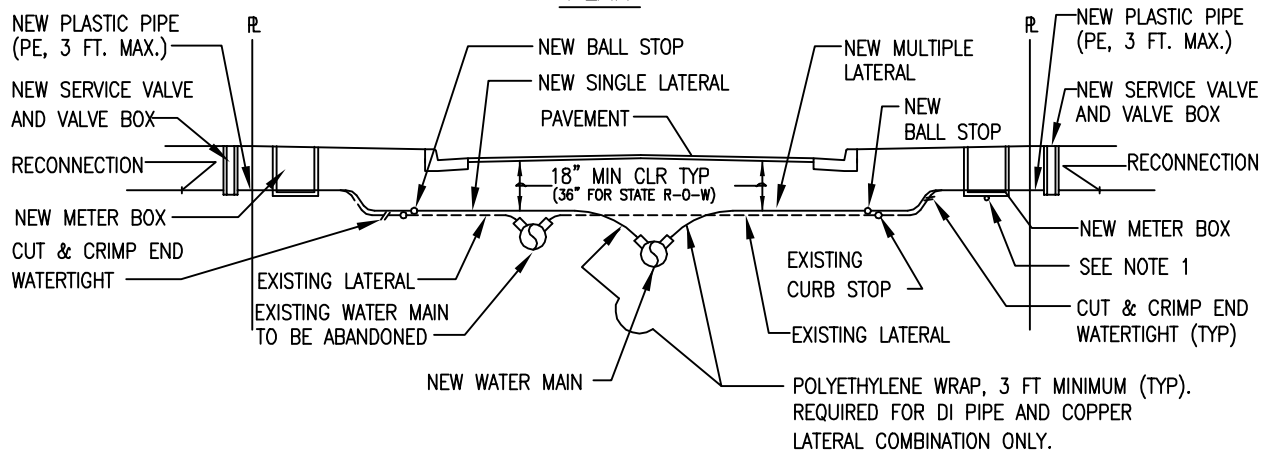


### PLAN



### PROFILE

#### NOTES:

1. CONTRACTOR SHALL INSTALL A 3/4" PVC SCHEDULE 80 CONDUIT WITH STRING WHENEVER THE DISTANCE BETWEEN METER BOXES (2 TO 12 MULTIPLE METER BOXES) IS 4'-0" OR LESS (EDGE TO EDGE). CONDUIT SHALL EXTEND 2" WITHIN METER BOX, KEEP BOTH ENDS EXPOSED, PLUG OR TAPE TO PREVENT SOIL INTRUSION, AS REQUIRED. SAW CUT TRENCH AS REQUIRED AND REPAIR TO MATCH EXISTING CONDITIONS. FOR CONCRETE SLAB, REPAIR TRENCH WITH EPOXY MORTAR, LEVEL AND FINISH TO MATCH EXISTING.
2. INSTALL ELBOWS AND PIPE EXTENSIONS BEFORE METERS TO PROVIDE 18-INCH MINIMUM COVER FOR SERVICE LATERALS, AS REQUIRED.

2002

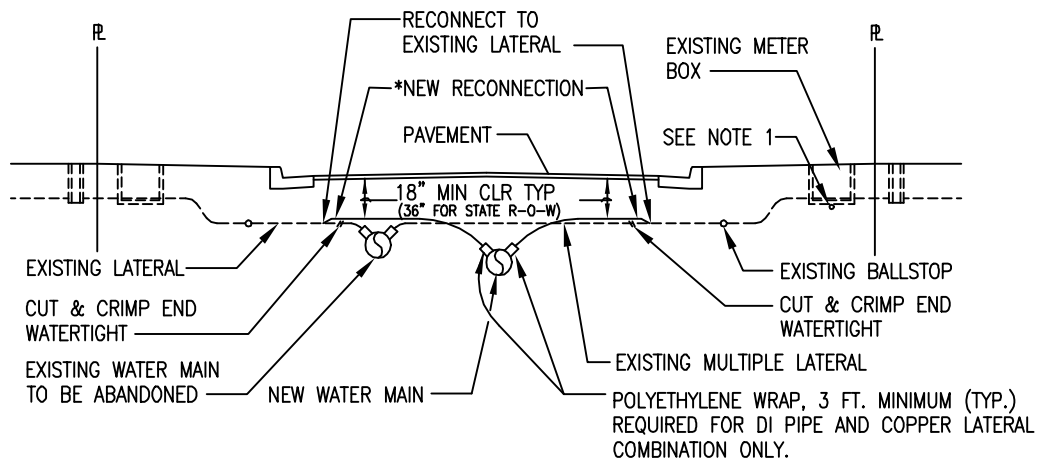
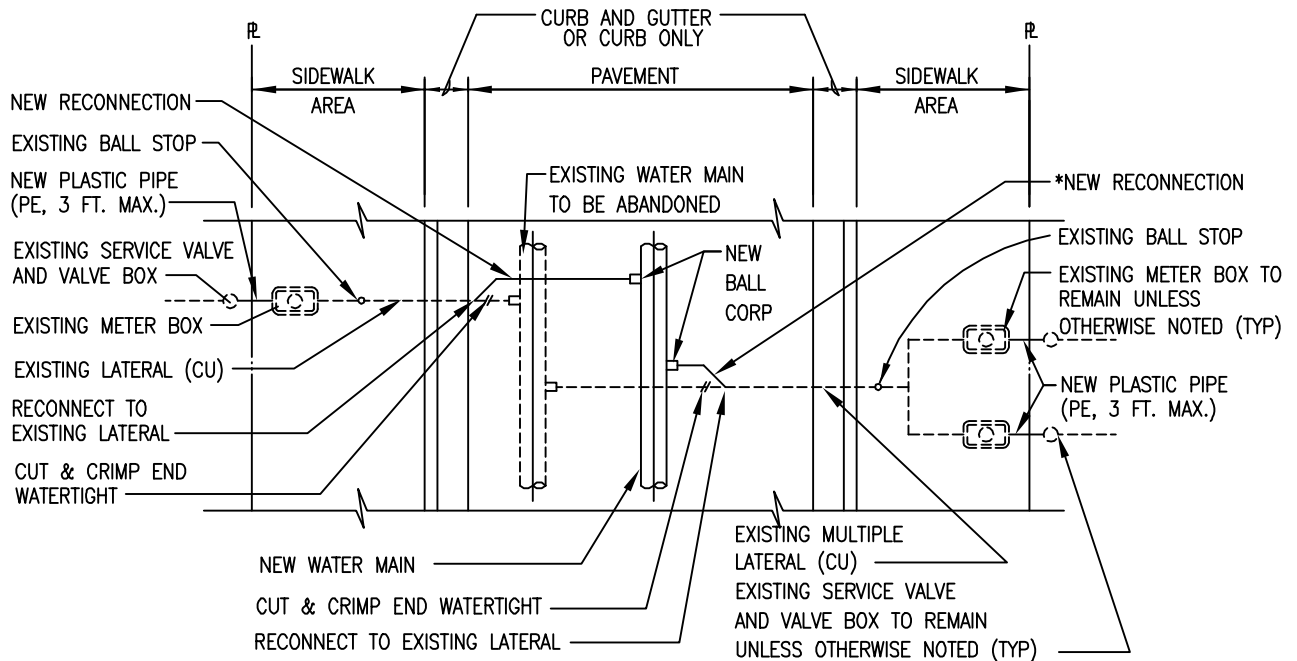
REVISION

OAHU

## NEW LATERAL INSTALLATION SCHEMATIC DETAIL SCALE: NTS

STANDARD  
DETAILS

L21



2002  
REVISION

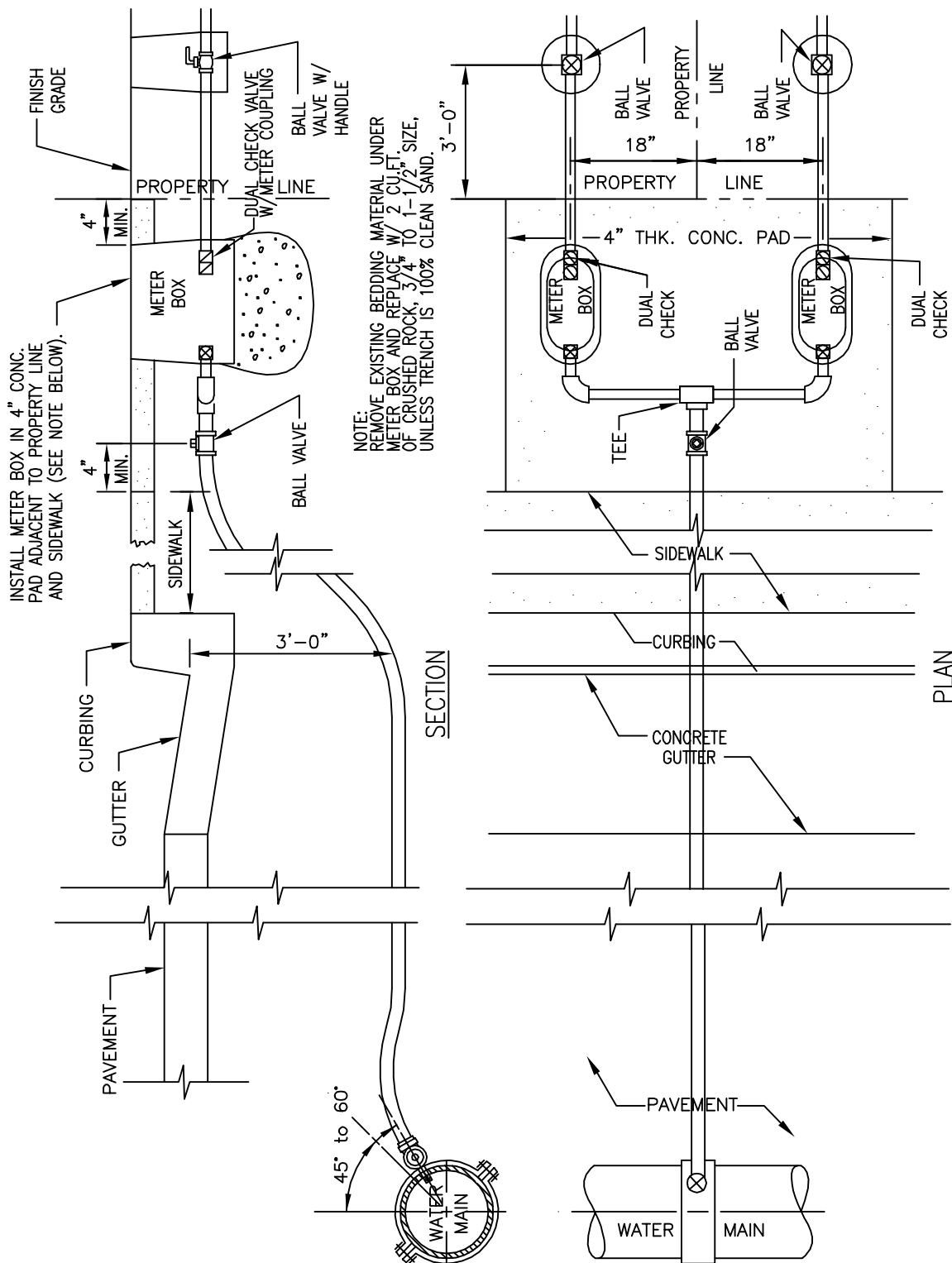
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# LATERAL RECONNECTION SCHEMATIC DETAIL SCALE: NTS

STANDARD  
DETAILS

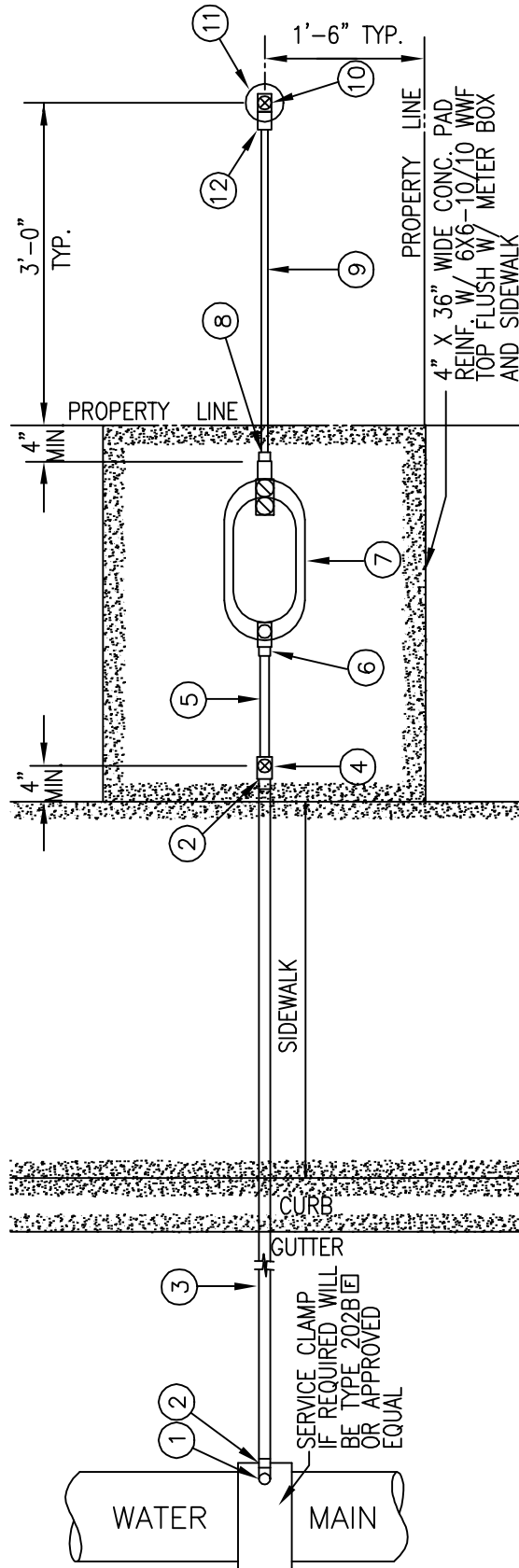
L22

MAUI	SERVICE LATERALS AND CONNECTIONS STANDARD SIZING ARRANGEMENTS SCALE: NTS	STANDARD DETAILS	2002	L23
			REVISION	
<div><div><div><div><div>SERVICE CONNECTION</div><div>SERVICE LATERAL</div></div><div><div>A (5/8", 3/4") METER SIZE (TYP.)</div></div><div><div>B (1")</div></div><div><div>C (1 1/2")</div></div><div><div>D (2")</div></div><div><div>SINGLE SERVICE LATERAL</div></div></div><div><div><div><div><div>SERVICE CONNECTION</div><div>SERVICE LATERAL</div></div><div><div>A-1 (5/8", 3/4")</div></div><div><div>B-1 (1")</div></div><div><div>C-1 (1 1/2")</div></div><div><div>DOUBLE SERVICE LATERAL</div></div></div></div><div><div>THE PURPOSE OF THIS FIGURE IS TO SIMPLIFY THE DESIGNATION OF SERVICE LATERALS AND CONNECTIONS ON CONSTRUCTION PLANS. THE SIZE COMBINATIONS SHOWN HEREON ARE THOSE MOST COMMONLY USED, BUT THIS FIGURE IS NOT INTENDED TO LIMIT THE COMBINATIONS WHICH MAY BE USED.</div></div></div></div></div>				



2002
REVISION

MAUI	TYPICAL SERVICE LATERAL	STANDARD DETAILS	L24
	SCALE: NTS		



NOTE: SEE L26 FOR MATERIALS AND NOTES

2002
REVISION

MAUI	<p><b>SINGLE SERVICE LATERAL</b>  <b>TYPE "A", 5/8" &amp; 3/4" METERS)</b>          SCALE: NTS</p>	STANDARD DETAILS	<b>L25</b>
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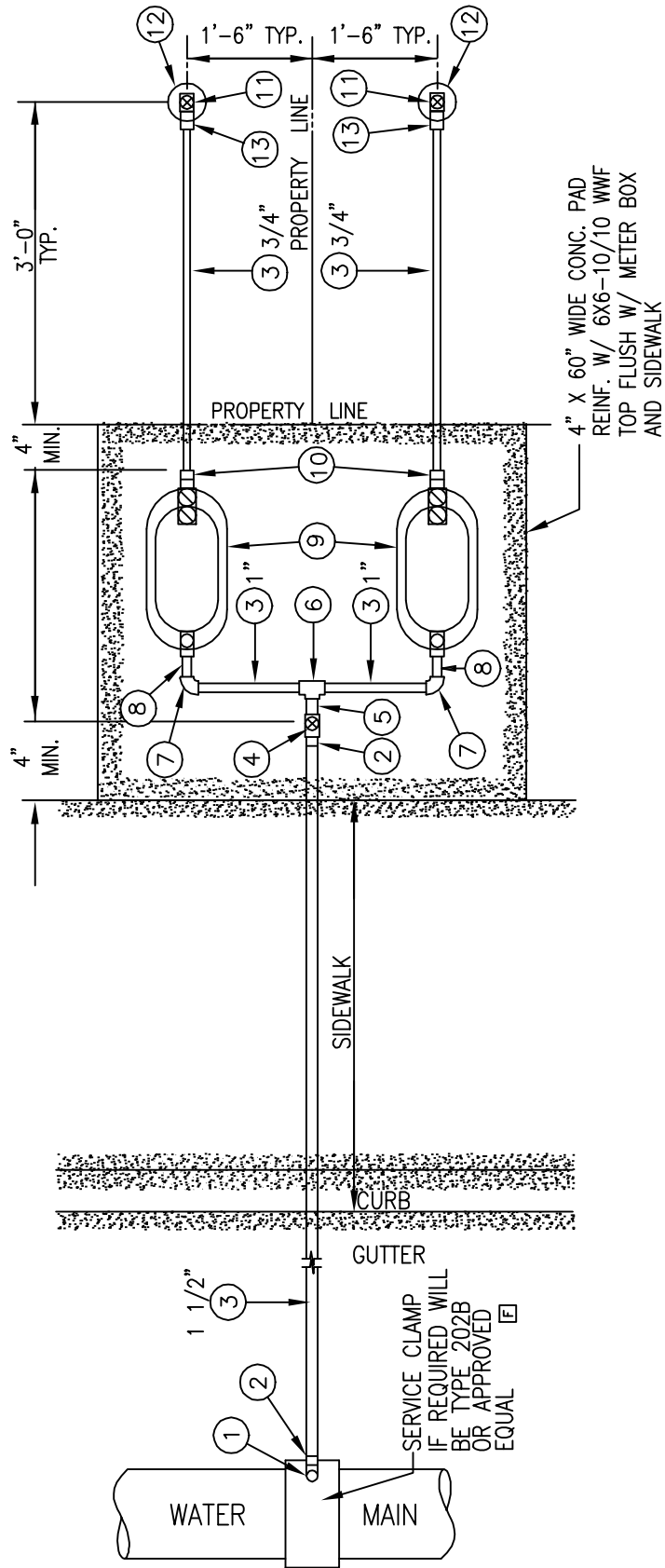
MAUI	SINGLE SERVICE LATERAL (TYPE "A", 5/8" & 3/4" METERS)  SCALE: NTS	STANDARD DETAILS	2002	L26																																																			
			REVISION																																																				
<table><tr><td>TYPE</td><td>METER SIZE</td><td>① CORP. STOP</td><td>② COPPER ADAPTER</td><td>③ COPPER SERVICE TUBING</td><td>④ BRONZE BALL VALVE</td><td>⑤ BRASS NIPPLE</td><td>⑥ BRASS FITTING</td></tr><tr><td>A</td><td>5/8" x 3/4"</td><td>1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]</td><td>1" MALE I.P.T. x COPPER</td><td>1"</td><td>1" FEMALE I.P.T. B 11-444 [E]</td><td>1" x 4"</td><td>N/A</td></tr><tr><td>A</td><td>3/4" x 3/4"</td><td>1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]</td><td>1" MALE I.P.T. x COPPER</td><td>1"</td><td>1" FEMALE I.P.T. B 11-444 [E]</td><td>1" x 4"</td><td>1" x 45° ELBOW W/ CLOSE NIPPLE OR 45° STREET ELBOW</td></tr><tr><td>TYPE</td><td>METER SIZE</td><td>⑦ CAST IRON METER BOX</td><td></td><td>⑧ COPPER ADAPTER</td><td>⑨ COPPER SERVICE TUBING</td><td>⑩ BRONZE BALL VALVE</td><td>⑪ PLASTIC VALVE BOX</td><td>⑫ DIELECTRIC COUPLING</td></tr><tr><td>A</td><td>5/8" x 3/4"</td><td>1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 111-243-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]</td><td></td><td>3/4" MALE I.P.T. x COPPER</td><td>3/4"</td><td>3/4" FEMALE I.P.T. B 11-333 HB-34S [E]</td><td>10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015</td><td>3/4 BRASS W/ CLOSE NIPPLE</td></tr><tr><td>A</td><td>3/4" x 3/4"</td><td>1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 211-343-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]</td><td></td><td>3/4" MALE I.P.T. x COPPER</td><td>3/4"</td><td>3/4" FEMALE I.P.T. B 11-333 HB-34S [E]</td><td>10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015</td><td>3/4 BRASS W/ CLOSE NIPPLE</td></tr></table>					TYPE	METER SIZE	① CORP. STOP	② COPPER ADAPTER	③ COPPER SERVICE TUBING	④ BRONZE BALL VALVE	⑤ BRASS NIPPLE	⑥ BRASS FITTING	A	5/8" x 3/4"	1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]	1" MALE I.P.T. x COPPER	1"	1" FEMALE I.P.T. B 11-444 [E]	1" x 4"	N/A	A	3/4" x 3/4"	1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]	1" MALE I.P.T. x COPPER	1"	1" FEMALE I.P.T. B 11-444 [E]	1" x 4"	1" x 45° ELBOW W/ CLOSE NIPPLE OR 45° STREET ELBOW	TYPE	METER SIZE	⑦ CAST IRON METER BOX		⑧ COPPER ADAPTER	⑨ COPPER SERVICE TUBING	⑩ BRONZE BALL VALVE	⑪ PLASTIC VALVE BOX	⑫ DIELECTRIC COUPLING	A	5/8" x 3/4"	1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 111-243-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]		3/4" MALE I.P.T. x COPPER	3/4"	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS W/ CLOSE NIPPLE	A	3/4" x 3/4"	1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 211-343-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]		3/4" MALE I.P.T. x COPPER	3/4"	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS W/ CLOSE NIPPLE
TYPE	METER SIZE	① CORP. STOP	② COPPER ADAPTER	③ COPPER SERVICE TUBING	④ BRONZE BALL VALVE	⑤ BRASS NIPPLE	⑥ BRASS FITTING																																																
A	5/8" x 3/4"	1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]	1" MALE I.P.T. x COPPER	1"	1" FEMALE I.P.T. B 11-444 [E]	1" x 4"	N/A																																																
A	3/4" x 3/4"	1" AWWA THREAD x FEMALE I.P.T. FB 1600-4 [E]	1" MALE I.P.T. x COPPER	1"	1" FEMALE I.P.T. B 11-444 [E]	1" x 4"	1" x 45° ELBOW W/ CLOSE NIPPLE OR 45° STREET ELBOW																																																
TYPE	METER SIZE	⑦ CAST IRON METER BOX		⑧ COPPER ADAPTER	⑨ COPPER SERVICE TUBING	⑩ BRONZE BALL VALVE	⑪ PLASTIC VALVE BOX	⑫ DIELECTRIC COUPLING																																															
A	5/8" x 3/4"	1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 111-243-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]		3/4" MALE I.P.T. x COPPER	3/4"	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS W/ CLOSE NIPPLE																																															
A	3/4" x 3/4"	1" FEMALE I.P.T. INLET 3/4" FEMALE I.P.T. OUTLET LYLB 211-343-1P (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]		3/4" MALE I.P.T. x COPPER	3/4"	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS W/ CLOSE NIPPLE																																															
<div>NOTES</div> <div>[E] DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.</div> <div>1. ALL FITTINGS AND MATERIALS SHALL BE AS LISTED BY BRAND NAME OR APPROVED EQUAL. FOR CONDITION OTHER THAN STANDARD CONDITION SHOWN, ENGINEER SHALL SUBMIT MODIFIED DETAIL FOR APPROVAL.</div> <div>2. SEE L25 FOR PLAN VIEW</div> <div>3. WHERE THERE IS NO SIDEWALK, THE 4" CONCRETE PAD SHALL MEASURE 42" FRONT-TO-BACK AND 36" ALONG THE PROPERTY LINE, WITH TOP ELEVATION 2" ABOVE THE GRADED SHOULDER.</div> <div>4. REPLACE PLASTIC VALVE BOX WITH CAST IRON FRAME &amp; COVER IF SUBJECT TO TRAFFIC.</div>																																																							

NOTES

☐ DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.

1. ALL FITTINGS AND MATERIALS SHALL BE AS LISTED BY BRAND NAME OR APPROVED EQUAL.  
FOR CONDITION OTHER THAN STANDARD CONDITION SHOWN, ENGINEER SHALL SUBMIT MODIFIED DETAIL FOR APPROVAL.  
2. SEE L25 FOR PLAN VIEW

3. WHERE THERE IS NO SIDEWALK, THE 4" CONCRETE PAD SHALL MEASURE 42" FRONT-TO-BACK AND 36" ALONG THE PROPERTY LINE, WITH TOP ELEVATION 2" ABOVE THE GRADED SHOULDER.  
4. REPLACE PLASTIC VALVE BOX WITH CAST IRON FRAME & COVER IF SUBJECT TO TRAFFIC.



NOTE: SEE L28 FOR MATERIALS AND NOTES

2002
REVISION

MAUI	DOUBLE SERVICE LATERAL (TYPE "A-1", 5/8" & 3/4" METERS) SCALE: NTS	STANDARD DETAILS	L27
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MAUI	DOUBLE SERVICE LATERAL (TYPE "A-1", 5/8" & 3/4" METERS) SCALE: NTS	STANDARD DETAILS	L28	2002 REVISION

TYPE	METER SIZE	①	②	③	④	⑤	⑥
		BALL STOP CORP.	COPPER ADAPTER	COPPER SERVICE TUBING	BRONZE BALL VALVE	COPPER ADAPTER	COPPER TEE
A-1	5/8" x 3/4"	1 1/2" AWWA THREAD x FEMALE I.P.T. FB 1600-6 [E]	1 1/2" MALE I.P.T. x COPPER	SIZES AS NOTED ON L27	1 1/2" FEMALE I.P.T. B 11-666 [E]	1 1/2" MALE I.P.T. x COPPER (SPIGOT)	1" x 1" x 1 1/2" C x C x C
A-1	3/4" x 3/4"	1 1/2" AWWA THREAD x FEMALE I.P.T. FB 1600-6 [E]	1 1/2" MALE I.P.T. x COPPER	SIZES AS NOTED ON L27	1 1/2" FEMALE I.P.T. B 11-666 [E]	1 1/2" MALE I.P.T. x COPPER (SPIGOT)	1" x 1" x 1 1/2" C x C x C

TYPE	METER SIZE	⑦	⑧	⑨	⑩	⑪	⑫	⑬
		COPPER 90° ELLS	COPPER ADAPTER	CAST IRON METER BOX	COPPER ADAPTER	BRONZE BALL VALVE	PLASTIC VALVE BOX	DIELECTRIC COUPLING
A-1	5/8" x 3/4"	1" C x C	1" MALE I.P.T. x COPPER (SPIGOT)	1" FEMALE I.P.T., INLET 3/4" FEMALE I.P.T., OUTLET LYLB 111-243-TP (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]	3/4" MALE I.P.T. x COPPER	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS WITH CLOSE NIPPLE
A-1	3/4" x 3/4"	1" C x C (ROTATED 45°)	1" MALE I.P.T. x COPPER (SPIGOT)	1" FEMALE I.P.T., INLET 3/4" FEMALE I.P.T., OUTLET LYLB 211-343-TP (METER SHUTOFF AND DUAL CHECK VALVE INCLUDED) [E]	3/4" MALE I.P.T. x COPPER	3/4" FEMALE I.P.T. B 11-333 HB-34S [E]	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	3/4 BRASS WITH CLOSE NIPPLE

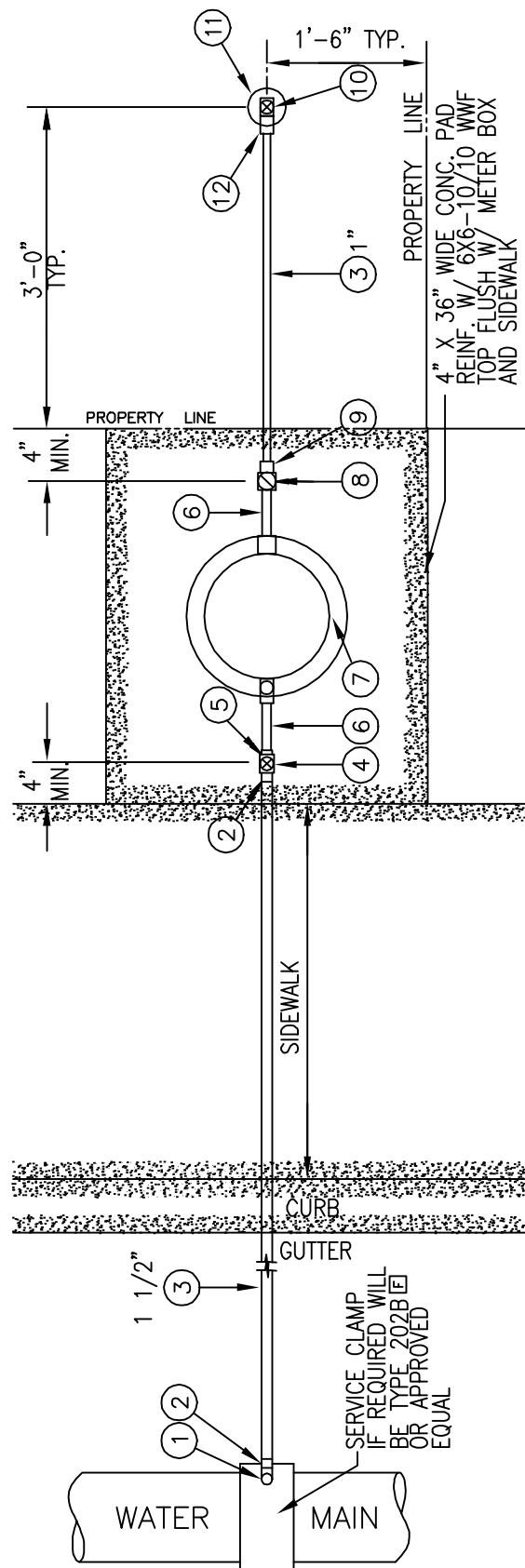
NOTES

1. ALL FITTINGS AND MATERIALS SHALL BE AS LISTED BY BRAND NAME OR APPROVED EQUAL.  
FOR CONDITION OTHER THAN STANDARD CONDITION SHOWN, ENGINEER SHALL SUBMIT MODIFIED DETAIL FOR APPROVAL.  
2. SEE L27 FOR PLAN VIEW

[E] DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.

