
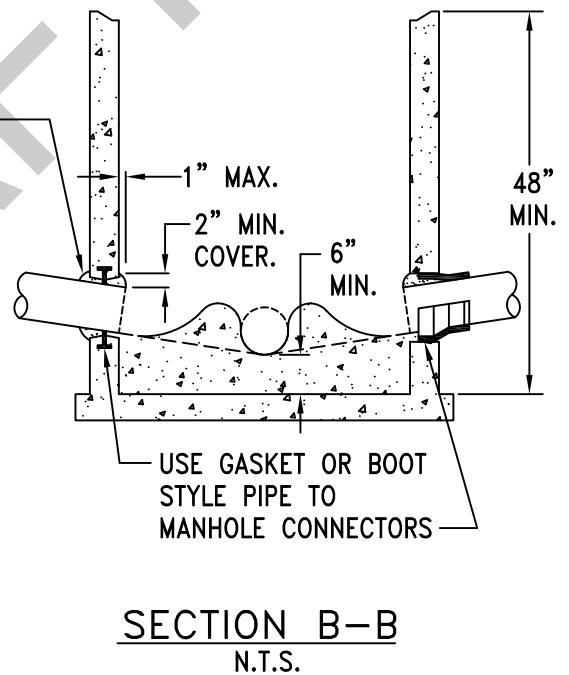
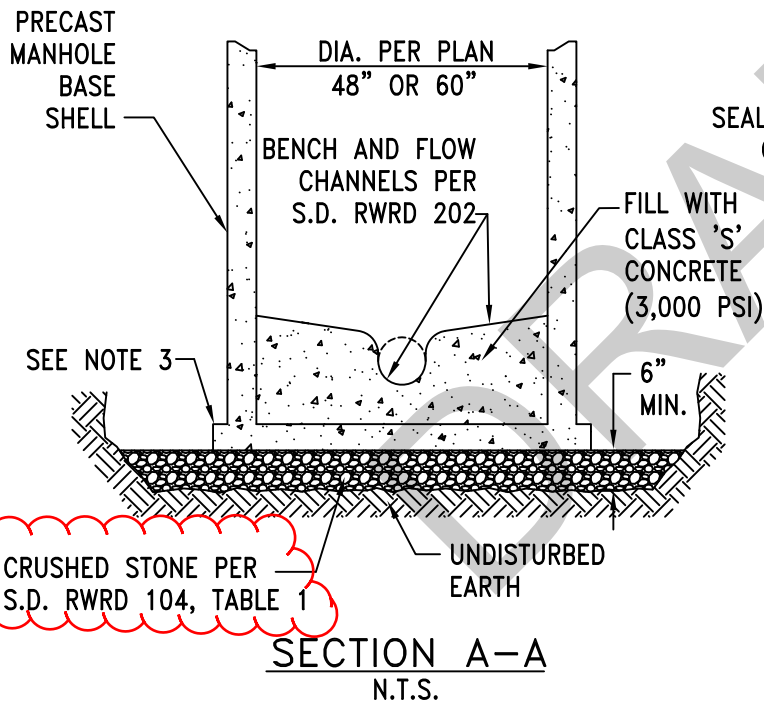
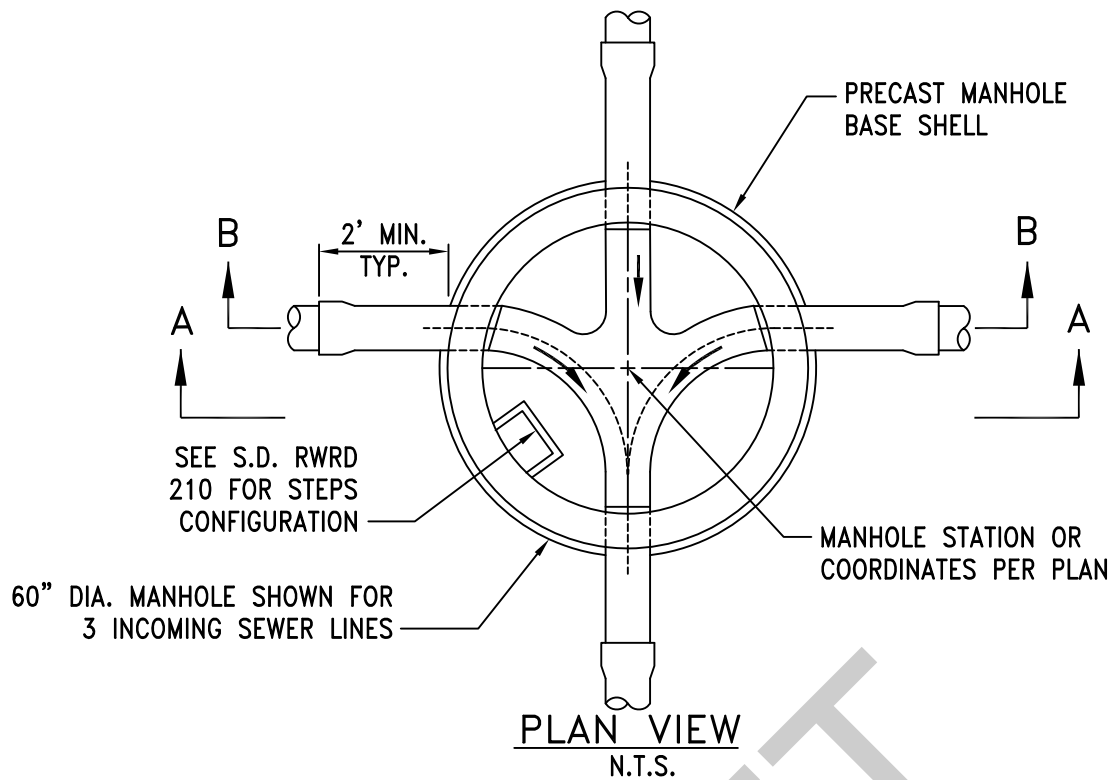


**NOTES:**


1. THIS SPECIAL STANDARD DETAIL MAY BE USED BY THE CONTRACTOR IF APPROVED IN THE PLANS OR IN WRITING BY THE FIELD ENGINEER.
2. THIS DETAIL IS INTENDED FOR CASES WHERE IT IS NOT POSSIBLE TO PLACE THE SEWER LINE BELOW THE "ZONE OF INFLUENCE" FOR SCOUR AND MAY NOT BE APPLICABLE TO ALL SEWER/WASH CROSSINGS.

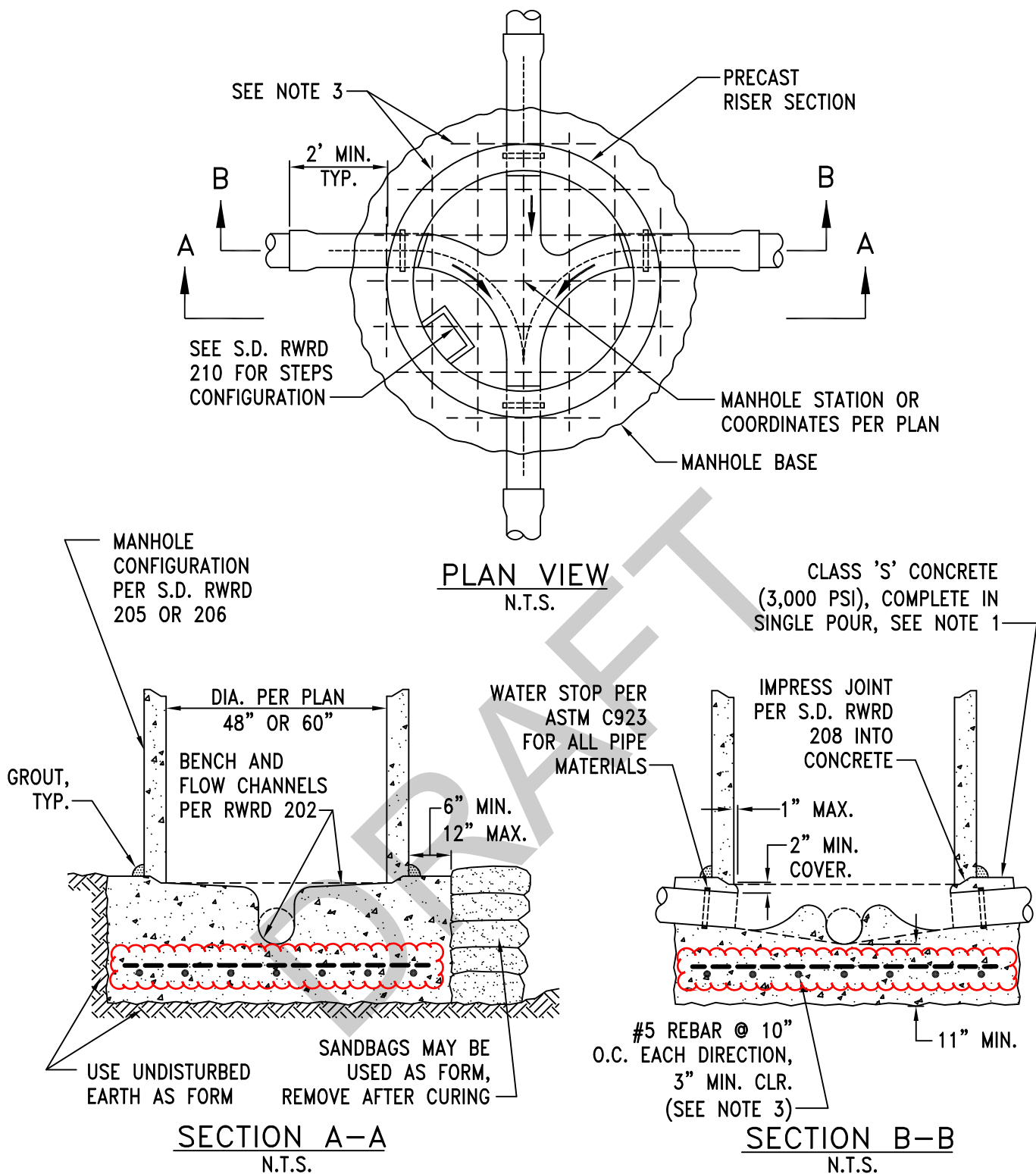
ISSUED:	<b>SPECIAL STANDARD DETAIL</b>  <b>SCOUR PROTECTION FOR SEWER LINES</b>		DETAIL NO.
12/12			RWRD 113
REVISED:			
10/15			SHEET 1 OF 1



#### NOTES:


1. CRUSHED STONE SHALL BE LEVELED WITHIN 1/4" OF THE REQUIRED GRADE PRIOR TO PLACEMENT OF THE PRECAST BASE SHELL.
2. PRECAST BASE SHELLS SHALL BE FURNISHED BY THE MANUFACTURER WITH THE REQUIRED PIPE CUT-OUT SIZES AND PRE-INSTALLED PIPE-TO-MANHOLE CONNECTORS. SEE S.D. RWRD 203 FOR BLOCK-OUT REQUIREMENTS.
3. MINIMUM TOE DIMENSIONS PER PLAN FOR MANHOLES REQUIRING REINFORCED JOINTS PER S.D. RWRD 209.
4. SEE SUBSECTION 3.3.3(B)(iii) FOR MORE INFORMATION.

