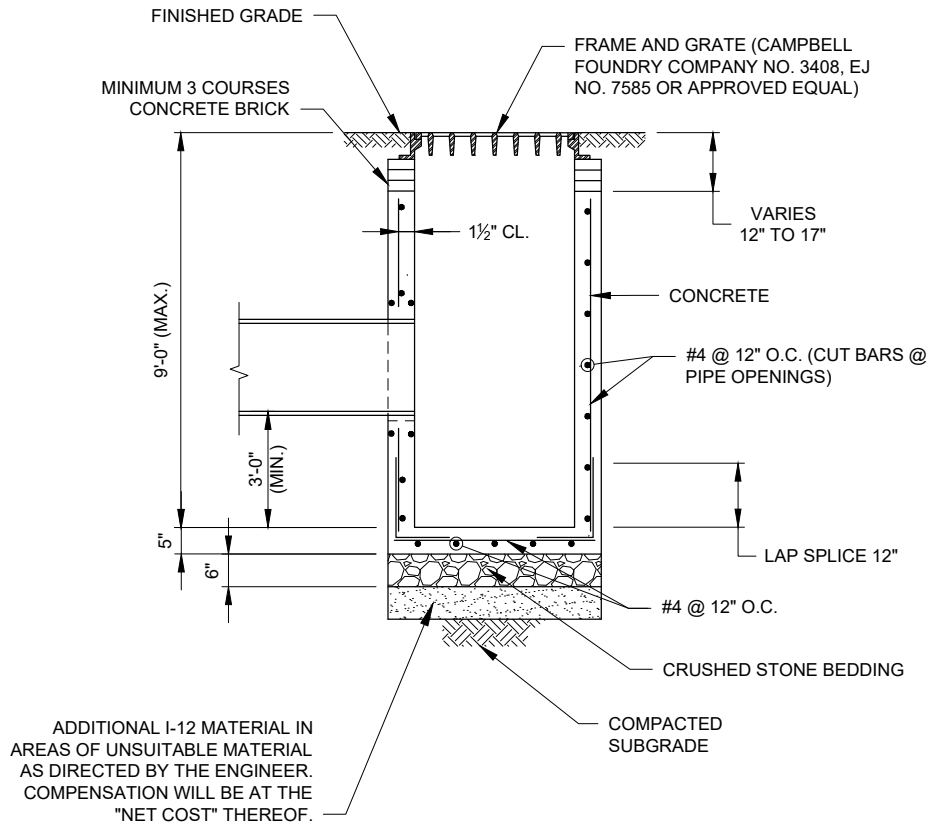
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>01/02/1985</u>  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> HS-25 DESIGN LOAD. CHECK IF VAPOR TIGHT TRAP IS REQUIRED, SEE DESIGN GUIDELINES.	TYPICAL DETAIL NO.	020.012
	NO.	DATE		<b>TITLE:</b>  <b>CATCH BASIN TYPE II PRECAST</b>	
	#8	4/11/19			
				DETAIL SHEET 1 OF 1	



PLAN



SECTION

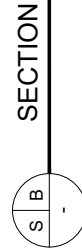
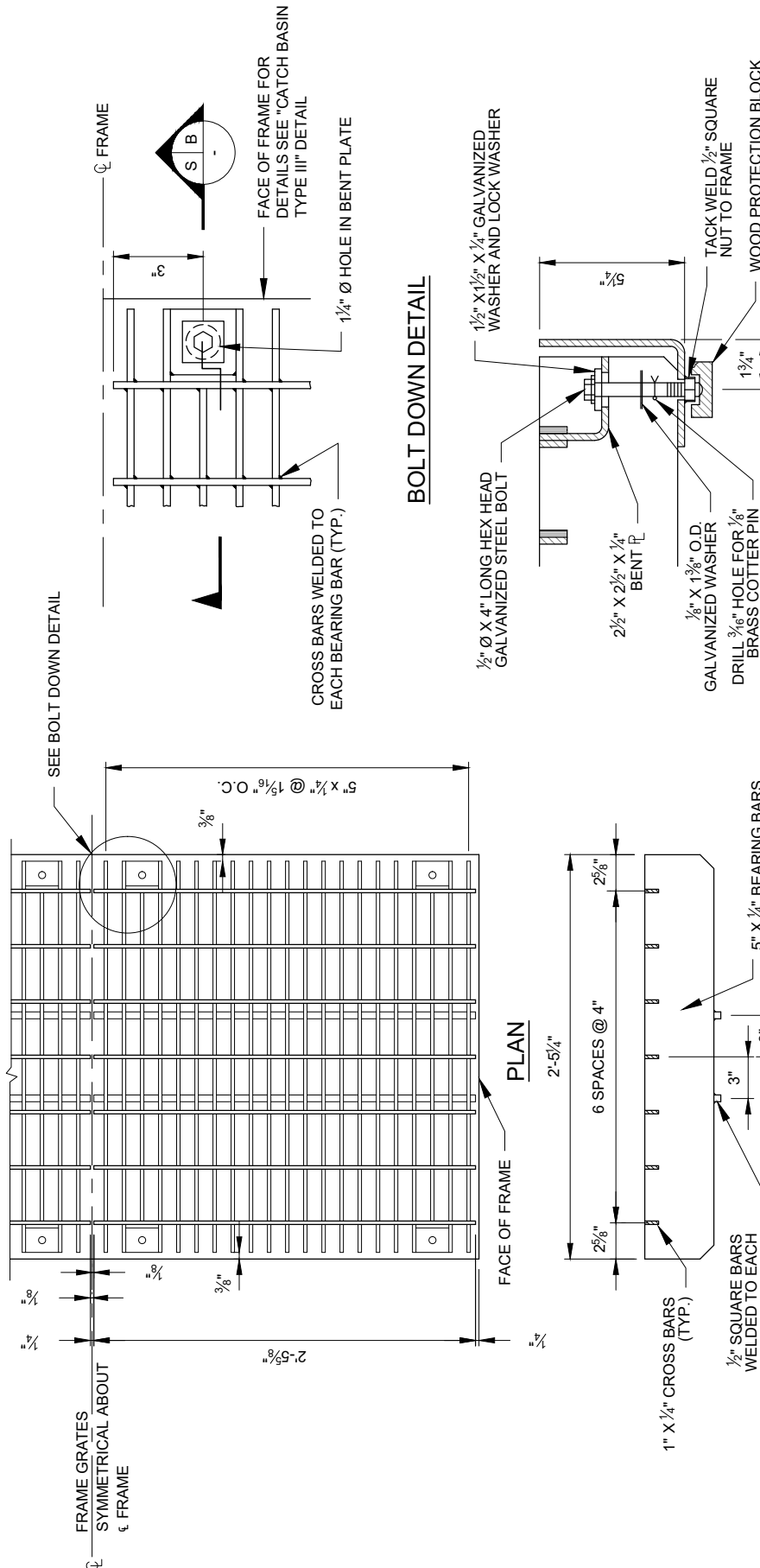
**CATCH BASIN TYPE II PRECAST NOTE:**

OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NON-SHRINK), MORTAR CEMENT OR AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.

**CATCH BASIN TYPE II PRECAST**

NOT TO SCALE

**NOT TO SCALE**



SECTION

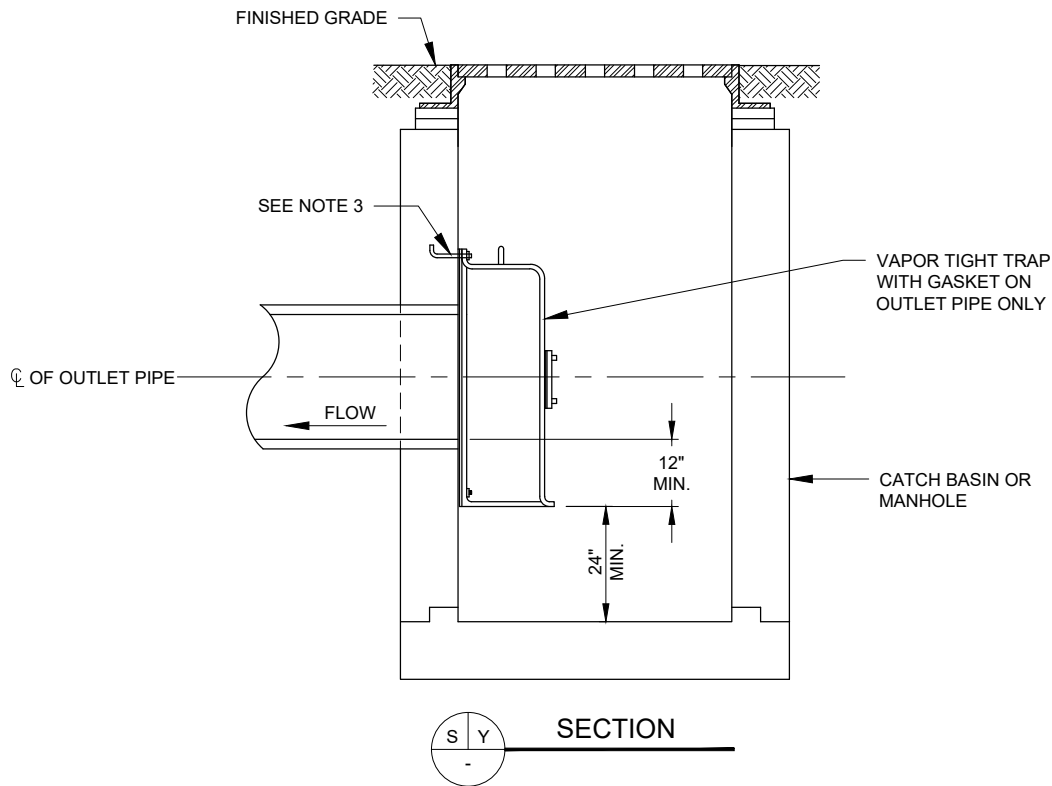
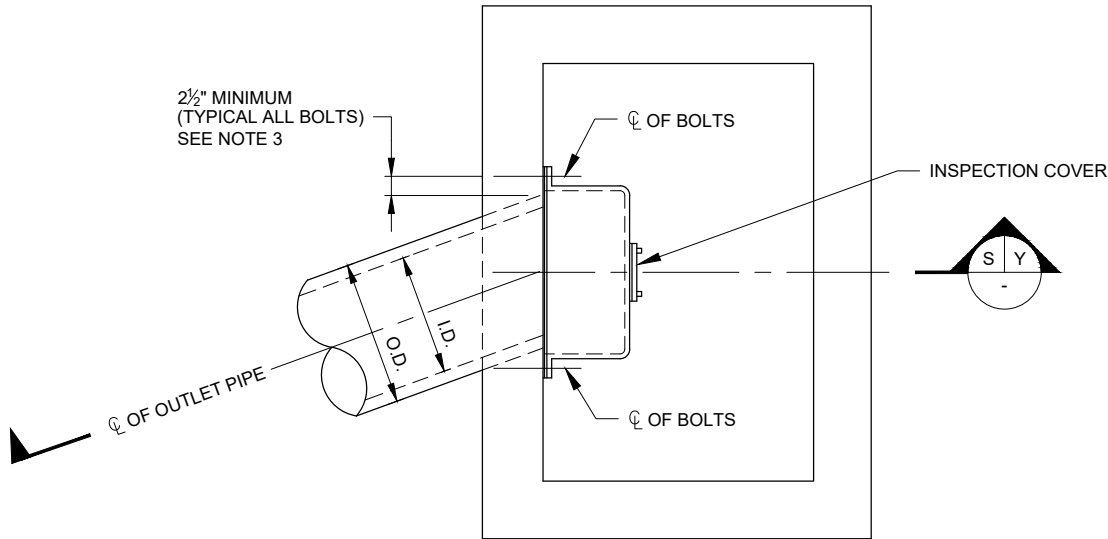
HEAVY DUTY GRATING FOR CATCH BASIN TYPE III NOTES:

1. TWO GRATES ARE REQUIRED PER FRAME.
2. FRAME AND GRATES SHALL BE IKG INDUSTRIES DRAWING DD285C, CAMPBELL FOUNDRY COMPANY PATTERN NUMBER 8301 0004 OR EAST JORDAN IRON WORKS NO. 90550025, FABRICATED OF A-36 STEEL.
3. FRAME AND GRATES SHALL BE WELDED CONSTRUCTION AND COATED WITH HOT DIPPED GALVANIZE TO ACHIEVE 2 1/2 OUNCE PER SQUARE OF THROUGHOUT AFTER FABRICATION.

HEAVY DUTY GRATING FOR  
CATCH BASIN TYPE III

NOT TO SCALE

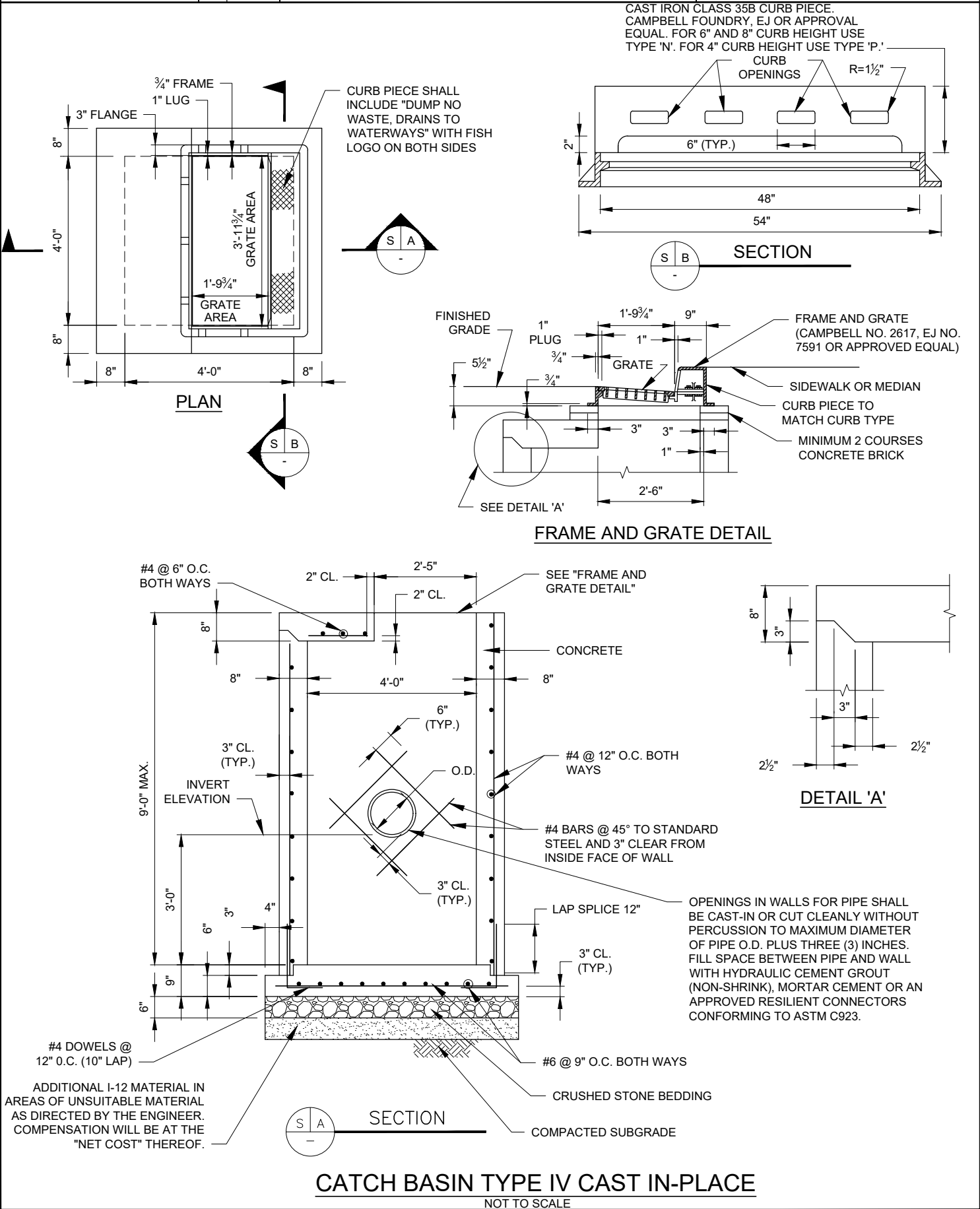
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. FOR USE IN FUEL TRANSFER AREAS, SEE NFPA REQUIREMENTS. 2. FOR USE WHERE A DRAINAGE SYSTEM CONNECTS TO A COMBINED SEWER. 3. VAPOR TRAPS GREATER THAN 30" TYPICALLY REQUIRE CB MODIFICATIONS TO FIT THE VAPOR TRAP.	<b>TYPICAL DETAIL NO.</b>	020.015
	#7	4/11/19		<b>TITLE:</b>  <b>ALUMINUM VAPOR TIGHT TRAP</b>	
				DETAIL SHEET 1 OF 1	



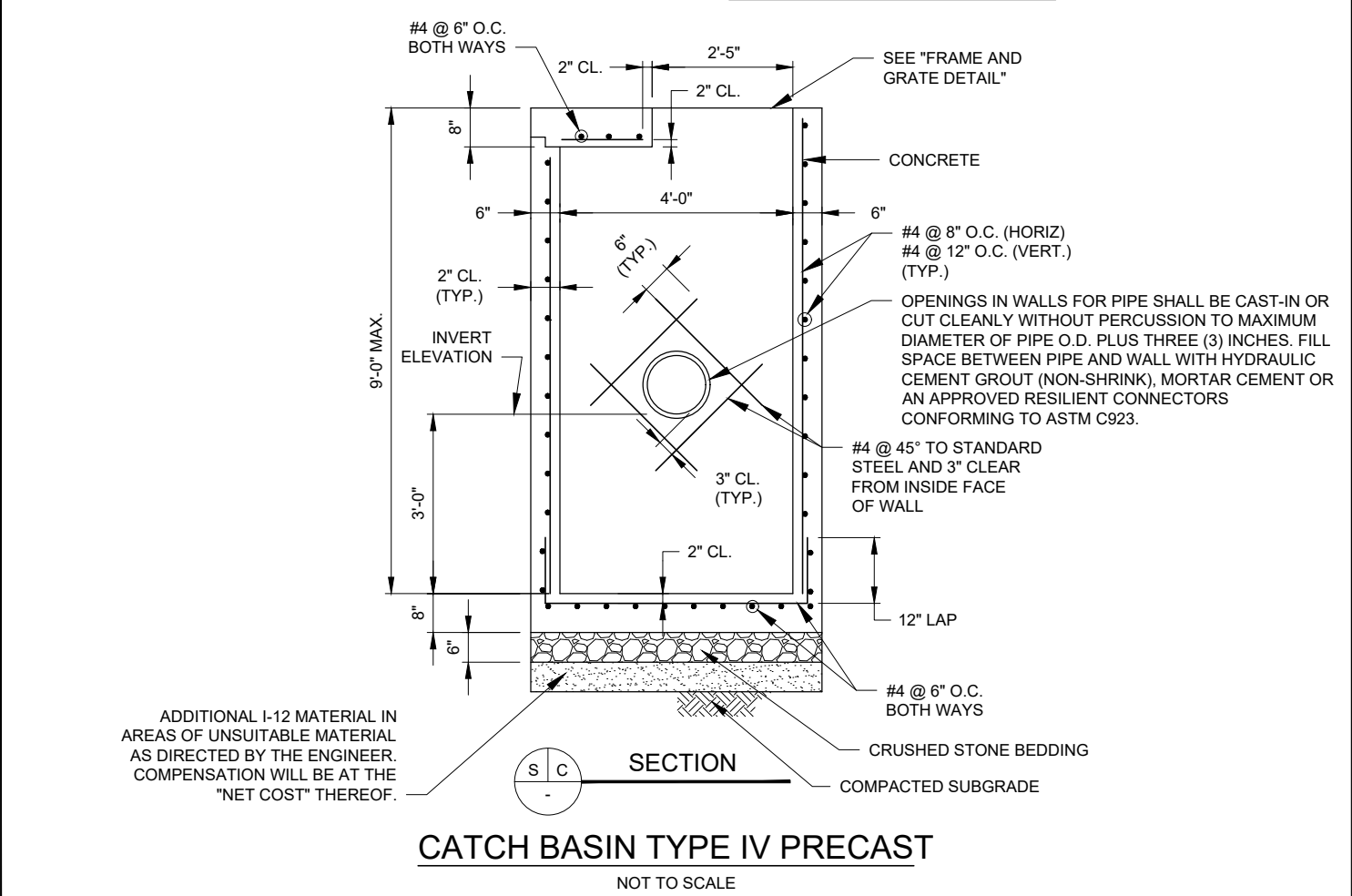
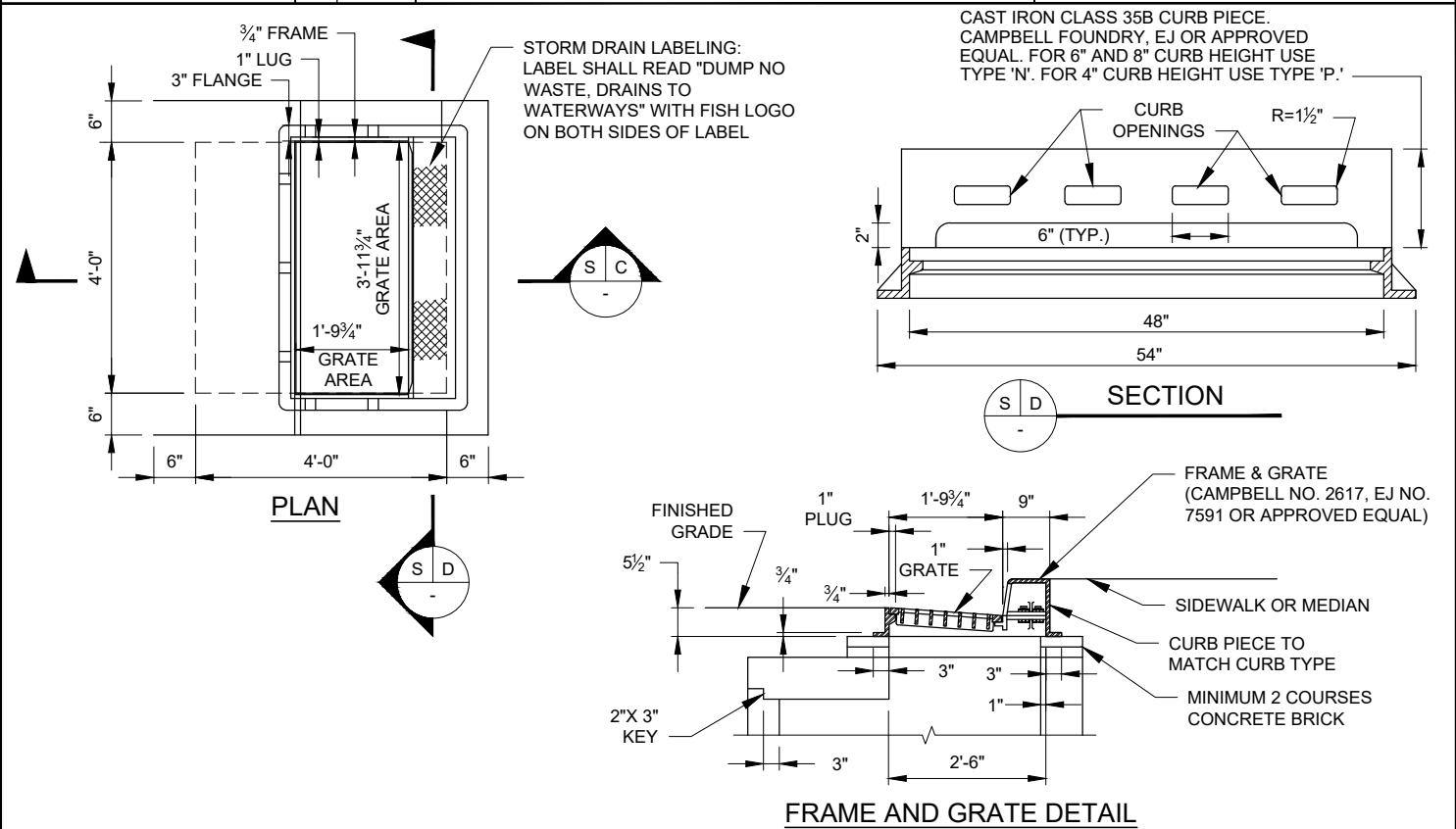
**ALUMINUM VAPOR TIGHT TRAP NOTES:**

1. USE VAPOR TIGHT TRAP CAMPBELL FOUNDRY CATALOG NO. 2660 TO 2667 OR NEENAH FOUNDRY COMPANY CATALOG SERIES R-3708, OR APPROVED EQUAL, WITH NEOPRENE GASKETS AT CONTACT SURFACE AND ON INSPECTION COVERS.
2. VAPOR TIGHT TRAP SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR PIPE SIZES, EXCEPT THAT LARGER TRAPS SHALL BE USED WHERE MINIMUM CLEARANCES CANNOT OTHERWISE BE ACHIEVED.
3. BOLT TRAPS TO WALL USING 3/4" GALVANIZED ANCHOR BOLTS (CAST IN-PLACE WHERE POSSIBLE). FIELD COAT NUTS AND BOLT HEADS WITH BITUMASTIC PAINT AFTER INSTALLATION.

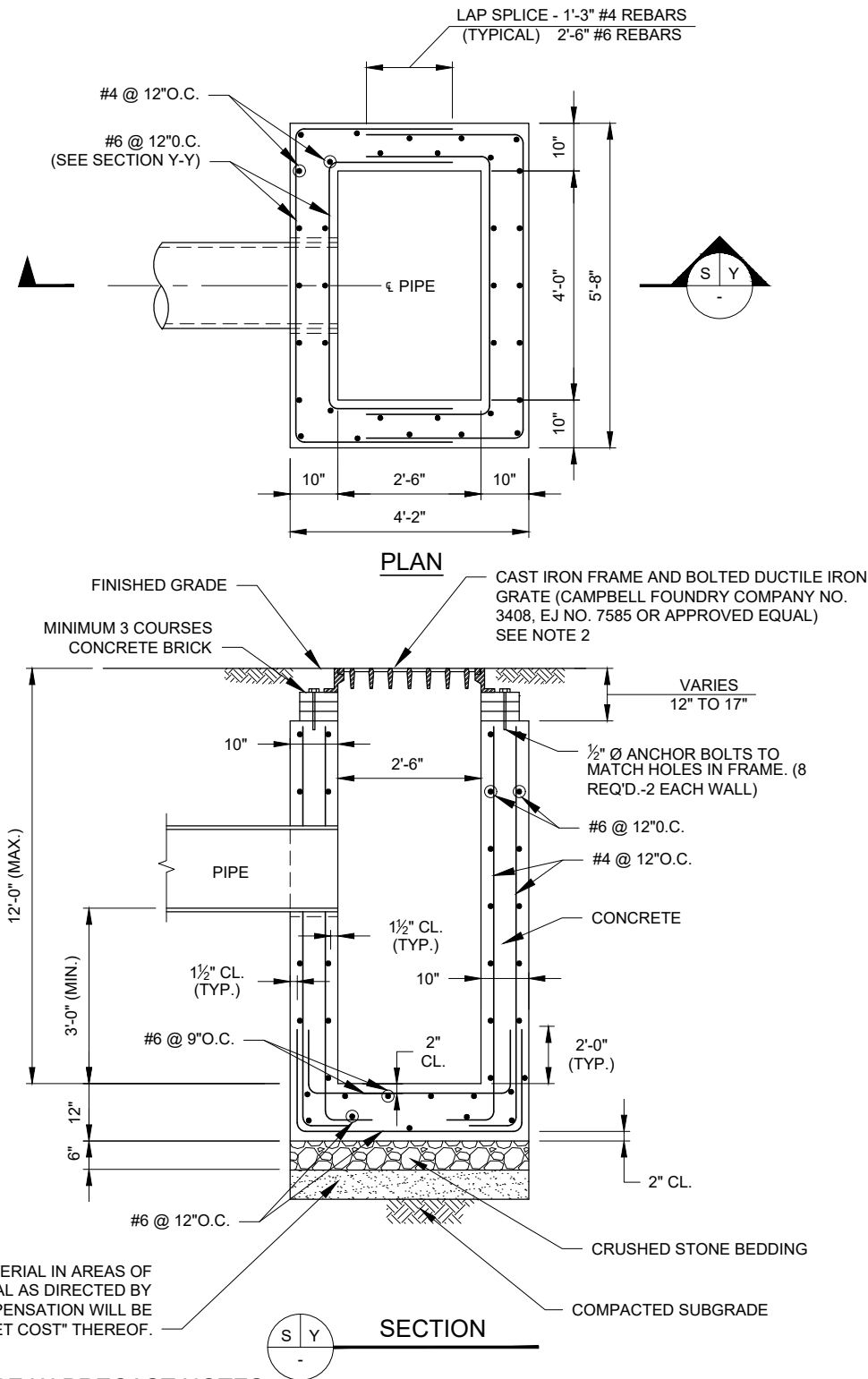
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO. DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER: HS-25 DESIGN LOAD.	TYPICAL DETAIL NO.	020.019
	#7	4/11/19		TITLE: <b>CATCH BASIN TYPE IV CAST IN-PLACE</b>	
				DETAIL SHEET 1 OF 1	



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> HS-25 DESIGN LOAD.	<b>TYPICAL DETAIL NO.</b>	020.020
	#7	4/11/19		<b>TITLE:</b> <b>CATCH BASIN TYPE IV PRECAST</b>	
				<b>DETAIL SHEET 1 OF 1</b>	



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. FOR USE IN PORT CONTAINER AREAS ONLY. 2. DESIGN LOADS FOR: CONTAINER HANDLERS: TAYLOR TEC-950L (215 KIP D.W. AXLE). CONTAINER STACKING: 5-HIGH (1250 PSF). REACH STACKER: MIJACK RS50 (226 KIP D.W. AXLE)	<b>TYPICAL DETAIL NO.</b>	020.021
	#8      4/11/19			<b>TITLE:</b> <b>CATCH BASIN TYPE 'A' PRECAST</b>	<b>DETAIL SHEET 1 OF 1</b>



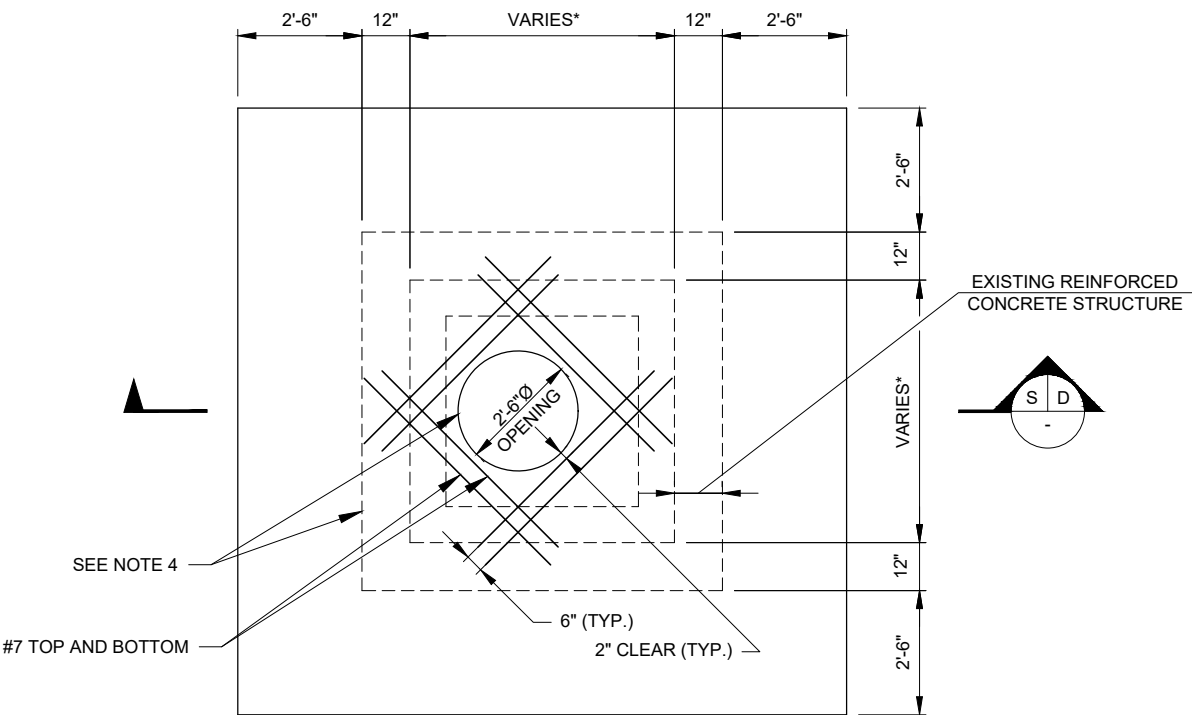
### CATCH BASIN TYPE 'A' PRECAST NOTES:

1. OPENINGS IN WALLS FOR PIPE SHALL BE CAST-IN OR CUT CLEANLY WITHOUT PERCUSSION TO MAXIMUM DIAMETER OF PIPE O.D. PLUS THREE (3) INCHES. FILL SPACE BETWEEN PIPE AND WALL WITH HYDRAULIC CEMENT GROUT (NON-SHRINK), MORTAR CEMENT OR AN APPROVED RESILIENT CONNECTORS CONFORMING TO ASTM C923.
2. BOLT GRATE TO FRAME WITH MINIMUM OF SIX 1/2" DIAMETER STAINLESS STEEL BOLTS (COUNTERSINK HOLES). PROVIDE FRAME SHALL BE PROVIDED WITH SLOTS FOR BOLTING TO WALLS.

### CATCH BASIN TYPE 'A' PRECAST

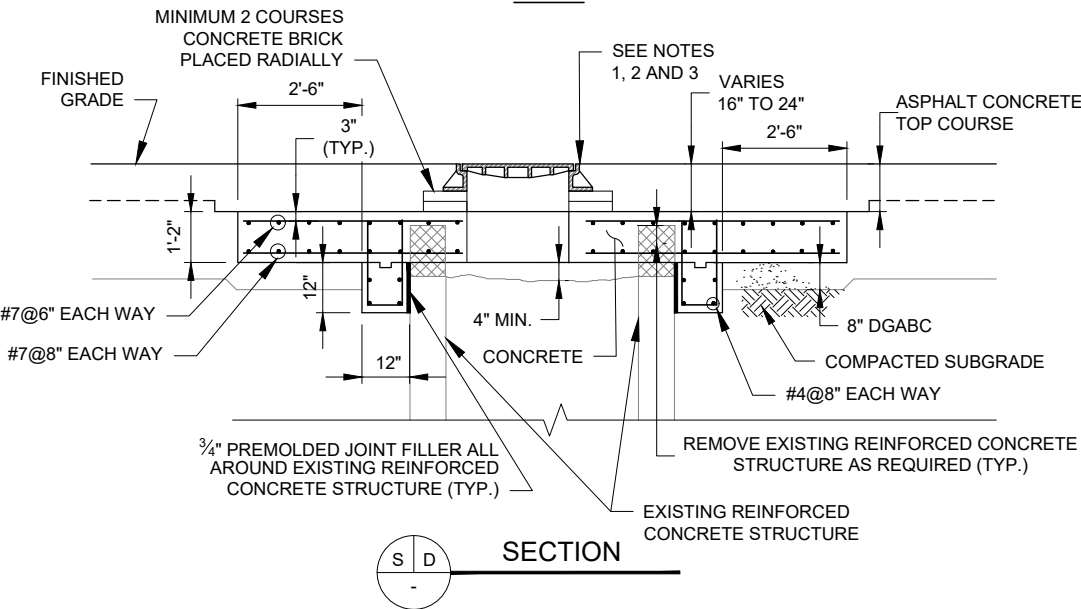
NOT TO SCALE

<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 08/05/1994</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER:</div> <div>1. DESIGNED TO SUPPORT AIRCRAFT LOADS UP TO AND INCLUDING B-747-400 MAXIMUM GROSS WEIGHT 875,000 LBS.</div> <div>2. EXISTING MANHOLE OR CATCH BASIN SIZE SHOULD BE SHOWN ON PLANS. IF NECESSARY, INCLUDE A TABLE COVERING THE SIZES. OTHERWISE SET THE DIMENSIONS</div> <div>3. FOR EXISTING PAVEMENT EXTEND A.C. 1'-0" BEYOND SLAB AND CUT NEAT TRIM EDGE AT LIMIT OF REMOVAL.</div> <div>4. CIVIL MANHOLES AND CATCH BASINS ONLY.</div> <div>5. CONFIRM IF THE FACILITY WANTS THE REMOVED CASTINGS.</div>	TYPICAL DETAIL NO.	025.002
	NO.	DATE		TITLE:  MANHOLE PROTECTIVE CONCRETE SLAB	
	#6	5/14/19			
			DETAIL SHEET 1 OF 1		



\*VERIFY DIMENSION IN THE FIELD.

### PLAN



### MANHOLE PROTECTIVE CONCRETE SLAB NOTES:

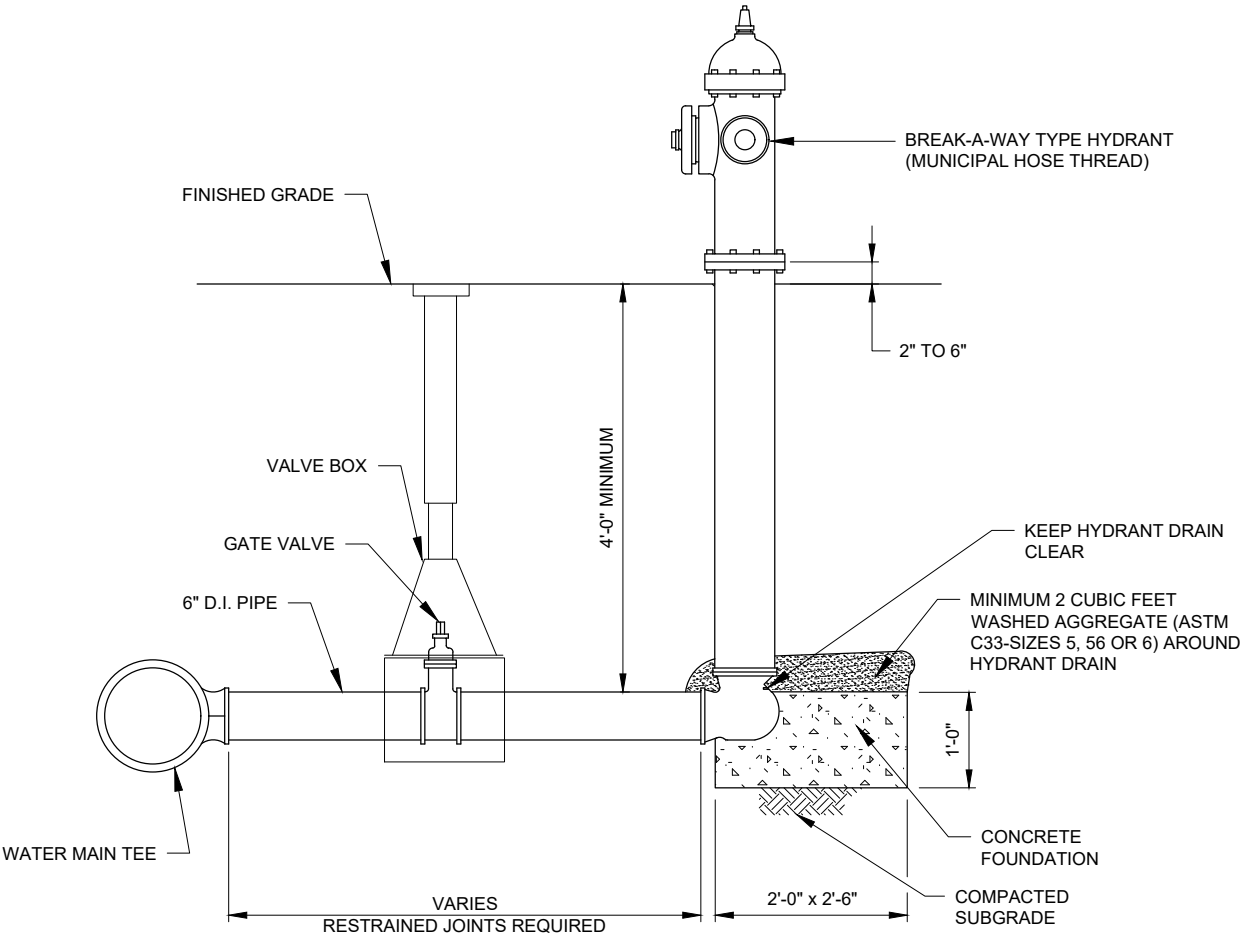
1. REMOVE EXISTING FRAME AND COVER.
2. MANHOLE, FRAME AND COVER SHALL BE CAMPBELL NO. 1511 DUCTILE IRON, EJ NO. 1240 OR APPROVED EQUAL. SEE "MANHOLE FRAME AND COVER AIRCRAFT TYPE" DETAIL.
3. LOCATE OPENING ADJACENT TO THE WALL WITH MANHOLE STEPS. IF NO STEPS ARE PRESENT CENTER OPENING.
4. REMOVE EXISTING REINFORCED CONCRETE TOP SLAB AND STRUCTURE AS REQUIRED.

## MANHOLE PROTECTIVE CONCRETE SLAB

NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 01/02/1985  APPROVED BY  06/20/2019 CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER: FOR BANDS AND RODS INSTALLATION USE DETAIL 030.012.	TYPICAL DETAIL NO.	030.011
	NO.	DATE		<b>TITLE:</b>  <b>FIRE HYDRANT CONNECTION</b>	
	#6	5/14/19			
				DETAIL SHEET 1 OF 1	

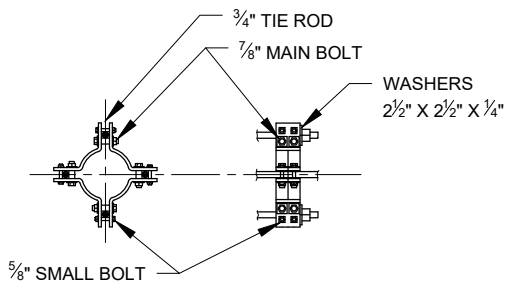
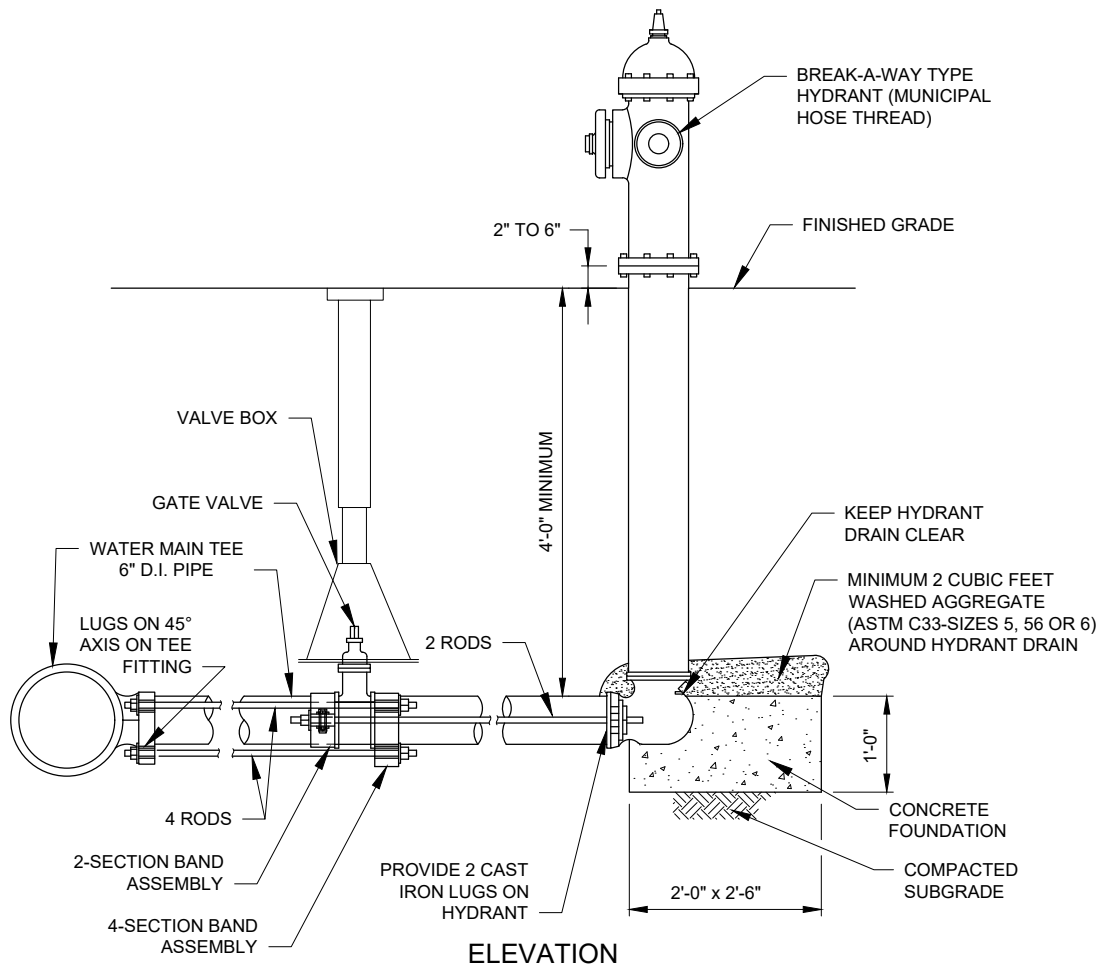


ELEVATION

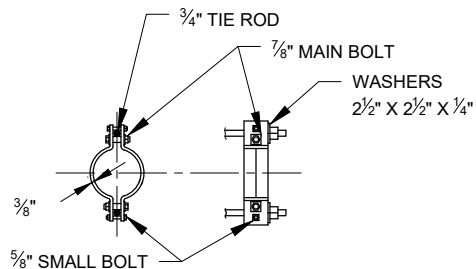
FIRE HYDRANT CONNECTION

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> FOR USE WHEN RODS AND BANDS ARE REQUESTED BY FACILITY.	TYPICAL DETAIL NO.	030.012
	#7	5/14/19		<b>TITLE:</b>  <b>FIRE HYDRANT CONNECTION</b>	
				DETAIL SHEET 1 OF 1	



**FOUR SECTION  
BAND ASSEMBLY**



**TWO SECTION  
BAND ASSEMBLY**

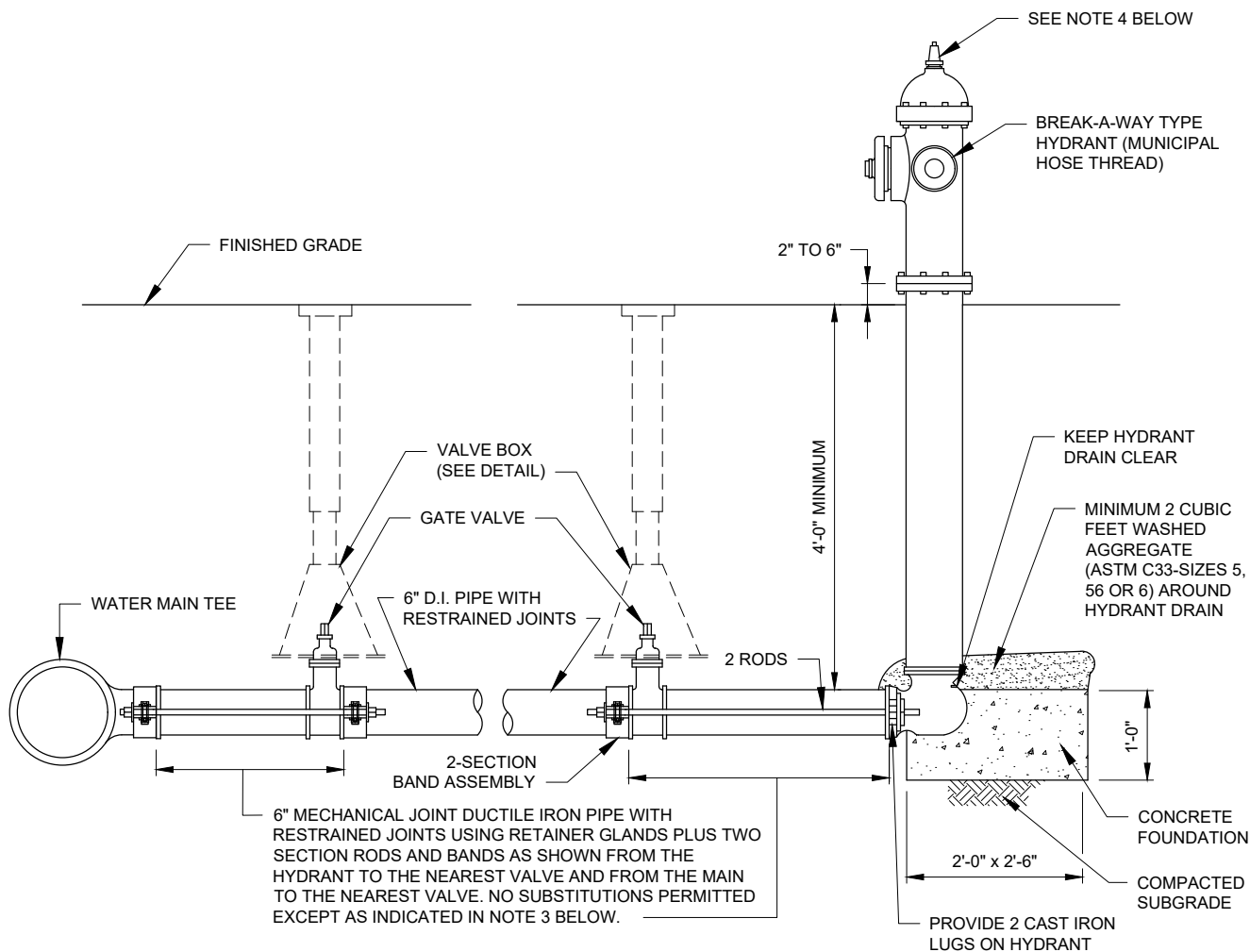
**FIRE HYDRANT CONNECTION NOTES:**

1. LUGGED VALVES MAY BE SUBSTITUTED IN LIEU OF BAND ARRANGEMENTS SHOWN.
2. USE  $\frac{1}{8}$ " ROUND WASHERS ON ALL CAST IRON LUGGED HYDRANTS AND ON ALL LUGGED FITTINGS.

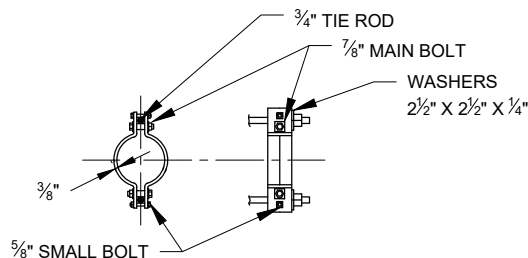
**FIRE HYDRANT CONNECTION**

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 10/01/2002 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>	030.015
	#3	5/14/19		<b>TITLE:</b>  <b>FIRE HYDRANT CONNECTION - PN/EPAMT</b>	
				DETAIL SHEET 1 OF 1	



### ELEVATION



### TWO SECTION BAND ASSEMBLY

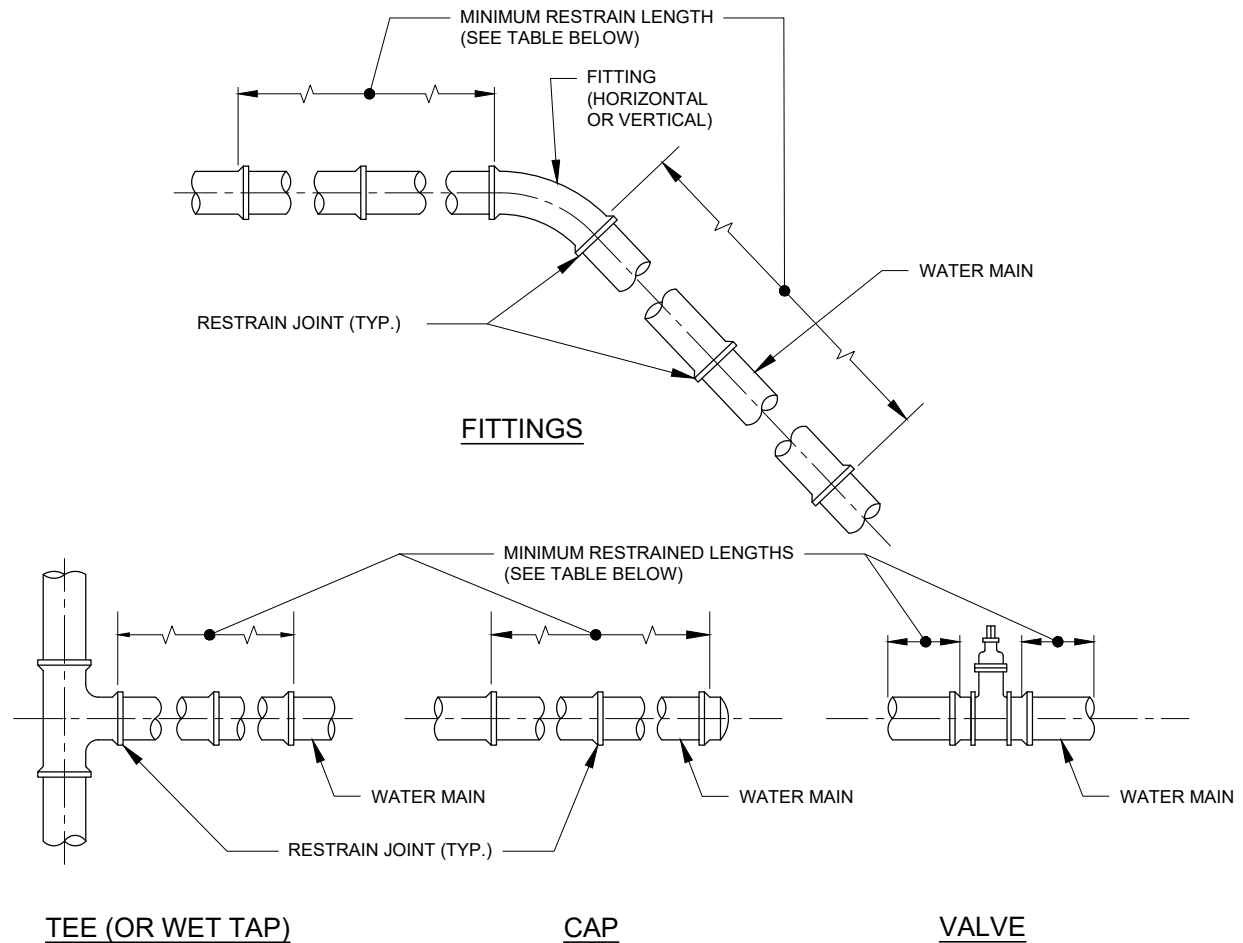
### FIRE HYDRANT CONNECTION-PN-EPMAT NOTES:

1. LUGGED VALVES MAY BE SUBSTITUTED IN LIEU OF BAND ARRANGEMENTS SHOWN.
2. USE  $\frac{1}{8}$ " ROUND WASHERS ON ALL CAST IRON LUGGED HYDRANTS AND ON ALL LUGGED FITTINGS.
3. SPECIALIZED SYSTEMS OF CONNECTING RODDED RESTRAINT TO MECHANICAL JOINT GLANDS SUCH AS ROMAC INDUSTRIES INC. "90" EYEBOLT" OR "ROMAC DUCTILE LUG" MAY BE SUBSTITUTED FOR BANDS AND LUGS.
4. DRILL AND TAP THE OPERATING NUT TO ACCEPT THE "CUSTODIAN" HYDRANT LOCK AS MANUFACTURED BY HYDRA-SHELD MANUFACTURING, INC.; IRVING, TX. THE "CUSTODIAN" HYDRANT LOCK WILL BE FURNISHED AND INSTALLED BY OTHERS.

### FIRE HYDRANT CONNECTION - PN/EPAMT

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO. DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. WHERE RODS AND BANDS ARE USED, INCLUDE DETAIL 030.023 WATER PIPE RODDING LENGTHS FOR MAIN. 2. MINIMUM RESTRAIN LENGTH CALCULATED BASED ON POLYETHYLENE WRAPPED DIP, TEST PRESSURE 200 PSI AND DEPTH OF COVER 4'. 3. FOR NON-POLYETHYLENE WRAPPED DIP AND OTHER VARIANCE PERFORM DIPRA DESIGN STANDARD FOR REQUIRED RESTRAIN LENGTH.	TYPICAL DETAIL NO.	030.020
	#4	7/31/18		TITLE: <b>RESTRAINED LENGTHS FOR WATER MAIN</b>	
			DETAIL SHEET 1 OF 1		

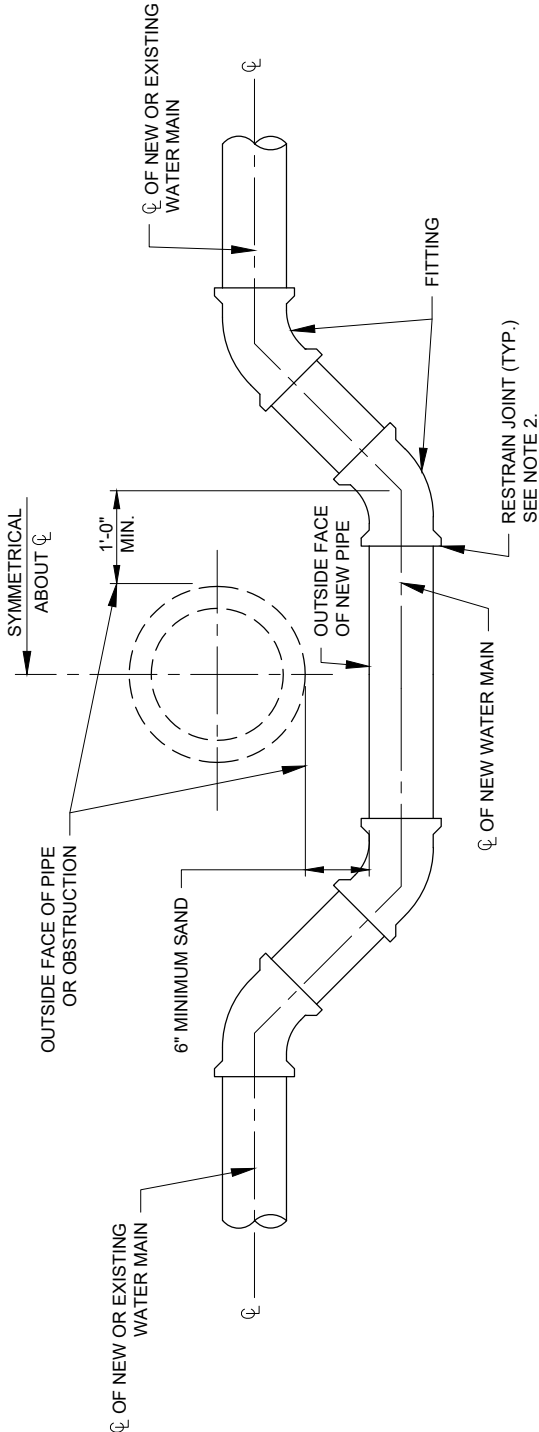


MINIMUM RESTRAIN LENGTH FOR WATER MAINS (IN FEET) *										
PIPE DIA. (IN.)	CAP OR VALVE	TEE (OR WET TAP)	HORIZONTAL FITTING AND VERTICAL FITTING UP				VERTICAL FITTING DOWN			
			90°	45°	22½°	11¼°	90°	45°	22½°	11¼°
4	42	27	12	5	3	2	42	18	9	5
6	59	44	17	7	4	2	59	25	12	6
8	78	63	22	10	5	3	78	33	16	8
10	93	78	27	11	6	3	93	39	19	10
12	110	95	31	13	7	4	110	46	22	11
16	142	126	40	17	8	4	142	59	29	14
20	172	156	47	20	10	5	172	72	35	17
24	202	186	55	23	11	6	202	84	41	20
30	243	226	65	27	13	7	243	101	49	24

\* EXTEND RESTRAIN TO NEXT JOINT WHERE "MINIMUM RESTRAIN LENGTH" FALLS BETWEEN JOINTS OF THE WATER MAIN.

**RESTRAINED LENGTHS FOR WATER MAIN**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. WHERE CLEARANCE IS LESS THAN 6" DEVELOP NON-STANDARD DETAIL AND USE CLOSED CELL POLYURETHANE FOAM FOR CUSHION.  2. DELETE NOTE 2 IF PROJECT REQUIRES RESTRAIN OF ALL JOINTS	<b>TYPICAL DETAIL NO.</b>	030.021
	#4	5/14/19		<b>TITLE:</b>  <b>WATER MAIN CROSSING OBSTRUCTION</b>	
				DETAIL SHEET 1 OF 1	



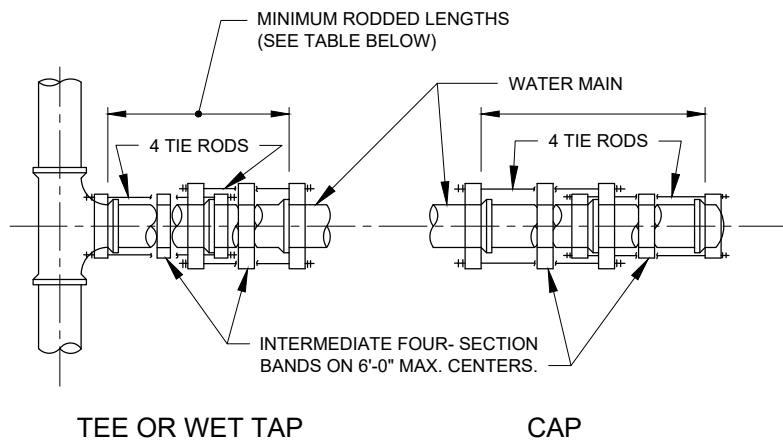
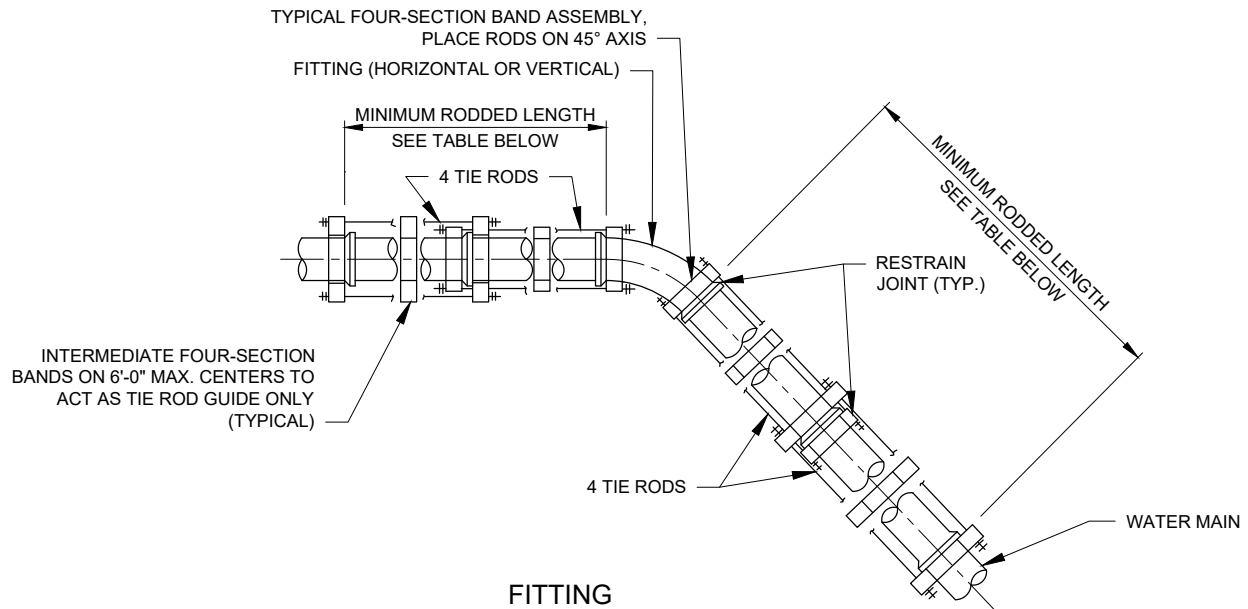
WATER MAIN CROSSING OBSTRUCTION NOTES:

1. WATER MAIN CROSSING ABOVE STRUCTURE IS SIMILAR.
2. FOR RESTRAIN JOINT REQUIREMENTS, SEE "MINIMUM RESTRAIN LENGTH FOR WATER MAINS" DETAIL.

WATER MAIN CROSSING OBSTRUCTION

NOT TO SCALE

<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 01/02/1985</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER:</div> <div>1. USE THIS DETAIL TO RESTRAIN EXISTING WATER MAINS WHEN ARE AFFECTED BY NEW CONSTRUCTION OR FOR SPECIAL CIRCUMSTANCES. INCLUDE DETAIL 030.024.</div> <div>2. INCLUDE DETAIL 030.026 IF GATE VALVES ARE REQUIRED.</div>	TYPICAL DETAIL NO.	030.023
	NO.	DATE		<div>TITLE:</div> <div>RODDING (FOR RESTRAIN)</div> <div>LENGTHS FOR WATER MAIN</div>	
	#5	5/14/19			
			DETAIL SHEET 1 OF 1		



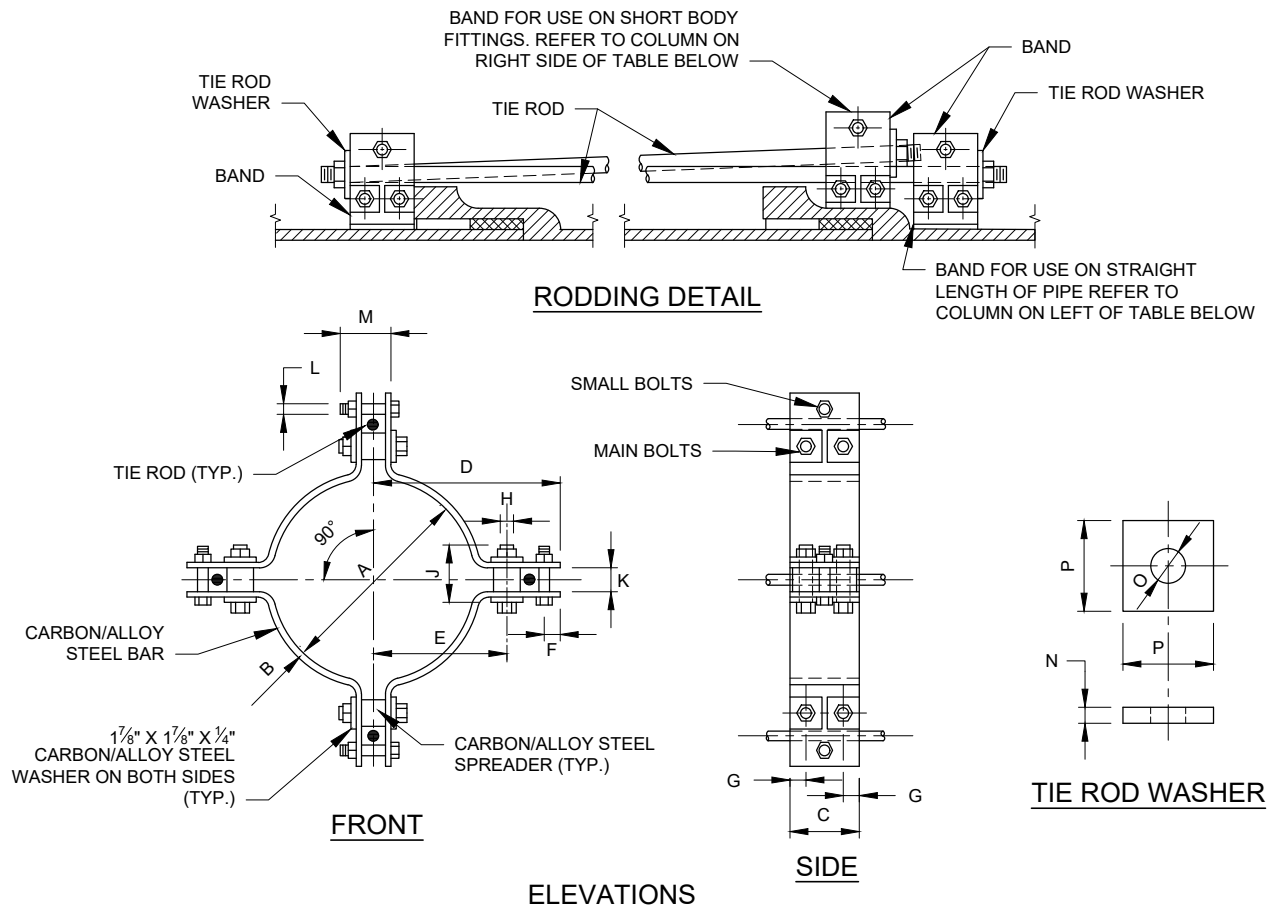
MINIMUM RODDED LENGTH FOR WATER MAINS (IN FEET) *										
PIPE DIA. (IN.)	CAP OR VALVE	TEE OR WET TAP	HORIZONTAL FITTING AND VERTICAL FITTING UP				VERTICAL FITTING DOWN			
			90°	45°	22½°	11¼°	90°	45°	22½°	11¼°
4	42	27	12	5	3	2	42	18	9	5
6	59	44	17	7	4	2	59	25	12	6
8	78	63	22	10	5	3	78	33	16	8
10	93	78	27	11	6	3	93	39	19	10
12	110	95	31	13	7	4	110	46	22	11
16	142	126	40	17	8	4	142	59	29	14
20	172	156	47	20	10	5	172	72	35	17
24	202	186	55	23	11	6	202	84	41	20
30	243	226	65	27	13	7	243	101	49	24

\* EXTEND RESTRAIN TO NEXT JOINT WHERE "MINIMUM RODDED LENGTH" FALLS BETWEEN JOINTS OF THE WATER MAIN.