3. WHERE THERE IS NO SIDEWALK, THE 4" CONCRETE PAD SHALL MEASURE 42" FRONT-TO-BACK AND 60" ALONG THE PROPERTY LINE, WITH TOP ELEVATION 2" ABOVE THE GRADED SHOULDER.  
4. REPLACE PLASTIC VALVE BOX WITH CAST IRON FRAME & COVER IF SUBJECT TO TRAFFIC.





NOTE: SEE L30 FOR MATERIALS AND NOTES

2002
REVISION

MAUI	<p>SINGLE SERVICE LATERAL (TYPE "B", 1" METER)</p> <p>SCALE: NTS</p>	STANDARD DETAILS	L29
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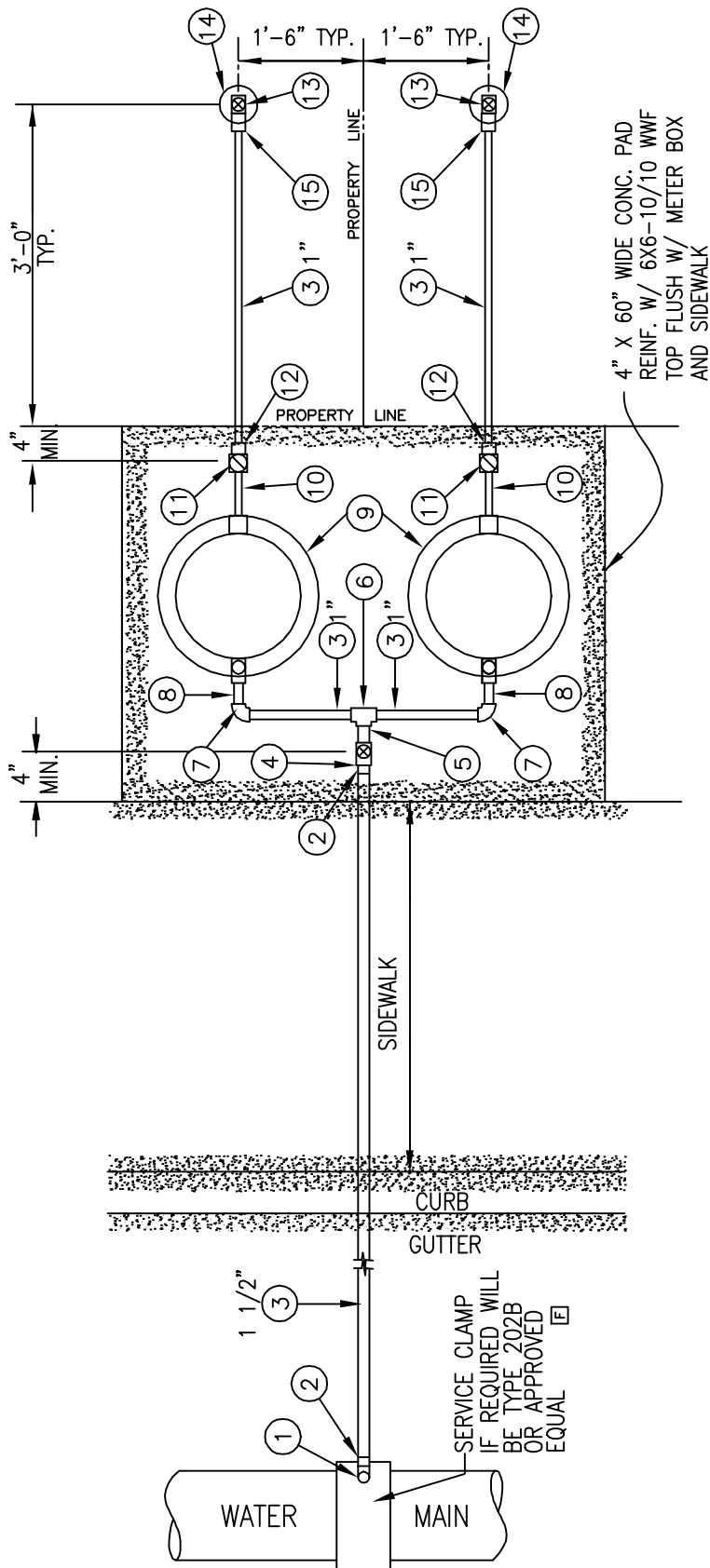
MAUI	SINGLE SERVICE LATERAL (TYPE "B", 1" METER) SCALE: NTS				STANDARD DETAILS				L30
TYPE	METER SIZE	①	②	③	④	⑤	⑥	⑦	
		CORP. STOP	COPPER ADAPTER	COPPER SERVICE TUBING	BRONZE BALL VALVE	BRASS BUSHING	BRASS NIPPLE	CAST IRON METER BOX	
B	1"	1 1/2" AWWA THREAD x FEMALE I.P.T. FB 1600-6	1 1/2" MALE I.P.T. x COPPER	SIZES AS NOTED ON L29	1 1/2" FEMALE I.P.T. B 11-666	1" FEMALE I.P.T. x 1 1/2" MALE I.P.T. C 18-46	1" x 4"	INLET-OUTLET 1" FEMALE I.P.T. (METER SHUTOFF INCLUDED) YLB 111-444-TP	F
TYPE	METER SIZE	⑧	⑨	⑩	⑪	⑫			
		BRASS CHECK VALVE	COPPER ADAPTER	BRONZE BALL VALVE	PLASTIC VALVE BOX	DIELECTRIC COUPLING			
B	1"	1" IN-LINE SPRING HS 11-444	1" MALE I.P.T. x COPPER	1" FEMALE I.P.T. B 11-444 HB-34S	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	1" BRASS WITH CLOSE NIPPLE			

NOTES

1. ALL FITTINGS AND MATERIALS SHALL BE AS LISTED BY BRAND NAME OR APPROVED EQUAL. FOR CONDITION OTHER THAN STANDARD CONDITION SHOWN, ENGINEER SHALL SUBMIT MODIFIED DETAIL FOR APPROVAL.
2. SEE L29 FOR PLAN VIEW
3. WHERE THERE IS NO SIDEWALK, THE 4" CONCRETE PAD SHALL MEASURE 42" FRONT-TO-BACK AND 36" ALONG THE PROPERTY LINE, WITH TOP ELEVATION 2" ABOVE THE GRADED SHOULDER.
4. REPLACE PLASTIC VALVE BOX WITH CAST IRON FRAME & COVER IF SUBJECT TO TRAFFIC.

F DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.

REVISION	2002



NOTE: SEE L32 FOR MATERIALS AND NOTES.

MAUI

# **DOUBLE SERVICE LATERAL** (TYPE "B-1", 1" METER) SCALE: NTS

STANDARD  
DETAILS

2002  
REVISION

L31

MAUI	DOUBLE SERVICE LATERAL (TYPE "B-1", 1" METER) SCALE: NTS	STANDARD DETAILS	L32										
				2002									
				REVISION									

TYPE	METER SIZE	①	②	③	④	⑤	⑥	⑦	
		CORP. STOP	COPPER ADAPTER	COPPER SERVICE TUBING	BRONZE BALL VALVE	COPPER ADAPTER	COPPER TEE	COPPER 90° ELLS	
B-1	1"	1 1/2" AWWA THREAD x FEMALE I.P.T. FB 1600-6	1 1/2" MALE I.P.T. x COPPER	SIZES AS NOTED ON L31	1 1/2" FEMALE I.P.T. B 11-666	1 1/2" MALE I.P.T. x COPPER (SPIGOT)	1" x 1" x 1 1/2" C x C x C	1" C x C	
TYPE	METER SIZE	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
		COPPER ADAPTER	CAST IRON METER BOX	BRASS NIPPLE	BRASS CHECK VALVE	COPPER ADAPTER	BRONZE BALL VALVE	PLASTIC VALVE BOX	DIELECTRIC COUPLING
B-1	1"	1" MALE I.P.T. x COPPER (SPIGOT)	INLET-OUTLET 1" FEMALE I.P.T. (METER SHUT-OFF INCLUDED) YLB 111-444-TP	1" x 4"	1" IN-LINE SPRING HS 11-444	1" MALE I.P.T. x COPPER	1" FEMALE I.P.T. B 11-444 HB-34S	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	1" BRASS WITH CLOSE NIPPLE

NOTES

1. ALL FITTINGS AND MATERIALS SHALL BE AS LISTED BY BRAND NAME OR APPROVED EQUAL.  
FOR CONDITION OTHER THAN STANDARD CONDITION SHOWN, ENGINEER SHALL SUBMIT MODIFIED DETAIL FOR APPROVAL.

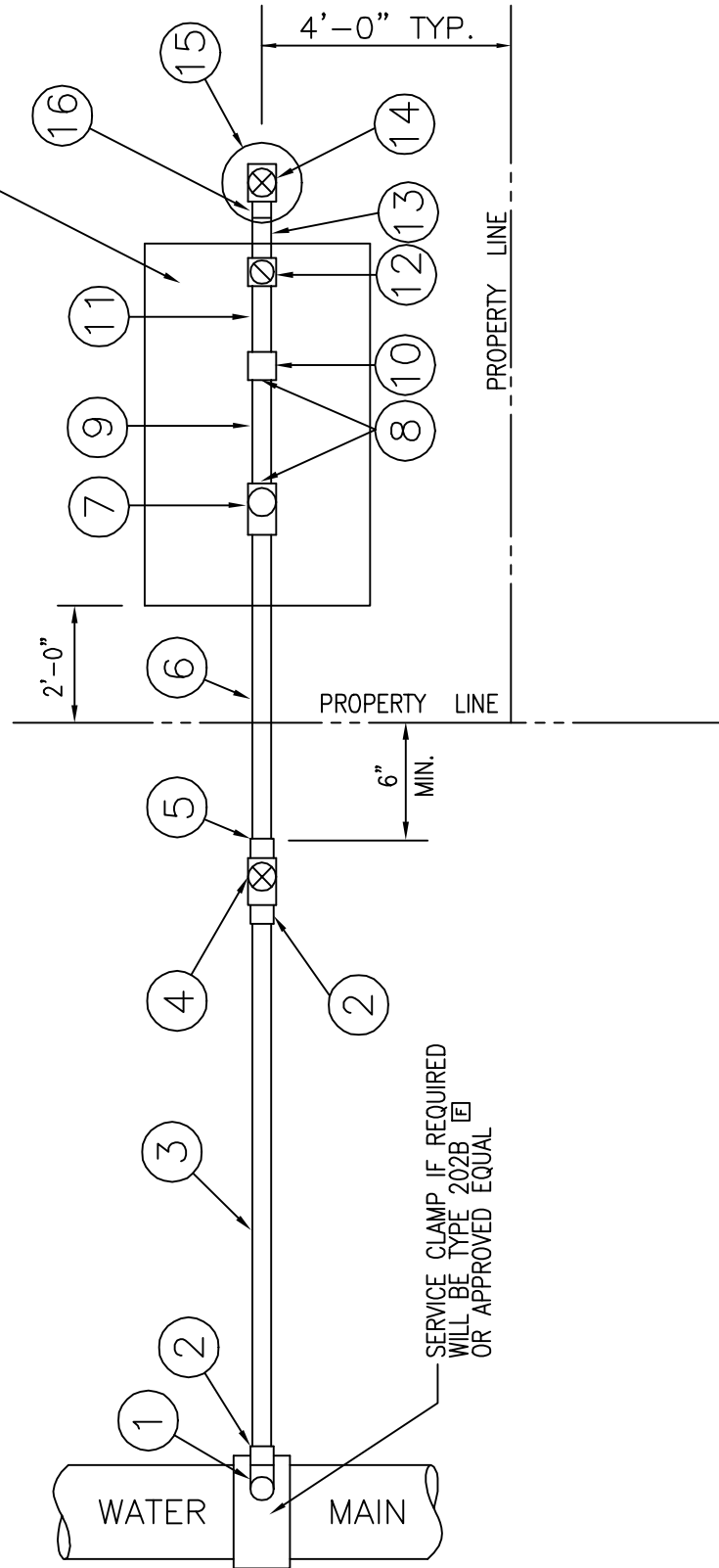
2. SEE L31 FOR PLAN VIEW

3. WHERE THERE IS NO SIDEWALK, THE 4" CONCRETE PAD SHALL MEASURE 42" FRONT-TO-BACK AND 60" ALONG THE PROPERTY LINE, WITH TOP ELEVATION 2" ABOVE THE GRADED SHOULDER.

4. REPLACE PLASTIC VALVE BOX WITH CAST IRON FRAME & COVER IF SUBJECT TO TRAFFIC.

☐ DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.

SEE PLATE M12 FOR  
1 1/2" METER BOX



NOTE: SEE L34 FOR MATERIALS AND NOTES

2002
REVISION

MAUI

# **SINGLE SERVICE LATERAL** (TYPE "C", 1 1/2" METER) SCALE: NTS

STANDARD  
DETAILS

L33

MAUI	<b>SINGLE SERVICE LATERAL</b> (TYPE "C", 1 1/2" METER) SCALE: NTS	STANDARD DETAILS	<div> <div></div> <div>2002</div> <div>REVISION</div> </div> <div>L34</div>
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TYPE	METER SIZE	① CORP. STOP	② COPPER ADAPTER	③ COPPER SERVICE TUBING	④ BRONZE BALL VALVE	⑤ BRASS BUSHING	⑥ BRASS NIPPLE	⑦ METER VALVE	⑧ STAINLESS STL. BOLTS/NUTS
C	1 1/2"	2" AWWA THREAD FEMALE I.P.T. FB 1600-7 <sup>[E]</sup>	2" MALE I.P.T. x COPPER	2"	2" FEMALE I.P.T. B 11-777 <sup>[E]</sup>	1 1/2" FEMALE I.P.T. x 2" MALE I.P.T. C 18-67 <sup>[E]</sup>	1 1/2" x 48" (OR LENGTH TO FIT)	1 1/2" FEMALE I.P.T. x FLANGE BF 13-666 <sup>[E]</sup>	5/8" x 2 1/2" TYPE 304

TYPE	METER SIZE	⑨ METER IDLER	⑩ METER COUPLING	⑪ BRASS NIPPLE	⑫ BRASS CHECK VALVE	⑬ BRASS NIPPLE	⑭ BRONZE BALL VALVE	⑮ PLASTIC VALVE BOX	⑯ DIELECTRIC COUPLING
C	1 1/2"	1 1/2" x 13" FLG. x FLG. ONE END PLUGGED	1 1/2" FLG. x LOK-PAK <sup>[E]</sup>	1 1/2" x 6"	1 1/2" IN-LINE SPRING HS 11-666 <sup>[E]</sup>	1 1/2" x 14"	1 1/2" FEMALE I.P.T. B 11-666 HB-67S <sup>[E]</sup>	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	1 1/2" BRASS WITH ADAPTER AND CLOSE NIPPLE

NOTES:

- ALL FITTINGS AND MATERIALS LISTED BY BRAND NAMES OR APPROVED EQUAL.
- SEE PLATE M23 FOR TRANSPONDER BRACKET INSTALLATION.
- SEE L33 FOR PLAN VIEW

<sup>[E]</sup> DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.



MAUI	DOUBLE SERVICE LATERAL (TYPE "C-1", 1 1/2" METER) SCALE: NTS										STANDARD DETAILS	L36	
	2002												
	REVISION												

TYPE	METER SIZE	①	②	③	④	⑤	⑥	⑦	⑧	
		CORP. STOP	COPPER ADAPTER	COPPER SERVICE TUBING	BRONZE BALL VALVE	COPPER ADAPTER	COPPER TEE	COPPER 90° ELLS	COPPER ADAPTER	
C-1	1 1/2"	2" AWWA THREAD x FEMALE I.P.T. FB 1600-7	2" MALE I.P.T. x COPPER	SIZES AS NOTED ON L35	2" FEMALE I.P.T. B 11-777	2" MALE I.P.T. x C (SPIGOT)	1 1/2" x 1 1/2" x 2" C x C x C	1 1/2" C x C	1 1/2" MALE I.P.T. x COPPER	
⑨		⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱
METER VALVE		STAINLESS STL. BOLTS/NUTS	METER IDLER	METER COUPLING	BRASS NIPPLE	BRASS CHECK VALVE	BRASS NIPPLE	BRONZE BALL VALVE	PLASTIC VALVE BOX	DIELECTRIC COUPLING
1 1/2" FEMALE I.P.T. x FLANGE BF 13-666		5/8" x 2 1/2" TYPE 304	1 1/2" x 13" FLG. x FLG. ONE END PLUGGED	1 1/2" FLG. x LOK-PAK	1 1/2" x 6"	1 1/2" IN-LINE SPRING HS 11-666	1 1/2" x 14"	1 1/2" FEMALE I.P.T. B 11-666 HB-67S	10" AMETEK 10-181-014 W/GREEN COVER 10-181-015	1 1/2" BRASS WITH ADAPTER AND CLOSE NIPPLE

NOTES:

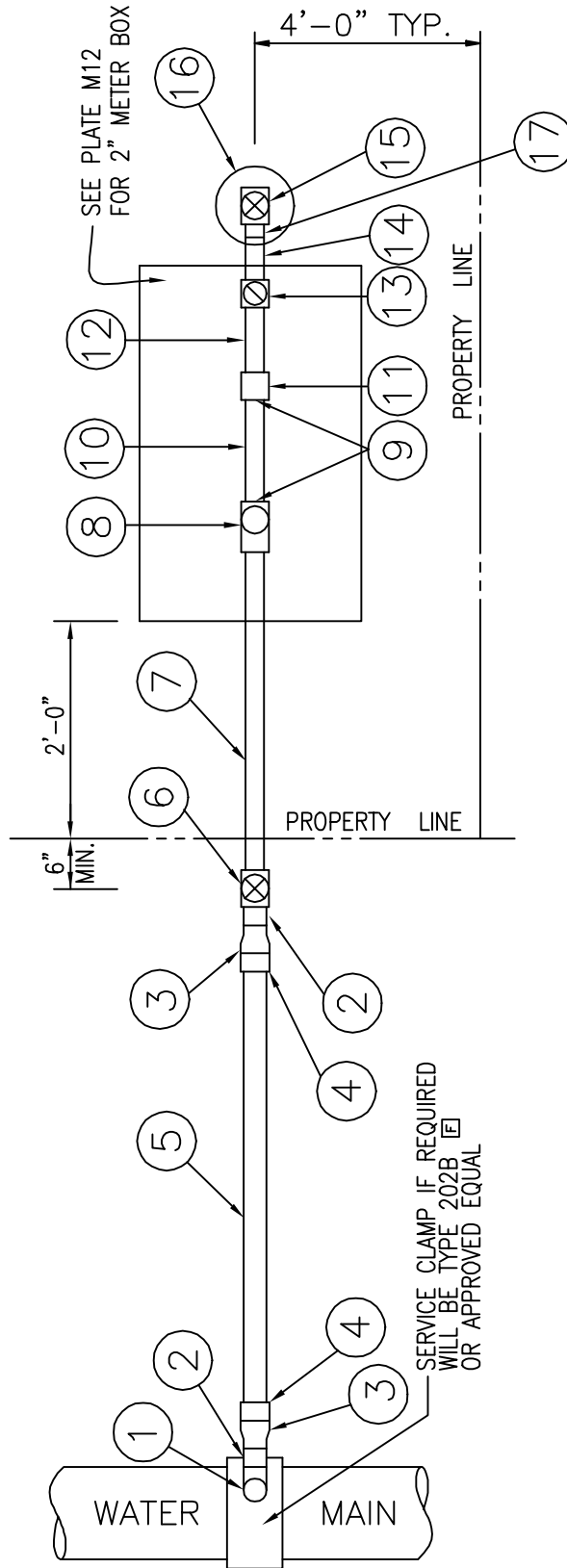
ALL FITTINGS AND MATERIALS LISTED BY BRAND  
NAMES OR APPROVED EQUAL.

SEE PLATE M23 FOR TRANSPONDER BRACKET INSTALLATION.

SEE L35 FOR PLAN VIEW

DENOTES FORD METER BOX  
MANUFACTURING CO. NUMBER.





NOTE: SEE L38 FOR MATERIALS AND NOTES

2002
REVISION

MAUI	<b>SINGLE SERVICE LATERAL</b> (TYPE "D", 2" METER) SCALE: NTS	STANDARD DETAILS	L37
------	---	------------------	-----

TYPE	METER SIZE	①	② *	③ *	④ *	⑤ *
		STOP CORP.	BRASS NIPPLE	BRASS REDUCING COUPLING	COPPER ADAPTER	COPPER SERVICE TUBING
	D	2" AWWA THREAD x FEMALE I.P.T. FB 1600-7	2" x 4"	2 1/2" x 2" C 11-87	2 1/2" * (OR 2") MALE I.P.T. x COPPER	2 1/2" * (OR 2")
	⑥	⑦	⑧	⑨	⑩	⑪
BRONZE BALL VALVE	BRASS NIPPLE	VALVE METER	STAINLESS STL. BOLTS/NUTS	METER IDLER	METER COUPLING	
2" FEMALE I.P.T. B 11-777	2" x 48" (OR LENGTH TO FIT)	2" FEMALE I.P.T. x FLANGE BF 13-777	5/8" x 3" TYPE 304	2" x 17" FLG. x FLG. ONE END PLUGED	2" FLG. x LOK PAK	
⑫	⑬	⑭	⑮	⑯	⑰	
BRASS NIPPLE	BRASS CHECK VALVE	BRASS NIPPLE	BRONZE BALL VALVE	PLASTIC VALVE BOX	DIELECTRIC COUPLING	
2" x 6"	2" IN-LINE SPRING HS 11-777	2" x 14"	2" FEMALE I.P.T. B 11-777 HB-67 S	10" AMETEK 10-181-014 W/ GREEN COVER 10-181-015	2" BRASS WITH ADAPTER AND CLOSE NIPPLE	

NOTES:

1. ALL FITTINGS AND MATERIALS LISTED BY BRAND NAMES OR APPROVED EQUAL.

2. SEE PLATE M23 FOR TRANSDUCER BRACKET INSTALLATION.

\* IF LENGTH OF SERVICE LATERAL IS LESS THAN 15 FEET, DELETE ITEMS ② AND ③ AND USE 2" SIZE FOR ITEMS ④ AND ⑤.

SEE L37 FOR PLAN VIEW

MAUI

SINGLE SERVICE LATERAL  
(TYPE "D", 2" METER)  
SCALE: NTS

STANDARD  
DETAILS

2002

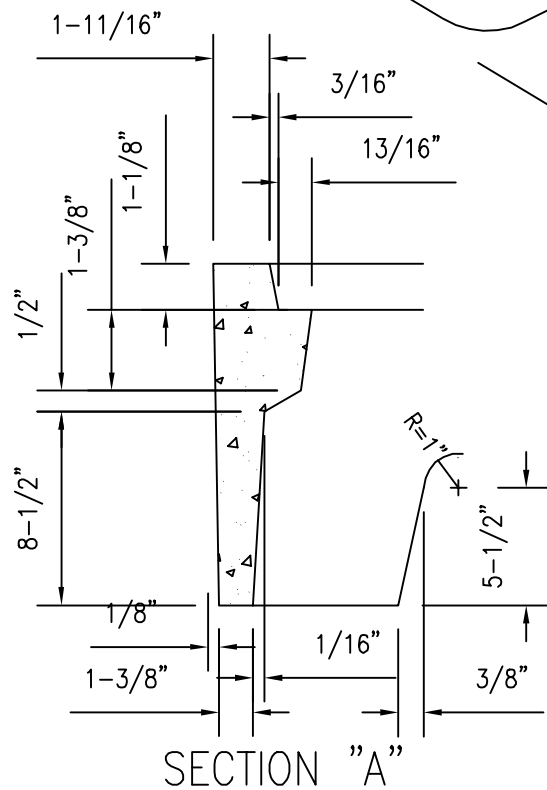
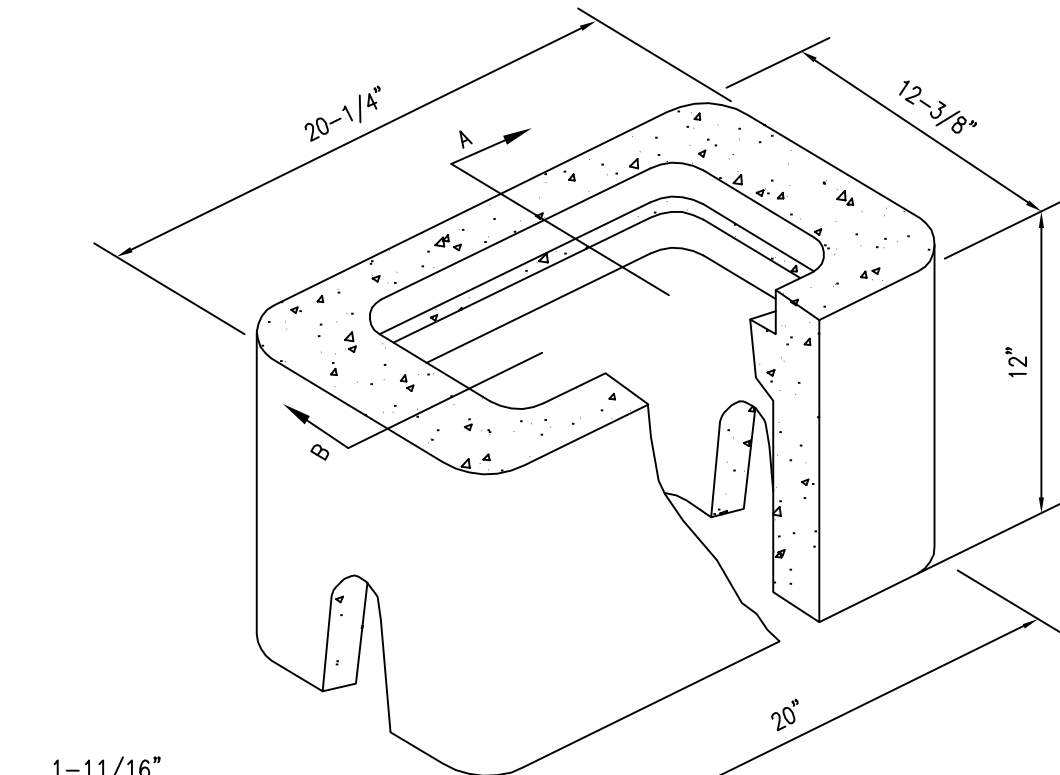
REVISION

L38

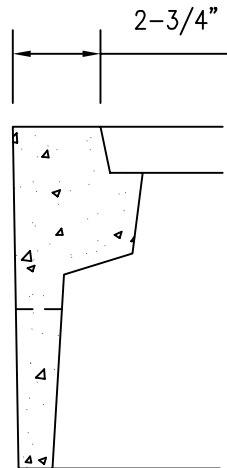
NOTES:

1. ALL FITTINGS AND MATERIALS LISTED BY BRAND NAMES OR APPROVED EQUAL.
2. SEE PLATE M23 FOR TRANSPONDER BRACKET INSTALLATION.
- \* IF LENGTH OF SERVICE LATERAL IS LESS THAN 15 FEET, DELETE ITEMS ② AND ③ AND USE 2" SIZE FOR ITEMS ④ AND ⑤. SEE L37 FOR PLAN VIEW

F DENOTES FORD METER BOX MANUFACTURING CO. NUMBER.