ISSUED:	STANDARD DETAIL		DETAIL NO.
12/12	PRECAST MANHOLE BASE		RWRD 200
REVISED:			SHEET 1 OF 1
10/15			

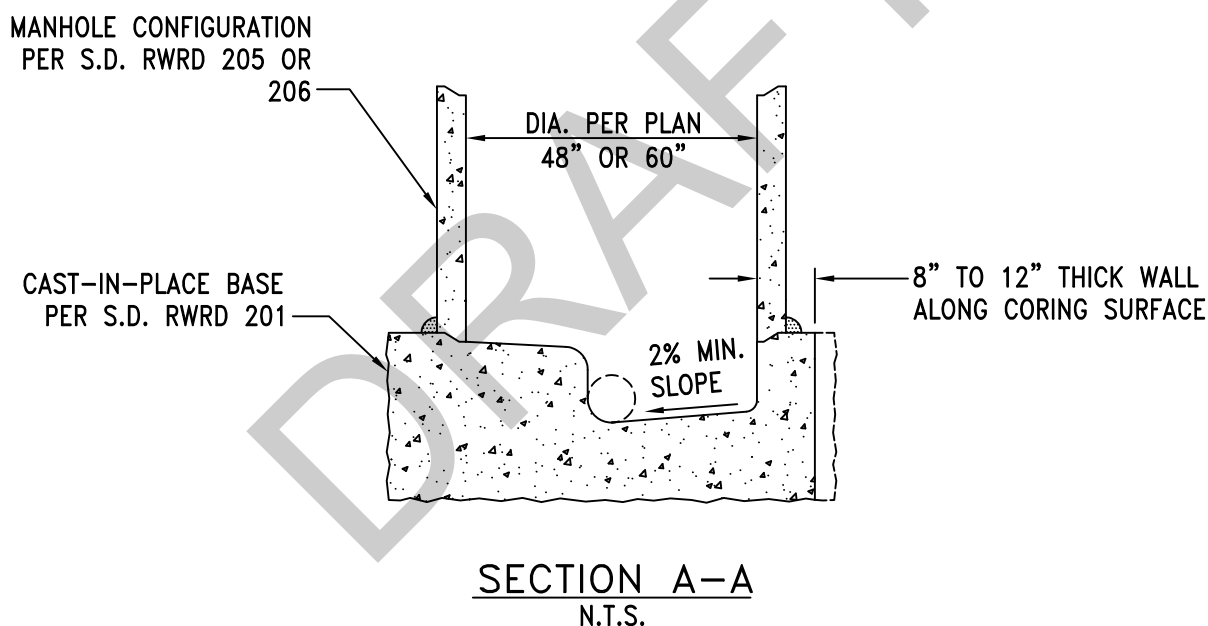
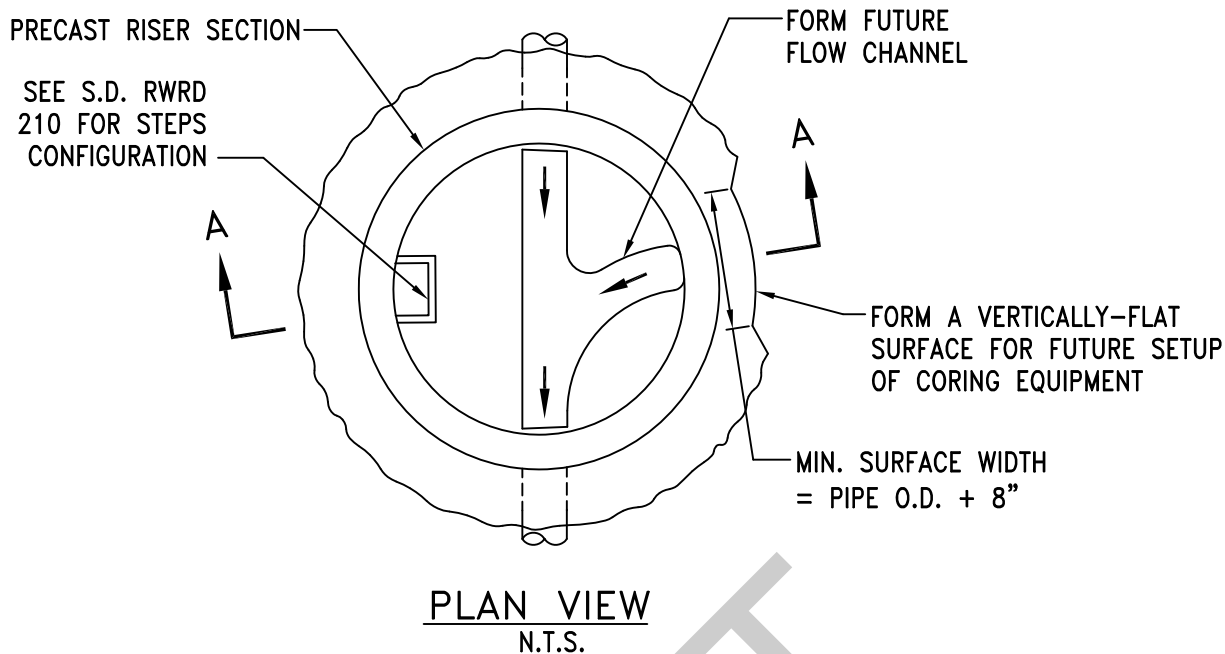


**NOTES:**

1. FOR NEXT DAY INSTALLATIONS OF PRECAST SECTIONS ON A NEWLY-POURED CONCRETE BASE, USE HIGH-EARLY, CLASS 'S' CONCRETE HAVING A MIN. COMPRESSIVE STRENGTH OF 2,000 PSI AT 24 HOURS AS DEMONSTRATED BY LABORATORY TESTING OF SAMPLE CYLINDERS.
2. SEE SUBSECTION 3.3.3(B)(i) FOR MORE INFORMATION.
3. REINFORCEMENT REQUIRED FOR MANHOLE DEPTHS (RIM TO INVERT) OF 20' OR GREATER.


ISSUED:	<b>STANDARD DETAIL</b>  <b>CAST-IN-PLACE MANHOLE BASE</b>		DETAIL NO.
8/92			RWRD 201
REVISED:			SHEET 1 OF 1
10/15			

