

**SECTION XI**  
**TUNNELING**

**TABLE OF CONTENTS****TUNNELING**

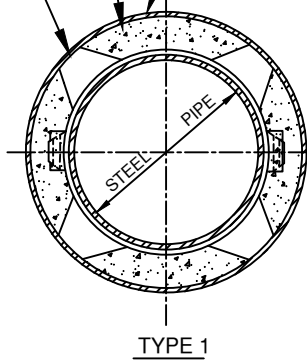
<b><u>No.</u></b>	<b><u>Title</u></b>
T-1	Not Used
T-2	Jacking Or Boring Installation Type 1, 2, & 3
T-3	Tunnel Or Hacking Installation Smooth Wall Casing
T-4	Tunnel Installation Liner Plate Casing
T-5	Earth Tunnel Sub-Surface Settlement Indicator
T-6	Casing Spacer Detail

ANNULAR SPACE AT EACH END OF CASING SHALL BE SEALED WITH 6" OF CEMENT GROUT.

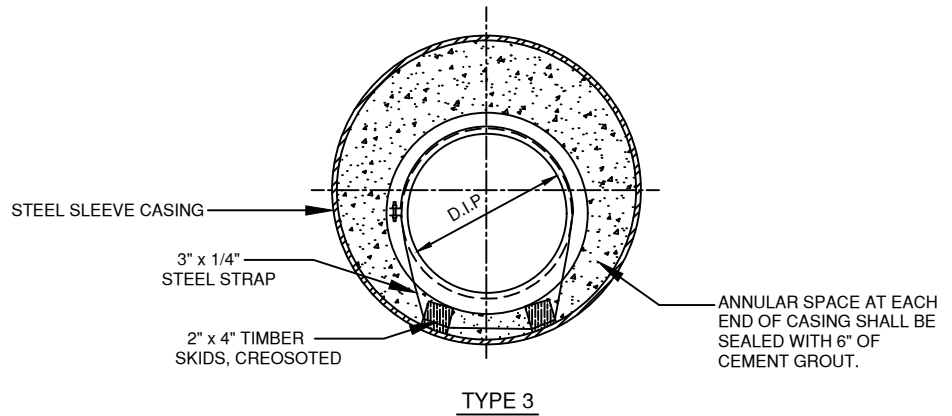
CASING SPACERS PER STANDARD  
DETAIL T/6 OR AS SHOWN ON  
DRAWINGS..

STEEL CASING

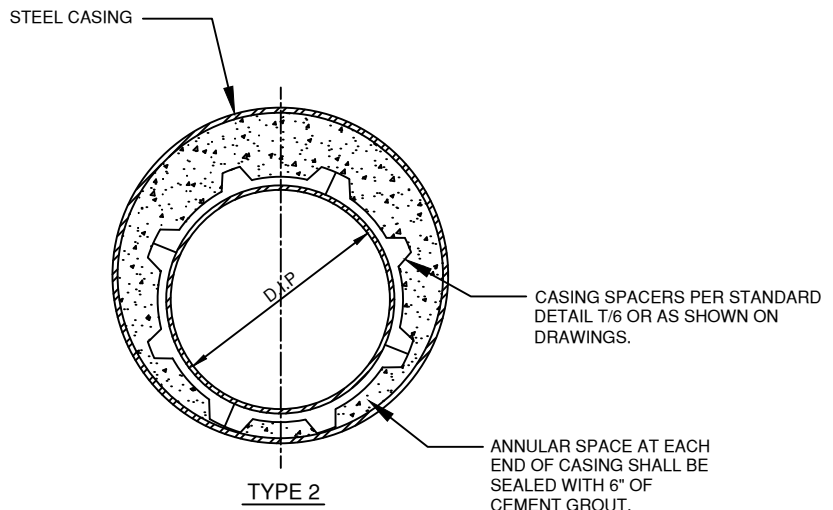
TYPE 1	
PIPE SIZE	SLEEVE
6"	10"
8"	12"
10"	14"
12"	16"



TYPE 3	
PIPE SIZE	SLEEVE
6"	18"
8"	20"
10"	22"
12"	24"