## RODDING (FOR RESTRAIN) LENGTHS FOR WATER MAIN

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 01/02/1985  APPROVED BY  06/20/2019 CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER: INCLUDE DETAIL 030.023 AND 030.026 IF APPROPRIATE.	TYPICAL DETAIL NO.	030.024
	NO.	DATE			
	#6	5/14/19		<b>TITLE:</b> <b>FOUR-SECTION BAND AND TIE ROD ASSEMBLY FOR WATER MAIN</b>	
					DETAIL SHEET 1 OF 1



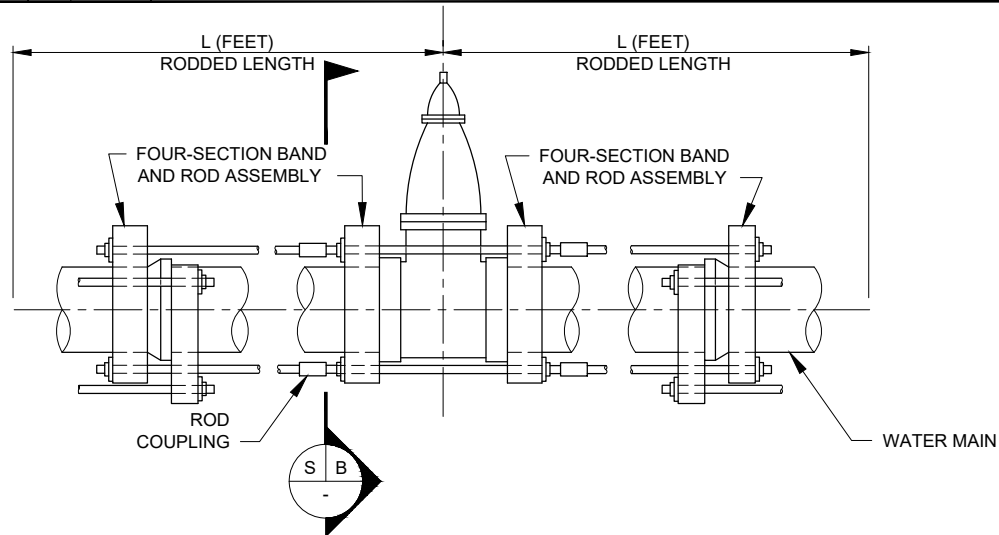
SCHEDULE OF BANDS - DIMENSION IN INCHES																								
SIZE OF PIPES	FOR STRAIGHT LENGTH OF PIPE						MAIN BOLTS				SPREADER		SMALL BOLTS			TIE ROD & WASHER			FOR SHORT BODY FITTINGS					
											INSIDE DIA	K				TIE ROD DIA.	WASHER							
	A	B	C	D	E	F	G	NO.	H	J			NO.	L	M		N	O	P	A	B	C	D	E
4	4 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>8</sub>	3	7 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	1 <sup>1</sup> / <sub>4</sub>	4	<sup>5</sup> / <sub>8</sub>	3	<sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>4</sub>	<sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>	<sup>3</sup> / <sub>8</sub>	3	8 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
6	7	<sup>3</sup> / <sub>8</sub>	3	8 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>8</sub>	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	1 <sup>1</sup> / <sub>4</sub>	4	<sup>5</sup> / <sub>8</sub>	3	<sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>4</sub>	<sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	9 <sup>5</sup> / <sub>16</sub>	<sup>3</sup> / <sub>8</sub>	3	9 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
8	9 <sup>1</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>	4	9	6 <sup>3</sup> / <sub>8</sub>	1	1	8	<sup>7</sup> / <sub>8</sub>	4	1	1 <sup>1</sup> / <sub>4</sub>	4	<sup>5</sup> / <sub>8</sub>	3	<sup>3</sup> / <sub>4</sub>	<sup>1</sup> / <sub>4</sub>	<sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	11 <sup>5</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>	4	10 <sup>1</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>8</sub>
10	11 <sup>1</sup> / <sub>4</sub>	<sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	10 <sup>5</sup> / <sub>8</sub>	7 <sup>5</sup> / <sub>8</sub>	1	1	8	<sup>7</sup> / <sub>8</sub>	4	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	<sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub>	3					
12	13 <sup>3</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	8 <sup>7</sup> / <sub>8</sub>	1	1	8	<sup>7</sup> / <sub>8</sub>	4	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	<sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub>	3	16	<sup>5</sup> / <sub>8</sub>	4	13 <sup>9</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>16</sub>
16	17 <sup>1</sup> / <sub>2</sub>	<sup>1</sup> / <sub>2</sub>	5	14 <sup>1</sup> / <sub>4</sub>	10 <sup>7</sup> / <sub>8</sub>	1	1	8	<sup>7</sup> / <sub>8</sub>	4	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	<sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>					
20	21 <sup>5</sup> / <sub>8</sub>	<sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	16 <sup>3</sup> / <sub>8</sub>	13	1	1 <sup>1</sup> / <sub>4</sub>	8	<sup>7</sup> / <sub>8</sub>	4	1	1 <sup>1</sup> / <sub>2</sub>	4	<sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1	<sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>					
24	26	<sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	19	15 <sup>1</sup> / <sub>4</sub>	1	1 <sup>1</sup> / <sub>4</sub>	8	<sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	1	1 <sup>7</sup> / <sub>8</sub>	4	<sup>5</sup> / <sub>8</sub>	4	1 <sup>3</sup> / <sub>8</sub>	<sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>					
30	32 <sup>1</sup> / <sub>4</sub>	<sup>5</sup> / <sub>8</sub>	6	23	18 <sup>3</sup> / <sub>4</sub>	1	1 <sup>1</sup> / <sub>4</sub>	8	<sup>7</sup> / <sub>8</sub>	5	1	2 <sup>1</sup> / <sub>4</sub>	4	<sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	<sup>5</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>					

#### FOUR-SECTION BAND AND TIE ROD ASSEMBLY FOR WATER MAIN NOTES:

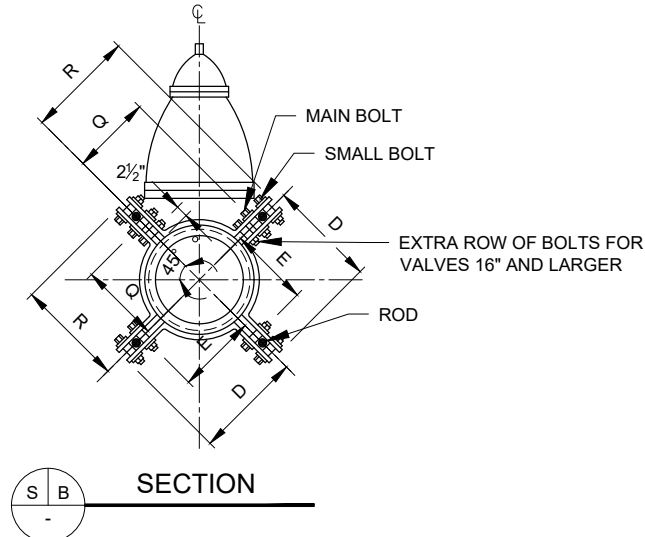
1. DRILL BOLT HOLES <sup>1</sup>/<sub>8</sub>" LARGER THAN THE BOLT DIAMETER.
2. DIMENSIONS A, B, C, D AND E VARY WITH INTENDED USE (ON STRAIGHT PIPE OR SHORT BODY FITTINGS) ALL OTHER DATA IN THE TABLE DOES NOT VARY WITH USAGE.
3. PRIOR TO BACKFILL, PAINT ALL COMPONENTS WITH BITUMASTIC 50 COAL TAR MASTIC AS MANUFACTURED BY CARBOLINE COMPANY OF ST. LOUIS, MO. OR APPROVED EQUAL.

## FOUR-SECTION BAND AND TIE ROD ASSEMBLY FOR WATER MAIN

NOT TO SCALE



**ELEVATION**



**SECTION**

**SCHEDULE OF BANDS DIMENSIONS IN INCHES**

SIZE OF VALVE	D	E	Q	R	L (FEET)
4	7½	4¾	4¾	7½	24
6	8½	5¾	6¾	9¼	24
8	9	6¾	8¾	11¼	24
10	10½	7¾	9¾	12¾	24
12	12¼	8¾	11½	14¾	36
16	14¼	10¾	15¾	18¾	36
20	16¾	13	18¾	22½	48
24	19	15¼	22	25¾	60
30	23	18¾	26¾	31	72

**FOUR-SECTION BAND AND ROD ASSEMBLY FOR VALVE IN WATER MAIN NOTES:**

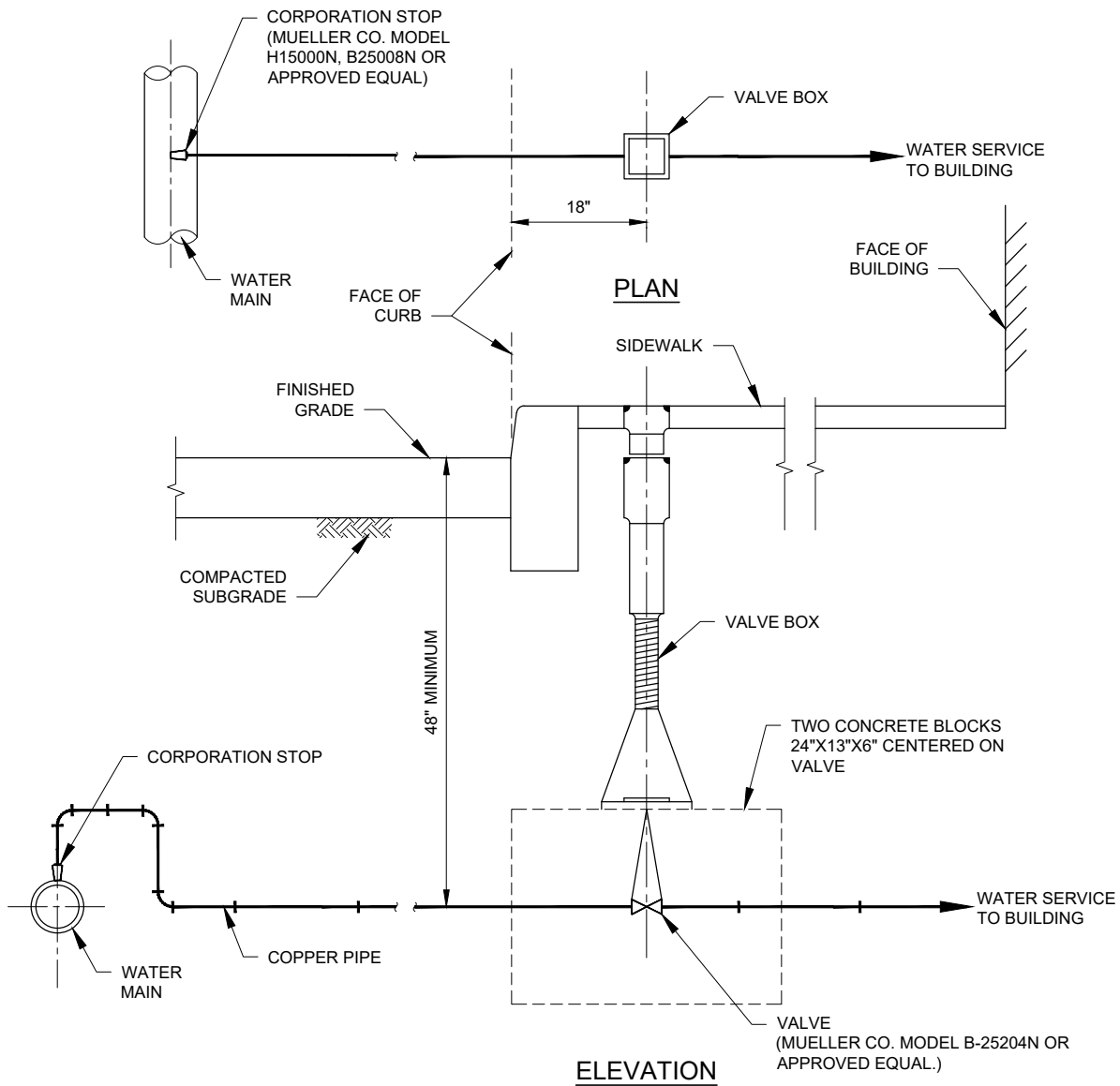
1. PRIOR TO BACKFILL, PAINT ALL COMPONENTS WITH BITUMASTIC 50 COAL TAR MASTIC AS MANUFACTURED BY CARBOLINE COMPANY OF ST. LOUIS, MO. OR APPROVED EQUAL.
2. FOR ADDITIONAL DIMENSIONS, SEE "FOUR SECTION BAND AND ROD ASSEMBLY FOR WATER MAIN".

**FOUR-SECTION BAND AND ROD ASSEMBLY  
FOR VALVE IN WATER MAIN**

NOT TO SCALE

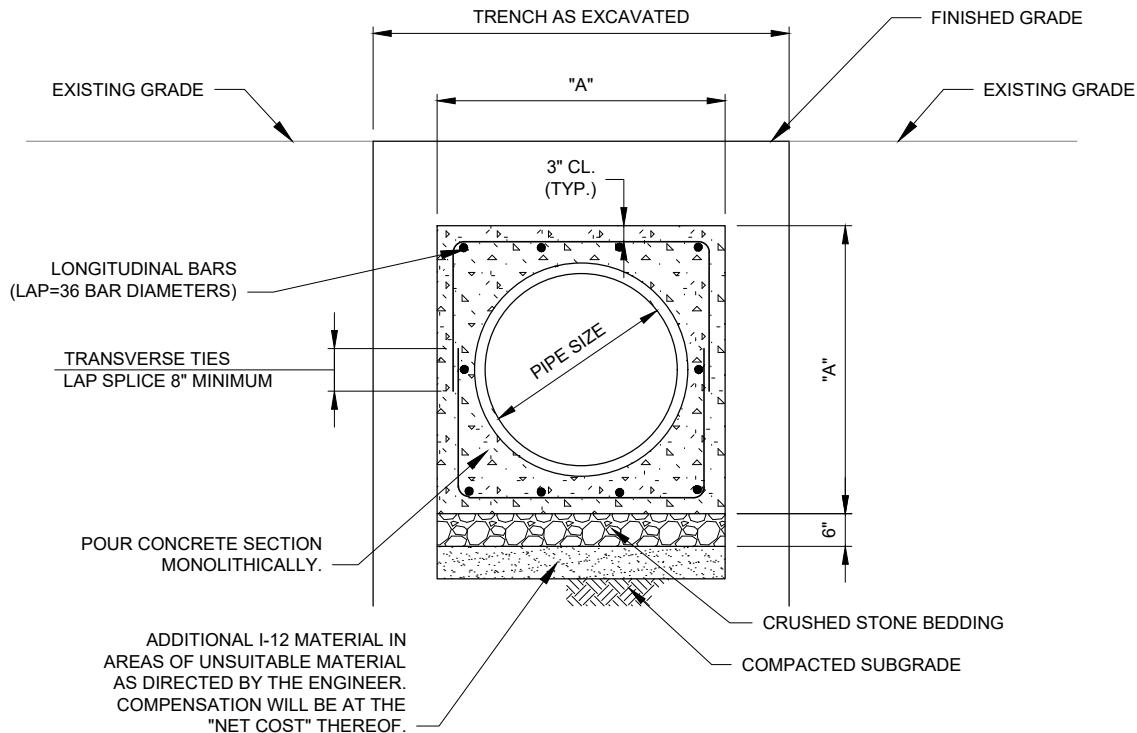


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO. DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER: INCLUDE PIPE SIZE ON CONTRACT DWG(S).	TYPICAL DETAIL NO.	030.044
	#6	5/14/19		<b>TITLE:</b> <b>DOMESTIC WATER SERVICE</b> <b>1" TO 2"</b>	DETAIL SHEET 1 OF 1

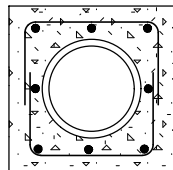


**DOMESTIC WATER SERVICE 1" TO 2"**  
NOT TO SCALE

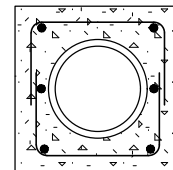
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> MINIMUM COVER SHOULD BE CHECKED USING ASCE MANUAL #77 METHODS. DESIRED COVER IS 4 FEET ABSOLUTE. MINIMUM COVER IS 3 FEET.	TYPICAL DETAIL NO.	030.050
	NO.	DATE		<b>TITLE:</b> <b>REINFORCED CONCRETE ENCASEMENT FOR PIPE</b>	
	#6	5/14/19			
					DETAIL SHEET 1 OF 1



10 LONGITUDINAL BARS



8 LONGITUDINAL BARS



6 LONGITUDINAL BARS

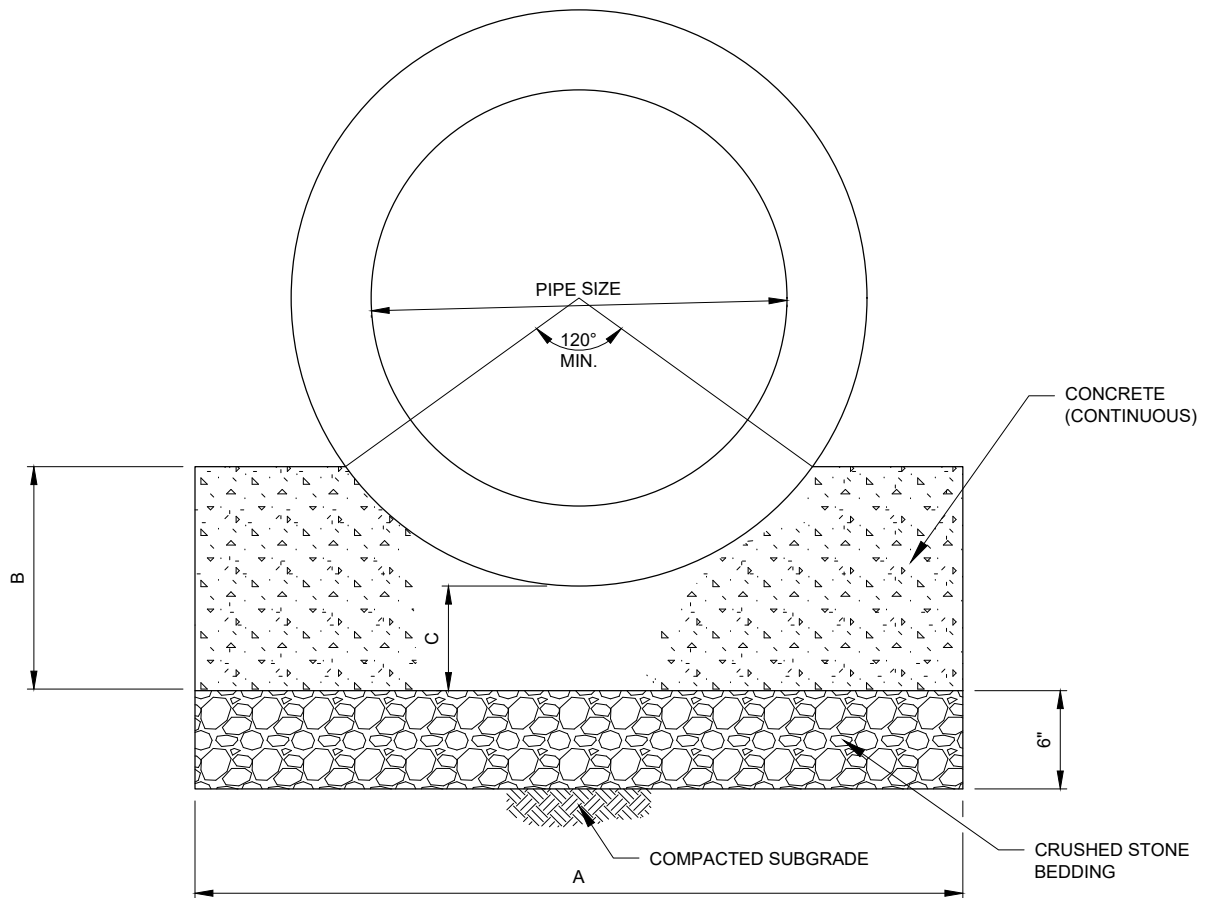
TYPICAL SECTIONS

SCHEDULE			
PIPE SIZE	"A"	LONGITUDINAL BARS	TRANSVERSE BARS
4"	1' - 4"	6-#4	#4 @ 18"O.C.
6"	1' - 6"		
8"	1' - 8"		
12"	2' - 2"	8-#4	#4 @ 18"O.C.
16"	2' - 7"	8-#5	
20"	2' - 11"	10-#5	
24"	3' - 3"		
30"	3' - 10"	10-#6	#4 @ 12"O.C.
36"	4' - 6"		

REINFORCED CONCRETE  
ENCASEMENT FOR PIPE

NOT TO SCALE

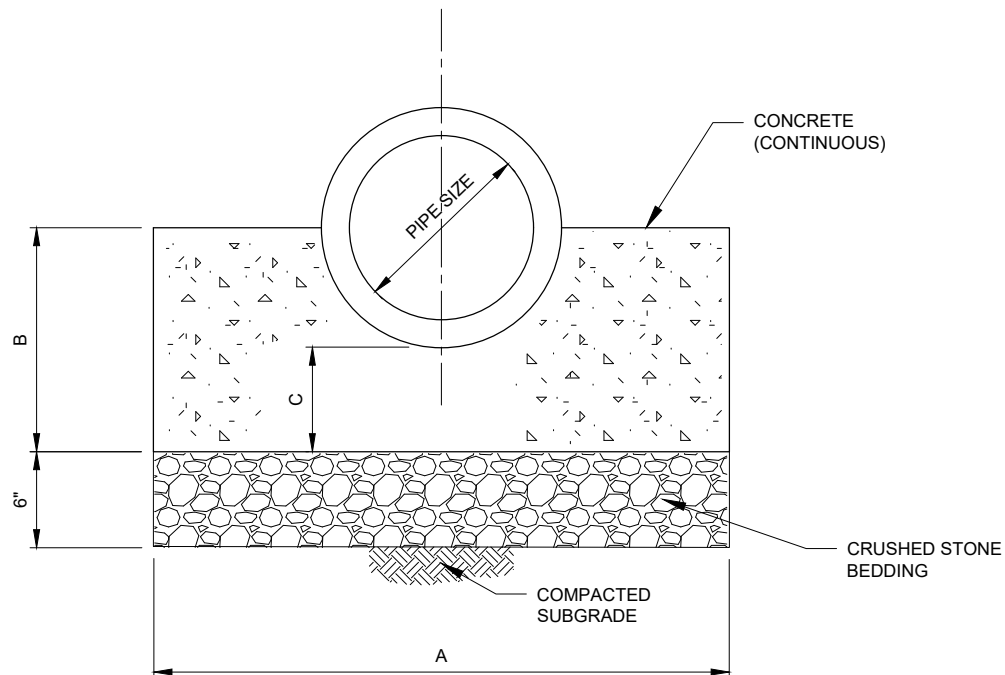
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> DETERMINE IF REQUIRED BY ASCE MANUAL #37 METHODS. FOR PIPE SIZES SMALLER THAN 24", SEE 043.001.	<b>TYPICAL DETAIL NO.</b>	041.001
	<b>NO.</b>	<b>DATE</b>		<b>TITLE:</b>  <b>STORM SEWER CRADLE</b>	
	#6	5/14/19			
			<b>DETAIL SHEET 1 OF 1</b>		



PIPE SIZE	A	B	C
24"	3' - 6"	1' - 2"	0' - 6"
30"	4' - 1"	1' - 4"	0' - 6"
36"	4' - 8"	1' - 6"	0' - 6"
42"	5' - 3"	1' - 9"	0' - 6"
48"	5' - 10"	2' - 0"	0' - 7"
54"	6' - 5"	2' - 3"	0' - 7"
60"	7' - 0"	2' - 5"	0' - 7"
66"	7' - 7"	2' - 8"	0' - 9"
72"	8' - 2"	2' - 11"	0' - 9"
84"	9' - 4"	3' - 4"	0' - 10"

**STORM SEWER CRADLE**  
NOT TO SCALE

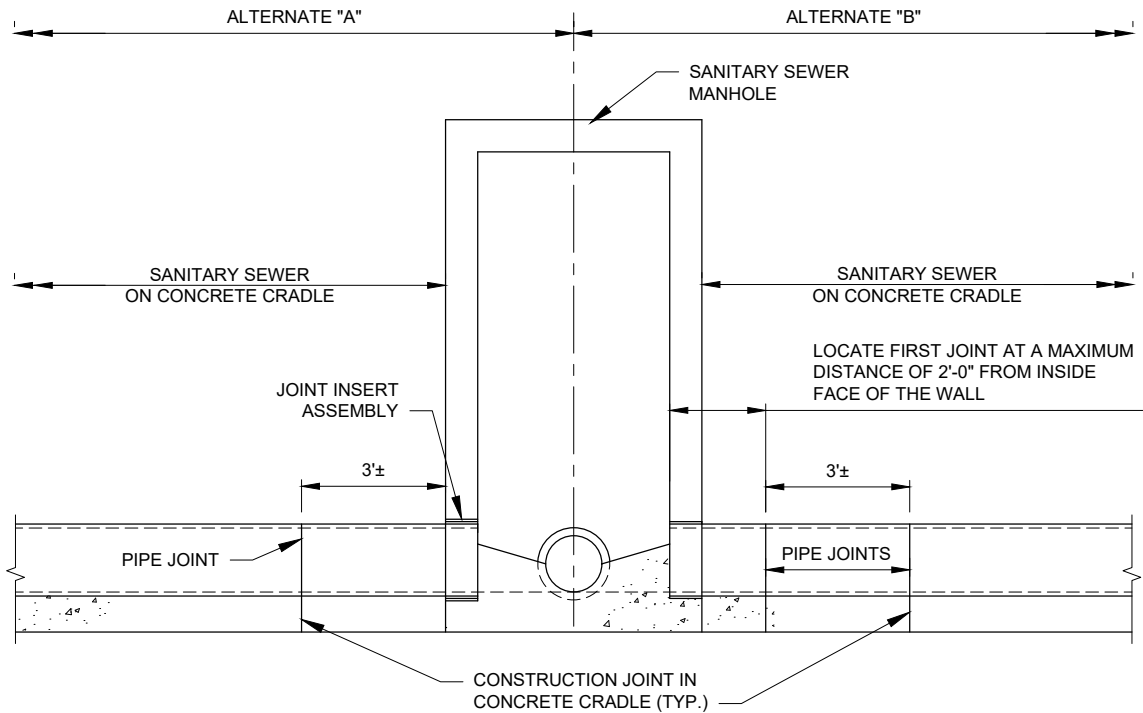
THE PORT AUTHORITY OF NY & NJ ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	043.001
	NO.	DATE			
	#6	5/14/19			
DATE CREATED: 01/02/1985			NOTES FOR DESIGNER: DETERMINE IF REQUIRED BY ASCE MANUAL #37 METHODS.  FOR PIPE SIZES SMALLER THAN 24", SEE 041.001.	TITLE:	
APPROVED BY				SANITARY SEWER CRADLE	
06/20/2019				DETAIL SHEET 1 OF 1	
CHIEF CIVIL ENGINEER	DATE				



PIPE SIZE	A	B	C
6"	1' - 6"	0' - 8"	0' - 5"
8"	1' - 8"	0' - 9"	0' - 5"
10"	1' - 11"	0' - 10"	0' - 5"
12"	2' - 2"	0' - 11"	0' - 5"
14" & 16"	2' - 6"	1' - 0"	0' - 6"
18"	2' - 10"	1' - 1"	0' - 6"
24"	3' - 4"	1' - 2"	0' - 6"

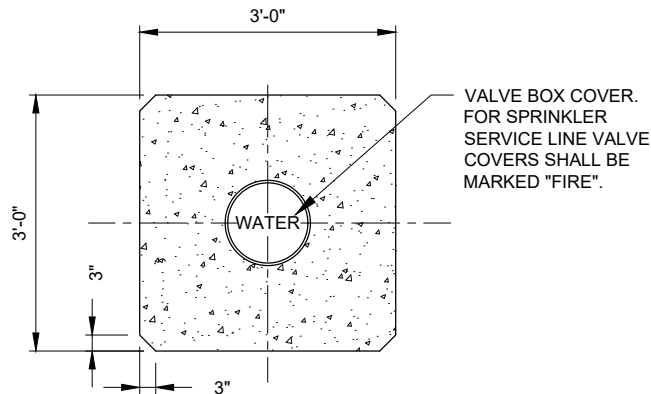
SANITARY SEWER CRADLE  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 01/02/1985  APPROVED BY  06/20/2019  CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	043.002
	NO.	DATE			
	#5	5/14/19			
NOTES FOR DESIGNER:			TITLE: <b>PIPE JOINT DETAIL AT SANITARY SEWER MANHOLE</b>		
			DETAIL SHEET 1 OF 1		

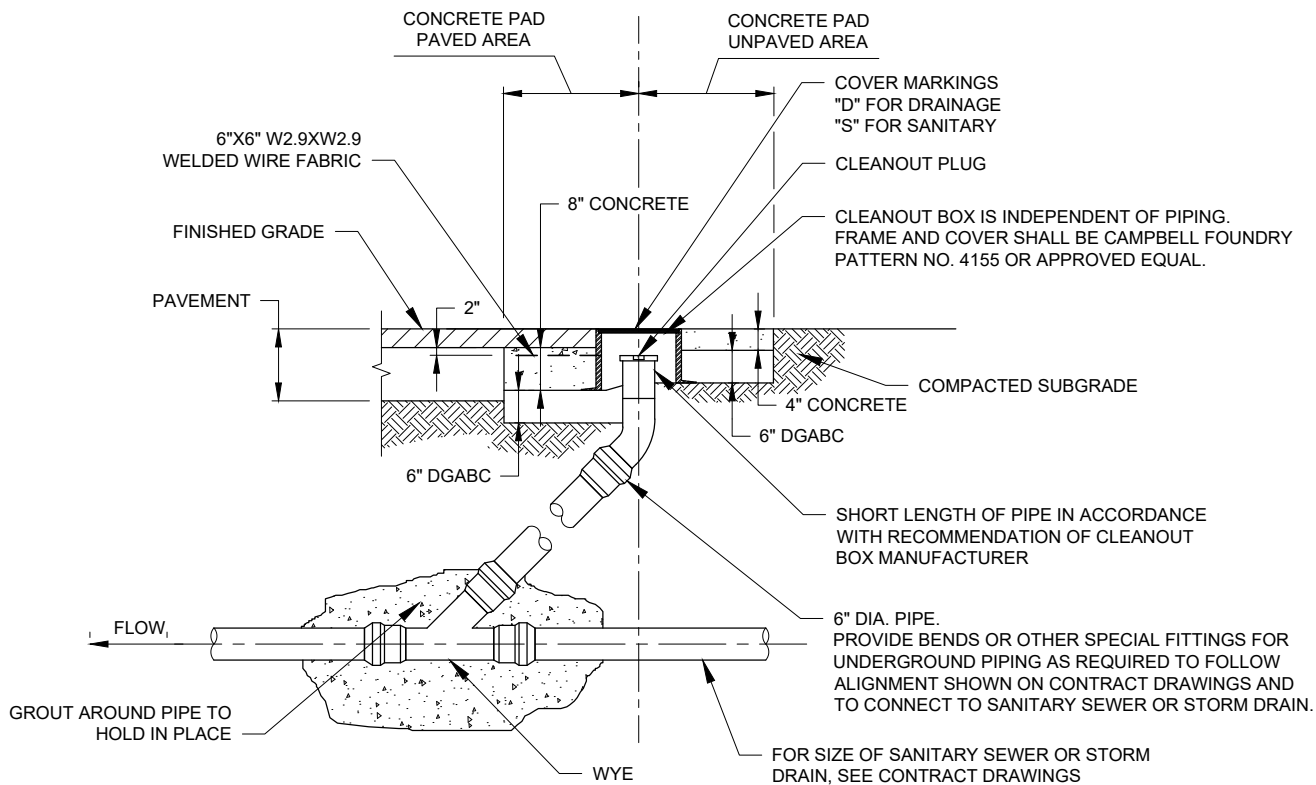


**PIPE JOINT DETAIL  
AT SANITARY SEWER MANHOLE**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. FOR AERONAUTICAL AND MARINE TERMINAL CONTAINER AREAS USE CAMPBELL FOUNDRY PATTERN NO. 41810130 DUCTILE IRON BOLTED OR APPROVAL EQUAL. 2. FOR EXISTING SEWERS, SPECIFY HOW CONNECTION IS TO BE MADE.	<b>TYPICAL DETAIL NO.</b>	043.004
	#5	5/14/19		<b>TITLE:</b>  <b>PIPE CLEANOUT</b>	<b>DETAIL SHEET 1 OF 1</b>

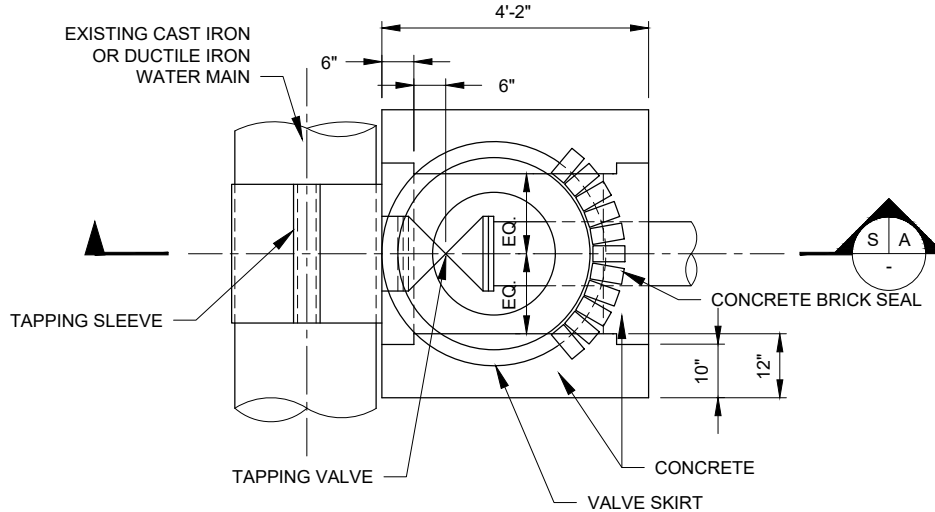


**DETAIL OF CONCRETE PAD**

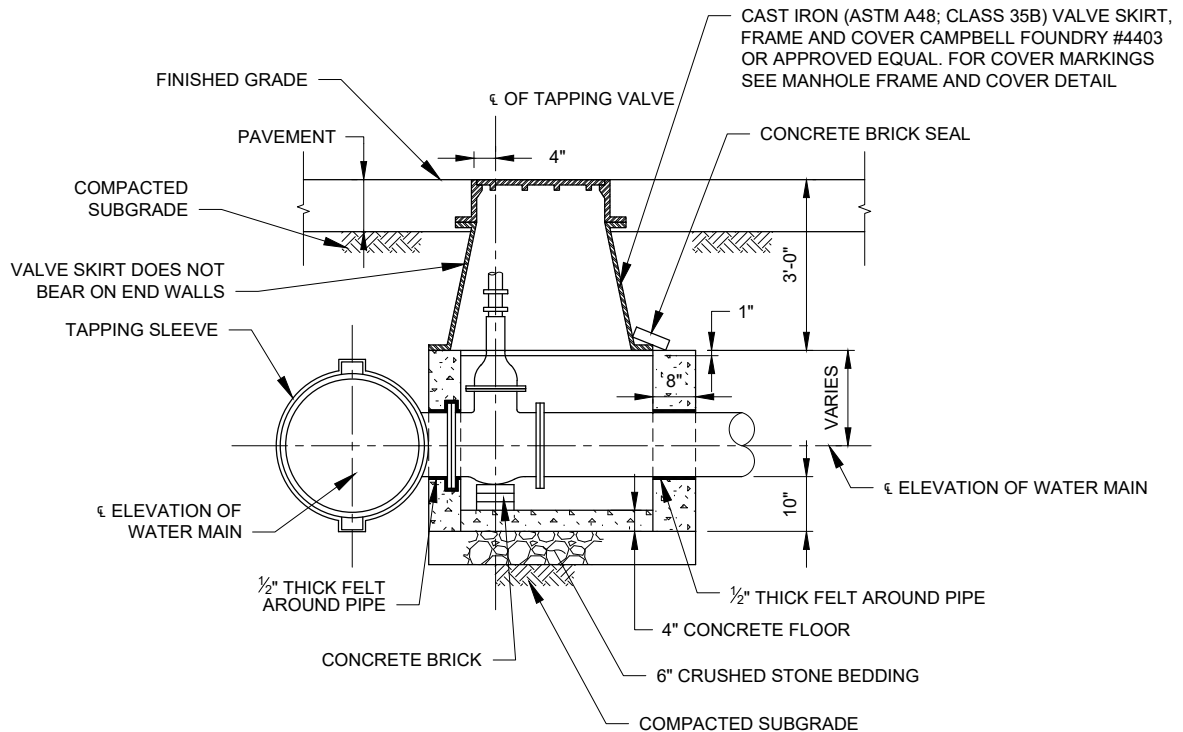


**ELEVATION**

**PIPE CLEANOUT**  
NOT TO SCALE



**PLAN**

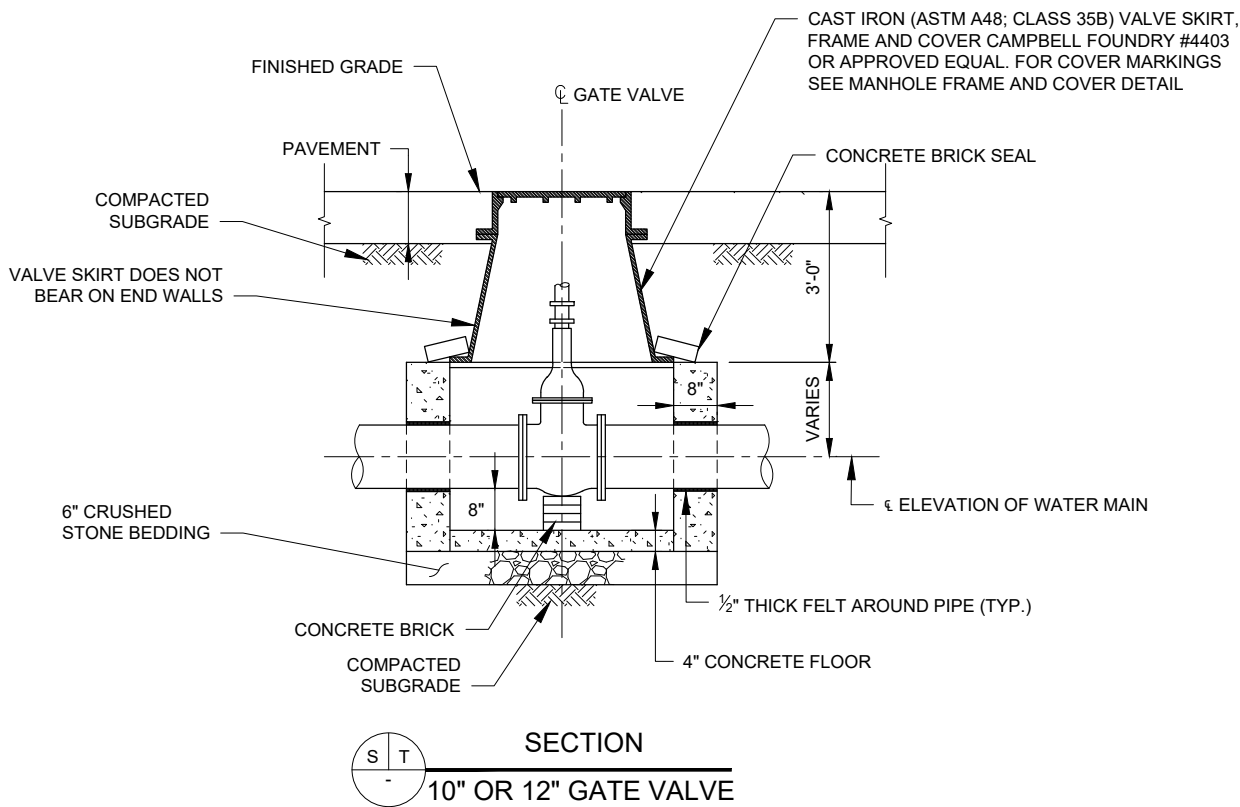
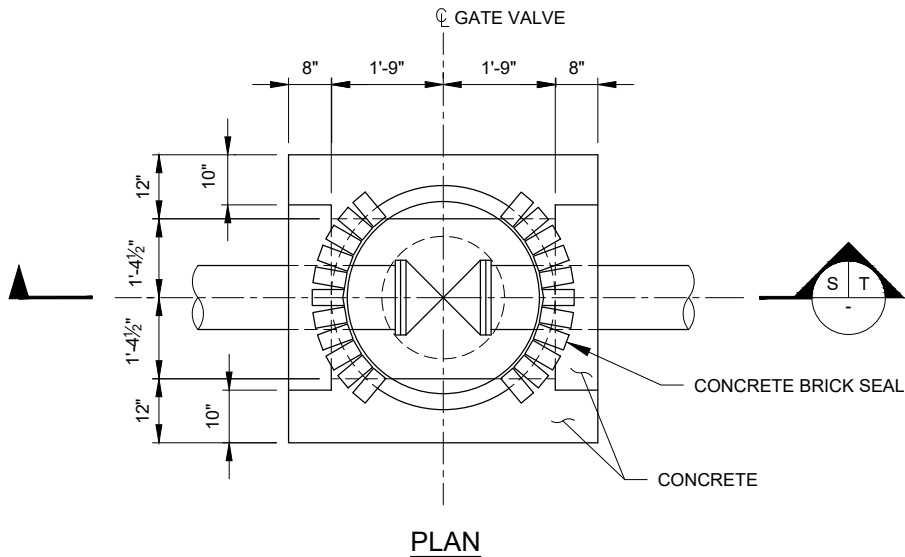


**SECTION**

**VALVE SKIRT AND FOUNDATION (TAPPING VALVE)**

NOT TO SCALE

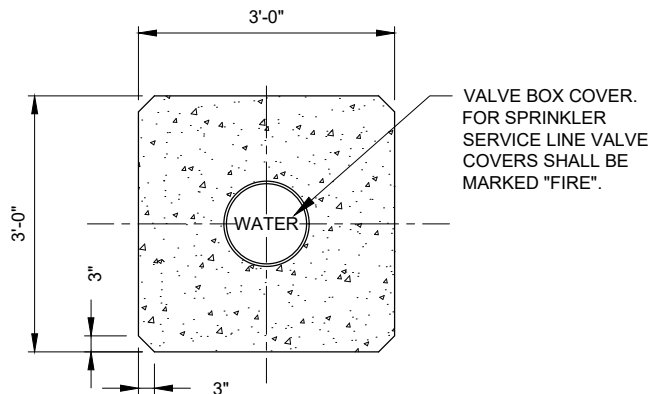
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> SPECIFY DUCTILE IRON COVER (ONLY) BOLTED TO FRAME.	TYPICAL DETAIL NO.	050.014
	#6	5/14/19		<b>TITLE:</b> <b>VALVE SKIRT AND FOUNDATION (GATE VALVE)</b>	
				DETAIL SHEET 1 OF 1	



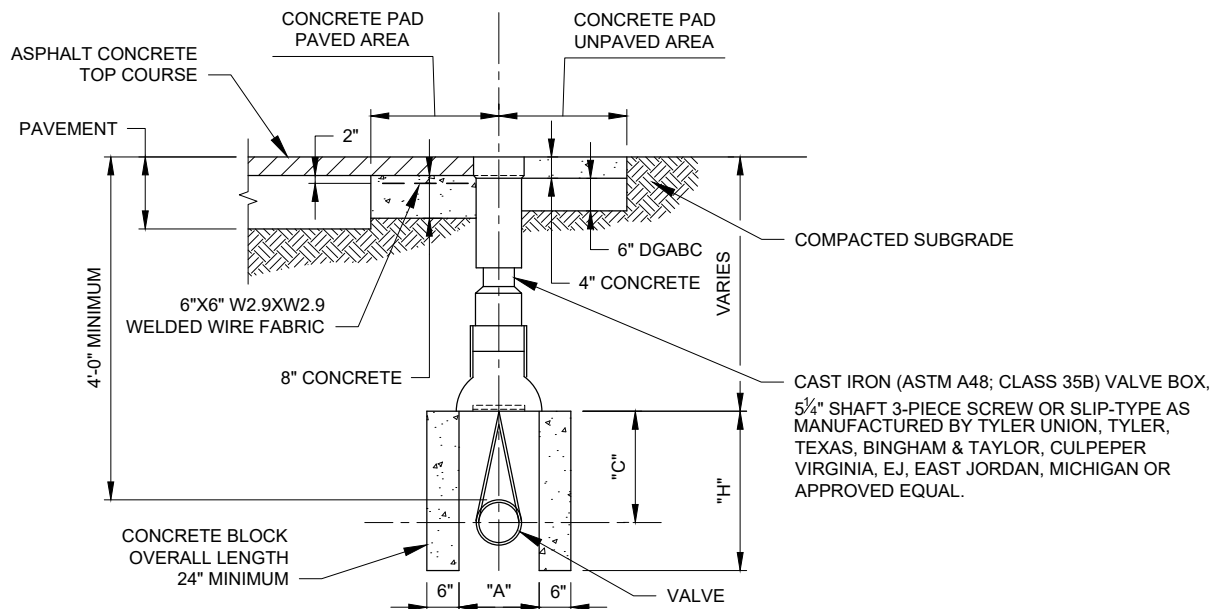
**10" OR 12" GATE VALVE**  
**VALVE SKIRT AND FOUNDATION (GATE VALVE)**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 08/02/1994 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> FOR USE AT NJ FACILITIES. FOR AIRCRAFT AND PORT AREAS REDESIGN THE CONCRETE PAD FOR APPROPRIATE WHEEL LOADS. WHEN THERE IS CONCERN THAT VALVE BOX COVER MAY DISLODGE UNDER HEAVY TRUCK TRAFFIC, CONSIDER USING EJIW MODEL NO. 6800045 OR TYLER UNION 51/4" OMA DROP LID. NOT SUITABLE FOR CONCRETE OR CONCRETE BLOCK PAVEMENTS. REVISE DETAIL AS REQUIRED.	TYPICAL DETAIL NO.	050.017
	#5	5/14/19		<b>TITLE:</b>  <b>VALVE BOX-TYPE NJ</b>	DETAIL SHEET 1 OF 1



DETAIL OF CONCRETE PAD



ELEVATION

SCHEDULE				
PIPE SIZE	"A"	"C"	"H"	VALVE BOX BASE
1"-2"	11"	0'-6 <sup>3</sup> / <sub>4</sub> "	1'- 1"	NO. 4 ROUND
4"	11"	1'-2 <sup>3</sup> / <sub>4</sub> "	1'-10"	NO. 4 ROUND
6"	12"	1'-5 <sup>1</sup> / <sub>2</sub> "	2'- 2"	NO. 6 ROUND
8"	15"	1'-9"	2'- 6"	NO. 6 ROUND
10"	18"	2'-0 <sup>3</sup> / <sub>4</sub> "	3'- 0"	NO. 160 OVAL
12"	21"	2'-4 <sup>1</sup> / <sub>4</sub> "	3'- 5"	NO. 160 OVAL

VALVE BOX-TYPE NJ  
NOT TO SCALE

**CIVIL DESIGN TYPICAL DETAILS**

**NOTES FOR DESIGNER:**

FOR N.Y.C. & YONKERS FACILITIES. FOR AIRCRAFT AND PORT AREAS  
REDESIGN PAD FOR HEAVIER LOADS. NOT SUITABLE FOR CONCRETE  
OR CONCRETE BLOCK PAVEMENTS. REVISE DETAIL AS REQUIRED.

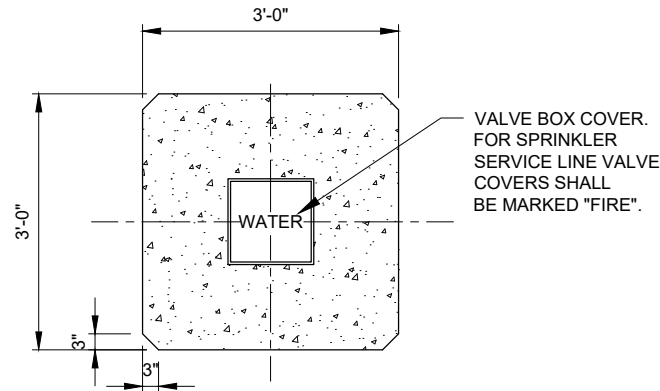
TYPICAL DETAIL NO.

050.018

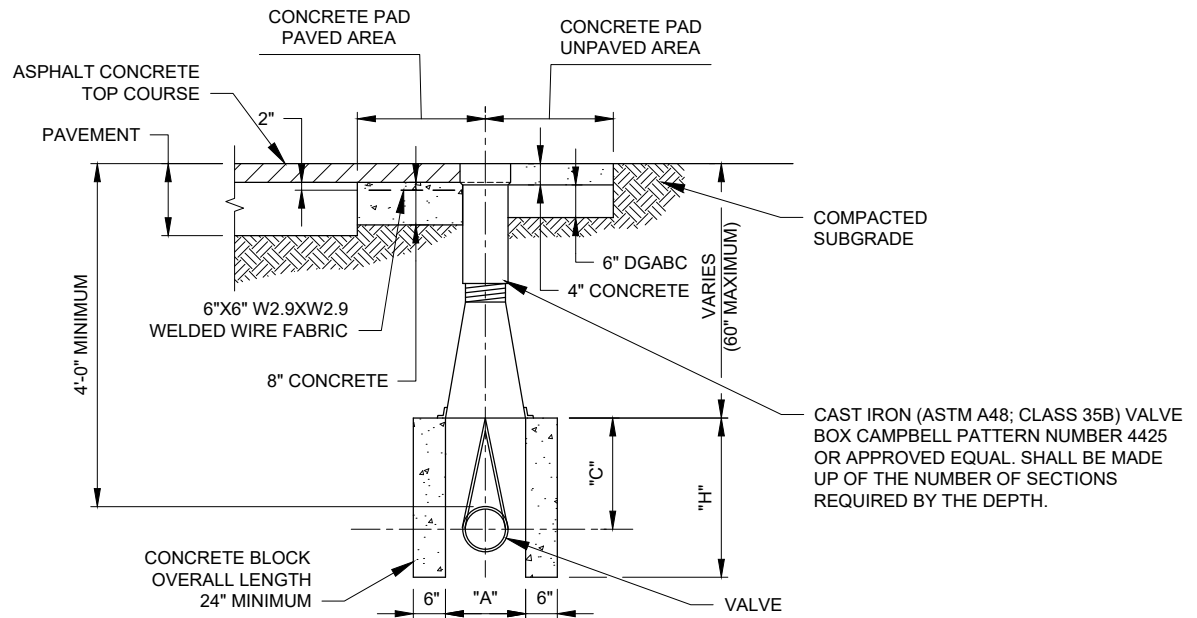
TITLE:

**VALVE BOX-TYPE NY**

DETAIL SHEET 1 OF 1



DETAIL OF CONCRETE PAD



ELEVATION

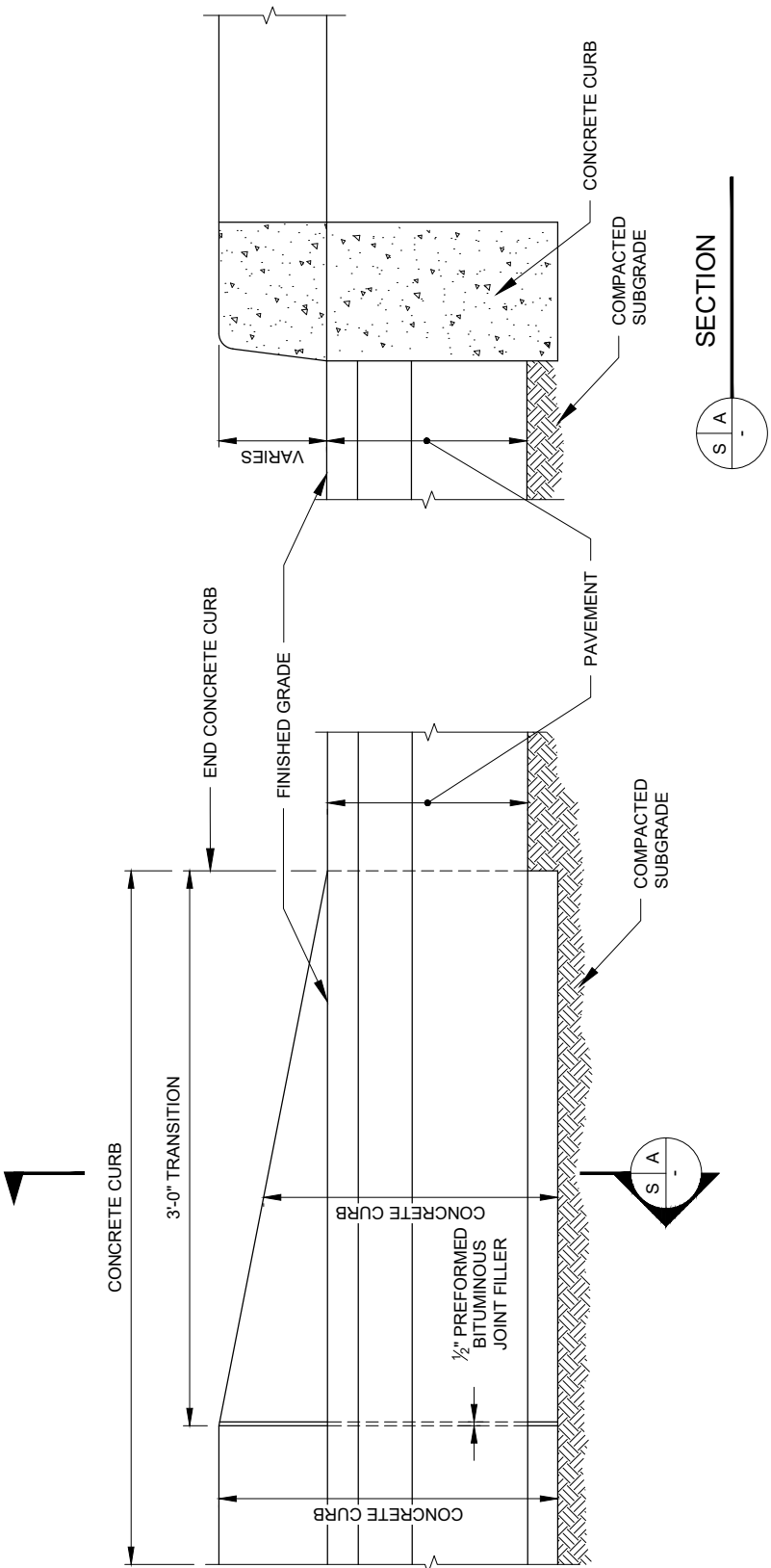
**SCHEDULE**

PIPE SIZE	"A"	"C"	"H"	VALVE BOX BASE
1"-2"	12"	0'-6 $\frac{1}{4}$ "	1'- 1"	NO. 4 ROUND
4"	12"	1'-2 $\frac{3}{4}$ "	1'- 10"	NO. 4 ROUND
6"	12"	1'-5 $\frac{1}{2}$ "	2'- 2"	NO. 6 ROUND
8"	15"	1'-9"	2'- 6"	NO. 6 ROUND
10"	18"	2'-0 $\frac{3}{4}$ "	3'- 0"	NO. 160 OVAL
12"	21"	2'-4 $\frac{1}{4}$ "	3'- 5"	NO. 160 OVAL

**VALVE BOX-TYPE NY**

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> DO NOT USE IN ON-COMING TRAFFIC SIDE.	<b>TYPICAL DETAIL NO.</b>	060.003-A
	#7	5/14/19		<b>TITLE:</b>  <b>END OF CURB TREATMENT</b>	
				DETAIL SHEET 1 OF 5	

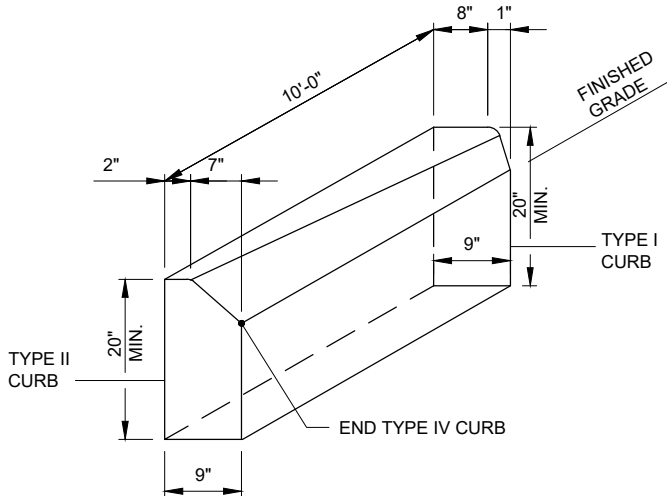


**ELEVATION**

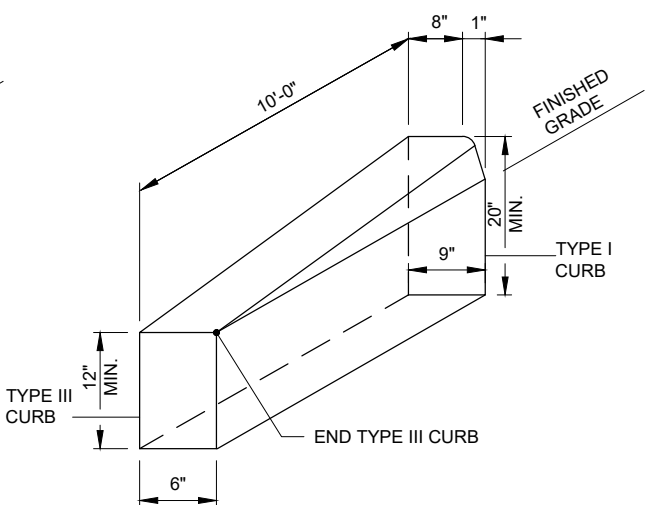
**END OF CONCRETE CURB TREATMENT**

NOT TO SCALE

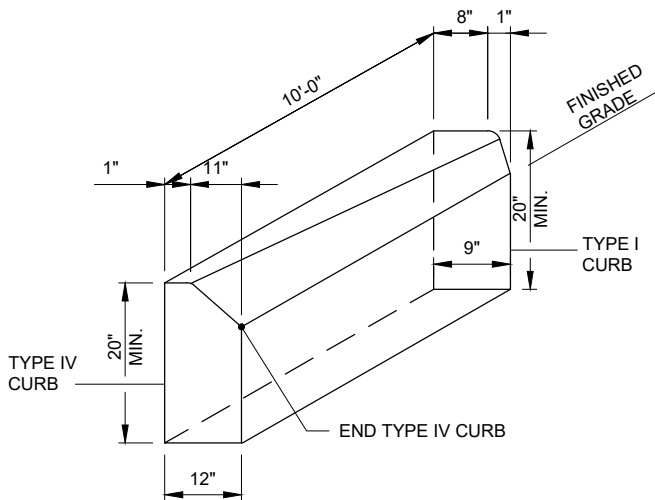
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 01/02/1985  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> SELECT APPROPRIATE DETAILS BASED ON SPECIAL PROJECT REQUIREMENTS	TYPICAL DETAIL NO.	060.003-B
	#8	5/14/19		<b>TITLE:</b>  <b>CONCRETE CURB TRANSITION</b>	
				DETAIL SHEET 2 OF 5	



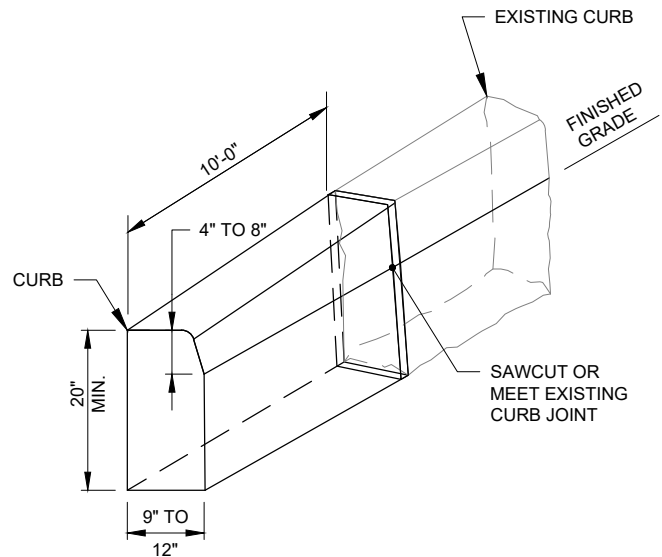
CONCRETE CURB TRANSITION  
TYPE II TO TYPE I  
NOT TO SCALE



CONCRETE CURB TRANSITION  
TYPE III TO TYPE I  
NOT TO SCALE



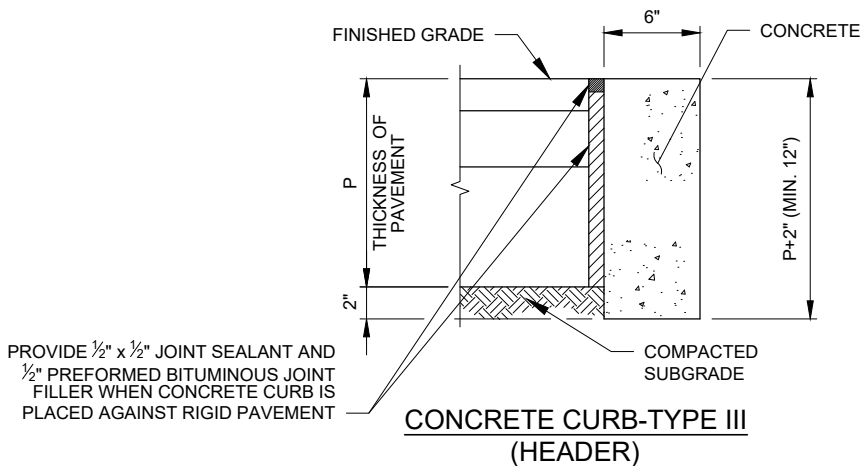
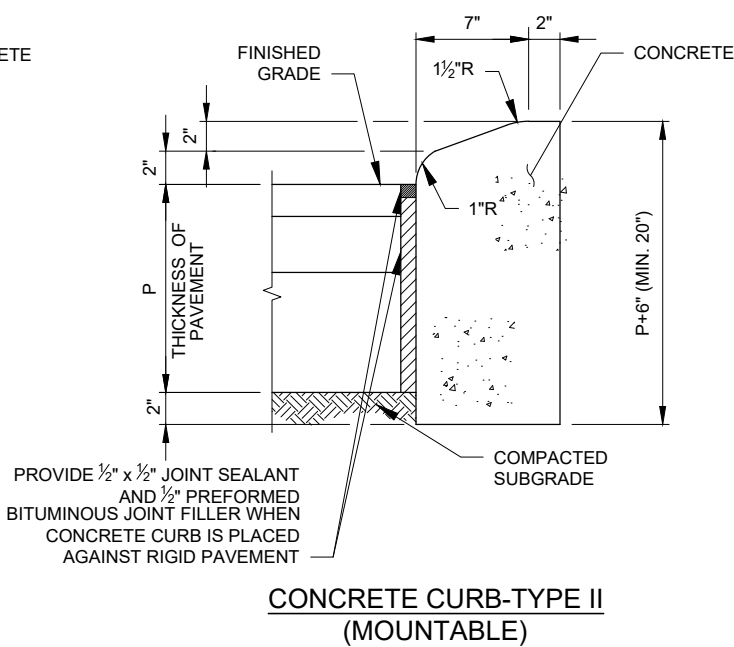
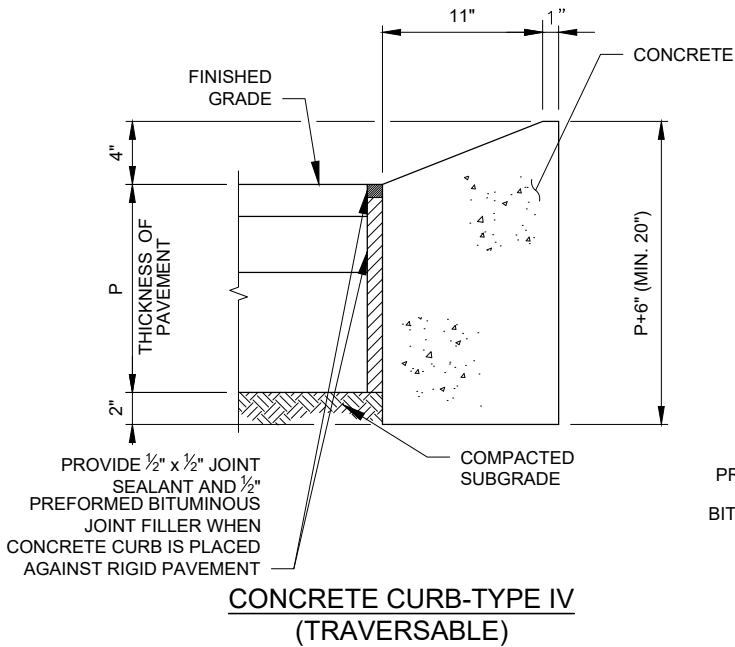
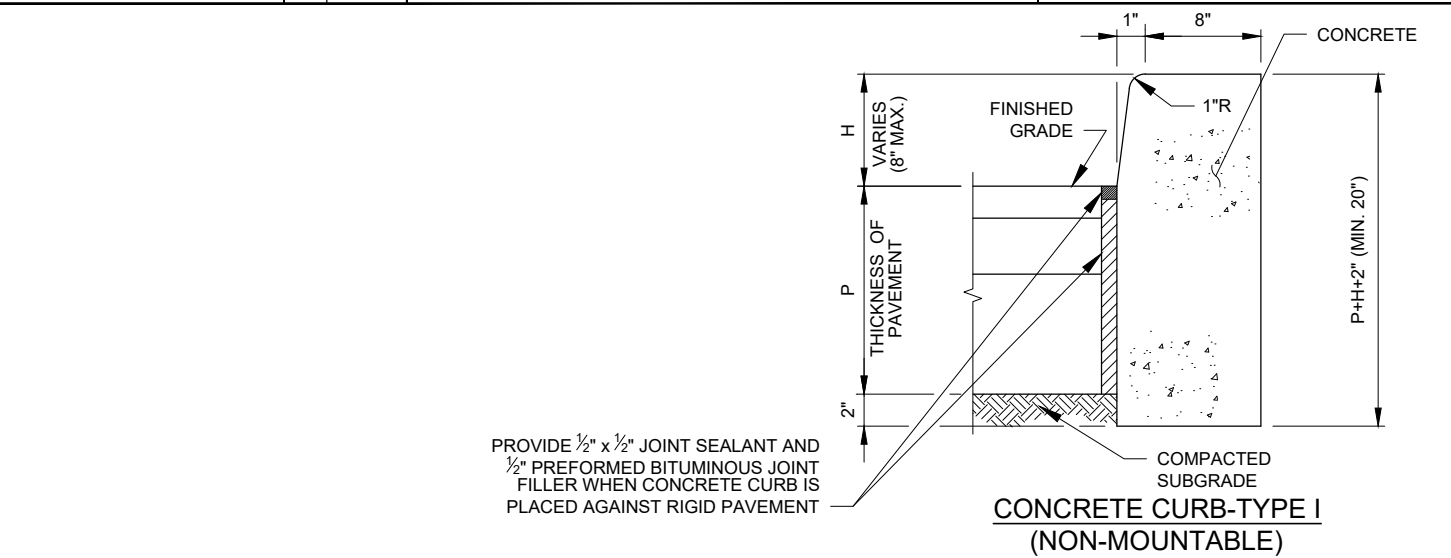
CONCRETE CURB TRANSITION  
TYPE IV TO TYPE I  
NOT TO SCALE



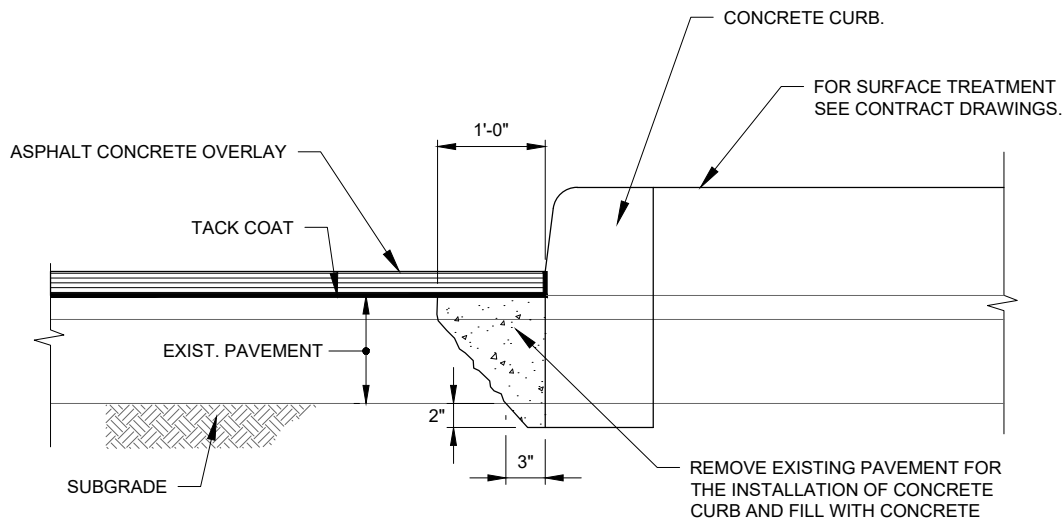
MEET EXISTING CONCRETE CURB  
NOT TO SCALE

CONCRETE CURB TRANSITION  
NOT TO SCALE

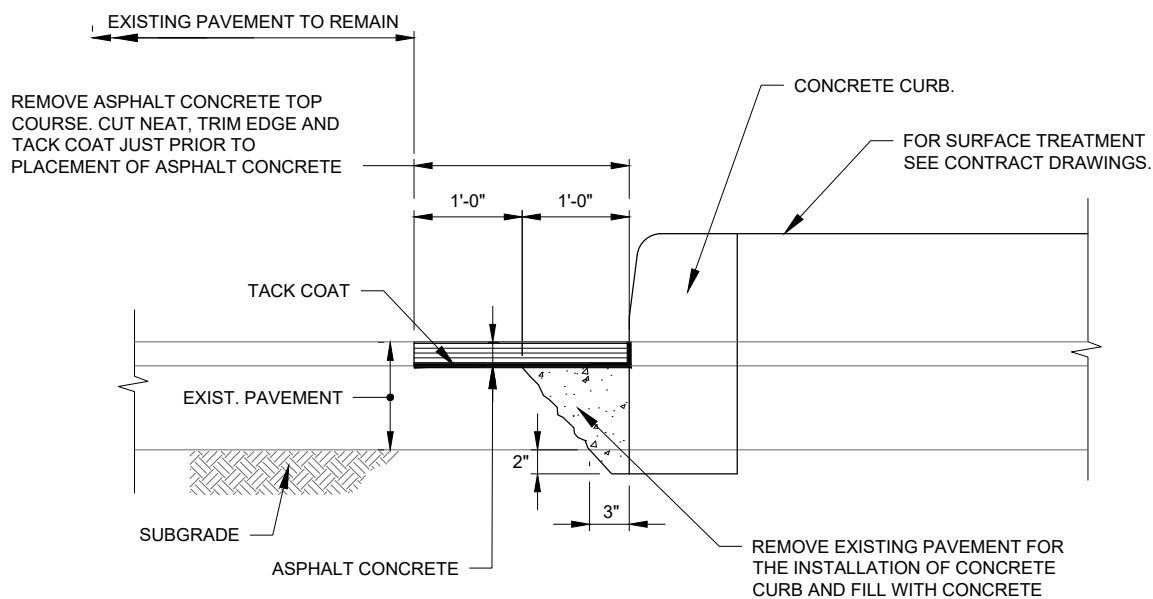
<b>THE PORT AUTHORITY OF NY&amp;NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 01/02/1985  APPROVED BY  06/20/2019  CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER: FOR CURB HEIGHT AND TYPE, SEE CRITERIA IN CIVIL DESIGN GUIDELINES.	TYPICAL DETAIL NO.	060.003-C
	NO.	DATE		TITLE:	
	#9	5/14/19		<b>CONCRETE CURB DETAILS</b>	
DETAIL SHEET 3 OF 5					



<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 12/07/2009 APPROVED BY E. LARRAZABAL 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO. DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER: USE ONLY DETAIL(S) NECESSARY FOR THE PROJECT.	TYPICAL DETAIL NO.	060.003-D
	#1	5/14/19		TITLE: <b>CONCRETE CURB IN EXISTING PAVEMENT</b>	DETAIL SHEET 4 OF 5



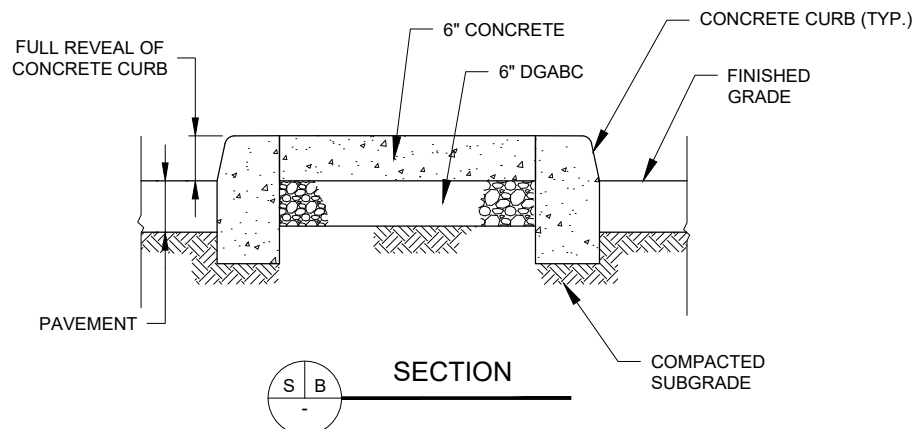
### WITH ASPHALT CONCRETE OVERLAY



### WITHOUT ASPHALT CONCRETE OVERLAY

## CONCRETE CURB IN EXISTING PAVEMENT

NOT TO SCALE

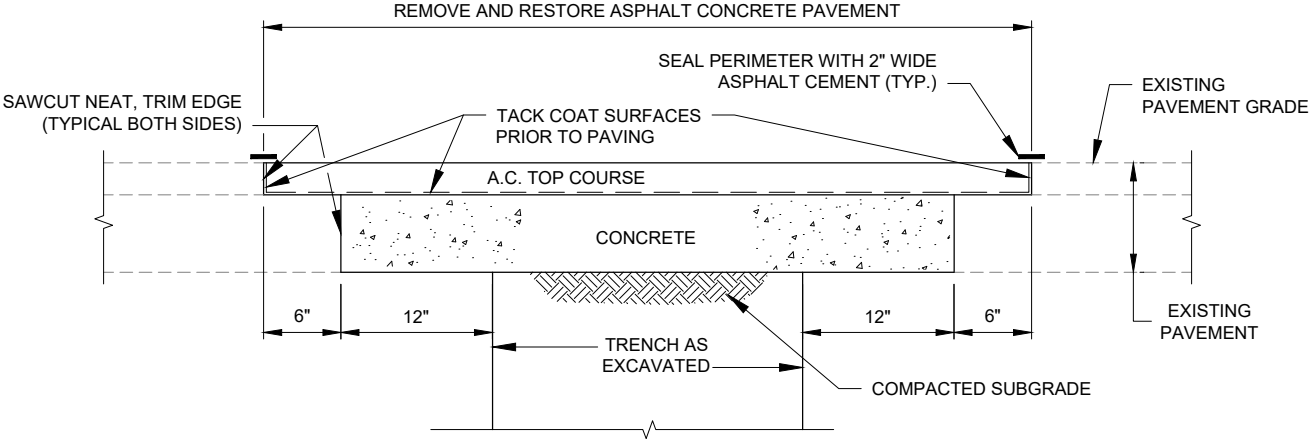


NOT TO SCALE

**NOT TO SCALE**

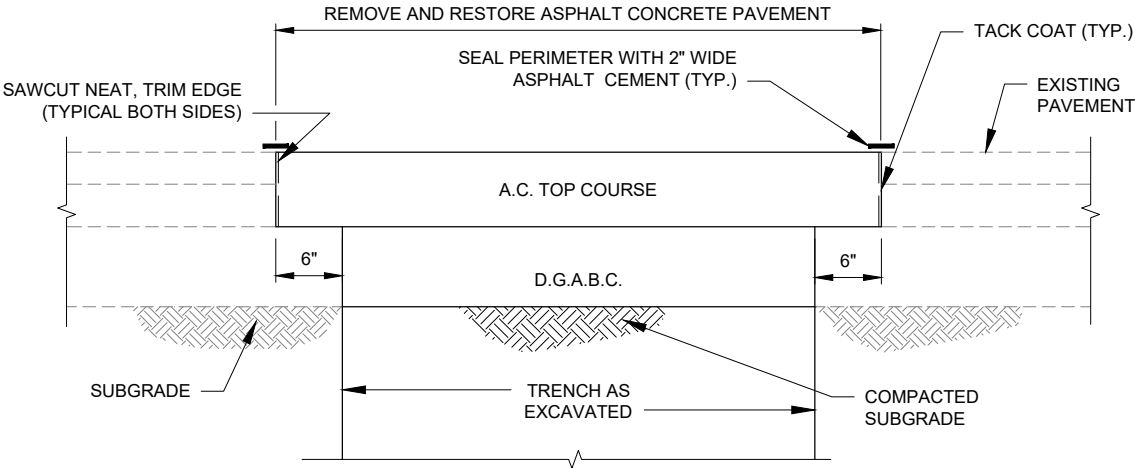


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. INDICATE THICKNESS OF A.C. TOP COURSE (2" MIN.) AND CONCRETE (6" MIN.). ALSO, INDICATE MIX DESIGN OF A.C. TOP COURSE.	TYPICAL DETAIL NO.	060.005
	#6	5/14/19		<b>TITLE:</b>  <b>RIGID BASED PAVEMENT RESTORATION</b>	
				DETAIL SHEET 1 OF 1	



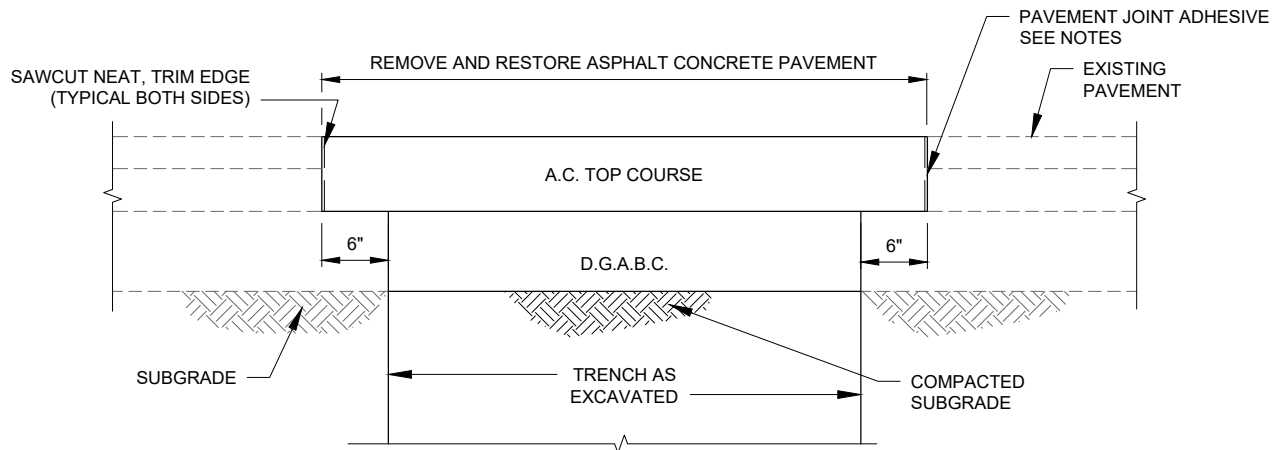
**RIGID BASED PAVEMENT RESTORATION**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 05/14/2019 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. INDICATE PAVEMENT THICKNESS OF PAVEMENT RESTORATION (2" MIN.), THICKNESS OF DGABC AND MIX DESIGN OF ASPHALT CONCRETE TOP COURSE.	<b>TYPICAL DETAIL NO.</b>	060.006-A
				<b>TITLE:</b>  <b>FLEXIBLE PAVEMENT RESTORATION</b>	
				DETAIL SHEET 1 OF 2	



**FLEXIBLE PAVEMENT RESTORATION**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1995 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. INDICATE EXISTING PAVEMENT THICKNESS IF KNOWN. 2. INDICATE PAVEMENT THICKNESS OF PAVEMENT RESTORATION (2" MIN.), THICKNESS OF DGABC AND MIX DESIGN OF ASPHALT CONCRETE TOP COURSE. 3. DON'T USE PAVEMENT JOINT ADHESIVE IF RESTORED PAVEMENT WILL BE OVERLAYED. 4. DISCUSS WITH CHIEF CIVIL ENGINEER PRIOR TO INCLUDING THIS DETAIL.	<b>TYPICAL DETAIL NO.</b>	060.006-B
	#5	5/14/19		<b>TITLE:</b> <b>FLEXIBLE PAVEMENT RESTORATION</b>	<b>DETAIL SHEET 2 OF 2</b>



### PAVEMENT JOINT ADHESIVE NOTES:

FURNISH AND INSTALL ONE OF THE FOLLOWING PAVEMENT JOINT ADHESIVE OR APPROVED EQUAL.