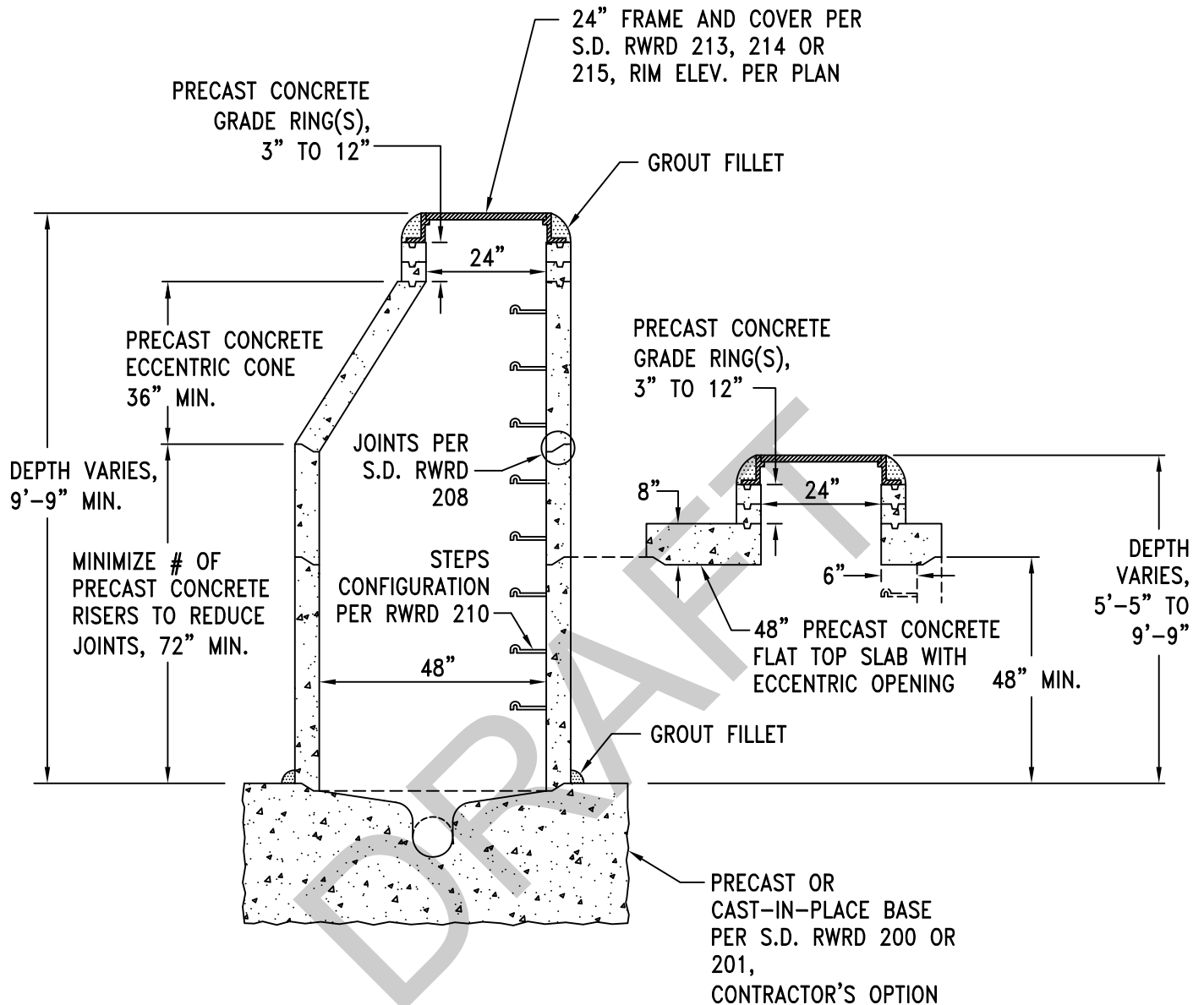




**NOTES:**

1. THIS DETAIL APPLIES TO 4' AND 5' DIAMETER MANHOLES. FOR LARGER DIAMETER MANHOLES, REFER TO PLAN FOR BLOCK-OUT REQUIREMENTS.
2. FOR PRECAST BASES, MANUFACTURER SHALL FURNISH BLOCK-OUT CAPS FOR THE PRE-INSTALLED MANHOLE CONNECTOR IN LIEU OF USING 2" MORTAR COVER.

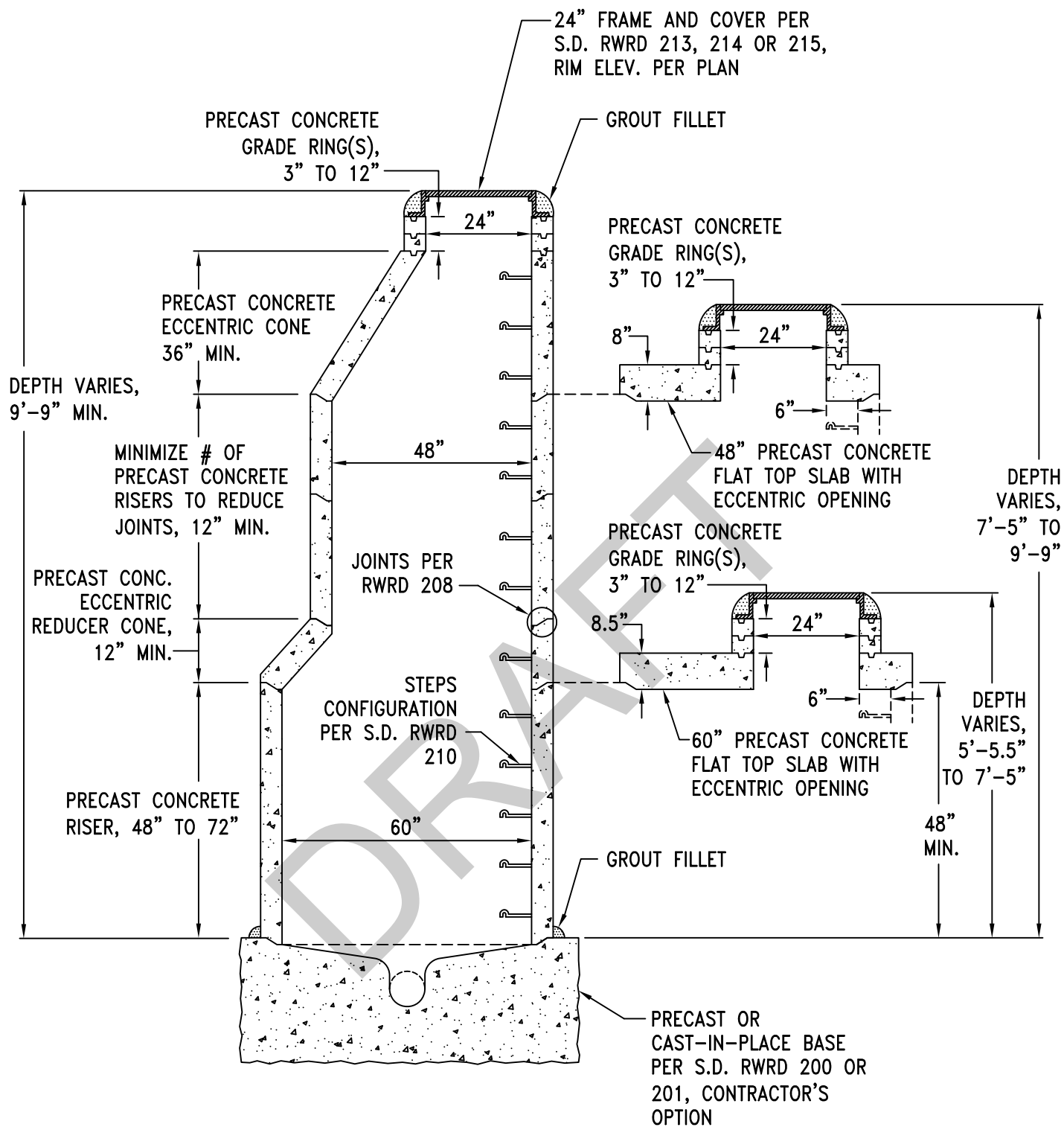
ISSUED:	STANDARD DETAIL  BLOCK-OUTS		DETAIL NO.
8/92			RWRD 203
REVISED:			
12/12			SHEET 1 OF 1



**NOTES:**


1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478 AND AASHTO M199.
2. FOR 4' DIAMETER MANHOLE DEPTHS LESS THAN 5'-5" (SHALLOW MANHOLES), SEE S.D. RWRD 207, **TYPE I.**
3. SEE SUBSECTIONS 3.3.2(E) AND 3.3.3 FOR MORE INFORMATION.

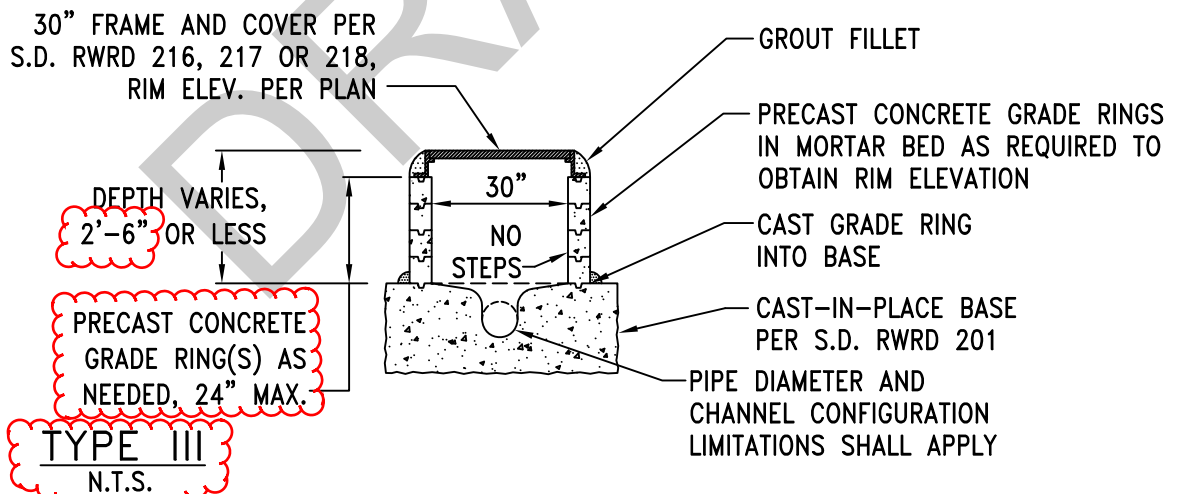
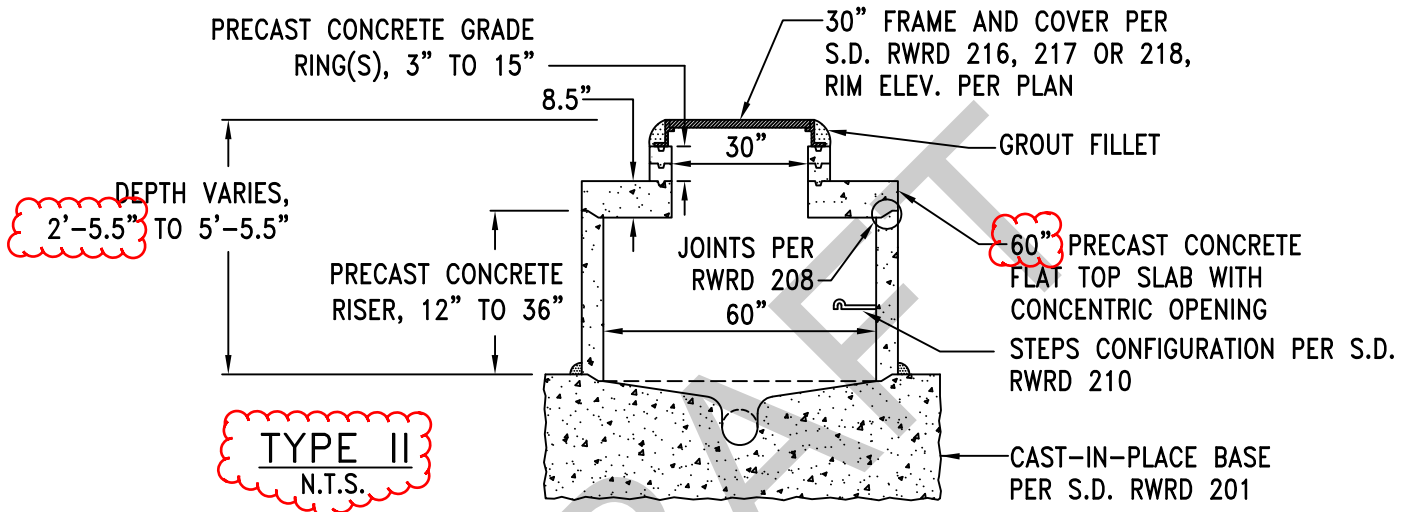
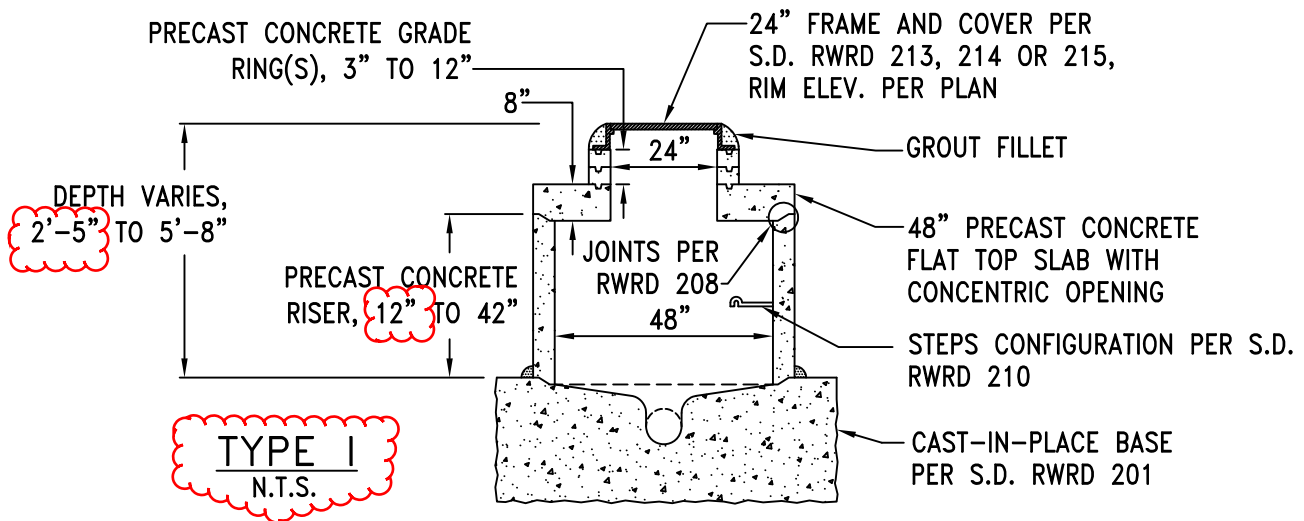
ISSUED:	STANDARD DETAIL		DETAIL NO.
8/92	4' DIAMETER MANHOLE CONFIGURATIONS		RWRD 205
REVISED:			SHEET 1 OF 1
10/15			