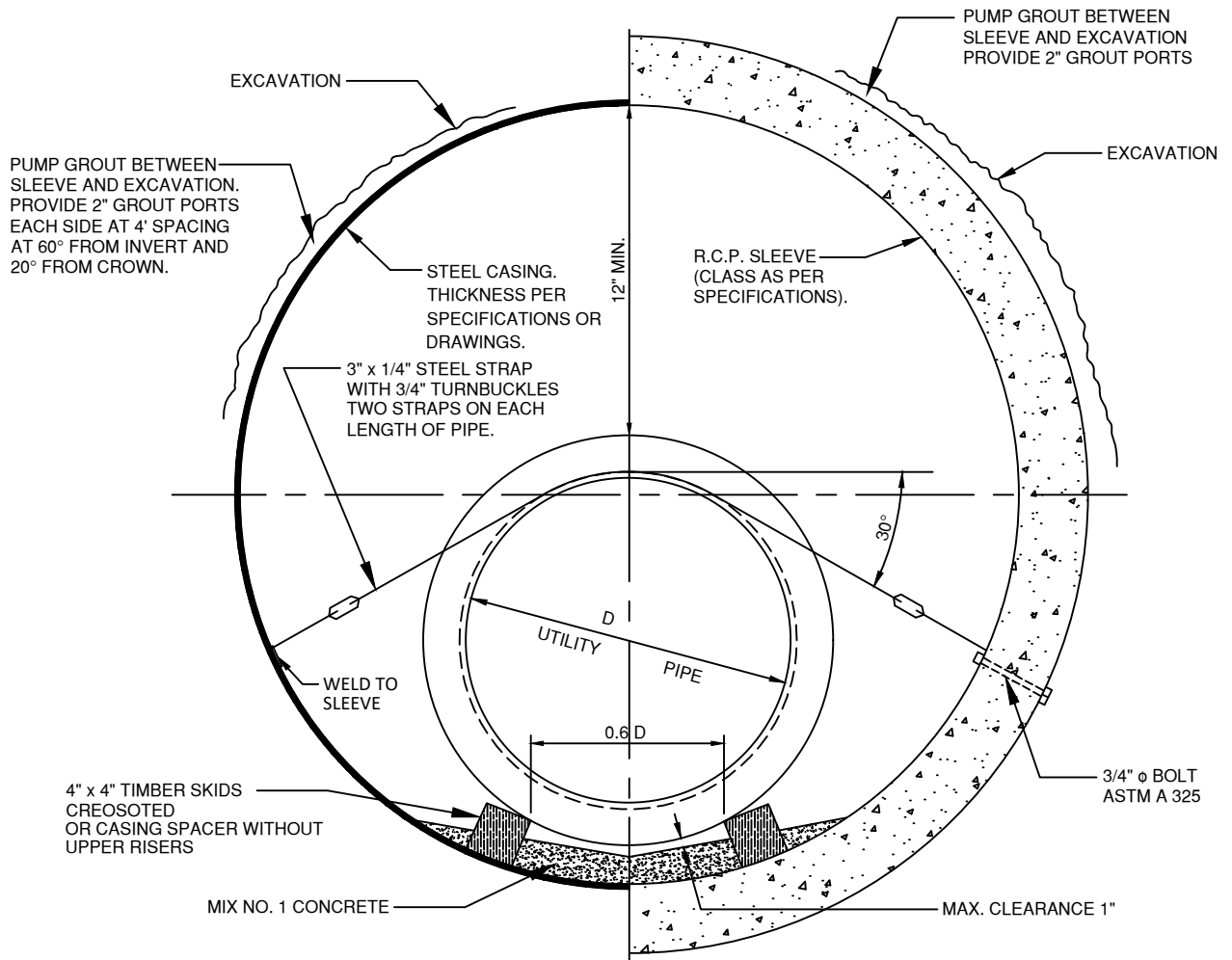
TYPE 2		
PIPE SIZE	STEEL SLEEVE DIA , MIN	RCP SLEEVE DIA , MIN
6"	20"	21"
8"	20"	21"
10"	22"	24"
12"	24"	24"
14"	24"	24"
16"	30"	30"



NOTE:  
1. ALL PIPE IN CASINGS SHALL BE  
RESTRAINED JOINT OR WELDED  
STEEL.

PIPES THRU SLEEVES

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD TUNNELING DETAILS JACKING OR BORING INSTALLATION TYPE, 1,2, AND 3	REVISED	T 2
	_____		04/2024	
	CHIEF ENGINEER		_____	
	DESIGN ENGINEER		_____	
DATE:				