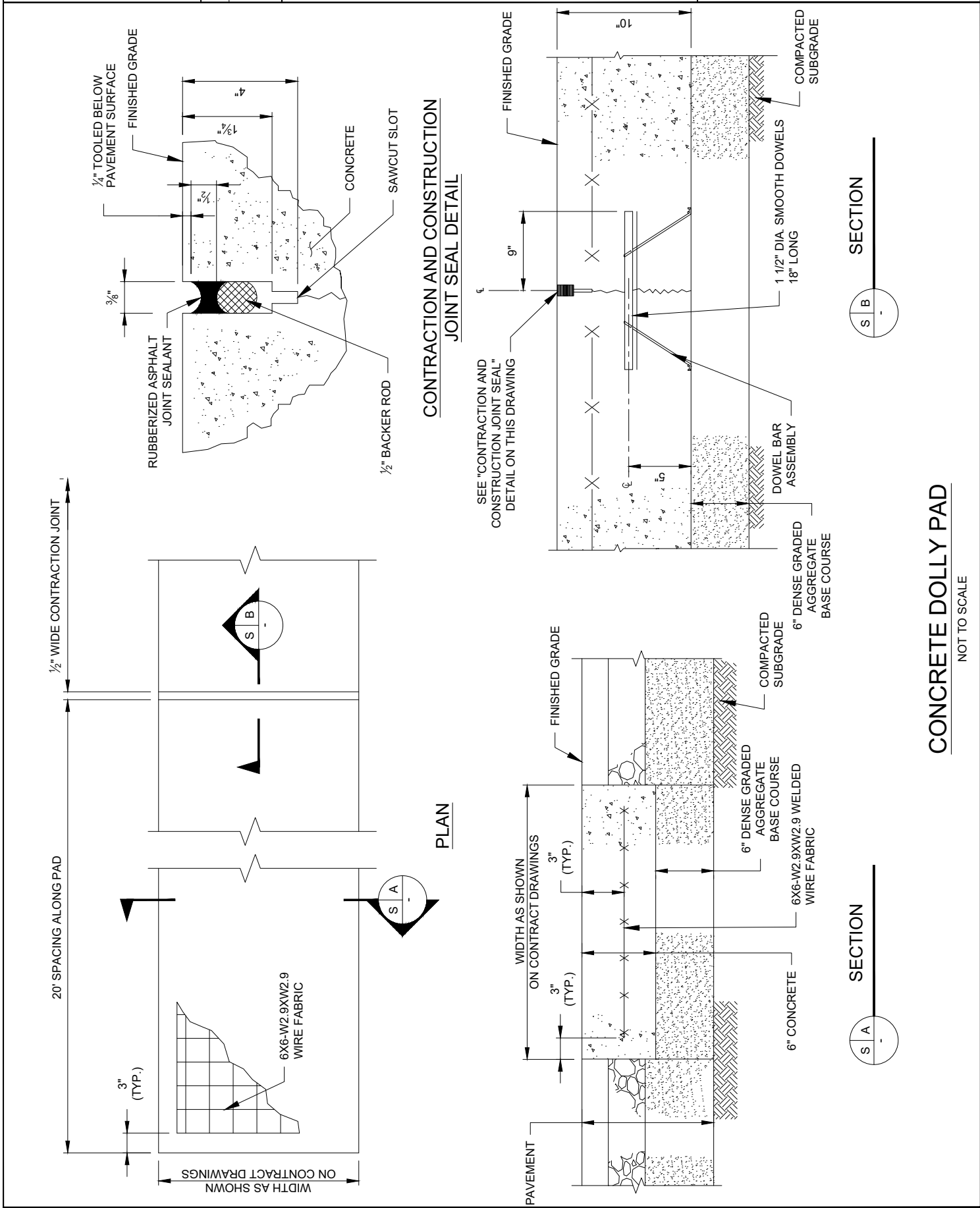
1. CRAFCO PAVEMENT JOINT ADHESIVE #34524 AS MANUFACTURED BY CRAFCO, INC., CHANDLER, AZ
2. DEERY COLD JOINT ADHESIVE AS MANUFACTURED BY DEERY AMERICAN CORP., CHANDLER, AZ
3. DURA-FILL CJA AS MANUFACTURED BY P & T PRODUCTS, INC. SANDUSKY, OH
4. NUVO SPEC PAVEMENT JOINT ADHESIVE AS MANUFACTURED BY MAXWELL PRODUCTS, INC., SALT LAKE CITY, UT

FURNISH AND INSTALL PAVEMENT JOINT ADHESIVE IN ACCORDANCE WITH THE MANUFACTURE'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. AT NO ADDITIONAL COST TO THE AUTHORITY, ARRANGE FOR THE PAVEMENT JOINT ADHESIVE TECHNICAL REPRESENTATIVE(S) TO BE PRESENT IN THE FIELD DURING THE FIRST DAY OF INSTALLATION.

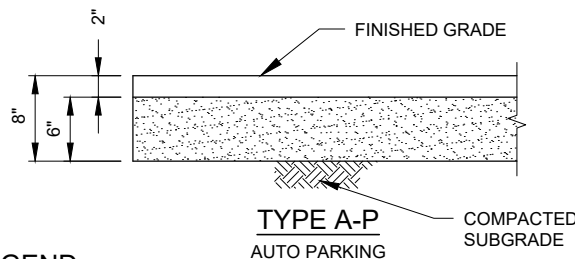
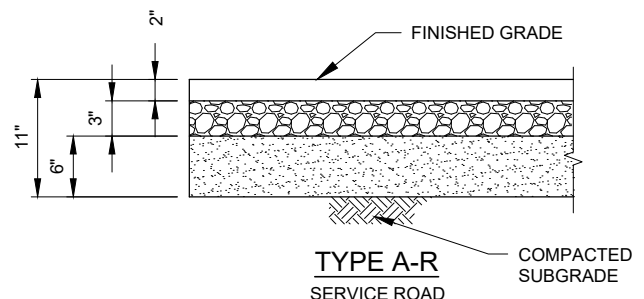
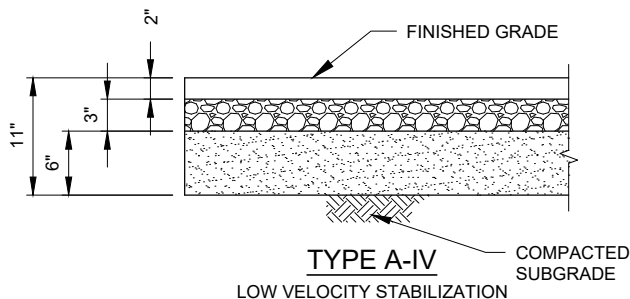
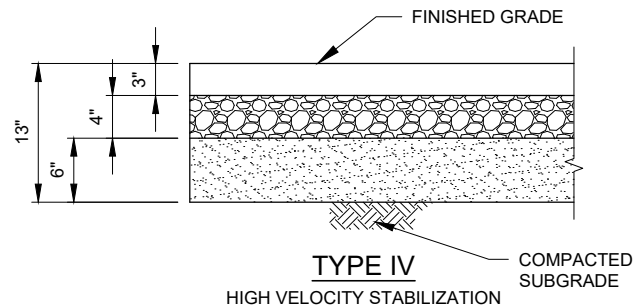
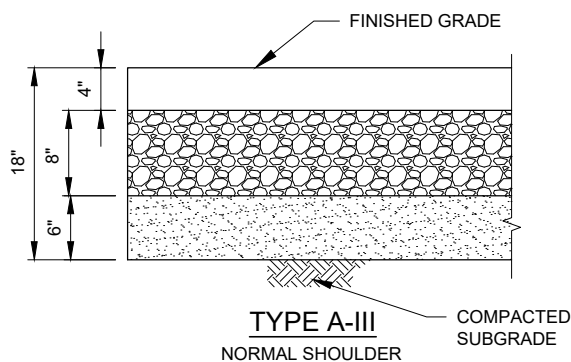
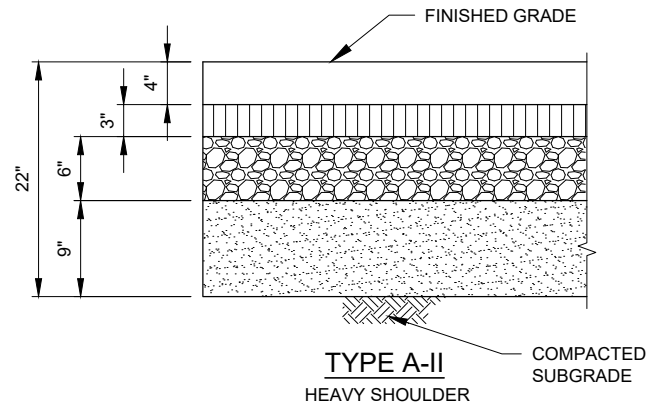
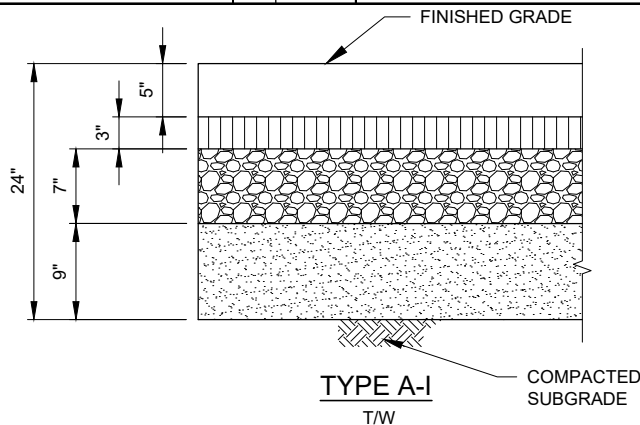
## FLEXIBLE PAVEMENT RESTORATION

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	061.001
	NO.	DATE		<b>CONCRETE DOLLY PAD</b>	
	#6	5/14/19			
				DETAIL SHEET 1 OF 1	



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> PAVEMENT SECTIONS ARE ONLY TO BE USED AS GUIDANCE (ORIGINAL CALCULATIONS BASED ON BOEING 727 AIRCRAFT)  PERFORM FINAL DESIGN USING FAA ADVISORY CIRCULAR ENTITLED "AIRPORT PAVEMENT DESIGN AND EVALUATION"	TYPICAL DETAIL NO.	062.001
	#5	5/14/19		<b>TITLE:</b>  <b>FLEXIBLE PAVEMENT SECTIONS - LGA</b>	
				DETAIL SHEET 1 OF 1	



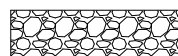
**LEGEND:**



ASPHALT CONCRETE TOP COURSE (MIX 2 OR MIX 3)



ASPHALT CONCRETE BOTTOM COURSE (MIX 1)



PLANT MIX MACADAM

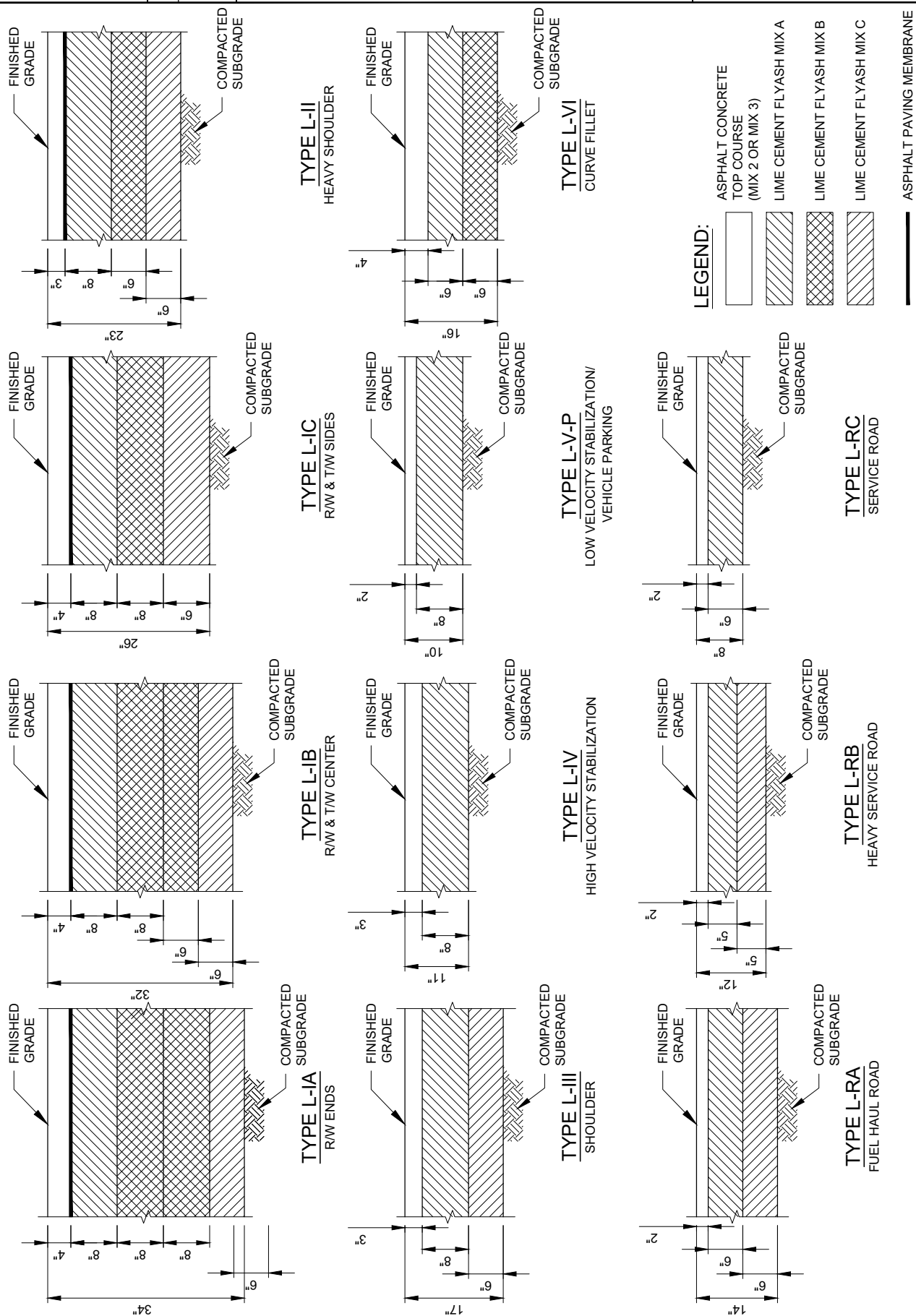


DENSE GRADED AGGREGATE BASE COURSE

**FLEXIBLE PAVEMENT SECTIONS - LGA**

NOT TO SCALE

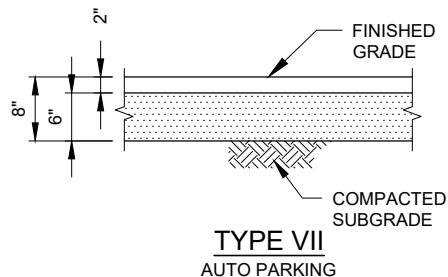
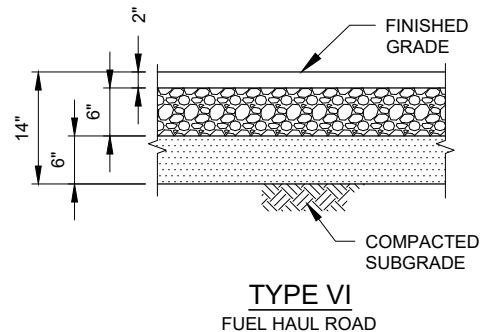
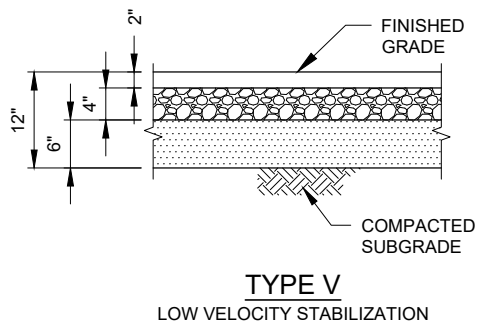
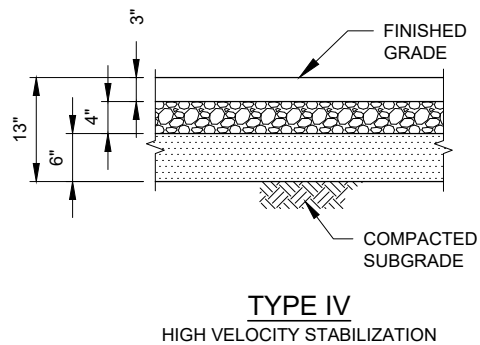
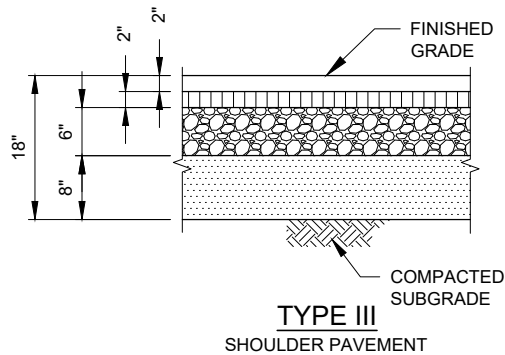
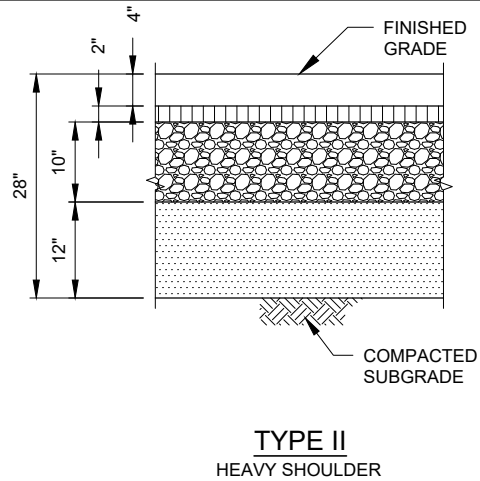
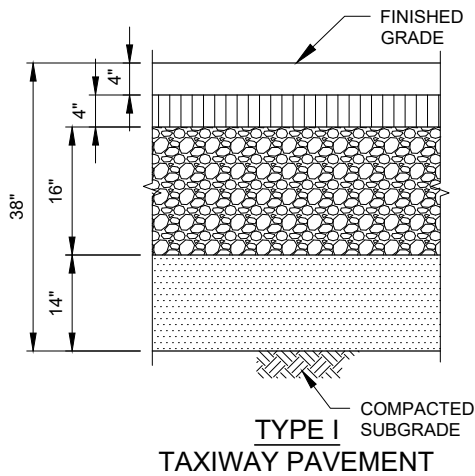
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO. DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> PAVEMENT SECTIONS ARE ONLY TO BE USED AS GUIDANCE (ORIGINAL CALCULATIONS BASED ON BOEING 747-200 AIRCRAFT) PERFORM FINAL DESIGN USING FAA ADVISORY CIRCULAR ENTITLED "AIRPORT PAVEMENT DESIGN AND EVALUATION" THESE PAVEMENT SECTIONS ARE FOR HISTORICAL REFERENCE.	TYPICAL DETAIL NO.	062.003
	#5	5/14/19		TITLE: <b>LIME CEMENT FLYASH PAVEMENT HISTORICAL SECTIONS</b>	
				DETAIL SHEET 1 OF 1	







LIME CEMENT FLYASH HISTORICAL PAVEMENT SECTIONS

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> PAVEMENT SECTIONS ARE ONLY TO BE USED AS GUIDANCE (ORIGINAL CALCULATIONS BASED ON BOEING 747-200 AIRCRAFT) PERFORM FINAL DESIGN USING FAA ADVISORY CIRCULAR ENTITLED "AIRPORT PAVEMENT DESIGN AND EVALUATION"	TYPICAL DETAIL NO.	062.004
	#5	5/14/19		<b>TITLE:</b>  <b>FLEXIBLE PAVEMENT SECTIONS - JFK/EWR</b>	
				DETAIL SHEET 1 OF 1	
		PFIG			



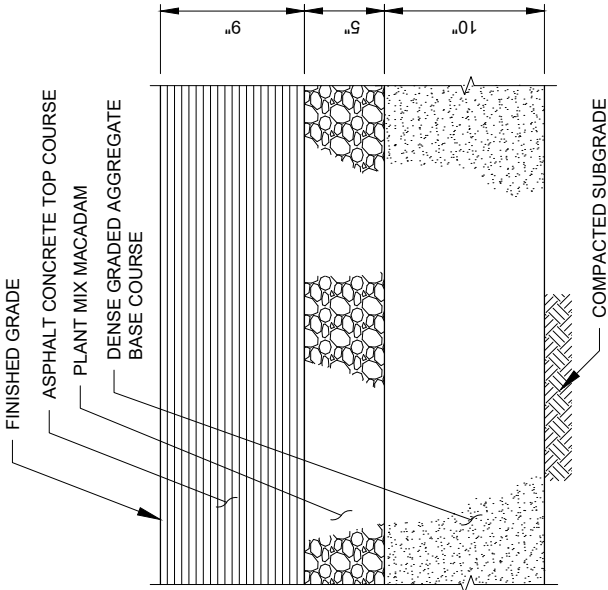
**LEGEND:**

-  ASPHALT CONCRETE TOP COURSE (MIX 2 OR MIX 3)
-  ASPHALT CONCRETE BOTTOM COURSE (MIX 1)
-  PLANT MIX MACADAM
-  DENSE GRADED AGGREGATE BASE COURSE

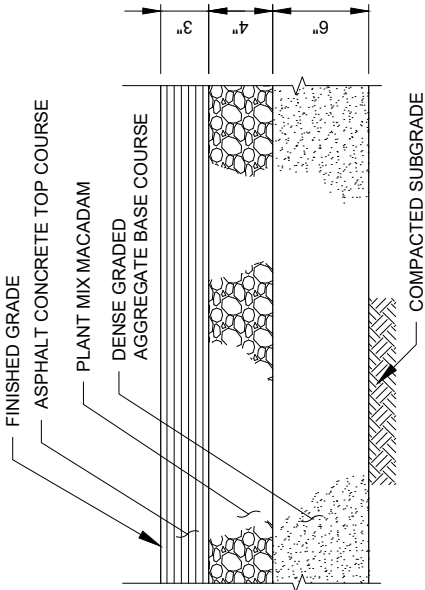
**FLEXIBLE PAVEMENT SECTIONS - JFK/EWR**

NOT TO SCALE

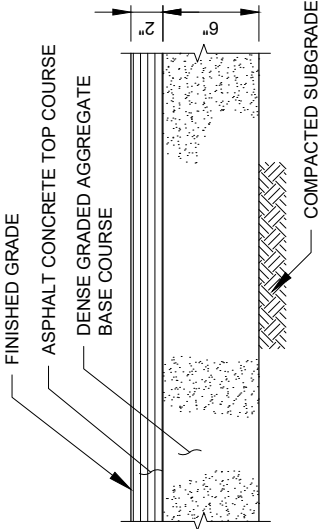
<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 01/02/1985</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER: TYPE R = PORT CONTAINER AREA PAVEMENT TYPE PR = PORT WHEELED ROAD PAVEMENT TYPE AP = AUTO PARKING</div> <div>PAVEMENT SECTIONS ARE ONLY TO BE USED AS GUIDANCE. PERFORM FINAL DESIGN USING KENPAVE OR ANY SUITABLE SOFTWARE.</div>	TYPICAL DETAIL NO.	062.010
	NO.	DATE		<div>TITLE:</div> <div>PORTS-MARINE TERMINAL PAVEMENT SECTIONS</div>	
	#6	5/14/19			
DETAIL SHEET 1 OF 1					



TYPE R PAVEMENT



TYPE PR PAVEMENT



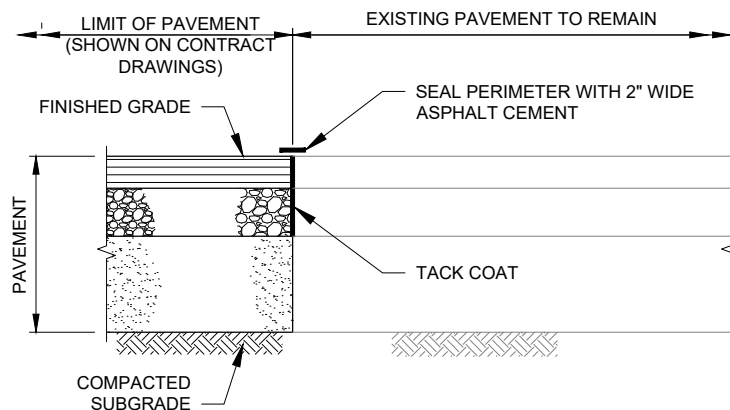
TYPE AP - LIGHT DUTY PAVEMENT AUTO

PORTS-MARINE TERMINAL PAVEMENT SECTIONS

NOT TO SCALE

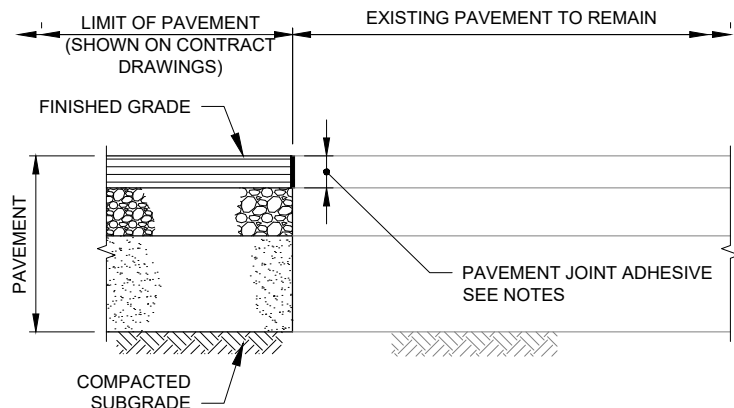


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	062.012-A
	#6	5/14/19		TITLE: <b>AC PAVEMENT MEETING EXISTING AC PAVEMENT</b>	
				DETAIL SHEET 1 OF 4	



ASPHALT CONCRETE PAVEMENT MEETING  
 EXISTING ASPHALT CONCRETE PAVEMENT  
 NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 05/14/2019 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. FOR USE IN LARGE PROJECTS TO INCREASE DURABILITY AND LIFE OF COLD JOINTS. 2. DISCUSS WITH CHIEF CIVIL ENGINEER PRIOR TO INCLUDING THIS DETAIL. 3. DELETE THE REQUIREMENTS FOR MANUFACTURER'S REP IF NOT NEEDED FOR THE PROJECT.	TYPICAL DETAIL NO.	062.012-B
				<b>TITLE:</b> <b>AC PAVEMENT MEETING EXISTING AC PAVEMENT</b>	
DETAIL SHEET 2 OF 4					



**PAVEMENT JOINT ADHESIVE NOTES:**

FURNISH AND INSTALL ONE OF THE FOLLOWING PAVEMENT JOINT ADHESIVE OR APPROVED EQUAL

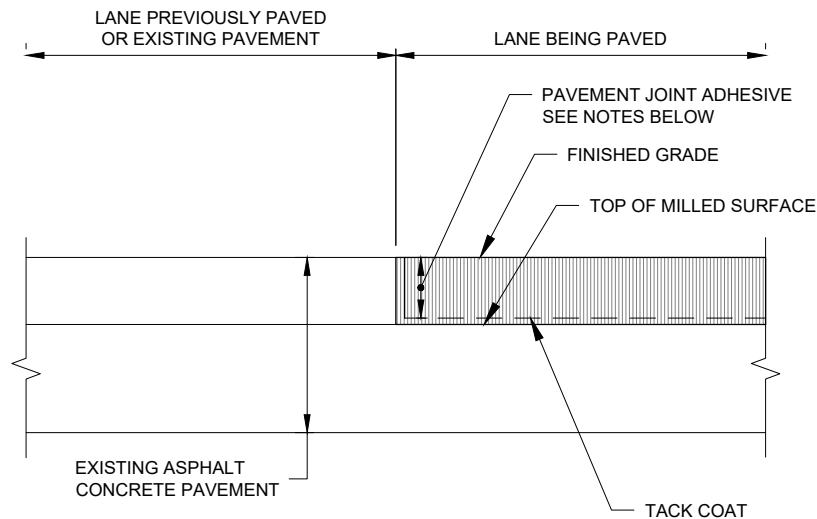
1. CRAFCO PAVEMENT JOINT ADHESIVE #34524 AS MANUFACTURED BY CRAFCO, INC., CHANDLER, AZ
2. DEERY COLD JOINT ADHESIVE AS MANUFACTURED BY DEERY AMERICAN CORP., CHANDLER, AZ
3. DURA-FILL CJA AS MANUFACTURED BY P & T PRODUCTS, INC. SANDUSKY, OH
4. NUVO SPEC PAVEMENT JOINT ADHESIVE AS MANUFACTURED BY MAXWELL PRODUCTS, INC., SALT LAKE CITY, UT

FURNISH AND INSTALL PAVEMENT JOINT ADHESIVE IN ACCORDANCE WITH THE MANUFACTURE'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. AT NO ADDITIONAL COST TO THE AUTHORITY, ARRANGE FOR THE PAVEMENT JOINT ADHESIVE MANUFACTURER'S TECHNICAL REPRESENTATIVE(S) TO BE PRESENT IN THE FIELD DURING THE FIRST DAY OF INSTALLATION.

**ASPHALT CONCRETE PAVEMENT MEETING  
EXISTING ASPHALT CONCRETE PAVEMENT**

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 05/14/2019 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. FOR USE IN LARGE PROJECTS TO INCREASE DURABILITY AND LIFE OF COLD JOINTS. 2. DISCUSS WITH CHIEF CIVIL ENGINEER PRIOR TO INCLUDING THIS DETAIL. 3. DELETE THE REQUIREMENTS FOR MANUFACTURER'S REP IF NOT NEEDED FOR THE PROJECT.	TYPICAL DETAIL NO.	062.012-C
				<b>TITLE:</b>  <b>ASPHALT CONCRETE PAVEMENT JOINT</b>	
DETAIL SHEET 3 OF 4					



**PAVEMENT JOINT ADHESIVE NOTES:**

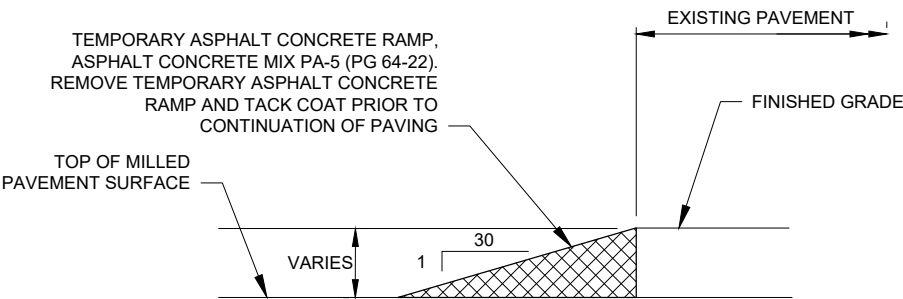
FURNISH AND INSTALL ONE OF THE FOLLOWING PAVEMENT JOINT ADHESIVE OR APPROVED EQUAL

1. CRAFTCO PAVEMENT JOINT ADHESIVE #34524 AS MANUFACTURED BY CRAFTCO, INC., CHANDLER, AZ
2. DEERY COLD JOINT ADHESIVE AS MANUFACTURED BY DEERY AMERICAN CORP., CHANDLER, AZ
3. DURA-FILL CJA AS MANUFACTURED BY P & T PRODUCTS, INC. SANDUSKY, OH
4. NUVO SPEC PAVEMENT JOINT ADHESIVE AS MANUFACTURED BY MAXWELL PRODUCTS, INC., SALT LAKE CITY, UT

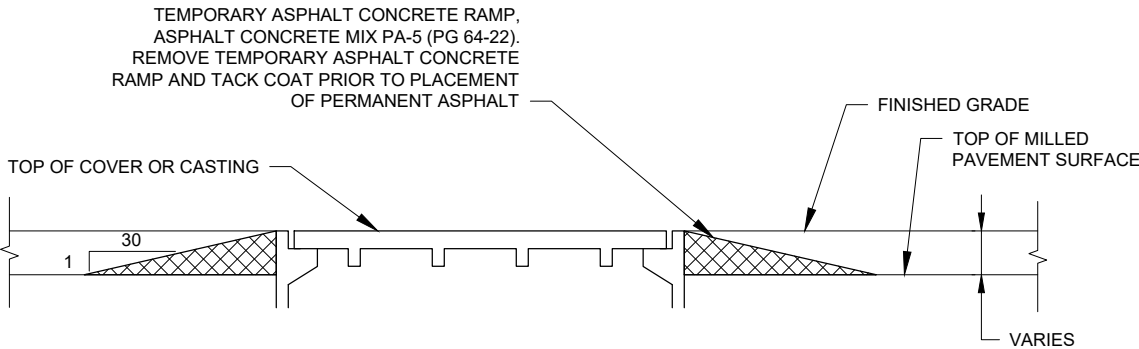
FURNISH AND INSTALL PAVEMENT JOINT ADHESIVE IN ACCORDANCE WITH THE MANUFACTURE'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. AT NO ADDITIONAL COST TO THE AUTHORITY, ARRANGE FOR THE PAVEMENT JOINT ADHESIVE MANUFACTURER'S TECHNICAL REPRESENTATIVE(S) TO BE PRESENT IN THE FIELD DURING THE FIRST DAY OF INSTALLATION.

**ASPHALT CONCRETE  
PAVEMENT JOINT**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 05/14/2019 APPROVED BY CHIEF CIVIL ENGINEER      06/20/2019      DATE	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.      062.012-D
	NOTES FOR DESIGNER:			TITLE: <b>TEMPORARY ASPHALT TRANSITION RAMP</b>
				DETAIL SHEET 4 OF 4



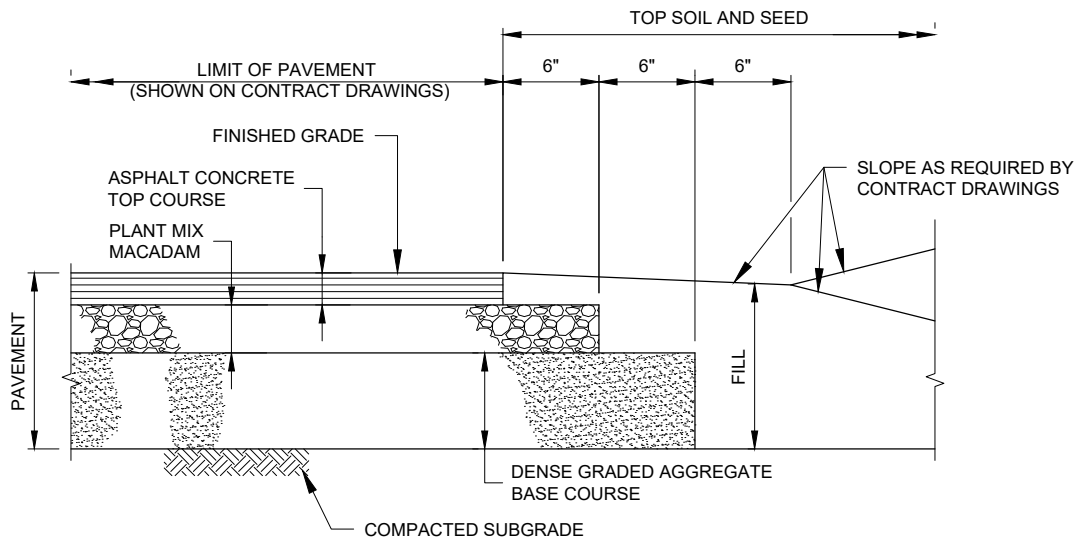
TEMPORARY ASPHALT TRANSITION RAMP  
AT TRANSVERSE AND LONGITUDINAL



TEMPORARY ASPHALT RAMP AT CASTING

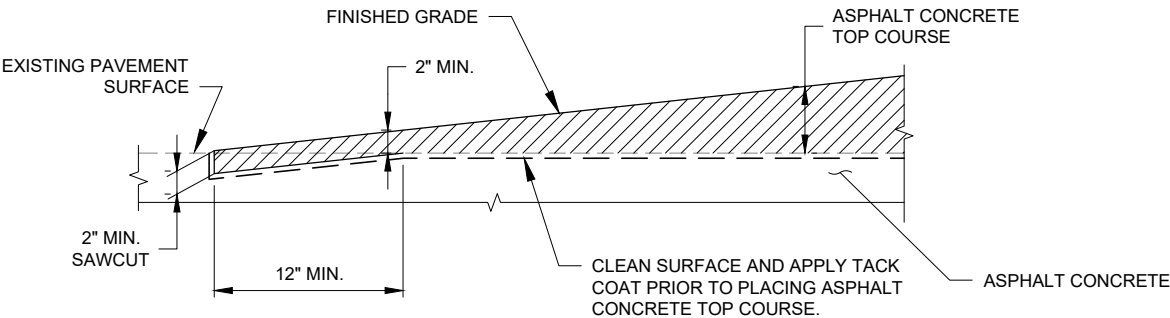
TEMPORARY ASPHALT TRANSITION RAMP FOR  
VEHICULAR TRAFFIC  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 01/02/1985  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> FOR USE WHERE PAVEMENT MEETS FILL. REVISE "PAVEMENT" LAYERS IF NECESSARY.	TYPICAL DETAIL NO.	062.013
	NO.	DATE		<b>TITLE:</b> <b>PAVEMENT MEETING EXISTING FILL (ROADWAY)</b>	
	#6	5/14/19			
			DETAIL SHEET 1 OF 1		



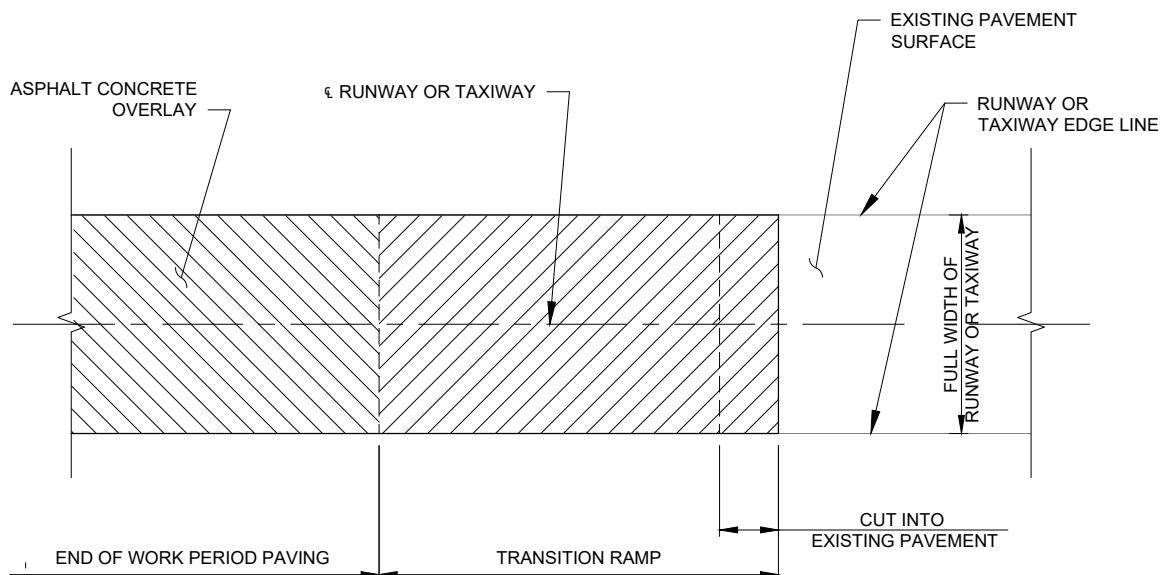
**PAVEMENT MEETING FILL (ROADWAY)**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 07/26/1994 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	062.015
	NO.	DATE		<b>KEYWAY DETAIL</b>	
	#3	5/14/19			
			DETAIL SHEET 1 OF 1		

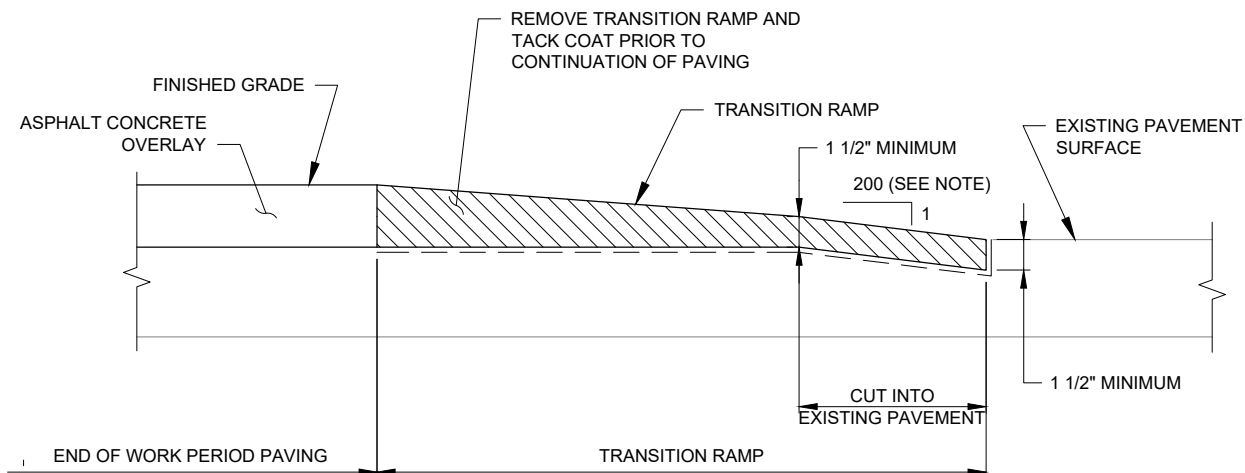


**KEYWAY DETAIL**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 07/26/1994 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> SEE FAA ADVISORY CIRCULAR 150/5370-13 OFF PEAK CONSTRUCTION OF AIRPORT PAVEMENTS FOR FURTHER GUIDANCE.	TYPICAL DETAIL NO.	062.016
	NO.	DATE		<b>TITLE: END AND CONTINUATION OF OVERLAY PAVING DETAIL FOR RUNWAYS AND TAXIWAYS</b>	
	#4	5/14/19		DETAIL SHEET 1 OF 1	



PLAN



TYPICAL SECTION

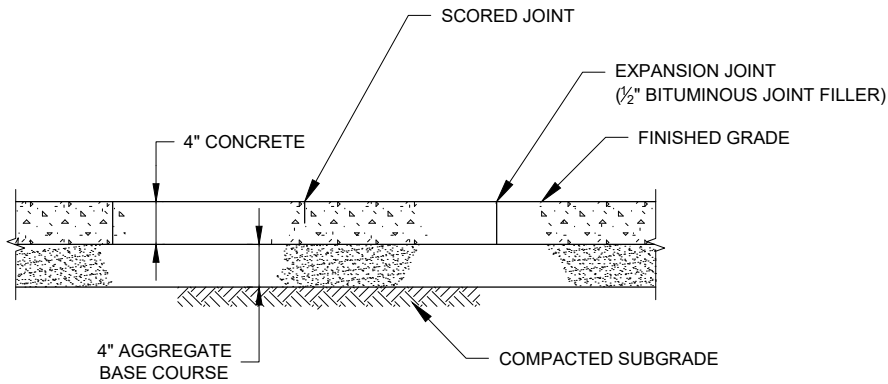
END AND CONTINUATION OF OVERLAY PAVING DETAIL FOR RUNWAY AND TAXIWAY NOTE:

FOR TAXIWAY TRANSITION RAMP USE 1 TO 180 SLOPE, CUTTING INTO EXISTING PAVEMENT IS NOT REQUIRED, BUT MILL AND TACK COAT THE RAMP AS SHOWN ON THE SECTION ABOVE PRIOR TO CONTINUATION OF PAVING.

END AND CONTINUATION OF OVERLAY PAVING DETAIL  
FOR RUNWAY AND TAXIWAY

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>		TYPICAL DETAIL NO.	062.020
	NO.	DATE	<b>NOTES FOR DESIGNER:</b> ENSURE THAT THE SIDEWALK DESIGN COMPLIES WITH THE ADA REQUIREMENTS		<b>TITLE:</b>  <b>SIDEWALK DETAIL</b>	
	#8	5/14/19				
					DETAIL SHEET 1 OF 1	



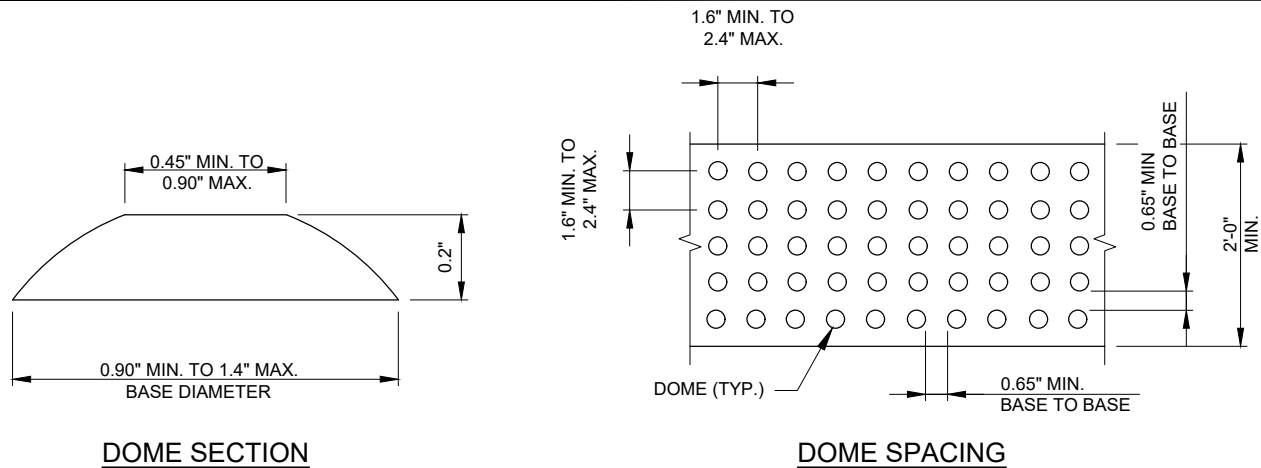
**SIDEWALK NOTE:**

UNLESS SHOWN ON THE CONTRACT DRAWINGS, SUBMIT THE LAYOUT OF EXPANSION AND SCORED JOINTS IN THE SIDEWALK AREA FOR APPROVAL BY THE ENGINEER.

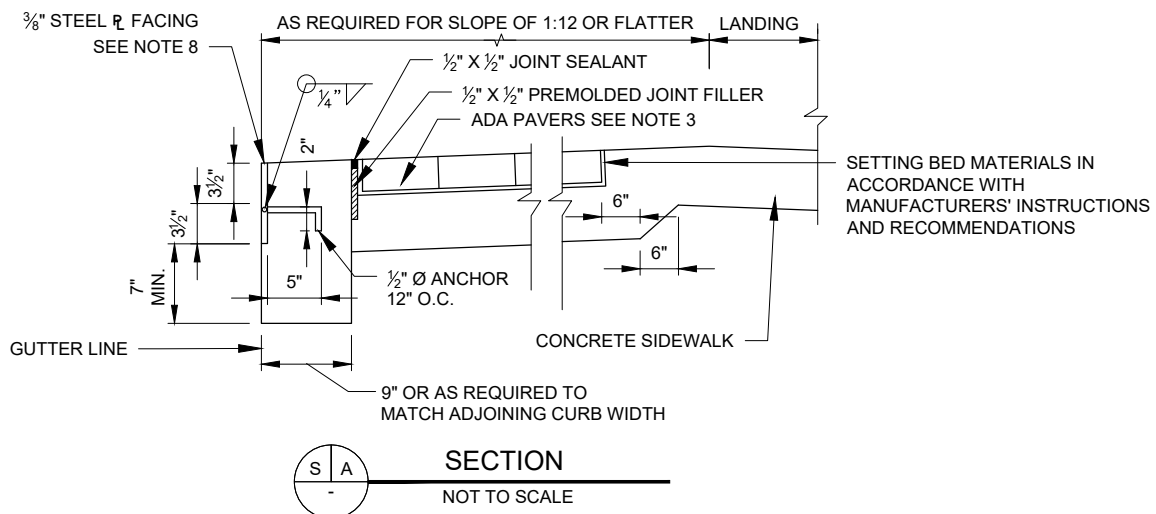
**SIDEWALK DETAIL**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/05/2006 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. UTILITIES, SIGNS, AND OTHER FIXED OBJECTS SHALL NOT BE PLACED IN RAMP OR LANDING, OR IN A MANNER THAT INTERFERES WITH THE USE OF THE CURB RAMP. RAMPS SHALL BE UNOBSTRUCTED. 2. CONSULT ANSI A 117.1 FOR OTHER REQUIREMENTS FOR PEOPLE WITH PHYSICAL DISABILITIES. 3. EMBEDDED DETECTABLE WARNING SURFACE SHALL BE USED FOR NEW CONSTRUCTION. 4. CONSULT WITH FACILITY FOR COLOR OF DETECTABLE WARNING SURFACE. 5. REMOVE THE "STEEL FACING" ASPECTS WHEN STEEL FACED CURB IS NOT BEING USED.	<b>TYPICAL DETAIL NO.</b>	062.021-A
				<b>TITLE:</b>  <b>SIDEWALK CURB RAMP DETAILS</b>	<b>DETAIL SHEET 1 OF 4</b>



## **DETECTABLE WARNING SURFACE** NOT TO SCALE

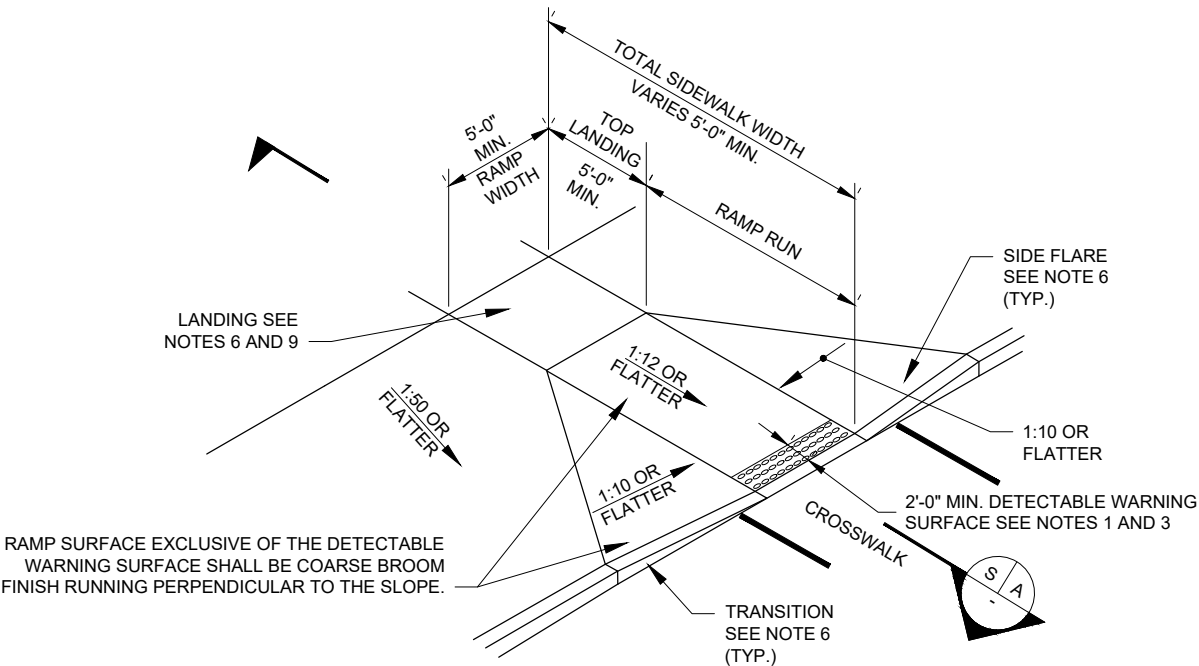


### **SIDEWALK CURB RAMP DETAILS NOTES:**

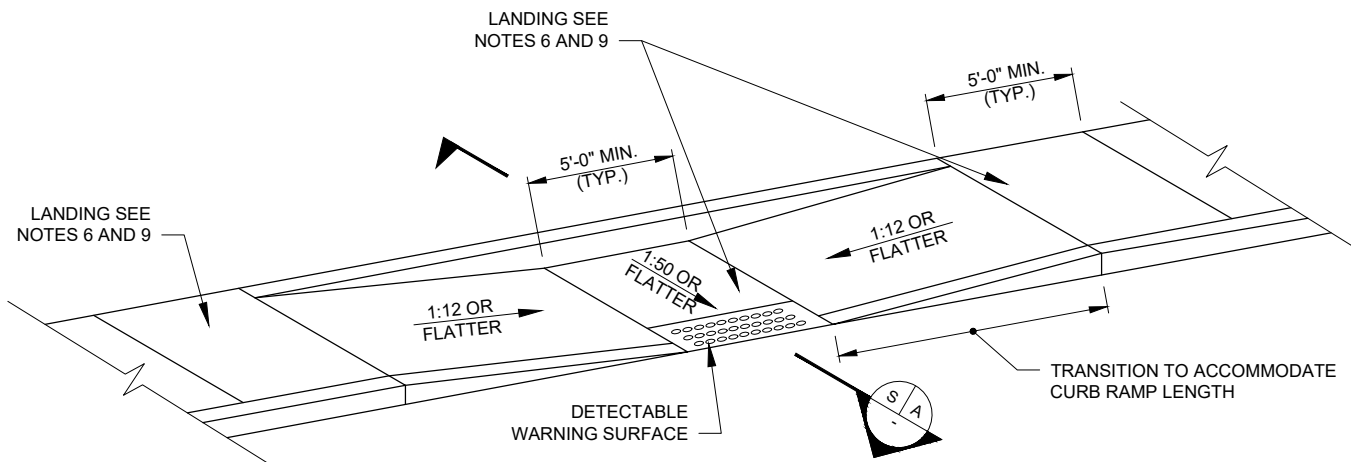
1. LOCATION OF DETECTABLE WARNING: DETECTABLE WARNING SURFACE SO THAT THE EDGE OF THE WARNING FIELD NEAREST TO THE STREET SURFACE IS 6" TO 9" FROM THE EDGE OF THE STREET, OR FROM THE FACE OF THE DROPPED CURB. WHERE A DROPPED CURB CONTINUES ACROSS THE BOTTOM OF THE CURB RAMP, EXTEND THE DETECTABLE WARNINGS THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
2. DOME ALIGNMENT: ALIGN DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL (SEE 'DOME DETAIL').
3. DETECTABLE WARNING SURFACE SHALL BE ONE OF THE FOLLOWING OR APPROVED EQUAL:  
EMBEDDED DETECTABLE WARNING SURFACE  
A. STEP-SAFE AS MANUFACTURED BY TRANSPO INDUSTRIES, NEW ROCHELLE, NY  
B. ADA PAVERS AS MANUFACTURED BY WHITACRE-GREER BRICK, ALLIANCE, OHIO  
SURFACE APPLIED WARNING SURFACE  
A. ADA ARMOR-TILE SURFACE APPLIED AS MANUFACTURED BY ENGINEERING PLASTICS, INC. WILLIAMSVILLE, NY  
B. TACTILE WARNING SYSTEM TILE AS MANUFACTURED BY ADA SOLUTIONS, INC. NORTH BILLERICA, MA.  
FURNISH AND INSTALL THE DETECTABLE WARNING SURFACE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS.
4. THE COLOR OF THE DETECTABLE WARNING SURFACE SHALL BE DARK GRAY UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.
5. THE MAXIMUM CROSS SLOPE OF CURB RAMPS SHALL BE 2 PERCENT. CURB RAMP SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM SURFACE WARP.
6. WHEN NOT PRACTICAL TO PROVIDE A LANDING THAT IS AT LEAST (5') WIDE (MEASURED FROM THE TOP OF THE CURB RAMP TO THE BACK OF THE SIDEWALK), THE LENGTH OF THE SIDE FLARES SHALL BE TWELVE (12) TIMES THE CURB HEIGHT MEASURED ALONG THE CURB LINE (SEE 'PARALLEL CURB RAMPS' DETAIL).
7. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (1/4" MAX).
8. REQUIRED WHERE STEEL FACED CURB IS SHOWN ON CONTRACT DRAWINGS. MATERIALS SHALL BE SIMILAR TO STEEL FACED CURB, SEE DETAIL. EXPOSED SURFACE OF STEEL SHALL BE GROUND SMOOTH.
9. LANDING SHALL HAVE A MINIMUM CLEAR DIMENSION OF A 5' BY 5' SQUARE. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 2% IN ANY DIRECTION.

## **SIDEWALK CURB RAMP DETAILS** NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/05/2006 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. FOR SECTIONS, DIMENSIONS AND NOTES REFER TO PAGE 1. INCLUDE DETAIL 062.021-A. 2. FOR EACH CURB RAMP INSTALLED OR MODIFIED INCLUDE SPECIFIC ELEVATIONS TO ENSURE ADA COMPLIANCE.	<b>TYPICAL DETAIL NO.</b>	062.021-B
	#2	5/14/19		<b>TITLE:</b>  <b>SIDEWALK CURB RAMP DETAILS</b>	<b>DETAIL SHEET 2 OF 4</b>



**CURB RAMP**



**PARALLEL CURB RAMP**

**CIVIL DESIGN TYPICAL DETAILS**

**NOTES FOR DESIGNER:**

1. FOR SECTIONS, DIMENSIONS AND NOTES REFER TO PAGE 1. INCLUDE DETAIL 062.021-A.
2. FOR EACH CURB RAMP INSTALLED OR MODIFIED INCLUDE SPECIFIC ELEVATIONS TO ENSURE ADA COMPLIANCE.

TYPICAL DETAIL NO.

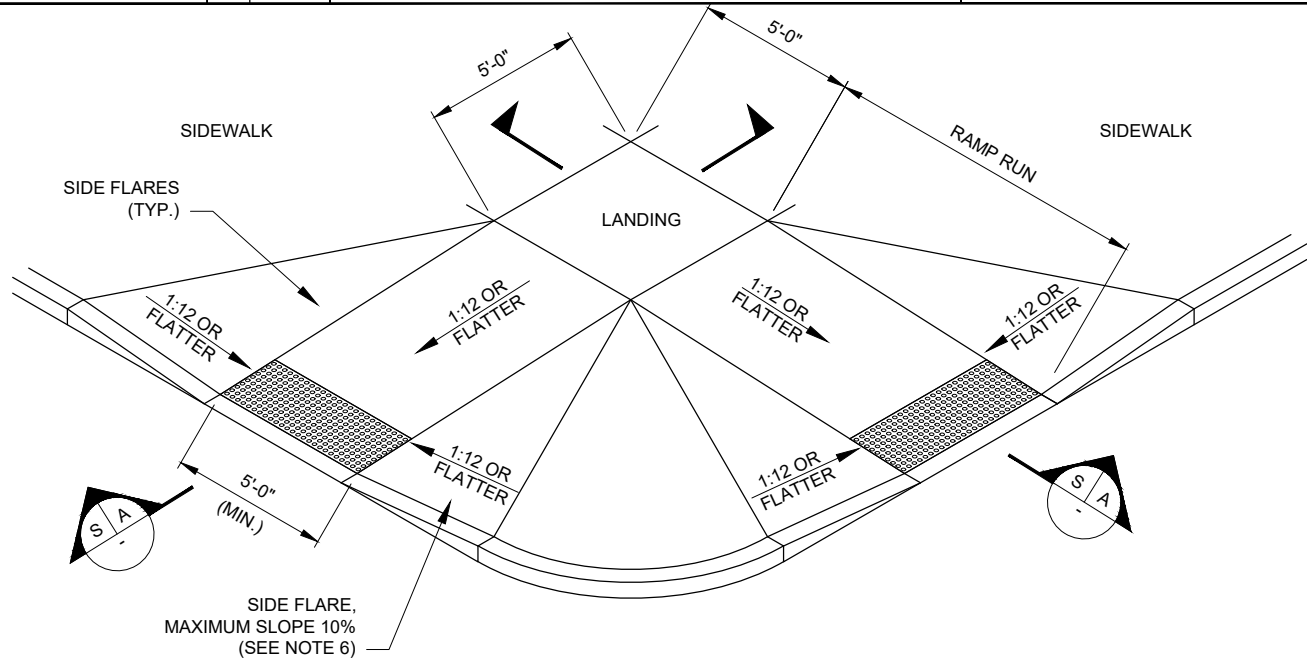
062.021-C

TITLE:

3.