**NOTES:**


1. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478 AND AASHTO M199.
2. FOR 5' DIAMETER MANHOLE DEPTHS LESS THAN 5'-5.5" (SHALLOW MANHOLES), SEE S.D. RWRD 207, TYPE II.
3. SEE SUBSECTIONS 3.3.2(E) AND 3.3.3 FOR MORE INFORMATION.

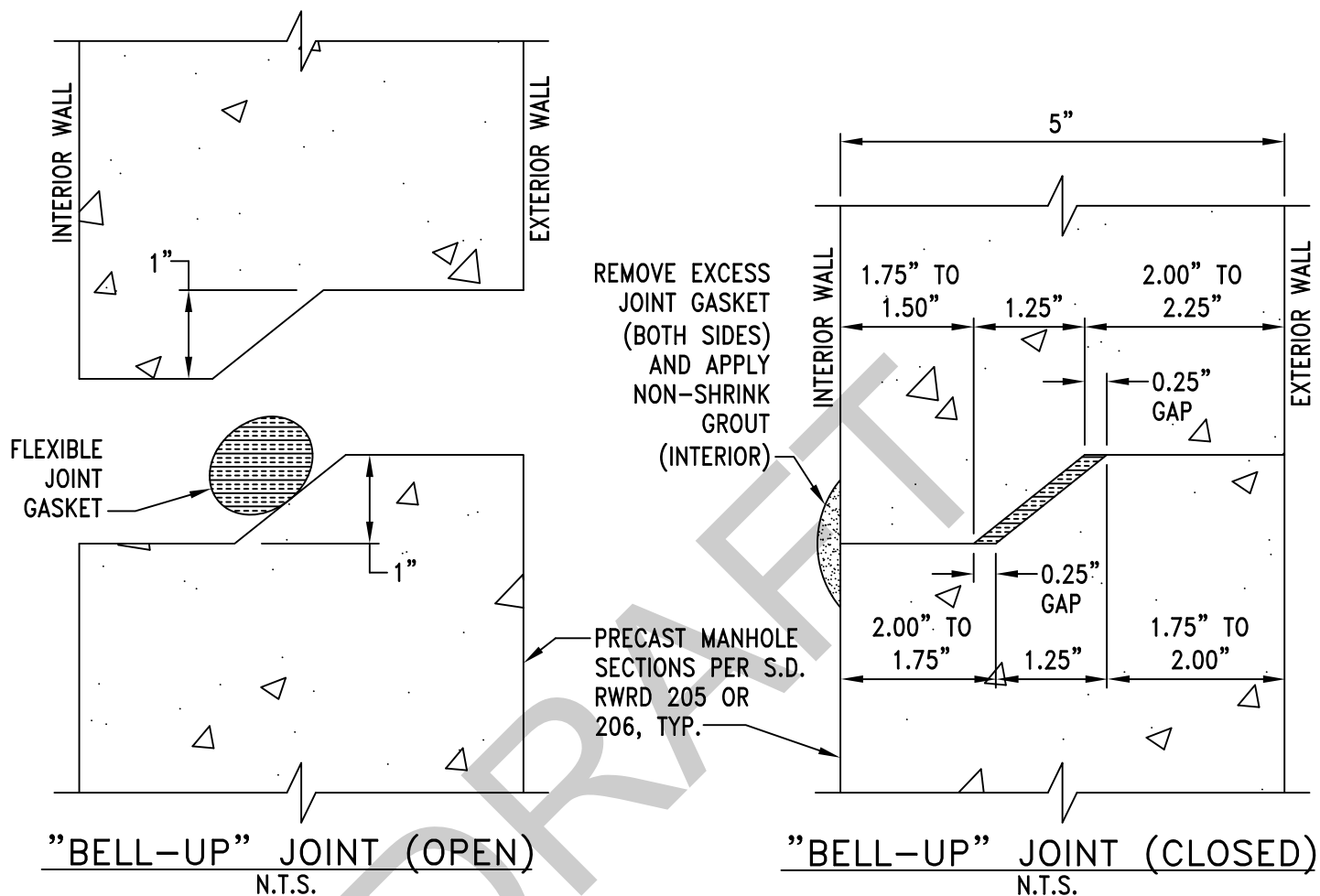
ISSUED:	STANDARD DETAIL		DETAIL NO.
8/92	5' DIAMETER MANHOLE CONFIGURATIONS		RWRD 206
REVISED:			
10/15			SHEET 1 OF 1



**NOTES:**


1. THIS SPECIAL STANDARD DETAIL MAY BE USED BY THE CONTRACTOR IF APPROVED IN THE PLANS OR IN WRITING BY THE FIELD ENGINEER.
2. PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO ASTM C478 AND AASHTO M199.
3. SEE SUBSECTIONS 3.3.2(E) AND 3.3.3 FOR MORE INFORMATION.

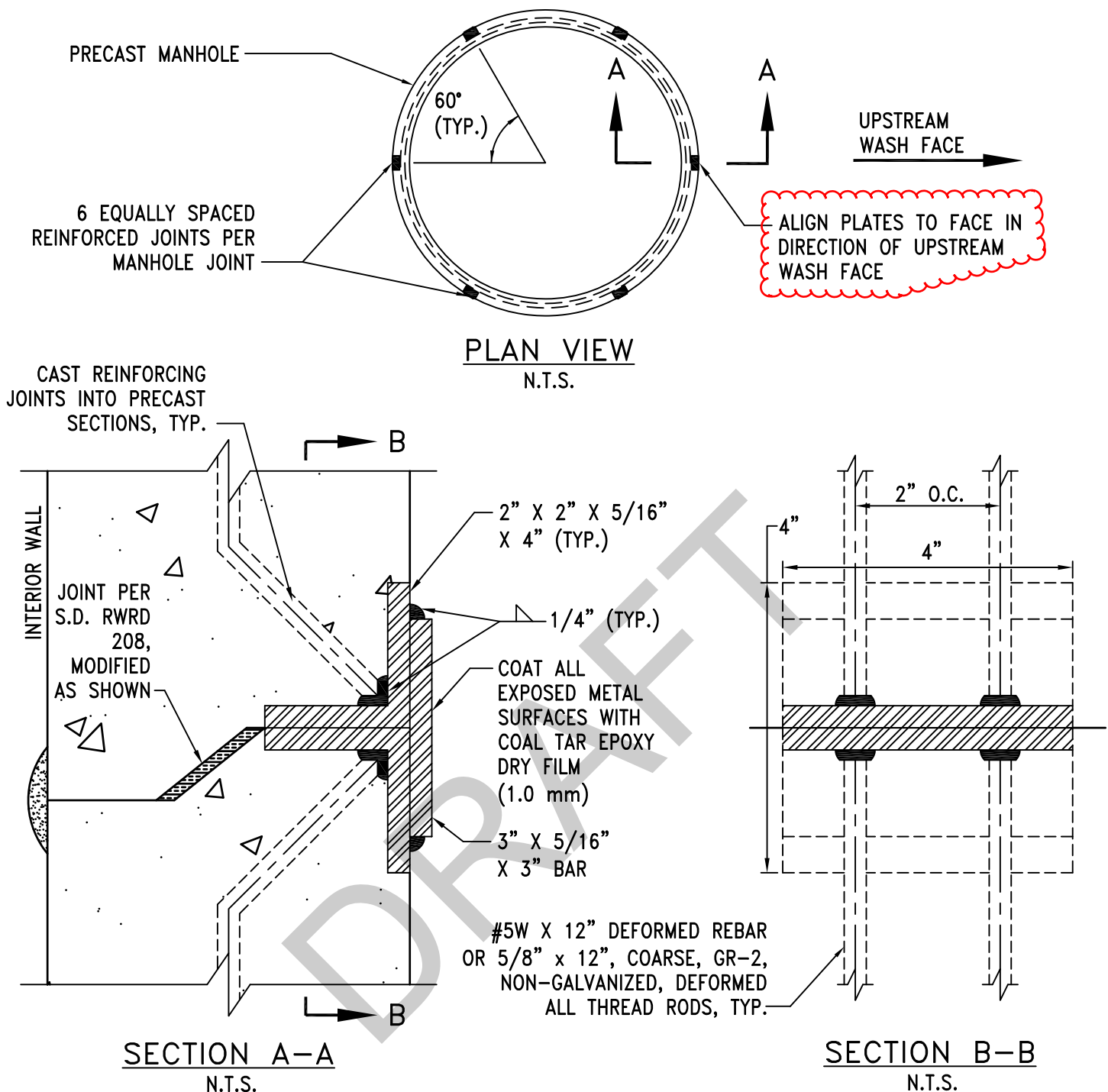
ISSUED:	SPECIAL STANDARD DETAIL  SHALLOW MANHOLES		DETAIL NO.
8/92			RWRD 207
REVISED:			SHEET 1 OF 1
10/15			