### CONCRETE BOX NOTES:



### SECTION "B"

1. ACCOMMODATES 5/8" OR 3/4" METERS. (KAUAI AND HAWAII ONLY) AND 2" AND 2-1/2" PROPERTY VALVES (FOR OAHU)
2. ACCOMMODATES 2" & 2-1/2" VALVES.
3. SEE PLATE M2 FOR C.I. COVER DETAILS.
4. FOR OAHU AND HAWAII, FIBER REINFORCED CONC. IS ALLOWED.
5. INSTALL 6" WIDE X 4" THICK CONCRETE COLLAR WITH WIRE MESH IN NON-CONCRETE/SIDEWALK AREA WHERE APPLICABLE

2002

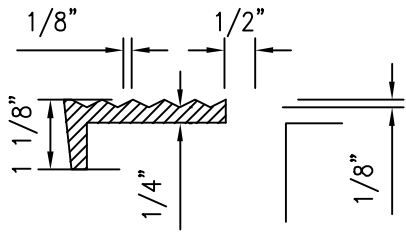
REVISION

KAUAI  
OAHU  
HAWAII

**METER BOX**  
TYPE "B"  
SCALE: NTS

STANDARD  
DETAILS

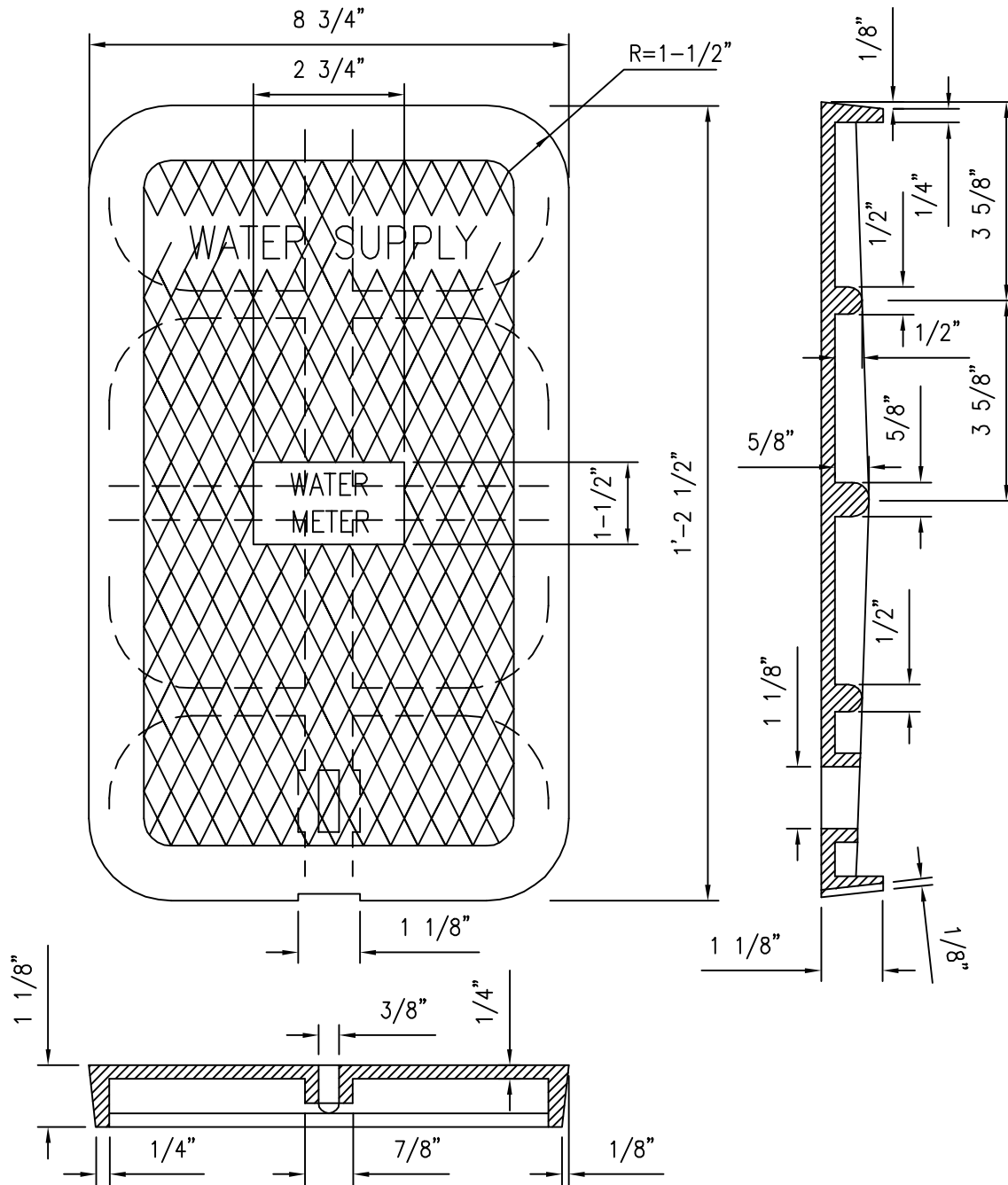
**M1**



CHECKERED PATTERN

NOTE:

METAL THICKNESS DIMENSIONS ARE NET.  
USE 1/2" HIGH VERTICAL LETTERS.  
METER COVER SHALL BE GRAY CAST IRON,  
FREE OF BLISTER, BLOWHOLES, WARPAGE  
AND COLD SHUTS.



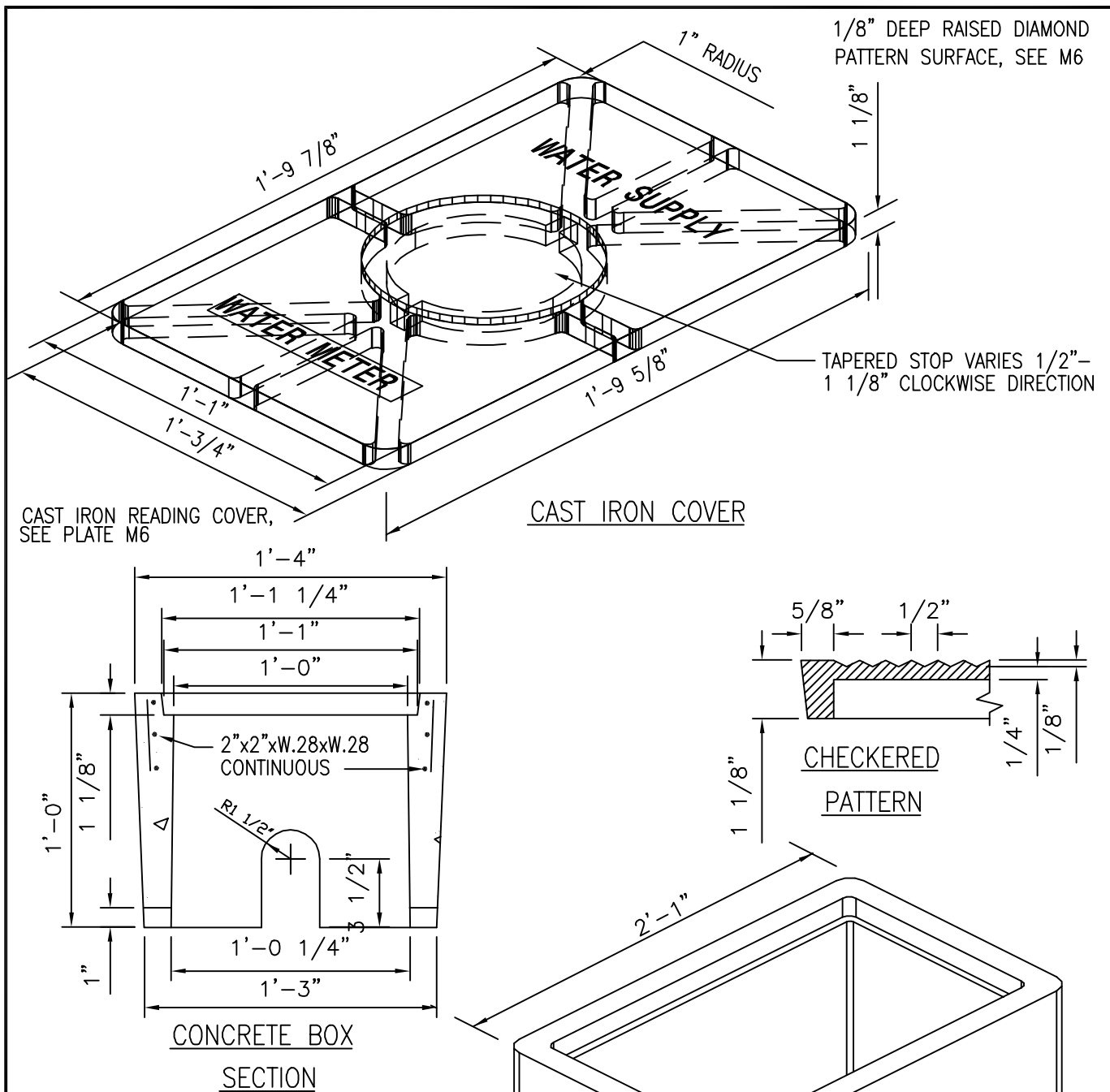
2001
REVISION

KAUAI  
OAHU  
HAWAII

**CAST IRON COVER**  
**FOR TYPE "B" METER BOX**  
SCALE: NTS

STANDARD  
DETAILS

**M2**



#### NOTES:

1. THICKNESS DIMENSIONS ARE NET. ADD 1/8" FOR RAISED SURFACE. RAISED SURFACE. USE 3/4" HIGH LETTERS
2. TYPE "X" METER BOX FOR 5/8", 3/4", & 1" METERS.
3. FOR "HAWAII", TYPE "X" METER BOX IS FOR 1" METER AND FOR 5/8" METERS INSTALLED IN A.C. OR CONCRETE PAVED AREA.
4. FOR OAHU AND HAWAII, FIBER REINFORCED CONCRETE IS ALLOWED.
5. SEE PLATE M24 FOR READING HOLE COVER DETAIL.
6. INSTALL 6" WIDE x 4" THICK CONC COLLAR IN NON-CONCRETE/SIDEWALK AREAS WHERE APPLICABLE.

CONCRETE BOX  
WT.= 107 LBS.

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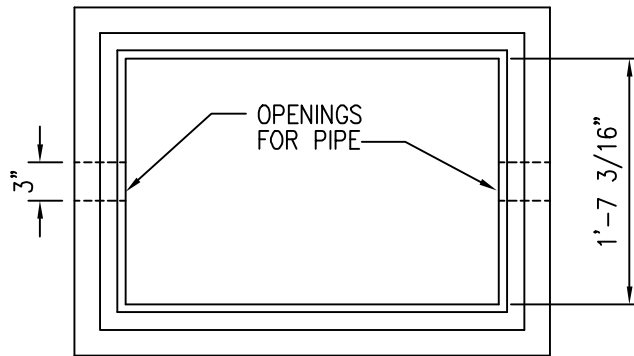
KAUAI  
OAHU  
HAWAII

## METER BOX & COVER

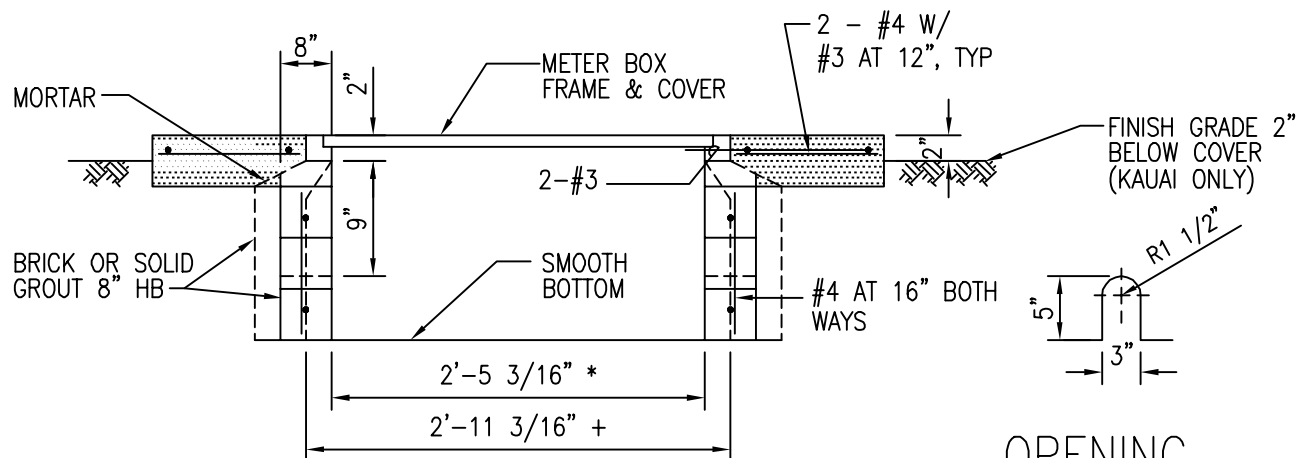
TYPE "X"  
SCALE: NTS

STANDARD  
DETAILS

M3



PLAN VIEW



ELEVATION

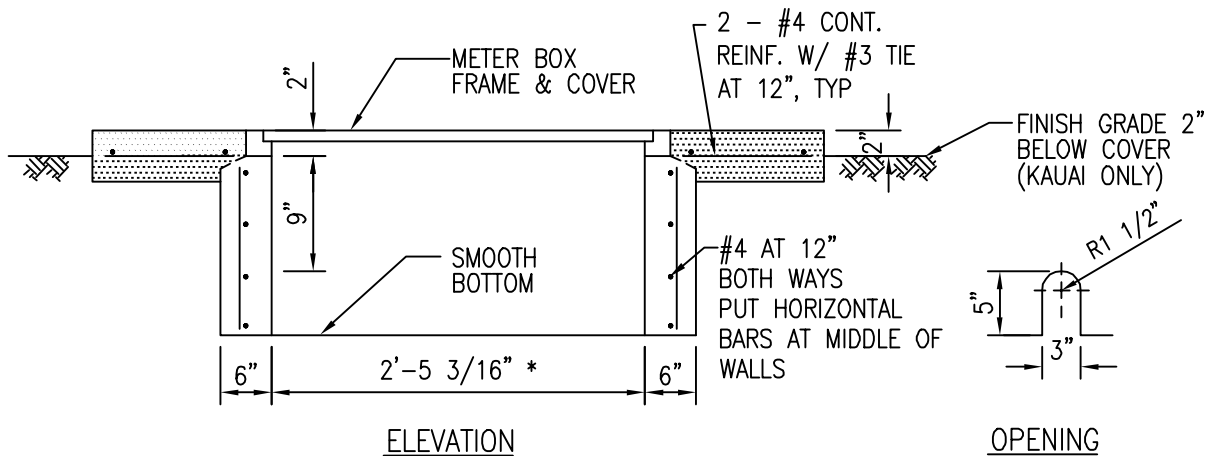
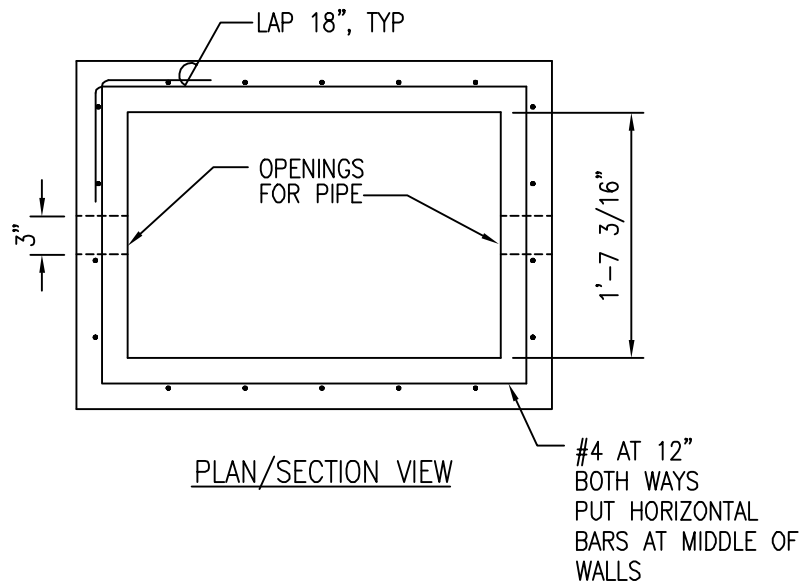
NOTE:

1. INSTALL 12" WIDE x 4" THICK CONCRETE COLLAR (REINFORCING AS SHOWN) IN NON-CONCRETE/SIDEWALK AREAS
2. DWS 3500 CONCRETE, 1500 PSI CMU AND GRADE 60 REINFORCEMENT STEELS
3. DESIGN IS BASED ON: 250 PSF LIVE LOAD, 0 FEET SURCHARGE: 60 PCF/FT AT REST PRESSURE AND WATER TABLE BELOW BOTTOM OF METER BOX PER ASSHTO LRFD BRIDGE SPECIFICATION (1998). NON TRAFFIC TYPE
4. ALL CELLS SHALL BE GROUTED SOLID WITH 2500 PSI GROUT, TYPE M MORTAR

\* FOR 1 1/2" AND 2" METERS ON OAHU, 2" METERS ON KAUAI

2002
REVISION

KAUAI OAHU	<b>METER BOX TYPE III</b> FOR 1 1/2" & 2" METERS SCALE: NTS	STANDARD DETAILS	<b>M4</b>
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**NOTE:**

1. INSTALL 12" WIDE x 4" THICK CONCRETE COLLAR (REINFORCING AS SHOWN) IN NON-CONCRETE/SIDEWALK AREAS
2. DWS 3500 CONCRETE AND GRADE 60 REINFORCING STEEL
3. DESIGN IS BASED ON: 250 PSF LIVE LOAD. 0 FEET SURCHARGE: 60 PCF/FT AT REST PRESSURE AND WATER TABLE BELOW BOTTOM OF METER BOX PER ASSHTO LRFD BRIDGE SPECIFICATION (1998) NON TRAFFIC TYPE

\* FOR 1 1/2" AND 2" METERS ON OAHU, 2" METERS ON KAUAI

2002

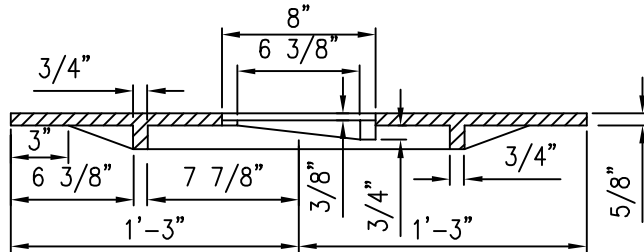
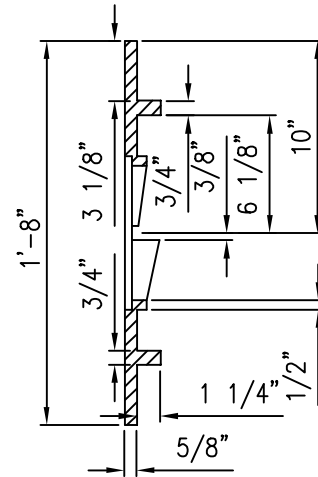
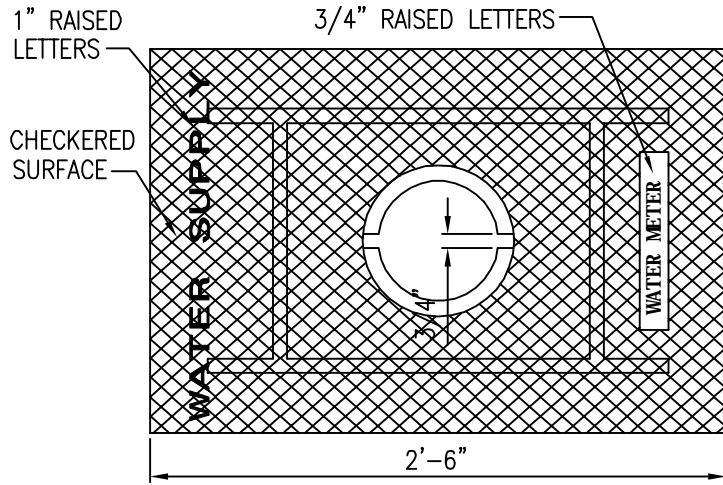
REVISION

KAUAI  
OAHU

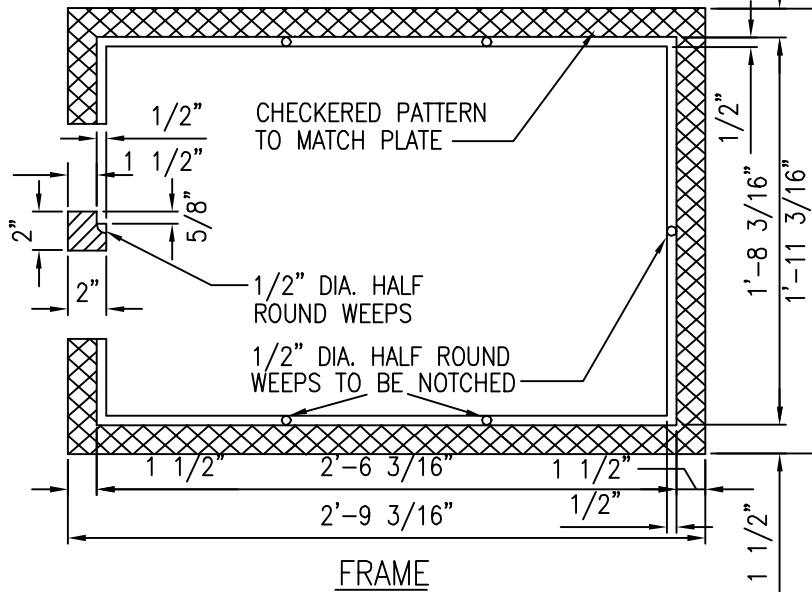
**METER BOX TYPE III**  
FOR 1 1/2" & 2" METERS  
SCALE: NTS

STANDARD  
DETAILS

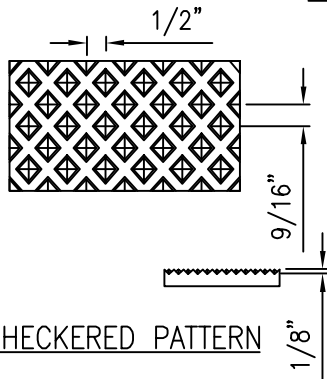
**M5**



PLATE



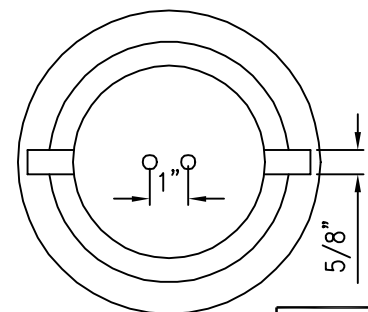
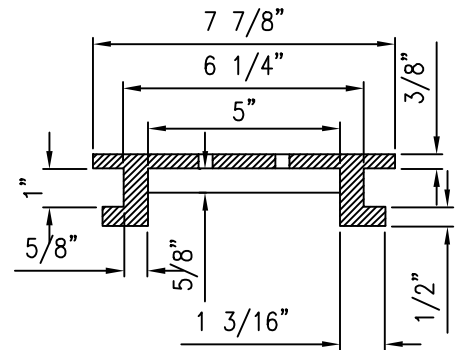
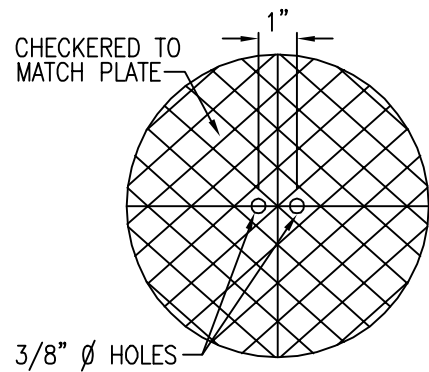
FRAME



CHECKERED PATTERN

**NOTE:**

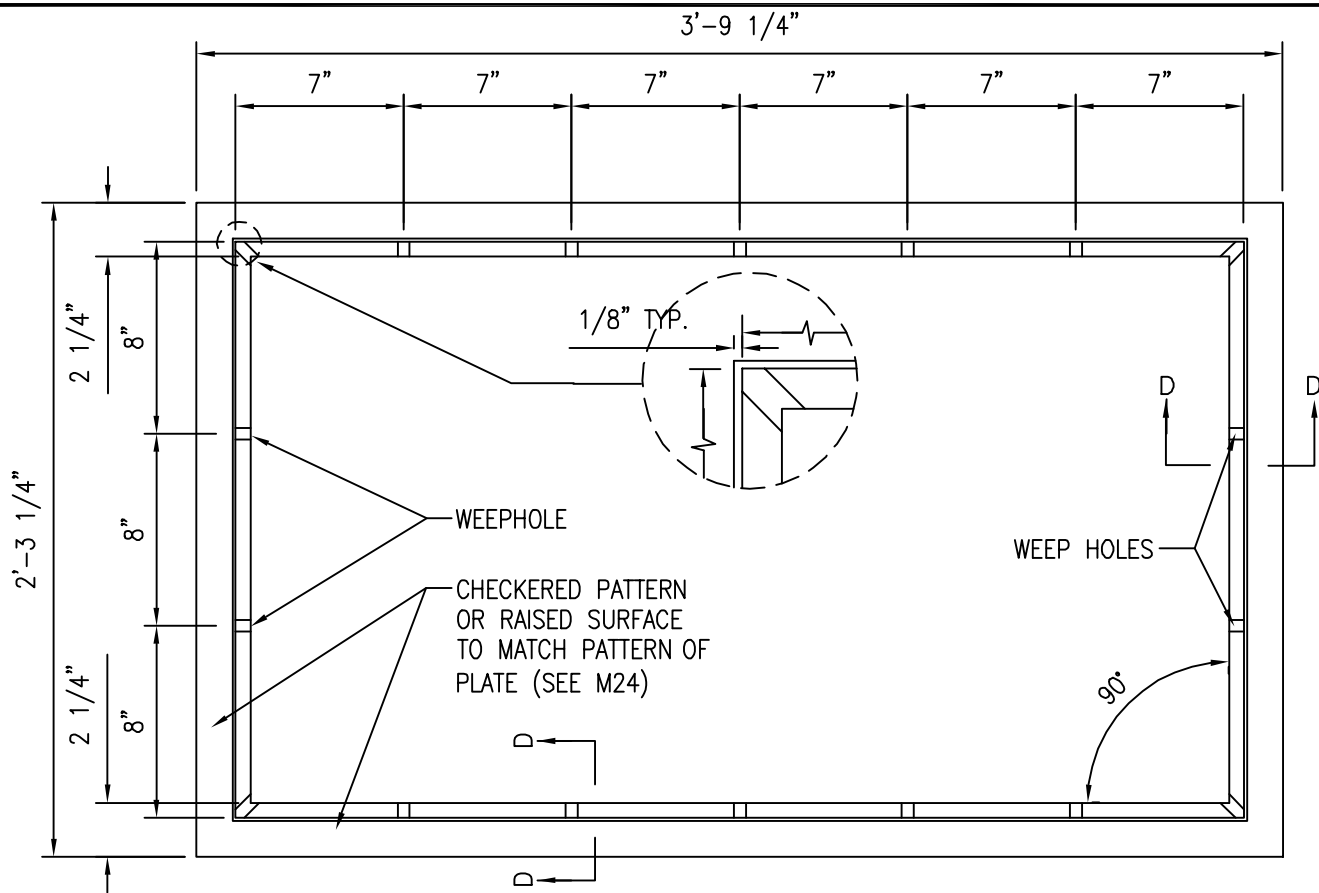
THICKNESS DIMENSIONS ARE NET.  
ADD 1/8" FOR RAISED SURFACE.