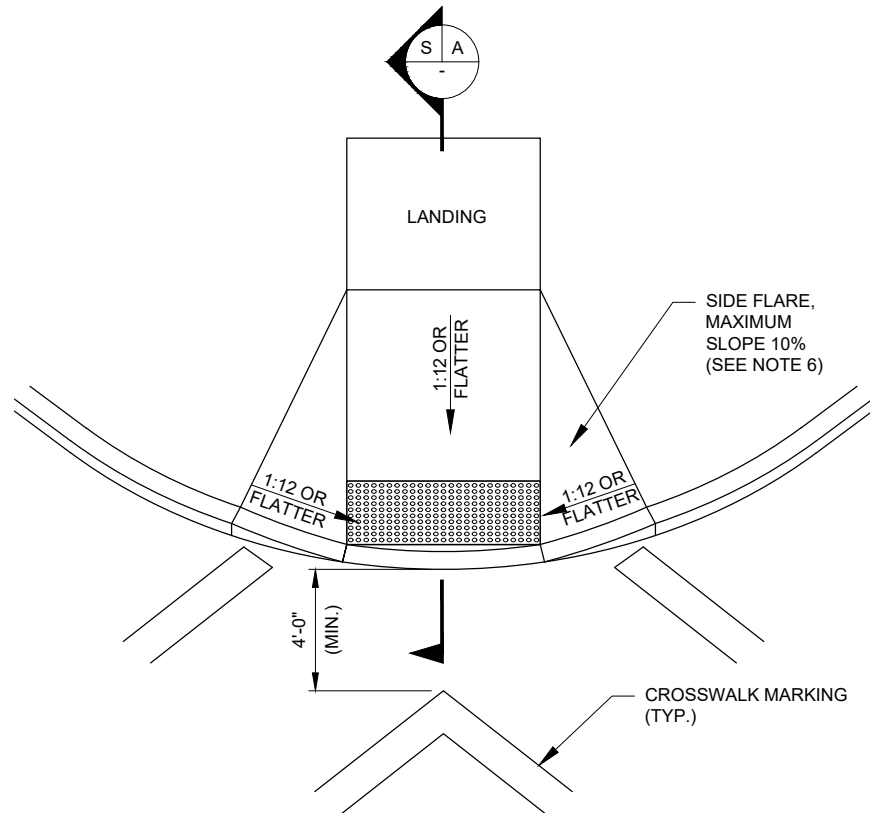
**SIDEWALK CURB  
RAMP DETAILS**

DETAIL SHEET 3 OF 4



**CURB RAMP TYPE I**

NOT TO SCALE



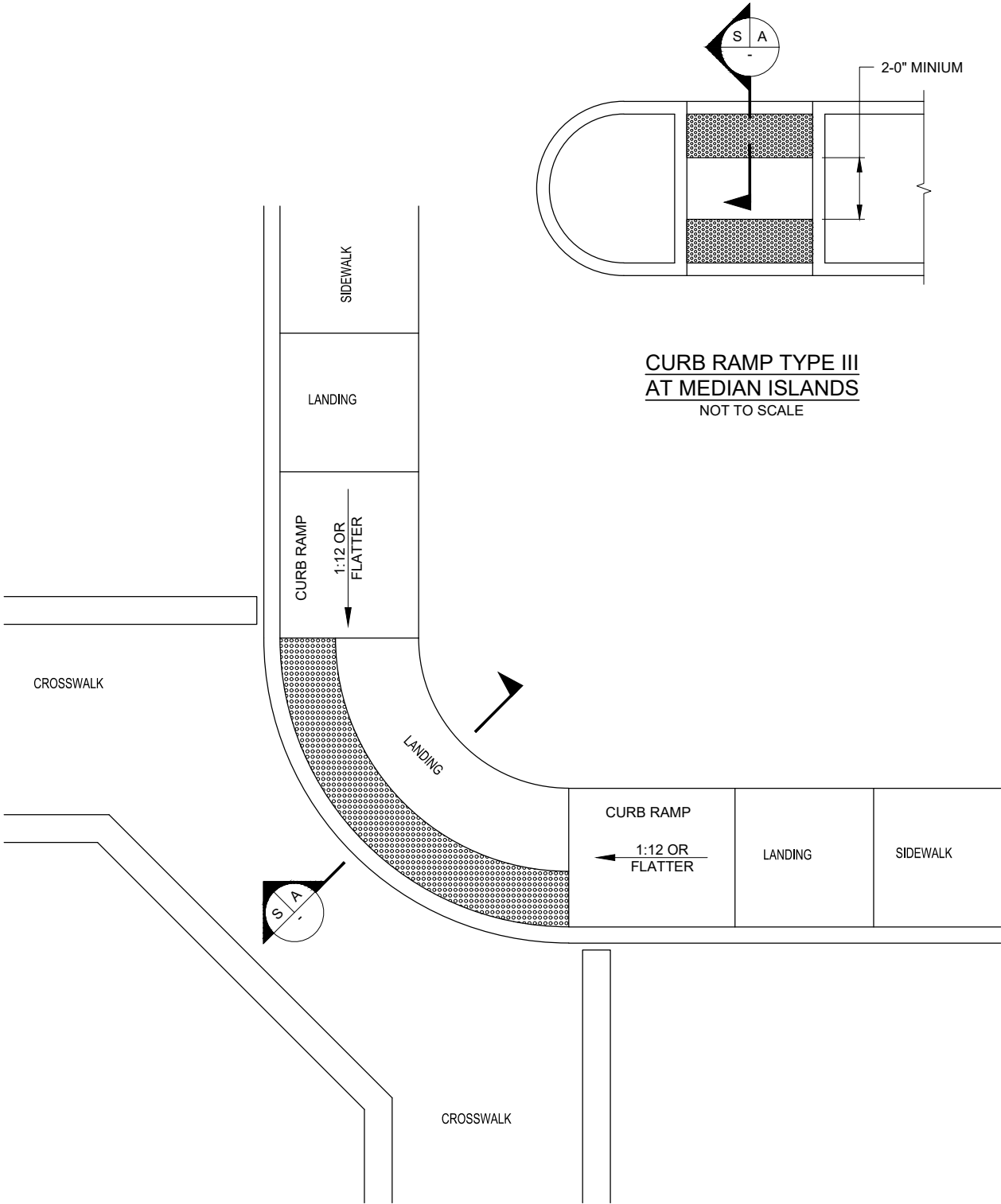
**CURB RAMP TYPE II**

NOT TO SCALE

**SIDEWALK CURB RAMP DETAILS**

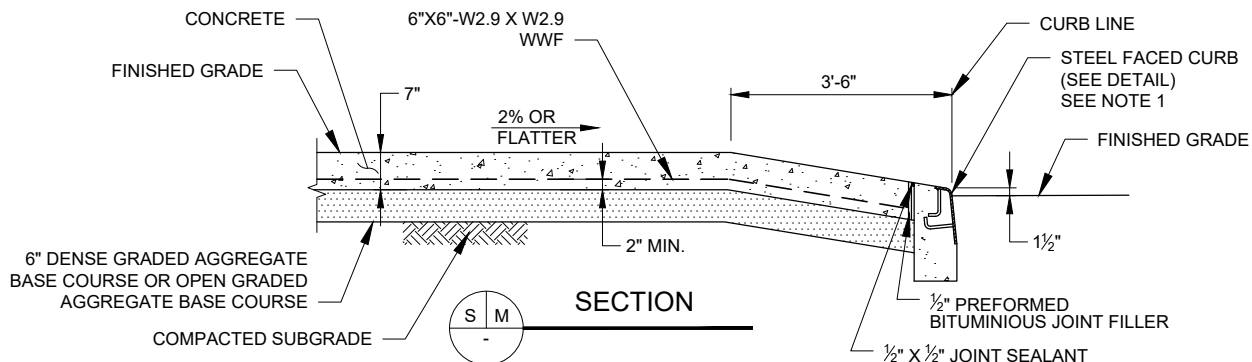
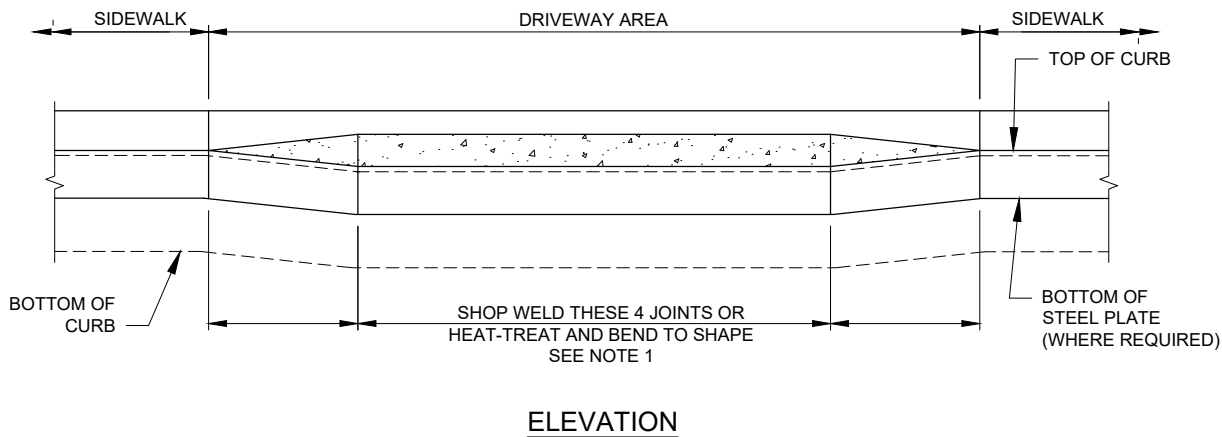
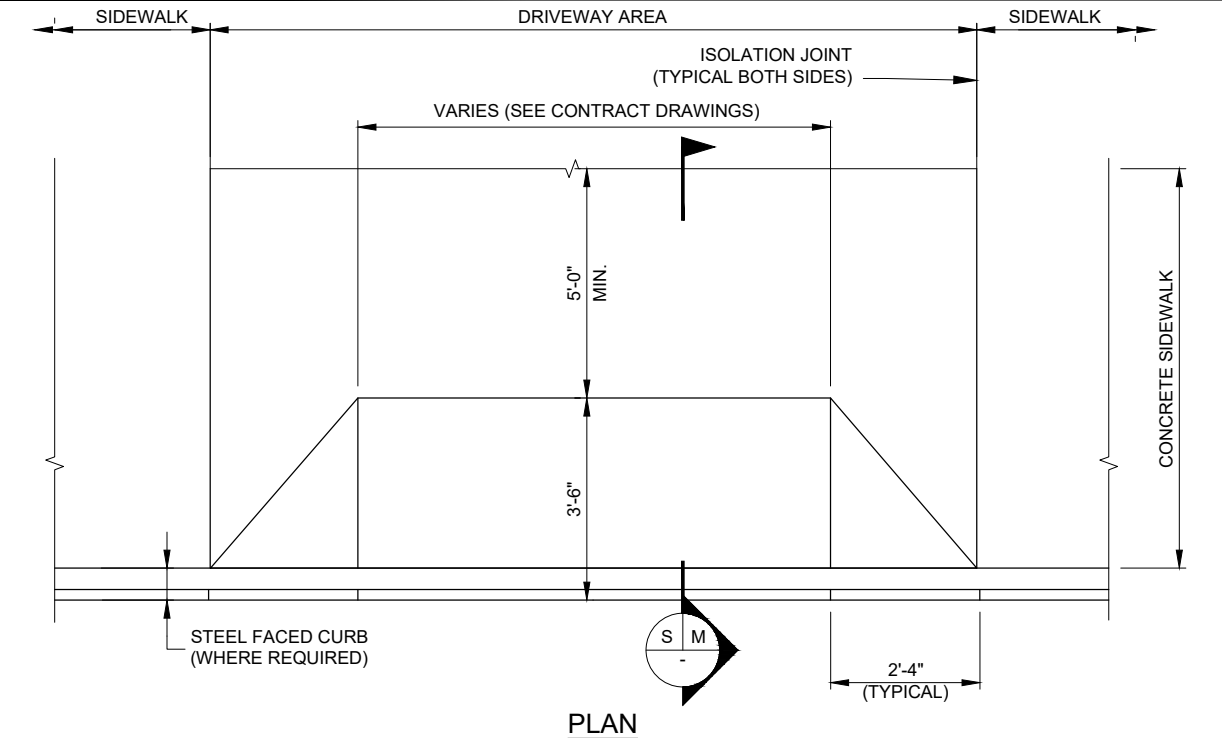
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/07/2009 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. FOR SECTIONS, DIMENSIONS AND NOTES REFER TO PAGE 1. INCLUDE DETAIL 062.021-A. 2. FOR EACH CURB RAMP INSTALLED OR MODIFIED INCLUDE SPECIFIC ELEVATIONS TO ENSURE ADA COMPLIANCE.	<b>TYPICAL DETAIL NO.</b>	062.021-D
	#1	5/14/19		<b>TITLE:</b>  <b>SIDEWALK CURB RAMP DETAILS</b>	
				DETAIL SHEET 4 OF 4	



CURB RAMP TYPE IV  
NOT TO SCALE  
**SIDEWALK CURB RAMP DETAILS**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. INCLUDE SIDEWALK EXPANSION JOINT DETAILS. 2. ENSURE THAT THE DRIVEWAY SLOPES MEET THE ADA REQUIREMENTS. 3. USE PARALLEL TYPE (062-022-B) WHEN SIDEWALK WIDTH IS LESS THAN 5'. 4. REMOVE THE "STEEL FACING" ASPECTS WHEN STEEL FACED CURB IS NOT BEING USED.	<b>TYPICAL DETAIL NO.</b>	062.022-A
	#6	5/14/19		<b>TITLE:</b> <b>DROPPED CONCRETE CURB AND CONCRETE DRIVEWAY DETAILS</b>	<b>DETAIL SHEET 1 OF 2</b>



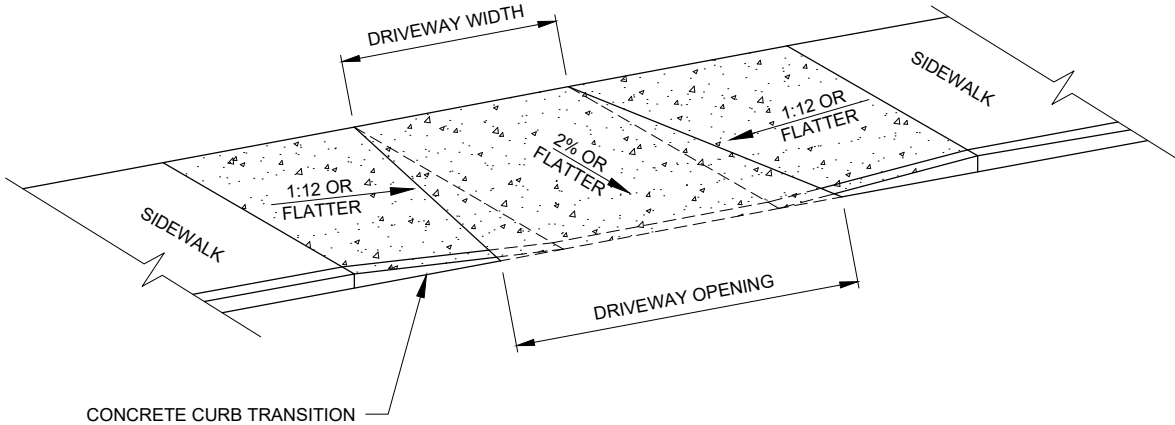
#### DROPPED CONCRETE CURB AND CONCRETE DRIVEWAY DETAILS NOTES:

1. REQUIRED WHERE STEEL FACED CURB IS SHOWN ON CONTRACT DRAWINGS.
2. UNLESS SHOWN ON THE CONTRACT DRAWINGS, SUBMIT THE LAYOUT OF JOINTS IN THE DRIVEWAY FOR APPROVAL BY THE ENGINEER.

## DROPPED CONCRETE CURB AND CONCRETE DRIVEWAY DETAILS

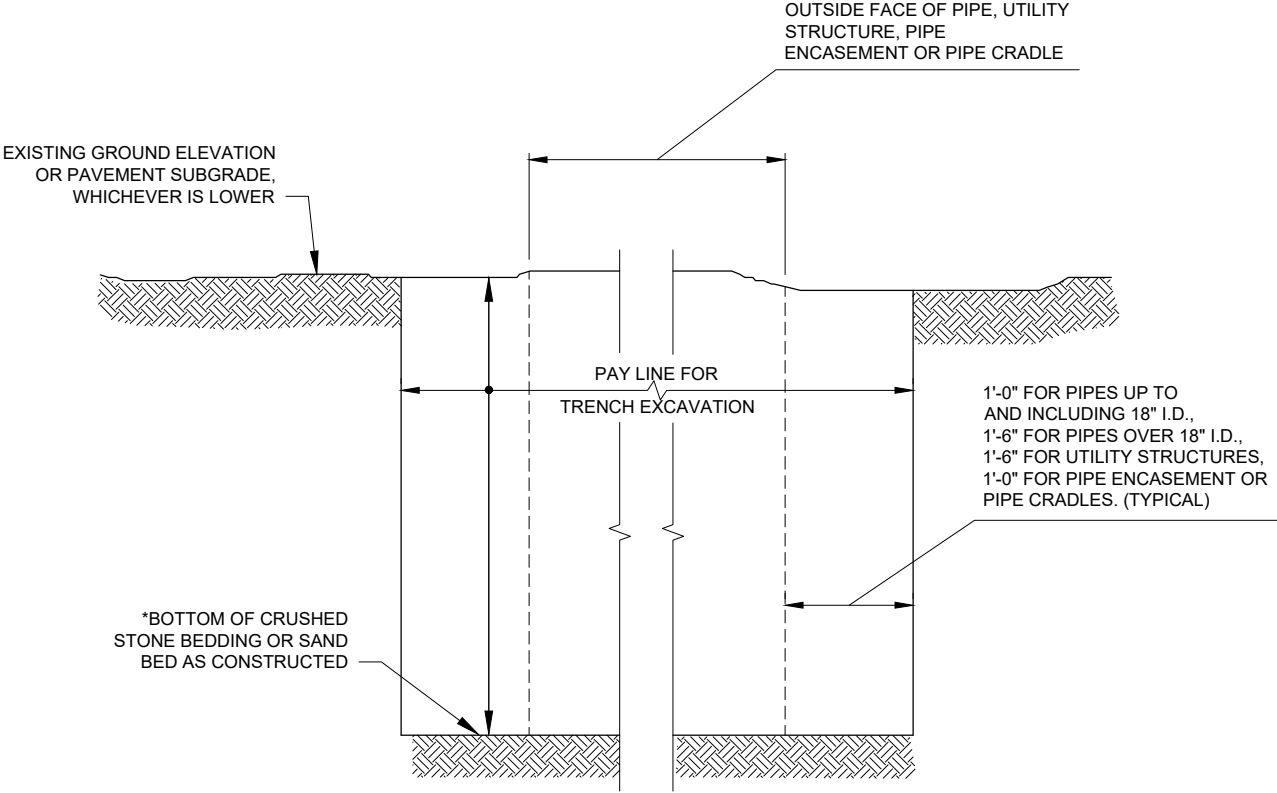
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 05/14/2019 APPROVED BY _____ CHIEF CIVIL ENGINEER DATE 05/14/2019	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER: 1. INCLUDE SIDEWALK EXPANSION JOINT DETAILS. 2. ENSURE THAT THE DRIVEWAY SLOPES MEET THE ADA REQUIREMENTS.	TYPICAL DETAIL NO.	062.022-B
				<b>TITLE:</b> <b>DROPPED CURB AND DRIVEWAY DETAILS (PARALLEL TYPE)</b>	
					DETAIL SHEET 2 OF 2



**DROPPED CURB AND DRIVEWAY DETAILS**  
**(PARALLEL TYPE)**  
 NOT TO SCALE

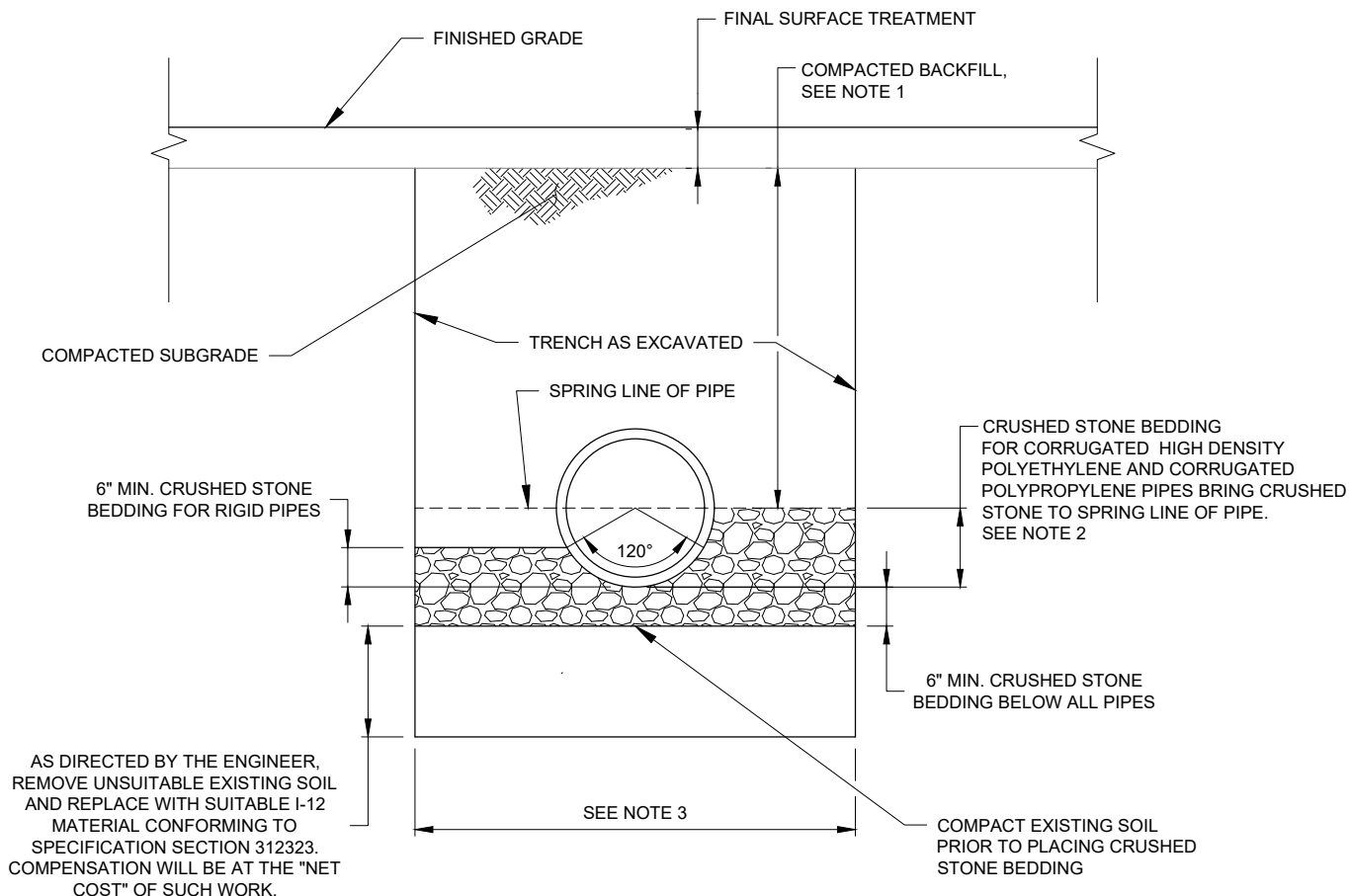
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 01/02/1985 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER: FOR USE ONLY WHERE EXCAVATION IS PAID ON A UNIT PRICE BASIS.	TYPICAL DETAIL NO.	065.001
	#5	5/14/19		TITLE:  <b>PAY LINE FOR TRENCH EXCAVATION</b>	
				DETAIL SHEET 1 OF 1	



\* BOTTOM PAY LINE IN ROCK SHALL BE 6" BELOW OUTSIDE FACE OF PIPE, PIPE ENCASEMENT CRADLE OR UTILITY STRUCTURE

**PAY LINE FOR  
TRENCH EXCAVATION**  
 NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 3/19 /2021 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> CONSULT GEOTECH IF THE ADDITIONAL I-12 MATERIAL IS REQUIRED. IF NOT REQUIRED REMOVE.	<b>TYPICAL DETAIL NO.</b>	066.001
	#9	5/14/19		<b>TITLE:</b> <b>BEDDING DETAIL (STORM DRAINAGE, WATER SUPPLY AND SANITARY SEWER SYSTEMS)</b>	
				DETAIL SHEET 1 OF 1	



#### BEDDING DETAIL NOTES:

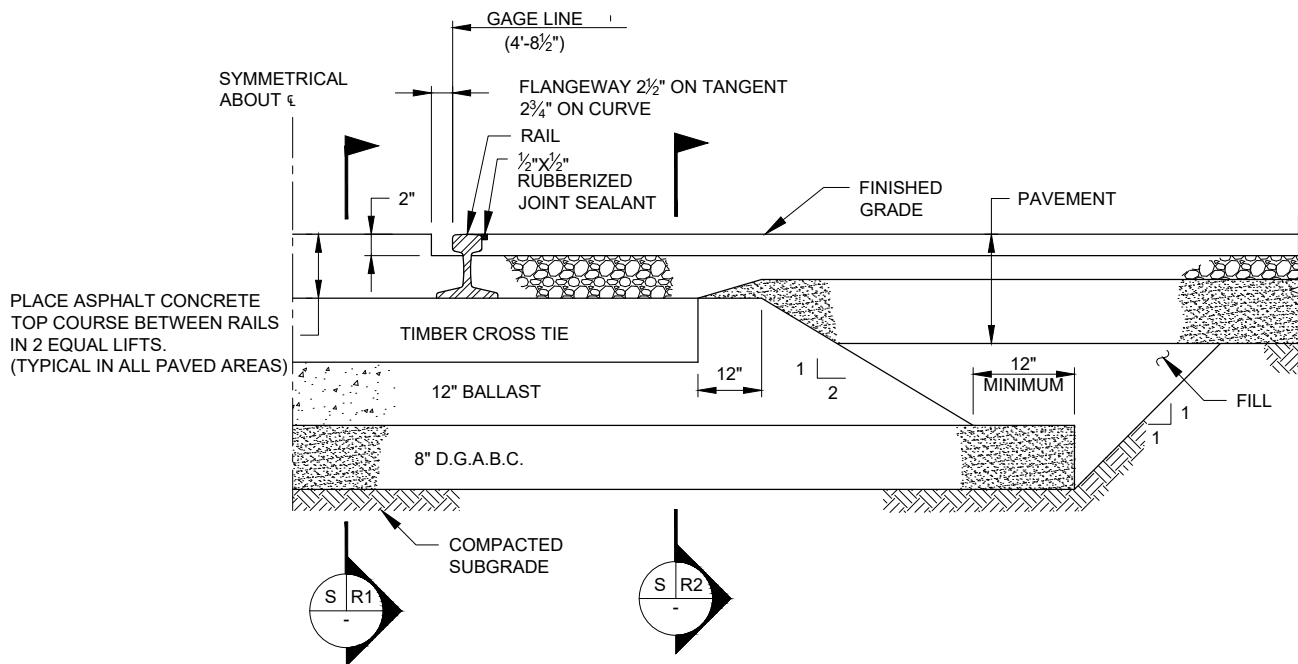
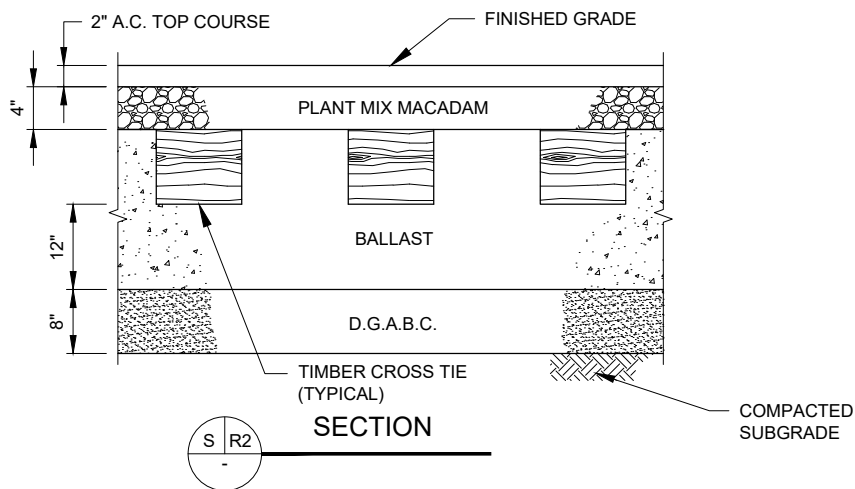
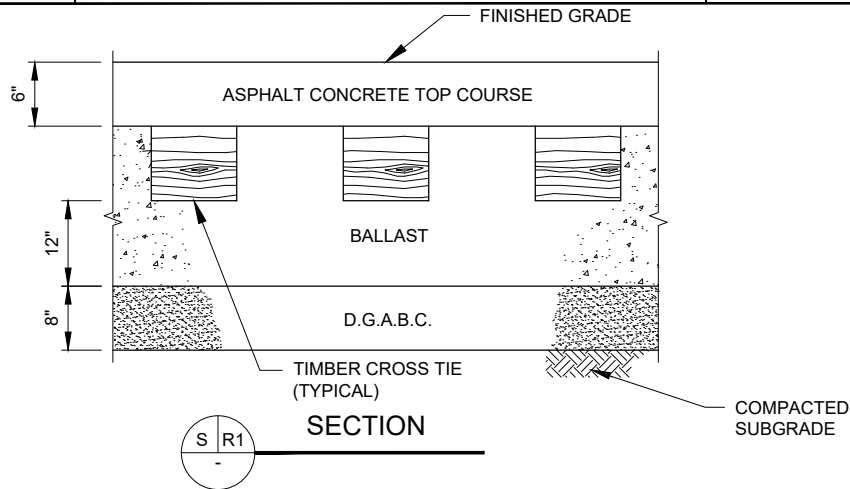
1. PLACE AND COMPACT BACKFILL TO THE SURROUNDING EXISTING GRADE OR THE COMPACTED SUBGRADE OF THE FINAL SURFACE TREATMENT (E.G. PAVEMENT, GRASS, ETC.), WHICHEVER IS LOWER.
2. FOR CORRUGATED HIGH DENSITY POLYETHYLENE AND CORRUGATED POLYPROPYLENE PIPES WORK IN AND TAMP THE CRUSHED STONE BEDDING IN THE UNDER SIDE OF THE PIPE PRIOR TO PLACING AND COMPACTING THE CRUSHED STONE BEDDING TO THE SPRING LINE AS SHOWN.
3. PIPE OUTSIDE DIAMETER + 2'-0" FOR THE PIPES UP TO AND INCLUDING 18" INSIDE DIAMETER, PIPE OUTSIDE DIAMETER + 3'-0" FOR PIPES OVER 18" INSIDE DIAMETER AND STRUCTURES.

### BEDDING DETAIL (STORM DRAINAGE, WATER SUPPLY AND SANITARY SEWER SYSTEMS)

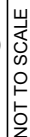
NOT TO SCALE



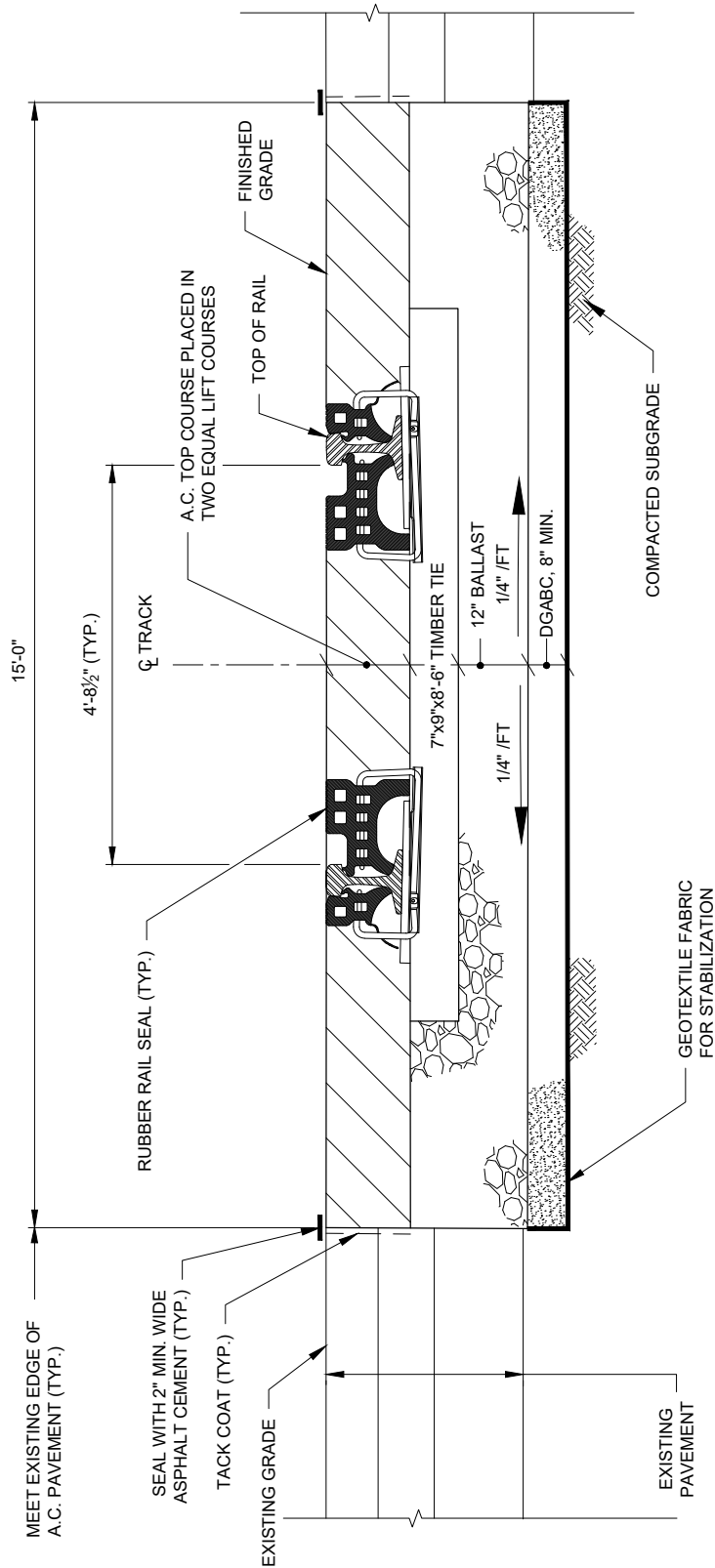
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> FOR USE IN FACILITIES. CHECK WITH PORT DEPARTMENT IF 8"x6" TIE IS ACCEPTABLE.	TYPICAL DETAIL NO.	082.001-A
	NO.	DATE		<b>TITLE:</b>  <b>PAVED RAILROAD TRACK</b>	DETAIL SHEET 1 OF 3
	#4	5/14/19			



**PAVED RAILROAD TRACK**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 05/14/2019 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. CONFIRM TRACK STRUCTURE (BALLAST & DGABC) IS SUITABLE FOR PROPOSED RAIL OPERATION(S). 2. DESIGNER TO INSERT WEIGHT OF RAIL AND TYPE OF RAIL. 3. DESIGNER TO INSERT RAIL FASTENING TYPE. 4. DESIGNER TO SPECIFY AREMA GRADATION FOR BALLAST. 5. SPECIFY AT GRADE CROSSINGS WITH ASPHALT CONCRETE. 6. DESIGNER TO INSERT A.C. TOP COURSE THICKNESS. 7. DESIGNER TO INCLUDE RUBBER RAILSEAL DETAIL WHEN SPECIFYING TRACK IN PAVED AREAS WITH RUBBER RAILSEAL.	TYPICAL DETAIL NO.	082.001-C
				<b>TITLE:</b> <b>TRACK IN EXISTING PAVED AREAS WITH RUBBER RAILSEAL</b>	DETAIL SHEET 3 OF 3



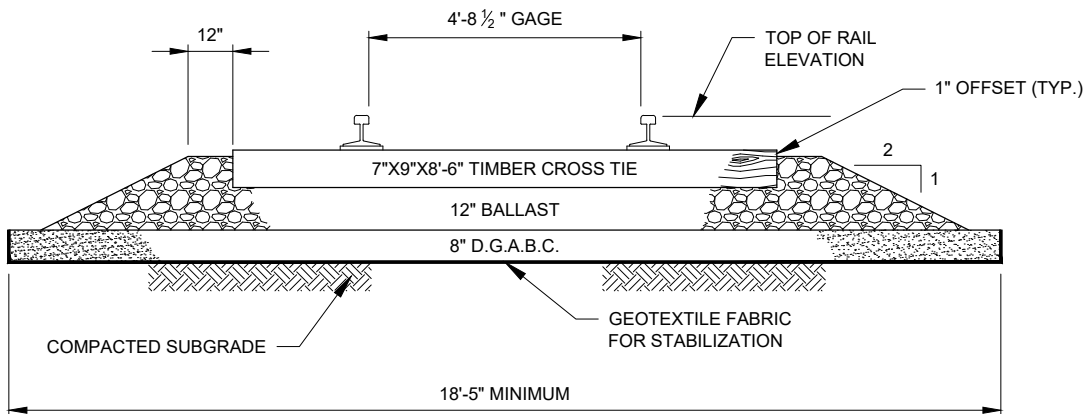
### TRACK IN EXISTING PAVED AREAS WITH RUBBER RAILSEAL NOTE:

MATCH EXISTING LOCATION AND TOP OF RAIL UNLESS OTHERWISE SHOWN.

## TRACK IN EXISTING PAVED AREAS WITH RUBBER RAILSEAL

NOT TO SCALE

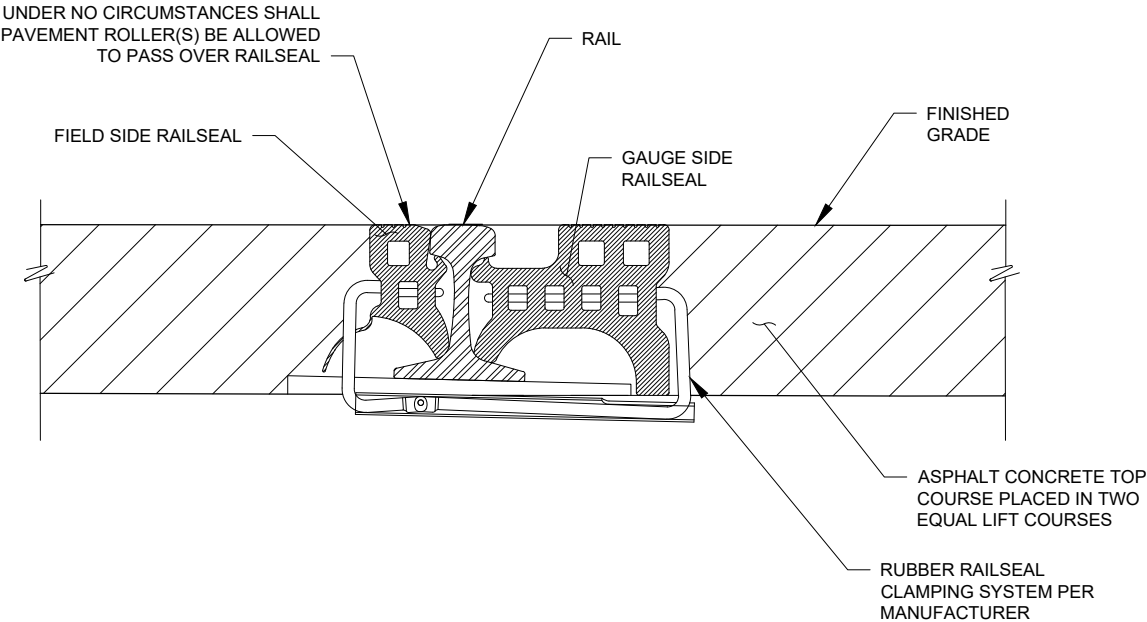
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. CONFIRM TRACK STRUCTURE (BALLAST & DGABC) IS SUITABLE FOR PROPOSED RAIL OPERATION(S). 2. DESIGNER TO INSERT WEIGHT OF RAIL AND TYPE OF RAIL. 3. DESIGNER TO INSERT RAIL FASTENING TYPE. 4. DESIGNER TO SPECIFY AREMA GRADATION FOR BALLAST. 5. DESIGNER TO SHOW UNDERDRAIN AND SUBBALLAST CROSS SLOPE PER DESIGN.	<b>TYPICAL DETAIL NO.</b>	082.002
	#4	5/14/19		<b>TITLE:</b>  <b>OPEN TRACK</b>	<b>DETAIL SHEET 1 OF 1</b>



TYPICAL SECTION

OPEN TRACK  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> E. LARRAZABAL 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN STANDARD DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. DESIGNER TO INSERT WEIGHT OF RAIL AND TYPE OF RAIL. 2. IF USED FOR EXISTING CONDITION, THEN MODIFY DETAIL TO IDENTIFY EXISTING CONDITION (i.e., RAIL, TIE-PLATE AND TIMBER CROSS-TIES) 3. DESIGNER TO INSERT RAIL FASTENING TYPE.	<b>STANDARD DETAIL NO.</b>	082.005
	#4	5/14/19		<b>TITLE:</b>  <b>RUBBER RAILSEAL DETAIL</b>	<b>DETAIL SHEET 1 OF 1</b>

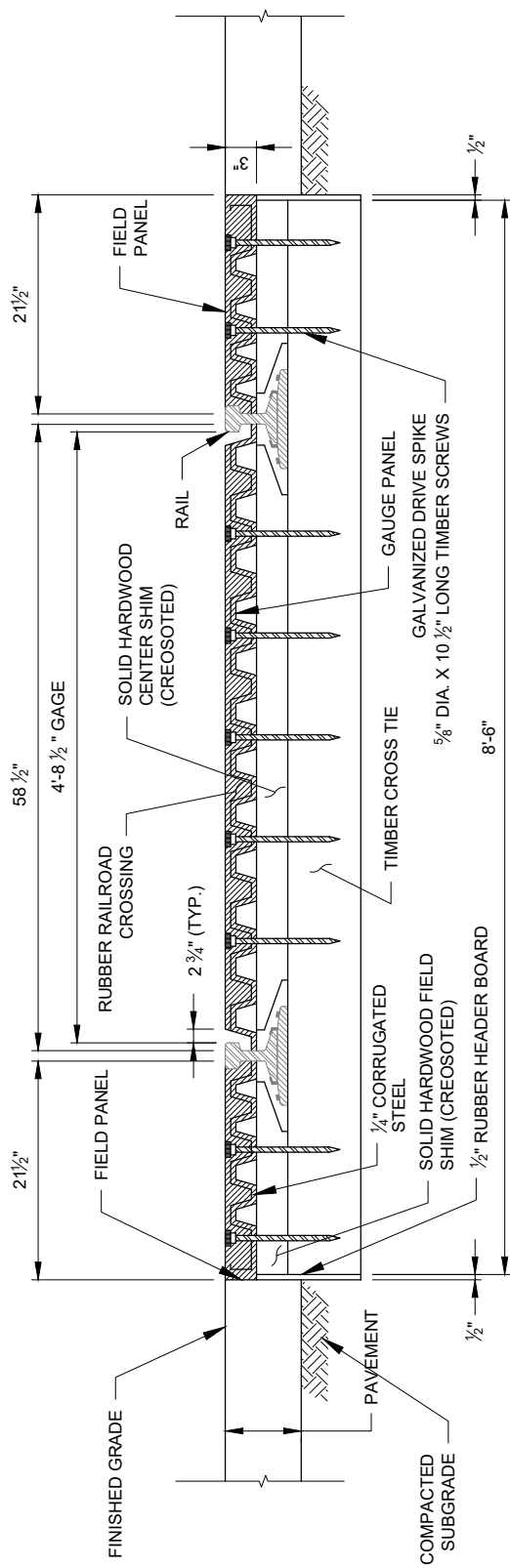


**RUBBER RAILSEAL DETAIL NOTES:**

- FABRICATED RAIL SEALS SHALL BE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
  - RAIL SEAL BY INTERNATIONAL TRACK SYSTEMS, NEW CASTLE, PA
  - EPFLEX RAIL SEAL BY POLYCORP, ELORA, ONTARIO, CANADA
  - RAILSEAL BY PERFORMANCE POLYMERS INNOVATIONS, INC., CAMBRIDGE, ONTARIO, CANADA
- FURNISH AND INSTALL RUBBER RAILSEAL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. AT NO ADDITIONAL COST TO THE AUTHORITY, ARRANGE FOR RUBBER RAILSEAL TECHNICAL REPRESENTATIVE(S) TO BE PRESENT IN THE FIELD DURING THE FIRST DAY OF INSTALLATION.
- RUBBER RAIL SEAL SIZE SHALL ACCOMMODATE THE SPECIFIED RAIL SECTION SHOWN ON THE CONTRACT DRAWINGS.

**RUBBER RAILSEAL DETAIL**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. DELETE NOTES 4 & 5 WHEN NOT APPLICABLE. 2. INDICATE NEW OR EXISTING RAIL. 3. DESIGNER TO INSERT WEIGHT OF RAIL AND TYPE OF RAIL. 4. DESIGNER TO INSERT SHIM THICKNESS.	TYPICAL DETAIL NO.	082.006
	NO.	DATE		<b>TITLE:</b> <b>STEEL REINFORCED RUBBER RAILROAD CROSSING SYSTEM</b>	DETAIL SHEET 1 OF 1
	#4	5/14/19			



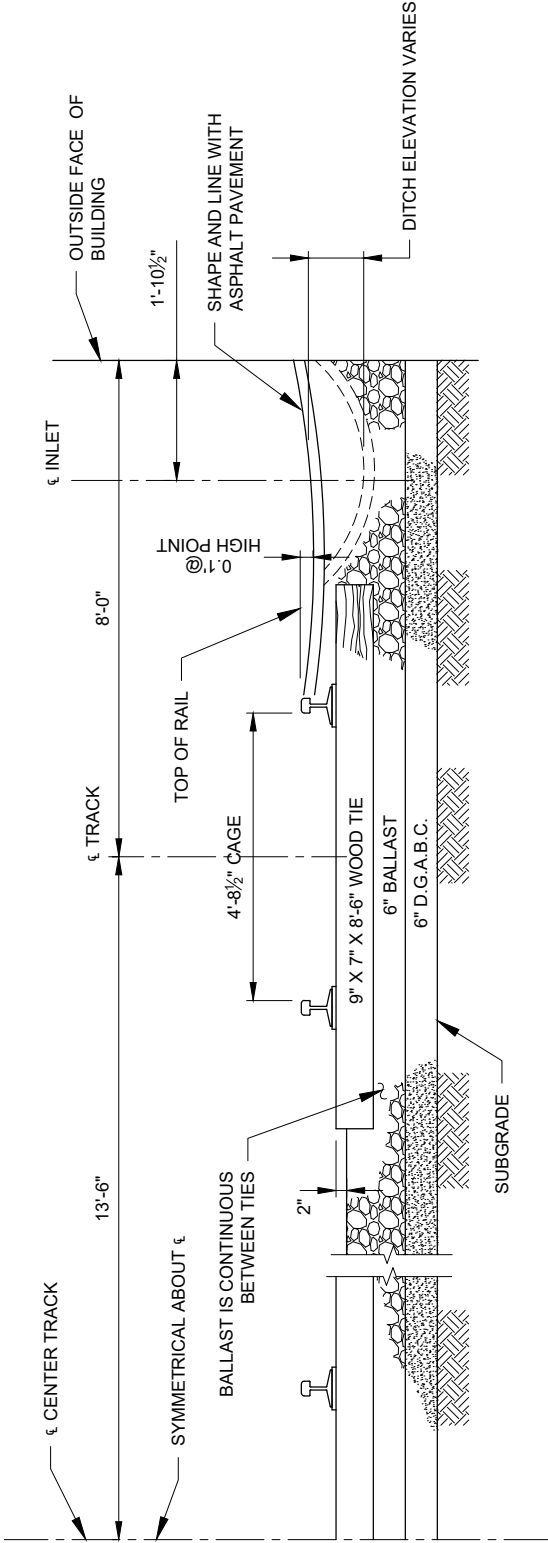
STEEL REINFORCED RUBBER RAILROAD CROSSING SYSTEM NOTES:

1. STEEL REINFORCED RUBBER RAILROAD CROSSING SYSTEM SHALL BE MANUFACTURED BY OMNI PRODUCT, INC., McHENRY, IL, OR APPROVED EQUAL. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL.
2. FURNISH AND INSTALL STEEL REINFORCED RUBBER RAILROAD CROSSING SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS. AT NO ADDITIONAL COST TO THE AUTHORITY, ARRANGE FOR STEEL REINFORCED RUBBER RAILROAD CROSSING SYSTEM TECHNICAL REPRESENTATIVE(S) TO BE PRESENT IN THE FIELD DURING THE FIRST DAY OF INSTALLATION.
3. RAILS SHALL BE WELDED WITHIN THE LIMITS OF THE RUBBER RAILROAD CROSSING.
4. REMOVE EXISTING PAVEMENT GUARD RAIL (6" RAIL BOLTED TO BOTH RAILS) PRIOR TO INSTALLATION OF RUBBER RAILROAD CROSSING.
5. REMOVE EXISTING TIES AND REPLACE WITH NEW 9"x7"x8'-6" TIES AT 18" ON CENTER.

STEEL REINFORCED RUBBER  
RAILROAD CROSSING SYSTEM

NOT TO SCALE

<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 01/02/1985</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER: FOR USE IN PORT NEWARK AND ELIZABETH MARINE TERMINAL.</div>	TYPICAL DETAIL NO.	082.007
	NO.	DATE		TITLE:	
	#5	5/14/19		TRACKS BETWEEN DISTRIBUTION BUILDINGS	
				DETAIL SHEET 1 OF 1	



TYPICAL SECTION

TRACKS BETWEEN DISTRIBUTION BUILDINGS

NOT TO SCALE

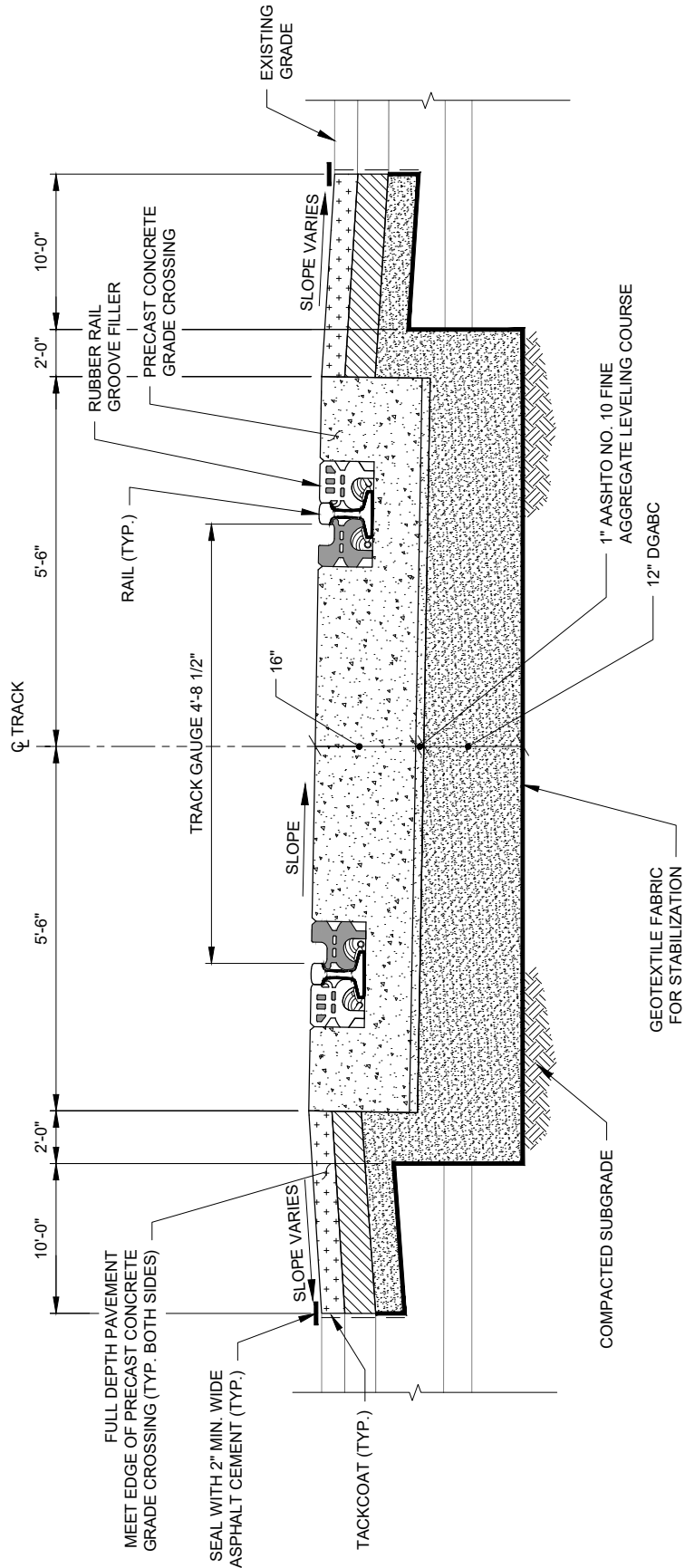
NOTES FOR DESIGNER:

1. CONFIRM TRACK STRUCTURE (BALLAST & DGABC) IS SUITABLE FOR PROPOSED RAIL OPERATION(S).
2. DESIGNER TO INSERT WEIGHT OF RAIL AND TYPE OF RAIL.
3. DELETE NOTE 2 WHEN NOT APPLICABLE.

TITLE:

**PRECAST CONCRETE  
GRADE CROSSING**

DETAIL SHEET 1 OF 1



**PRECAST CONCRETE GRADE CROSSING NOTES:**

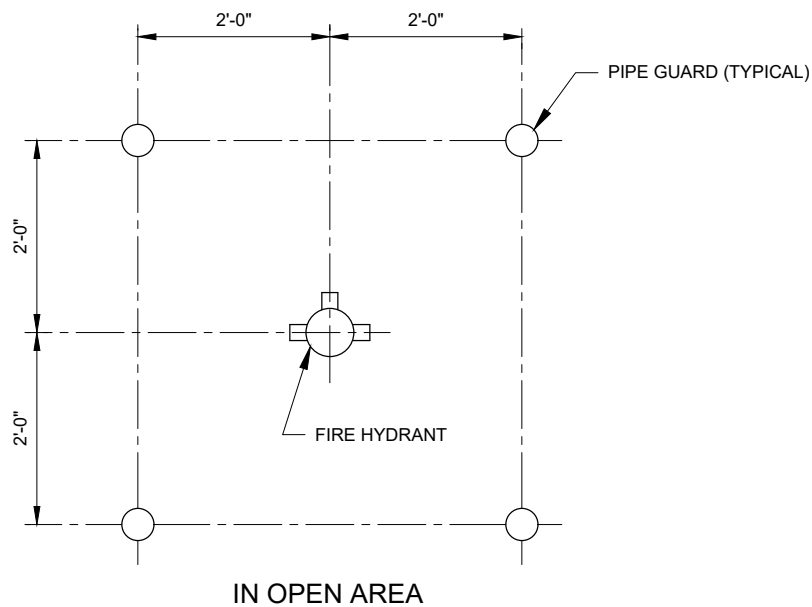
1. PRECAST CONCRETE GRADE CROSSING SHALL BE "STARTRACK II HD" SYSTEM, AS MANUFACTURED BY OLD CASTLE PRECAST, INC. OR APPROVED EQUAL. FURNISH AND INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. ARRANGE FOR MANUFACTURER'S REPRESENTATIVE TO BE PRESENT DURING INSTALLATION.
2. MATCH EXISTING LOCATION AND TOP OF RAIL UNLESS OTHERWISE SHOWN.

**PRECAST CONCRETE GRADE CROSSING**

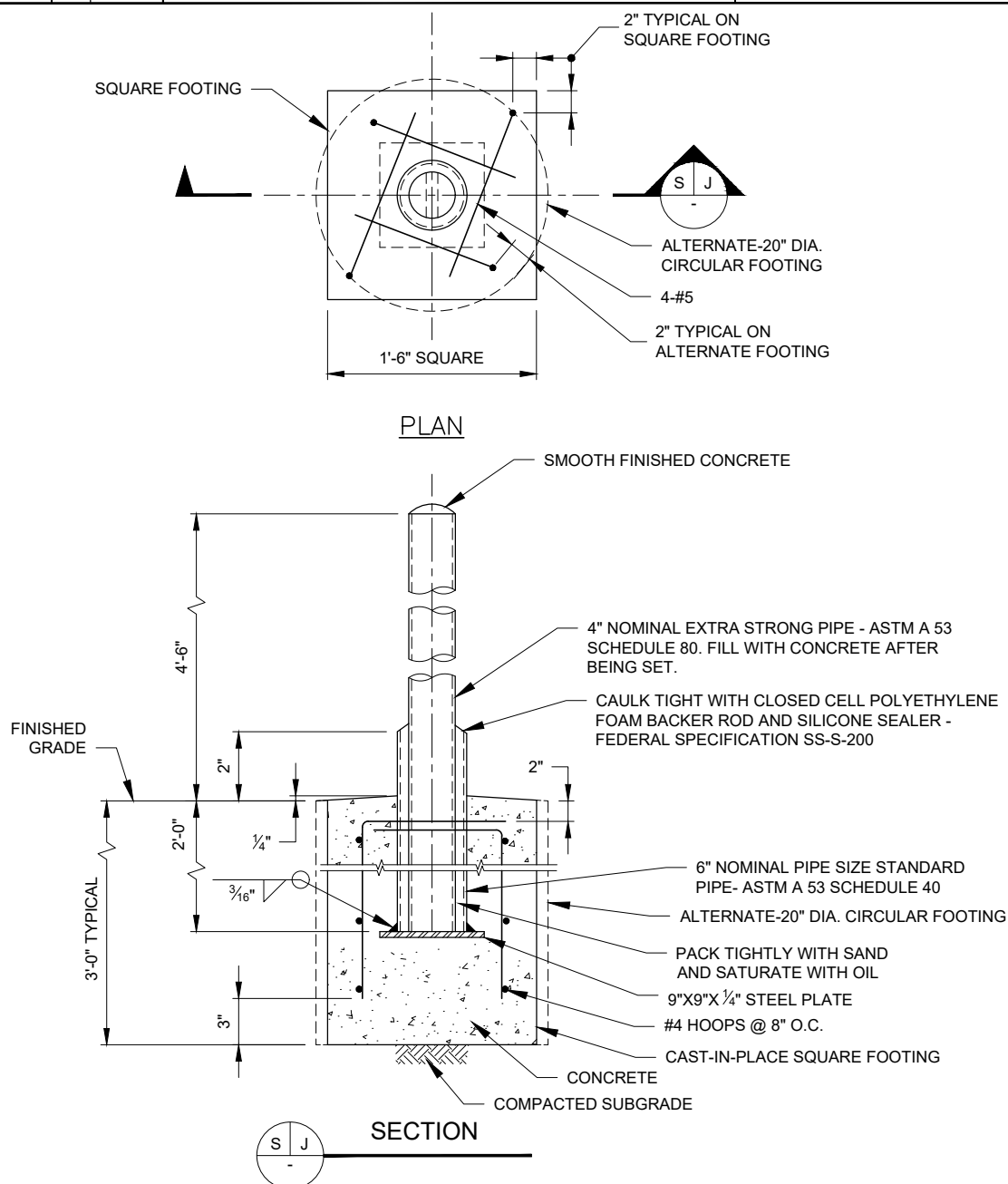
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>	090.001
	NO.	DATE		<b>TITLE:</b> <b>PIPE GUARD SPACING DETAIL</b>	
	#4	5/14/19			
			<b>DETAIL SHEET 1 OF 1</b>		



PIPE GUARD SPACING DETAIL  
NOT TO SCALE

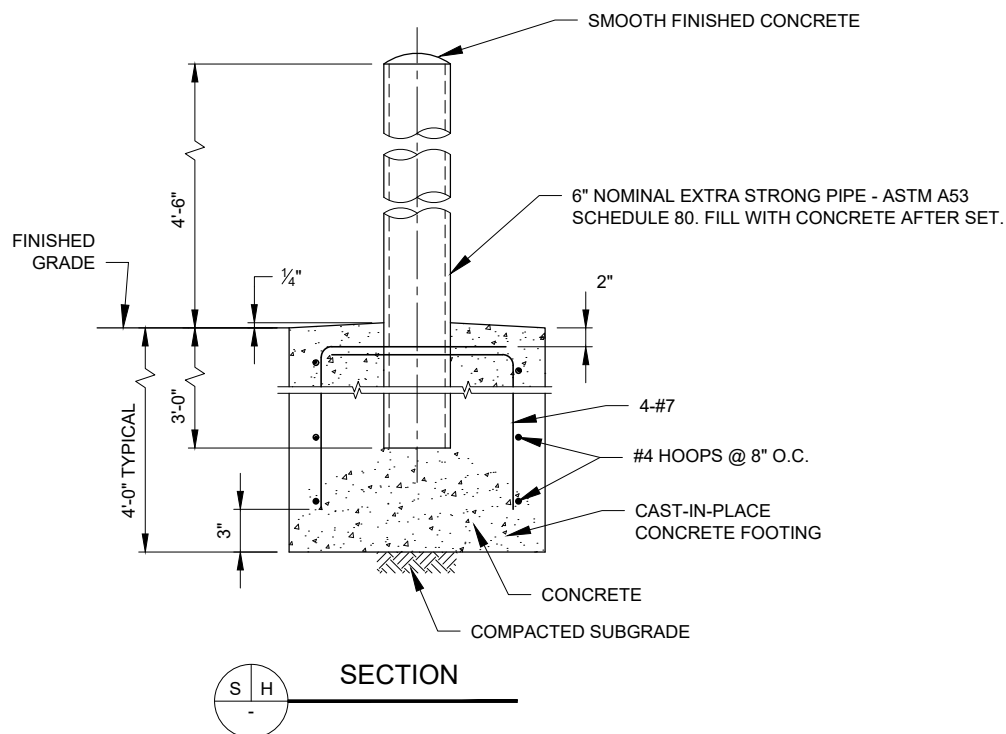
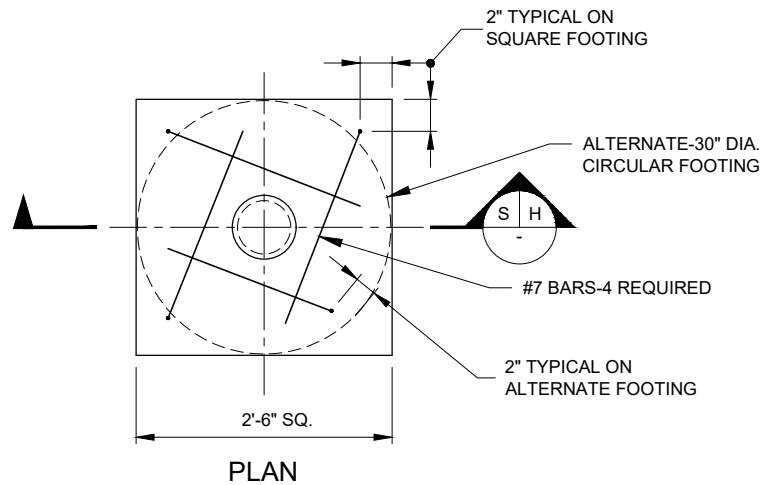


1. WHERE EXCAVATION IS DONE BY AUGERING, PRECAST FOOTINGS WILL NOT BE PERMITTED.
2. DIAMETER OF AUGERED HOLE SHALL NOT EXCEED DIAMETER OF FOOTING BY MORE THAN 3 INCHES
3. REINFORCING BARS - ASTM A615, GRADE 60.
4. PAINT PIPE GUARD AS FOLLOWS :
  - A. CLEAN ALL SURFACES TO THE REQUIREMENTS OF SSPC SP-3.
  - B. THE PRIME (OR FIRST) COAST SHALL BE "CARBOMASTIC 15FC" AND THE FINISH (OR SECOND) COAT SHALL BE "CARBOTHANE 133HG" STAIN FINISH, ALIPHATIC POLYURETHANE, BOTH AS MANUFACTURED BY THE FINISH, ALIPATIC POLYURETHANE, BOTH AS MANUFACTURED BY THE CARBOLINE COMPANY OF ST. LOUIS, MO., APPROVED EQUAL, PRIME AND FINISH COATS SHALL BE PRODUCTS OF SAME MANUFACTURED.
  - C. COLOR OF PAINT SHALL BE YELLOW.

## PIPE GUARD WITH FOOTING

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b> 1. FOR CONTAINER AREAS AND FREQUENT IMPACT AREAS. 2. FOR SPACING SEE DETAIL 090.001. 3. REVISE THE COLOR OF THE PIPE GUARD, IF NECESSARY.	<b>TYPICAL DETAIL NO.</b>	090.003
	#5	5/14/19		<b>TITLE:</b>  <b>PIPE GUARD WITH FOOTING (HEAVY DUTY)</b>	DETAIL SHEET 1 OF 1



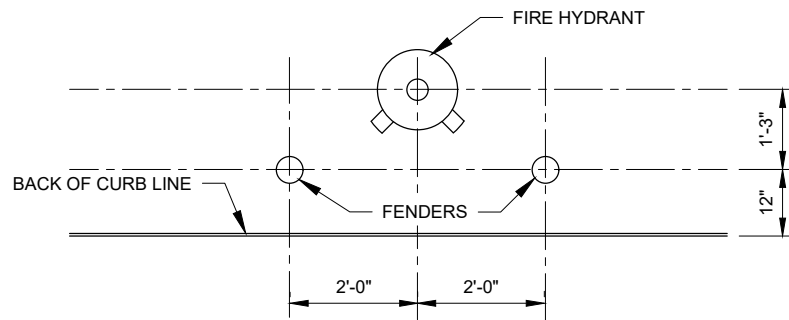
### PIPE GUARD WITH FOOTING (HEAVY DUTY) NOTES:

- WHERE EXCAVATION IS DONE BY AUGERING, PRECAST FOOTINGS WILL NOT BE PERMITTED.
- DIAMETER OF AUGERED HOLE SHALL NOT EXCEED DIAMETER OF FOOTING BY MORE THAN 3 INCHES.
- REINFORCING BARS - ASTM A615, GRADE 60.
- PAINT PIPE GUARD AS FOLLOWS :
  - CLEAN ALL SURFACES TO THE REQUIREMENTS OF SSPC SP-3.
  - THE PRIME (OR FIRST) COAST SHALL BE "CARBOMASTIC 15FC" AND THE FINISH (OR SECOND) COAT SHALL BE "CARBOTHANE 133HG" STAIN FINISH, ALIPHATIC POLYURETHANE, BOTH AS MANUFACTURED BY THE FINISH, ALIPATIC POLYURETHANE, BOTH AS MANUFACTURED BY THE CARBOLINE COMPANY OF ST. LOUIS, MO., APPROVED EQUAL, PRIME AND FINISH COATS SHALL BE PRODUCTS OF SAME MANUFACTURED.
  - COLOR OF PAINT SHALL BE YELLOW.

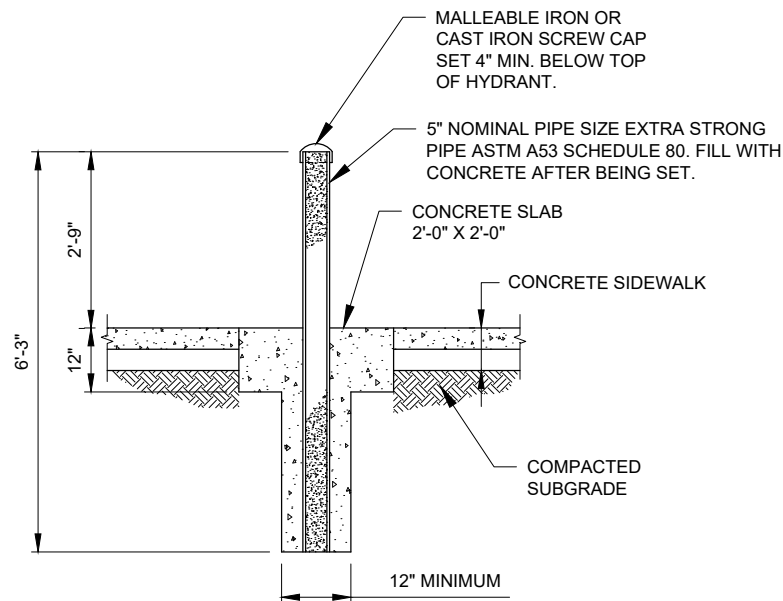
## PIPE GUARD WITH FOOTING (HEAVY DUTY)

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 01/02/1985 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> FOR USE ALONG N.Y.C. STREETS OUTSIDE P.A. JURISDICTION. I.E. BATHGATE.  SPECIFY THE COLOR OF HYDRANT FENDER.	<b>TYPICAL DETAIL NO.</b>	090.004
	#4	5/14/19		<b>TITLE:</b>  <b>STANDARD STEEL HYDRANT FENDER</b>	<b>DETAIL SHEET 1 OF 1</b>



PLAN



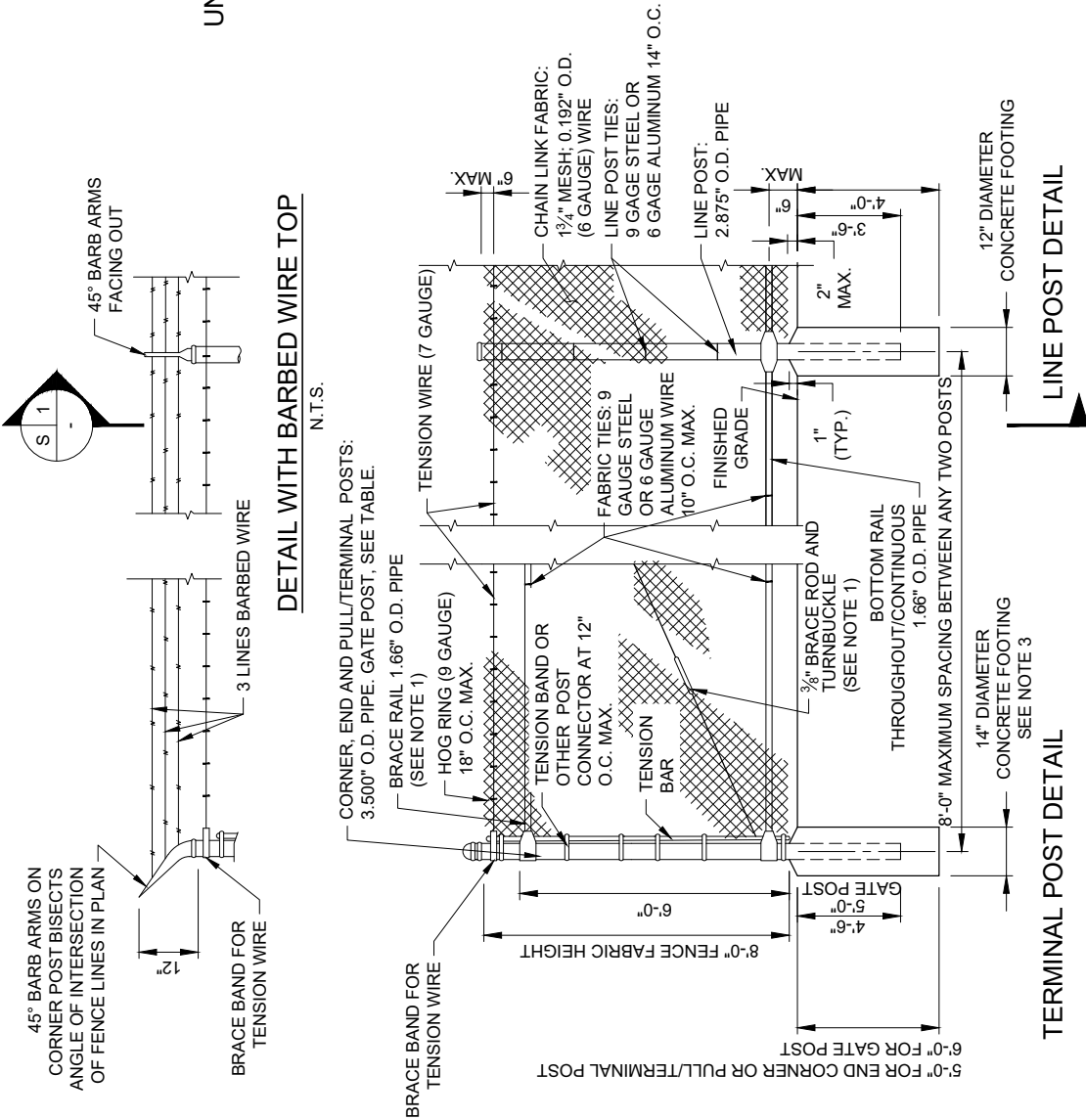
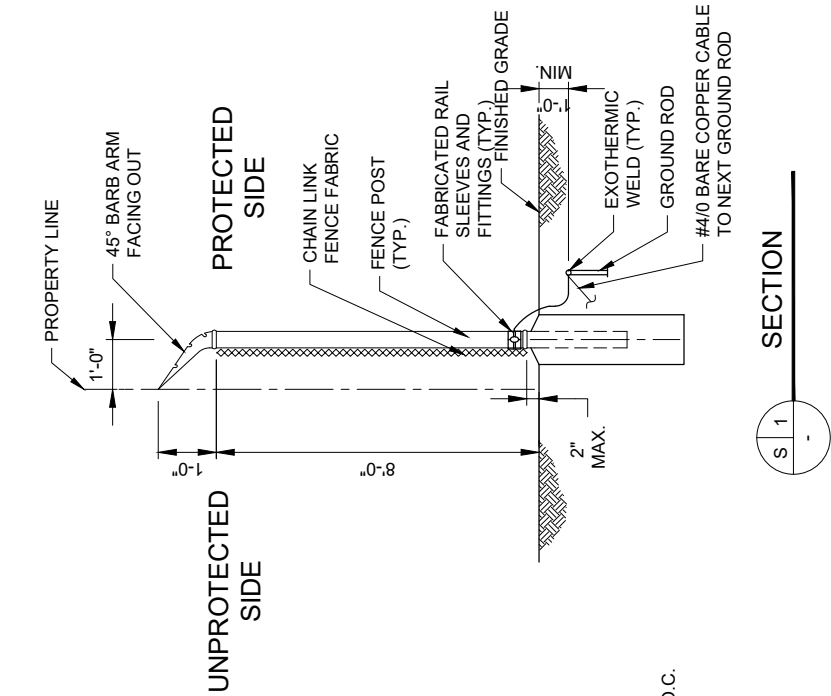
ELEVATION

STANDARD STEEL HYDRANT FENDER NOTES:

1. PAINT PIPE GUARD AS FOLLOWS :
  - A. CLEAN ALL SURFACES TO THE REQUIREMENTS OF SSPC SP-3.
  - B. THE PRIME (OR FIRST) COAT SHALL BE "CARBOMASTIC 15LO" AND THE FINISH (OR SECOND) COAT SHALL BE "CARBOTHANE 133HB" STAIN FINISH, ALIPATIC POLYURETHANE, BOTH AS MANUFACTURED BY THE CARBOLINE COMPANY, ST. LOUIS, MO., OR APPROVED EQUAL, PRIME AND FINISH COATS SHALL BE PRODUCTS OF SAME MANUFACTURER.

NOTES FOR DESIGNER:

- REFER TO "PANYU SECURITY CHAIN LINK FENCE CIVIL ENGINEERING STANDARD DETAILS: GUIDELINES FOR USE AND DESIGN CONSIDERATIONS" FOR ADDITIONAL INFORMATION AND CONSULT WITH SECURITY MANAGER TO INCORPORATE OTHER MEASURES BASED ON FACILITY NEEDS SUCH AS WILDLIFE MANAGEMENT (E.G. ANIMAL DIO BARRIER).
- DO NOT USE THIS FENCE TYPE AT AVIATION FACILITIES (SEE STANDARD DETAIL NO. 090.013-B).
- USE DETAIL FOR NEW CONSTRUCTION. REHABILITATION AND/OR REPLACEMENT OF EXISTING FENCE SHOULD USE IN-KIND REPLACEMENT TO MATCH ADJACENT EXISTING FENCING.
- REVISE DETAIL AS REQUIRED FOR SPECIAL REQUIREMENTS - SEE INSTRUCTION TO SPEC. 323112.
- REVISE: TITLE IF ALUMINIZED OR PVC COATED CLF FABRIC IS USED. FOR PVC COATED, INDICATE THE COLOR FOR THE PVC. PEDESTRIAN AND VEHICULAR GATE ACCESS CONTROL OPTIONS FOR STANDARD SECURITY FENCE ARE: PADLOCK WITH LATCH AND HASP, PADLOCK WITH CHAIN, INTEGRAL KEY LOCK, OR PUSH BUTTON MECHANICAL LOCK. REVISE DETAIL TO SPECIFY AS REQUIRED.
- OPTIONAL: IF REQUIRED BY SECURITY MANAGER, UPDATE FENCE FABRIC HEIGHT TO 10'-0".
- OPTIONAL: BARBED-WIRE TOP.



GATE POSTS		
PIPE SIZE	SWING GATE OPENINGS	
NOMINAL O.D. PIPE	SINGLE GATE	DOUBLE GATE
3.500"	UP THRU 6'	UP THRU 12'
6.625"	7' THRU 13'	13' THRU 26'
8.625"	14' THRU 32'	27' THRU 64'

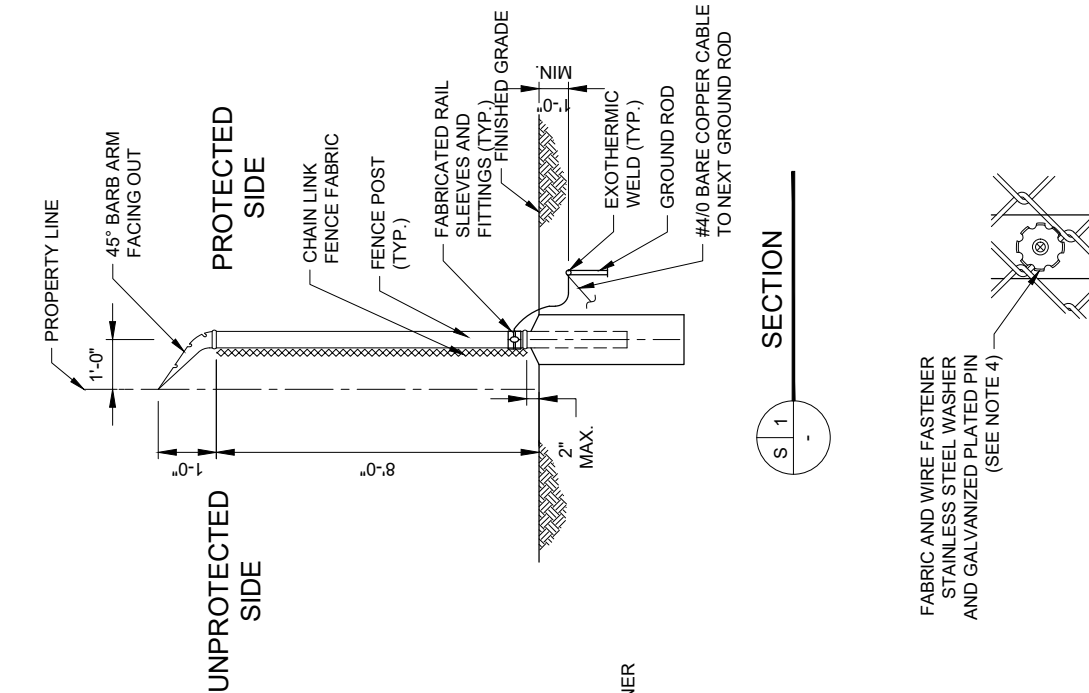
- NOTES:
- BRACE RAIL AND 3/8" BRACE ROD AND TURNBUCKLE ON ONE BAY EACH SIDE OF CORNER, END, PULL AND GATE POSTS ONLY.
  - ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF THE CHAIN LINK FENCE.
  - CONCRETE FOOTING FOR GATE POSTS SHALL BE 18" DIAMETER.
  - INCLUDE BARBED WIRE TOP UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS.