**NOTES:**

1. THIS DETAIL APPLIES TO 4' AND 5' DIAMETER PRECAST MANHOLE SECTIONS. SHOP DRAWINGS AND JOINT DETAILS FOR LARGER MANHOLE DIAMETERS SHALL BE SUBMITTED TO THE FIELD ENGINEER FOR REVIEW AND APPROVAL.
2. THE MIXING OF JOINTS WITHIN A MANHOLE IS NOT PERMITTED WITHOUT APPROVAL BY THE FIELD ENGINEER.
3. SEE SUBSECTION 3.3.3(B)(iii) FOR MORE INFORMATION.

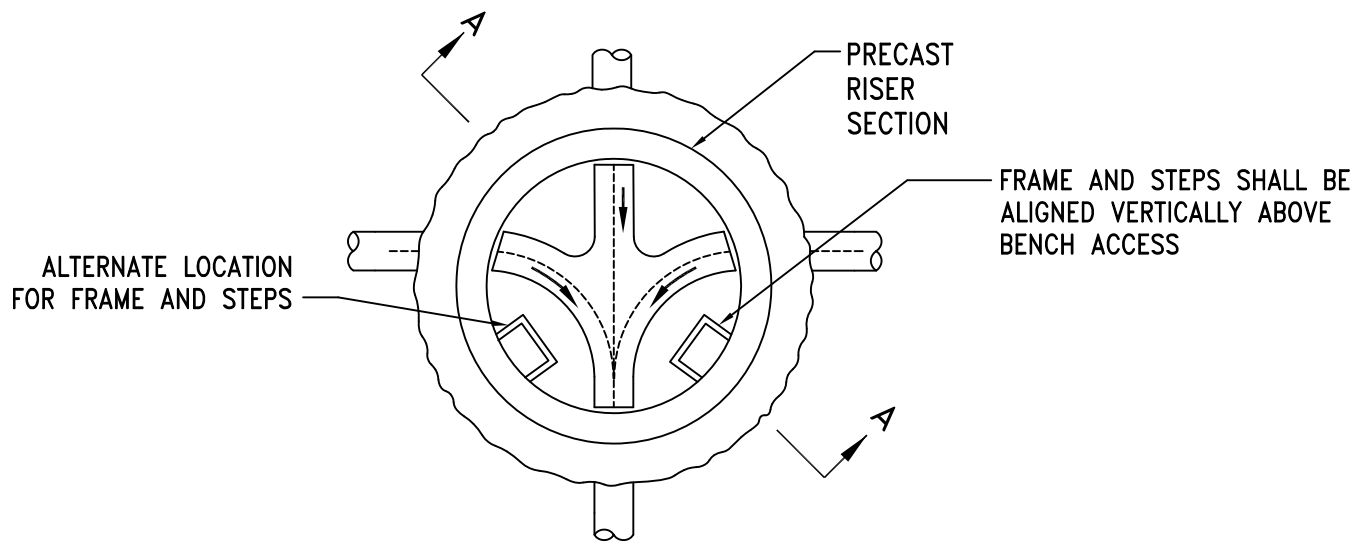
ISSUED:	STANDARD DETAIL  MANHOLE JOINTS		DETAIL NO.
8/92 (WWM-226)			RWRD 208
REVISED:			SHEET 1 OF 1
12/12			



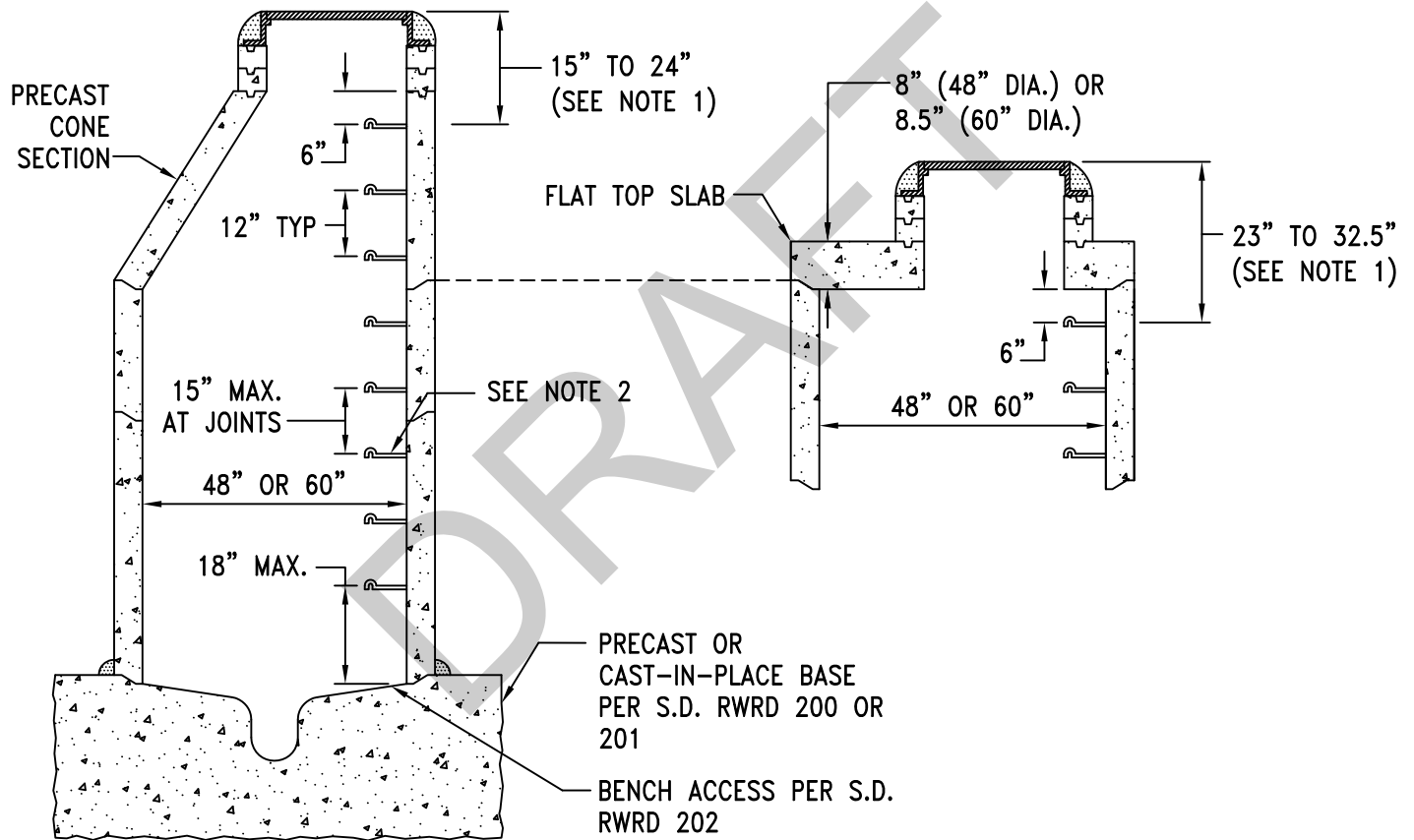
**NOTES:**

1. THIS SPECIAL STANDARD DETAIL MAY BE USED BY THE CONTRACTOR IF APPROVED IN THE PLANS OR IN WRITING BY THE FIELD ENGINEER, AND IS TYPICALLY FOR USE WITH MANHOLES LOCATED IN WASH CROSSINGS.
2. THIS DETAIL APPLIES TO 4' AND 5' DIAMETER MANHOLES WITH DEPTHS OF 12' OR GREATER (RIM TO INVERT) AND 3 OR LESS PRECAST SECTIONS. ALL OTHER CASES, SEE PLANS FOR MODIFIED REINFORCED MANHOLE JOINTS.
3. FIELD WELD THE REINFORCED JOINTS AS SHOWN AND IMMEDIATELY QUENCH WITH AN APPROVED OIL QUENCHING MEDIUM AFTER EACH WELD IS COMPLETED.
4. SEE SUBSECTION 3.3.3(B)(ix) FOR MORE INFORMATION.

ISSUED:	SPECIAL STANDARD DETAIL		DETAIL NO.
8/92 (WWM-223)	REINFORCED MANHOLE JOINTS		RWRD 209
REVISED:			SHEET 1 OF 1
10/15			



PLAN VIEW  
N.T.S.