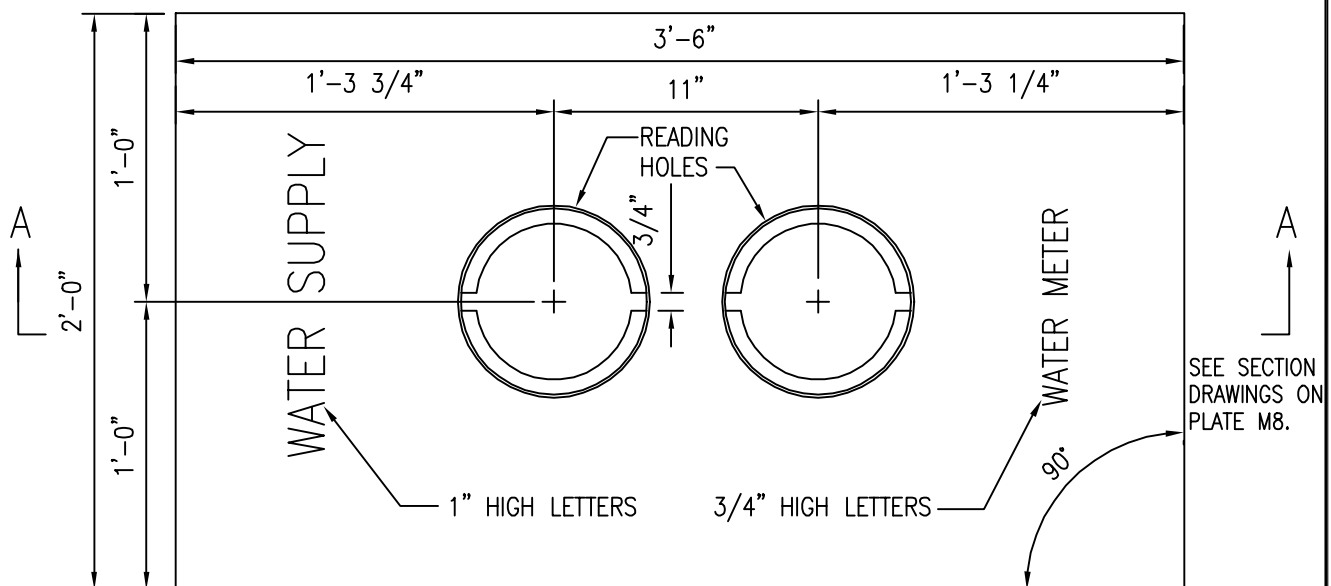
READING COVER

KAUAI OAHU	<b>METER BOX FRAME &amp; COVER</b> CAST IRON, TYPE III SCALE: NTS	STANDARD DETAILS	2002 REVISION  <b>M6</b>
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PLAN VIEW OF CAST IRON FRAME  
FOR 24"x42"x3/4" PLATE



SEE PLATE M24 FOR  
READING HOLE COVER AND  
DETAILS OF RAISED SURFACE.

PLAN VIEW OF 24"x42"x3/4"  
CAST IRON PLATE

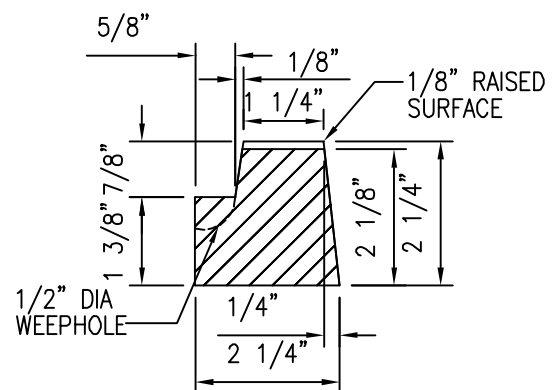
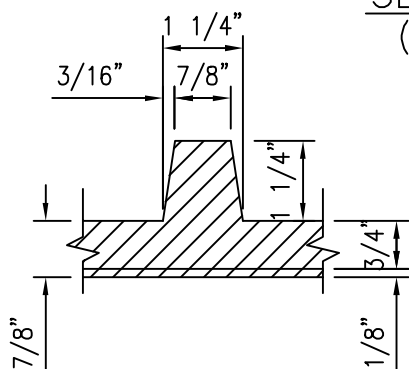
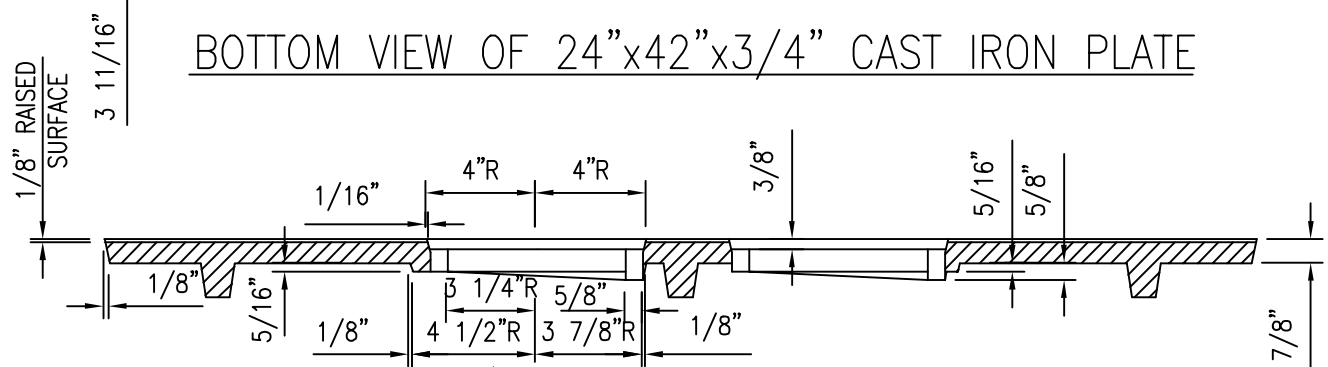
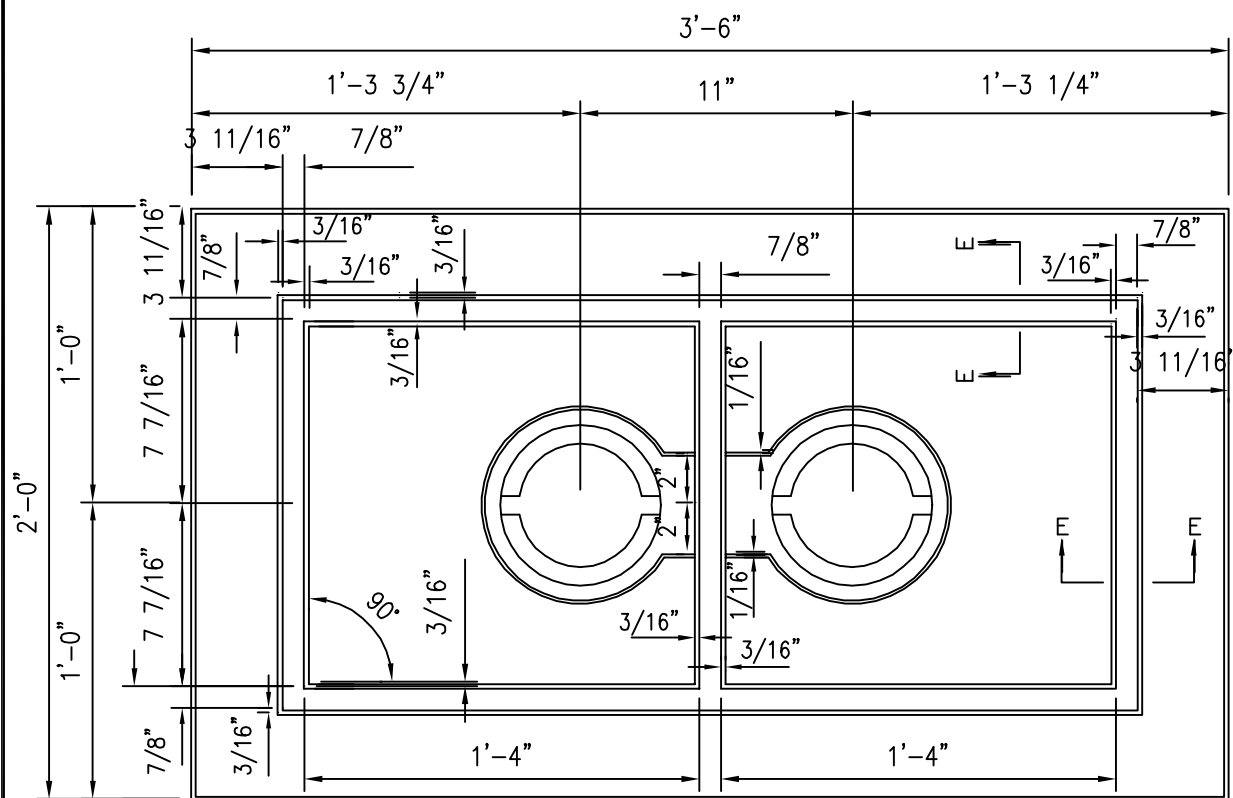
2002  
REVISION

KAUAI  
OAHU

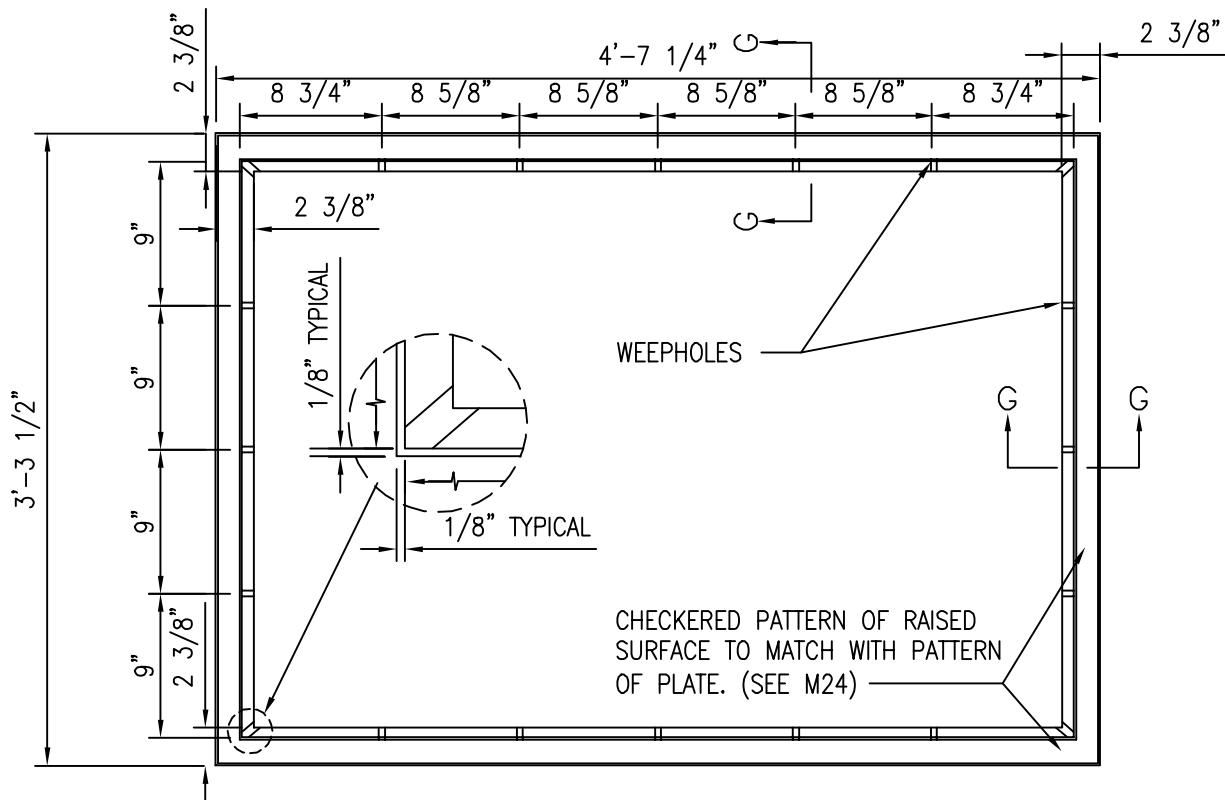
**METER BOX FRAME & COVER**  
CAST IRON, TYPE IV FOR 3" & 4" METERS  
SCALE: NTS

STANDARD  
DETAILS

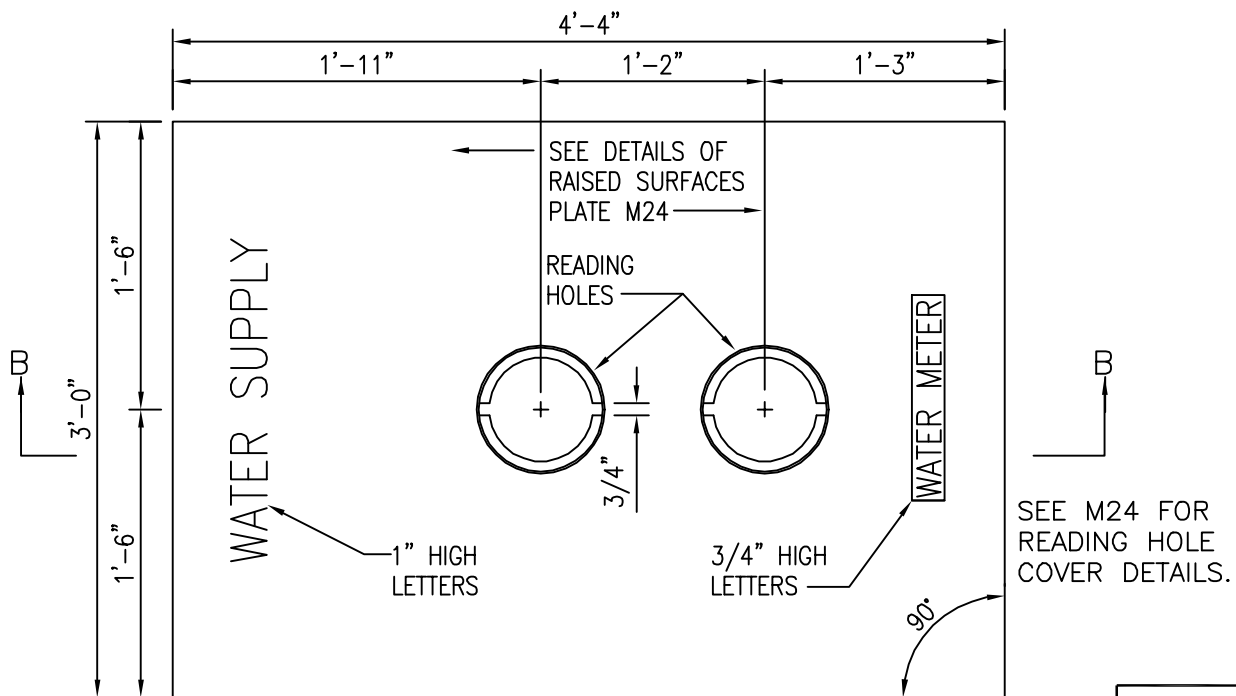
**M7**



SECTION "E-E"		SECTION "D-D"		
		(SEE M7)		2002
				REVISION
KAUAI OAHU	METER BOX COVER CAST IRON, TYPE IV SCALE: NTS		STANDARD DETAILS	M8



PLAN VIEW OF CAST IRON FRAME FOR 36"x52"x3/4" PLATE



PLAN VIEW OF 36"x52"x3/4" CAST IRON PLATE

2002

REVISION

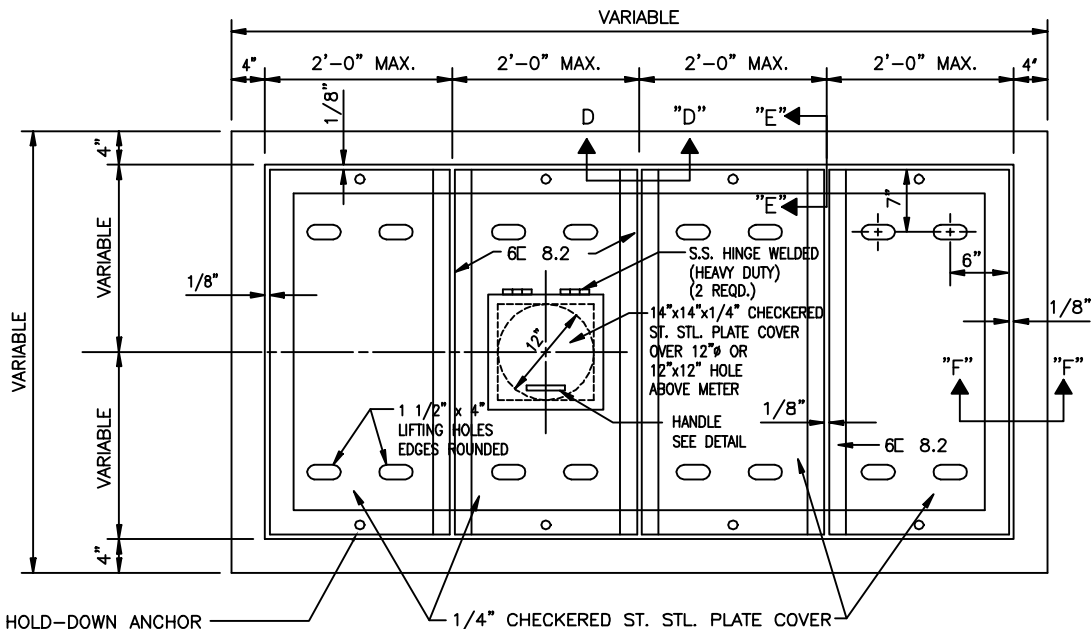
KAUAI  
OAHU

**METER BOX FRAME & COVER**  
CAST IRON, TYPE V FOR 6" & 8" METERS  
SCALE: NTS

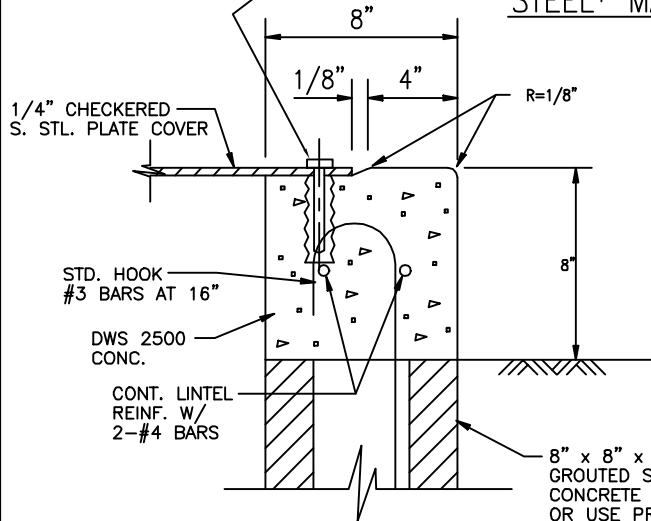
STANDARD  
DETAILS

M9

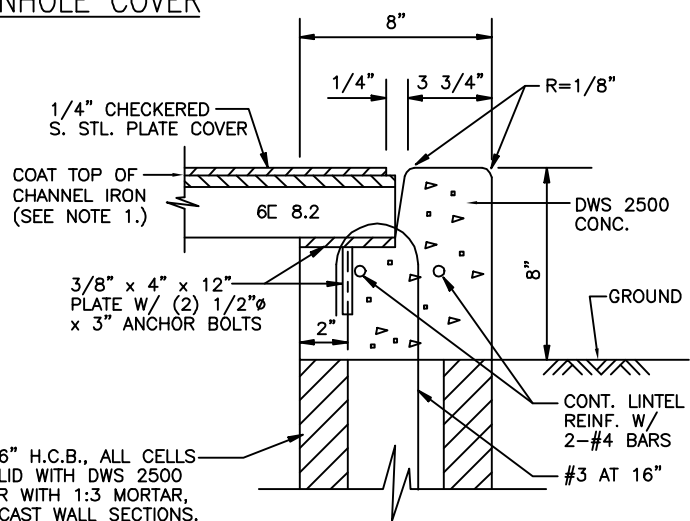




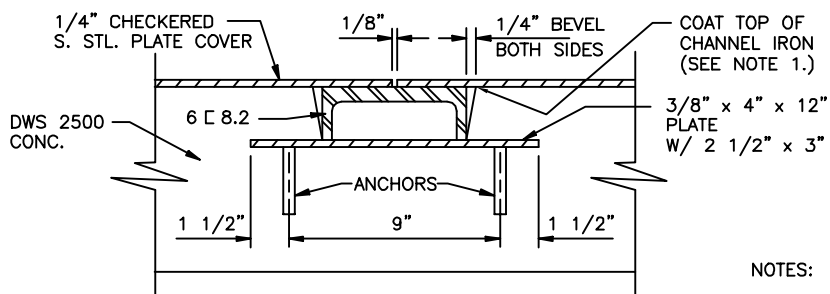
## PLAN OF STAINLESS (316) STEEL\* MANHOLE COVER



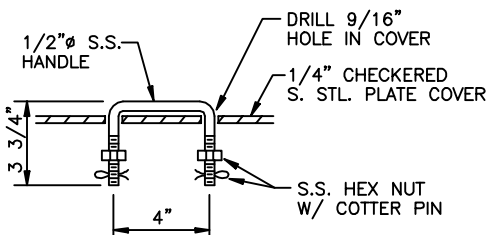
SECTION "F-F"



SECTION "E-E"



SECTION "D-D"



HANDLE DETAIL

### NOTES:

1. COAT CONTACT POINT OF DISSIMILAR METALS W/ CHEVRON INDUSTRIAL MEMBRANE (ELASTOMERIC MEMBRANE) OR EQUAL.
2. ALL MILD STEEL SHALL BE HOT-DIPPED GALVANIZED.

\* ALTERNATE = PROVIDE DESIGN WITH ANODIZED ALUMINUM COVER.

\*\* USE HEX HEAD FOR DETECTOR CHECK MANHOLES.

2002

REVISION

MAUI

**METAL MANHOLE COVER**  
(NON-TRAFFIC LOADING)  
SCALE: NTS

STANDARD  
DETAILS

M11

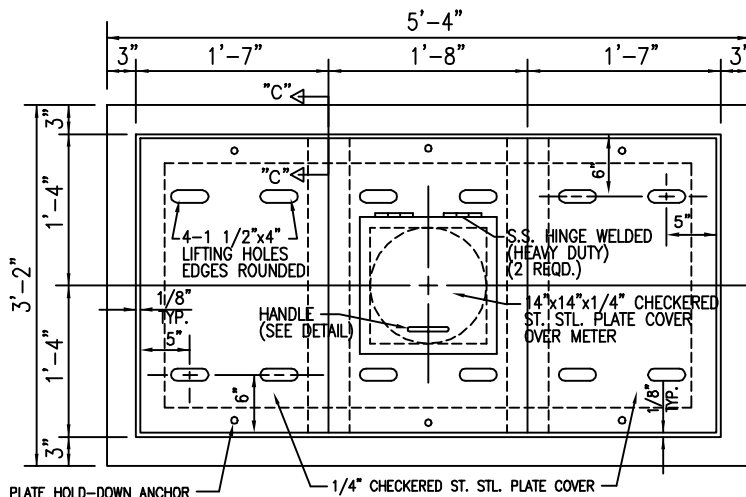
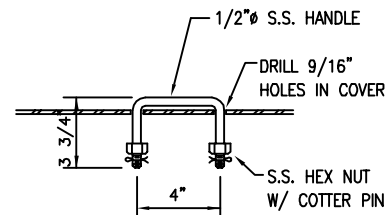


PLATE HOLD-DOWN ANCHOR  
2 EACH PLATE COVER.  
1/2" S.S. BOLT W/ PENTA  
HEAD INTO EMBEDDED INSERT.  
(SEE PLATE M11)

**PLAN OF STAINLESS (316)  
STEEL\* MANHOLE COVER**

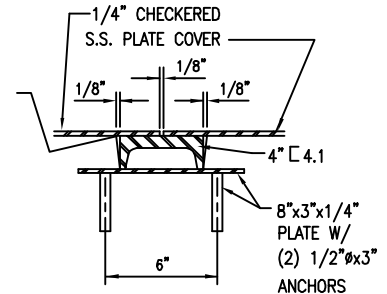


**HANDLE DETAIL**

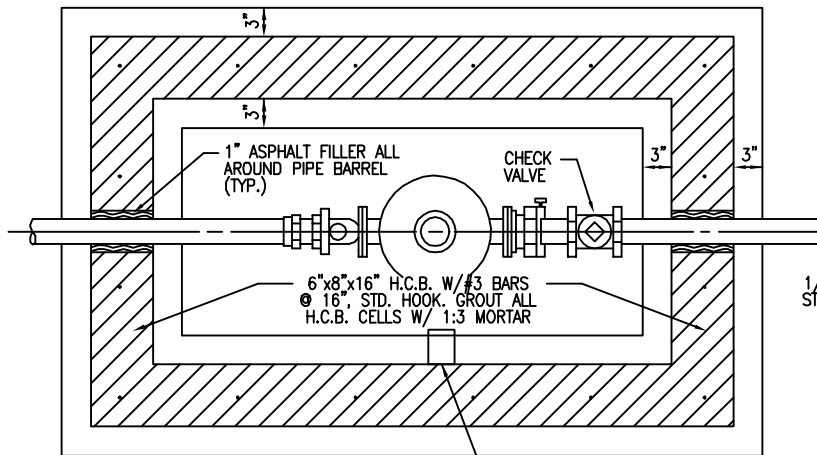
NOTE:

EACH PANEL WIDTH OF METER BOX  
COVER MAY VARY SLIGHTLY ACCORDING  
TO METER LOCATION.

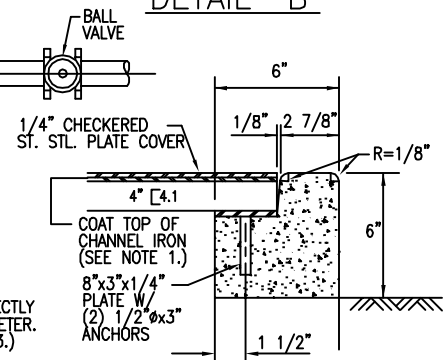
COAT TOP OF  
CHANNEL IRON  
(SEE NOTE 1.)



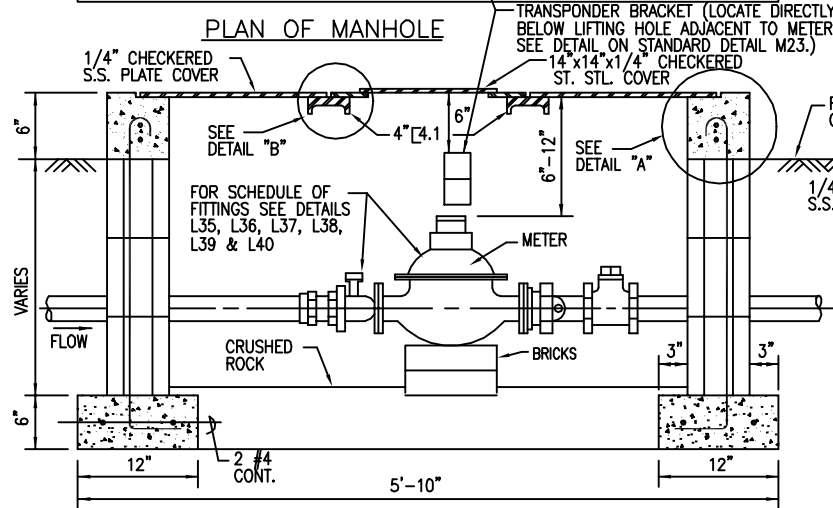
**DETAIL "B"**



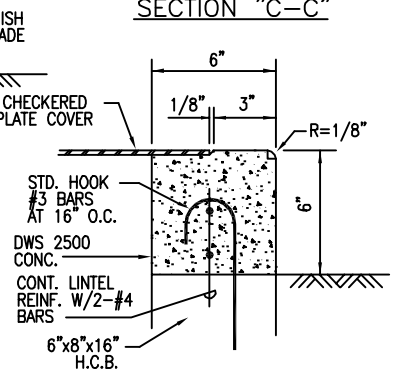
**PLAN OF MANHOLE**



**SECTION "C-C"**



**SECTION**



**DETAIL "A"**

NOTES:

1. COAT CONTACT POINT OF DISSIMILAR METALS W/ CHEVRON INDUSTRIAL MEMBRANE (ELASTOMERIC MEMBRANE) OR EQUAL.
2. ALL MILD STEEL SHALL BE HOT-DIPPED GALVANIZED.

\* ALTERNATE = PROVIDE DESIGN WITH ANODIZED ALUMINUM COVER.