STANDARD SECURITY GALVANIZED STEEL CHAIN LINK FENCE

TYPE 1  
N.T.S.

NOTES FOR DESIGNER:

1. REFER TO "PANYNJ SECURITY CHAIN LINK FENCE CIVIL ENGINEERING STANDARD DETAILS: GUIDELINES FOR USE AND DESIGN CONSIDERATIONS", FOR ADDITIONAL INFORMATION AND CONSULT WITH SECURITY MANAGER TO INCORPORATE OTHER MEASURES BASED ON FACILITY NEEDS SUCH AS WILDLIFE MANAGEMENT (E.G., ANIMAL DIG BARRIER).
2. DO NOT USE THIS FENCE TYPE FOR ADA PERIMETER APPLICATIONS.
3. USE DETAIL FOR NEW CONSTRUCTION, REHABILITATION AND/OR REPLACEMENT OF EXISTING FENCE SHOULD USE IN-KIND REPLACEMENT TO MATCH ADJACENT EXISTING FENCING.
4. SURE-LOC WIRE FASTENERS IS A SOLE SOURCE ITEM. FOLLOW ALL INSTRUCTIONS SPECIFIED IN EADD ADVISORY BULLETIN WITH THE SUBJECT "SOLE SOURCE - PRODUCTS / BRANDS". REVISE DETAIL AS REQUIRED FOR SPECIAL REQUIREMENTS - SEE INSTRUCTION TO SPEC. 323112.
5. REVISE TITLE IF ALUMINIZED OR PVC COATED CLF FABRIC IS USED. FOR PVC COATED, INDICATE THE COLOR FOR THE PVC.
6. PEDESTRIAN AND VEHICULAR GATE ACCESS CONTROL OPTIONS FOR STANDARD SECURITY FENCE ARE: PADLOCK WITH LATCH AND HASP, PADLOCK WITH CHAIN, INTEGRAL KEY LOCK, OR PUSH BUTTON MECHANICAL LOCK. REVISE DETAIL TO SPECIFY AS REQUIRED.
7. OPTIONAL: IF REQUIRED BY SECURITY MANAGER, UPDATE FENCE FABRIC HEIGHT TO 10'-0".
8. OPTIONAL: BARBED WIRE TOP.



DETAIL



FABRIC AND WIRE FASTENER  
STAINLESS STEEL WASHER  
AND GALVANIZED PLATED PIN  
(SEE NOTE 4)

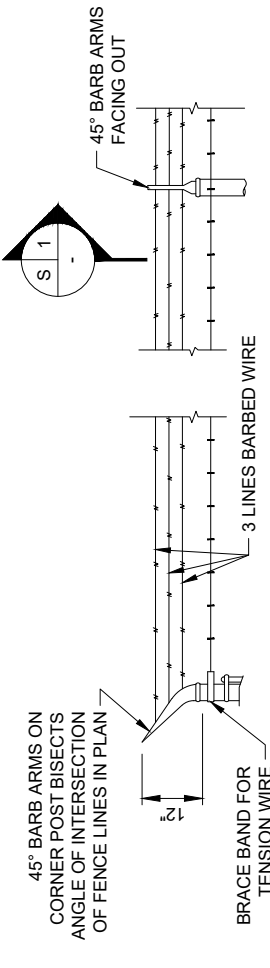
GATE POSTS	
PIPE SIZE	SWING GATE OPENINGS
NOMINAL O.D. PIPE	SINGLE GATE
3.500"	UP THRU 6'
6.625"	7' THRU 13'
8.625"	14' THRU 32'
	DOUBLE GATE
	UP THRU 12'
	13' THRU 26'
	27' THRU 64'

STANDARD SECURITY GALVANIZED STEEL

CHAIN LINK FENCE

TYPE 1

N.T.S.

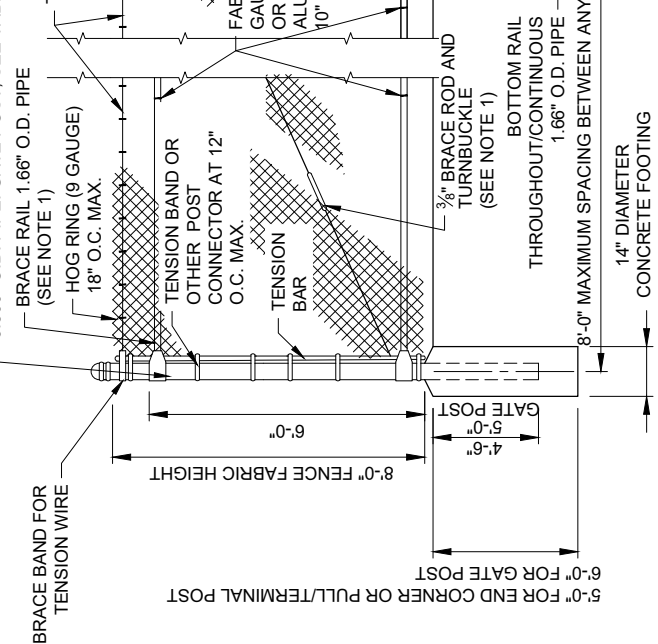


DETAIL WITH BARBED WIRE TOP

N.T.S.

CORNER, END AND PULL/TERMINAL POSTS:

3.500" O.D. PIPE: GATE POST, SEE TABLE.

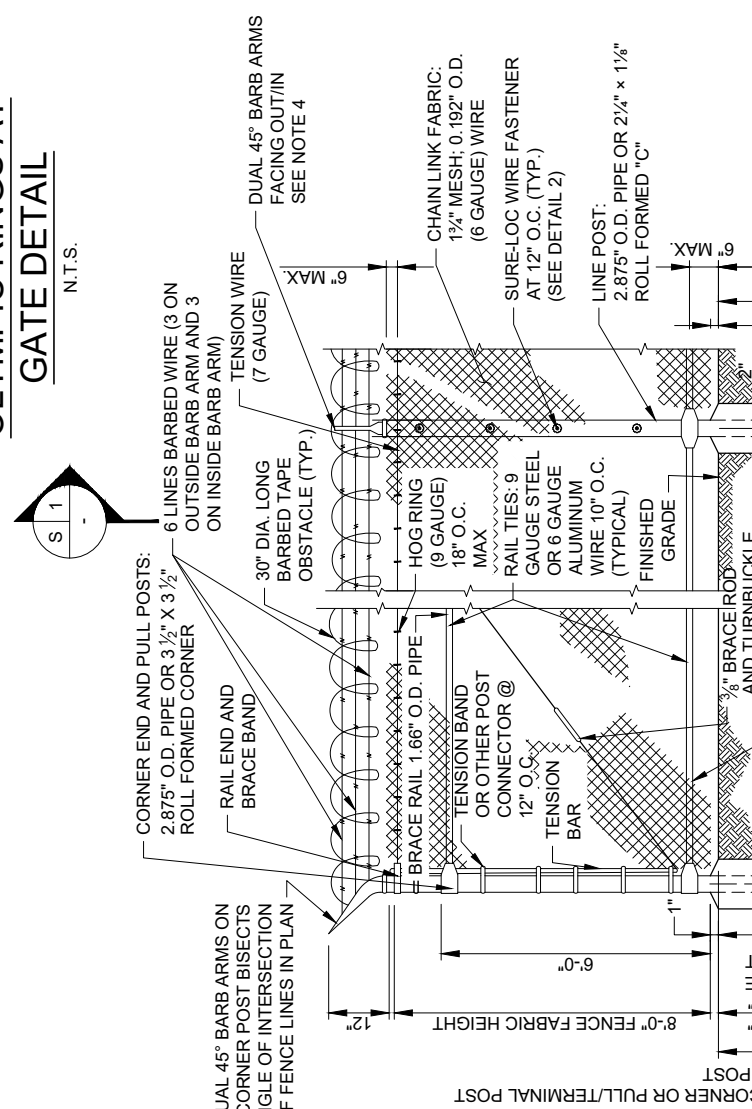


LINE POST DETAIL

TERMINAL POST DETAIL

NOTES:

1. BRACE RAIL AND 3/8" BRACE ROD AND TURNBUCKLE ON ONE BAY EACH SIDE OF CORNER, END, PULL AND GATE POSTS ONLY.
2. ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF THE CHAIN LINK FENCE.
3. CONCRETE FOOTING FOR GATE POSTS SHALL BE 18" DIAMETER.
4. SURE-LOC POWER DRIVEN WIRE FASTENER AND HARDWARE MANUFACTURED BY SECURITY FABRICATORS INC. OF KENILWORTH NJ, NO SUBSTITUTION PERMITTED. APPLY GALVANIZED TOUCH-UP PAINT TO SURE-LOC FASTENERS AFTER INSTALLATION. USE 1-3/16" FASTENERS FOR 1-3/4" MESH FENCE.
5. INCLUDE BARBED WIRE TOP UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS.



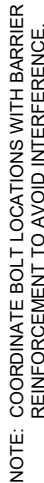
The diagram illustrates the construction of a Medium Security Galvanized Steel Chain Link Fence (Type 2A). It includes a cross-section view at the top and two detailed views of the fence posts: a 'TERMINAL POST DETAIL' and a 'LINE POST DETAIL'.

**Cross-Section View:** Shows a circular cross-section of the fence. The top half is labeled 'SECTION'. The bottom half is divided into two equal parts, each labeled 'S'. The total width of the cross-section is indicated as 4'-0" and 3'-6".

**TERMINAL POST DETAIL:** Shows a cross-section of the terminal post. The post is 14" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep. The post is 1/2" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep. The post is 1/2" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep.

**LINE POST DETAIL:** Shows a cross-section of the line post. The post is 14" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep. The post is 1/2" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep. The post is 1/2" in diameter and is set in a 12" concrete footing. The footing is 4'-0" wide and 3'-6" deep.

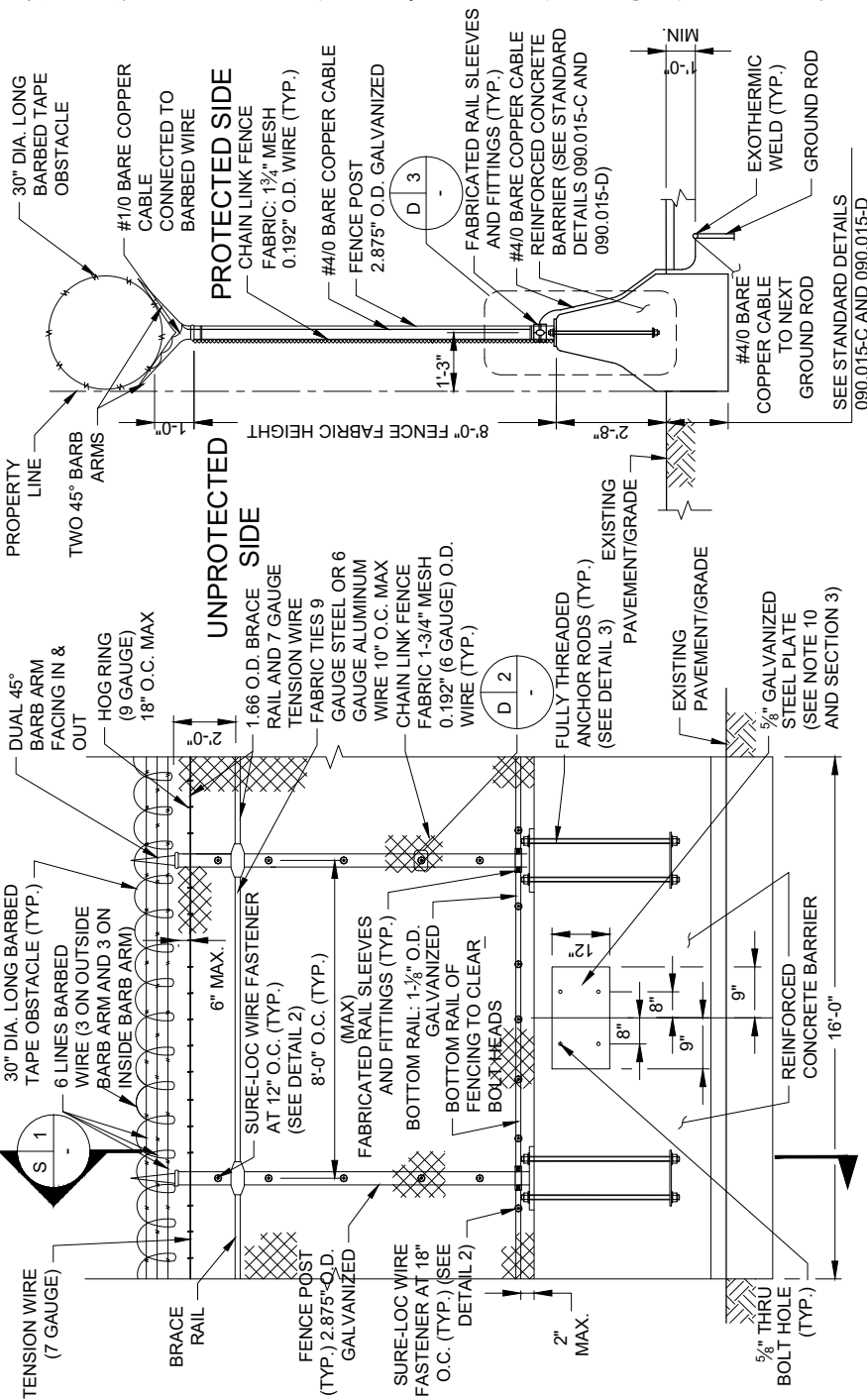
11. FOR REINFORCED CONCRETE BARRIER REQUIREMENTS, SEE STANDARD DETAIL 090.015-E.





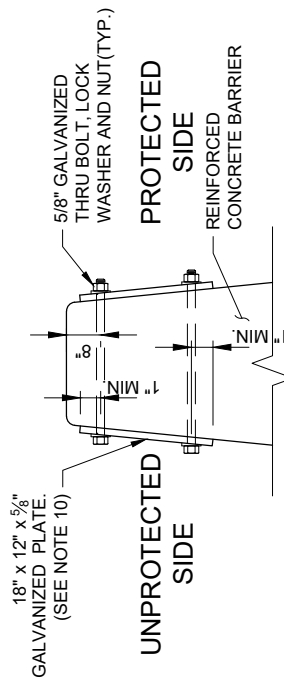
NOTES:

- ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF THE CHAIN LINK FENCE.
- SURE-LOC POWER DRIVEN WIRE FASTENER AND HARDWARE MANUFACTURED BY SECURITY FABRICATORS INC. OF KENILWORTH NJ, NO SUBSTITUTION PERMITTED. APPLY GALVANIZED TOUCH-UP PAINT TO SURE-LOC FASTENERS AFTER INSTALLATION. USE 1-3/16" FASTENERS FOR 1-3/4" MESH FENCE.
- ANCHOR RODS SHALL BE ASTM A36 MINIMUM GALVANIZED IN ACCORDANCE WITH ASTM A123 AND SHALL BE INSTALLED WITH WASHER AND NUT.
- BARBED WIRE AND LONG BARBED TAPE OBSTACLE SHALL BE INSTALLED ON ALL FENCE. FENCE TOPPED WITH BARBED WIRE AND LONG BARBED TAPE OBSTACLE SHALL BE INSTALLED 15" INSIDE PROPERTY LINE. SEE SECTION S1.
- LONG BARBED TAPE OBSTACLE ON GATE FRAMES SHALL BE "OLYMPIC RING" STYLE. SEE DETAIL ON STANDARD DETAILS 090.014.
- LONG BARBED TAPE OBSTACLE SHALL CONFORM TO ASTM F1910 ITEM 13.
- CORNER, END AND PULL/TERMINAL, POSTS SHALL BE 3.500" O.D. PIPE. FOR DETAILS, SEE STANDARD DETAILS 090.013-B. FOR GATE POSTS, SEE DETAILS AND GATE POSTS TABLE ON STANDARD DETAILS 090.013-B.
- CONSTRUCT TOP BRACE RAIL, BRACE ROD AND TURNBUCKLE ON ONE WAY EACH SIDE OF CORNER, END, PULL/TERMINAL AND GATE POSTS ONLY. FOR DETAILS, SEE STANDARD DETAILS 090.013-B.
- FOR CONCRETE BARRIER AND FENCE ANCHOR DETAILS, SEE STANDARD DETAILS 090.015-C AND 090.015-D.
- FOR REINFORCED CONCRETE BARRIER REQUIREMENTS, SEE STANDARD DETAIL 090.015-E.



MEDIUM SECURITY CHAIN LINK FENCE  
WITH BARRIER EMBEDDED IN GRADE  
(TYPE 2B-1)

N.T.S.



NOTE: COORDINATE BOLT LOCATIONS WITH BARRIER REINFORCEMENT TO AVOID INTERFERENCE.

SECTION



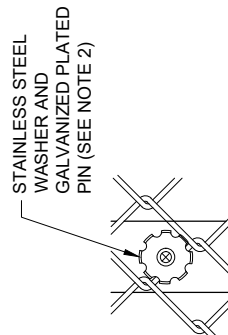
SECTION



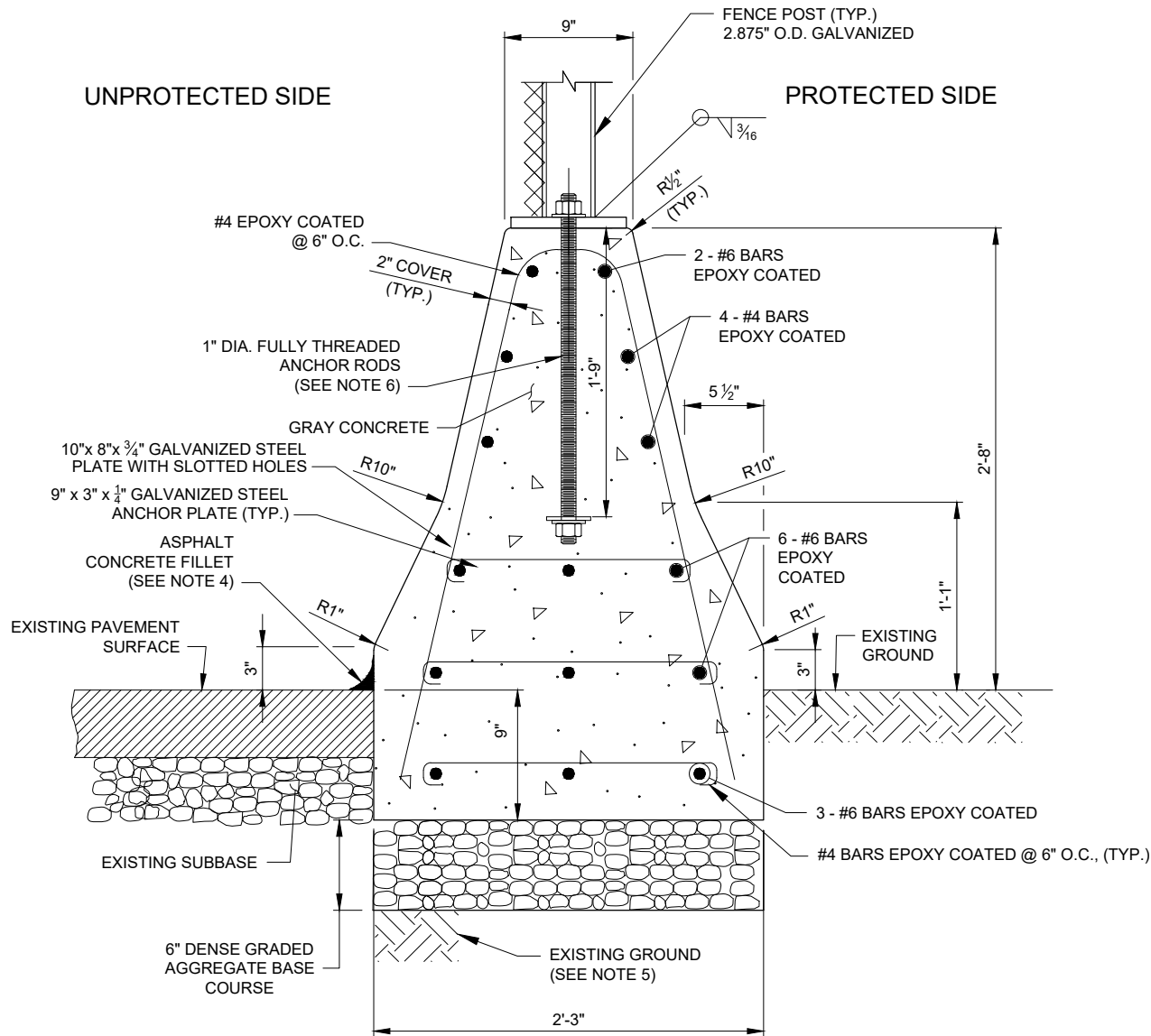
DETAIL



DETAIL



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> _____ <b>APPROVED BY</b> _____  <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b> _____	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>	090.015C
				<b>TITLE:</b> <b>EMBEDDED REINFORCED CONCRETE BARRIER DETAILS</b>	
				DETAIL SHEET 1 OF 3	



# **EMBEDDED CONCRETE BARRIER AT FLUSH GRADE**

(USED TO SEPARATE PAVED AREAS AND NON PAVED AREAS WITH FENCE)  
N.T.S.

(USED TO SEPARATE TWO FINISHED GRADES UP TO 9" MAX CHANGE, WITH FENCE)  
N.T.S.

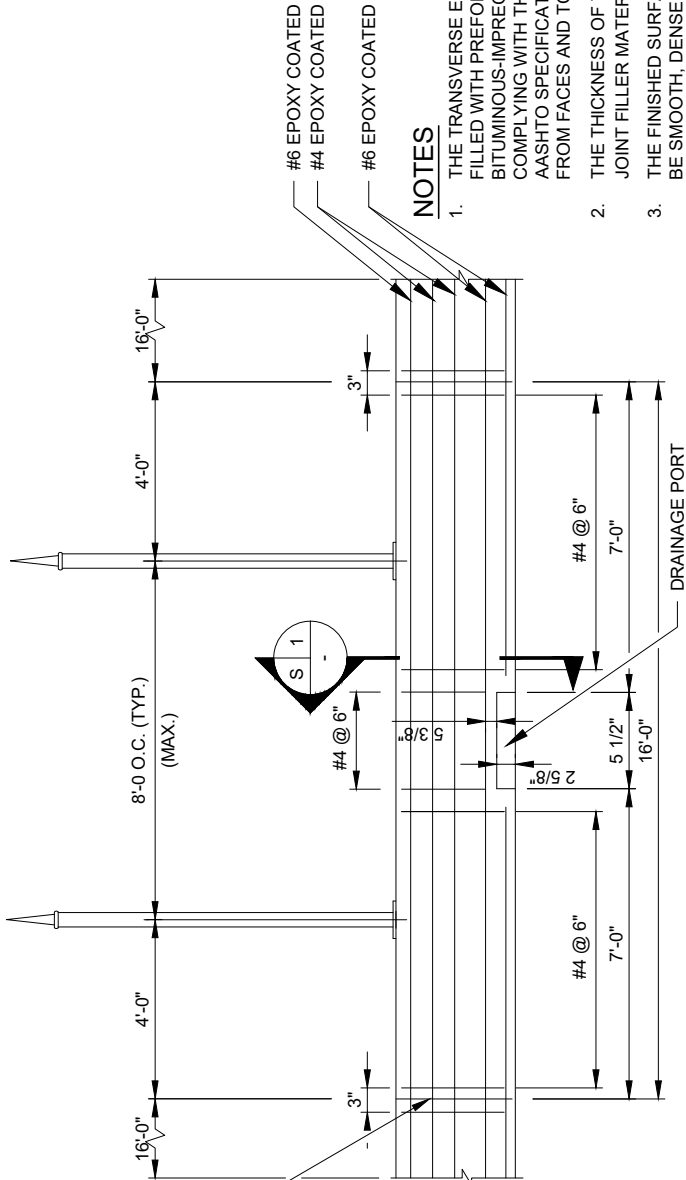
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NOTES

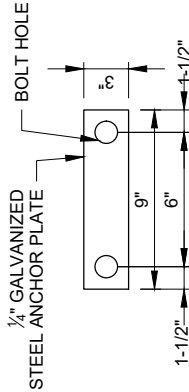
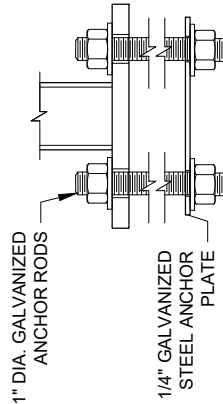
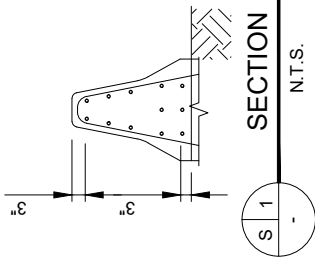
1. THE TRANSVERSE EXPANSION JOINTS SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO SPECIFICATION M-213, RECESSED 1" FROM FACES AND TOP OF BARRIER.
2. THE THICKNESS OF THE TRANSVERSE EXPANSION JOINT FILLER MATERIAL SHALL BE ½".
3. THE FINISHED SURFACE OF THE BARRIER SHALL BE SMOOTH, DENSE, UNPITTED AND FREE FROM AIR BUBBLE POCKETS, DEPRESSIONS AND HONEY COMB. IF THE ENGINEER DEEMS IT NECESSARY, THE CURB SHALL BE GIVEN A WOOD FLOAT FINISH RUBBED WITH A MIXTURE OF CEMENT, SAND AND WATER TO OBTAIN THE ABOVE-MENTIONED FINISHED SURFACE.
4. INSTALL ASPHALT JOINT FILLER WHERE CONCRETE BARRIER MEETS EXISTING PAVEMENT.
5. EXISTING GROUND SHALL BE COMPACTED TO 95% OF THE PROCTOR DENSITY.
6. FOR CONCRETE, STEEL AND MISCELLANEOUS MATERIALS, SEE STANDARD DETAIL 090.015E.
7. EACH SECTION OF CONCRETE BARRIER SHALL HAVE A DRAINAGE PORT.
8. ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF CHAIN LINK FENCE.

MONOLITHIC CONCRETE BARRIER  
ELEVATION, CAST IN PLACE OR PRECAST

N.T.S.

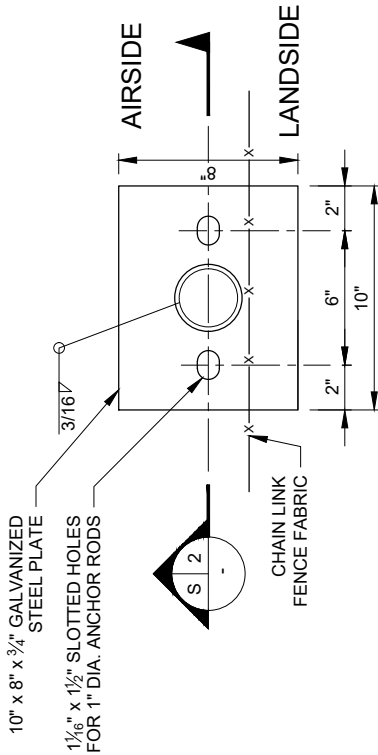


TRANSVERSE  
EXPANSION JOINT (TYP.)  
(SEE NOTE 1 AND 2)



ANCHOR PLATE

N.T.S.

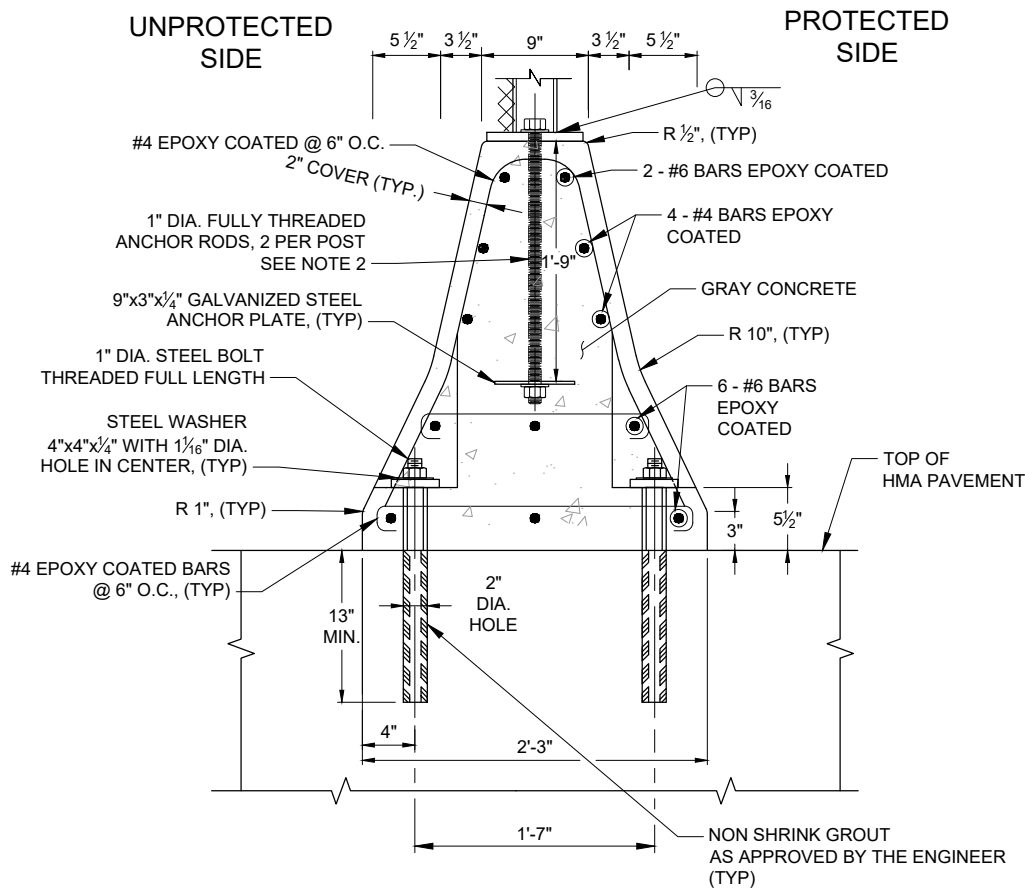


FENCE POST BASE PLATE

N.T.S.

1. FOR CONCRETE, STEEL AND MISCELLANEOUS MATERIALS, SEE STANDARD DETAIL 090.015E.
2. THREADED ANCHOR RODS SHALL BE ASTM F 1554 MINIMUM GALVANIZED IN ACCORDANCE WITH ASTM A123 AND SHALL BE INSTALLED WITH WASHER AND NUT.
3. ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF CHAIN LINK FENCE.

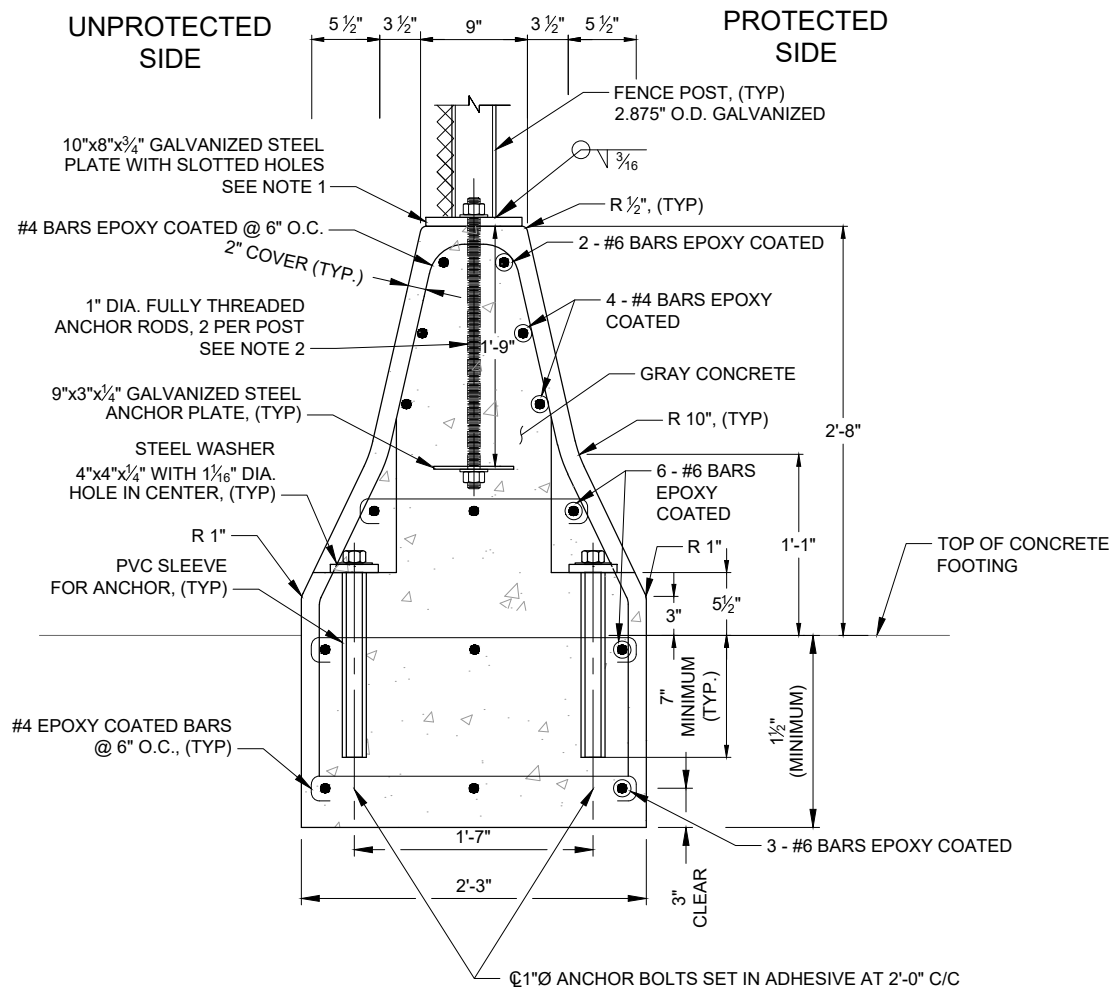
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: _____ APPROVED BY _____ CHIEF CIVIL ENGINEER      DATE _____	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	090.015-D
				TITLE: <b>REINFORCED CONCRETE BARRIER WITH ANCHOR DETAILS</b>	
				DETAIL SHEET 2 OF 4	



SECTION

CONCRETE BARRIER AT GRADE  
HOT MIX ASPHALT (HMA) PAVEMENT WITH ANCHOR BOLTS

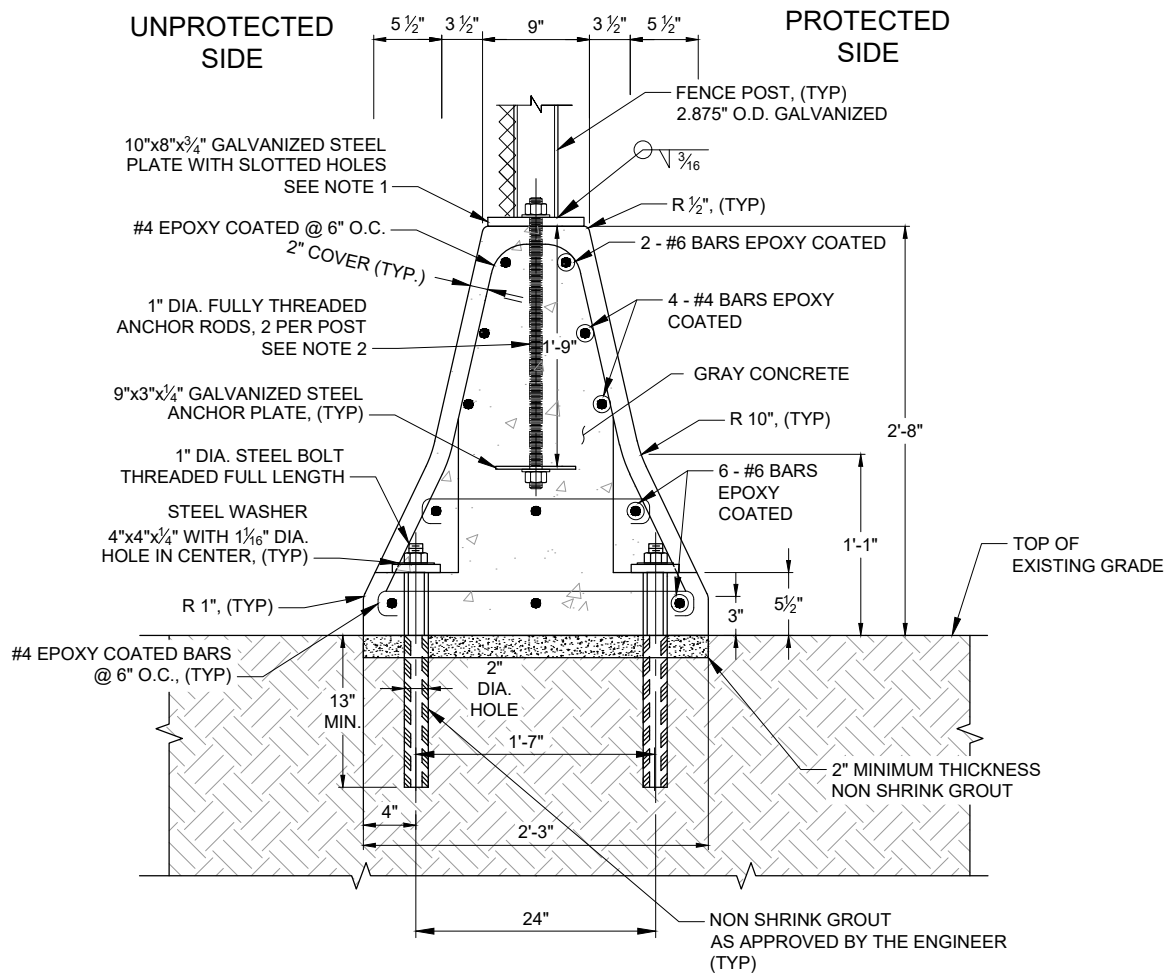
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: _____ APPROVED BY _____  CHIEF CIVIL ENGINEER      DATE _____	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	090.015-D
				<b>TITLE:</b> <b>REINFORCED CONCRETE BARRIER WITH ANCHOR DETAILS</b>	DETAIL SHEET 3 OF 4



SECTION

CONCRETE BARRIER AT GRADE  
CONCRETE FOOTING WITH ANCHOR BOLTS

<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: _____ APPROVED BY _____  CHIEF CIVIL ENGINEER      DATE	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	090.015-D
				<b>TITLE:</b> <b>REINFORCED CONCRETE BARRIER WITH ANCHOR DETAILS</b>	DETAIL SHEET 4 OF 4



SECTION

CONCRETE BARRIER AT GRADE WITH ANCHOR PINS  
SILTY SAND, CLAYEY SAND AND SILTY GRAVEL



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> _____ <b>APPROVED BY</b> _____  <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b> _____	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>	090.015-E
	NO.	DATE			
					<b>TITLE:</b> <b>REINFORCED CONCRETE BARRIER STRUCTURAL NOTES</b>
				<b>DETAIL SHEET 1 OF 2</b>	

REINFORCED CONCRETE BARRIER STRUCTURAL NOTES:

- 1.0    GENERAL
- 1.1    BARRIERS SHALL MEET NYSDOT OR NJDOT STANDARDS, AS APPROPRIATE. BARRIERS, INCLUDING ANCHORAGES TO PAVEMENT AND CONNECTIONS BETWEEN BARRIER SEGMENTS, SHALL CONFORM WITH AASHTO MANUAL FOR ASSESSMENT OF SAFETY HARDWARE (MASH) REQUIREMENTS.
- 1.2    ALL BARRIERS SHALL MEET THE FOLLOWING CRITERIA:
- 1.2A   BARRIERS SHALL PREVENT UNAUTHORIZED AND OUT OF CONTROL VEHICLES FROM ENTERING SECURED AREAS.
- 1.2B   BARRIERS MUST SUPPORT STANDARD 8 FOOT TALL SECURITY FENCE CONNECTED TO THE TOP OF BARRIER.
- 1.3    BARRIERS MUST BE EMBEDDED OR ANCHORED TO CONCRETE SLABS, CONCRETE FOOTINGS OR TO STEEL FRAMING WITH ANCHOR BOLTS, EXCEPT AS FOLLOWS: AT-GRADE BARRIERS MAY BE ANCHORED WITH ANCHOR PINS IF THE ENGINEER DETERMINES THEY ARE ADEQUATE TO RESIST THE DESIGN LOAD AND THE DEFLECTION OF THE BARRIER CAUSED BY IMPACT WILL BE ACCEPTABLE FOR THE APPLICATION.
- 1.4    THE NOMINAL LENGTH OF CAST IN PLACE AND PRECAST BARRIER SEGMENTS IS 16 FEET, BUT MAY BE MODIFIED TO A MINIMUM OF 10 FEET TO MEET CONDITIONS.
- 1.5    LOCATING A SECURITY BARRIER LEADING END OR CORNER WITHIN A ROADWAY’S CLEAR ZONE SHOULD BE AVOIDED. HOWEVER, IF A SECURITY BARRIER LEADING END OR CORNER MUST BE LOCATED WITHIN A ROADWAY’S CLEAR ZONE, AN IMPACT ATTENUATOR OR APPROVED EQUAL MUST BE PROVIDED TO PROTECT TRAFFIC.
- 2.0    STEEL
- 2.1    STEEL SHALL CONFORM TO AASHTO M270 GRADE 36 (ASTM A36 OR ASTM A709), OR AASHTO M270 GRADE 50 (ASTM A572).
- 2.2    BOLTS SHALL CONFORM TO AASHTO M164 (ASTM A325, TYPE 1); NUTS SHALL CONFORM TO AASHTO M291 (ASTM A563); WASHERS SHALL CONFORM TO AASHTO M293 (ASTM F436, GRADE DH).    THREADED ANCHOR RODS SHALL BE HIGH STRENGTH, CONFORMING TO ASTM F1554 UNLESS OTHERWISE NOTED.    ALL BOLTS, NUTS, WASHERS, THREADED ANCHOR RODS AND COUPLINGS, SHALL BE HOT-DIP GALVANIZED IN CONFORMANCE WITH ASTM A153, UNLESS OTHERWISE NOTED.
- 2.3    THE USE OF OVERSIZED OR SLOTTED BOLT HOLES IS NOT PERMITTED, UNLESS OTHERWISE NOTED.
- 2.4    WELDING ELECTRODES SHALL BE THE FOLLOWING:
- 2.4.A    CARBON STEEL TO CARBON STEEL - E70.
- 2.4.B    GRADE 60 REINFORCING STEEL - E90.
- 2.5    ALL SHOP AND FIELD WELDS SHALL BE MADE BY CERTIFIED WELDERS AND SHALL CONFORM TO AWS D1.5 FOR BRIDGES AND AWS D1.1 FOR OTHER STRUCTURES, UNLESS NOTED OTHERWISE. SURFACES TO BE WELDED SHALL HAVE NO SCALE, SLAG, RUST, MOISTURE, GREASE, OR ANY MATERIAL THAT WILL PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES. WELDING SHALL BE SHIELDED METAL ARC WELDING USING PROPERLY DRIED ELECTRODES. ALL WELDS SHALL DEVELOP THE FULL STRENGTH OF THE MEMBERS OR COMPONENTS BEING CONNECTED, UNLESS NOTED OTHERWISE.
- 2.6    WELDING OPERATIONS AND FINAL TORQUING OF BOLTS SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER
- 3.0    CONCRETE
- 3.1    CAST-IN-PLACE AND PRECAST CONCRETE SHALL BE CATEGORY IV CONCRETE, CONSTRUCTED IN ACCORDANCE WITH SPECIFICATION SECTION 033010 AND SHALL REACH A MINIMUM 28 DAY COMPRESSIVE STRENGTH (FC) OF 5,000 PSI.
- 3.2    TOP SURFACE AND VERTICAL SURFACES OF BARRIERS SHALL BE COATED WITH SILANE SEALER.
- 3.3    CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.
- 3.4    ALL REINFORCEMENT FOR PRECAST UNITS AND CAST-IN-PLACE SLAB SHALL BE EPOXY COATED AS SPECIFIED IN NOTE 4.1. ANY AND ALL ADDITIONAL REINFORCEMENT DEEMED NECESSARY BY THE CONTRACTOR FOR CONTROL OF CONCRETE STRESSES DURING LIFTING, TRANSPORT AND ERECTION OPERATIONS SHALL BE EPOXY COATED AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE AUTHORITY.
- 3.5    DETAILING AND FABRICATION OF REINFORCING STEEL AND PLACEMENT OF CONCRETE SHALL CONFORM TO THE MOST STRINGENT REQUIREMENTS OF THE LATEST EDITION OF THE FOLLOWING:
- 3.5.A    AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
- 3.5.B    AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE DESIGN SPECIFICATIONS.
- 3.5.C    OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.
- 3.6    SEAL JOINT BETWEEN BARRIER AND PAVEMENT WITH ASPHALT JOINT FILLER.
- 3.7    COMPACT SUBGRADE IN ACCORDANCE WITH SPECIFICATION SECTION 312323.
- 3.8    PRECAST BARRIERS AT GRADE SHALL BE FROM ONE OF THE FOLLOWING MANUFACTURERS OR APPROVED EQUAL:

KISTNER CONCRETE PRODUCTS INC.  
5550 HINMAN ROAD,. LOCKPORT, NY 14094  
(716) 508 5550

TRINITY HIGHWAY  
2525 N. STEMMONS FREEWAY, DALLAS, TEXAS 75207  
(214) 631 4420

THE FORT MILLER CO., INC.  
707 WILBUR AVENUE, GREENWICH, NY 12834  
(518) 695 5000

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> _____ <b>APPROVED BY</b> _____  <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b> _____	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>	090.015-E	<b>TITLE:</b> <b>REINFORCED CONCRETE BARRIER STRUCTURAL NOTES</b>
	NO.	DATE				
						<b>DETAIL SHEET 2 OF 2</b>

REINFORCED CONCRETE BARRIER STRUCTURAL NOTES: (CONT'D)

- 4.0. MISCELLANEOUS MATERIALS
- 4.1. CONCRETE REINFORCEMENT SHALL BE CONSTRUCTED IN CONFORMANCE WITH SPECIFICATION SECTION 033110. REINFORCING BARS (REBARS) AND DOWELS SHALL BE AASHTO M31 (ASTM A615 GRADE 60). REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775. REINFORCING BAR COUPLERS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, UNLESS OTHERWISE NOTED. WELDED WIRE REINFORCING SHALL BE ASTM A1064, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A1060, CLASS I (3.5 OUNCES OF ZINC GALVANIZING PER SQUARE FOOT). TIE WIRES SHALL BE 16 GAGE ANNEALED TYPE, NYLON COATED.
- 4.2. ADHESIVE ANCHORS:
- 4.2.A. THREADED ROD ADHESIVE ANCHORS SHALL BE HIGH STRENGTH, CONFORMING TO ASTM F 1554, UNLESS NOTED OTHERWISE. REBAR ADHESIVE ANCHORS SHALL CONFORM TO AASHTO M31 (ASTM A615 GRADE 60), HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A153, UNLESS OTHERWISE NOTED.
- 4.2.B. ADHESIVE SYSTEMS FOR REBAR ADHESIVE ANCHORS AND THREADED ROD ADHESIVE ANCHORS, INCLUDING MANUFACTURER'S APPLICATION SYSTEM FOR INSTALLATION IN DRILLED HOLES, SHALL BE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
- 4.2.B.1. "HVA ADHESIVE ANCHOR SYSTEM" AS MANUFACTURED BY HILTI CORP., TULSA, OK.
- 4.2.B.2. "EPCON CERAMIC 6 EPOXY ANCHORING SYSTEM" AS MANUFACTURED BY ITW RAMSET/RED HEAD, WOODDALE, IL.
- 4.3. GROUT FOR THREADED RODS, GROUTED DOWELS AND ANCHOR BOLTS NOT IDENTIFIED AS ADHESIVE ANCHORS SHALL BE NON-SHRINK NON-METALLIC GROUT, AND SHALL CONFORM TO ASTM C1107, GRADE C AND SHALL OBTAIN A COMPRESSIVE STRENGTH OF 500 PSI IN A 10 HOUR CURE TIME. GROUT SHALL BE ONE OF THE FOLLOWING, OR APPROVED EQUAL:
- 4.3.A. "EUCO NON-SHRINK GROUT" AS MANUFACTURED BY EUCLID CHEMICAL CO., CLEVELAND, OH.
- 4.3.B. "FIVE STAR GROUT" AS MANUFACTURED BY FIVE STAR PRODUCTS INC., FAIRFIELD, CT.
- 4.3.C. "SIKA 212" AS MANUFACTURED BY SIKA CORPORATION, LYNDHURST, NJ.
- 4.4. ASPHALT JOINT FILLER SHALL BE RUBBERIZED ASPHALT SEALANT, MEETING FEDERAL SPECIFICATION SS-S-1401 C, HOT APPLIED AND IN ACCORDANCE WITH SPECIFICATION SECTION 321374.
- 4.5. JOINT SEAL SHALL BE "SONOLASTIC SL2 SEALANT" WITH BACKER ROD AS MANUFACTURED BY SONNEBORN, SHAKOPEE, MN, OR APPROVED EQUAL.
- 4.6. ALL JOINTS BETWEEN BARRIER SEGMENTS SHALL BE SEALED WITH JOINT SEAL.

CIVIL DESIGN TYPICAL DETAILS

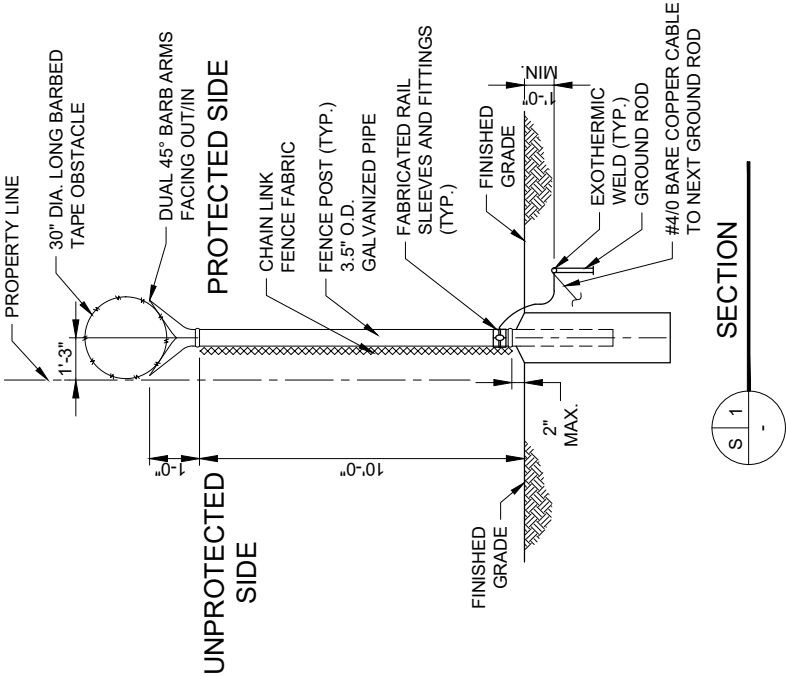
NOTES FOR DESIGNER:

1. REFER TO "PNYNJ SECURITY CHAIN LINK FENCE CIVIL ENGINEERING STANDARD DETAILS: GUIDELINES FOR USE AND DESIGN CONSIDERATIONS". FOR ADDITIONAL INFORMATION AND CONSULT WITH SECURITY MANAGER TO INCORPORATE OTHER MEASURES BASED ON FACILITY NEEDS SUCH AS PIDS SYSTEM AND WILDLIFE MANAGEMENT (E.G. ANIMAL DIG BARRIER).

2. HIGH SECURITY FENCING IS INTENDED FOR ENCLOSURE OF HIGH-CRITICALITY ASSETS. THIS FENCE TYPE SHOULD BE USED FOR NEW CONSTRUCTION OF COMPLETE ENCLOSURES. FOR RENOVATION PROJECTS, DISCUSS APPLICABILITY WITH THE SECURITY MANAGER.

3. SURE-LOC WIRE FASTENERS IS A SOLE SOURCE ITEM. FOLLOW ALL INSTRUCTIONS SPECIFIED IN EADD ADVISORY BULLETIN WITH THE SUBJECT "SOLE SOURCE - PRODUCTS / SERVICES / BRANDS". REVISE DETAIL AS REQUIRED FOR SPECIAL REQUIREMENTS - SEE INSTRUCTION TO SPEC. 323112.

4. REVISE "TITLE IF ALUMINIZED OR PVC COATED CLF FABRIC IS USED. FOR PVC COATED, INDICATE THE COLOR FOR THE PVC. PEDESTRIAN AND VEHICULAR GATE ACCESS CONTROL OPTIONS FOR HIGH SECURITY FENCE ARE RATED INTEGRAL HIGH-SECURITY KEY LOCK WITH DESTRUCTIVE ENTRY PROTECTION, COMBINATION ELECTRONIC KEYPAD / PROXIMITY CARD ACCESS CONTROL, AND / OR ELECTRONIC REMOTE CONTROLLED ACCESS. REVISE DETAIL TO SPECIFY AS REQUIRED.

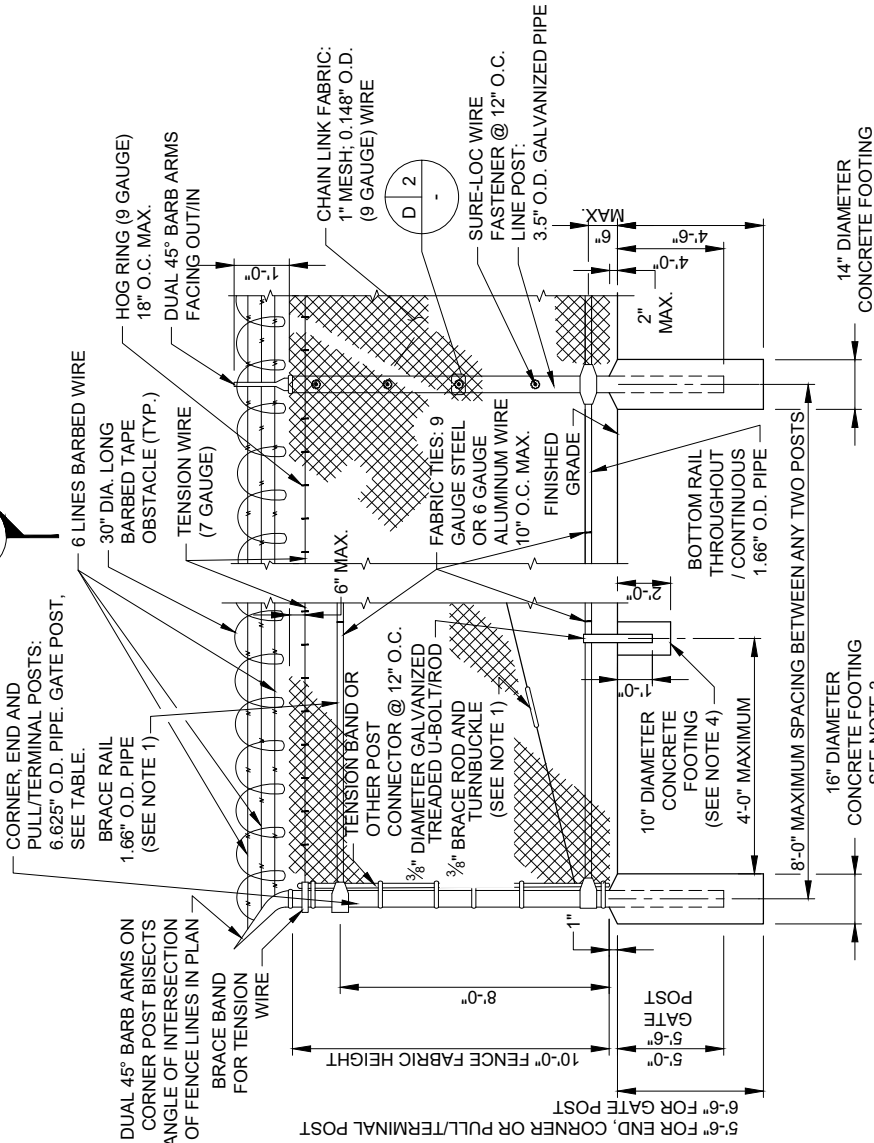
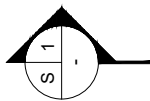


NOTES:

- BRACE RAIL AND 3/8" BRACE ROD AND TURNBUCKLE ON ONE BAY EACH SIDE OF CORNER, END, PULL, AND GATE POSTS ONLY.
- ALL BOLT NUTS AND WASHERS SHALL BE LOCATED ON THE PROTECTED SIDE OF THE CHAIN LINK FENCE.
- CONCRETE FOOTING FOR GATE POSTS SHALL BE 18" DIAMETER.
- CONSTRUCT FOOTING BETWEEN ALL LINE POSTS AND LINE POSTS AND END/CORNER/GATE POSTS.
- SURE-LOC POWER DRIVEN WIRE FASTENER AND HARDWARE MANUFACTURED BY SECURITY FABRICATORS INC. OF KENILWORTH NJ. NO SUBSTITUTION PERMITTED. APPLY GALVANIZED TOUCH-UP PAINT TO SURE-LOC FASTENERS AFTER INSTALLATION. USE 1" FASTENERS FOR 1" MESH FENCE.
- BARBED WIRE AND LONG BARBED TAPE OBSTACLE SHALL BE INSTALLED ON ALL FENCE. FENCE TOPPED WITH BARBED WIRE AND LONG BARBED TAPE OBSTACLE SHALL BE INSTALLED 15" INSIDE PROPERTY LINE. SEE SECTION 1 & 2.
- LONG BARBED TAPE OBSTACLE ON GATE FRAMES SHALL BE "OLYMPIC RING" STYLE. SEE STANDARD DETAIL 090.014.
- LONG BARBED TAPE OBSTACLE SHALL CONFORM TO ASTM F1910 ITEM 15.
- BOLT BARBED WIRE ARMS TO POSTS.



SECTION



LINE POST DETAIL



TERMINAL POST DETAIL



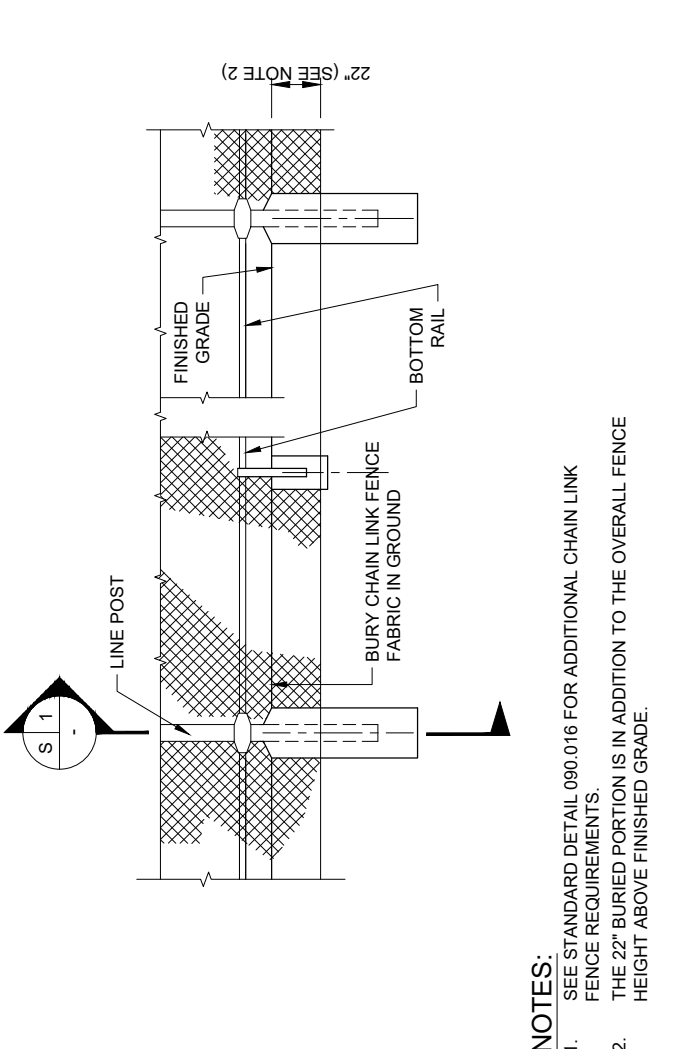
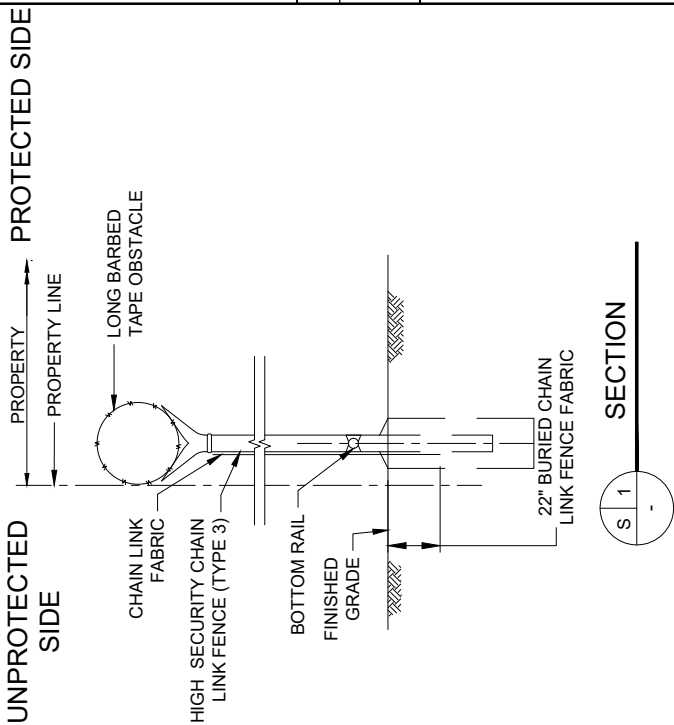
GATE POSTS		
PIPE SIZE	SWING GATE OPENINGS	
NOMINAL O.D. PIPE	SINGLE GATE	DOUBLE GATE
4.000"	UP THRU 6'	UP THRU 12'
6.625"	7' THRU 13'	13' THRU 26'
8.625"	14' THRU 18'	27' THRU 36'

HIGH SECURITY GALVANIZED STEEL  
CHAIN LINK FENCE (TYPE 3)  
N.T.S.

REVISION	
NO.	DATE

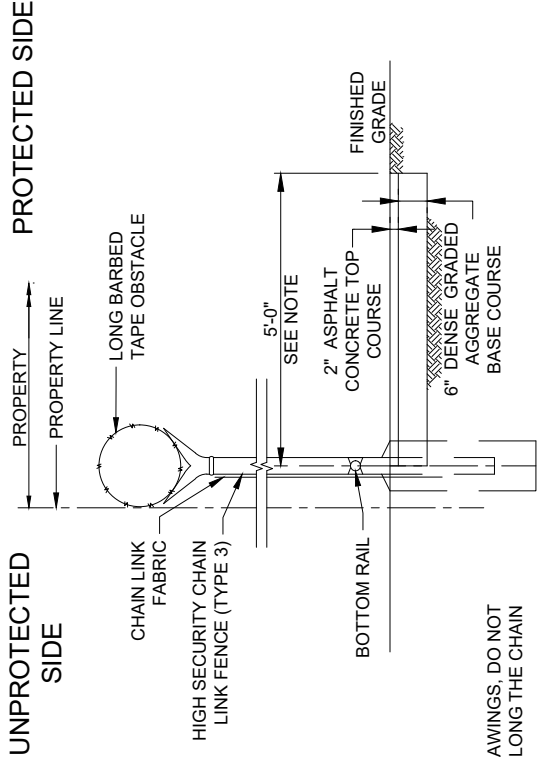
CIVIL DESIGN TYPICAL DETAILS

NOTES FOR DESIGNER:  
1. REFER TO "PANYNJ SECURITY CHAIN LINK FENCE CIVIL ENGINEERING STANDARD DETAILS: GUIDELINES FOR USE AND DESIGN CONSIDERATIONS", FOR ADDITIONAL INFORMATION ON DETERMINATION OF FENCE SECURITY LEVEL, DESIGN OPTIONS, AND SITE IMPLEMENTATION.  
2. BURIED CHAIN LINK FABRIC DETAIL AND PAVED PAD DETAIL ARE FOR HIGH SECURITY TYPE 3 FENCE APPLICATION ONLY.  
3. INCLUDE EACH DETAIL ONLY IF REQUIRED BY THE SECURITY MANAGER.



BURIED CHAIN LINK FABRIC DETAIL

N.T.S.

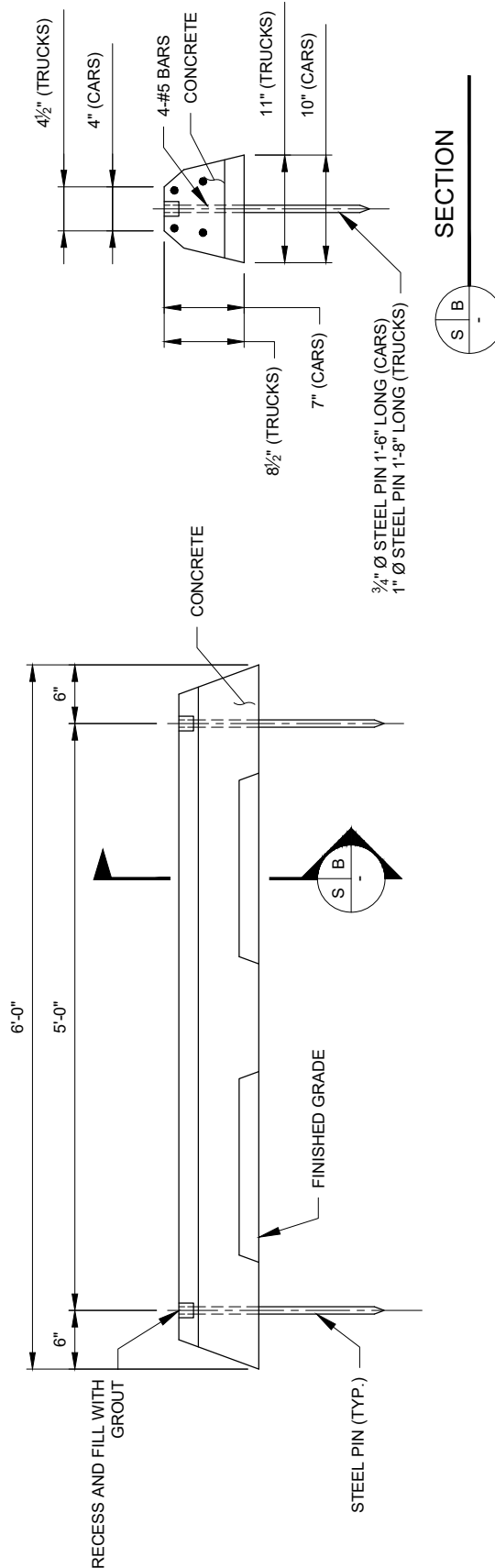
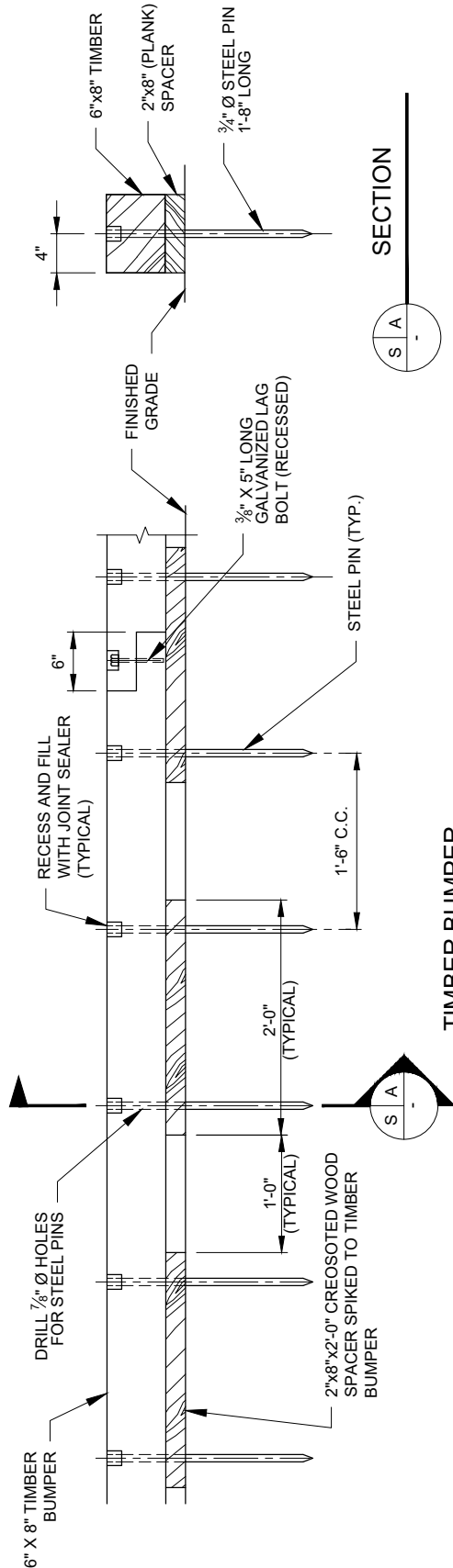


PAVED PAD DETAIL

N.T.S.

- NOTES:
- SEE STANDARD DETAIL 090.016 FOR ADDITIONAL CHAIN LINK FENCE REQUIREMENTS.
  - THE 22" BURIED PORTION IS IN ADDITION TO THE OVERALL FENCE HEIGHT ABOVE FINISHED GRADE.

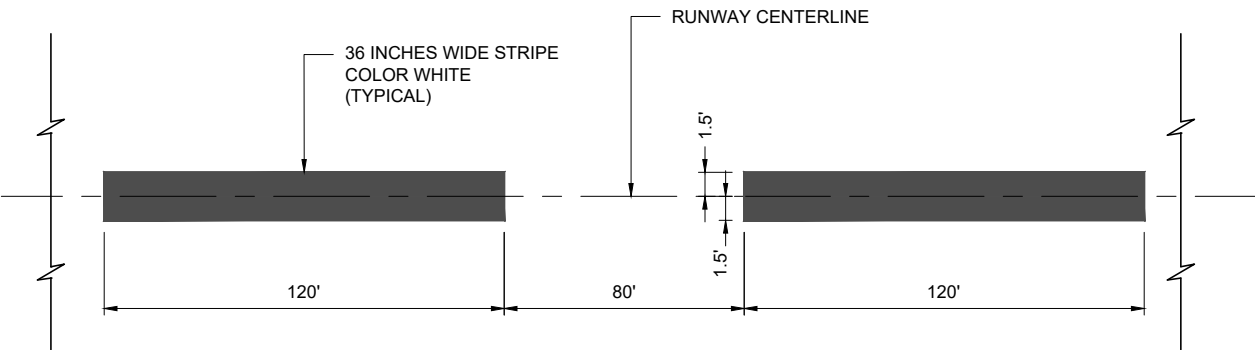
- NOTES:
- UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS, DO NOT CONSTRUCT THE 5'-0" PAVED PAD CONTINUOUSLY ALONG THE CHAIN LINK FENCE.