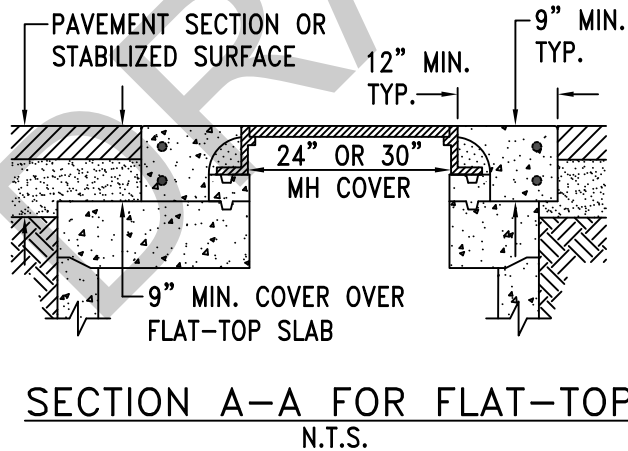
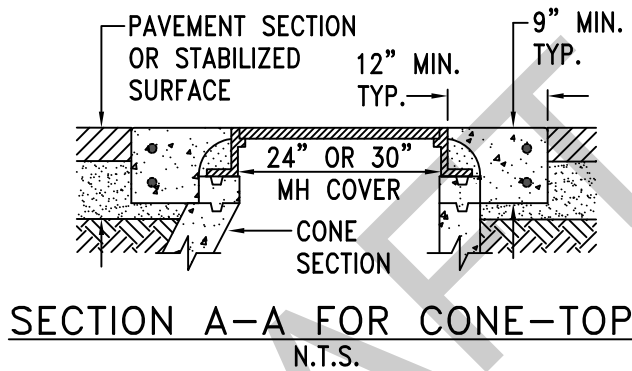
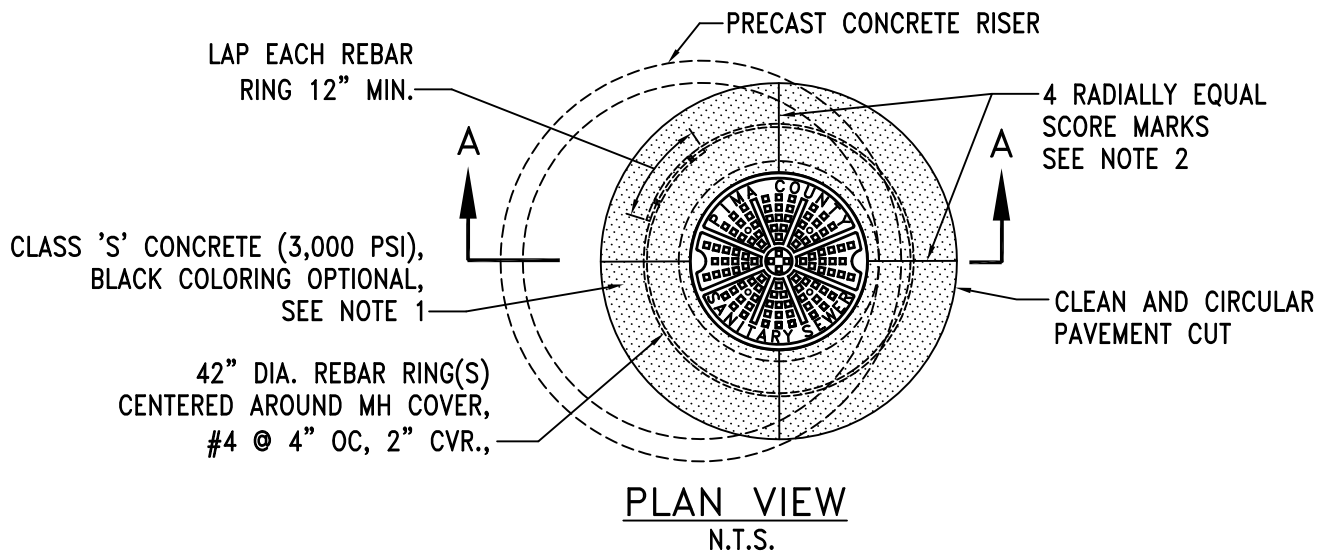


SECTION A-A  
N.T.S.

**NOTES:**


1. THIS DETAIL APPLIES TO NEW MANHOLE CONSTRUCTION, FOR GRADE ADJUSTMENTS TO EXISTING MANHOLES, SEE S.D. RWRD 304 AND 305 FOR ALLOWABLE DEPTHS FROM RIM TO FIRST MANHOLE STEP.
2. SEE SUBSECTION 3.3.2(G) AND 3.3.3(B)(iv) FOR MORE INFORMATION.

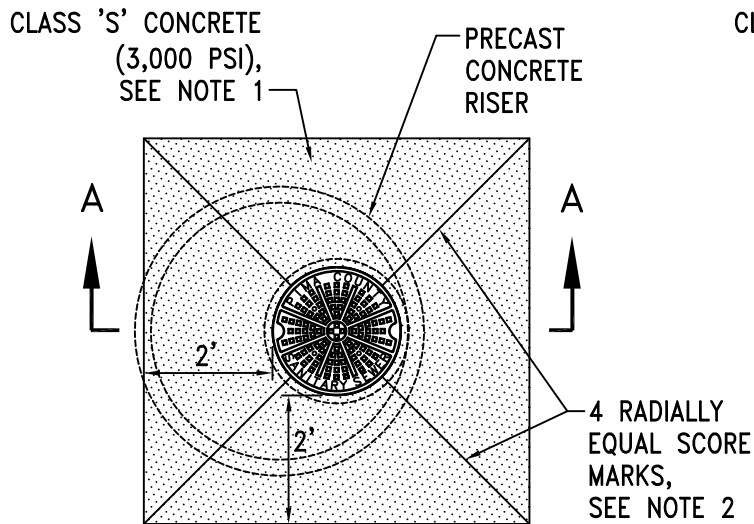
ISSUED:	STANDARD DETAIL MANHOLE STEPS CONFIGURATION	<p>PIMA COUNTY WASTEWATER RECLAMATION</p>	DETAIL NO.
12/12			RWRD 210
REVISED:			SHEET 1 OF 1



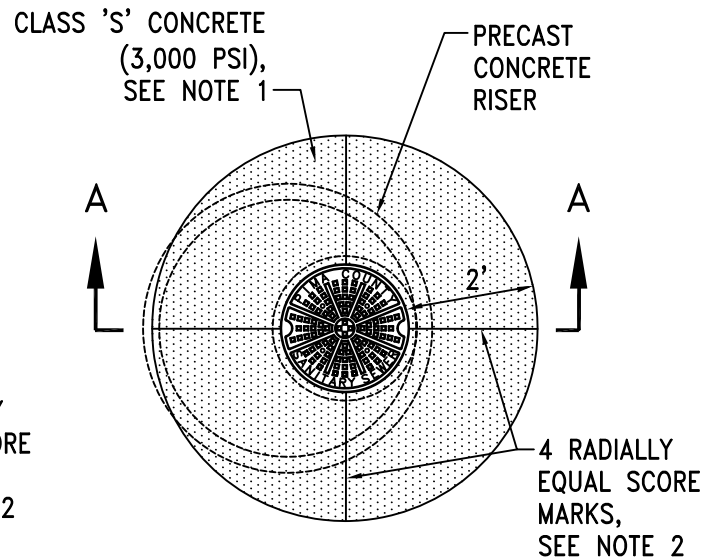
**NOTES:**

1. FOR MANHOLES LOCATED WITHIN RIGHT-OF-WAY, OPTIONS SHOWN (E.G. COLORING AGENTS AND CONCEALED/ REVEALED COLLARS) WILL BE DICTATED BY THE TRANSPORTATION AGENCY HAVING JURISDICTION.
2. FINISH ALL CONCRETE EDGES AND SCORE MARKS WITH A HAND TROWEL HAVING A 1/4" RADIUS. EXPOSED SURFACES SHALL HAVE A MEDIUM BROOM FINISH.
3. MINIMUM COLLAR THICKNESS MAY BE REDUCED TO 6" FOR SLAB COVER DEPTHS OF 11" OR LESS.

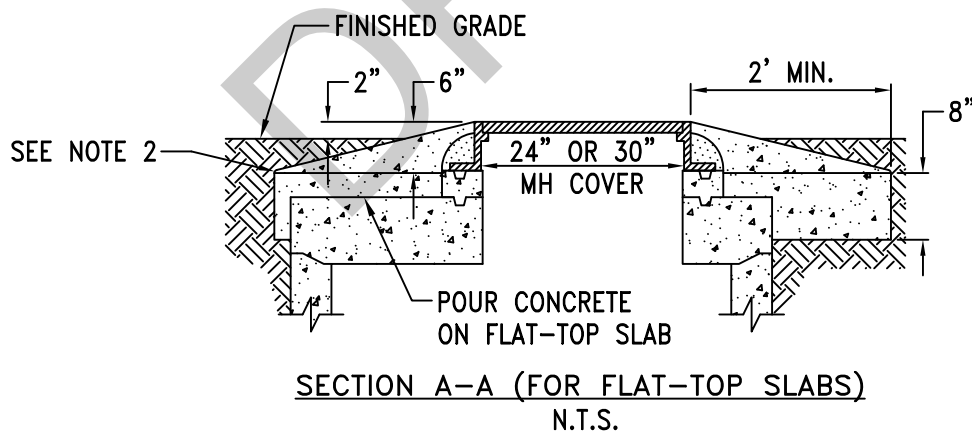
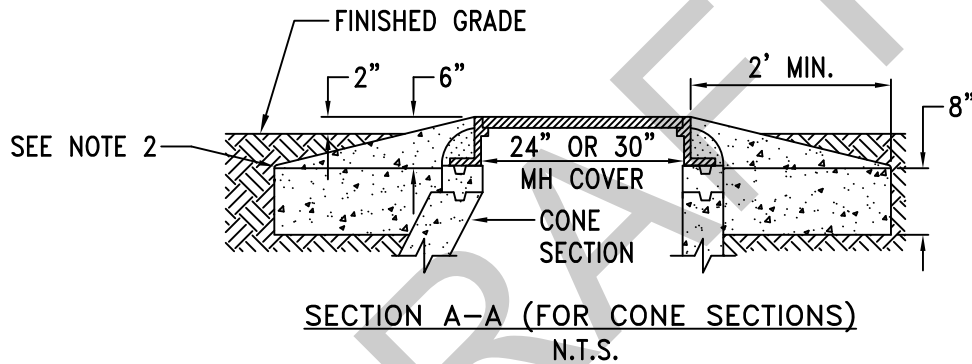
ISSUED:	STANDARD DETAIL		DETAIL NO.
12/12	CONCRETE COLLAR FOR PAVED AREAS		RWRD 211
REVISED:			SHEET 1 OF 1



PLAN VIEW  
SQUARE COLLAR  
N.T.S.