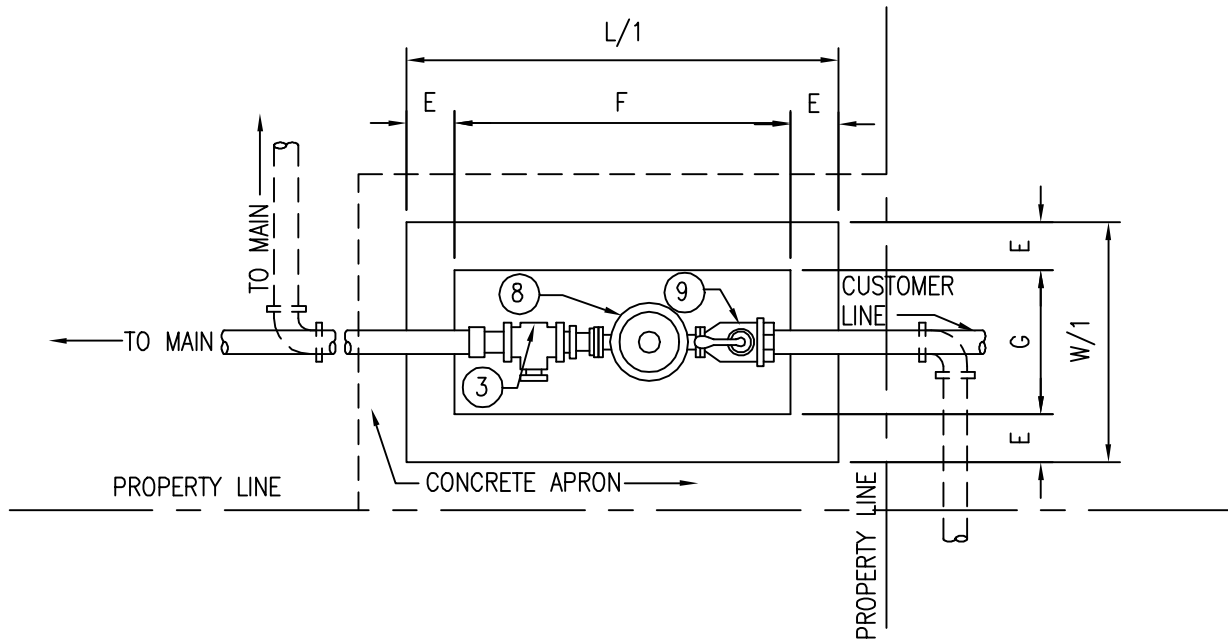
2002  
REVISION

MAUI

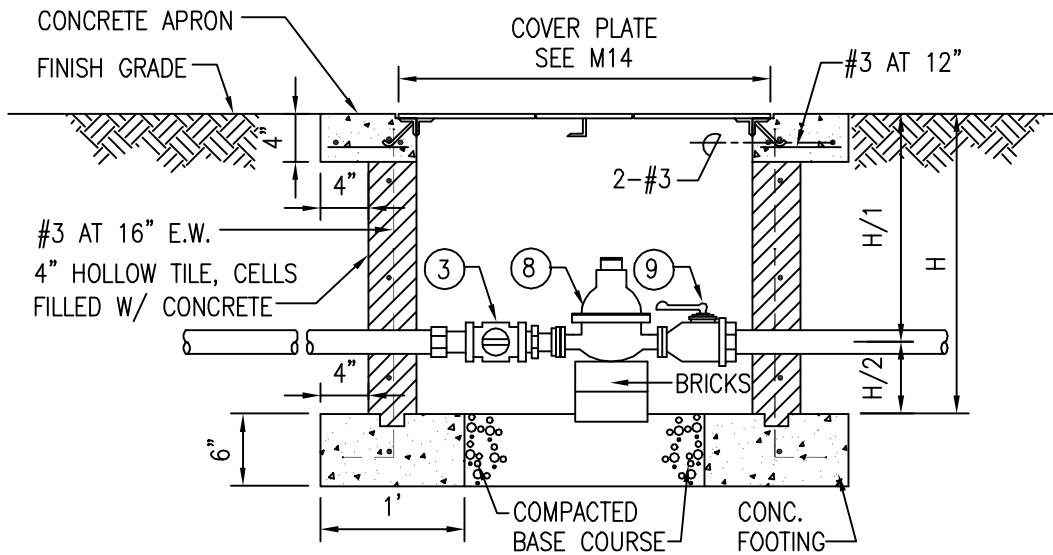
**1 1/2" & 2" METER MANHOLE**  
STANDARD NON-TRAFFIC  
SCALE: NTS

STANDARD  
DETAILS

**M12**



PLAN



ELEVATION

NOTE:

REFER TO PLATE L10 FOR SCHEDULE OF COPPER FITTINGS. FOR SERVICE SADDLE REQUIREMENT, SEE DIVISION 100, SECTION 104.02, OF THE WATER SYSTEM STANDARDS. FOR 1-1/2" AND 2" METERS, INSTALL FORD "LOK-PAK" METER COUPLING AND NECESSARY ADAPTERS.

METER BOX DIMENSIONS(IN INCHES)								
METER SIZES	L/1	E	F	W/1	G	H	H/1	H/2
1	36	4	28	20	12	25	19	6
1 1/2	44	4	36	28	20	25	19	6
2	52	4	44	28	20	27	21	6

2002

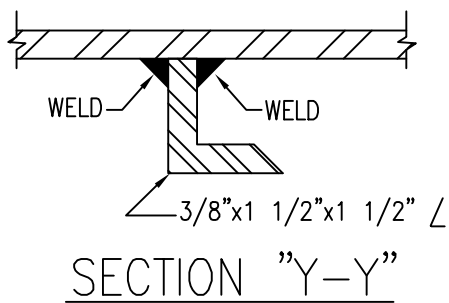
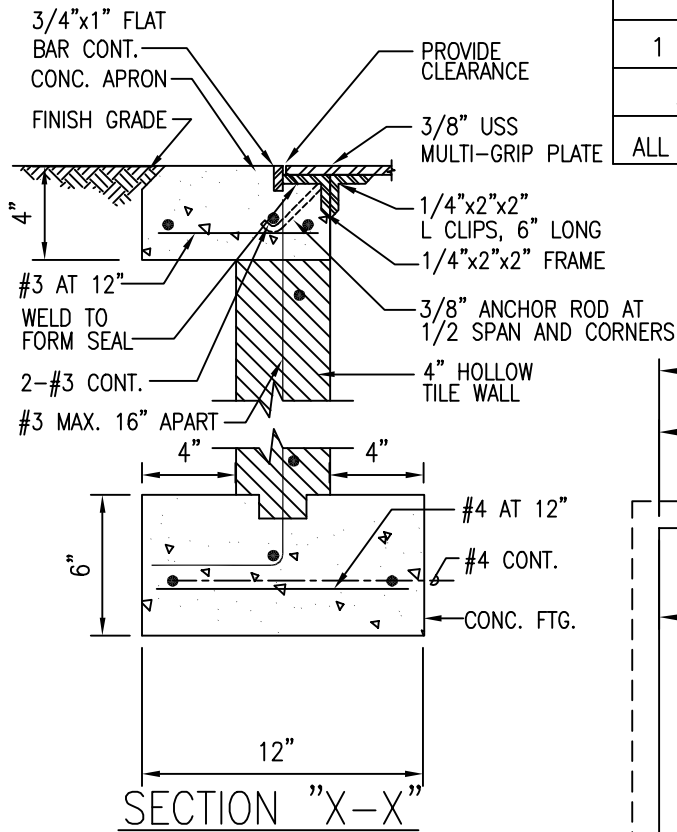
REVISION

HAWAII

**STANDARD 1", 1 1/2", & 2"**  
**METER AND BOX INSTALLATION**  
 SCALE: NTS

STANDARD  
 DETAILS

**M13**



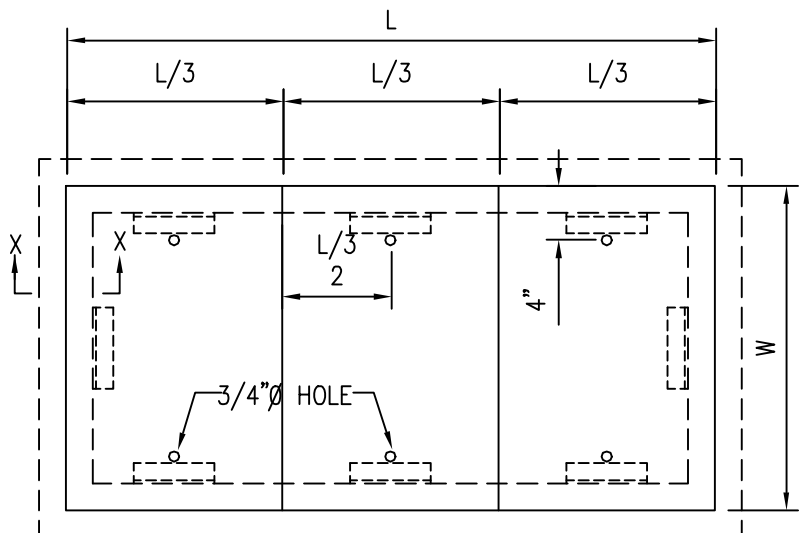
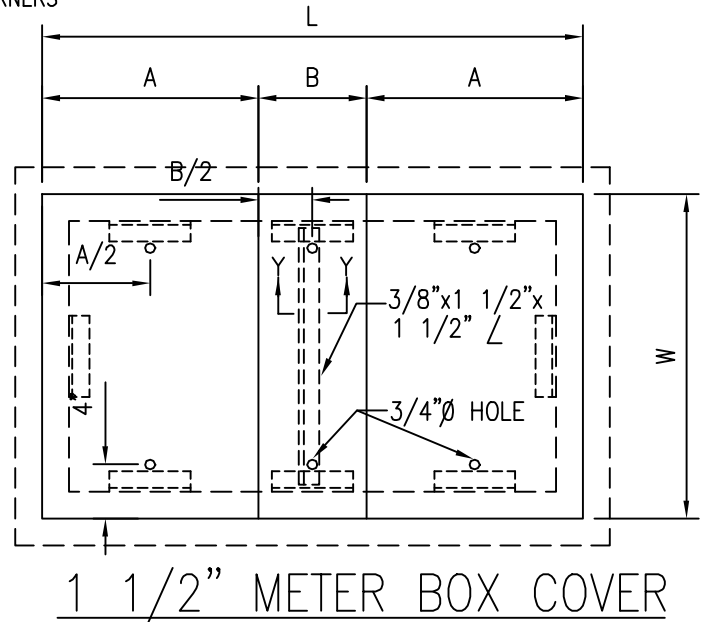
NOTE:  
ALL  $\angle$  IRONS AND PLATES  
SHALL BE HOT DIPPED  
GALVANIZED AFTER  
FABRICATION.

## COVER PLATE DIMENSIONS (IN INCHES)

METER SIZE	L	W	L/3	A	B
1*	32	16			
1 1/2	40	24		16	8
2	48	24	16		

ALL PLATES USS MULTI-GRIP OR CHECKER STEEL, 3/8" THICK

\* COVER PLATE DETAILS FOR 1" METER SHALL BE SIMILAR TO SHOWN BELOW EXCEPT 2-16"x16"x3/8" PLATES REQUIRED



2" METER BOX COVER

2002  
REVISION

HAWAII

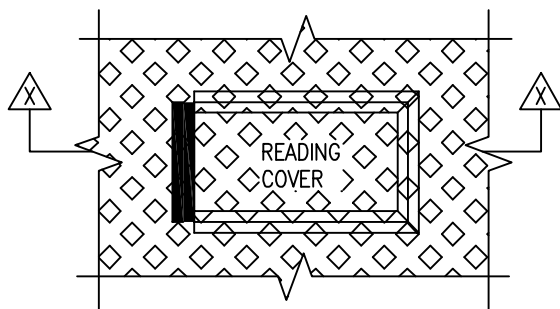
## STANDARD METER COVERS

SCALE: NTS

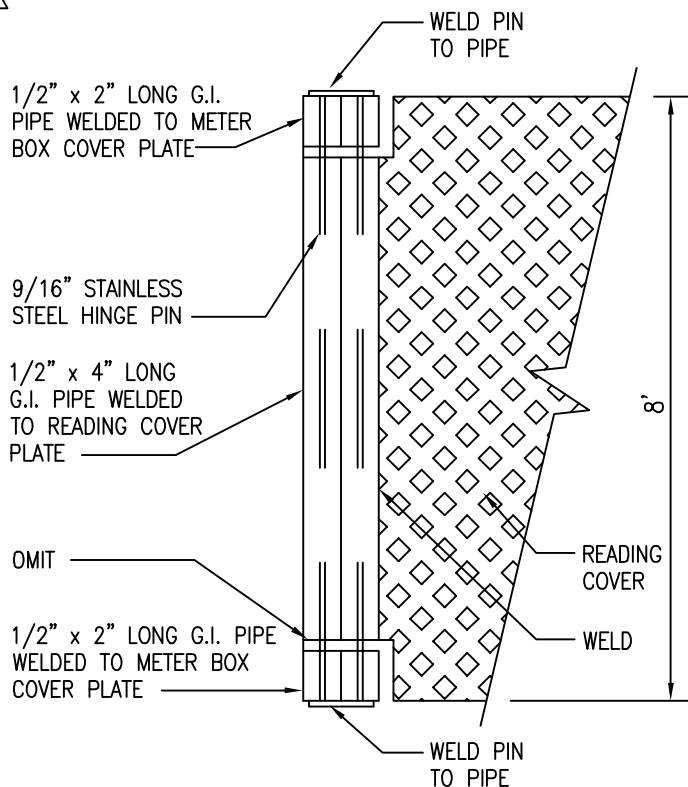
STANDARD  
DETAILS

M14

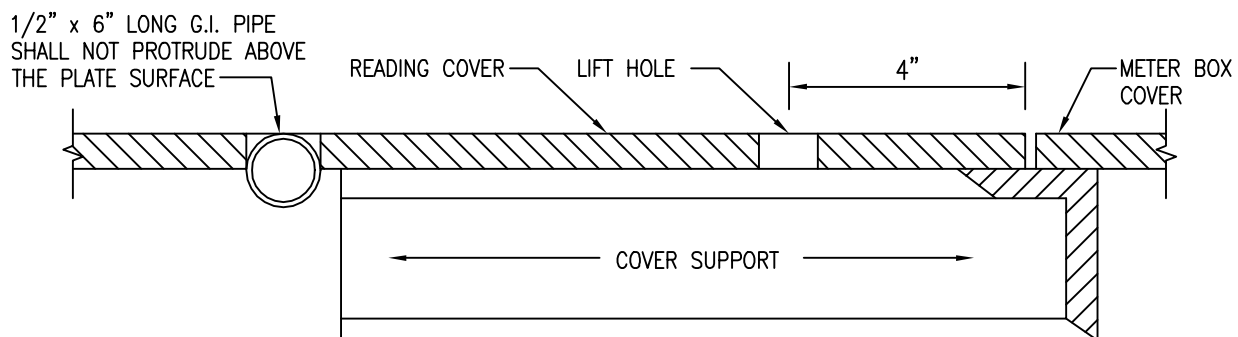




PLAN



HINGE DETAIL



SECTION X-X

READING COVER FOR:

COMPOUND METER BOX COVER SEE PLATES M16 & M17  
MFM-MCT METER BOX COVER SEE PLATES M21 & M22 DETECTOR  
CHECK METER BOX COVER SEE PLATES M18 & M20

2002  
REVISION

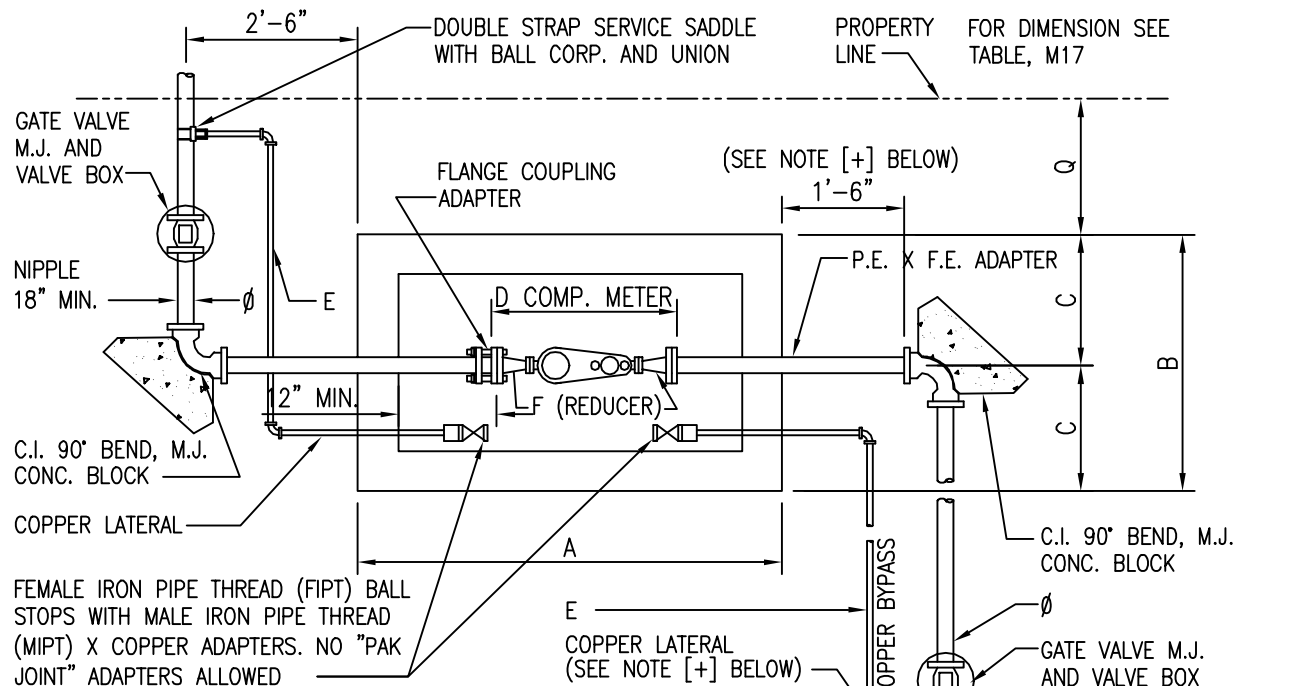
HAWAII

# READING COVER DETAIL

SCALE: NTS

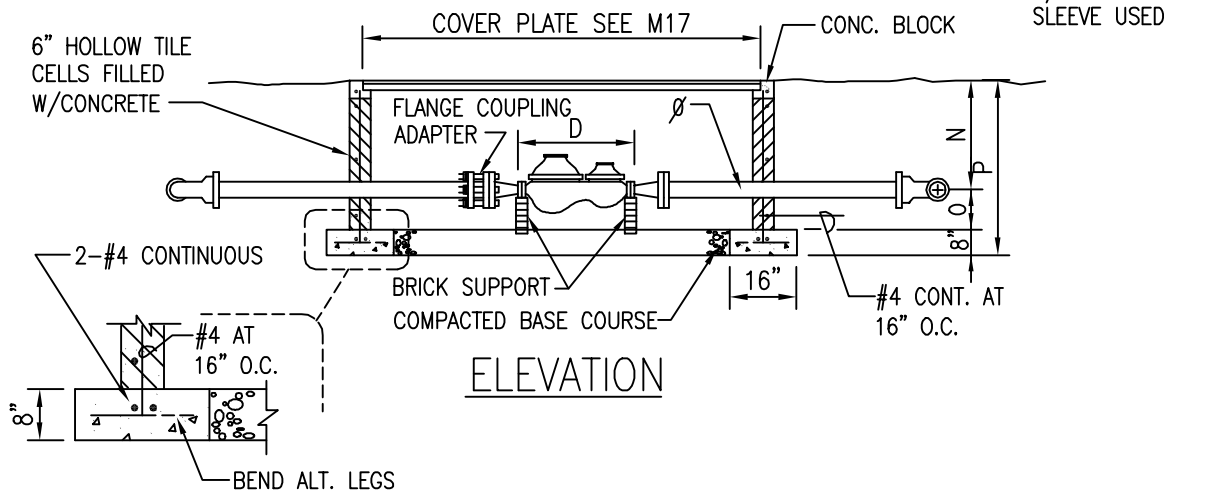
STANDARD  
DETAILS

M15



## PLAN

- \* IF TAPPING SLEEVE AND TAPPING VALVE USED COPPER LATERAL SHALL BE TAPPED TO WATER MAIN.
- + IF METER UNIT IS INSTALLED ON THE OPPOSITE SIDE OF THE ROAD, AS THE WATERLINE, AN ADDITIONAL GATE VALVE AND VALVE BOX IS REQUIRED BETWEEN THE BOX AND THE 90° BEND. CENTER OF VALVE SHALL BE 2'-6" FROM EDGE OF BOX. ALSO RELOCATE COPPER LATERAL JUST UPSTREAM OF VALVE (BETWEEN VALVE & 90° BEND.)



## ELEVATION

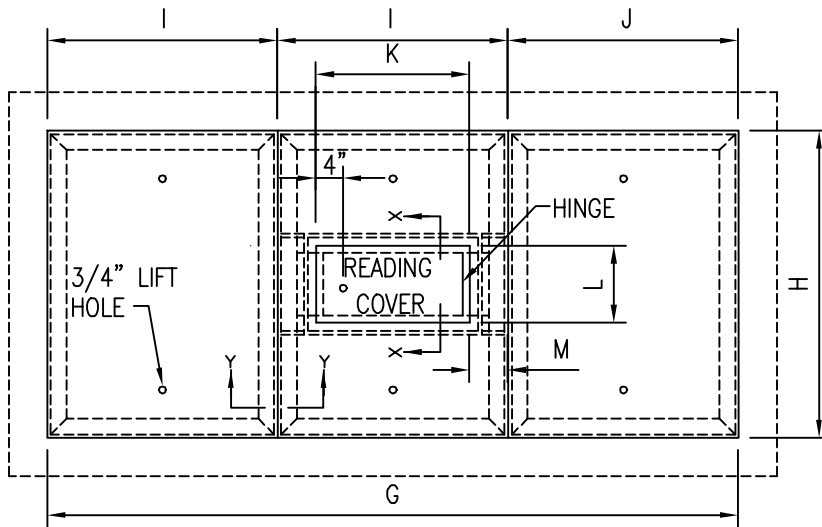
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# COMPOUND METER AND BOX INSTALLATION SCALE: NTS

STANDARD  
DETAILS

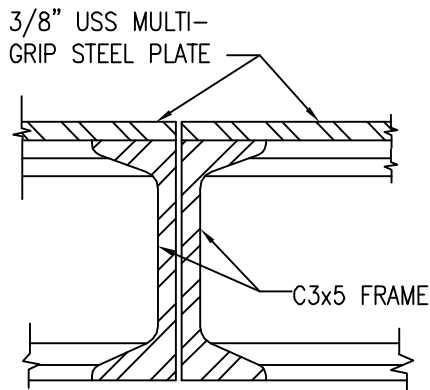
M16



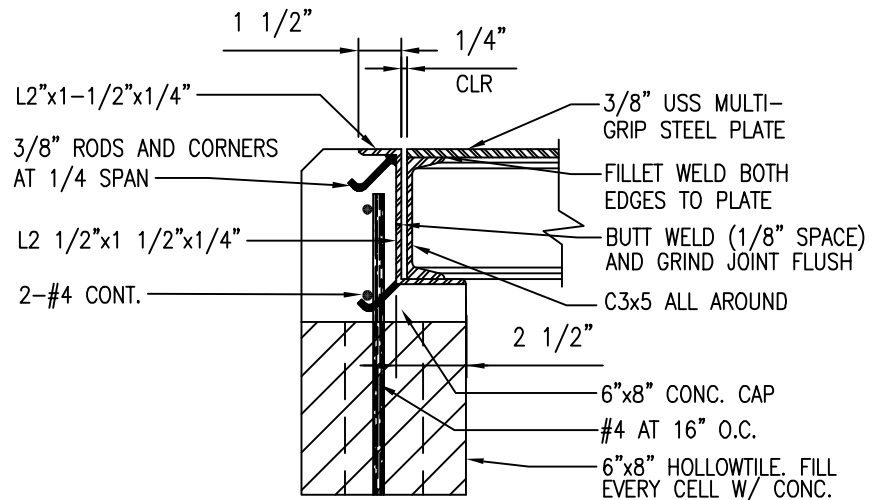
FOR 3", 4", & 6" COMPOUND METERS

DIMENSION TABLE			
METER SIZE (IN INCHES)			
	3	4	6
A	96	96	96
B	48	48	48
C	24	24	24
D	24	29	36 1/2
E	2	2	2 1/2
F	4 x 3	6 x 4	8 x 6
G	88	88	88
H	40	40	40
I	29	29	29
J	30	30	30
K	18	18	18
L	8	8	8
M	4	4	4
N	26	27	28
O	12	12	12
P	46	47	48
Q*	30	30	36
Ø	4	6	8

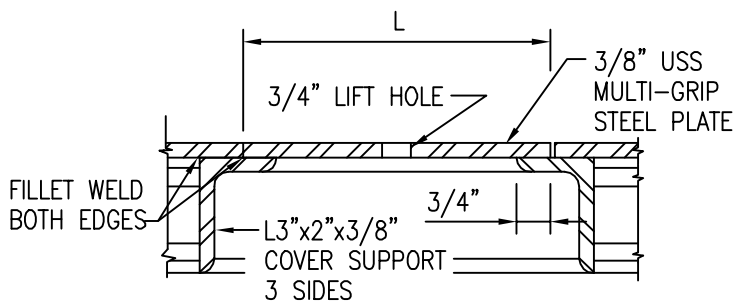
\*= MIN.



SECTION "Y-Y"



CONCRETE CAP AND FRAME  
DETAILS



SECTION "X-X"

**NOTES:**

1. ALL ANGLES, CHANNELS, AND COVER PLATES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. FOR DIMENSIONS, SEE TABLE ABOVE.
3. FOR METER INSTALLATIONS LARGER THAN 6", SUBMIT DRAWINGS TO MANAGER FOR APPROVAL.
4. SEE M15 FOR READING COVER DETAIL.