PRECAST CONCRETE BUMPER

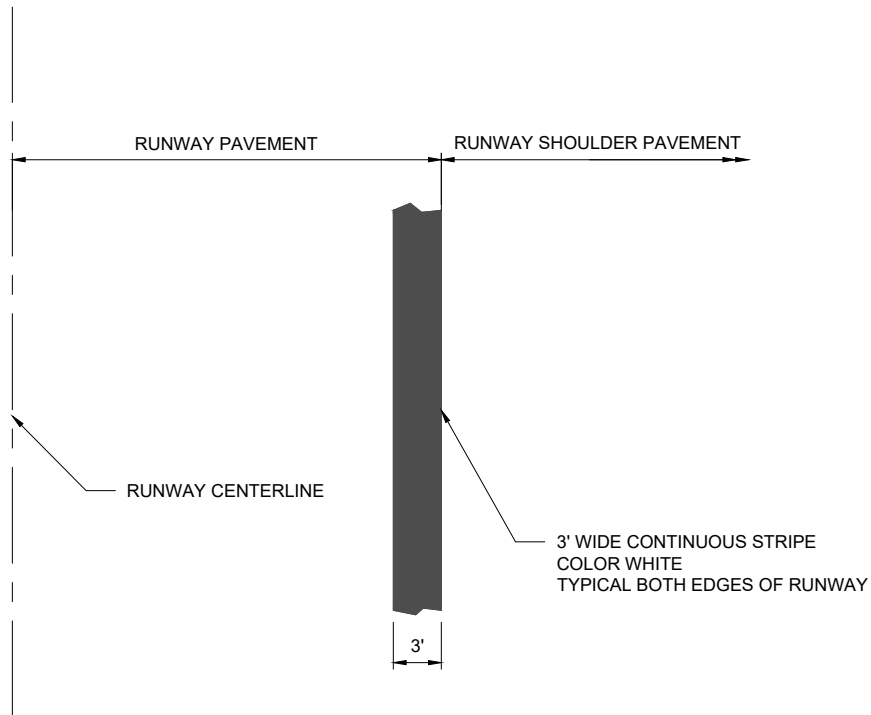
NOT TO SCALE

THE PORT AUTHORITY OF NY&NJ  ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	100.001	
	NO.	DATE				
				NOTES FOR DESIGNER:  1. IF REQUIRED, NEAR RUNWAY MIDPOINT, REDUCE THE LENGTH OF BOTH STRIPES (80 FEET MIN.) AND GAPS (40 FEET MIN.). STARTING FROM MINDPOINT AND PROCEED TOWARD RUNWAY THRESHOLD, MAINTAIN UNIFORM PATTERN.  2. ON CONCRETE PAVEMENT AND LIGHT-COLORED PAVEMENTS (OVER 2 YEARS OLD ASPHALT CONCRETE PAVEMENT), RUNWAY CENTERLINE MARKING SHALL BE ENHANCED WITH 6" WIDE BLACK BORDERS.	TITLE:  RUNWAY CENTERLINE MARKING	
	DATE CREATED: 12/09/2018					
	APPROVED BY					
06/20/2019						
CHIEF CIVIL ENGINEER	DATE		DETAIL SHEET 1 OF 1			



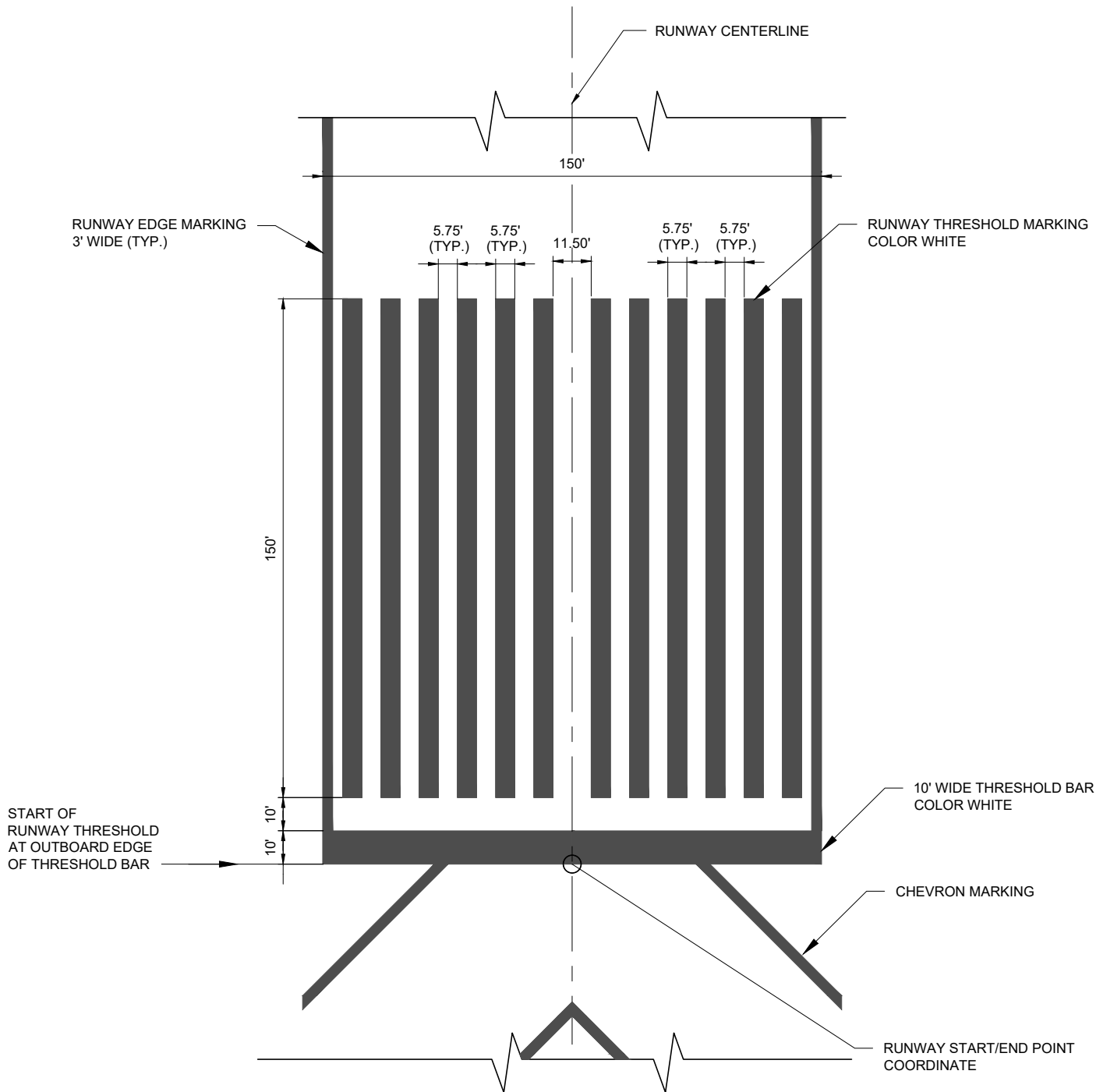
**RUNWAY CENTERLINE MARKING**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	100.002
	NO.	DATE			
DATE CREATED: 12/09/2018			<b>NOTES FOR DESIGNER:</b> 1. ON CONCRETE PAVEMENT AND/OR LIGHT-COLORED PAVEMENTS (OVER 2 YEARS OLD ASPHALT CONCRETE PAVEMENT), RUNWAY EDGE MARKING SHALL BE ENHANCED WITH 6" WIDE BLACK BORDERS. 2. WHEN A TAXIWAY CONNECTS TO A RUNWAY OR THE RUNWAY HAS TURN PADS OR TURNAROUNDS, THE RUNWAY EDGE MARKING REMAINS CONTINUOUS BETWEEN THE RUNWAY AND THE ADJOINING INFRASTRUCTURES.	TITLE:	
APPROVED BY				<b>RUNWAY EDGE MARKING</b>	
06/20/2019				DETAIL SHEET 1 OF 1	
CHIEF CIVIL ENGINEER	DATE				



**RUNWAY EDGE MARKING**  
NOT TO SCALE

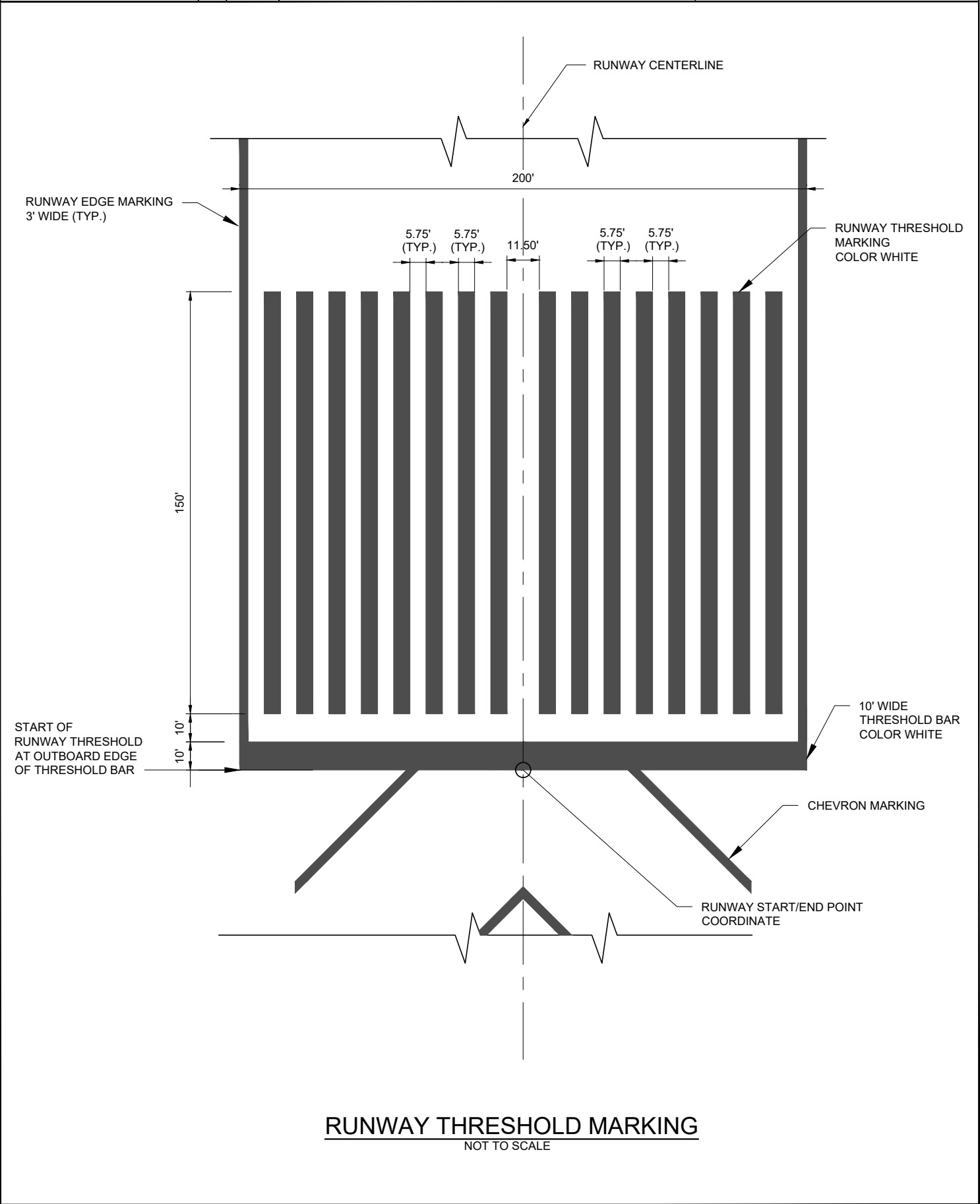
<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 12/09/2018</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		CIVIL DESIGN TYPICAL DETAILS	TYPICAL DETAIL NO.	100.003A
	NO.	DATE			
		NOTES FOR DESIGNER:		TITLE:	
		1. 150 FEET WIDE RUNWAYS WITH THRESHOLD AT END POINT INCLUDE:		<b>RUNWAY THRESHOLD MARKING DETAIL (150 FEET WIDE)</b>	
		<ul style="list-style-type: none"><li>LGA: RW13, RW31, RW4, RW22</li><li>EWR: RW11</li><li>SWF: RW16, RW34</li><li>TEB: RW6, RW24</li></ul>			
					DETAIL SHEET 1 OF 1



**RUNWAY THRESHOLD MARKING**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    200 FEET WIDE RUNWAYS WITH THRESHOLD AT RUNWAY END POINT INCLUDE: •   JFK: RW 4R AND 22L	TYPICAL DETAIL NO.	100.003B
	NO.	DATE		<b>TITLE:</b>  <b>RUNWAY THRESHOLD MARKING DETAIL (200 FEET WIDE)</b>	
				DETAIL SHEET   1 OF 1	



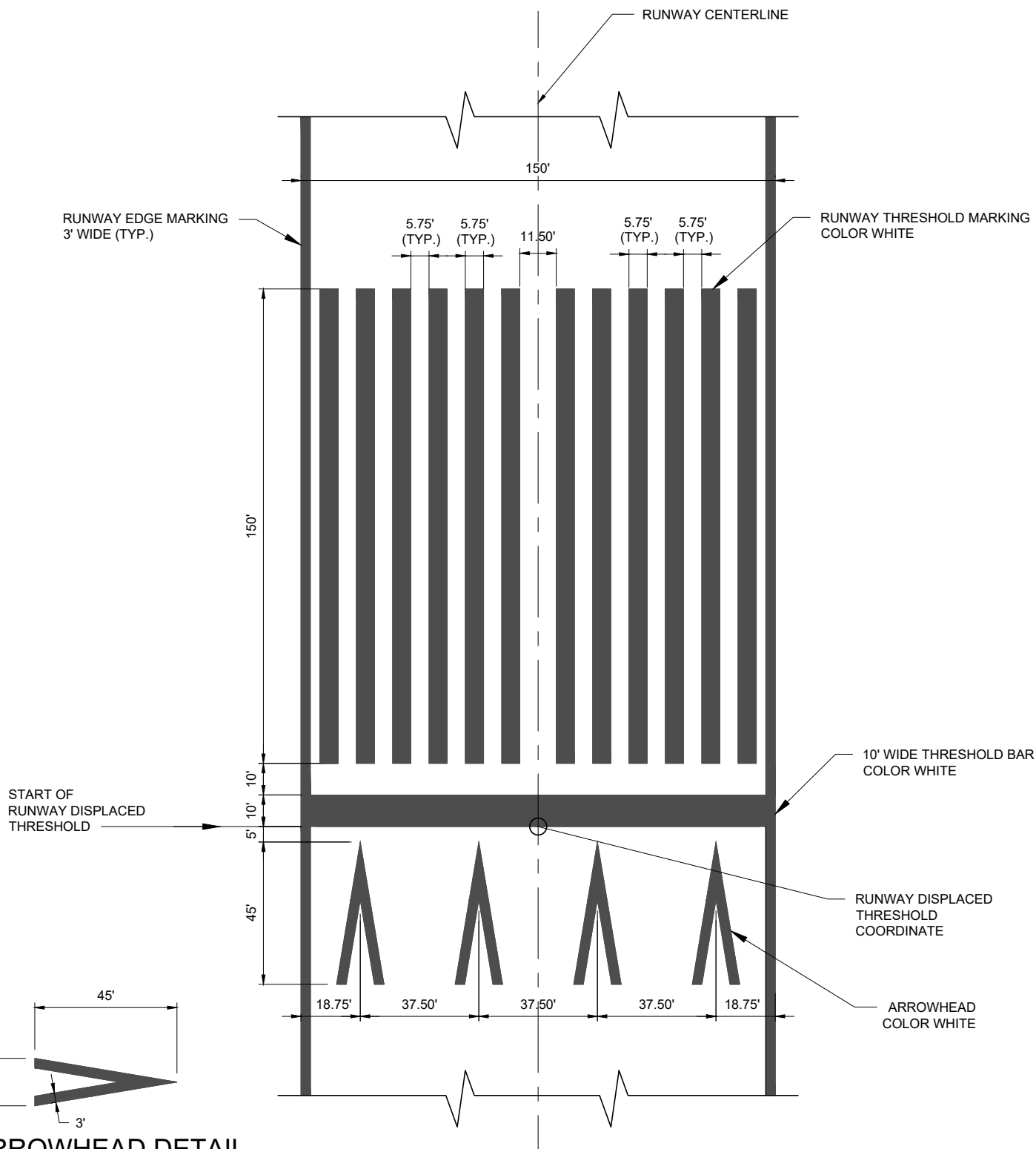
**NOTES FOR DESIGNER:**

- 150 FEET WIDE RUNWAYS WITH DISPLACED THRESHOLD INCLUDING
  - EWR: RW4L, RW22R, RW4R, RW22L, RW29
  - SWF: RW9, RW27
  - TEB: RW1, RW19

**TITLE:**

**RUNWAY DISPLACED  
THRESHOLD MARKING  
DETAIL (150 FEET WIDE)**

DETAIL SHEET 1 OF 1



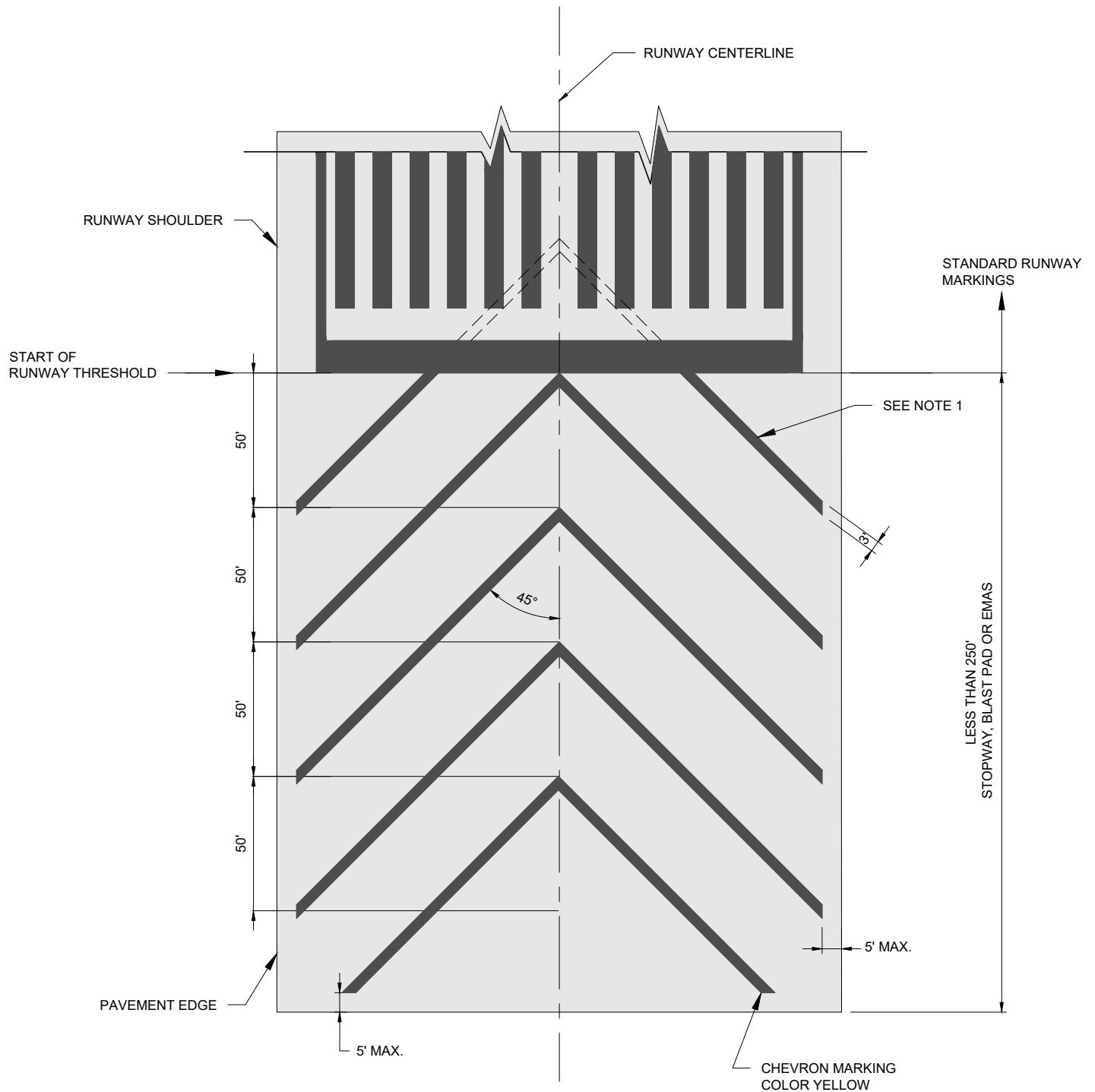
**ARROWHEAD DETAIL**

**RUNWAY DISPLACED THRESHOLD MARKING**

NOT TO SCALE

NOT TO SCALE





**NOTES:**

1. ONLY FULL CHEVRONS ARE REQUIRED WITH THE OPTION TO PAINT PARTIAL CHEVRONS.

**CHEVRON MARKING**  
NOT TO SCALE

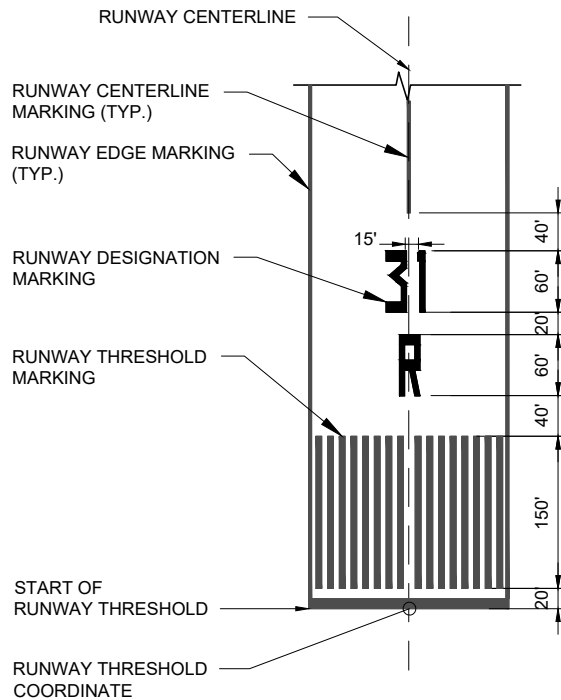
**NOTES FOR DESIGNER:**

1. DETAILS APPLIED TO JFK.
2. THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.

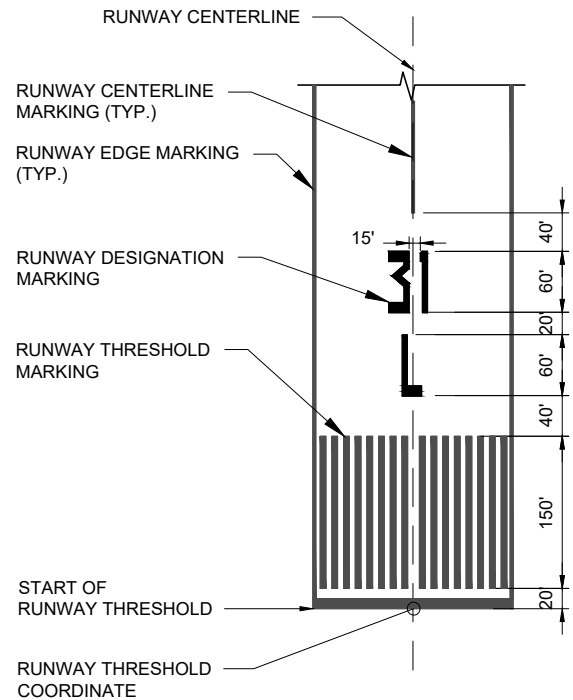
**TITLE:**

**RUNWAY DESIGNATION  
MARKINGS - JFK  
RUNWAY 13L, 31R, 13R & 31L**

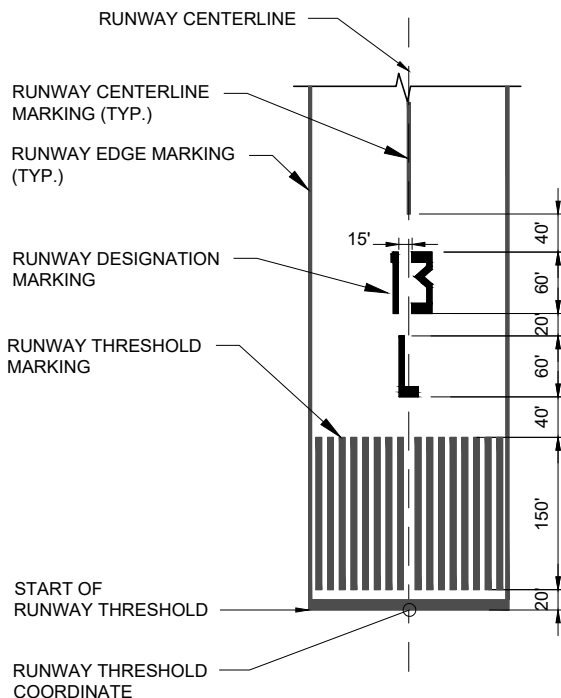
DETAIL SHEET 1 OF 8



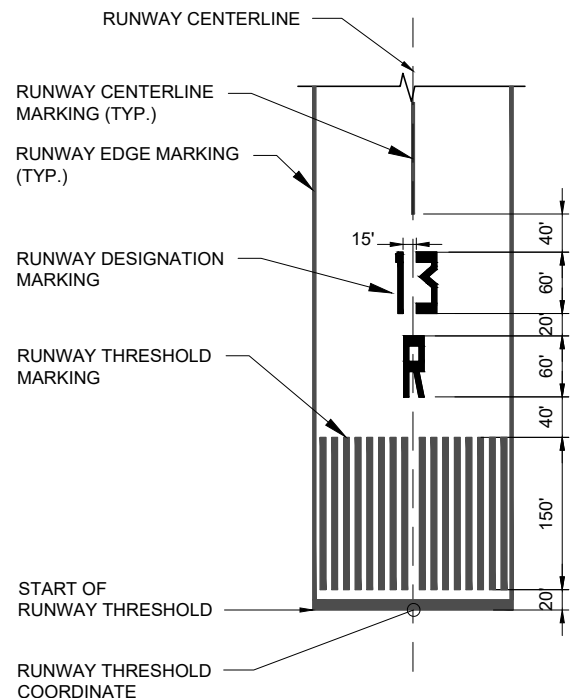
**RUNWAY DESIGNATION MARKING  
(RUNWAY 31R)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING  
(RUNWAY 31L)**  
NOT TO SCALE

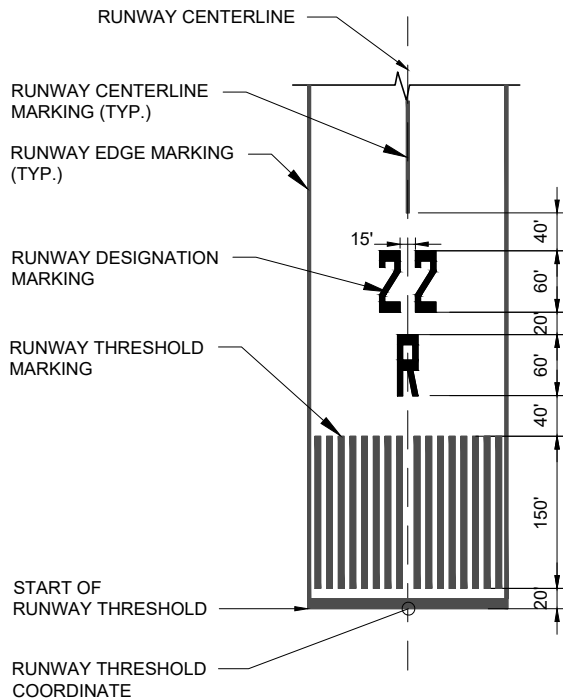


**RUNWAY DESIGNATION MARKING  
(RUNWAY 13L)**  
NOT TO SCALE

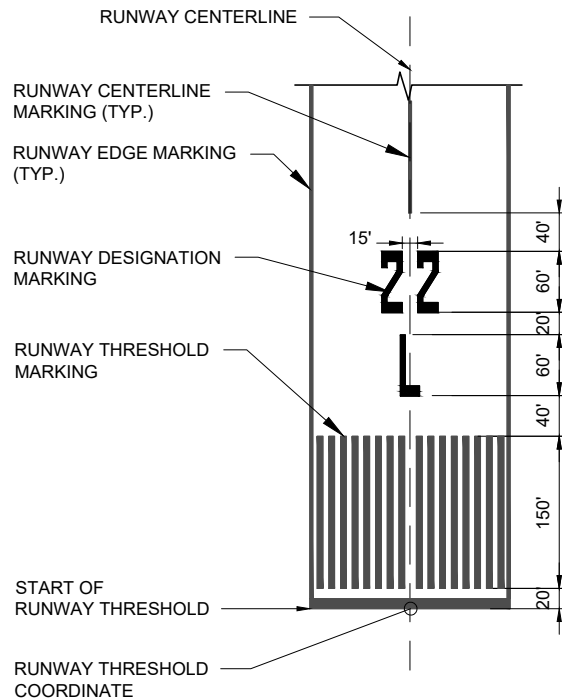


**RUNWAY DESIGNATION MARKING  
(RUNWAY 13R)**  
NOT TO SCALE

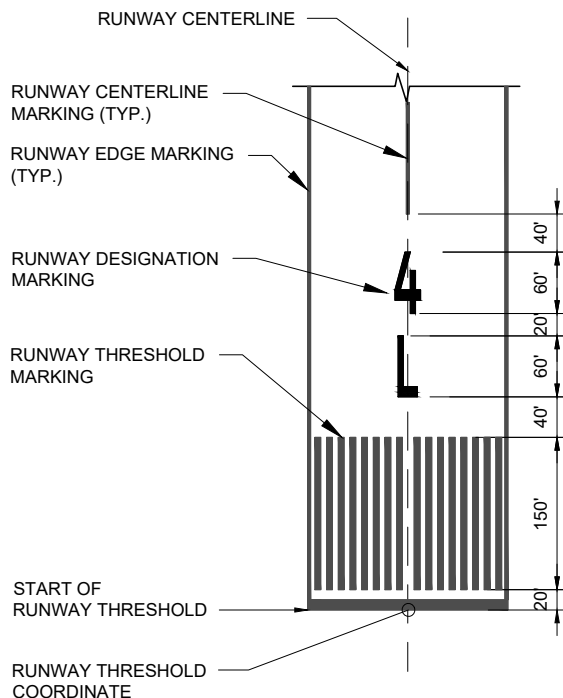
<b>THE PORT AUTHORITY</b> <b>OF NY &amp; NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>12/09/2018</u>  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    DETAILS APPLIED TO JFK. 2.    THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.	TYPICAL DETAIL NO.	100.006B
	NO.	DATE		<b>TITLE:</b>  <b>RUNWAY DESIGNATION</b>  <b>MARKINGS - JFK</b>  <b>RUNWAY 4L, 22R, 4R &amp; 22L</b>	
			DETAIL SHEET   2   OF   8		



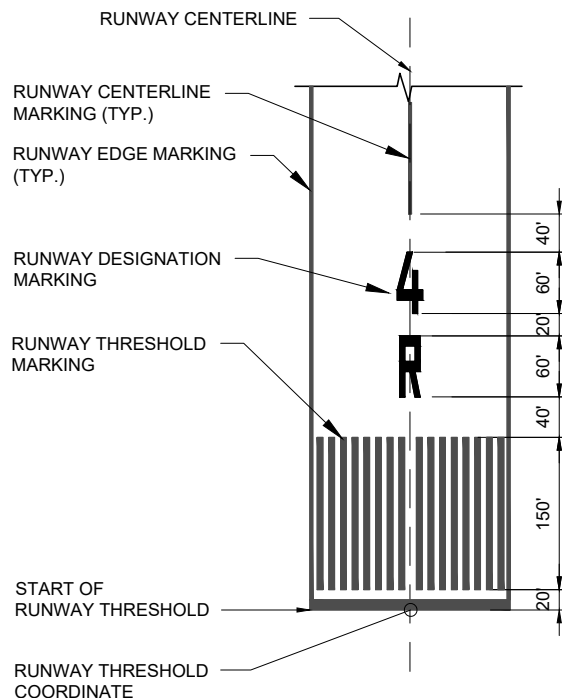
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 22R)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 22L)**  
NOT TO SCALE

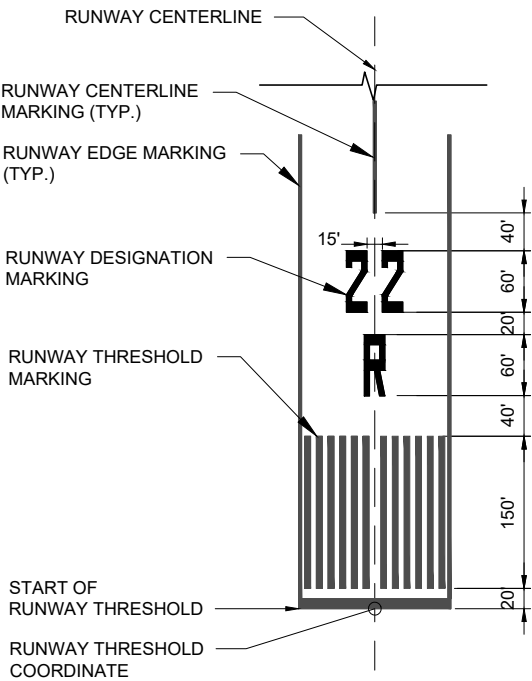


**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 4L)**  
NOT TO SCALE

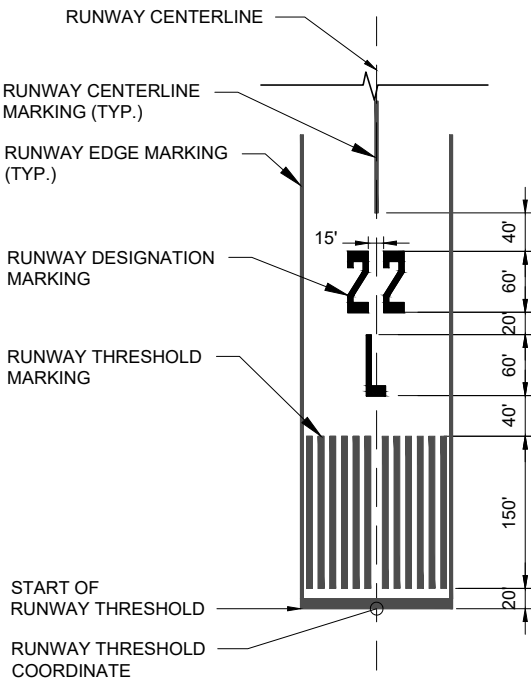


**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 4R)**  
NOT TO SCALE

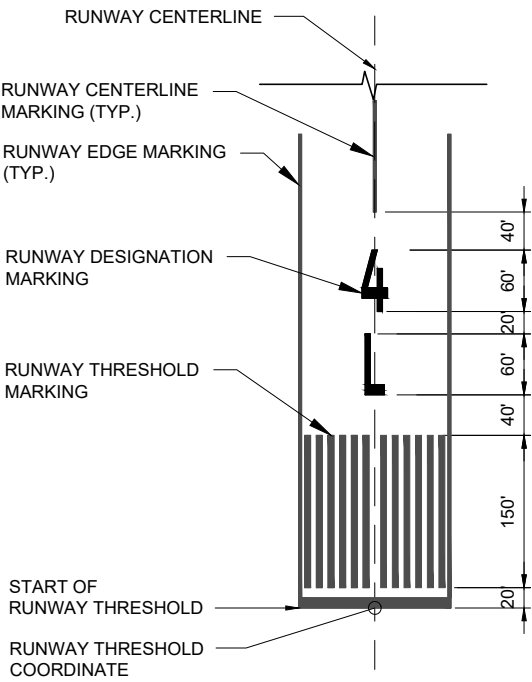
<b>THE PORT AUTHORITY</b> <b>OF NY &amp; NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>12/09/2018</u>  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    DETAILS APPLIED TO EWR. 2.    THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.	TYPICAL DETAIL NO.	100.006C
	NO.	DATE		<b>TITLE:</b>  <b>RUNWAY DESIGNATION</b> <b>MARKINGS - EWR</b> <b>RUNWAY 4L, 22R, 4R &amp; 22L</b>	
			DETAIL SHEET   3 OF 8		



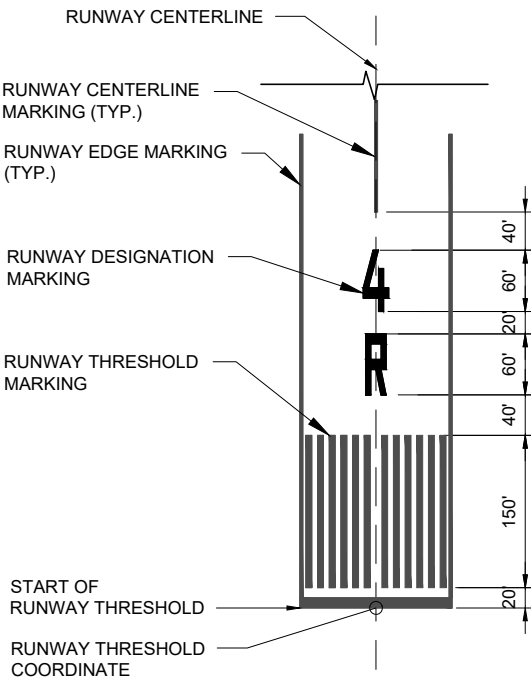
**RUNWAY DESIGNATION MARKING  
(RUNWAY 22R)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING  
(RUNWAY 22L)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING  
(RUNWAY 4L)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING  
(RUNWAY 4R)**  
NOT TO SCALE



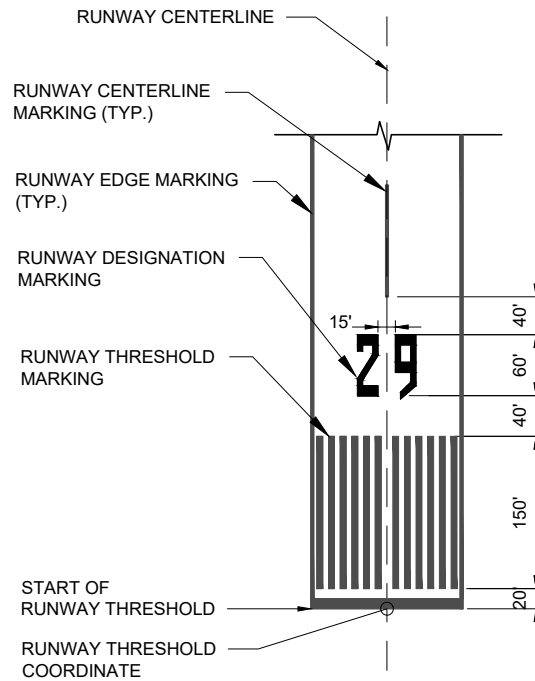
**NOTES FOR DESIGNER:**

1. DETAILS APPLIED TO EWR.
2. THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.

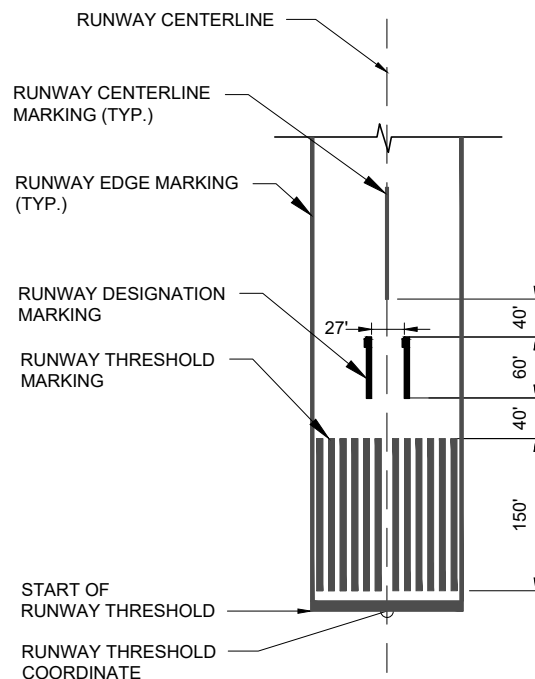
**TITLE:**

**RUNWAY DESIGNATION  
MARKINGS - EWR  
RUNWAY 11 AND 29**

DETAIL SHEET 4 OF 8



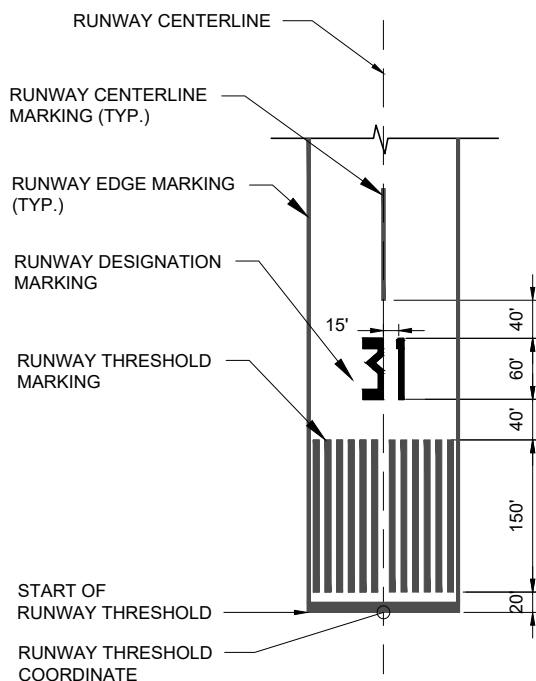
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 27)**  
NOT TO SCALE



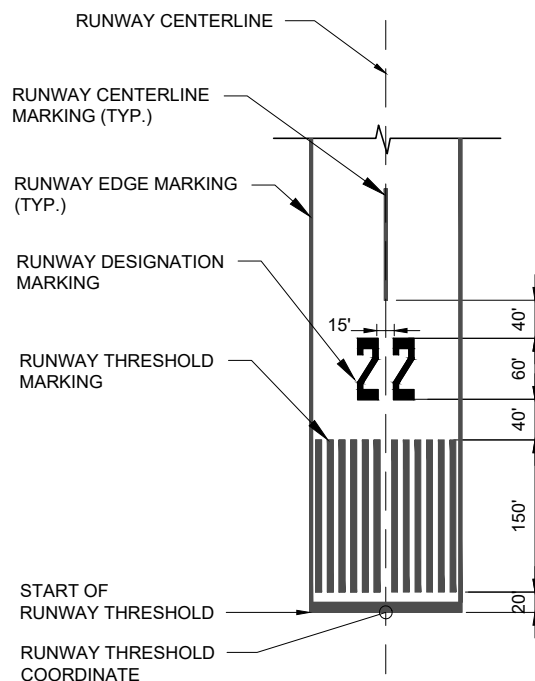
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 11)**  
NOT TO SCALE

1. DETAILS APPLIED TO LGA.
2. THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.

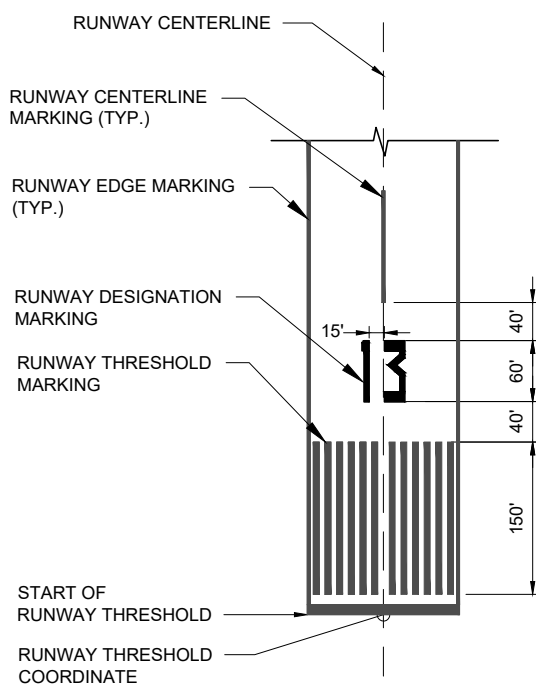
**RUNWAY DESIGNATION  
MARKINGS - LGA  
RUNWAY 4, 22, 13 AND 31**



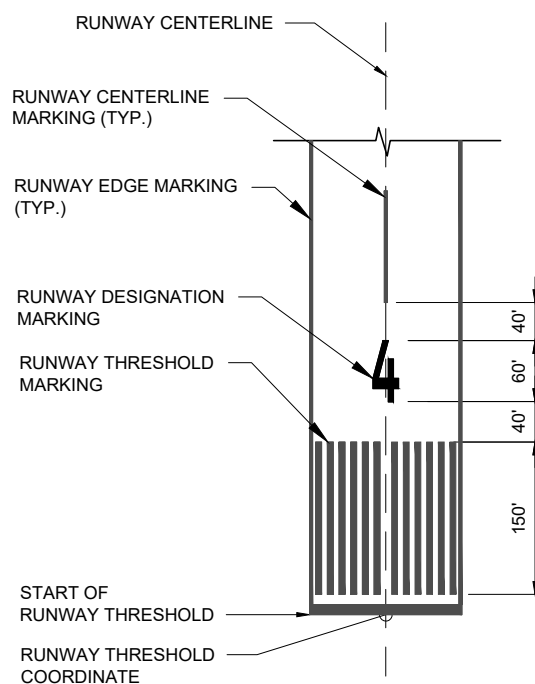
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 31)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 22)**  
NOT TO SCALE



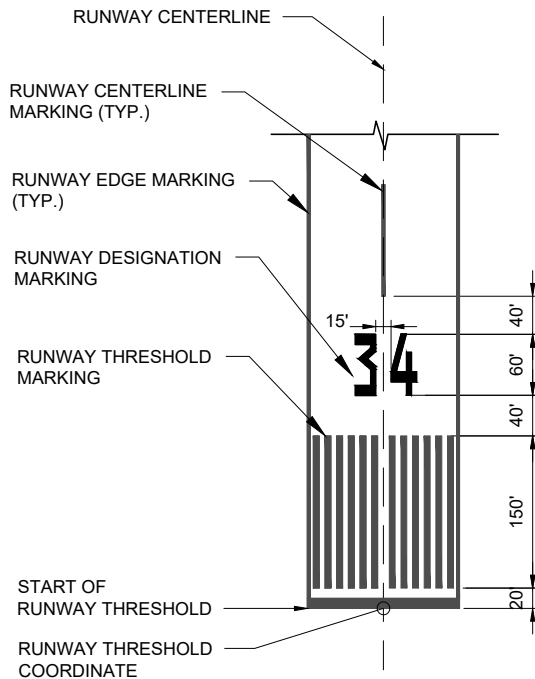
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 13)**  
NOT TO SCALE



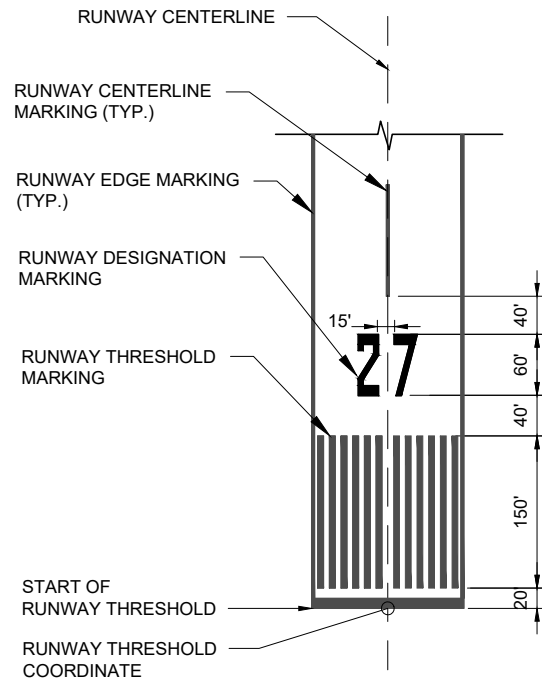
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 4)**  
NOT TO SCALE

1. DETAILS APPLIED TO SWF.
2. THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.

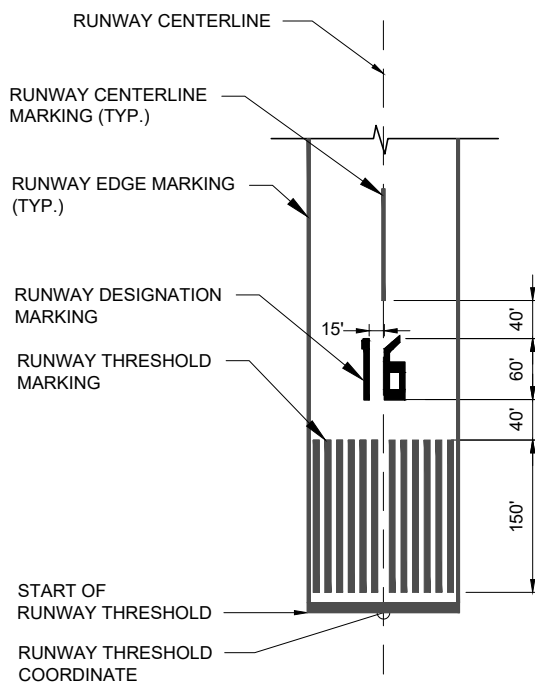
**RUNWAY DESIGNATION  
MARKINGS - SWF  
RUNWAY 9, 27, 16 AND 34**



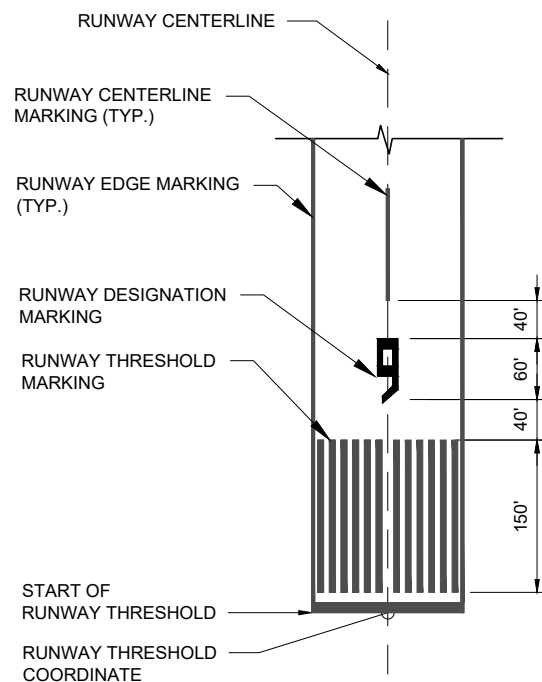
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 34)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 27)**  
NOT TO SCALE

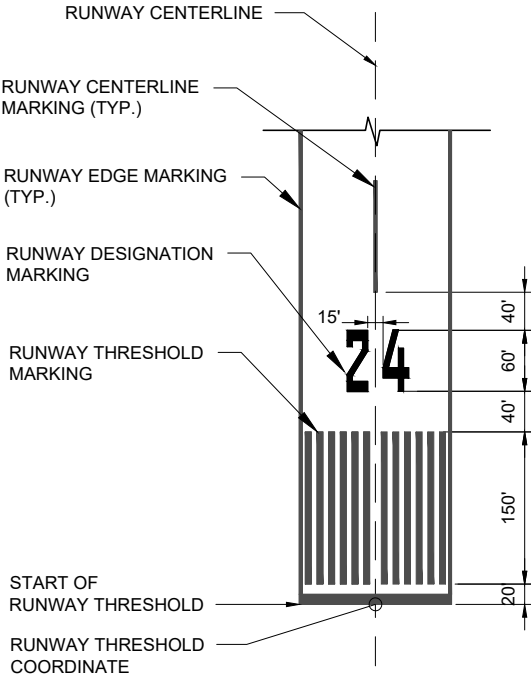


**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 16)**  
NOT TO SCALE

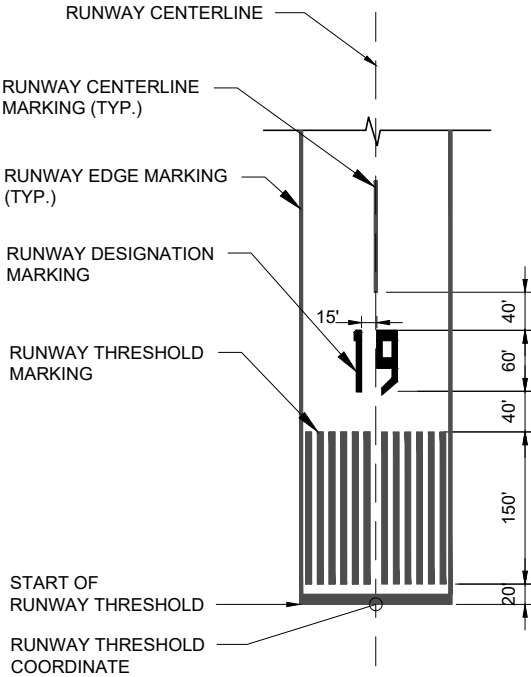


**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 9)**  
NOT TO SCALE

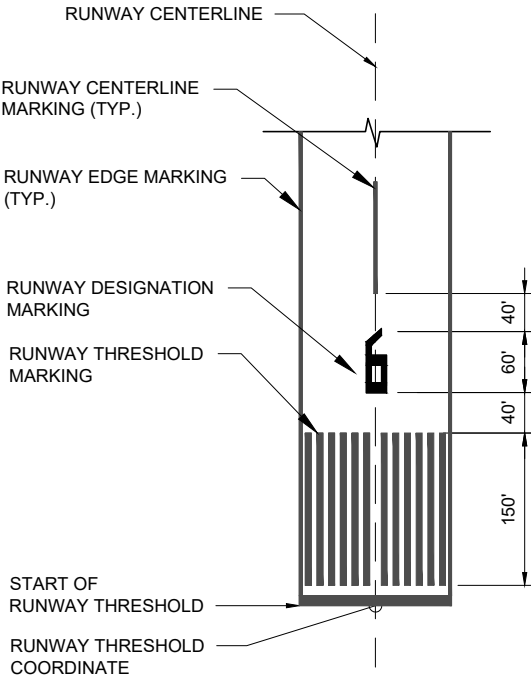
<b>THE PORT AUTHORITY</b> <b>OF NY &amp; NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>12/09/2018</u>  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    DETAILS APPLIED TO TEB. 2.    THIS DETAIL SHALL BE USED TOGETHER WITH DETAIL 100.006H.	TYPICAL DETAIL NO.	100.006G
	NO.	DATE		<b>TITLE:</b>  <b>RUNWAY DESIGNATION</b> <b>MARKINGS - TEB</b> <b>RUNWAY 1, 19, 6 AND 24</b>	
			DETAIL SHEET   7   OF   8		



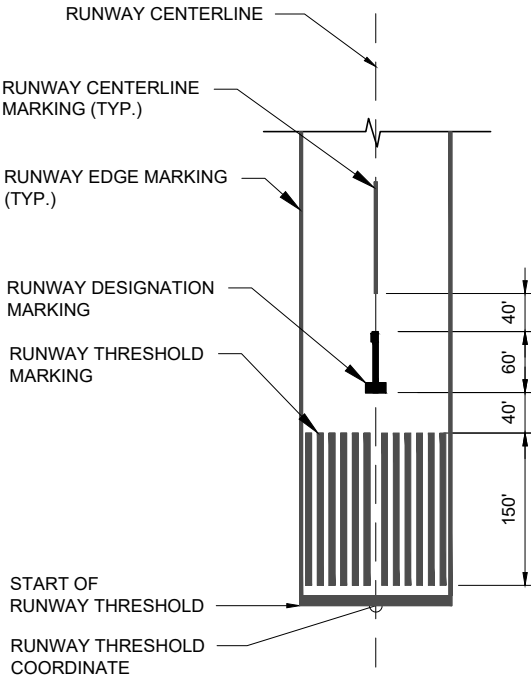
**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 24)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 19)**  
NOT TO SCALE

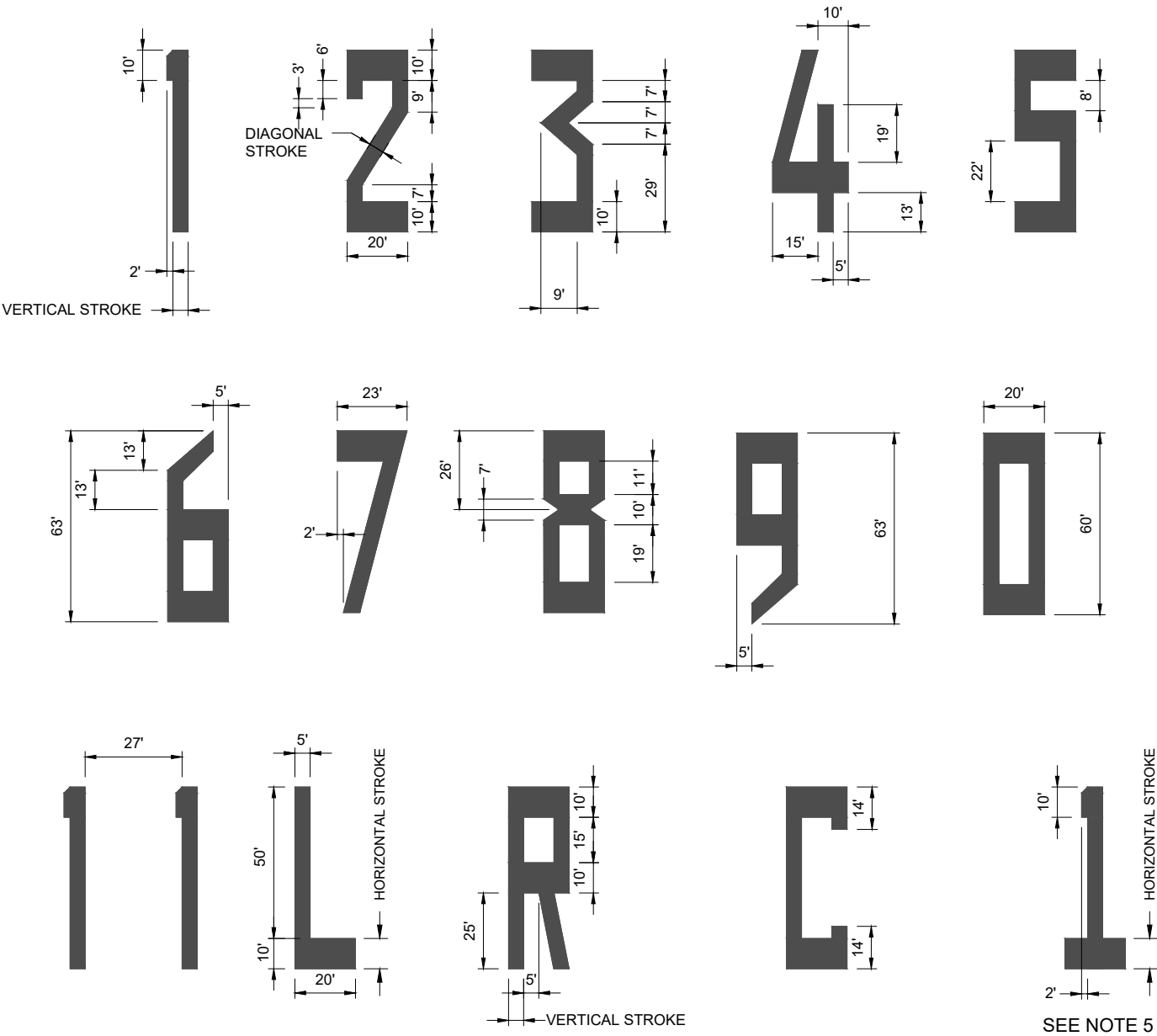


**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 6)**  
NOT TO SCALE



**RUNWAY DESIGNATION MARKING**  
**(RUNWAY 1)**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. CHOOSE DETAILS AND NOTES ONLY APPLICABLE TO THE PROJECT. 2. THIS DETAIL SHALL BE USED TOGETHER WITH RUNWAY DESIGNATION DETAILS..	TYPICAL DETAIL NO.	100.006H
				<b>TITLE:</b> <b>RUNWAY DESIGNATION NUMERALS AND LETTERS</b>	
				DETAIL SHEET 8 OF 8	



- NOTES:**
- ALL CHARACTERS SHALL HAVE THESE CHARACTERISTICS (UNLESS OTHERWISE SPECIFIED):  
60' HIGH  
20' WIDE  
VERTICAL STROKE OF 5'  
HORIZONTAL STROKE OF 10'  
DIAGONAL STROKE OF 5'
  - NUMERAL AND LETTER MARKINGS SHALL BE COLOR WHITE.
  - ALL NUMERALS SHOWN ARE HORIZONTALLY SPACED 15 FEET APART.
  - FOR DOUBLE DESIGNATIONS, THE MIDPOINT BETWEEN THE OUTER EDGES OF THE TWO NUMERALS SHALL BE CENTERED ON THE RUNWAY PAVEMENT CENTERLINE.
  - THE NUMERAL "1", WHEN USED ALONE, CONTAINS A HORIZONTAL STROKE AS SHOWN TO DIFFERENTIATE IT FROM THE RUNWAY CENTERLINE MARKING.
  - SINGLE DESIGNATIONS ARE CENTERED ON THE RUNWAY PAVEMENT CENTERLINE. FOR DOUBLE DESIGNATIONS, THE CENTER OF THE OUTER EDGES OF THE TWO NUMERALS IS CENTERED ON THE RUNWAY PAVEMENT CENTERLINE.

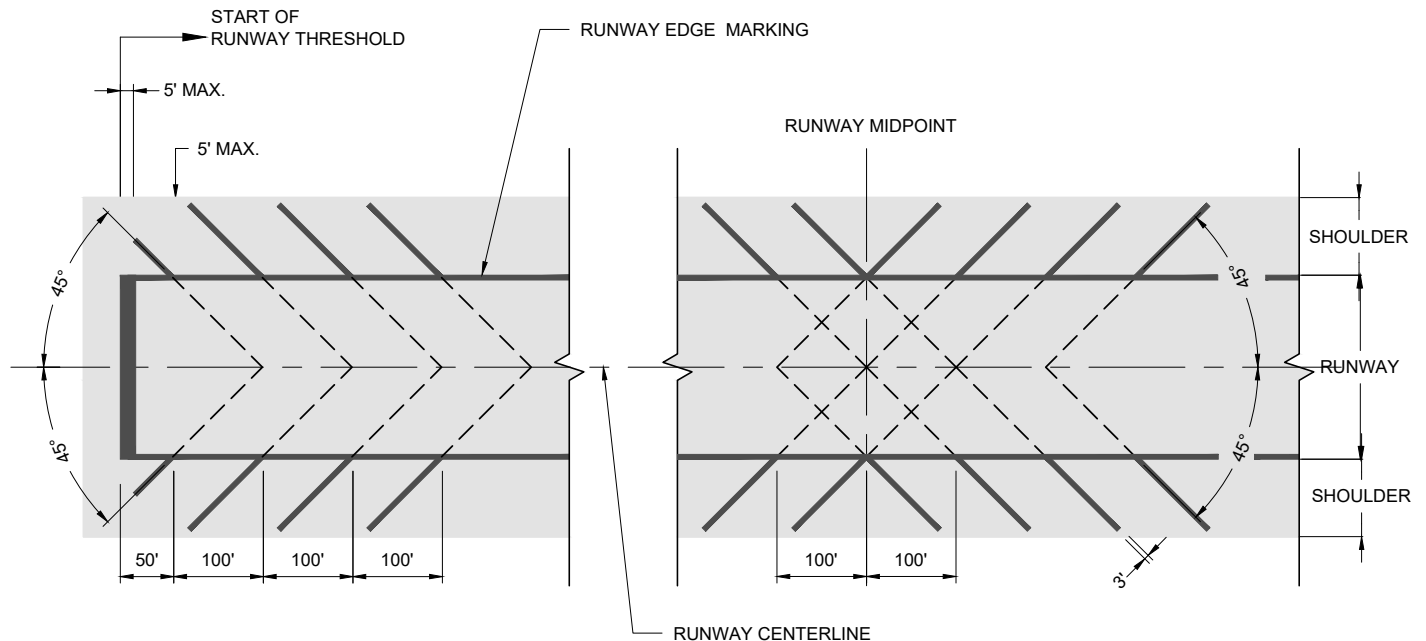
**NOTES FOR DESIGNER:**

1. RUNWAY SHOULDER MARKINGS EXIST AT LGA RUNWAY 22 AND RUNWAY 13 DECK EXTENSION.

**TITLE:**

**RUNWAY SHOULDER  
MARKINGS**

DETAIL SHEET 1 OF 1

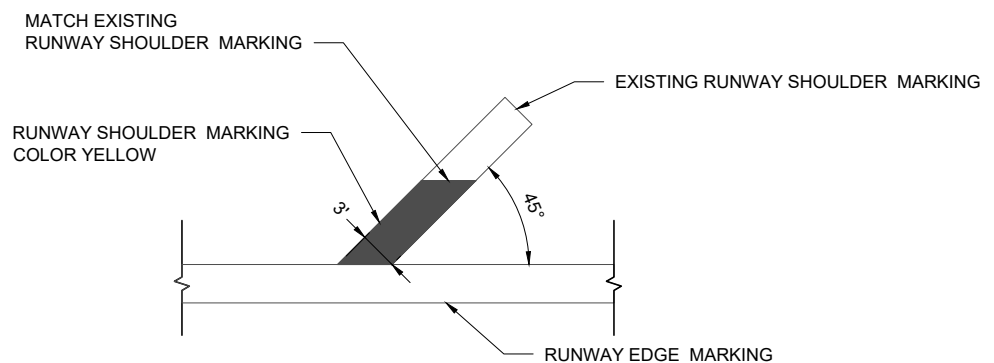


**NOTES:**

1. RUNWAY SHOULDER MARKINGS ARE PAINTED YELLOW AND ANGLED 45° TO THE RUNWAY CENTERLINE.
2. RUNWAY SHOULDER MARKINGS ARE PAINTED OVER BLACK PAINT IF PRESENT..

**RUNWAY SHOULDER MARKING**

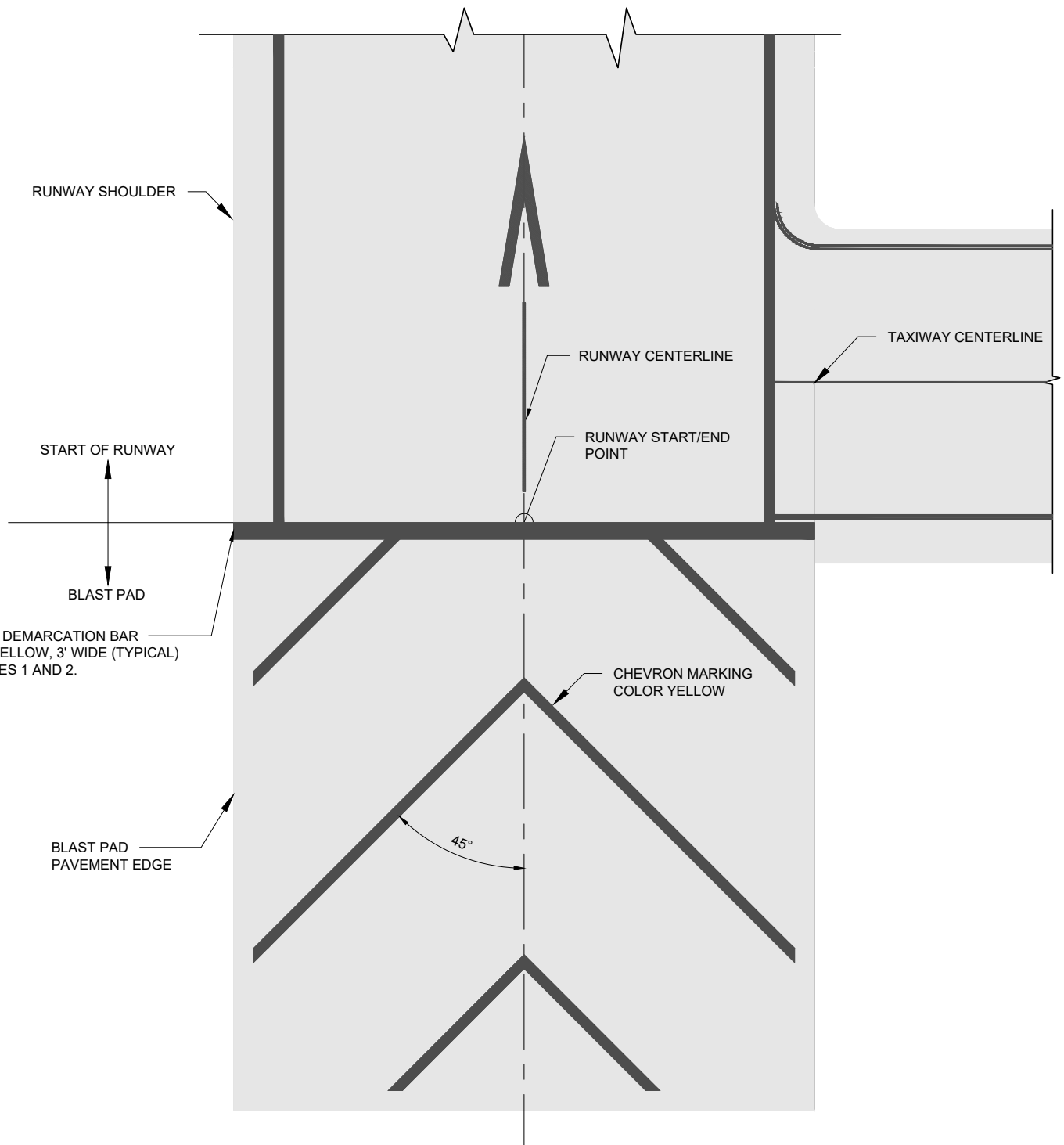
NOT TO SCALE



**RUNWAY SHOULDER MARKING PARTIAL RESTORATION**

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.    100.008A
	NO.    DATE			
DATE CREATED: 12/09/2018			<b>NOTES FOR DESIGNER:</b> 1. RUNWAY DEMARCATION BAR MARKING APPLIES TO FOLLOWING RUNWAYS • JFK: RW4L, RW22R, RW13R, RW31L, RW13L, RW31R • EWR: RW4L, RW4R, RW29 • SWF: RW9, RW27	<b>TITLE:</b> <b>RUNWAY DEMARCATION BAR MARKING DETAIL 1 OF 2</b>
APPROVED BY				
CHIEF CIVIL ENGINEER    06/20/2019 DATE				



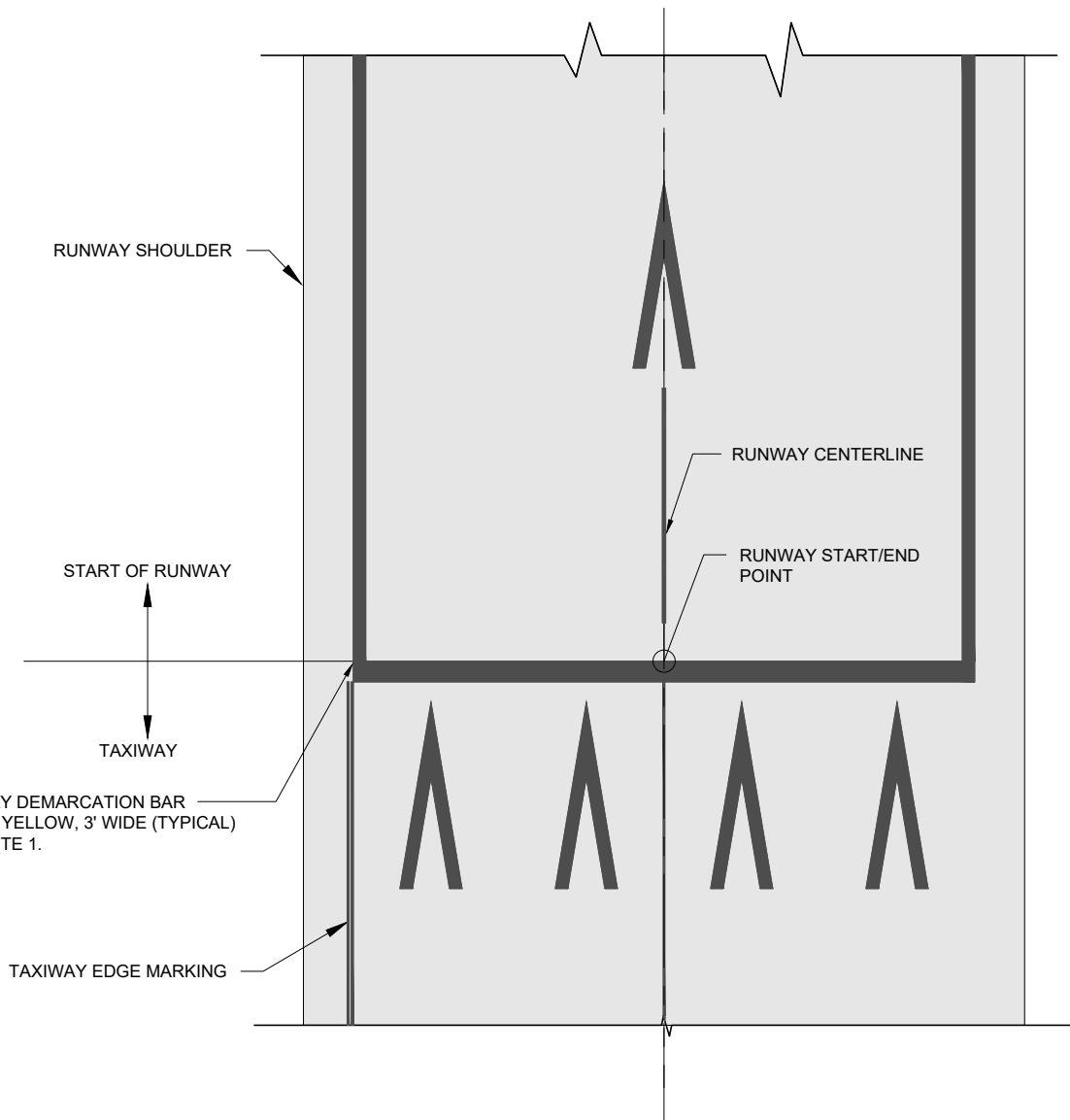
NOTES:

1. RUNWAY DEMARCATION BAR MARKING SHALL BE PAINTED ON BLAST PAD, STOPWAY OR ALIGNED TAXIWAY.
2. RUNWAY DEMARCATION BAR MARKING SHALL EXTEND ACROSS THE ENTIRE WIDTH OF THE BLAST PAD, STOPWAY OR ALIGNED TAXIWAY.