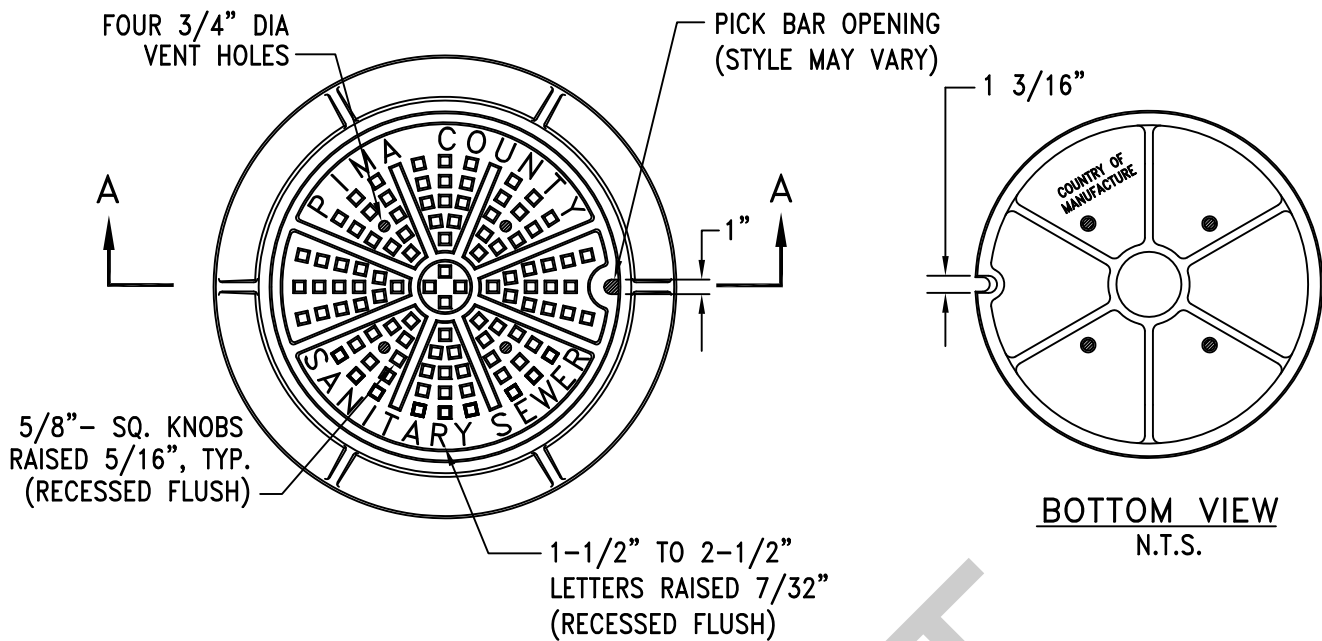
PLAN VIEW  
ROUND COLLAR  
N.T.S.



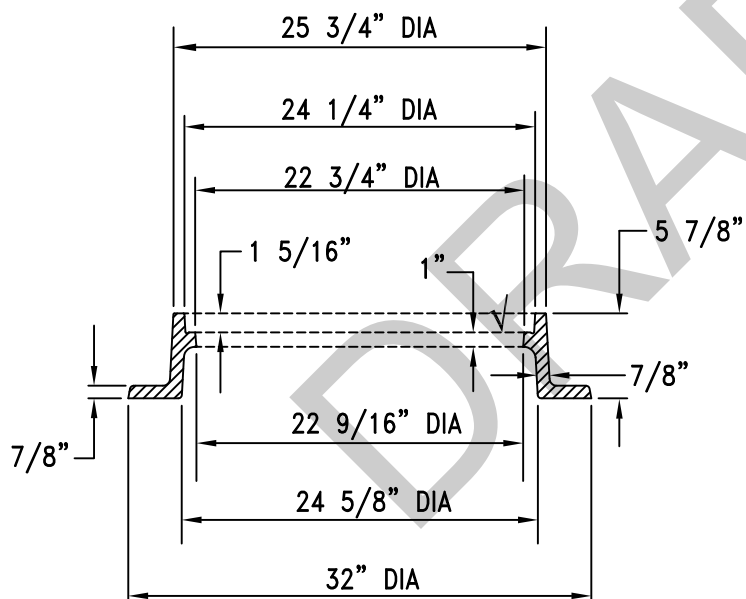
**NOTES:**

1. SQUARE OR ROUND TYPE COLLARS SHOWN ARE CONTRACTOR'S OPTION. ALL COLLARS SHALL BE FORMED.
2. FINISH ALL CONCRETE EDGES AND SCORE MARKS WITH A HAND TROWEL HAVING A 1/4" RADIUS. EXPOSED CONCRETE SURFACES SHALL HAVE A MEDIUM BROOM FINISH.

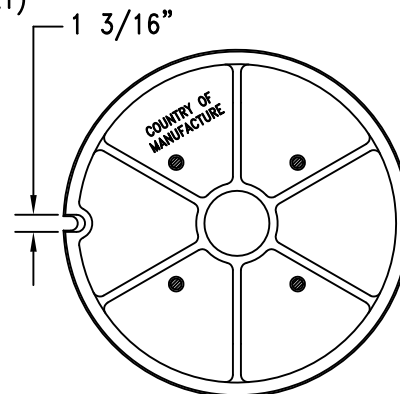
ISSUED:	<b>STANDARD DETAIL</b>  <b>CONCRETE COLLAR FOR UNPAVED AREAS</b>		DETAIL NO.
9/93			<b>RWRD 212</b>
REVISED:			
12/12			<b>SHEET 1 OF 1</b>



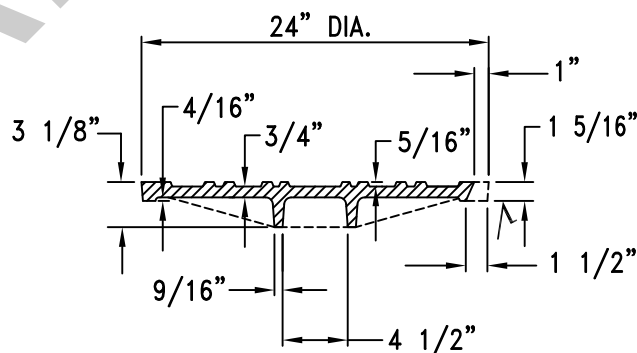
**FRAME AND COVER — PLAN VIEW**  
N.T.S.



**FRAME SECTION A-A**  
N.T.S.



**BOTTOM VIEW**  
N.T.S.



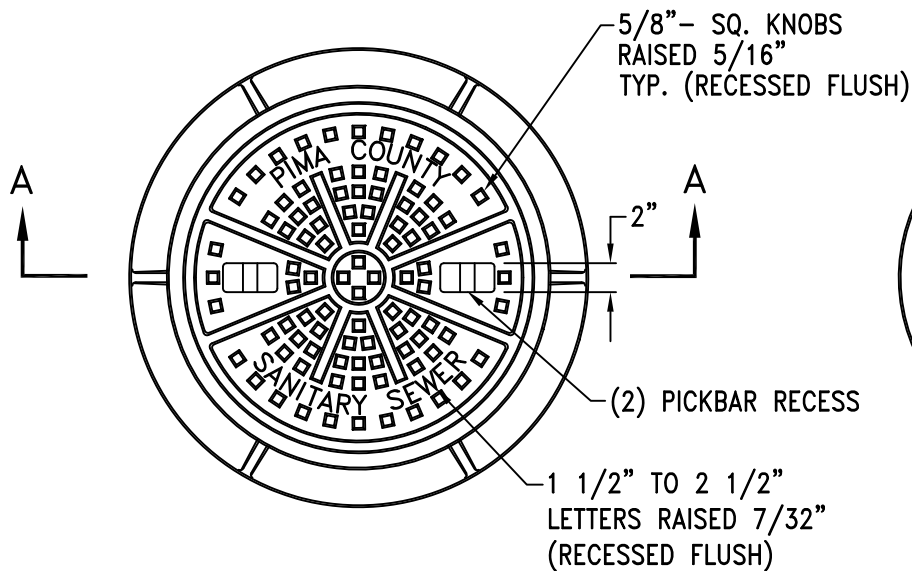
**COVER SECTION**  
N.T.S.

√ DENOTES MACHINED SURFACE

**NOTES:**

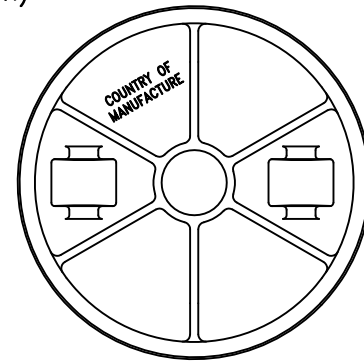
1. COVER STYLE MAY SLIGHTLY VARY WITH APPROVAL BY THE FIELD ENGINEER.
2. FRAME WEIGHT 180 LBS. (APPROX.) AND COVER WEIGHT 130 LBS. (APPROX.)
3. REFER TO SECTION 3.3.2(H) FOR MORE INFORMATION.