2002

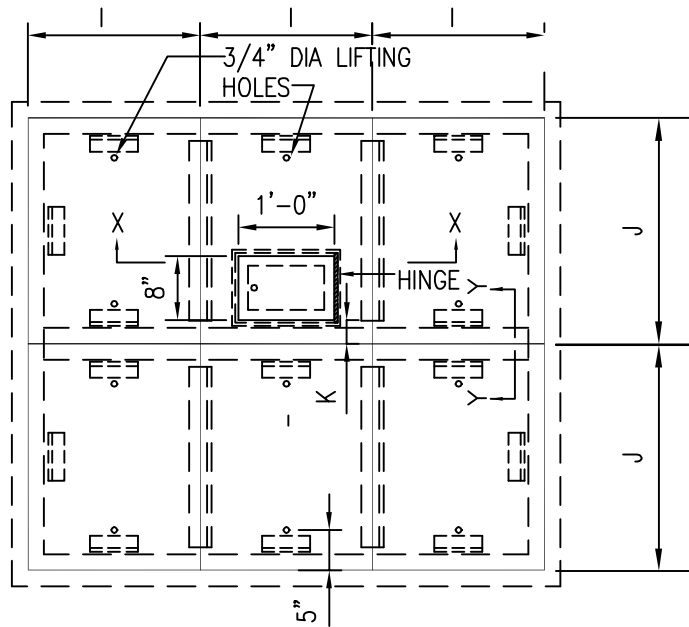
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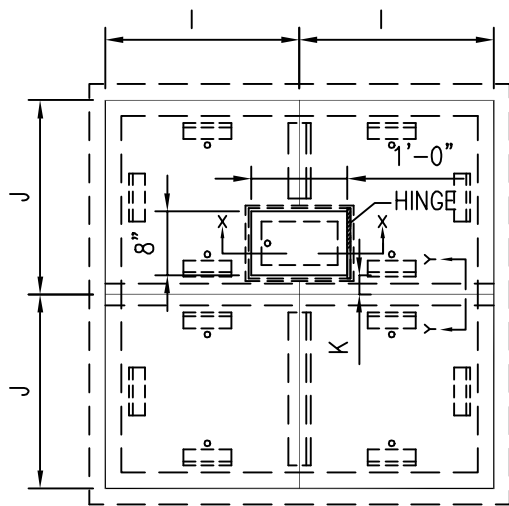
**COMPOUND METER**  
COVER DETAILS  
SCALE: NTS

STANDARD  
DETAILS

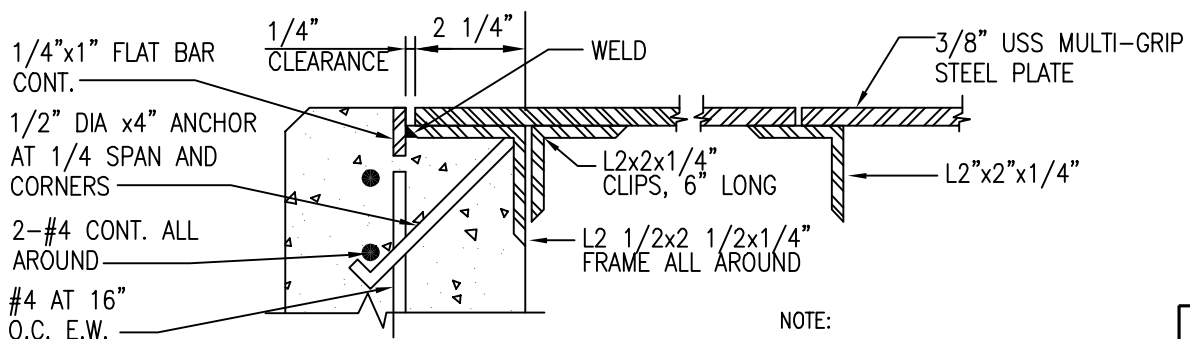
**M17**



COVER PLATES 10" DC METER

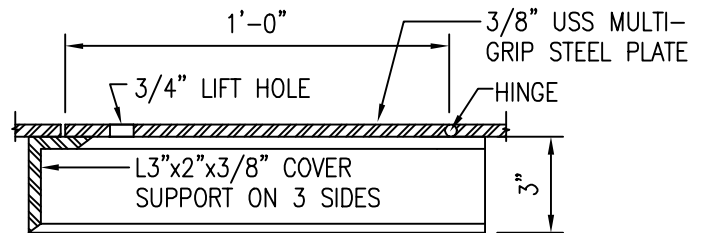


COVER PLATES 3", 4", 6",  
AND 8" DC METERS



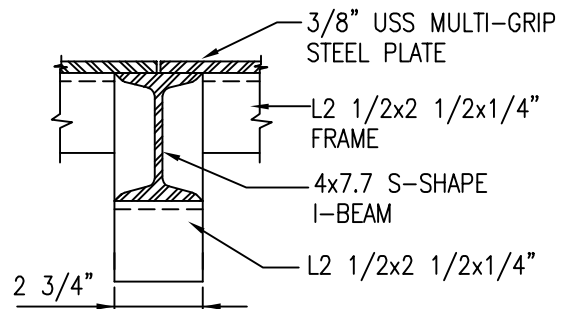
FRAME AND COVER DETAILS

DETECTOR CHECK AND DC VALVE TABLE (IN INCHES)					
	3	4	6	8	10
A	56	56	56	64	72
B	56	56	56	64	64
C	24	24	24	27	27
D	32	32	32	37	37
E	16.5	16.5	22.5	25.0	28.0
F	26	26	27	28	36
G	8	8	12	12	12
H	42	42	47	48	56
I	24.25	24.25	24.25	28.25	21.5
J	24.25	24.25	24.25	28.25	28.25
K	3	3	3	3	3
L(MIN.)	18	18	18	18	18
Ø	4	4	6	8	10



READING COVER SECTION "X-X"

SEE PLATE M15 FOR DETAILS



CROSS BEAM SECTION "Y-Y"

NOTE:  
1. ALL ANGLES, CHANNELS, AND COVER  
PLATES SHALL BE HOT DIPPED  
GALVANIZED AFTER FABRICATION.

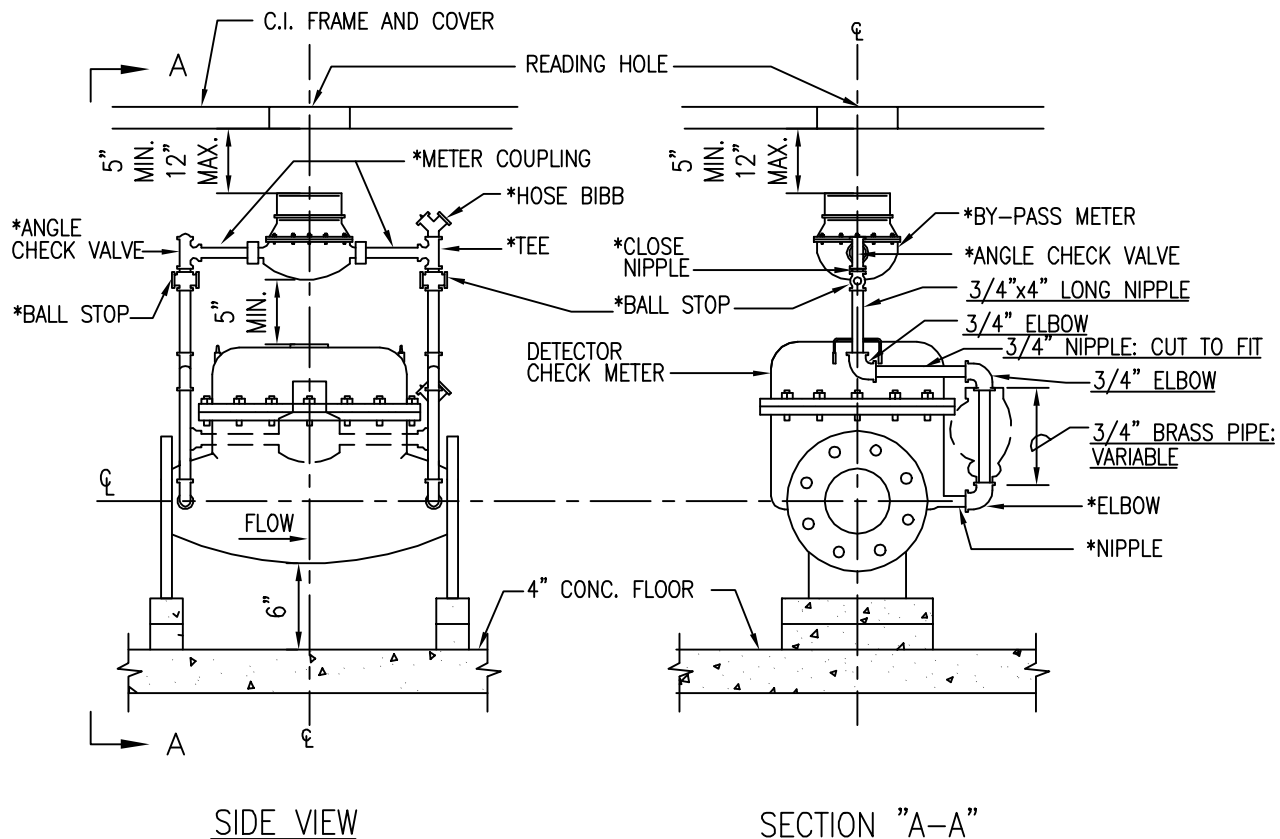
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# DETECTOR CHECK COVER DETAILS SCALE: NTS

STANDARD  
DETAILS

M18



### DETECTOR CHECK METER DETAIL

DETAIL OF WORK TO BE DONE BY CONTRACTOR IN ORDER TO RAISE AND CENTER BY-PASS METER

#### NOTES:

1. ITEMS UNDERLINED TO BE FURNISHED BY CONTRACTOR
2. ALL ITEMS TO BE RED BRASS OR BRONZE.
3. ALL WORK TO BE DONE BY THE CONTRACTOR.
4. (\*) THESE ITEMS ARE PART OF DETECTOR CHECK ASSEMBLY.
5. DASHED LINE INDICATES BY-PASS METER LOCATION AS FURNISHED BY MANUFACTURER.
6. BY-PASS PIPING ASSEMBLY SHALL BE CONFIGURED TO CENTER THE BY-PASS METER UNDER THE READING COVERS.

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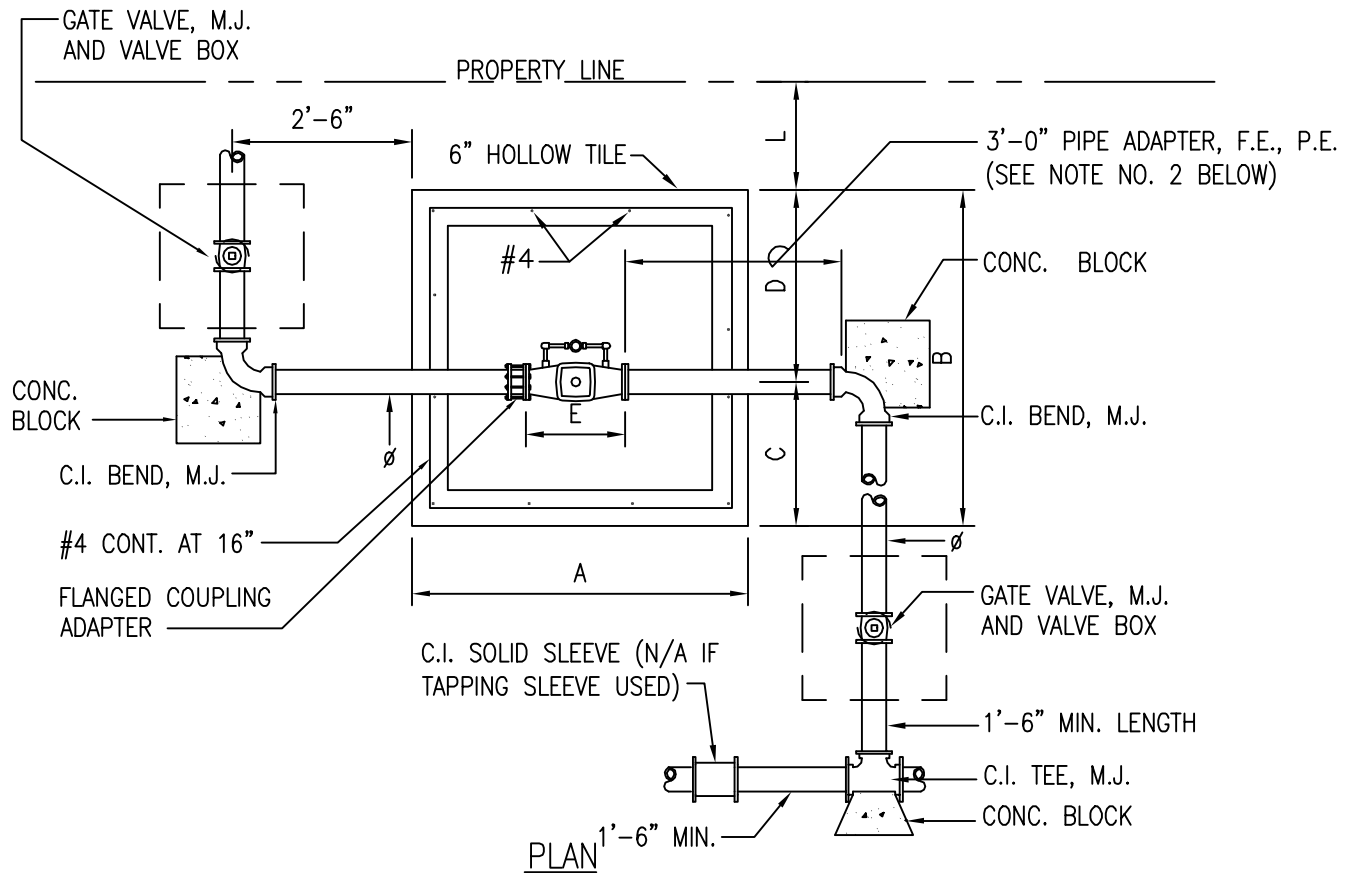
OAHU  
HAWAII

**DETECTOR CHECK METER**  
DETAILS  
SCALE: NTS

STANDARD  
DETAILS

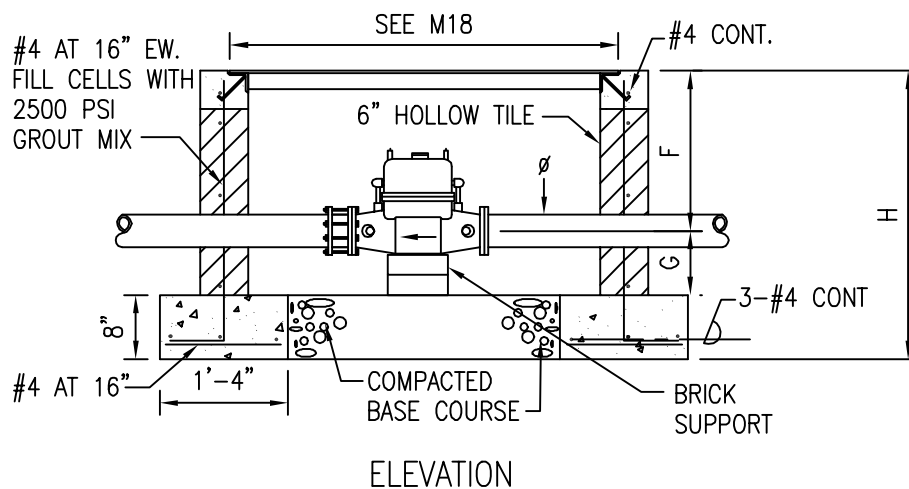
**M19**

FOR DIMENSIONS, SEE TABLE, M18



**NOTES:**

1. TAPPING SLEEVE AND TAPPING VALVE MAY BE USED WITH THE APPROVAL OF THE MANAGER.
2. FOR 3" DC METER INSTALLATIONS A 3" X 4" F.E. REDUCER SHALL BE INSTALLED AT BOTH ENDS OF DC METER.



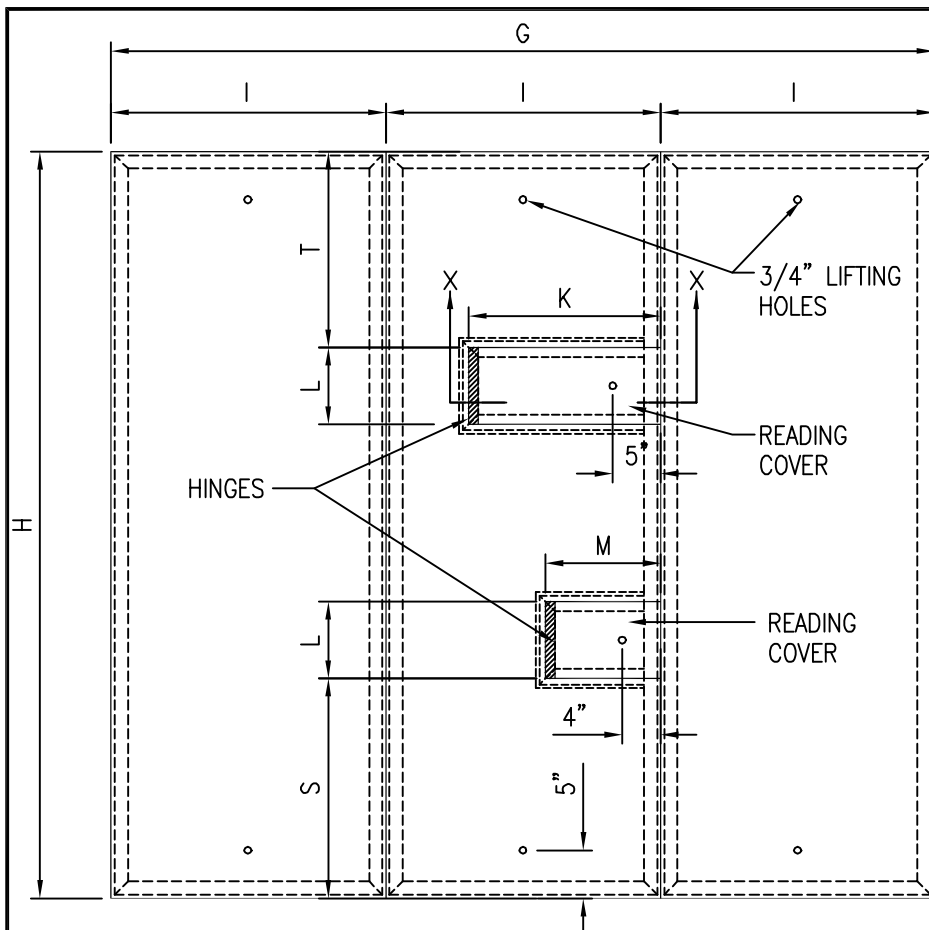
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**MODEL DC DETECTOR  
CHECK INSTALLATION**  
SCALE: NTS

STANDARD  
DETAILS

M20

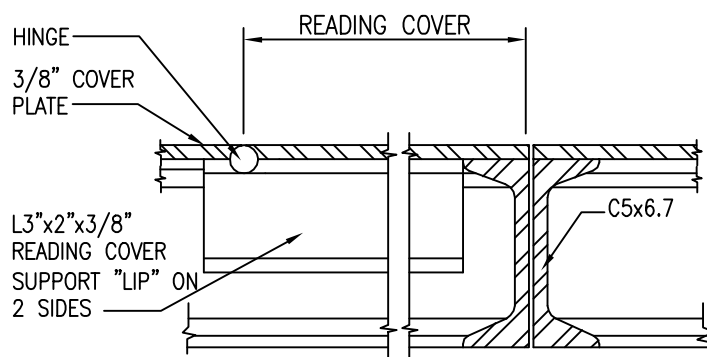


# NOTES:

1. READING COVERS SHALL BE LOCATED DIRECTLY OVER THE METER REGISTERS. LOCATIONS WILL VARY W/ THE TYPE OF METER TO BE INSTALLED.
2. SEE M15 FOR READING COVER DETAILS.
3. ALL ANGLES, CHANNELS, & COVER PLATES SHALL BE HOT DIPPED GALV. AFTER FABRICATION.
4. FOR 2-1/2" COPPER BYPASS LINES, INSTALL 2" BALL CORP. WITH APPROPRIATE 2"x2-1/2" FITTINGS.

## PLAN

DIMENSION TABLE				
METER SIZE (IN INCHES)				
	3	4	6	8
A	80	80	96	96
B	72	72	80	88
C	28	28	28	32
C	44	44	52	56
D	33	33	45	53
E	2	2	2 1/2	2 1/2
F	4 x 3	6 x 4	8 x 6	12 x 8
G	69 3/4	69 3/4	85 3/4	85 3/4
H	61 3/4	61 3/4	69 3/4	77 3/4
I	23 1/4	23 1/4	28 5/8	28 5/8
J	18	18	20	16
K	15	15	15	20
L	8	8	8	8
M	12	12	12	12
N	26	27	28	36
O	16	17	18	19 1/2
P	50	52	54	63 1/2
Q	30	30	30	30
R	2	2	2	2
S	18 7/8	18 7/8	18 7/8	22 7/8
T	18 1/8	17 1/8	21 1/4	20 3/8
Ø	4	6	8	12



## SECTION X-X

2002

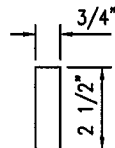
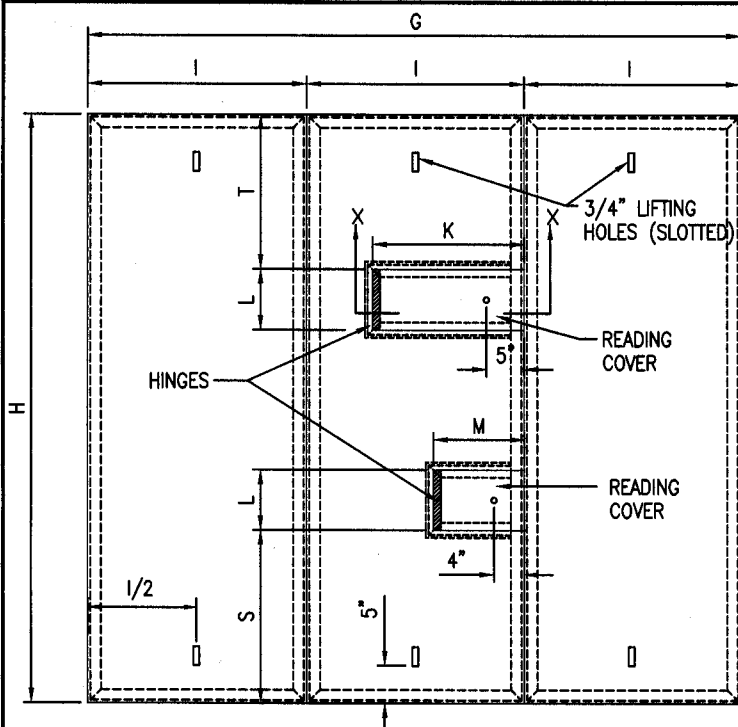
REVISION

HAWAII

**MFM-MCT METER AND BOX**  
**INSTALLATION**  
 SCALE: NTS

STANDARD  
 DETAILS

**M21**



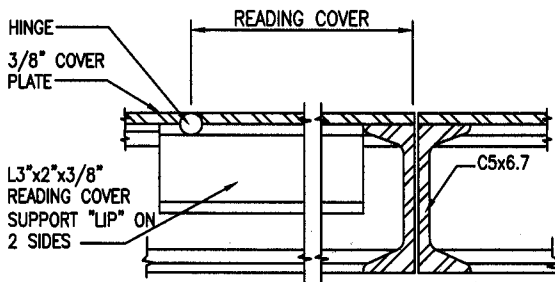
**LIFTING HOLE  
DETAIL**

**NOTES:**

1. READING COVERS SHALL BE LOCATED DIRECTLY OVER THE METER REGISTERS. LOCATIONS WILL VARY W/ THE TYPE OF METER TO BE INSTALLED.
2. SEE M15 FOR READING COVER DETAILS.
3. ALL ANGLES, CHANNELS, & COVER PLATES SHALL BE HOT DIPPED GALV. AFTER FABRICATION.
4. FOR 2-1/2" COPPER BYPASS LINES, INSTALL 2" BALL CORP. WITH APPROPRIATE 2"x2-1/2" FITTINGS.

**PLAN**

DIMENSION TABLE				
METER SIZE (IN INCHES)				
	3	4	6	8
A	80	80	96	96
B	72	72	80	88
C	28	28	28	32
C	44	44	52	56
D	33	33	45	53
E	2	2	2 1/2	2 1/2
F	4 x 3	6 x 4	8 x 6	12 x 8
G	69 3/4	69 3/4	85 3/4	85 3/4
H	61 3/4	61 3/4	69 3/4	77 3/4
I	23 1/4	23 1/4	28 5/8	28 5/8
J	18	18	20	16
K	15	15	15	20
L	8	8	8	8
M	12	12	12	12
N	26	27	28	36
O	16	17	18	19 1/2
P	50	52	54	63 1/2
Q	30	30	30	30
R	2	2	2	2
S	18 7/8	18 7/8	18 7/8	22 7/8
T	18 1/8	17 1/8	21 1/4	20 3/8
Ø	4	6	8	12



**SECTION X-X**

SEPT. 2003

2003

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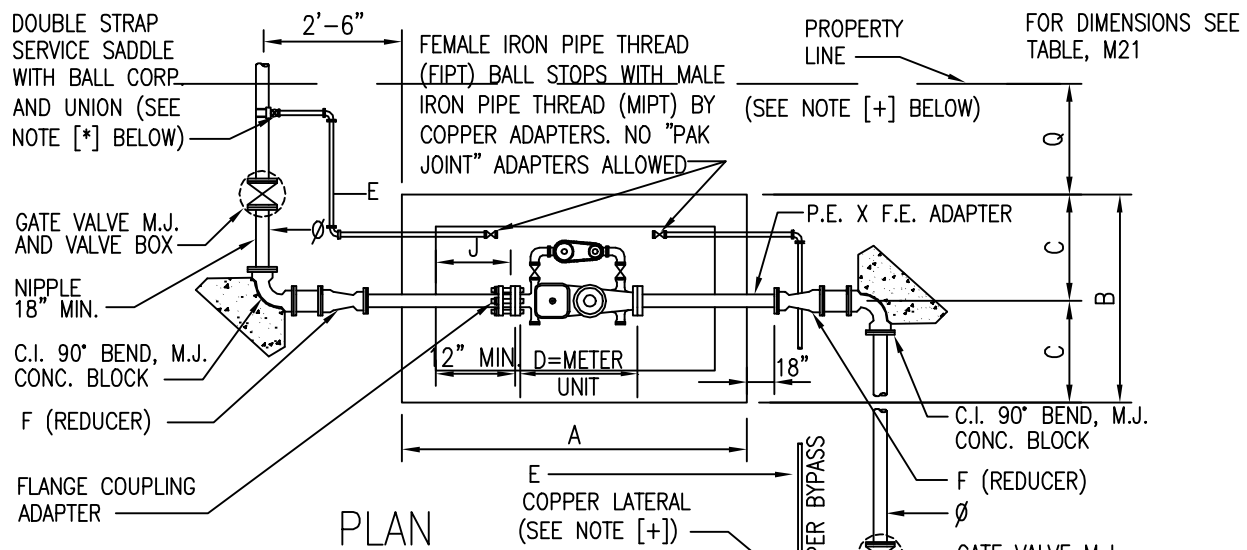
HAWAII

**MFM-MCT METER AND BOX  
INSTALLATION**  
SCALE: NTS

STANDARD  
DETAILS

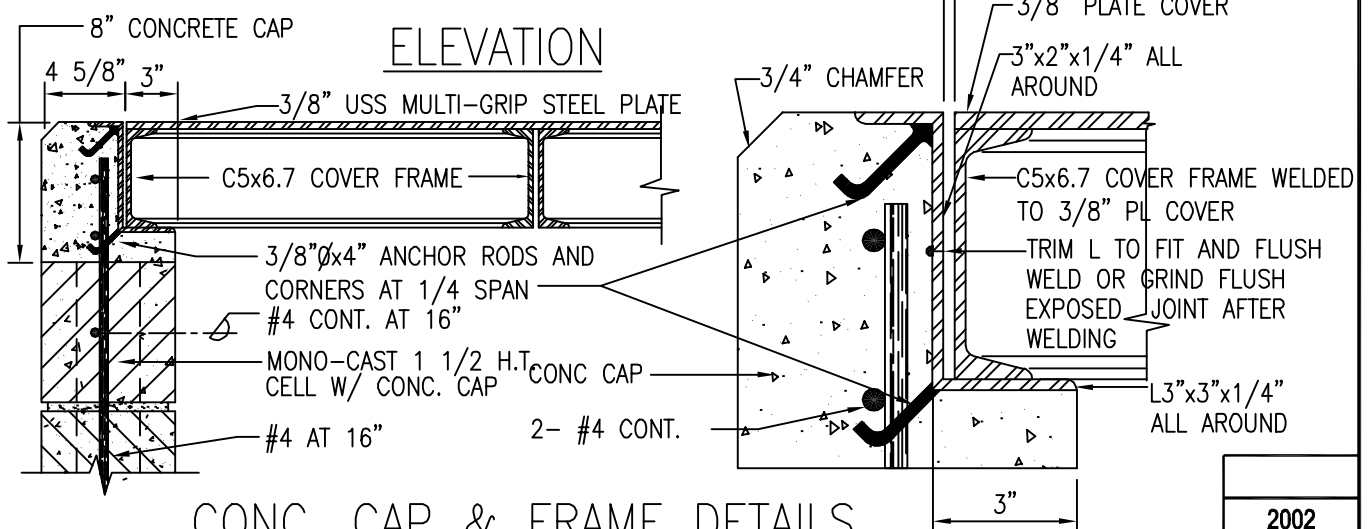
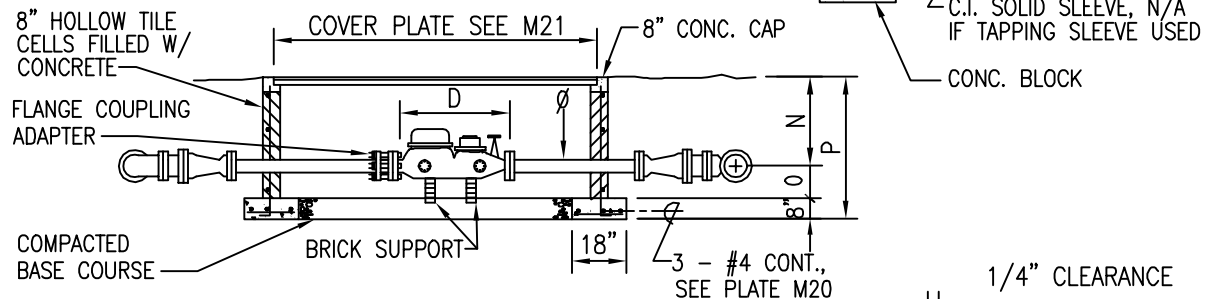
**M21R**





#### NOTES:

- \* IF TAPPING SLEEVE AND TAPPING VALVE USED COPPER LATERAL SHALL BE TAPPED TO WATER MAIN.
- + IF METER UNIT IS INSTALLED ON THE OPPOSITE SIDE OF THE ROAD, AS THE WATERLINE, AN ADDITIONAL GATE VALVE AND VALVE BOX IS REQUIRED BETWEEN THE BOX AND THE REDUCER. CENTER OF VALVE SHALL BE 2'-6" FROM EDGE OF BOX. ALSO RELOCATE COPPER LATERAL JUST UPSTREAM OF VALVE (BETWEEN VALVE & REDUCER.)