**PIPE THRU SLEEVE**

**NOTES:**

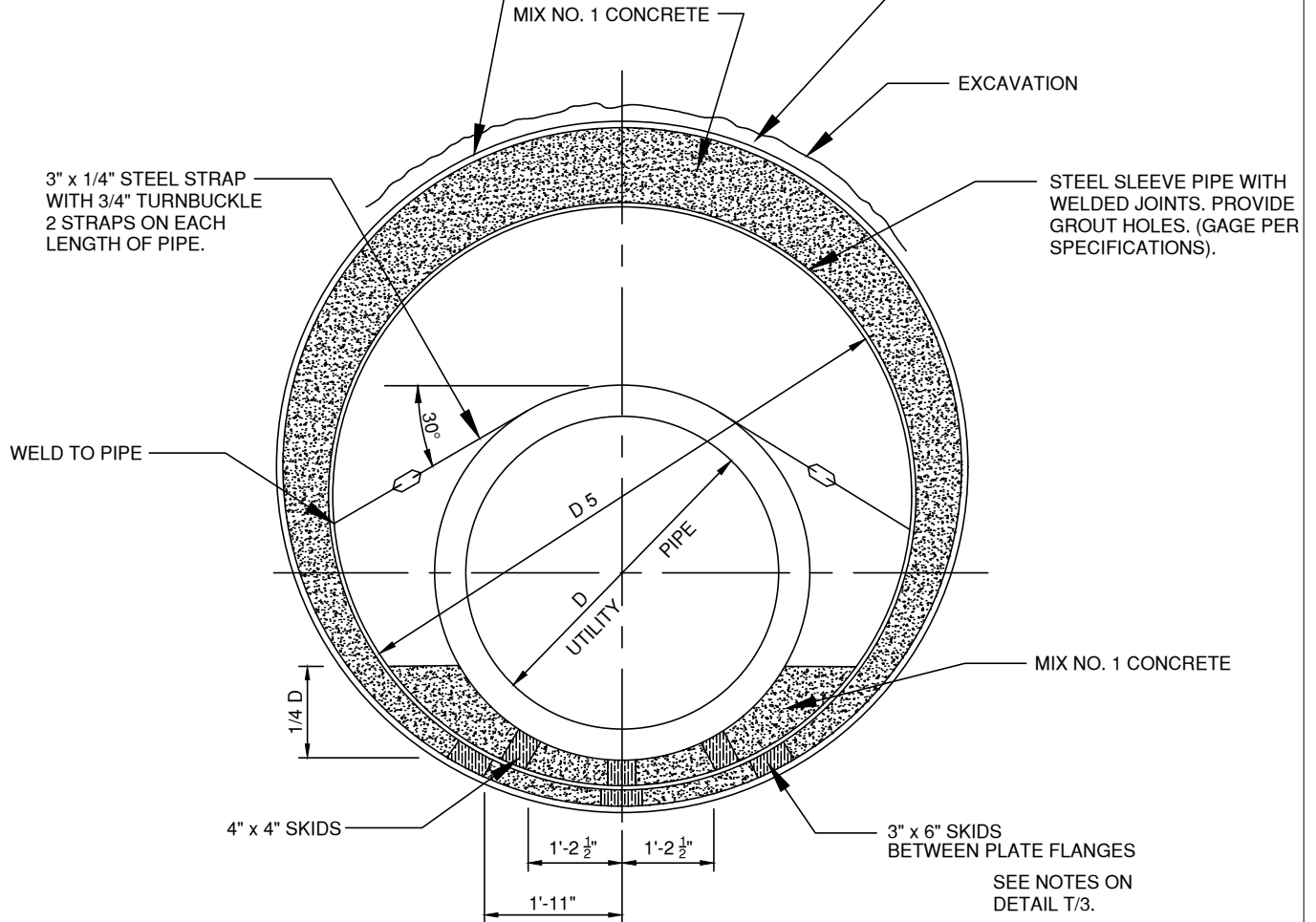
1. A JOINT IN THE MAIN PIPE TO BE PROVIDED WITHIN 2 FEET OF EACH OUTSIDE END OF THE CASING.
2. AN 8" THICK BULKHEAD TO BE PROVIDED AT EACH END OF CASING. TWO 2" DIAMETER DRAIN PIPES THROUGH BULKHEAD TO BE PROVIDED AT EACH SIDE OF MAIN PIPE AT LOW END OF CASING.
3. APPLY TWO COATS OF BITUMASTIC COATING TO ALL STRAPS AND EXPOSED STEEL.

PIPE SIZE, INCHES	SLEEVE MIN. SIZE, INCHES
8-10-12	36
14-16	42
18-21	48
24	54
30	60
36	72
48	90

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD TUNNELING DETAILS TUNNEL OR JACKING INSTALLATION SMOOTH WALL CASING	REVISED	T 3
	_____ CHIEF ENGINEER		04/2024	
	_____ DESIGN ENGINEER			
	DATE:			

TUNNEL - STANDARD STEEL LINER PLATE.  
(GAGE AS PER SPECIFICATIONS)  
MIN. DIA. = D 5 + 12"

LINER PLATE TO BE PROVIDED  
WITH 2" GROUT HOLES. PUMP  
GROUT BETWEEN EXCAVATION  
AND LINER PLATES.