**RUNWAY DEMARCATION BAR MARKING**

NOT TO SCALE

<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	100.008B
	NO.	DATE			
DATE CREATED: 12/09/2018			<b>NOTES FOR DESIGNER:</b> 1. THIS RUNWAY DEMARCATION BAR MARKING ONLY APPLIES TO FOLLOWING RUNWAYS • EWR: RW22L, RW22R	TITLE:	
APPROVED BY				<b>RUNWAY DEMARCATION BAR MARKING DETAIL 2 OF 2</b>	
06/20/2019					
CHIEF CIVIL ENGINEER DATE				DETAIL SHEET 2 OF 2	



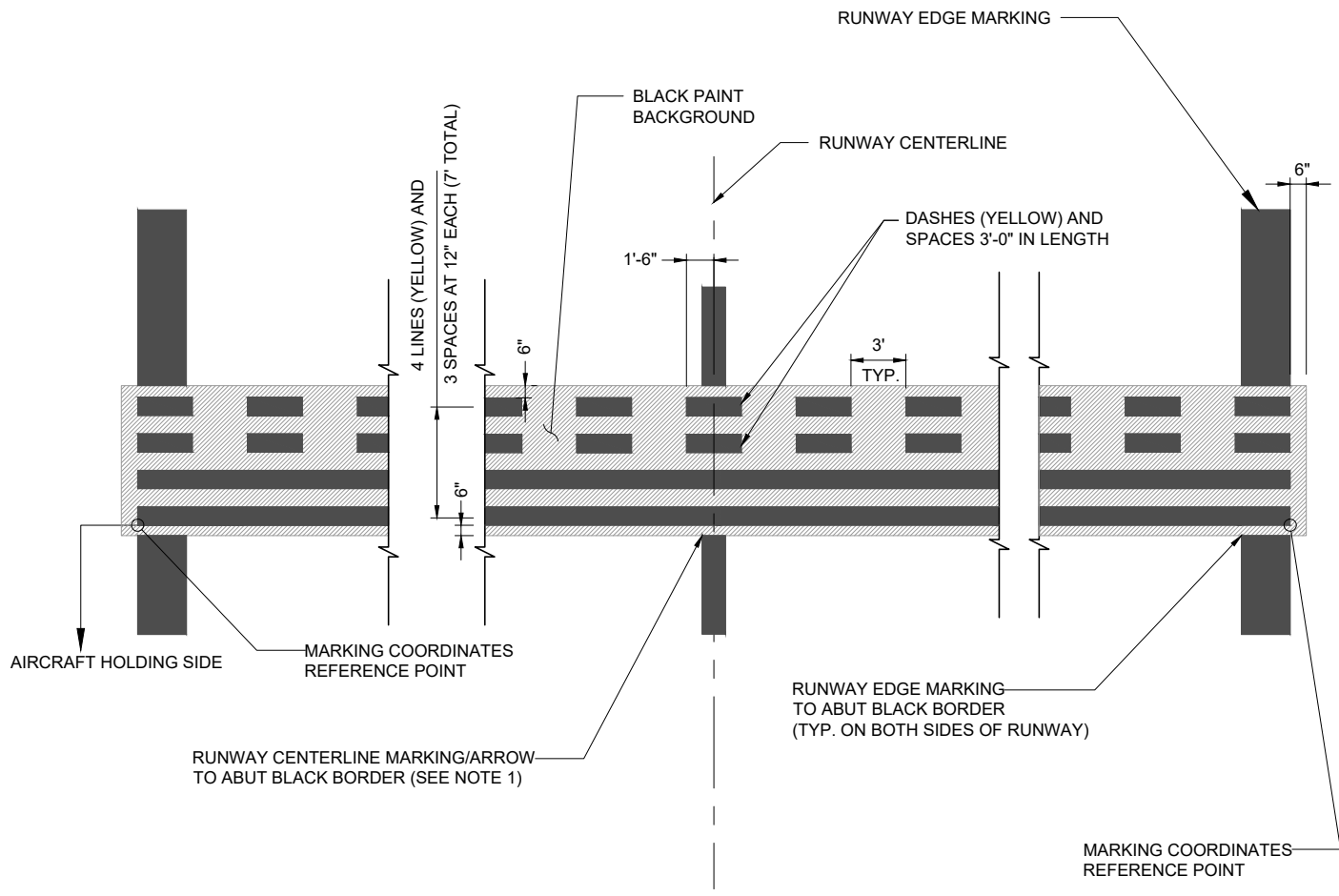
**NOTES:**

1. RUNWAY DEMARCATION BAR MARKING SHALL BE PAINTED ON THE ALIGNED TAXIWAY.

**RUNWAY DEMARCATION BAR MARKING**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	101.001
	NO.	DATE		TITLE:	
DATE CREATED: 12/09/2018			NOTES FOR DESIGNER: 1. THIS DETAIL SHOULD BE USED TOGETHER WITH RUNWAY CENTERLINE AND RUNWAY EDGE MARKING DETAILS .	<b>RUNWAY HOLDING POSITION MARKING ON RUNWAY</b>	
APPROVED BY					
06/20/2019				DETAIL SHEET 1 OF 1	
CHIEF CIVIL ENGINEER	DATE				

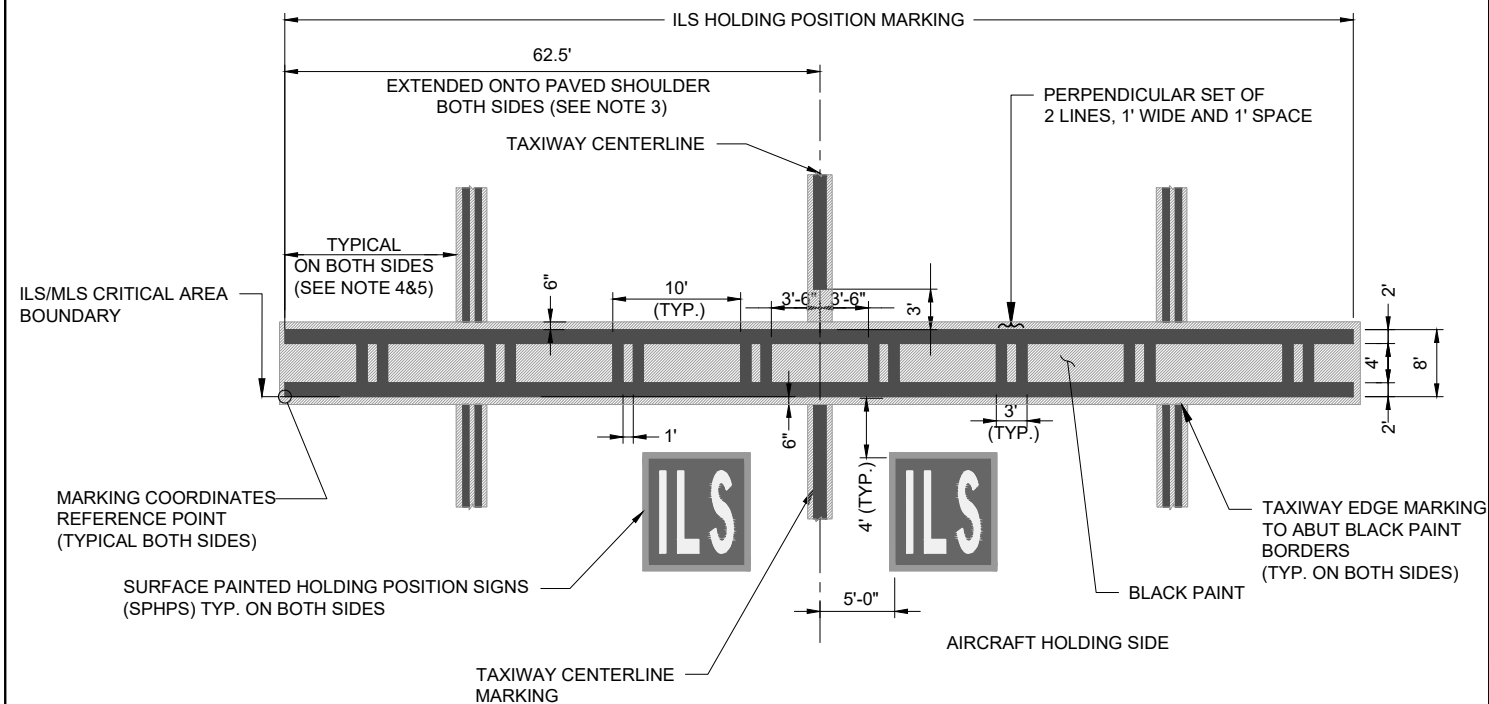


- NOTES:
1. RUNWAY HOLDING POSITION MARKING SHALL BE PERPENDICULAR TO THE RUNWAY CENTERLINE AND INTERRUPTS ALL RUNWAY MARKINGS EXCEPT FOR RUNWAY DESIGNATION MARKING.
  2. RUNWAY HOLDING POSITION MARKING EXTENDS ACROSS THE FULL WIDTH OF THE RUNWAY BUT NOT ONTO THE RUNWAY SHOULDER OR ONTO ANY INTERSECTING TAXIWAY FILLET.

**RUNWAY HOLDING POSITION MARKING ON RUNWAY**  
NOT TO SCALE

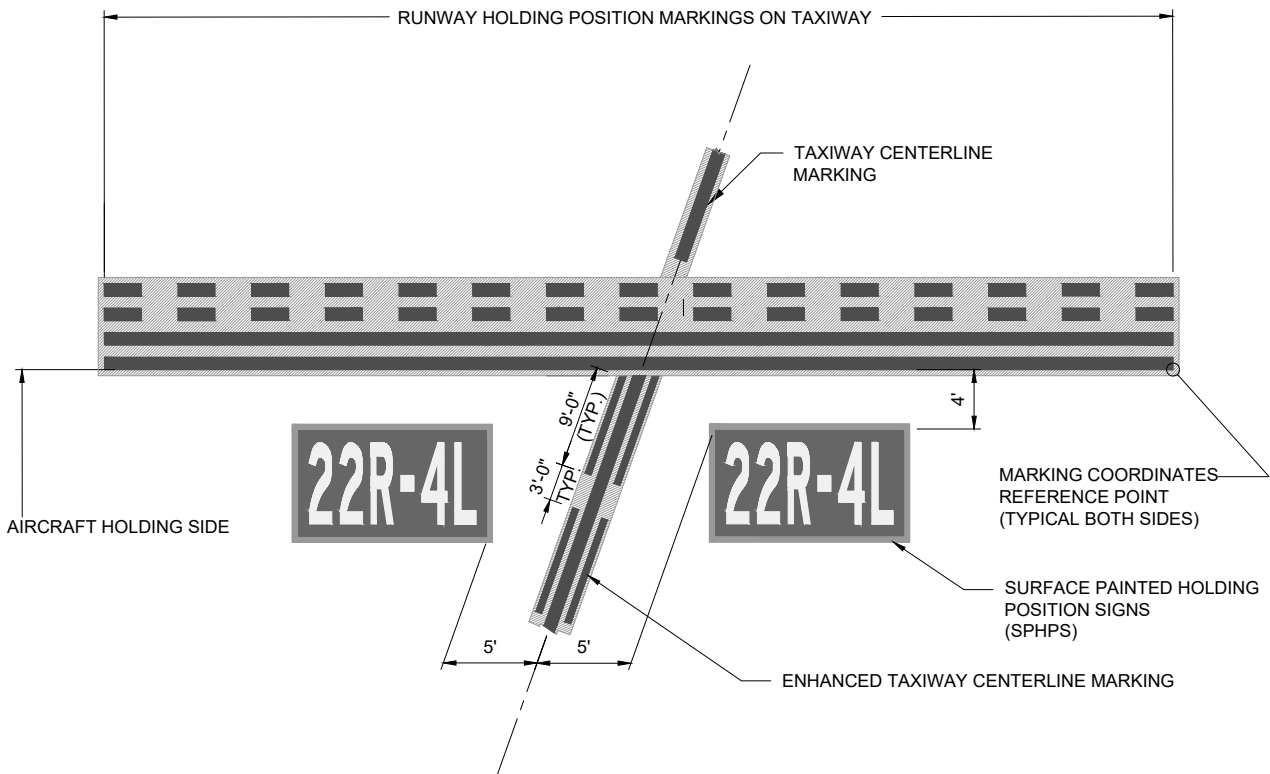


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	101.003
	<b>NOTES FOR DESIGNER:</b> 1. THIS DETAIL SHOULD BE USED TOGETHER WITH SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND TAXIWAY MARKING DETAILS . 2. IN CASE OF PREFORMED THERMOPLASTIC MARKINGS USED FOR HOLDING POSITION MARKINGS INCLUDING THE SPHPS, REFER TO SOLE SOURCE ITEM "AIRMARK® PREFORMED THERMOPLASTIC MARKINGS" NOTES AND DOCUMENTS.		<b>TITLE:</b>  <b>ILS/POFZ HOLDING POSITION MARKINGS - TAXIWAY</b>		
			DETAIL SHEET 1 OF 1		



- NOTES:**
1. THE HOLDING POSITION MARKINGS ARE COLOR YELLOW.
  2. THE ENTIRE HOLDING POSITION MARKING IS LOCATED INSIDE THE BOUNDARY OF THE PROTECTED AREA.
  3. A SET OF PERPENDICULAR LINES SHALL BE LOCATED EQUIDISTANT TO TAXIWAY CENTERLINES
  4. FOR TAXIWAY WIDTH 75 FEET OR GREATER, THE HOLDING POSITION MARKING IS FURTHER EXTENDED 25 FEET ONTO PAVED SHOULDERS. FOR TAXIWAYS NO PAVED SHOULDER, THE HOLDING POSITION MARKING ENDS AT TAXIWAY EDGE MARKINGS.
  5. IF A LIGHT FIXTURE OR SIGN IS LOCATED ON THE TAXIWAY SHOULDER AND ALIGNED WITH THE EXTENDED HOLDING POSITION MARKING, THE EXTENDED HOLDING POSITION MARKING SHALL BE EXTENDED NO CLOSER THAN 5 FEET TO THE EDGE OF THE LIGHT OR SIGN.
  6. IF A TAXIWAY HAS TAXIWAY SHOULDER MARKINGS, AND THE EXTENDED HOLDING POSITION MARKING IS LOCATED WITHIN 10 FEET OF THE TAXIWAY SHOULDER MARKING, THE EXTENDED HOLDING POSITION MARKING MUST SUPERSEDE THE TAXIWAY SHOULDER MARKING, I.E., THE TAXIWAY SHOULDER MARKING MUST BE OMITTED IN THAT LOCATION

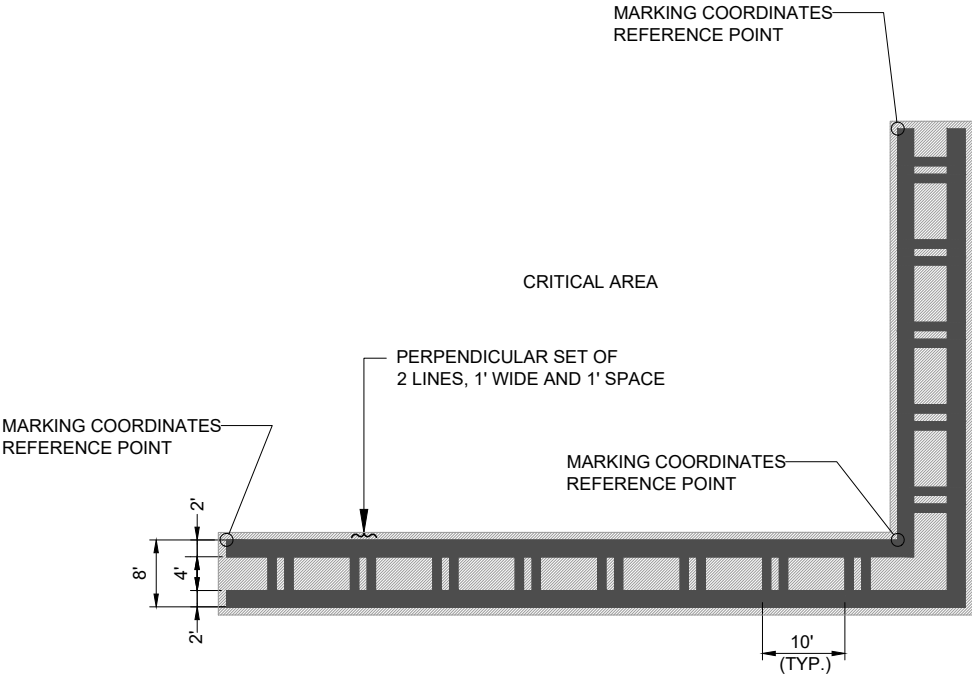
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>		TYPICAL DETAIL NO.	101.004
	NO.	DATE	<b>NOTES FOR DESIGNER:</b> 1. THIS DETAIL SHOULD BE USED TOGETHER WITH SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND TAXIWAY MARKING DETAILS. 2. REPLACE SPHPS APPLICABLE TO THE PROJECT. 3. IN CASE OF PREFORMED THERMOPLASTIC MARKINGS USED FOR HOLDING POSITION MARKINGS INCLUDING THE SPHPS, REFER TO SOLE SOURCE ITEM "AIRMARK® PREFORMED THERMOPLASTIC MARKINGS" NOTES AND DOCUMENTS.		<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) WITH ANGLED TAXIWAYS TO RUNWAY HOLDING POSITION MARKINGS</b>	
					DETAIL SHEET 1 OF 1	



**SURFACE PAINTED HOLDIGN POSITION SIGNS (SPHPS)  
WITH ANGLED TAXIWAYS TO RUNWAY HOLDING POSITION MARKING**

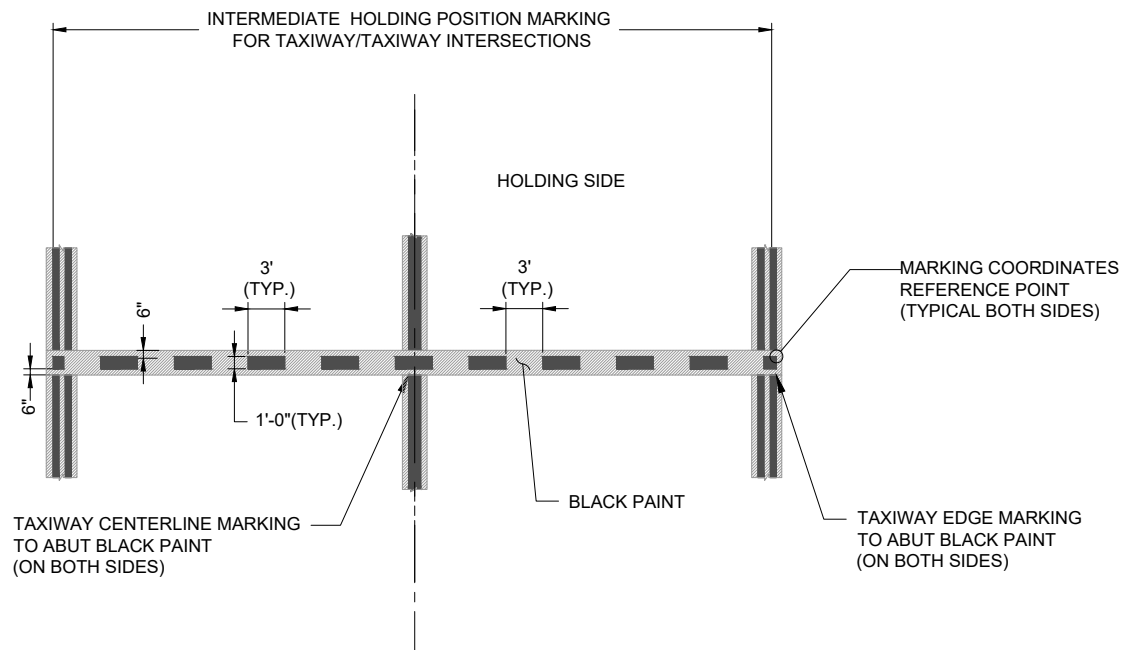
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>12/09/2018</u>  <b>APPROVED BY</b>  
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ILS/POFZ HOLDING POSITION MARKINGS - HOLDING BAY  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b>  ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> <u>12/09/2018</u>  <b>APPROVED BY</b>  <div>06/20/2019</div> <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    THE LOCATION OF INTERMEDIATE HOLDING POSITION MARKING IS BASED ON THE TAXIWAY CENTERLINE TO FIXED OR MOVABLE OBJECT CRITERIA IN AC 150/5300-13 FOR THE MOST DEMANDING AIRPLANE DESIGN GROUP (ADG).	<b>TYPICAL DETAIL NO.</b>	101.006
	NO.	DATE			
				<b>TITLE:</b>  <b>INTERMEDIATE HOLDING POSITION MARKING FOR TAXIWAY/TAXIWAY INTERSECTIONS</b>	
			<b>DETAIL SHEET   1 OF 1</b>		

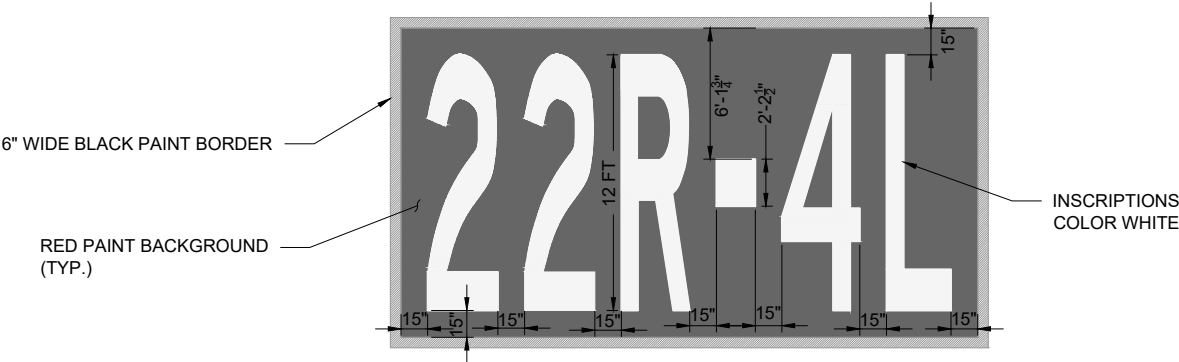


- NOTES:**
1. THE INTERMEDIATE HOLDING POSITION MARKING IS COLOR YELLOW AND OUTLINED IN BLACK BORDERS.
  2. THE INTERMEDIATE HOLDING POSITION MARKING IS LOCATED Laterally SUCH THAT A DASH IS CENTERED ON THE TAXIWAY CENTERLINE.

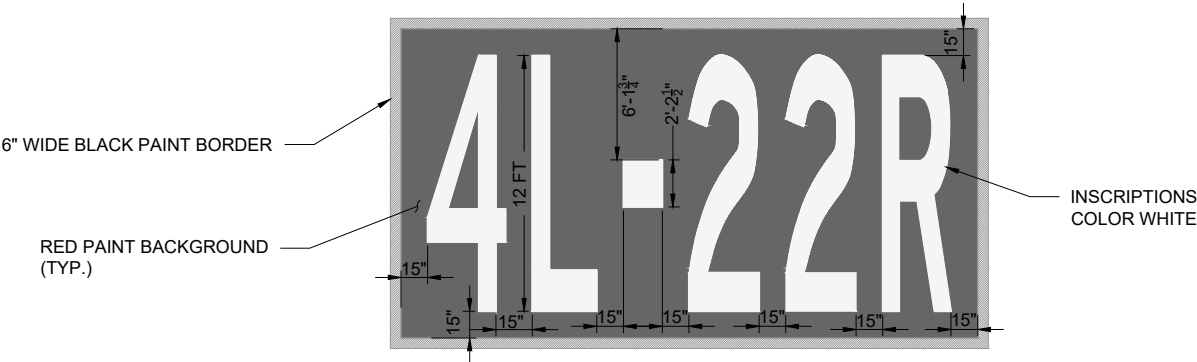
**INTERMEDIATE HOLDING POSITION MARKING FOR  
TAXIWAY/TAXIWAY INTERSECTIONS**

NOT TO SCALE

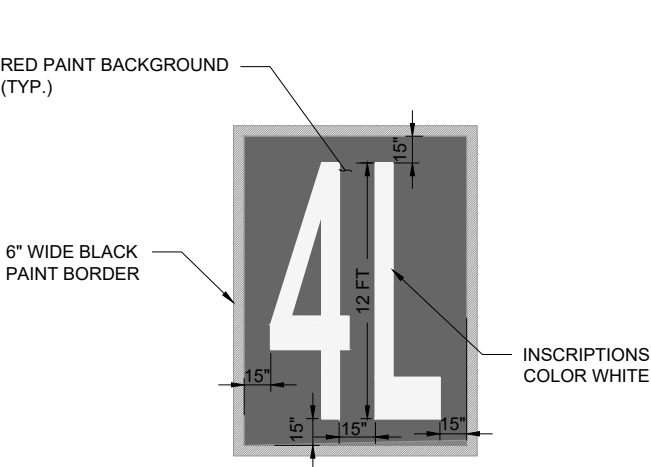
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b> NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    APPLICABLE TO JFK AND EWR	TYPICAL DETAIL NO.	101.007
				<b>TITLE:</b>  <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4L-22R</b>	
				DETAIL SHEET 1 OF 1	



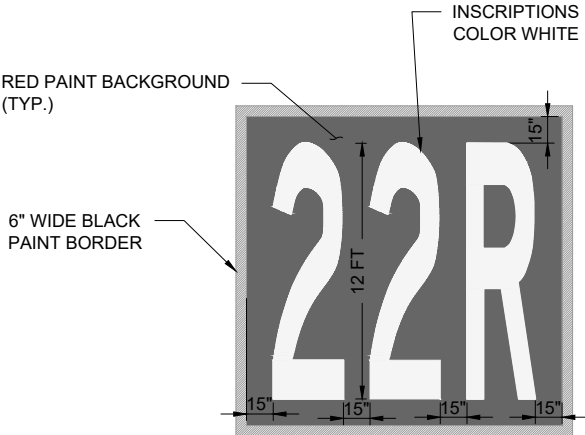
SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 22R-4L  
NOT TO SCALE



SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 4L-22R  
NOT TO SCALE

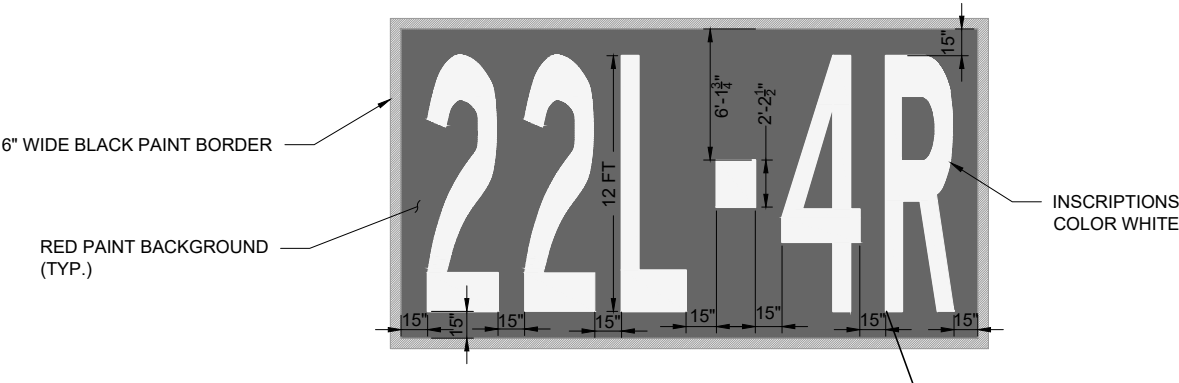


SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 4L  
NOT TO SCALE

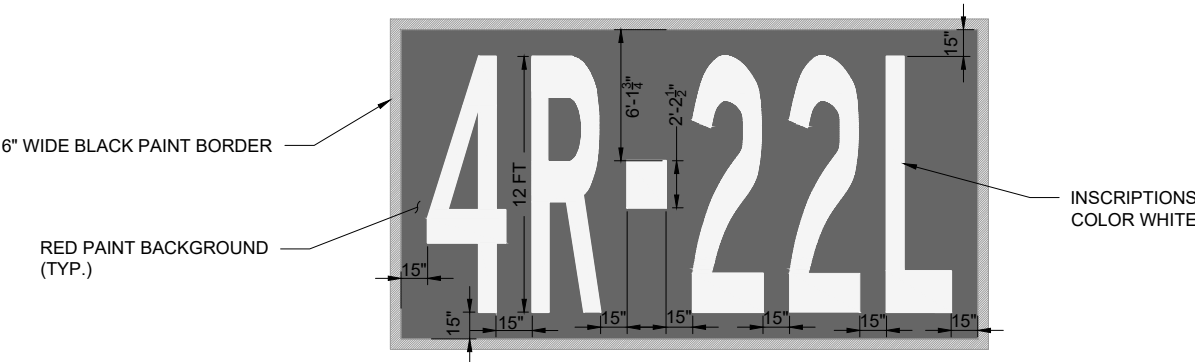


SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 22R  
NOT TO SCALE

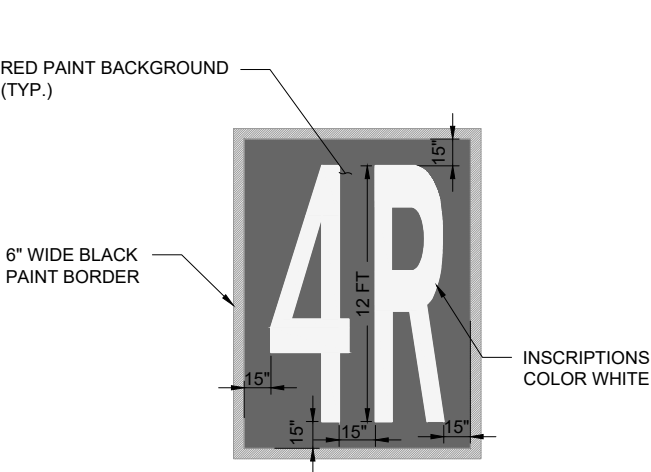
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. APPLICABLE TO JFK AND EWR	TYPICAL DETAIL NO.	101.008
				<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4R-22L</b>	DETAIL SHEET 1 OF 1



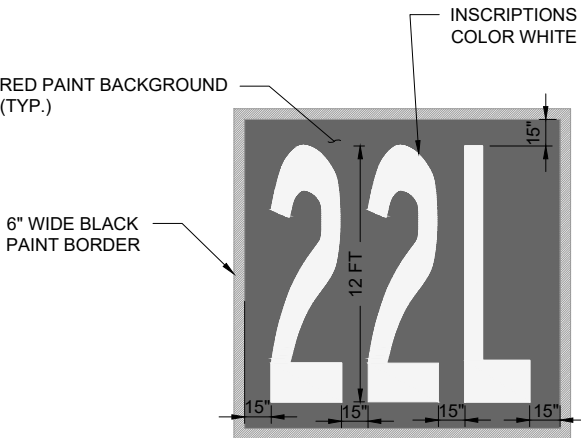
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 22L-4R**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 4R-22L**  
NOT TO SCALE



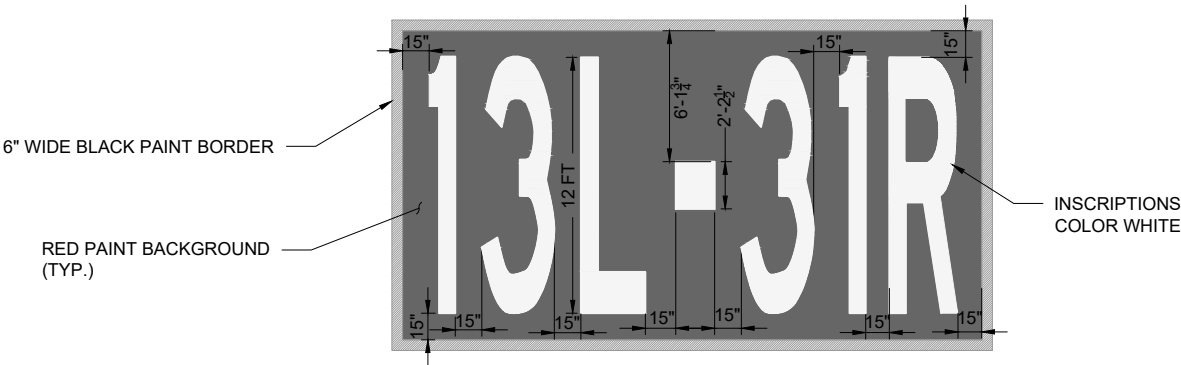
**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 4R**  
NOT TO SCALE



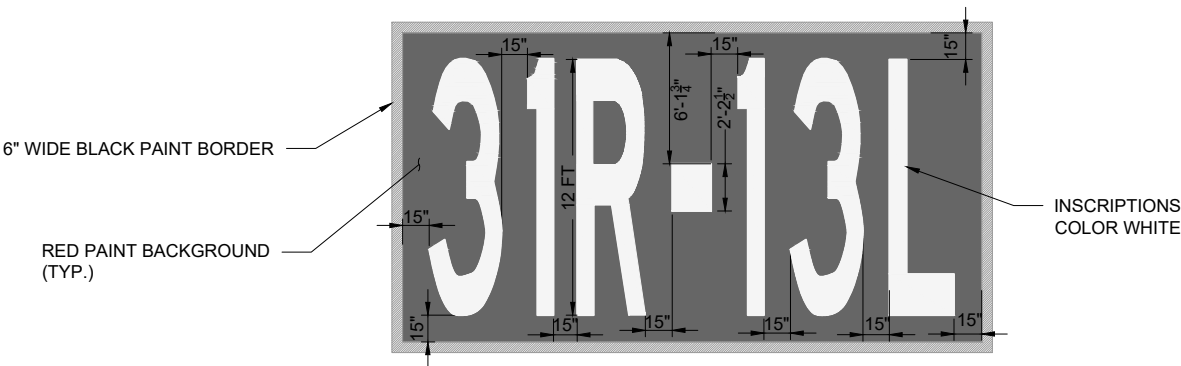
**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 22L**  
NOT TO SCALE



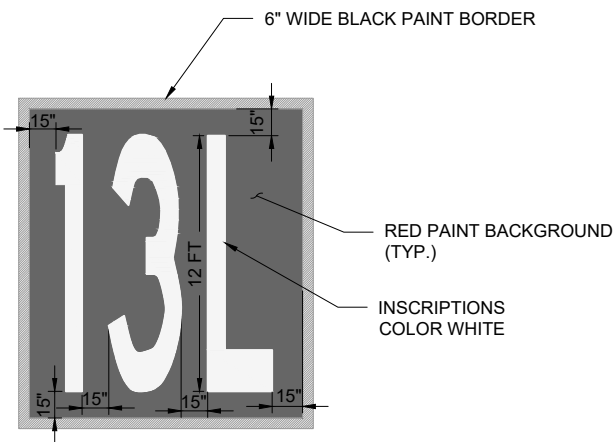
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. APPLICABLE TO JFK	TYPICAL DETAIL NO.	101.009
				<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 13L-31R</b>	DETAIL SHEET 1 OF 1



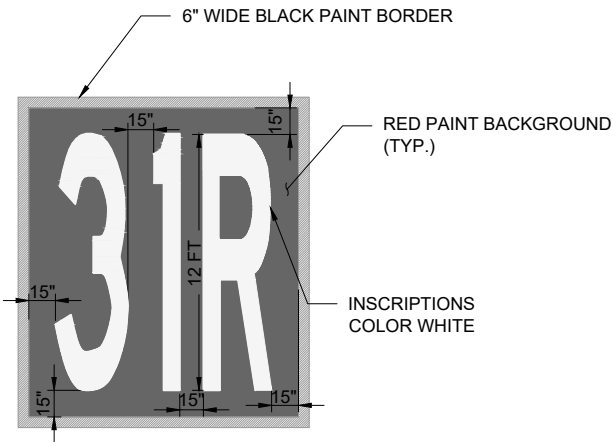
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 13L-31R**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 31R-13L**  
NOT TO SCALE

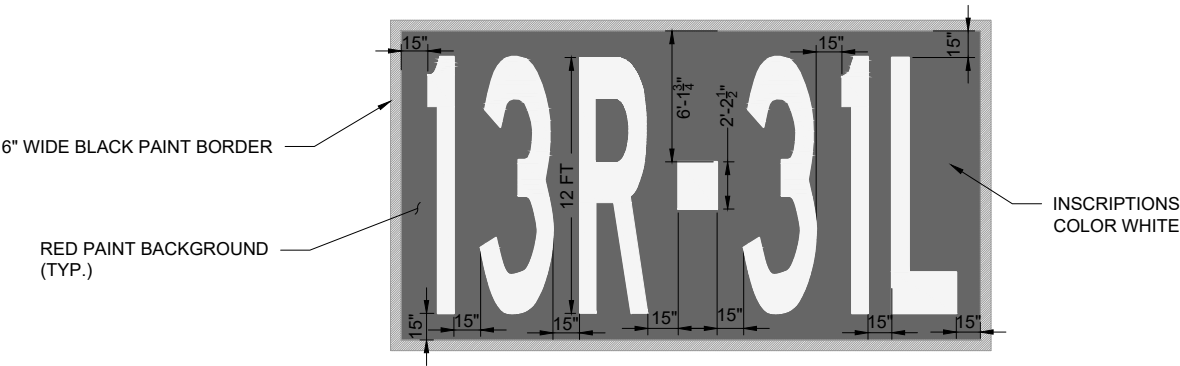


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 13L**  
NOT TO SCALE

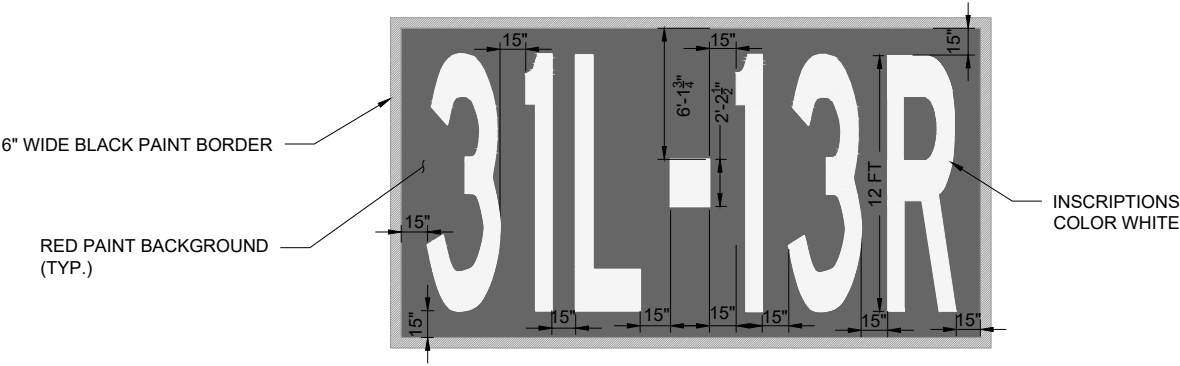


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 31R**  
NOT TO SCALE

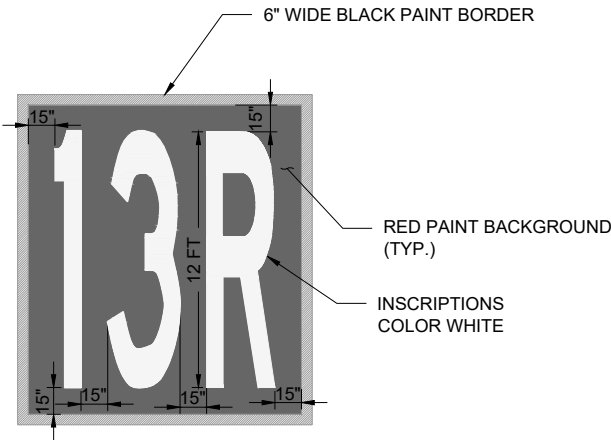
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. APPLICABLE TO JFK	TYPICAL DETAIL NO.	101.010
				<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 13R-31L</b>	DETAIL SHEET 1 OF 1



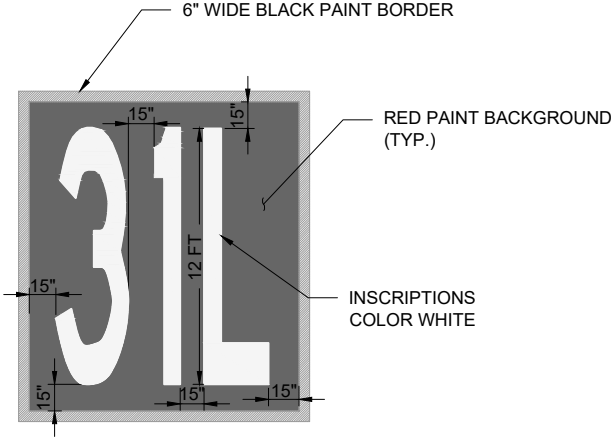
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 13R-31L**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 31L-13R**  
NOT TO SCALE

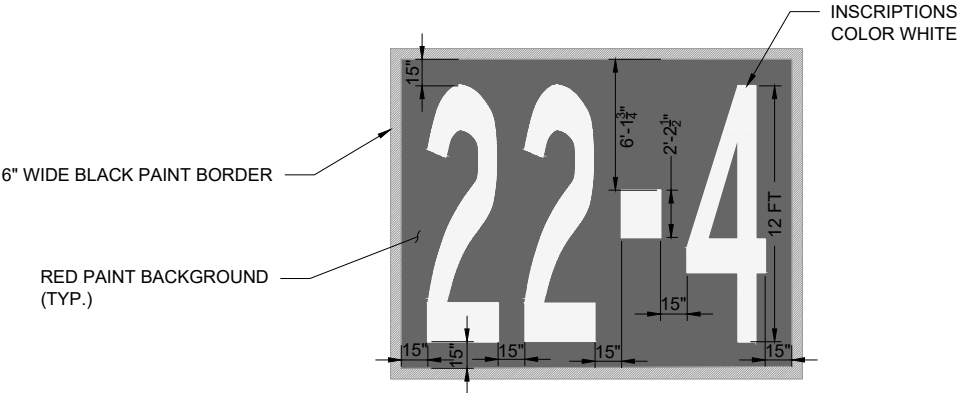


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 13R**  
NOT TO SCALE

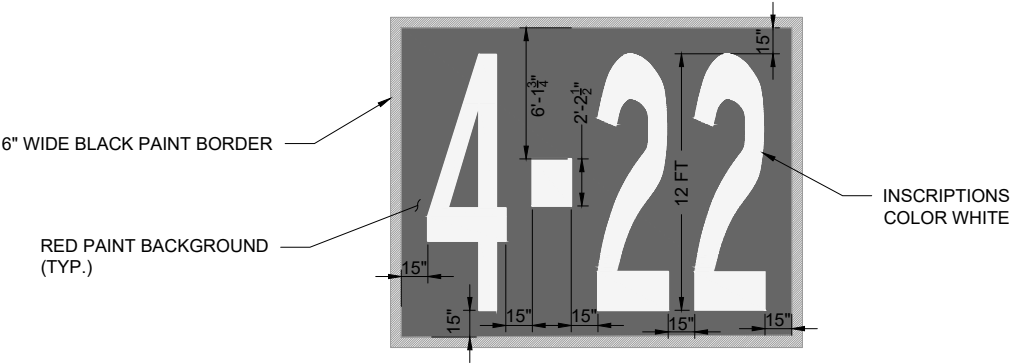


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 31L**  
NOT TO SCALE

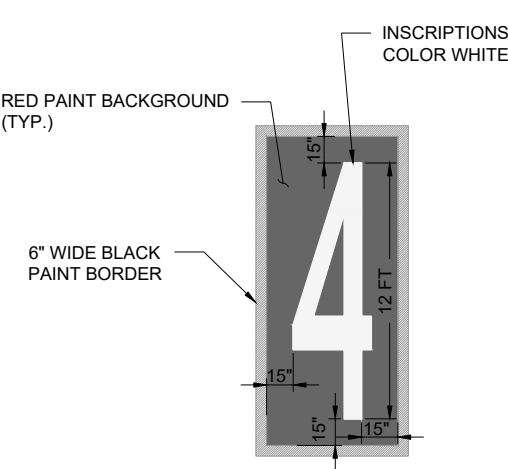
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1.    APPLICABLE TO LGA	<b>TYPICAL DETAIL NO.</b>  101.011
	<b>NO.</b>	<b>DATE</b>		
<b>TITLE:</b>  <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 4-22</b>				
DETAIL SHEET   1 OF 1				



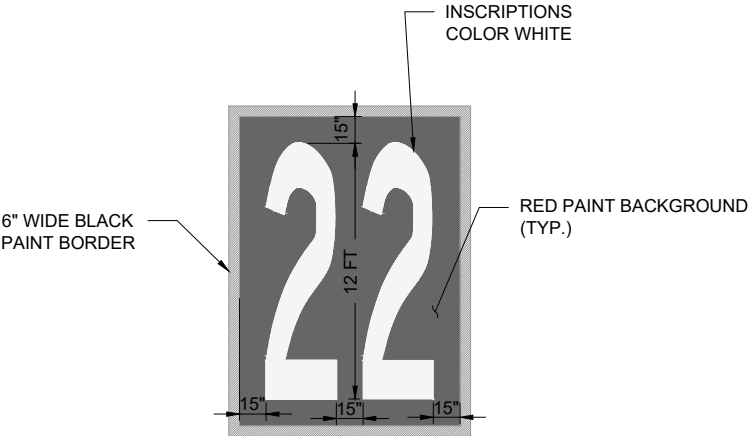
SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 22-4  
NOT TO SCALE



SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 4-22  
NOT TO SCALE

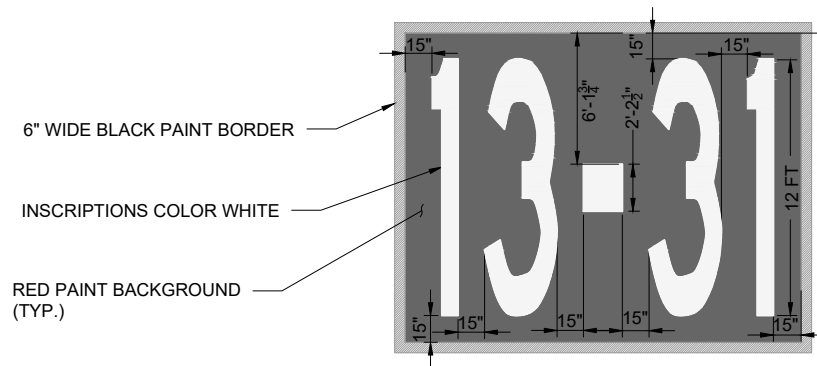


SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 4  
NOT TO SCALE

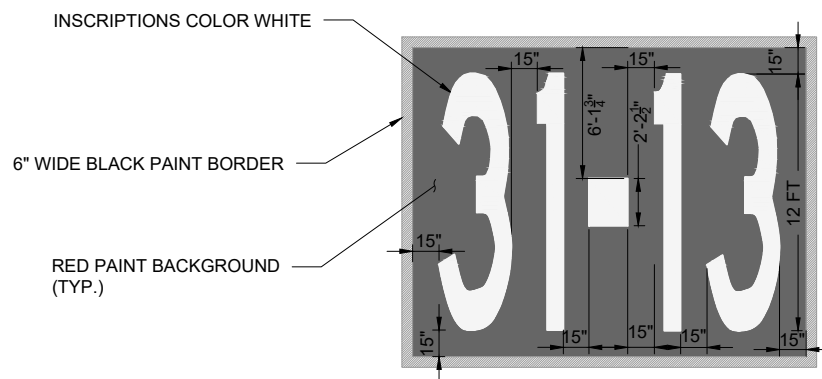


SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 22  
NOT TO SCALE

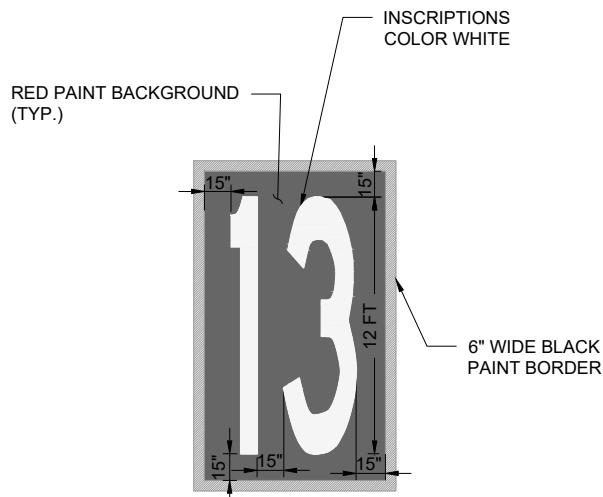
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019  <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1. APPLICABLE TO LGA	TYPICAL DETAIL NO.	101.012
				<b>TITLE:</b>  <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 13-31</b>	
				DETAIL SHEET 1 OF 1	



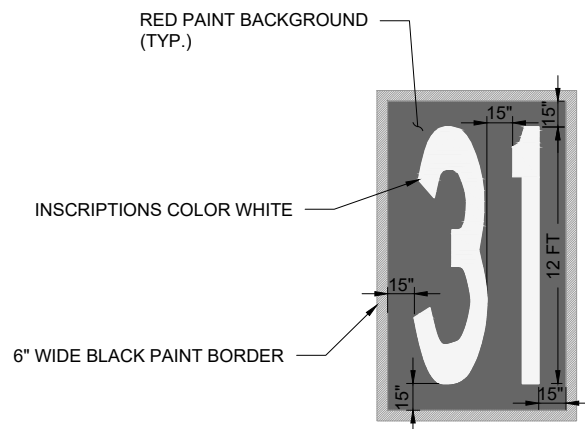
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 13-31**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 31-13**  
NOT TO SCALE

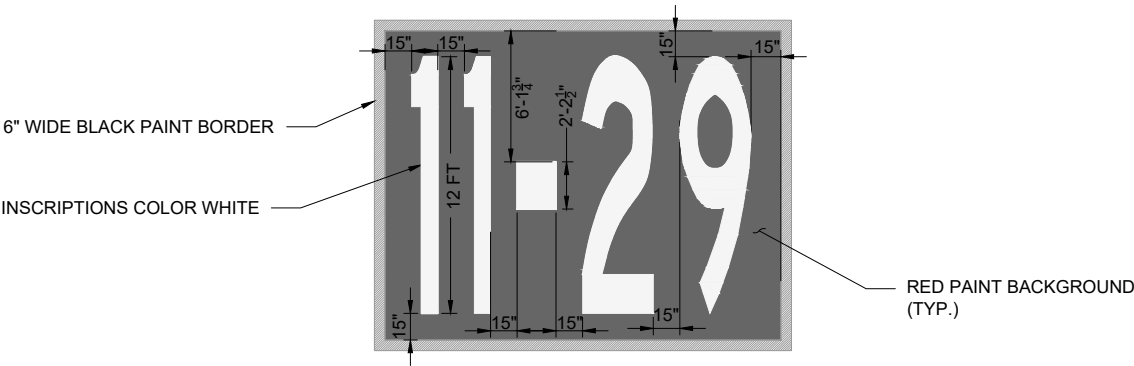


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 13**  
NOT TO SCALE

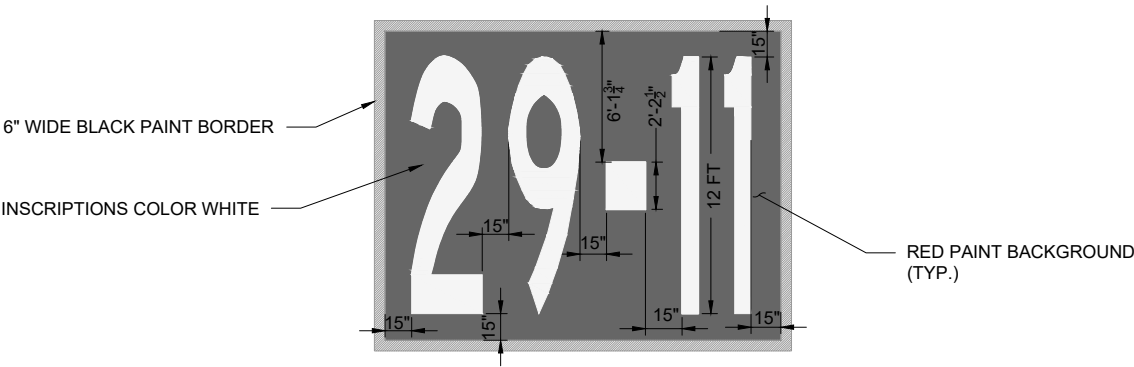


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 31**  
NOT TO SCALE

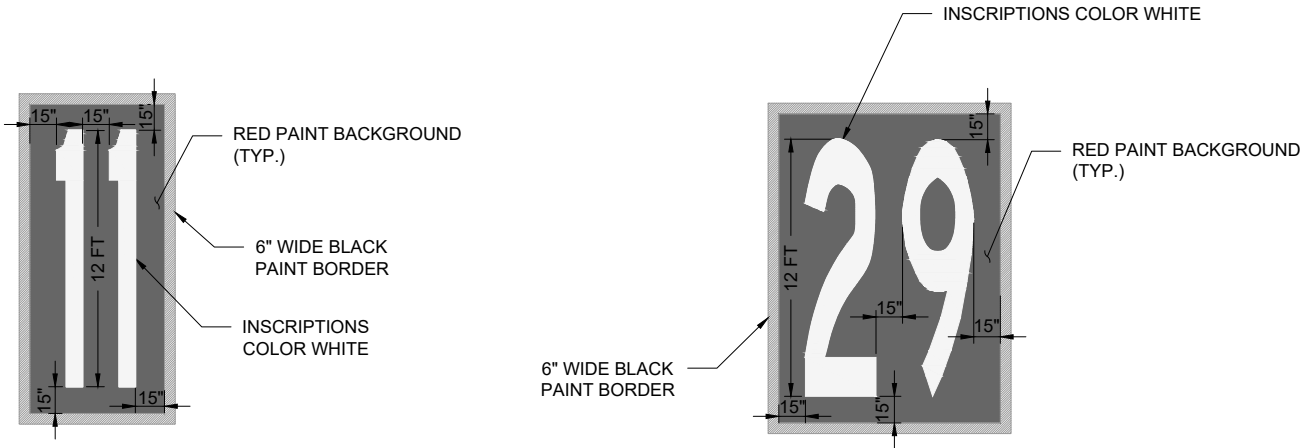
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. APPLICABLE TO EWR	TYPICAL DETAIL NO.	101.013
				<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 11-29</b>	
				DETAIL SHEET 1 OF 1	



SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 11-29  
NOT TO SCALE



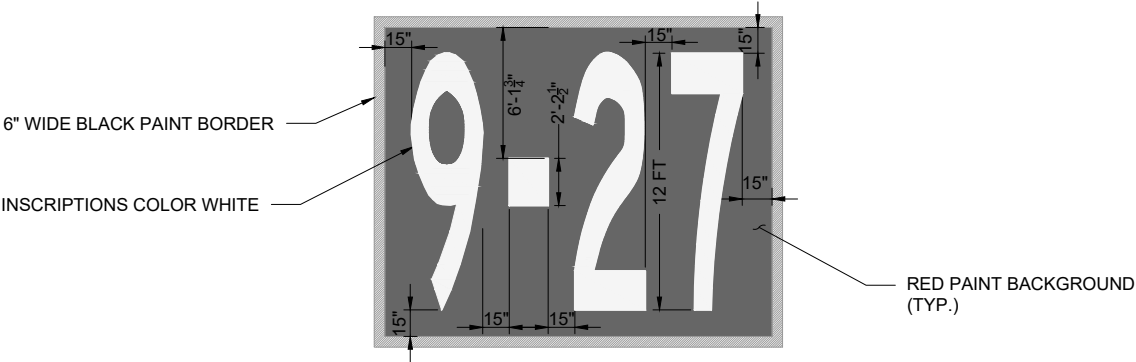
SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
RUNWAY 29-11  
NOT TO SCALE



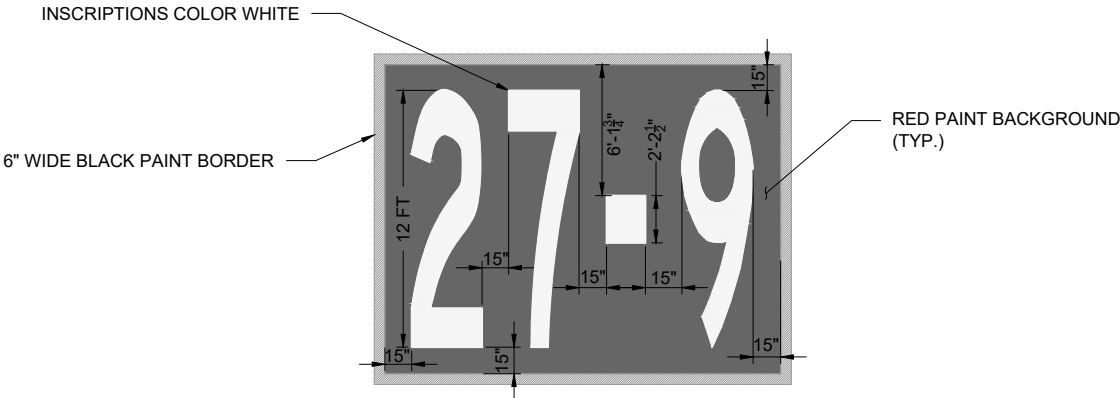
SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 11  
NOT TO SCALE

SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 29  
NOT TO SCALE

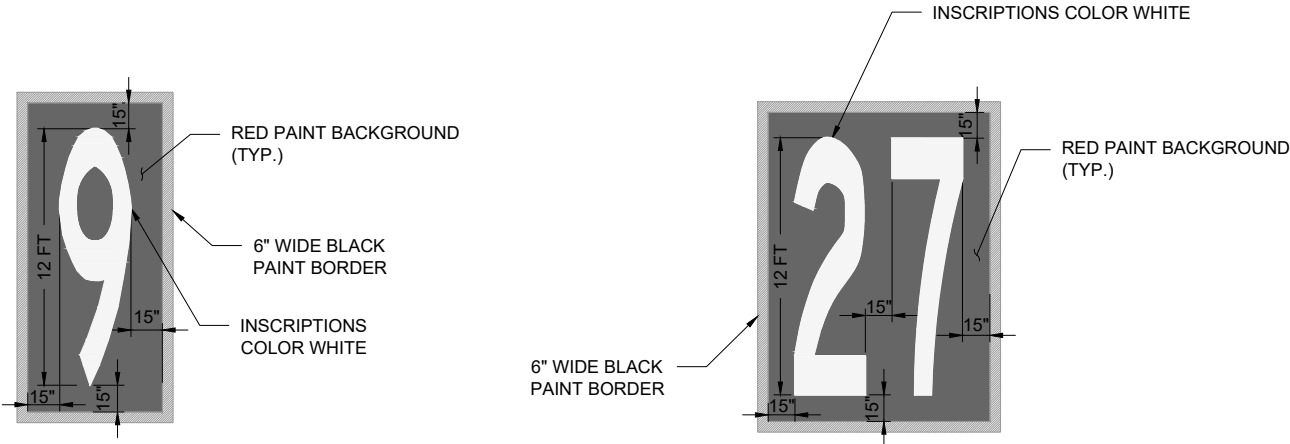
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1.    APPLICABLE TO SWF	TYPICAL DETAIL NO.	101.014
				<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 9-27</b>	DETAIL SHEET 1 OF 1



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 9-27**  
N.T.S.



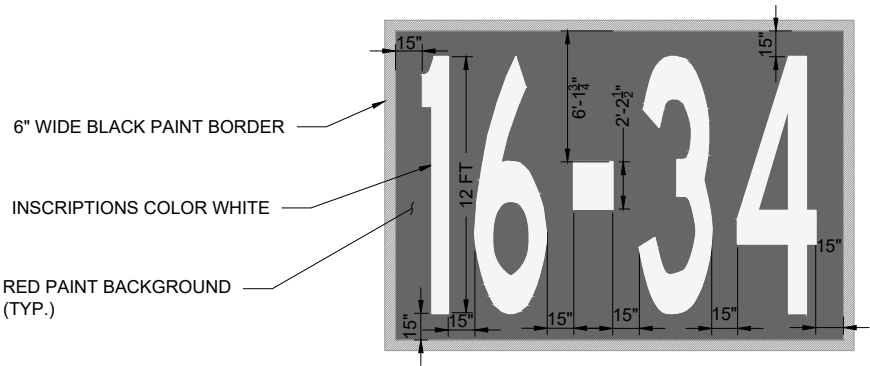
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 27-9**  
N.T.S.



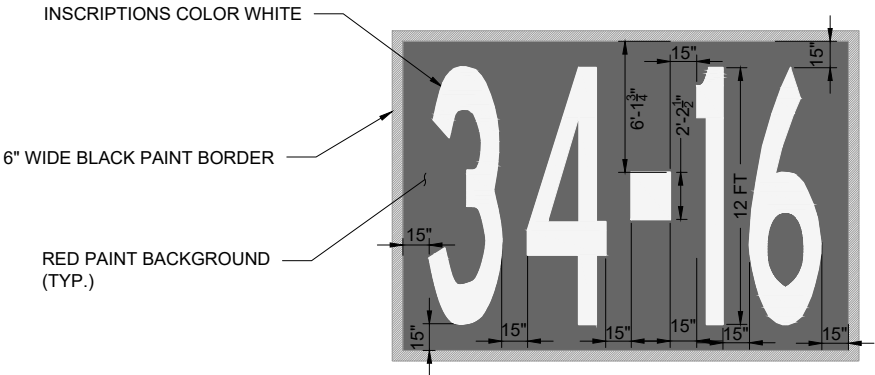
**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 9**  
N.T.S.