ISSUED:	STANDARD DETAIL		DETAIL NO.
8/92	24" FRAME AND COVER		RWRD 213
REVISED:			SHEET 1 OF 1
12/12			

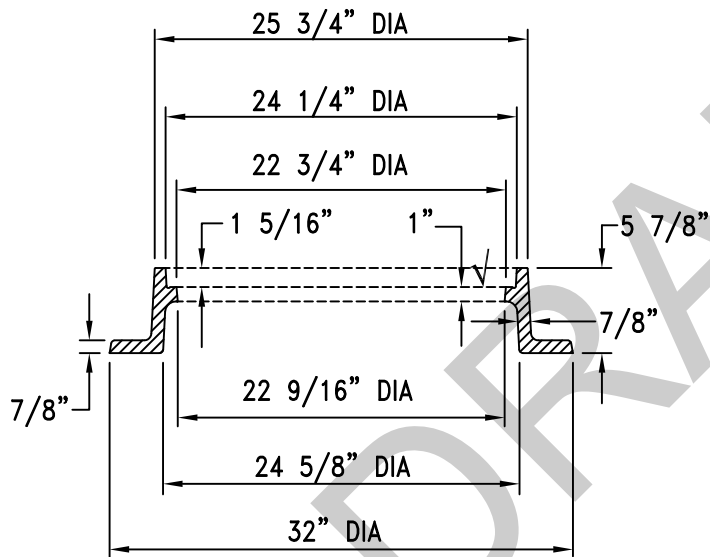


**FRAME AND COVER - PLAN VIEW**

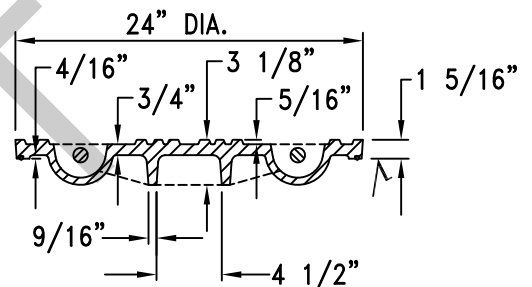
N.T.S.



**BOTTOM VIEW**  
N.T.S.

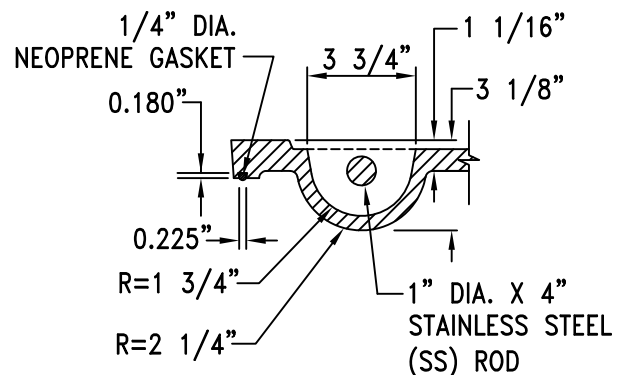


**FRAME SECTION A-A**  
N.T.S.



**COVER SECTION**  
N.T.S.

√ DENOTES MACHINED SURFACE

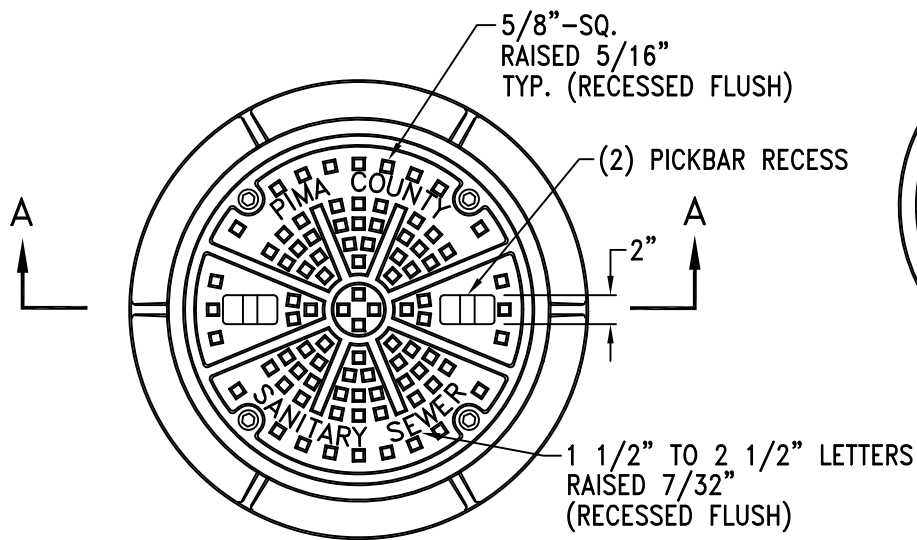


**PICKBAR RECESS DETAIL**  
N.T.S.

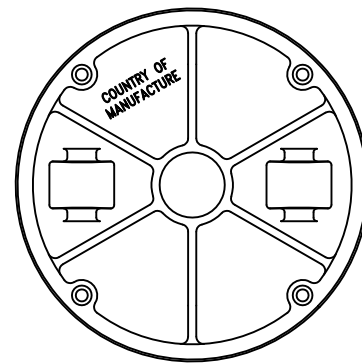
**NOTES:**

1. COVER STYLE MAY SLIGHTLY VARY WITH APPROVAL BY THE FIELD ENGINEER.
2. THE COVER SHALL HAVE PICKBAR RECESSES AS DETAILED HEREIN. VENT HOLES SHALL NOT BE PROVIDED.
3. FRAME WEIGHT 180 LBS. (APPROX.) AND COVER WEIGHT 130 LBS. (APPROX.)
4. REFER TO SECTION 3.3.2(H) FOR MORE INFORMATION.

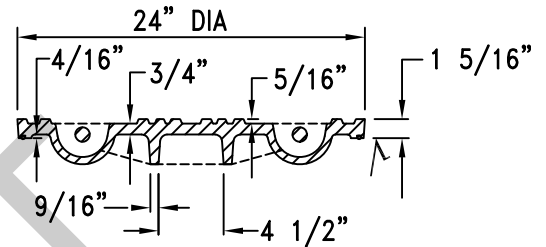
ISSUED:	<b>STANDARD DETAIL</b> <b>24" WATERTIGHT</b> <b>FRAME AND COVER</b>		DETAIL NO.
8/92 (WWM-213.2)			RWRD 214
REVISED:			SHEET 1 OF 1
12/12			



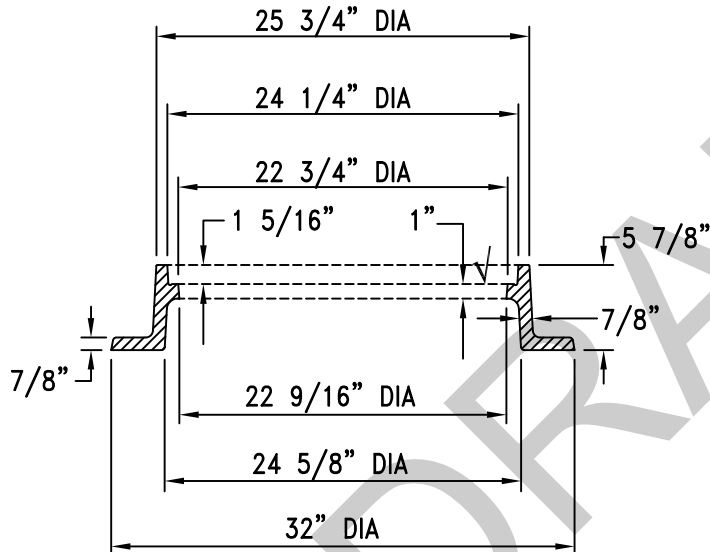
**FRAME AND COVER – PLAN VIEW**  
N.T.S.



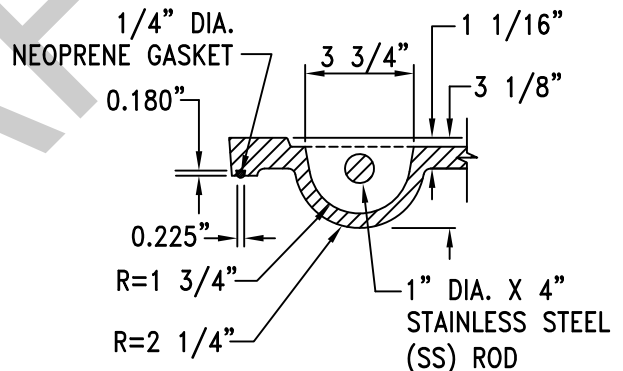
**BOTTOM VIEW**  
N.T.S.



**COVER SECTION**  
N.T.S.



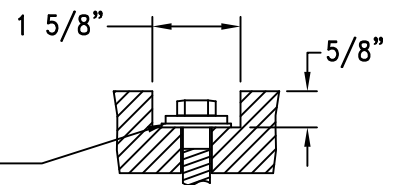
**FRAME SECTION A-A**  
N.T.S.



**PICKBAR RECESS DETAIL**  
N.T.S.

√ DENOTES MACHINED SURFACE

SS HEX BOLT (1/2"-13 UNC x  
1 3/4")  
SS WASHER (1/2" I.D. x 1  
1/4" O.D.)  
RUBBER WASHER (1/2" FLAT)



**BOLT HOLE DETAIL**  
N.T.S.

**NOTES:**

1. COVER STYLE MAY SLIGHTLY VARY WITH APPROVAL BY THE FIELD ENGINEER.
2. THE COVER SHALL HAVE PICKBAR RECESSES. VENT HOLES SHALL NOT BE PROVIDED.
3. FRAME WEIGHT 180 LBS. (APPROX.) AND COVER WEIGHT 130 LBS. (APPROX.)
4. REFER TO SECTION 3.3.2(H) FOR MORE INFORMATION.

ISSUED:	STANDARD DETAIL		DETAIL NO.
8/92 (WWM-213.3)	24" BOLTED WATERTIGHT FRAME AND COVER		RWRD 215
REVISED:			SHEET 1 OF 1
12/12			