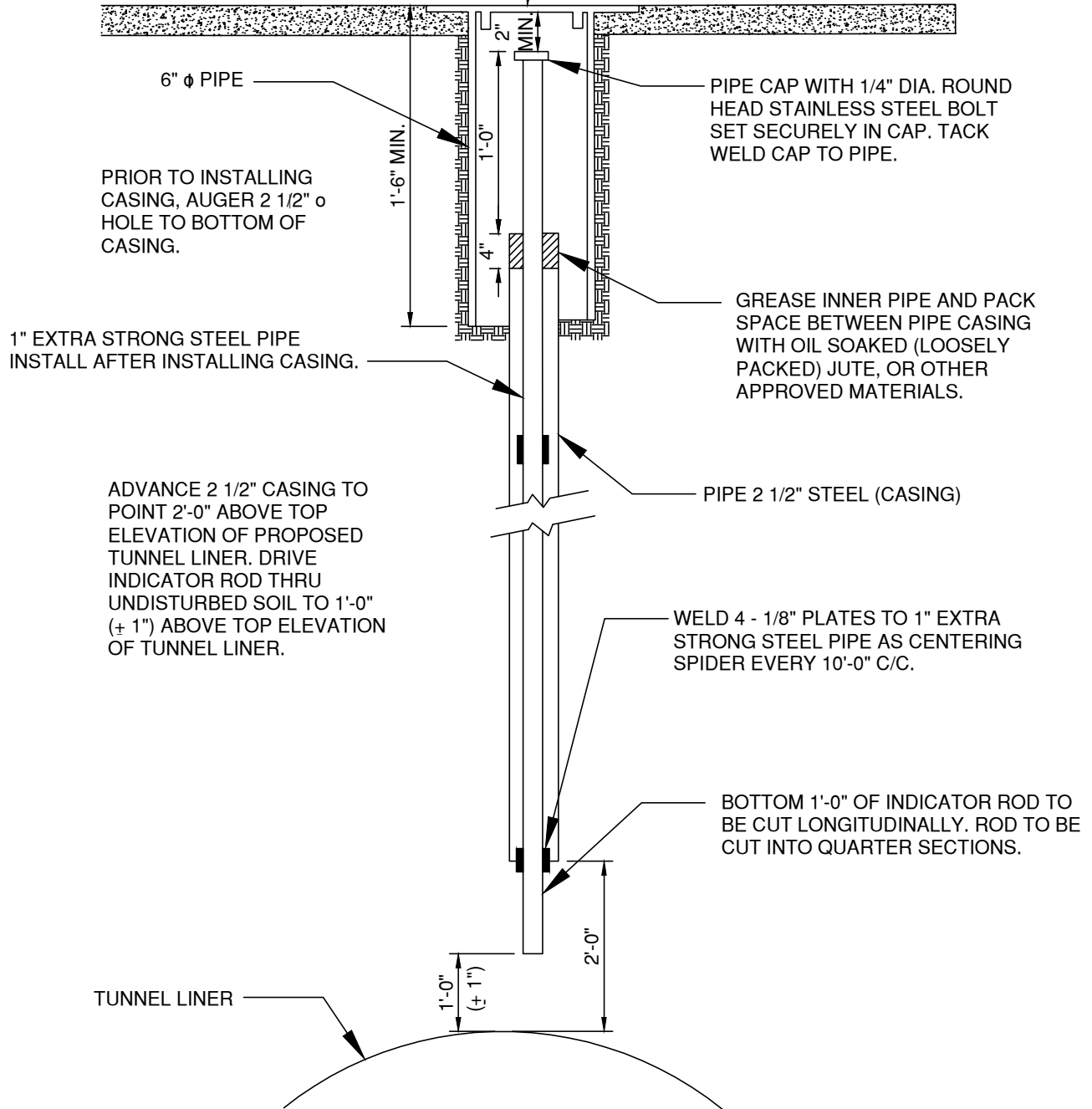
D	D 5
UTILITY PIPE	SLEEVE
SIZE, INCHES	MIN. SIZE, INCHES
8-10-12	36
14-16	42
18-21	48
24	54
30	60
36	66