**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 27**  
N.T.S.

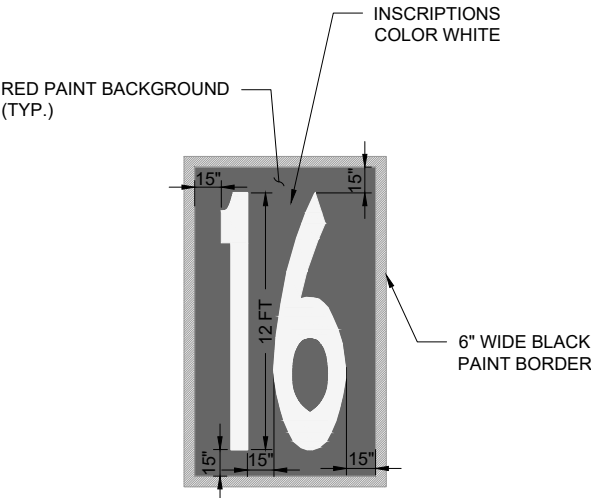
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>		TYPICAL DETAIL NO.	101.015
	NO.	DATE	<b>NOTES FOR DESIGNER:</b> 1. APPLICABLE TO SWF		<b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 16-34</b>	
					DETAIL SHEET 1 OF 1	



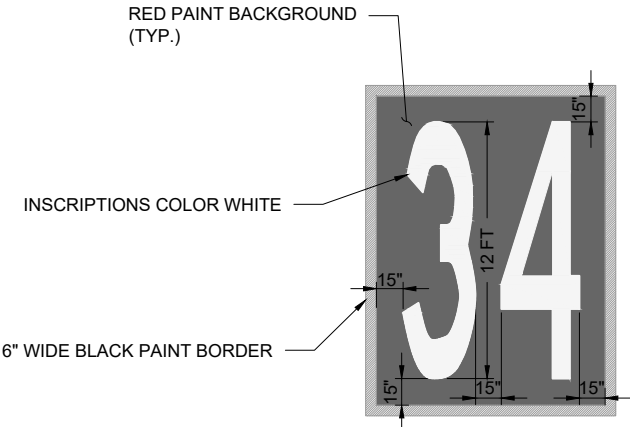
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 16-34**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 34-16**  
NOT TO SCALE

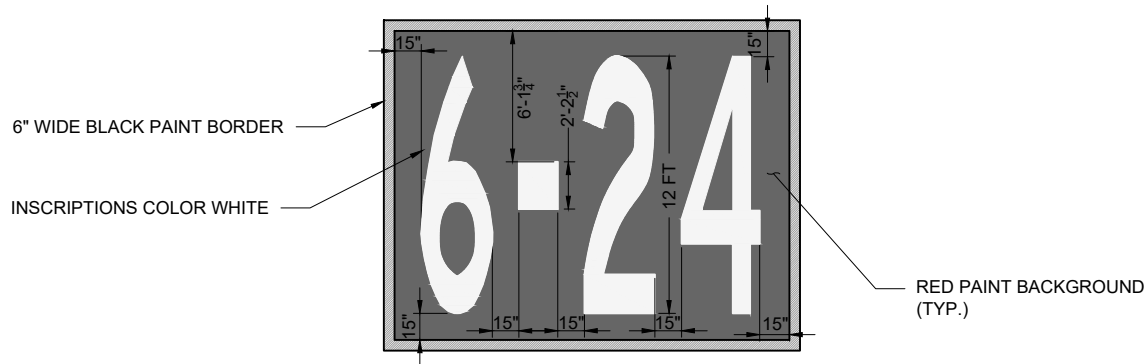


**SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 16**  
NOT TO SCALE

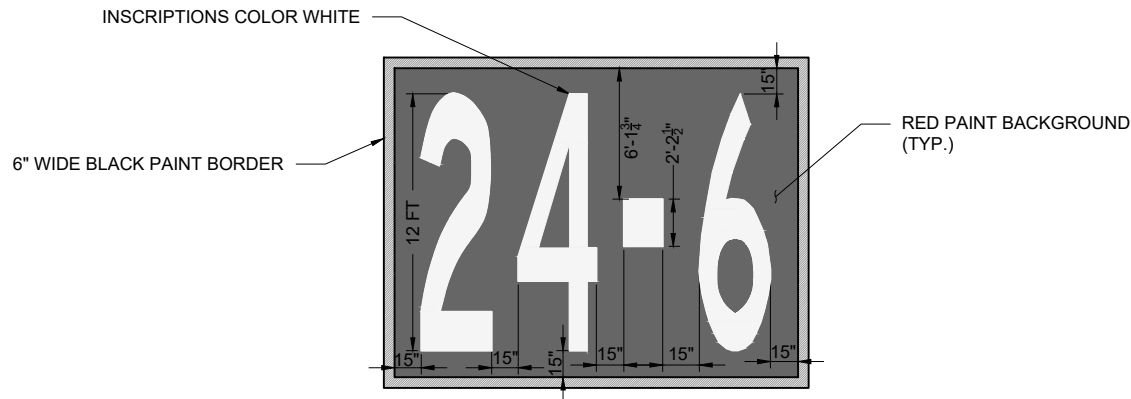


**SURFACE PAINTED HOLDING POSITION SIGNS  
(SPHPS) RUNWAY 34**  
NOT TO SCALE

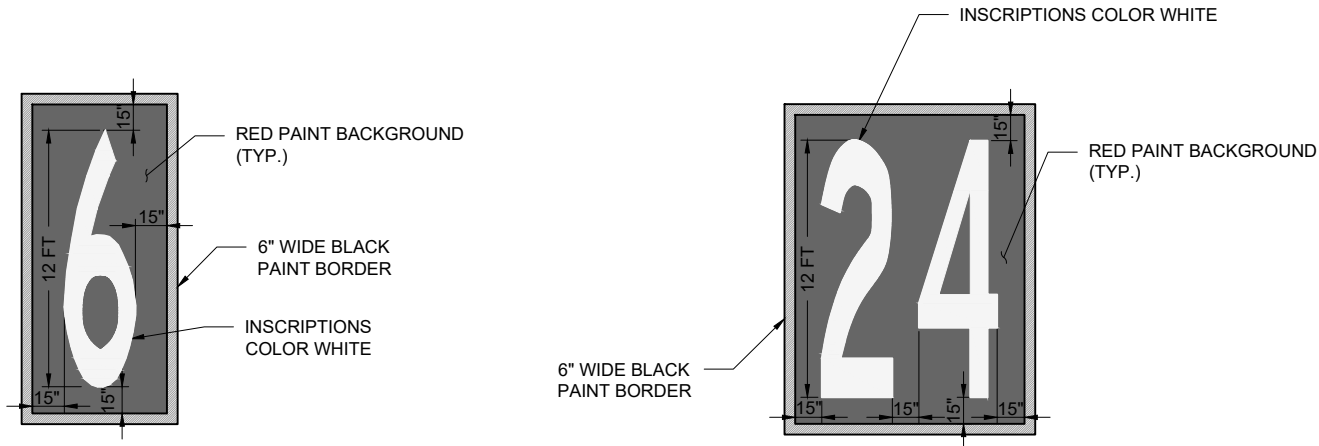
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 12/09/2018  APPROVED BY  06/20/2019 CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:  1.    APPLICABLE TO TEB	TYPICAL DETAIL NO.	101.016
	NO.	DATE		<b>TITLE:</b>  <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 6-24</b>	



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 6-24**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 24-6**  
NOT TO SCALE

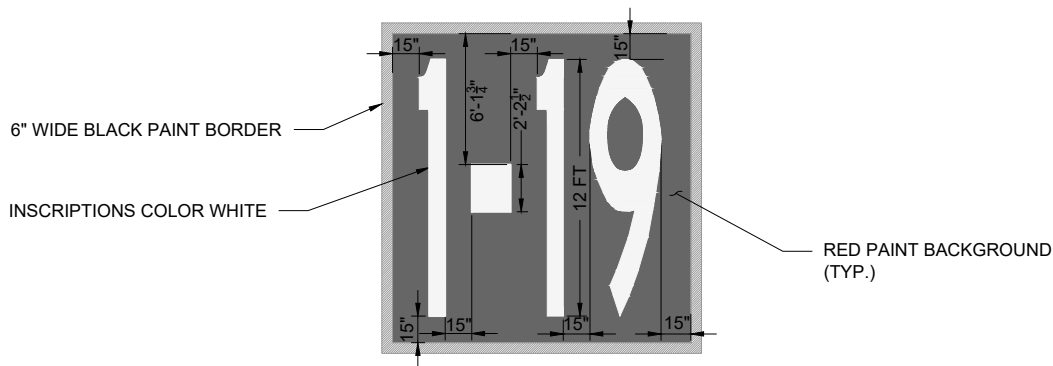


**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 6**  
NOT TO SCALE

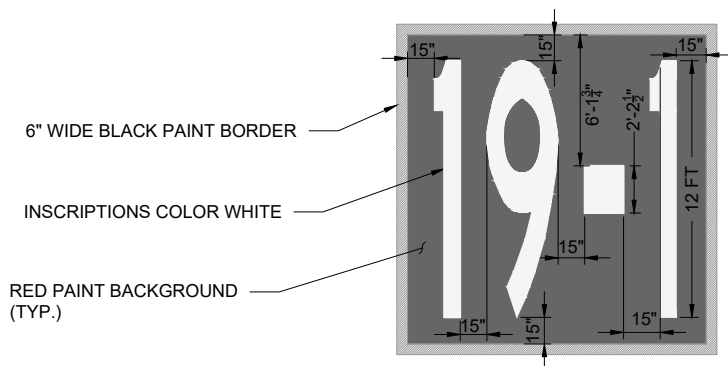
**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 24**  
NOT TO SCALE



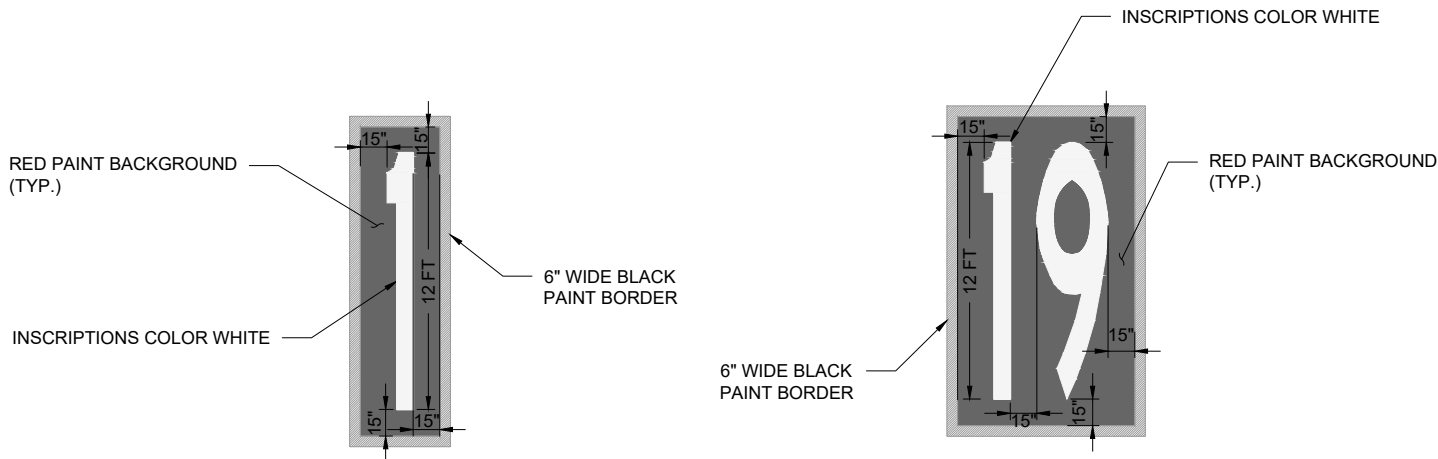
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>  1. APPLICABLE TO TEB	TYPICAL DETAIL NO.	101.017
				<b>TITLE:</b>  <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - RUNWAY 1-19</b>	
				DETAIL SHEET 1 OF 1	



**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 1-19**  
NOT TO SCALE



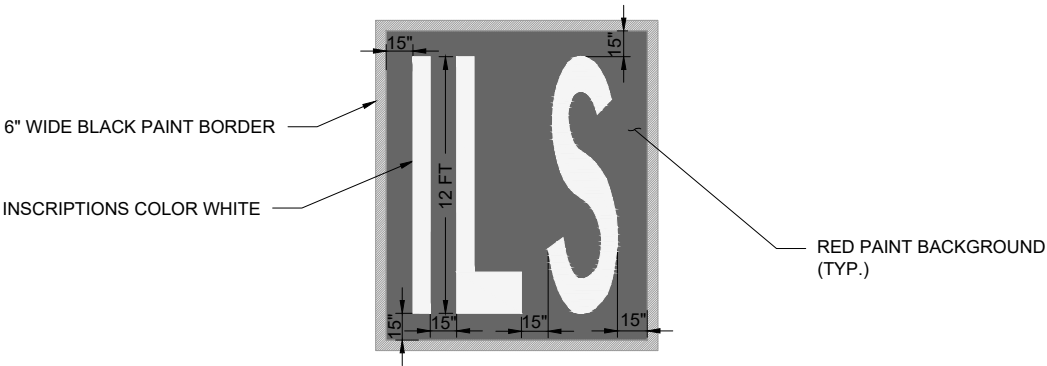
**SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)**  
**RUNWAY 19-1**  
NOT TO SCALE



**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 1**  
NOT TO SCALE

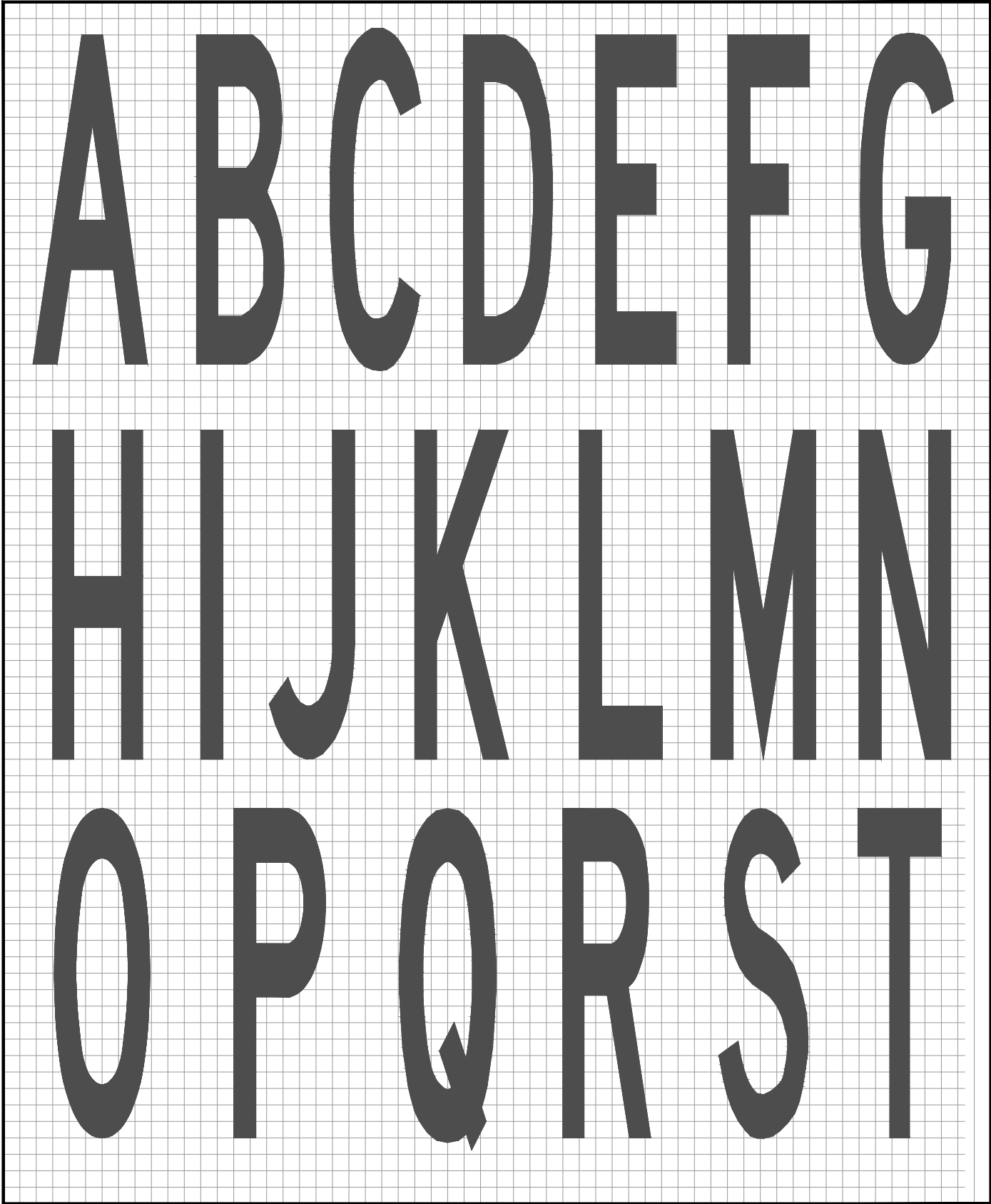
**SURFACE PAINTED HOLDING POSITION SIGNS**  
**(SPHPS) RUNWAY 19**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b>	<b>TYPICAL DETAIL NO.</b>  <b>TITLE:</b> <b>SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) - ILS</b>	<b>101.018</b>
	<b>NO.</b>	<b>DATE</b>			
<b>DETAIL SHEET 1 OF 1</b>					



SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
ILS  
NOT TO SCALE

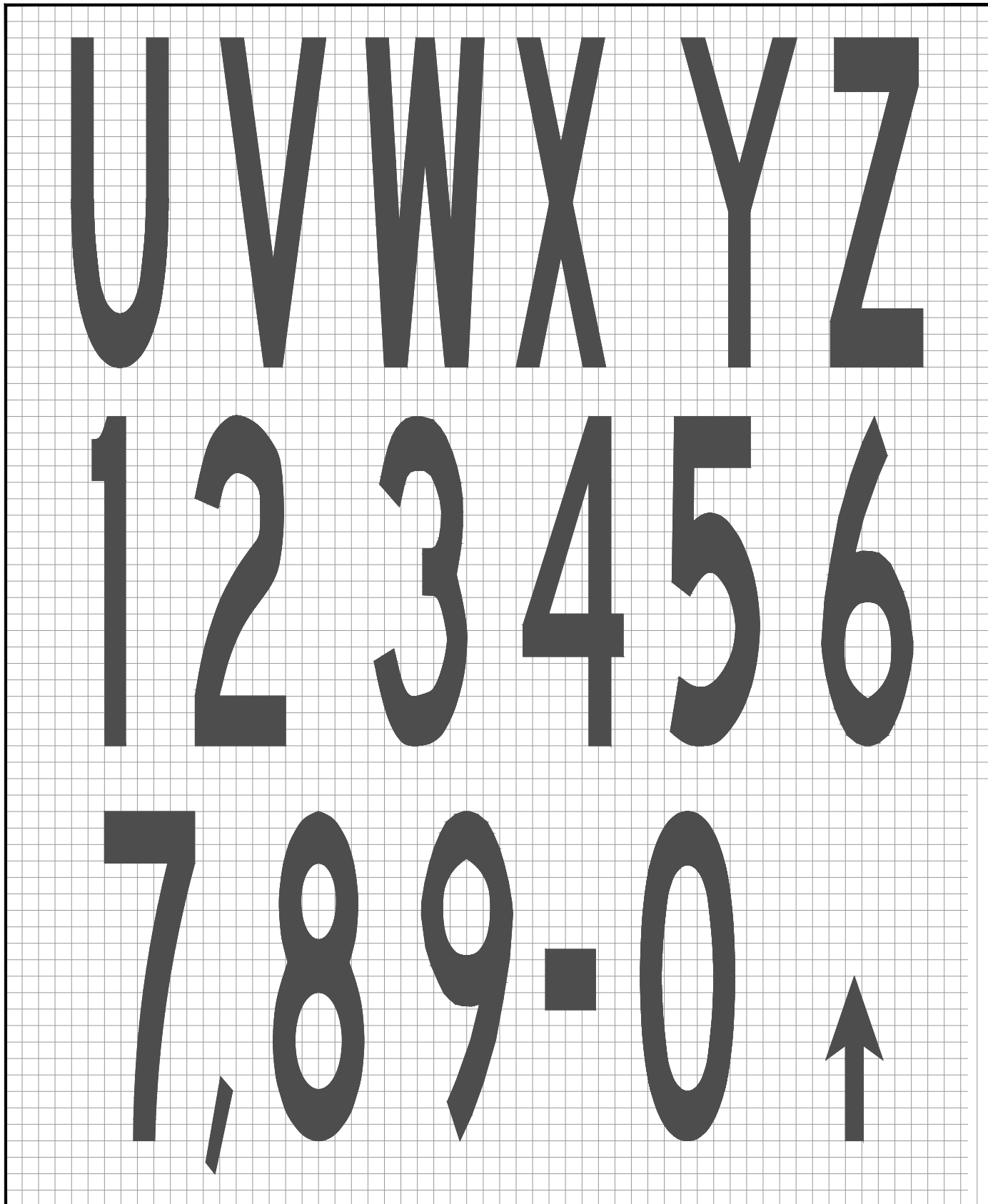
<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 12/09/2018 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	101.019A
				<b>TITLE:</b> <b>INSCRIPTION FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND GEOGRAPHIC POSITION MARKINGS</b> <b>DETAIL 1 OF 2</b>	
					DETAIL SHEET 1 OF 2



INSCRIPTIONS FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
AND GEOGRAPHIC POSITION MARKINGS - DETAIL 1 of 2

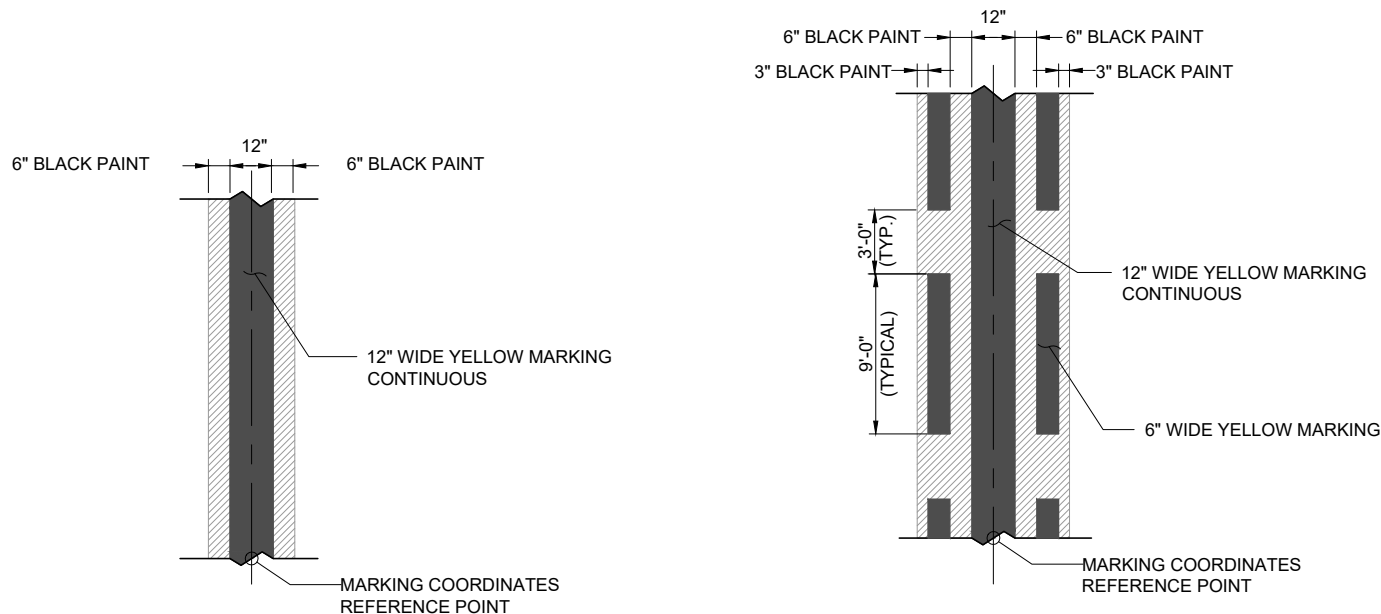
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY &amp; NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 12/09/2018 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	101.019B
				TITLE: <b>INSCRIPTION FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) AND GEOGRAPHIC POSITION MARKINGS DETAIL 2 OF 2</b>	
				DETAIL SHEET 2 OF 2	



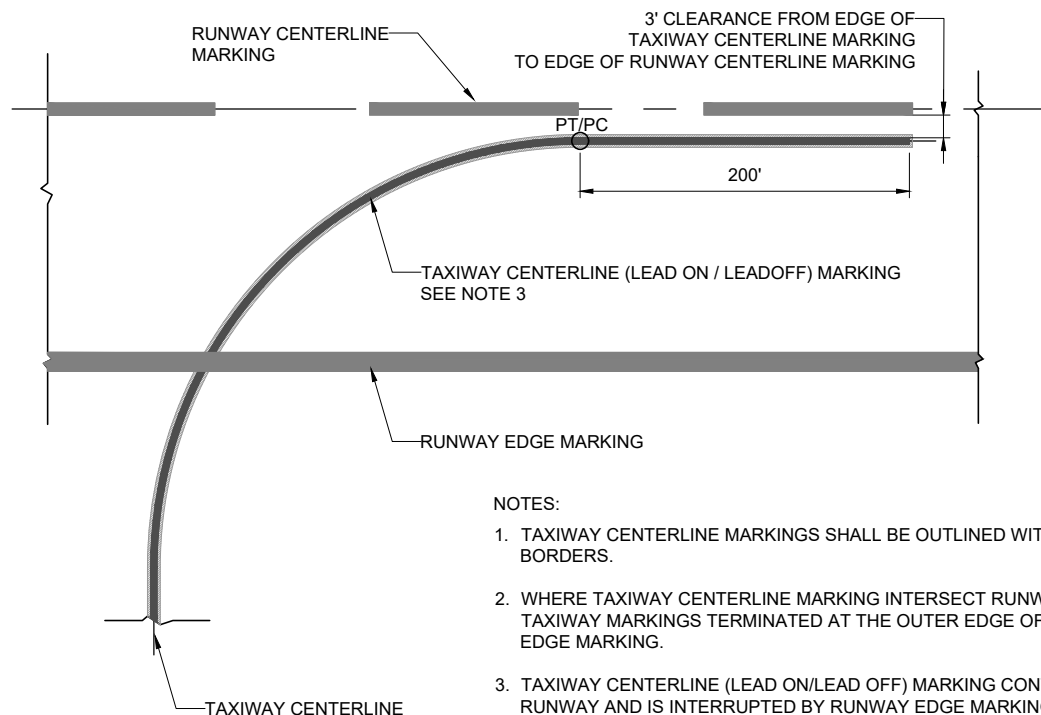
INSCRIPTIONS FOR SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS)  
AND GEOGRAPHIC POSITION MARKINGS - DETAIL 2 of 2  
 NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. TAXIWAY CENTERLINE MARKING 6" WIDE YELLOW STRIPE FOR TETERBORO (TEB)	TYPICAL DETAIL NO.	102.001
				<b>TITLE:</b>  <b>TAXIWAY CENTERLINE MARKINGS</b>	
				DETAIL SHEET 1 OF 1	



**TAXIWAY CENTERLINE MARKING**  
NOT TO SCALE

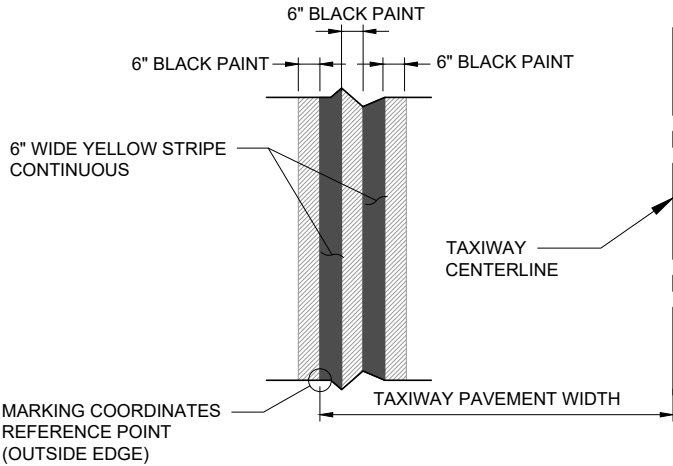
**ENHANCED TAXIWAY CENTERLINE MARKING**  
NOT TO SCALE



- NOTES:
1. TAXIWAY CENTERLINE MARKINGS SHALL BE OUTLINED WITH 6" BLACK BORDERS.
  2. WHERE TAXIWAY CENTERLINE MARKING INTERSECT RUNWAYS, TAXIWAY MARKINGS TERMINATED AT THE OUTER EDGE OF RUNWAY EDGE MARKING.
  3. TAXIWAY CENTERLINE (LEAD ON/LEAD OFF) MARKING CONTINUE ONTO RUNWAY AND IS INTERRUPTED BY RUNWAY EDGE MARKING.
  4. WHERE RUNWAY EDGE MARKING HAS BLACK PAINT BORDERS, TAXIWAY CENTERLINE MARKINGS ARE TO ABUT THE BLACK PAINT.

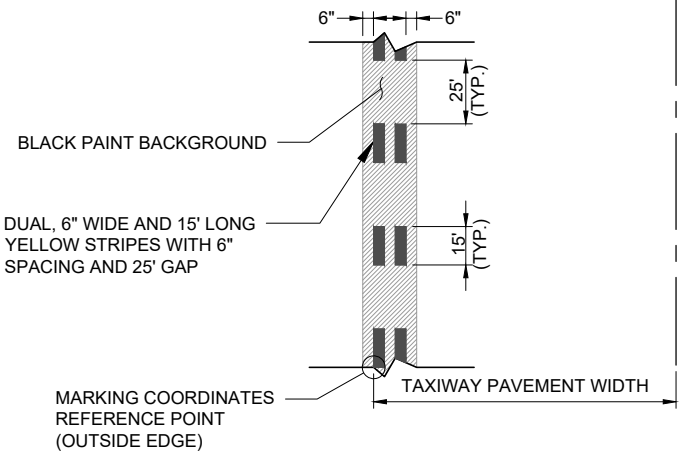
**TAXIWAY CENTERLINE (LEAD ON/LEAD OFF) MARKING**  
NOT TO SCALE

<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 12/09/2018</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER:</div> <div>1. ELEVATED EDGE MARKER PROVIDED BY ELECTRICAL DESIGN</div> <div>2. TEB NO SHOULDER PAVEMENT FOR MOST AREAS, NO SHOULDER MARKING.</div>	TYPICAL DETAIL NO.	102.002
	NO.	DATE		<div>TITLE:</div> <div>TAXIWAY EDGE MARKING AND SHOULDER MARKING</div>	
				DETAIL SHEET 1 OF 1	

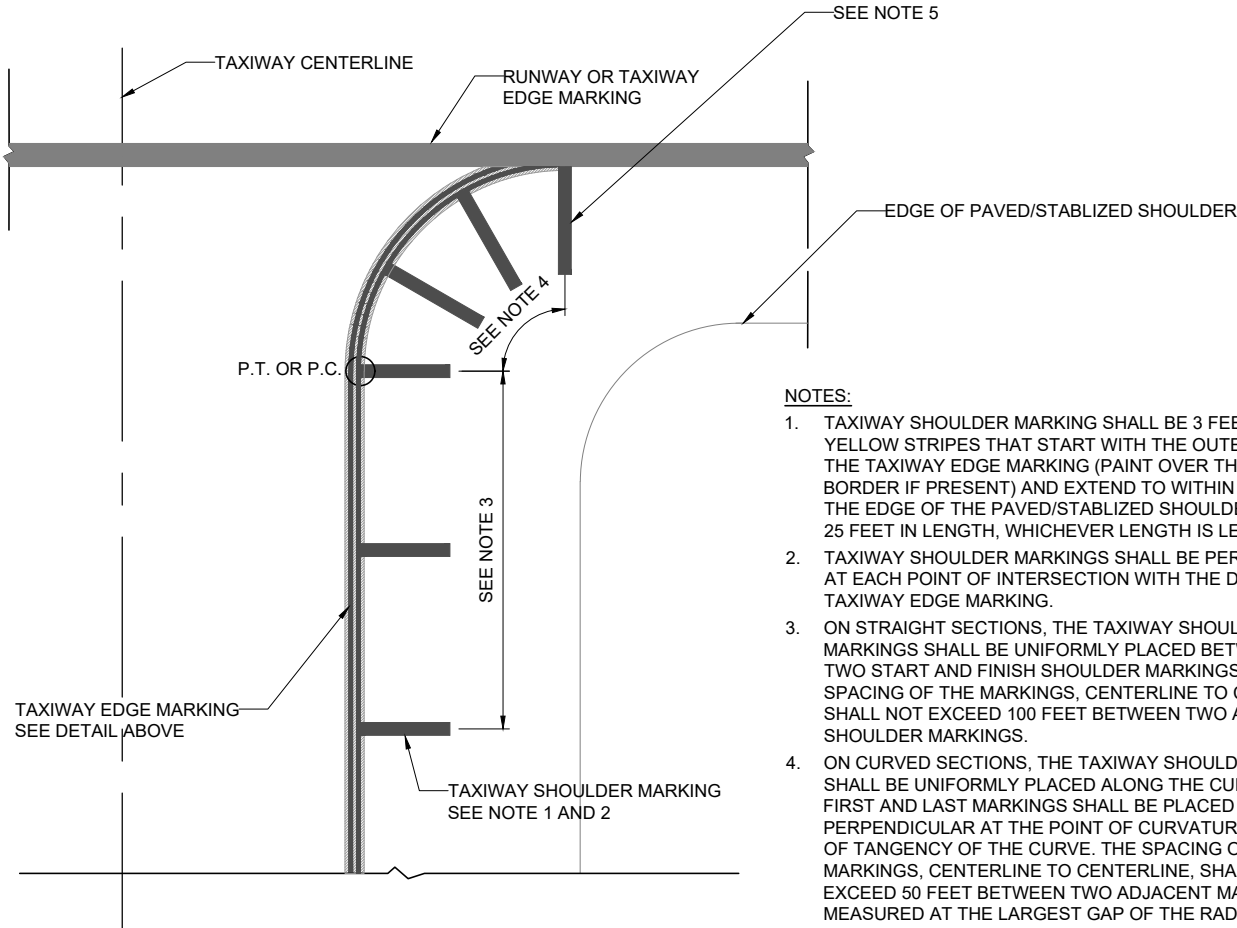


- NOTES:
1. TAXIWAY EDGE MARKINGS SHALL BE OUTLINED WITH 6" BLACK BORDERS.
  2. WHERE TAXIWAY EDGE MARKINGS INTERSECT RUNWAYS, TAXIWAY MARKINGS TERMINATED AT THE OUTER EDGE OF RUNWAY EDGE MARKING. IF RUNWAY EDGE MARKING HAS BLACK BORDER, TAXIWAY MARKINGS SHALL ABUT THE BLACK PAINT.

**CONTINUOUS TAXIWAY EDGE MARKING**  
NOT TO SCALE



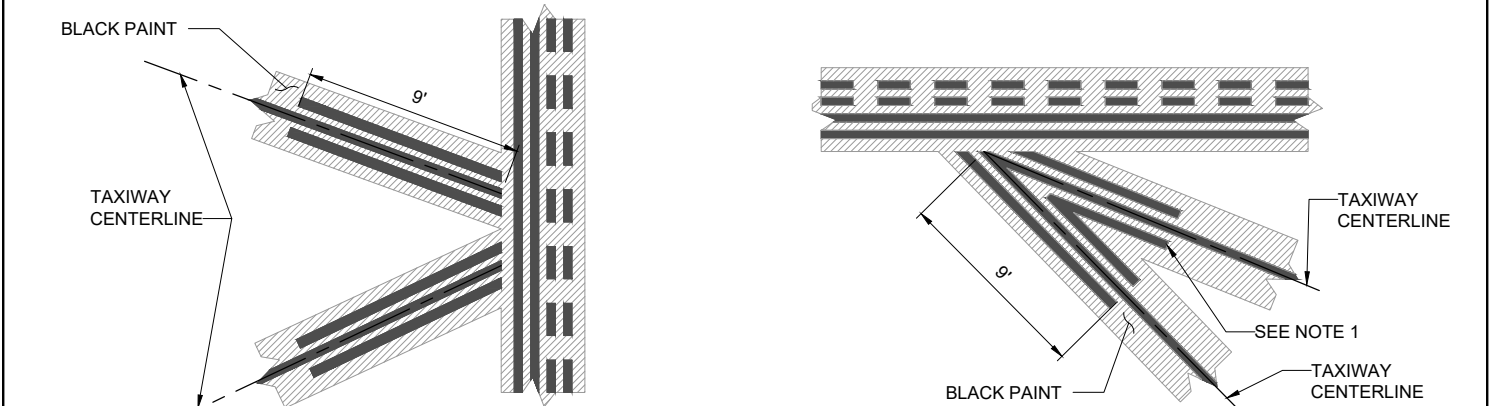
**DASHED TAXIWAY EDGE MARKING**  
NOT TO SCALE



- NOTES:**
1. TAXIWAY SHOULDER MARKING SHALL BE 3 FEET WIDE YELLOW STRIPES THAT START WITH THE OUTER EDGE OF THE TAXIWAY EDGE MARKING (PAINT OVER THE BLACK BORDER IF PRESENT) AND EXTEND TO WITHIN 5 FEET OF THE EDGE OF THE PAVED/STABILIZED SHOULDER AREA OR 25 FEET IN LENGTH, WHICHEVER LENGTH IS LESS.
  2. TAXIWAY SHOULDER MARKINGS SHALL BE PERPENDICULAR AT EACH POINT OF INTERSECTION WITH THE DEFINED TAXIWAY EDGE MARKING.
  3. ON STRAIGHT SECTIONS, THE TAXIWAY SHOULDER MARKINGS SHALL BE UNIFORMLY PLACED BETWEEN THE TWO START AND FINISH SHOULDER MARKINGS. THE SPACING OF THE MARKINGS, CENTERLINE TO CENTERLINE, SHALL NOT EXCEED 100 FEET BETWEEN TWO ADJACENT SHOULDER MARKINGS.
  4. ON CURVED SECTIONS, THE TAXIWAY SHOULDER MARKINGS SHALL BE UNIFORMLY PLACED ALONG THE CURVE. THE FIRST AND LAST MARKINGS SHALL BE PLACED PERPENDICULAR AT THE POINT OF CURVATURE AND POINT OF TANGENCY OF THE CURVE. THE SPACING OF THE MARKINGS, CENTERLINE TO CENTERLINE, SHALL NOT EXCEED 50 FEET BETWEEN TWO ADJACENT MARKINGS MEASURED AT THE LARGEST GAP OF THE RADICALLY SPACED MARKINGS
  5. WHERE TAXIWAY SHOULDER MARKING INTERSECTS WITH RUNWAY EDGE MARKING, TAXIWAY SHOULDER MARKING SHALL BE OMITTED.

**TAXIWAY SHOULDER MARKING**  
NOT TO SCALE

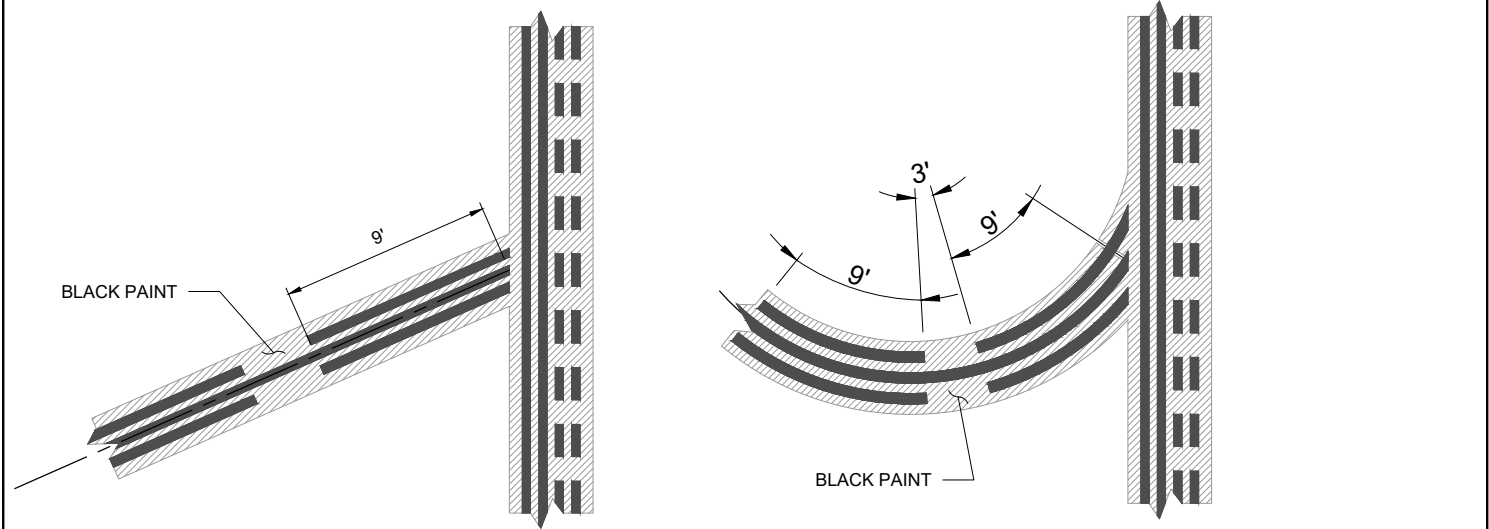
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.    DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	102.003
	NOTES FOR DESIGNER: 1. CHOOSE AND REVISE THIS DETAIL PER PROJECT.		<b>TITLE:</b> <b>TAXIWAY ENHANCED CENTERLINE MARKINGS INTERSECTING DETAILS (NON 90 DEGREES)</b>		
			DETAIL SHEET 1 OF 1		



DETAIL A

DETAIL B

- NOTES:
- PARTIAL INNER DASHES INCLUDED WHEN THEY EXCEED 5 FEET IN LENGTH. ACCEPTABLE TO OMIT ANY DASHES THAT ARE LESS THAN 5' IN LENGTH.

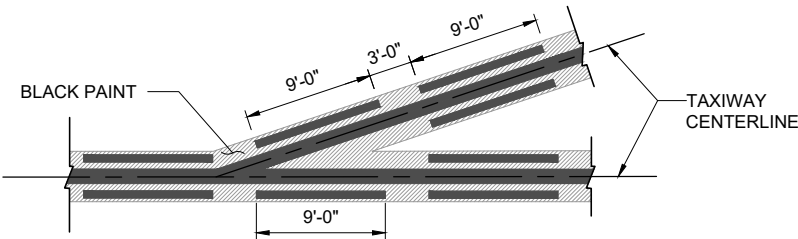


DETAIL C

DETAIL D

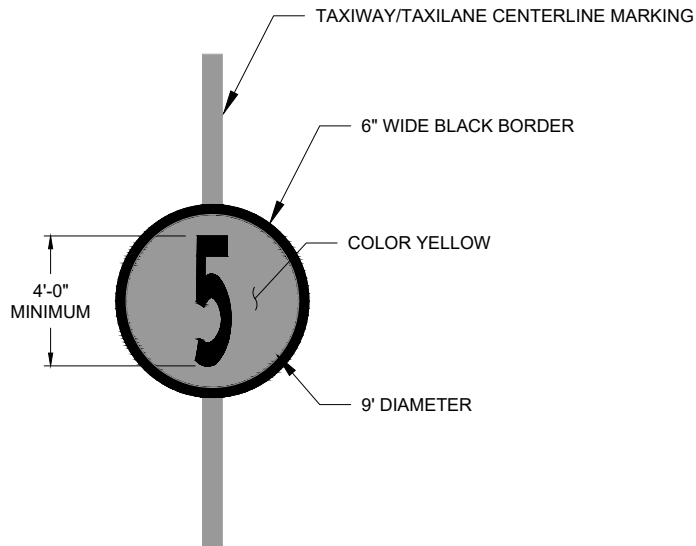
NOTE: WHERE TAXIWAY ENHANCED CENTERLINE MARKING INTERSECTS RUNWAY HOLDING POSITION MARKING AT ANGLES OTHER THAN 90 DEGREES. THE FIRST SET OF DASHES START 6" FROM RUNWAY HOLDING POSITION MARKING FIRST SOLID BAR AND END AT THE LOCATION MEASURED ON TAXIWAY CENTERLINE AS 9'-6" FROM RUNWAY HOLDING POSITION MARKING FIRST SOLID BAR.

**TAXIWAY ENHANCED CENTERLINE MARKING INTERSECTING  
RUNWAY HOLDING POSITION MARKING DETAILS**  
NOT TO SCALE

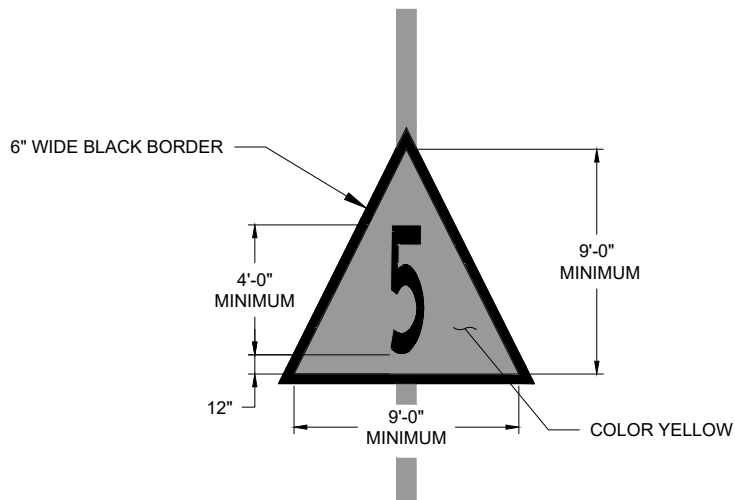


**TAXIWAY ENHANCED CENTERLINE MARKING INTERSECTING  
TAXIWAY ENHANCED CENTERLINE MARKING DETAILS**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	102.004
	NO.	DATE		TITLE:	
DATE CREATED: 12/09/2018			NOTES FOR DESIGNER:	<b>RAMP CONTROL MARKINGS</b>	
APPROVED BY					
06/20/2019				DETAIL SHEET 1 OF 1	
CHIEF CIVIL ENGINEER	DATE				



CIRCULAR SHAPED

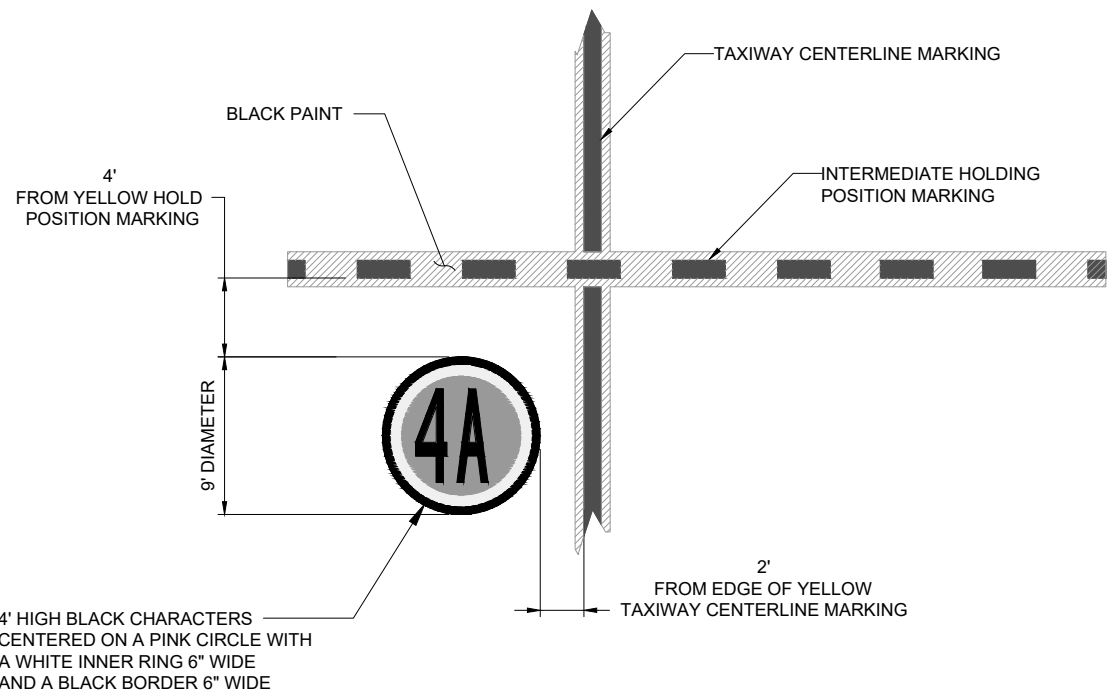


TRIANGULAR SHAPED

RAMP CONTROL MARKINGS  
NOT TO SCALE

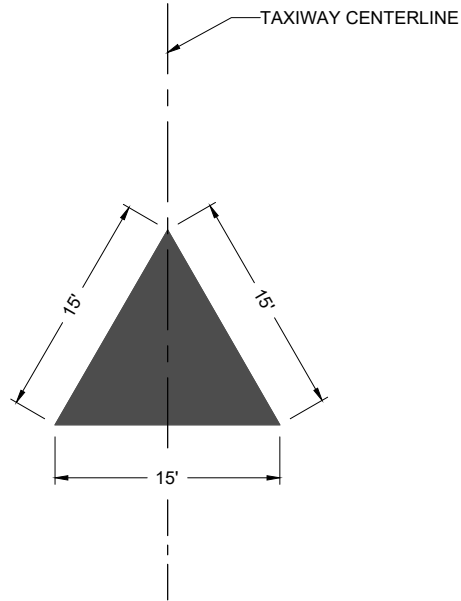


<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	102.005
	NO.	DATE		TITLE:	
DATE CREATED: 12/09/2018			<b>NOTES FOR DESIGNER:</b> 1. MAKE SURE PINK COLOR IS COVERED BY THE SPECIFICATION. 2. THE GEOGRAPHIC POSITION MARKINGS ARE NOTED IN AIRPORT SURFACE MOVEMENT GUIDANCE CONTROL SYSTEM (SMGCS) PLAN.	<b>GEOGRAPHIC POSITION MARKINGS</b>	
APPROVED BY					
06/20/2019				DETAIL SHEET 1 OF 1	
CHIEF CIVIL ENGINEER	DATE				



**GEOGRAPHIC POSITION MARKINGS**  
NOT TO SCALE

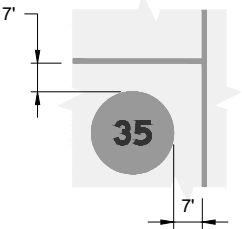
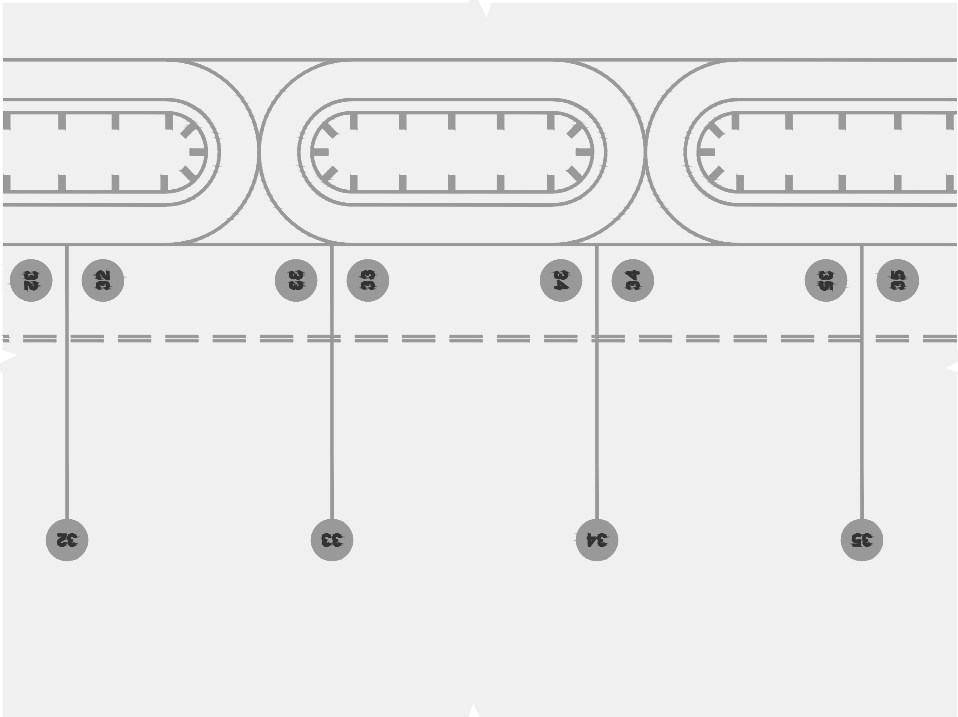
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	<b>REVISION</b>		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	102.006
	NO.	DATE		<b>TITLE:</b>  <b>TAXIWAY START-UP DIAMOND MARKING</b>	
	<b>NOTES FOR DESIGNER:</b>  1. APPLICABLE TO LGA TAXIWAYS				
			DETAIL SHEET 1 OF 1		



TAXIWAY START-UP DIAMOND MARKING

NOT TO SCALE

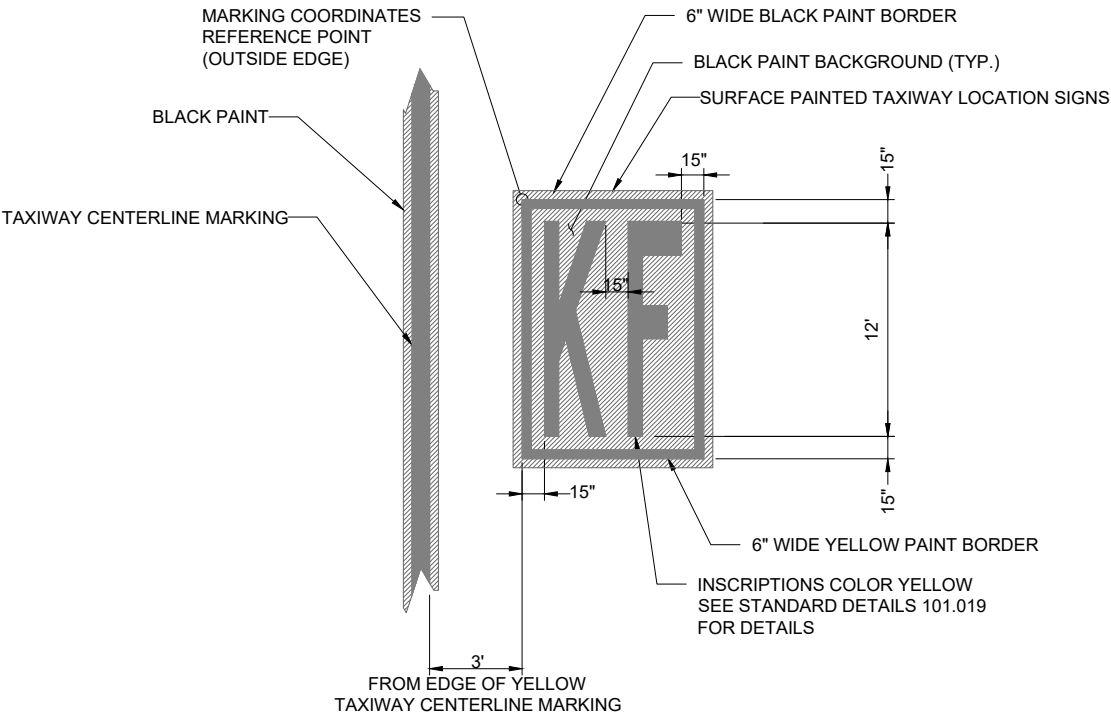
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  DATE CREATED: 12/09/2018  APPROVED BY  06/20/2019 CHIEF CIVIL ENGINEER      DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b>  NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	102.007
	NO.	DATE		<b>TITLE:</b>  <b>SURFACE PAINTED APRON ENTRANCE POINT SIGNS</b>	
				DETAIL SHEET 1 OF 1	



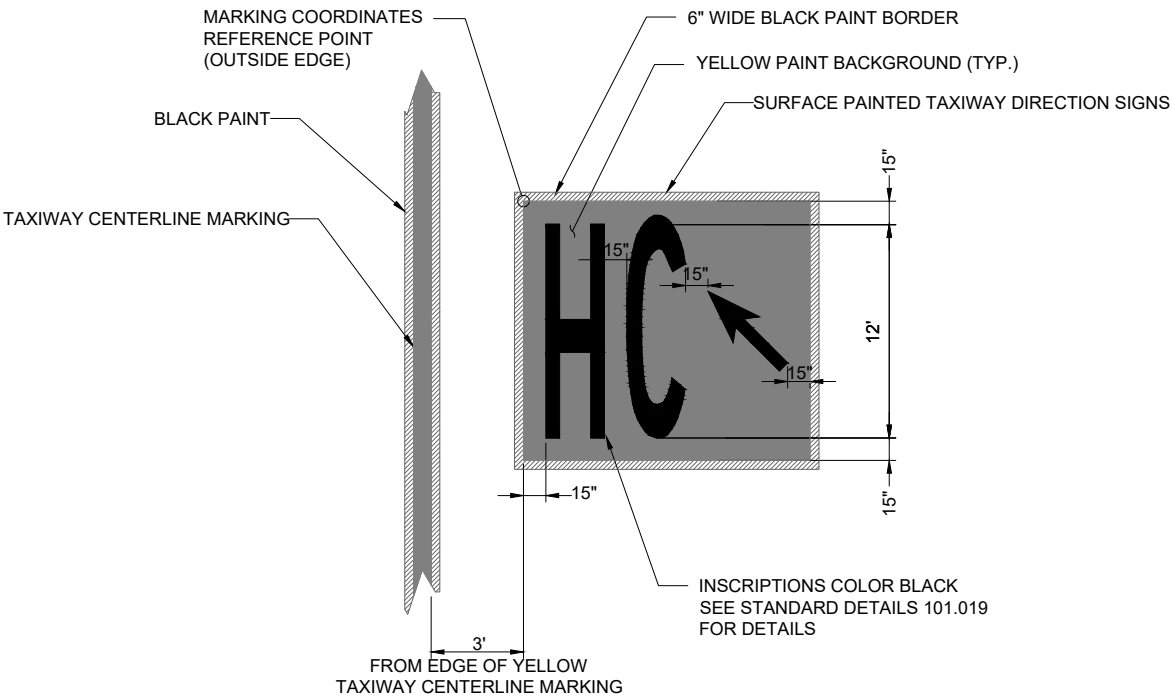
NOTE:  
MEASUREMENTS ARE FROM THE EDGE  
OF CENTERLINE TO EDGE OF SIGN.

**SURFACE PAINTED APRON ENTRANCE POINT SIGNS**  
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>  <b>NOTES FOR DESIGNER:</b> 1. INSCRIPTION COULD BE REDUCED TO 9' HEIGHT.	TYPICAL DETAIL NO.	102.008
				<b>TITLE:</b>  <b>SURFACE PAINTED TAXIWAY LOCATION AND DIRECTION SIGNS</b>	
				DETAIL SHEET 1 OF 1	

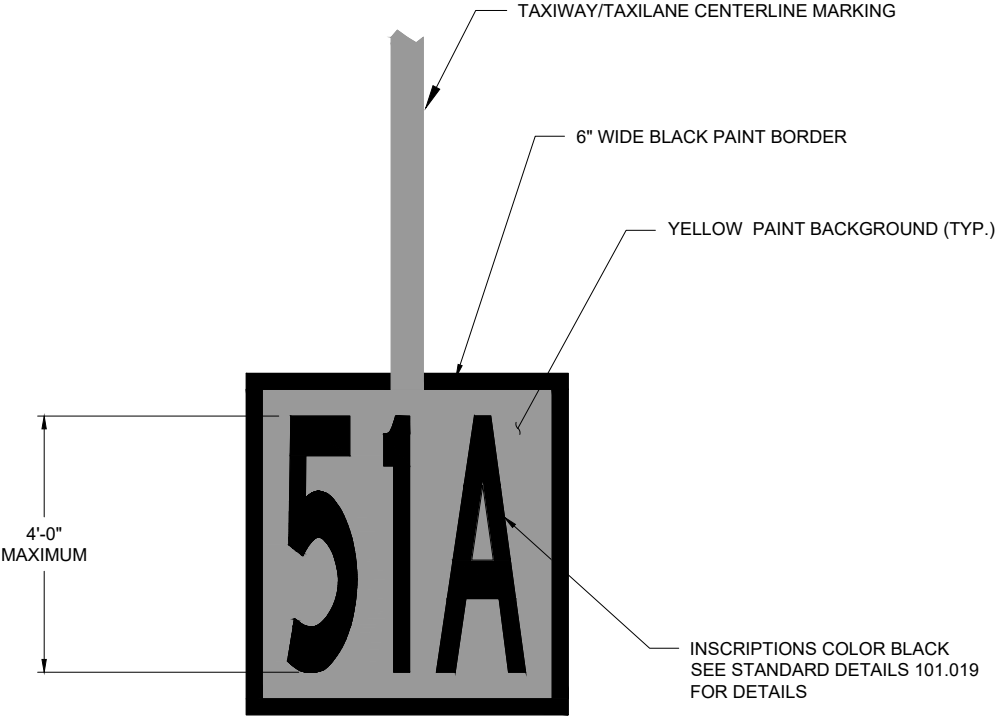


**SURFACE PAINTED TAXIWAY LOCATION SIGNS**  
NOT TO SCALE



**SURFACE PAINTED TAXIWAY DIRECTION SIGNS**  
NOT TO SCALE

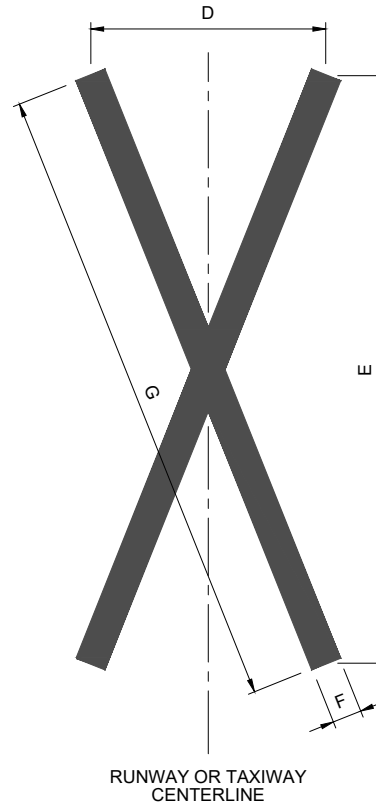
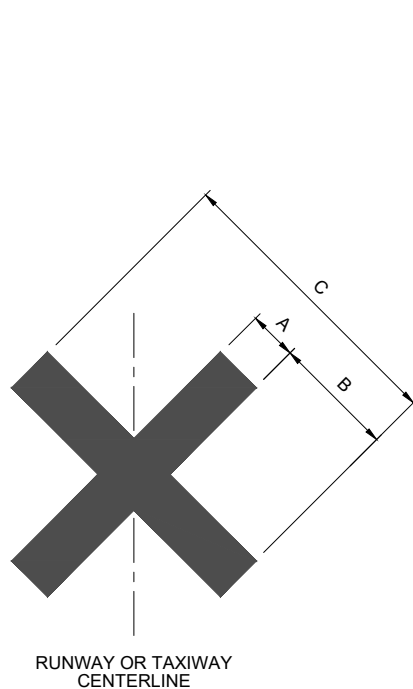
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION  <b>DATE CREATED:</b> 12/09/2018  <b>APPROVED BY</b>  06/20/2019 <b>CHIEF CIVIL ENGINEER</b> <b>DATE</b>	REVISION NO.      DATE		<b>CIVIL DESIGN TYPICAL DETAILS</b>	TYPICAL DETAIL NO.	102.009
			<b>NOTES FOR DESIGNER:</b> 1. RESERVED	<b>TITLE:</b>  <b>SURFACE PAINTED GATE DESIGNATION SIGNS</b>	
				DETAIL SHEET 1 OF 1	



**SURFACE PAINTED GATE DESIGNATION SIGNS**  
NOT TO SCALE



<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION <b>DATE CREATED:</b> 12/09/2018 <b>APPROVED BY</b> 06/20/2019 <b>CHIEF CIVIL ENGINEER</b>	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> <b>NOTES FOR DESIGNER:</b>	TYPICAL DETAIL NO.	103.002
	NO.	DATE		<b>TITLE:</b> <b>TEMPORARILY CLOSED RUNWAYS AND TAXIWAYS MARKING</b>	



ALTERNATE

PATTERN	DIMENSION		A	B	C	D	E	F	G
	SYMBOL TYPE								
A	CLOSED RUNWAY		10' *	25'	60'	-	-	-	-
B	CLOSED RUNWAY (ALTERNATE)		-	-	-	48'	120'	6'	129.25'
C	CLOSED TAXIWAY		5' **	12.5'	30'	-	-	-	-
D	CLOSED TAXIWAY (ALTERNATE)		-	-	-	24'	60'	3'	64.6

\* FOR TEMPORARY SYMBOL THIS DIMENSION MAY BE CHANGED TO 8'

\*\* FOR TEMPORARY SYMBOL THIS DIMENSION MAY BE CHANGED TO 4'

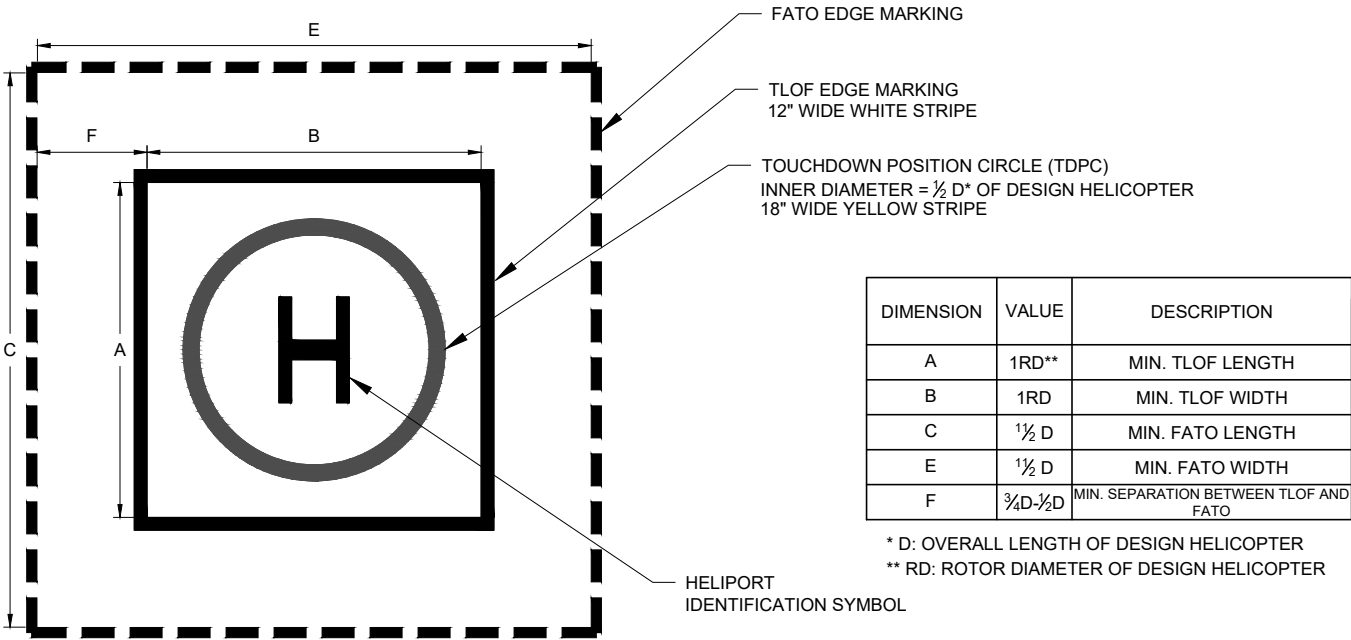
**NOTES:**

1. THE "X" SYMBOLS ARE COLOR YELLOW.
2. THE "X" SYMBOLS ARE NORMALLY MADE OF EASILY REMOVABLE MATERIALS LIKE PLYWOOD OR FABRIC WITH GROUND ANCHOR DEVICE.
3. ANCHORING DEVICES SHALL BE DESIGNED TO MINIMIZE DAMAGE TO PAVEMENT, AND DAMAGE SHOULD BE REPAIRED BEFORE RUNWAYS OR TAXIWAYS ARE OPEN.

**TEMPORARILY CLOSED RUNWAYS AND TAXIWAYS MARKING**

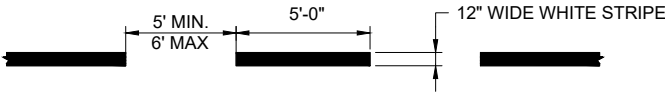
NOT TO SCALE

<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 12/09/2018 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	103.003
	NO.	DATE		TITLE: <b>HELIPORT MARKINGS</b>	
				DETAIL SHEET 1 OF 1	

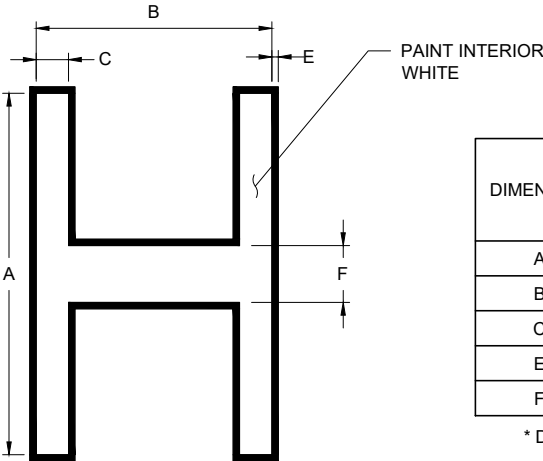


\* D: OVERALL LENGTH OF DESIGN HELICOPTER

**TOUCHDOWN AND LIFTOFF AREA (TLOF) /  
FINAL APPROACH AND TAKEOFF AREA (FATO)  
MARKING**  
 NOT TO SCALE



**FINAL APPROACH AND TAKEOFF AREA (FATO) MARKING DETAIL**  
 NOT TO SCALE



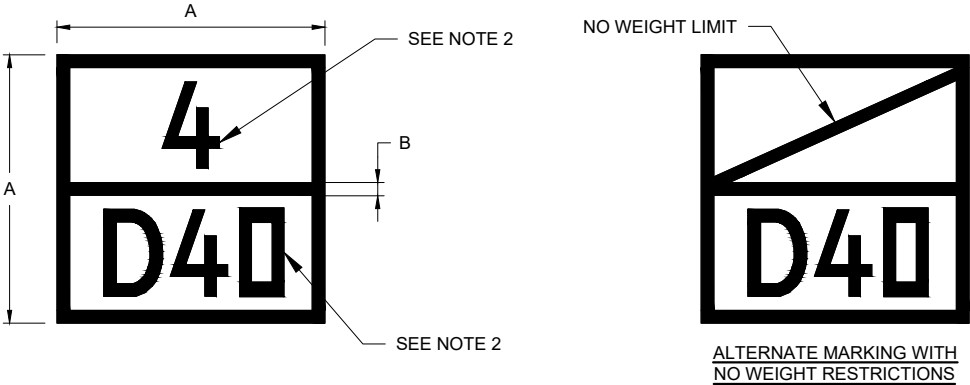
DIMENSION	TOUCHDOWN AND LIFTOFF AREA (TLOF) "H" SIZE	
	STANDARD TLOF MARKING	ALTERNATE TLOF MARKING
A	10'-0"	0.3D*
B	6'-8"	0.66A
C	1'-0"	0.1A
E	0'-3"	0.02A
F	2'-0"	0.2A

\* D: OVERALL LENGTH OF DESIGN HELICOPTER

**HELIPORT IDENTIFICATION SYMBOL**  
 NOT TO SCALE



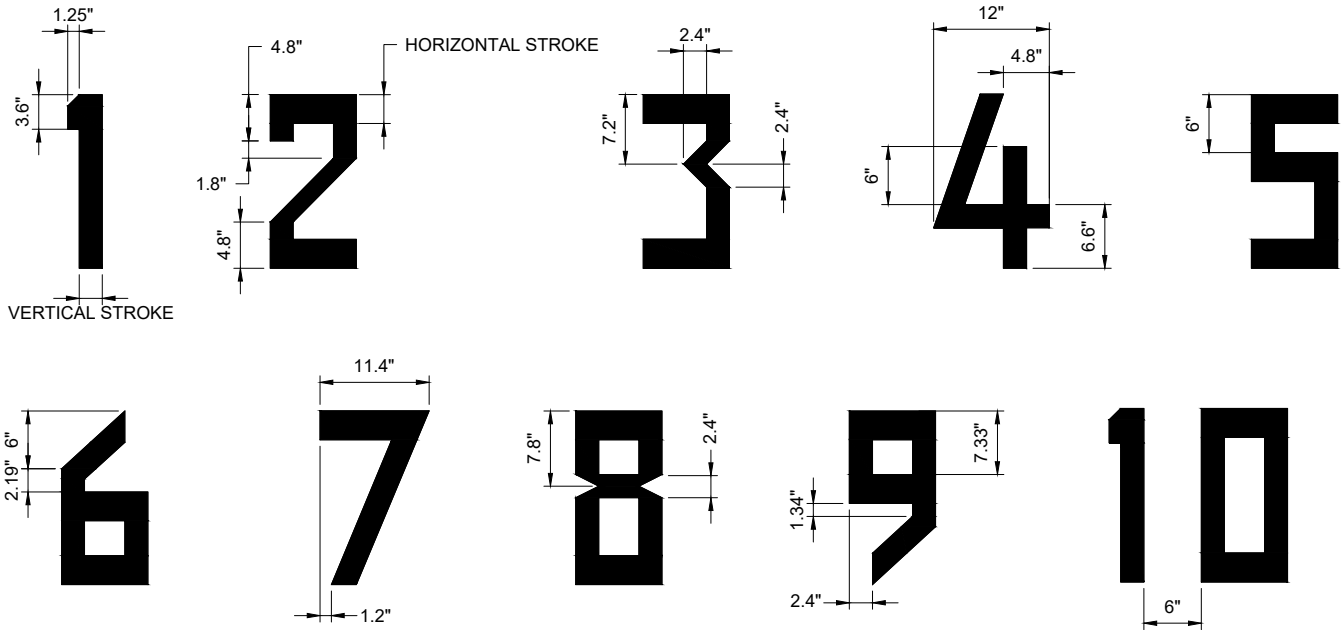
<b>THE PORT AUTHORITY OF NY&amp;NJ</b> ENGINEERING DEPARTMENT/DESIGN DIVISION DATE CREATED: 12/09/2018 APPROVED BY 06/20/2019 CHIEF CIVIL ENGINEER DATE	REVISION		<b>CIVIL DESIGN TYPICAL DETAILS</b> NOTES FOR DESIGNER:	TYPICAL DETAIL NO.	103.004
	NO.	DATE		TITLE: <b>HELIPORT TOUCHDOWN AND LIFTOFF AREA (TLOF) SIZE/WEIGHT LIMIT BOX MARKINGS</b>	



- NOTES:
1. TLOF SIZE AND WEIGHT LIMIT BOX ARE COLOR BLACK ON A WHITE BACKGROUND.
  2. "4" INDICATES THE MAXIMUM TAKEOFF WEIGHT (4,000 LBS) OF THE TLOF DESIGN HELICOPTER IN UNITS OF THOUSANDS OF POUNDS.
  3. "D40" INDICATES THE OVERALL LENGTH OF THE LARGEST HELICOPTER (40FT) FOR WHICH THE TLOF IS DESIGNED.

DIMENSION	TLOF SIZE/WEIGHT LIMITATION "BOX" MARKING SIZE	
	GENERAL AVIATION	TRANSPORT
A	5'	10'
B	5"	10"

**TOUCHDOWN AND LIFTOFF AREA (TLOF)  
SIZE/WEIGHT LIMITATION "BOX"**  
 NOT TO SCALE

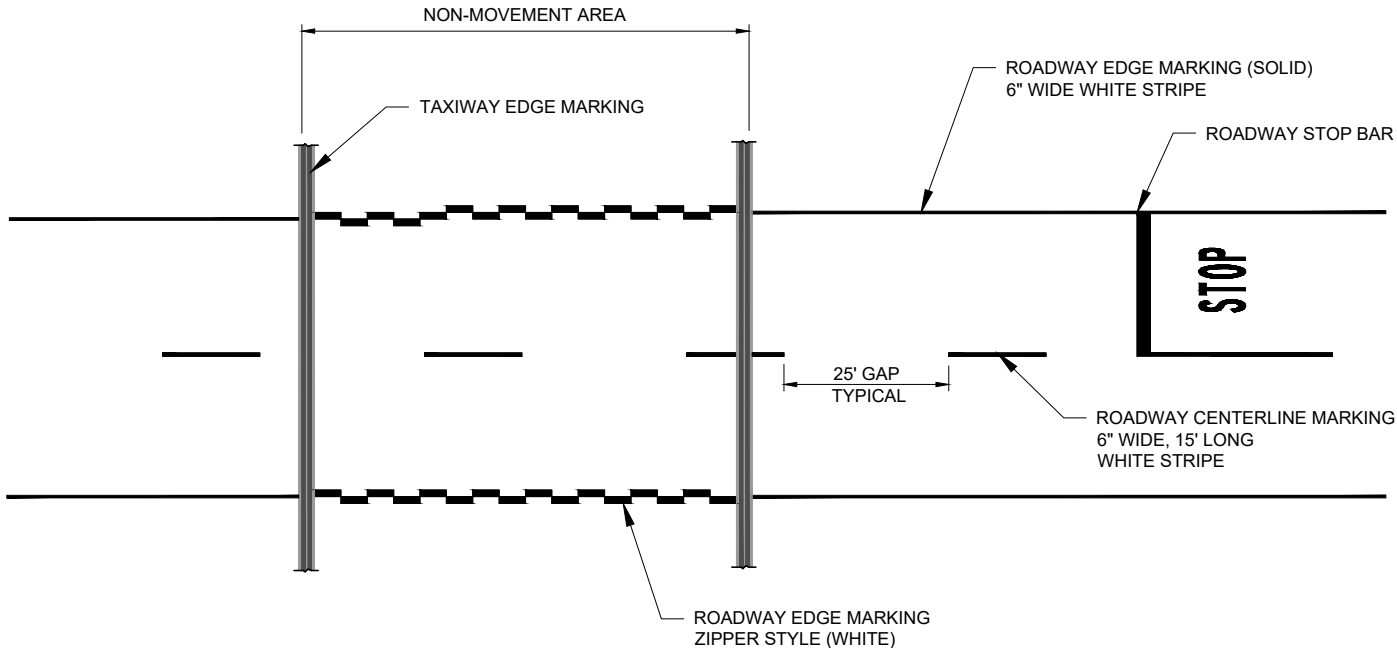


ALL CHARACTERS HAVE FOLLOWING CHARACTERISTICS  
 (UNLESS OTHERWISE SPECIFIED)

DIMENSION	TLOF SIZE/WEIGHT LIMITATION "BOX" MARKING CHARACTER SIZE	
	GENERAL AVIATION	TRANSPORT
HEIGHT	18.00"	36.00"
WIDTH	9.00"	18.00"
VERTICAL STROKE	2.50"	5.00"
HORIZONTAL STROKE	3.00"	6.00"

**CHARACTERS DETAILS FOR TLOF SIZE/WEIGHT LIMITATION "BOX"**  
 NOT TO SCALE

<div>THE PORT AUTHORITY OF NY&amp;NJ</div> <div>ENGINEERING DEPARTMENT/DESIGN DIVISION</div> <div>DATE CREATED: 12/09/2018</div> <div>APPROVED BY</div> <div>06/20/2019</div> <div>CHIEF CIVIL ENGINEER      DATE</div>	REVISION		<div>CIVIL DESIGN TYPICAL DETAILS</div> <div>NOTES FOR DESIGNER:</div> <div>1. EVERY ROADWAY LANE THAT FEEDS VEHICLE TRAFFIC ONTO OR ACROSS A TAXI ROUTE MUST HAVE A SOLID ROADWAY STOP BAR, THE PLACEMENT OF STOP BAR SHALL BE IN ACCORDANCE WITH THE CRITERIA FOR TAXIWAY CENTERLINE TO FIXED/MOVABLE OBJECT PER AC 150/5300-13 FOR THE LARGEST AIRPLANE DESIGN GROUP SERVICE THE AIRPORT.</div> <div>2. ROADWAY MARKINGS OUTSIDE AIRCRAFT MANEUVERING AREA CONFORM TO MUTCD.</div>	TYPICAL DETAIL NO.	103.005
	NO.	DATE		<div>TITLE:</div> <div>RESTRICTED VEHICLE SERVICE ROAD MARKINGS</div>	
				DETAIL SHEET 1 OF 1	

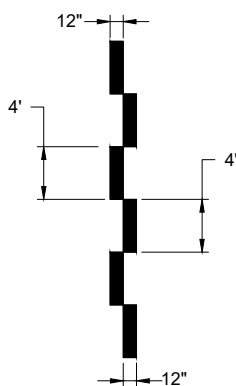


**NOTES:**

1. ROADWAY MARKINGS ARE COLOR WHITE.
2. ALL ROADWAY MARKINGS ARE INTERRUPTED WHEN CROSSING ANY TAXIWAY AND RUNWAY MARKINGS.
3. IN LIEU OF SOLID LINES FOR ROADWAY EDGE MARKINGS, ZIPPER STYLE ARE USED TO ENHANCE THE ROADWAY EDGE DELINEATION.

**RESTRICTED VEHICLE SERVICE ROAD MARKINGS**

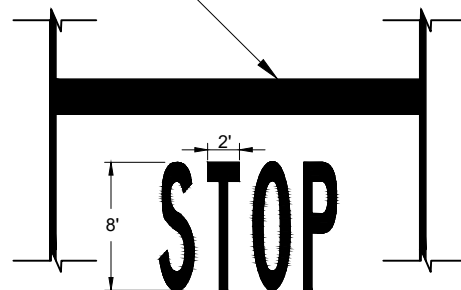
NOT TO SCALE



**ROADWAY EDGE MARKING  
ZIPPER STYLE (WHITE)**

NOT TO SCALE

ROADWAY STOP BAR  
2' WIDE WHITE STRIPE



**ROADWAY STOP BAR AND SIGN DETAILS**

NOT TO SCALE