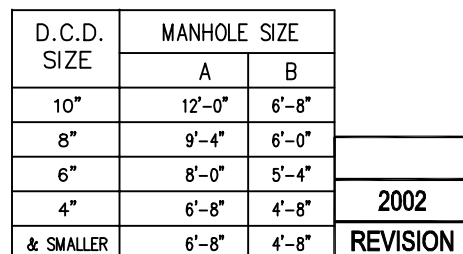
2002
REVISION

HAWAII

## MFM-MCT METER AND BOX INSTALLATION SCALE: NTS

STANDARD  
DETAILS

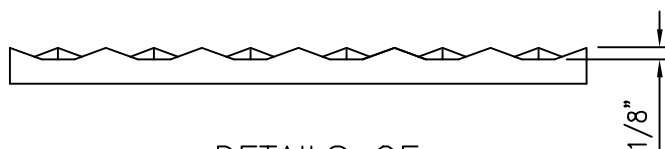
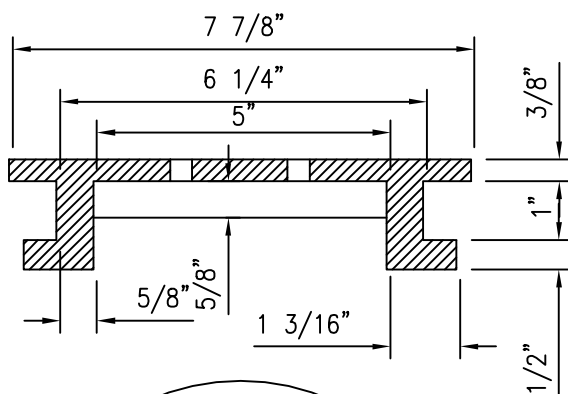
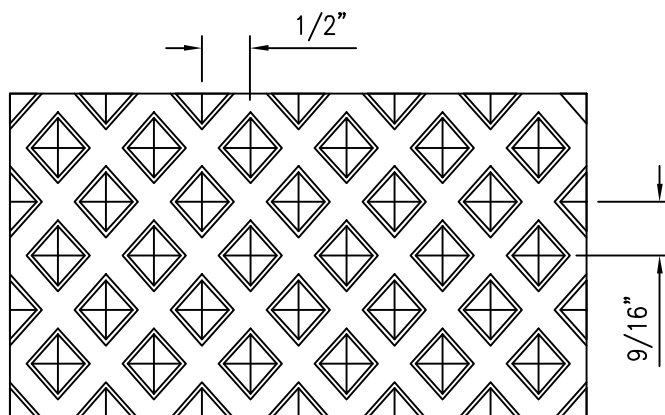
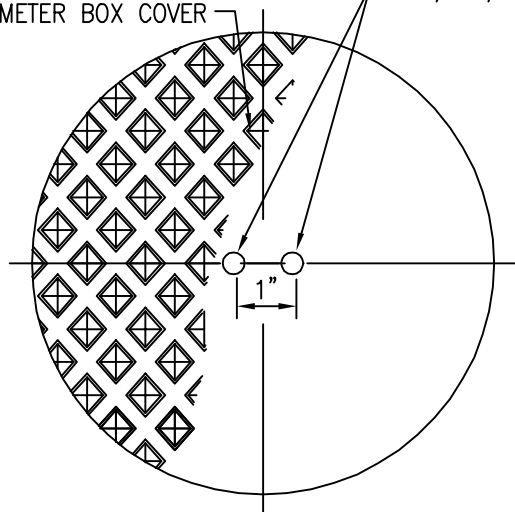
M22



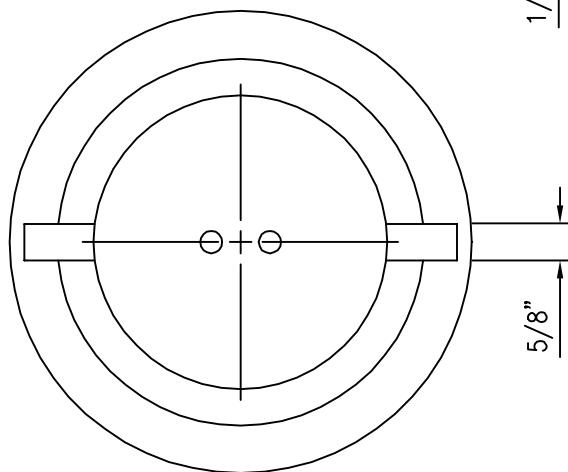
M23

CHECKERED TO MATCH  
METER BOX COVER

$3/8"$   $\phi$  HOLES



DETAILS OF  
RAISED  
SURFACE



CAST IRON READING-HOLE COVER

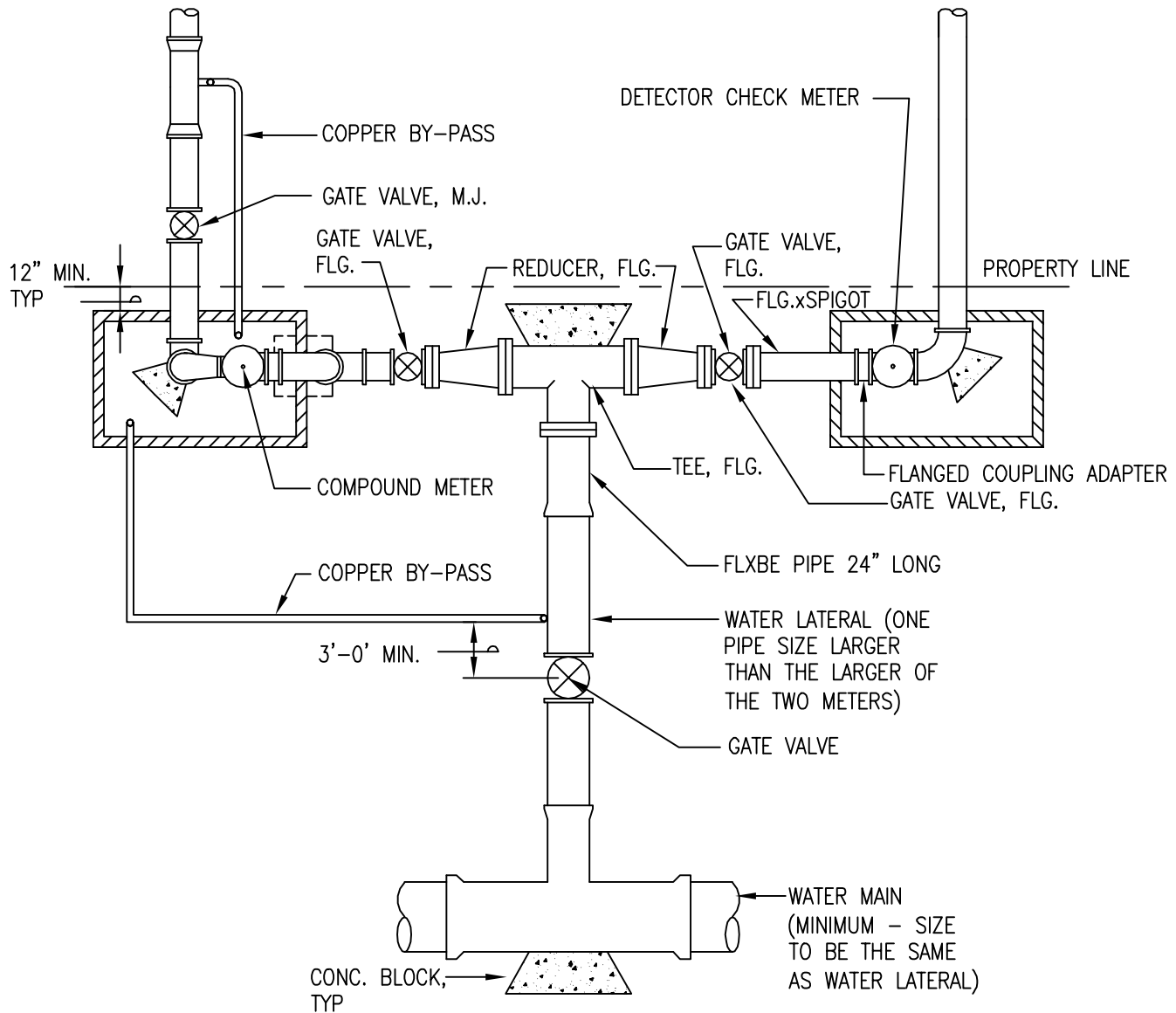
2002  
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KAUAI  
OAHU

READING HOLE COVER  
RAISED SURFACE DETAIL  
SCALE: NTS

STANDARD  
DETAILS

M24



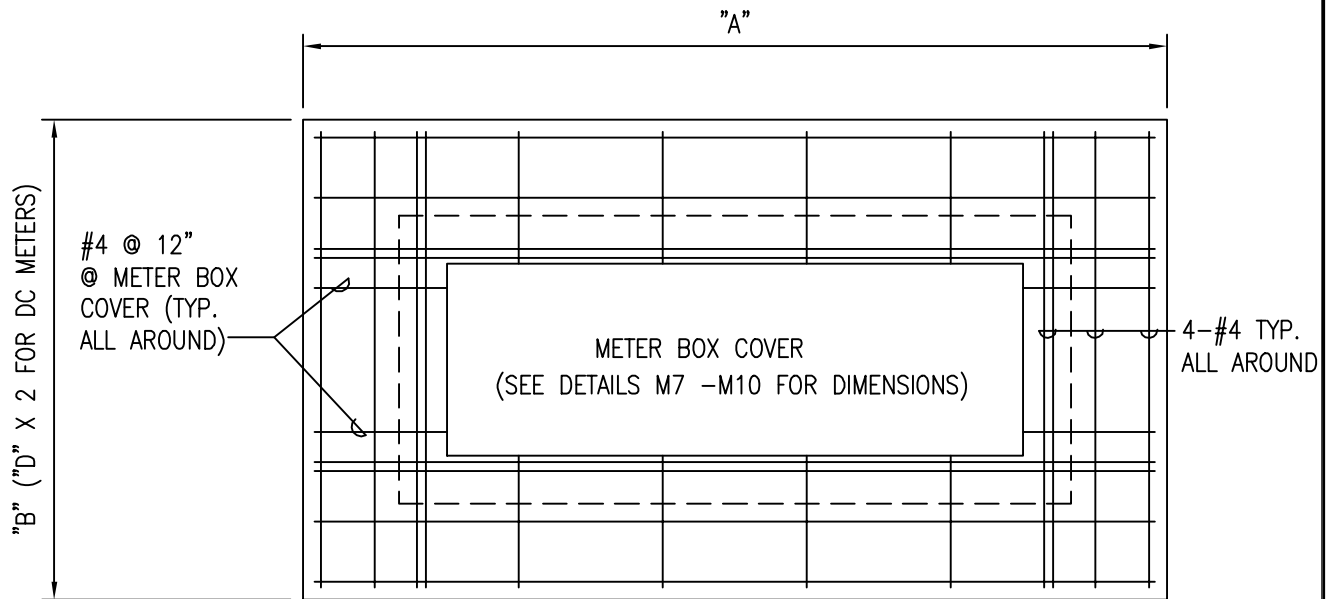
COMBINATION OF SINGLE COMPOUND  
AND SINGLE DETECTOR CHECK METERS

NOTE:

1. REFER TO M19, M30 AND M31 FOR DETECTOR CHECK METER INSTALLATION DETAILS.
2. REFER TO M27 - M29 FOR COMPOUND METER INSTALLATION DETAILS.
3. INSTALL ADDITIONAL FLANGED SPOOLS, AS REQUIRED.

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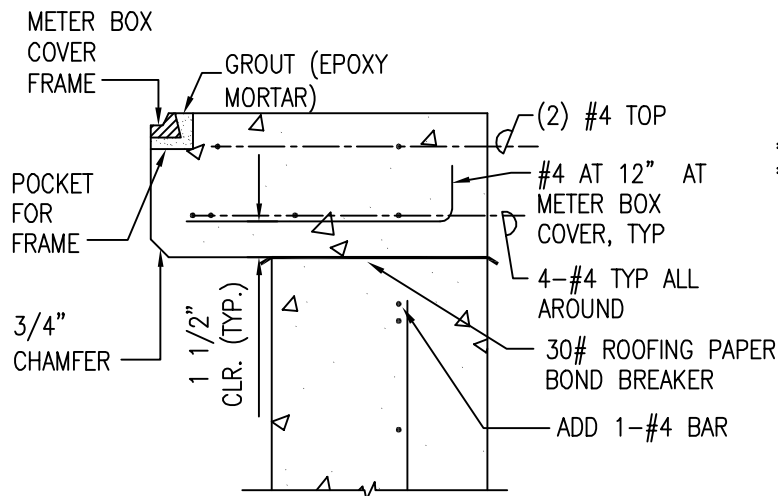
OA HU	COMBINATION OF SINGLE COMPOUND AND SINGLE DETECTOR CHECK METERS SCALE: NTS	STANDARD DETAILS	M25
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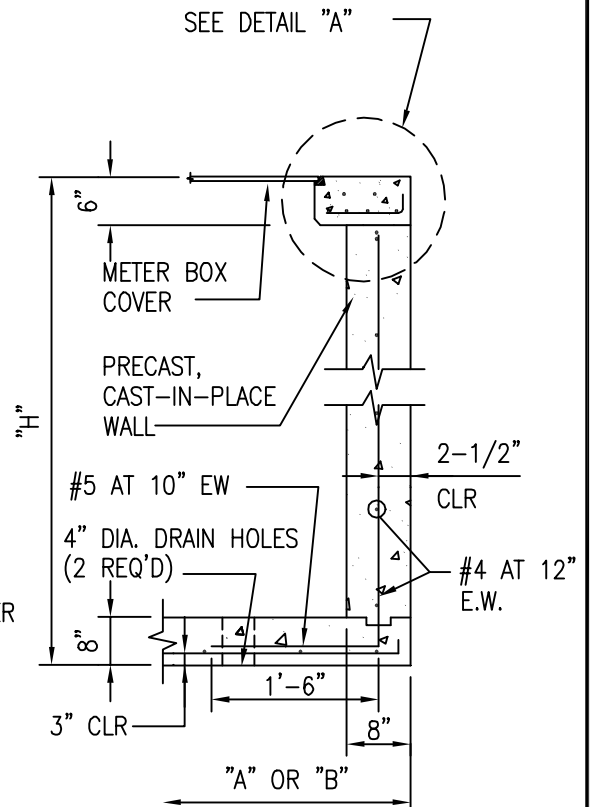
PLAN

NOTES:

1. REFER TO THE FOLLOWING DETAILS FOR BOX DIMENSIONS:  
M27-M29 FOR COMPOUND METERS, M19, M30 & M31 FOR DC METERS, M32 & M33 FOR TURBINE METERS.
2. CONCRETE SHALL BE DWS 3500.
3. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
4. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (1998). NON-TRAFFIC TYPE.
5. FOR CMU WALL:  
INSTALL 8" CMU W/ #5 @ 16" E.W. CENTERED. SEE MH12 FOR ADDITIONAL DETAIL.



DETAIL "A"



TYPICAL SECTION

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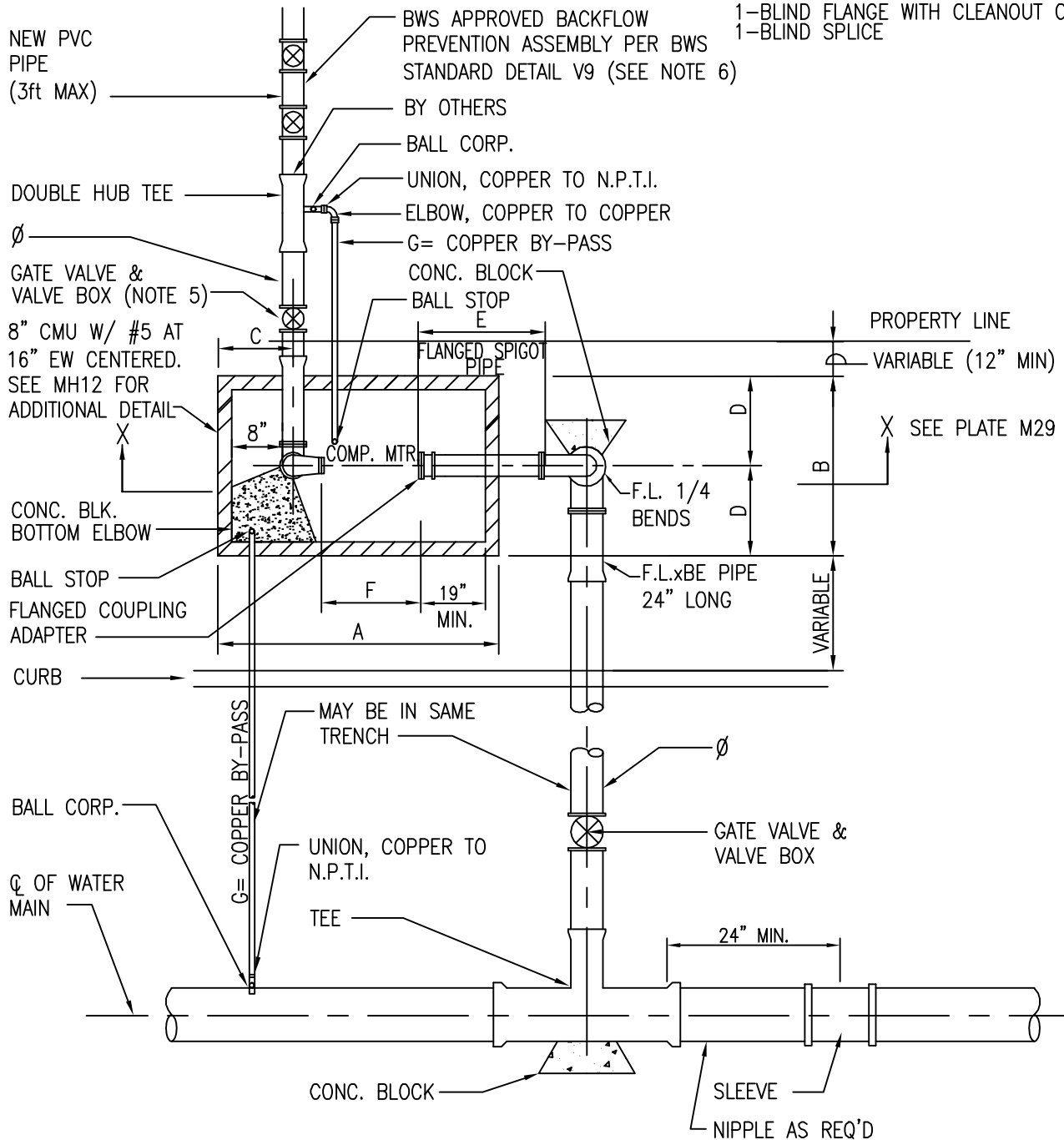
**METER BOX DETAIL**  
FOR COMPOUND, DC AND TURBINE METERS  
SCALE: NTS

STANDARD  
DETAILS

M26

MATERIALS FOR TESTING AS REQ'D

1-BLIND FLANGE WITH CLEANOUT OR  
1-BLIND SPLICE



MATERIALS FOR TESTING AS REQ'D

1-SLEEVE  
1-CAP WITH CLEANOUT  
8-L.F. CONNECTING PIPE

NOTE:

1. SEE TABLE ON M28 FOR DIMENSIONS BASED ON METER SIZE.
2. TAPPING SLEEVE/ TAPPING VALVE ASSEMBLY MAY BE USED.
3. ALL PIPING SHALL BE DUCTILE IRON PIPE UNLESS OTHERWISE NOTED.
4. MIN. DISTANCE OF TAP FOR BY-PASS TO TEE SHALL BE 36" CENTER TO CENTER.
5. OUTLET GATE VALVE MUST REMAIN
6. BACKFLOW PREVENTION ASSEMBLY TYPE TO BE DETERMINE BY BWS, IF REQUIRED.

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**SINGLE COMPOUND METER  
INSTALLATION PLAN  
SCALE: NTS**

STANDARD  
DETAILS

**M27**

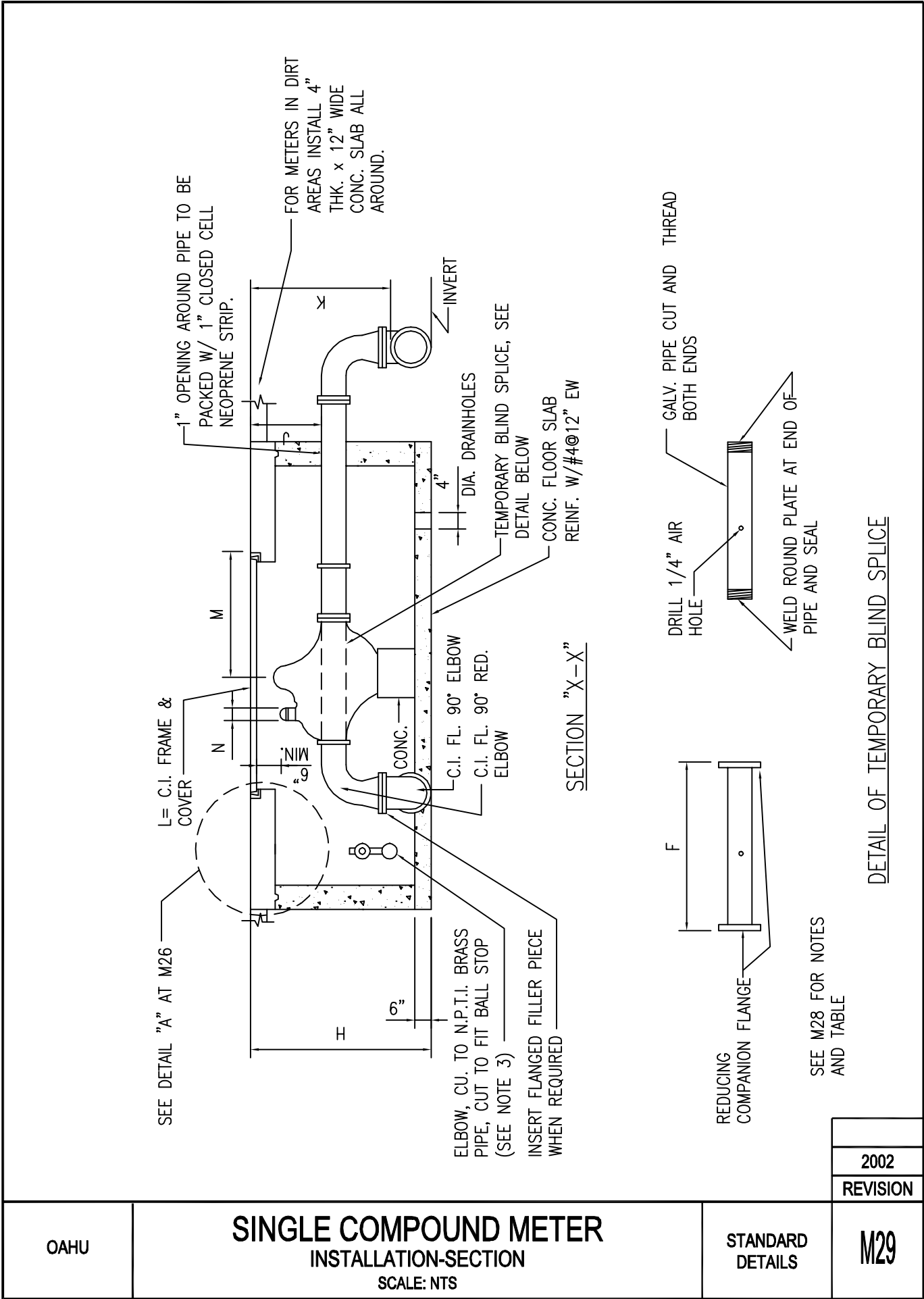
**NOTES:**

1. SEE M7, M8, M9 AND M10 FOR METER BOX FRAME AND COVER DETAILS. SEE M26 FOR METER BOX DETAIL.
2. THE PROJECT SHALL PAY THE APPLICABLE WATER SYSTEM FACILITIES CHARGE AND FOR THE METER WHICH WILL BE FURNISHED BY BWS AND INSTALLED BY THE CONTRACTOR WHEN THE LATERAL IS INSTALLED.
3. LOCATE BY-PASS BALL STOPS IN METER BOX WITH ENOUGH SPACE BETWEEN METER AND WALL FOR TEMPORARY BY-PASS STANDPIPE TO BE HOOKED UP.
4. ELIMINATE 4" DRAINHOLES FOR WATERPROOFED MANHOLES.
5. CONTRACTOR SHALL NOTIFY CUSTOMER SERVICE DIVISION IN WRITING AFTER THE PLAN IS APPROVED, NO LATER THAN 120 DAYS, PRIOR TO WITHDRAWING METER FROM THE BWS STOREYARD. SUCH NOTICE SHALL INDICATE NUMBER, SIZE, AND TYPE OF METER AND APPROXIMATE MONTH AND YEAR METER IS ANTICIPATED TO BE DRAWN OUT. IF THE APPROVED PLAN IS ALLOWED TO LAPSE, THE 120-DAY NOTICE WILL BE VOIDED.
6. ALL METERS SHALL BE INSTALLED IN THE CONCRETE OR DIRT SIDEWALK AREA WITH CONCRETE SLAB (SEE PLATE M43).