PIPE THRU SLEEVE AND LINER PLATE

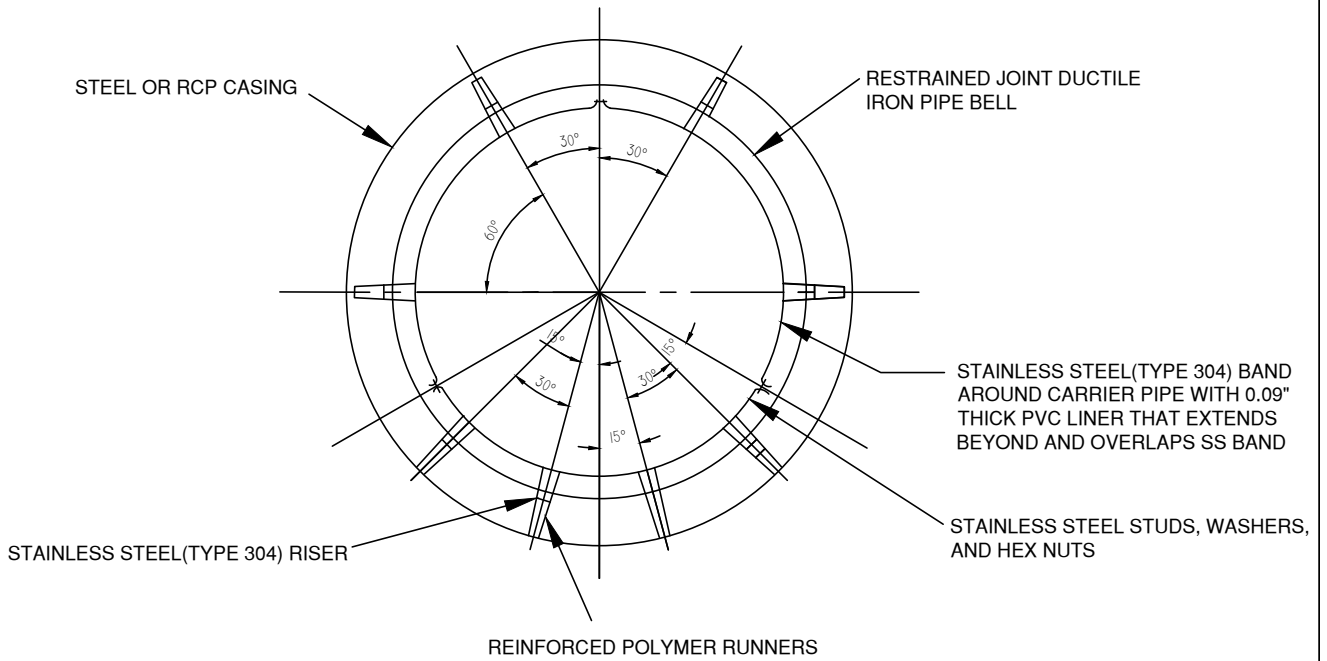
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD TUNNELING DETAILS TUNNEL INSTALLATION LINER PLATE CASING	REVISED	T 4
	_____ CHIEF ENGINEER		04/2024	
	_____ DESIGN ENGINEER			
	DATE:			

8" DIA. x 1/4" THICK STEEL PLATE WITH 3/4" DIA. HOLE IN CENTER. WELD 3 - 2" x 1" x 1/2" LUGS TO PLATE AS CENTERING DEVICE SET COVER ASSEMBLY FLUSH WITH SURFACE.

IF THE DEPTH OF COVER OVER TUNNEL LINER IS LESS THAN 6'-0" THE LOCATION AND DETAIL OF SETTLEMENT INDICATOR SHALL BE SHOWN ON THE CONTRACT DRAWINGS.



ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED	STANDARD TUNNELING DETAILS EARTH TUNNEL SUBSURFACE SETTLEMENT INDICATOR	REVISED	T 5
	_____ CHIEF ENGINEER		04/2024	
	_____ DESIGN ENGINEER			
	DATE:			



NOTES:

1. FOR 6"-12" CARRIER PIPE, THE NUMBER OF RISERS CAN BE REDUCED, BASED ON MANUFACTURER'S RECOMMENDATIONS.
2. RISER HEIGHTS SHALL BE DESIGNED TO SUIT CASING AND CARRIER PIPE DIAMETERS TO SUPPORT CARRIER PIPE IN PROPER POSITION IN CASING AND TO PREVENT FLOATATION OR MOVEMENT OF THE CARRIER PIPE.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED _____ CHIEF ENGINEER	STANDARD TUNNELING DETAILS CASING SPACERS	REVISED 04/2024	T 6
	_____ DESIGN ENGINEER			
	DATE:			