COMPOUND METERS			
METER CODE	09	12	15
FLOW RATE (GPM)	320	500	1000
METER SIZE	3"	4"	6"
A	7'-2"	7'-5"	7'-11"
B	4'-0"	4'-6"	4'-6"
C	1'-8 1/2"	1'-9 1/2"	1'-10 3/4"
D	2'-0"	2'-3"	2'-3"
E	3'-6"	3'-6"	3'-0"
F	2'-0"	2'-5"	3'-0 1/2"
G	2"	2 1/2"	2 1/2"
H	2'-9 1/4"	3'-1"	3'-6"
J	1'-6 1/4"	1'-8 1/2"	1'-11 1/2"
K	2'-6 3/4"	2'-11 1/2"	3'-4 1/2"
L	24" X 42"	24" X 42"	36" X 52"
M	15 1/4"	15 1/4"	15"
N	1"	7/8"	1/2"
Ø	4"	4" OR 6"	6" OR 8"

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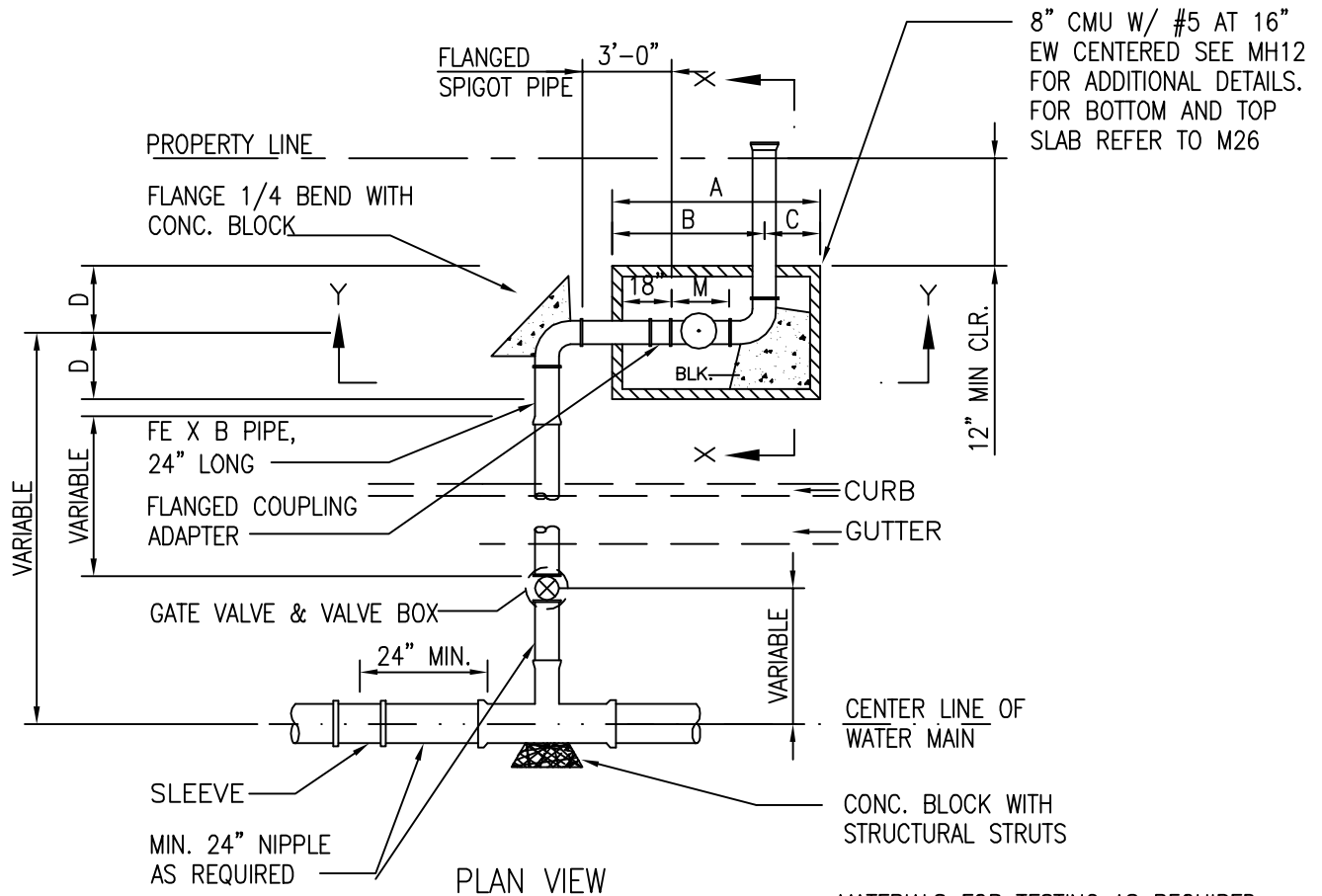
OAHU	<b>SINGLE COMPOUND METER</b> <b>INSTALLATION-NOTES AND TABLES</b> SCALE: NTS	STANDARD DETAILS	<b>M28</b>
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MATERIALS FOR TESTING AS REQUIRED:

- 1- BLIND FLANGE WITH CLEANOUT OR,
- 1- BLIND SPLICE



MATERIALS FOR TESTING AS REQUIRED:

- 1- SLEEVE
- 1- CAP WITH CLEANOUT
- 8 L.F. CONNECTING PIPE

NOTES:

1. ALL METERS SHALL BE INSTALLED IN THE CONCRETE OR DIRT SIDEWALK AREA WITH CONCRETE SLAB (SEE PLATE M43).
2. CONTRACTOR SHALL NOTIFY CUSTOMER SERVICE DIVISION IN WRITING AFTER PLAN IS APPROVED, NO LATER THAN 120 DAYS, PRIOR TO WITHDRAWING METER THE FROM THE BWS STOREYARD. SUCH NOTICE SHALL INDICATE NUMBER, SIZE, AND TYPE OF METER AND APPROXIMATE MONTH AND YEAR METER IS ANTICIPATED TO BE DRAWN OUT. IF THE APPROVED PLAN IS ALLOWED TO LAPSE, THE 120-DAY NOTICE WILL BE VOIDED.
3. THE PROJECT SHALL PAY THE APPLICABLE ONE-TIME SERVICE CHARGE AND FOR THE METER WHICH WILL BE FURNISHED BY BWS AND INSTALLED BY THE CONTRACTOR WHEN THE LATERAL IS INSTALLED.
4. TAPPING SLEEVE/ TAPPING VALVE ASSEMBLY MAY BE USED.
5. FOR DETAILS, SECTIONS AND TABLE SEE PLATES M19 AND M31.
6. CONCRETE SHALL BE DWS 3500.
7. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
8. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (1998). NON-TRAFFIC TYPE.
9. SEE DETAIL M26 FOR METER BOX DETAIL.

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**SINGLE DETECTOR  
CHECK METER INSTALLATION**  
SCALE: NTS

STANDARD  
DETAILS

M30



6" SLAB /W #4 AT 6" E.W. SEE M26 SIMILAR

L= C.I. FRAME & COVER

2" SADDLE OR WELDED COUPLING WITH BRASS PLUG

TURBINE METER

STRAINER

FLANGE COUPLING ADAPTER

1" OPENING AROUND PIPE TO BE PACKED W/ 1" CLOSED CELL NEOPRENE STRIP.

CONC.

FL. PIPE, L=9"

C.I. FL. 90° ELBOW

C.I. FL. 90° RED. ELBOW

INSERT FLANGED FILLER PIECE WHEN REQUIRED

TEMPORARY BLIND SPLICE, SEE DETAIL BELOW

CONC. FLOOR SLAB REINF. W/#5 AT 10" E.W.

FOR BOTTOM SLAB REINFORCING DETAIL, SEE M26

FOR PRECAST/CAST-IN-PLACE WALL, SEE M26. FOR CMU WALL, SEE MH10.

ELBOW, CU. TO N.P.T.I. BRASS PIPE, CUT TO FIT BALL STOP (SEE NOTE 3)

4" DIA DRAINHOLES

INVERT

SECTION "X-X"

REDUCING COMPANION FLANGE

F

DRILL 1/4" AIR HOLE

GALV. PIPE CUT AND THREAD BOTH ENDS

WELD ROUND PLATE AT END OF PIPE AND SEAL

SEE PLATE M33 FOR NOTES AND TABLE

DETAIL OF TEMPORARY BLIND SPLICE

**NOTES:**

1. SEE M7, M8, M9 AND M10 FOR METER BOX FRAME AND COVER DETAILS. SEE DETAIL M26 FOR METER BOX DETAIL.
2. THE PROJECT SHALL PAY THE APPLICABLE WATER SYSTEM FACILITIES CHARGE AND FOR THE METER WHICH WILL BE FURNISHED BY BWS AND INSTALLED BY THE CONTRACTOR WHEN THE LATERAL IS INSTALLED.
3. LOCATE BY-PASS BALL STOP IN METER BOX WITH ENOUGH SPACE BETWEEN METER AND WALL FOR TEMPORARY BY-PASS STANDPIPE TO BE HOOKED UP.
4. ELIMINATE 4" DRAINHOLES FOR WATERPROOFED MANHOLES.
5. CENTER DIAL UNDER READING COVER.
6. CONTRACTOR SHALL NOTIFY CUSTOMER SERVICE DIVISION IN WRITING AFTER THE PLAN IS APPROVED, NO LATER THAN 120 DAYS, PRIOR TO WITHDRAWING METER FROM THE BWS STOREYARD. SUCH NOTICE SHALL INDICATE NUMBER, SIZE, AND TYPE OF METER AND APPROXIMATE MONTH AND YEAR METER IS ANTICIPATED TO BE DRAWN OUT. IF THE APPROVED PLAN IS ALLOWED TO LAPSE, THE 120-DAY NOTICE WILL BE VOIDED.
7. ALL METERS SHALL BE INSTALLED IN THE CONCRETE OR DIRT SIDEWALK AREA WITH CONCRETE SLAB. (SEE PLATE M43)
8. CONCRETE SHALL BE DWS 3500.
9. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
10. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (1998). NON-TRAFFIC TYPE.
11. SPECIAL INSPECTION SHALL BE PROVIDED DURING CONSTRUCTION FOR CMU WALL.
12. STRUCTURAL STEEL SHAPES SHALL BE ASTM A-36. HOT DIP GALVANIZED AFTER FABRICATION.

	TURBINE METERS			
	3"	4"	6"	8"
A	7'-2"	7'-5"	7'-11"	8'-7"
B	4'-0"	4'-6"	4'-6"	4'-6"
C	1'-8 1/2"	1'-9 1/2"	1'-10 3/4"	1'-11"
D	2'-0"	2'-3"	2'-3"	2'-3"
E	3'-6"	3'-6"	3'-0"	3'-0"
F	1'-6"	1'-9 1/2"	2'-3"	2'-6"
G	2"	2 1/2"	2 1/2"	2 1/2"
H	2'-9 1/4"	3'-1"	3'-6"	3'-7"
J	1'-6 1/4"	1'-8 1/2"	1'-11 1/2"	1'-3"
K	2'-6 3/4"	2'-11 1/2"	3'-4 1/2"	2'-10 1/2"
L	24" X 42"	24" X 42"	36" X 52"	36" X 52"
Ø	4"	4" OR 6"	6" OR 8"	8" OR 12"

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OAHU	<b>TURBINE METER</b> <b>INSTALLATION-NOTES AND TABLES</b> SCALE: NTS	STANDARD DETAILS	M33
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NOTES FOR CMU WALL MANHOLE

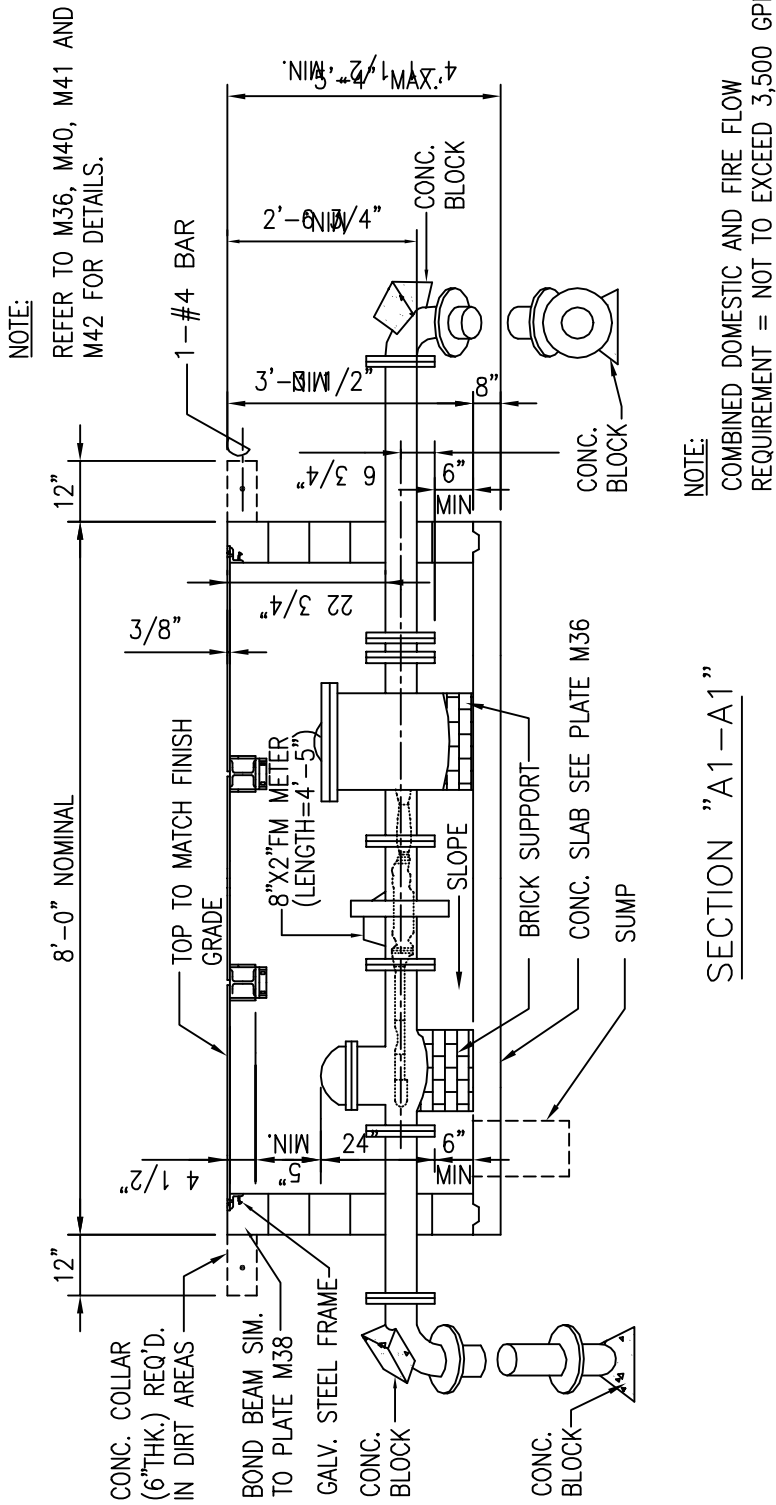
1. BWS 3500 CONCRETE, 1500 PSI CMU AND GRADE 60 REINFORCING STEEL
2. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB; PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION (1998) NON-TRAFFIC TYPE.
3. ALL CELLS SHALL BE GROUTED SOLID WITH 2500 PSI GROUT. TYPE M MORTAR
4. SPECIAL INSPECTION SHALL BE PROVIDED DURING CONSTRUCTION FOR CMU WALL.

8" X 2" FM METER & BOX LAYOUT FIRE  
AND DOMESTIC USES - CMU WALLS

SCALE: NTS

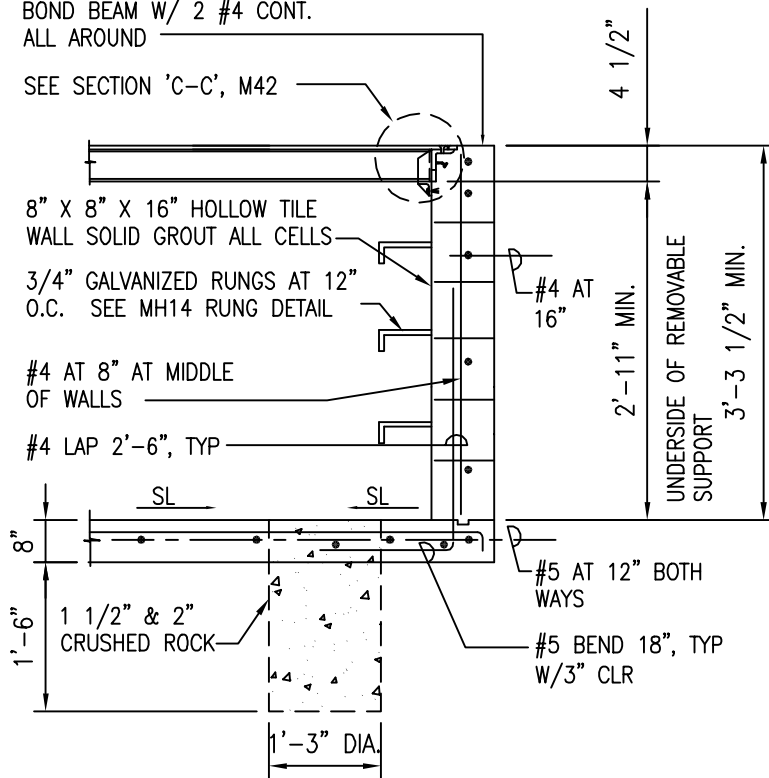
STANDARD  
DETAILS

M35

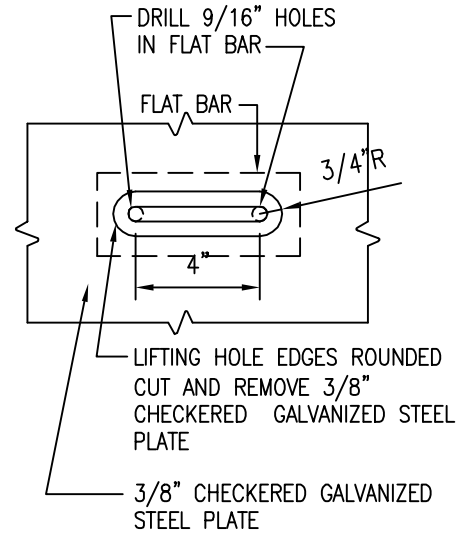


BOND BEAM W/ 2 #4 CONT.  
ALL AROUND

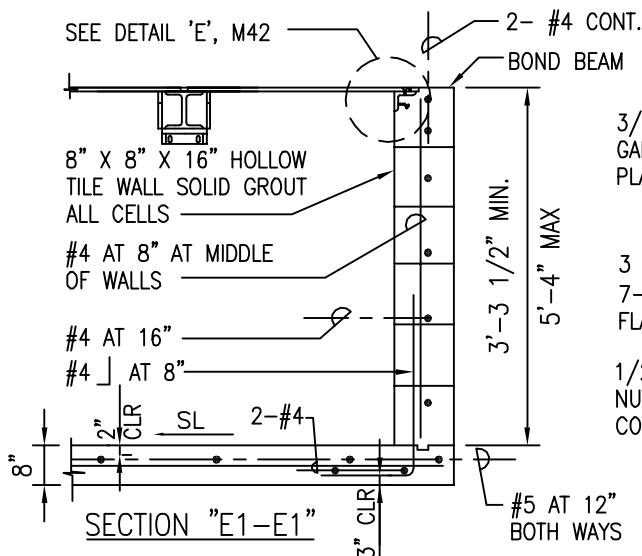
SEE SECTION 'C-C', M42



SECTION "B1-B1"



PLAN



SECTION "E1-E1"

3/8" CHECKERED  
GALVANIZED STEEL  
PLATE

3 1/2" X  
7-1/2" X 3/8"  
FLAT BAR

1/2" STD. HEX  
NUT WITH  
COTTER PIN

SECTION

HANDLE DETAIL

CMU WALLS

2002

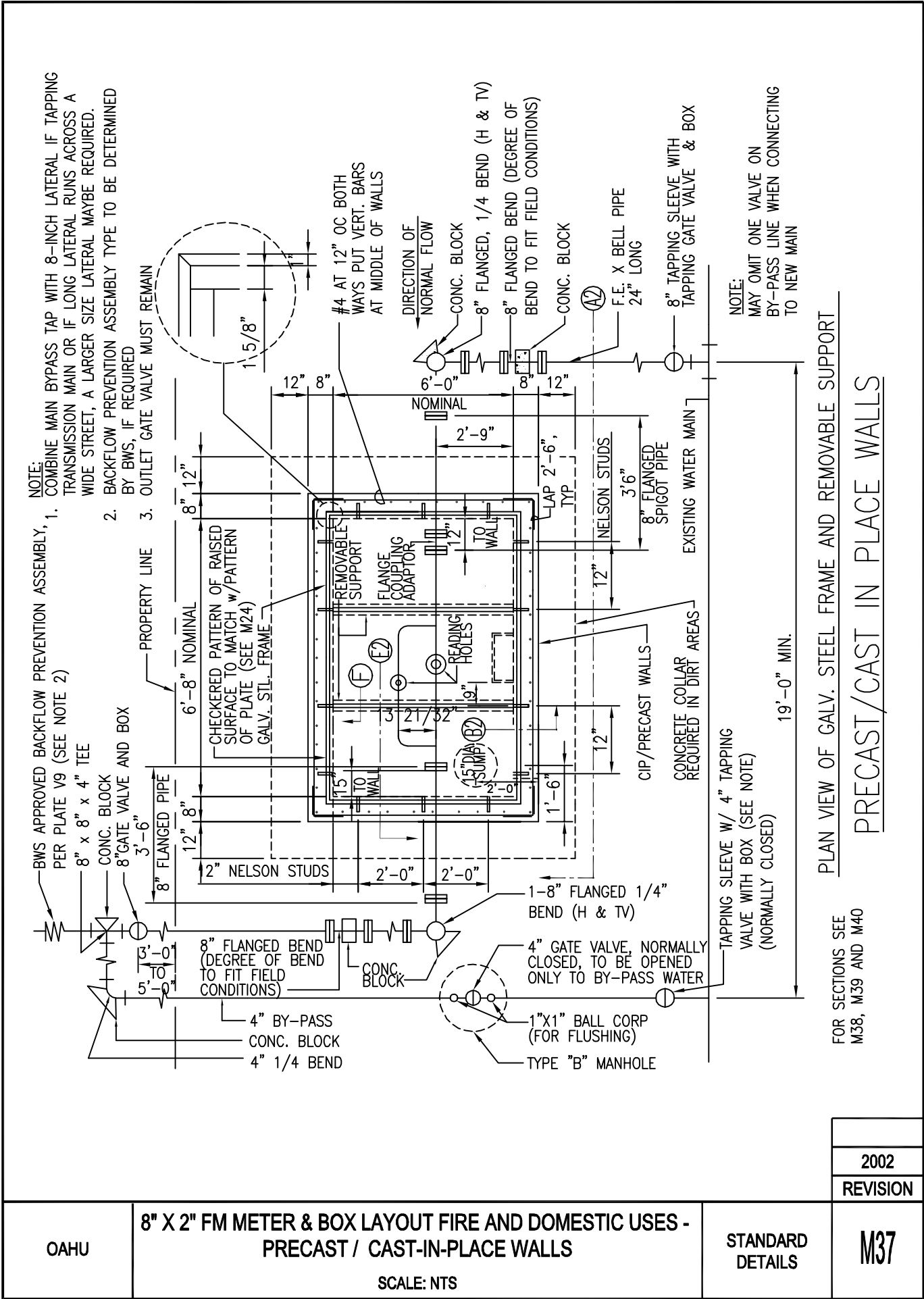
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8" X 2" FM METER & BOX  
BOX DETAILS - CMU WALLS  
SCALE: NTS

STANDARD  
DETAILS

M36

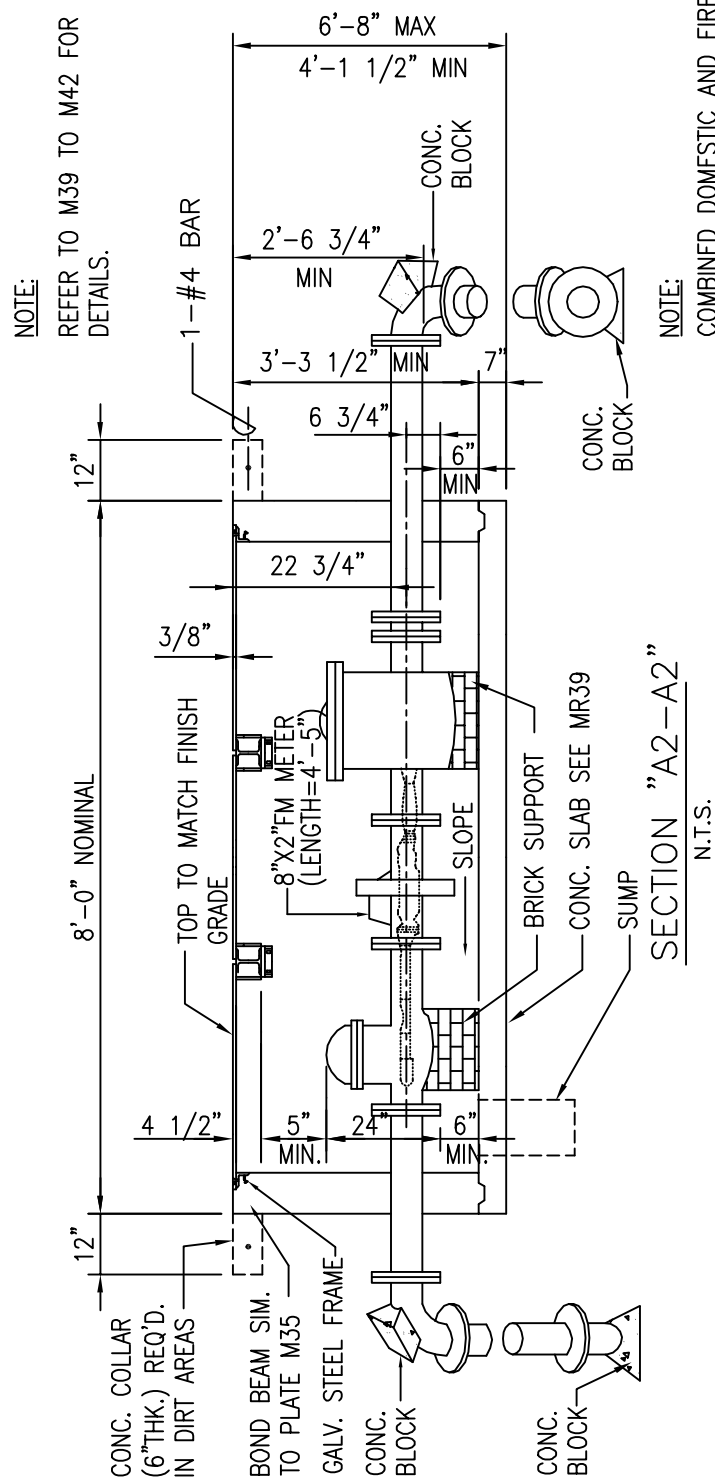




NOTES FOR PRECAST/CAST-IN-PLACE WALL MANHOLE

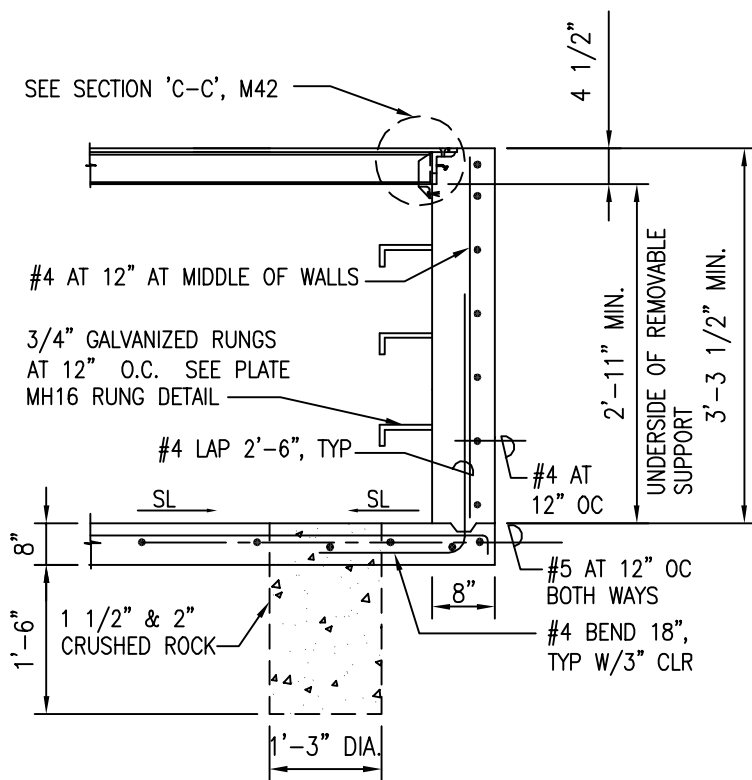
1. BWS 3500 CONCRETE AND GRADE 60 REINFORCING STEEL
2. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION (1998). NON-TRAFFIC TYPE.

1. BWS 3500 CONCRETE AND GRADE 60 REINFORCING STEEL
2. DESIGN IS BASED ON: 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION (1998). NON-TRAFFIC TYPE.

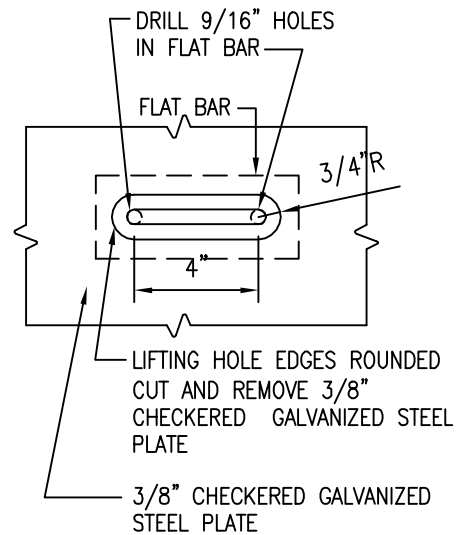


## PRECAST/CAST IN PLACE WALLS

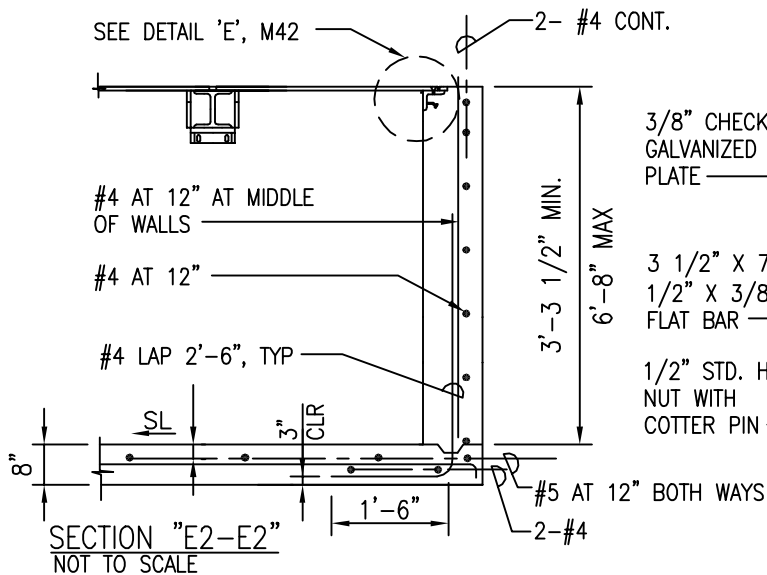
NOTE	1.	2.	CON (6" IN	BO TO	GAL	CON BLC	CON BLC	
								2002
								REVISION
OAHU	8" X 2" FM METER & BOX LAYOUT FIRE AND DOMESTIC USES - PRECAST / CAST-IN-PLACE WALLS SCALE: NTS						STANDARD DETAILS	M38



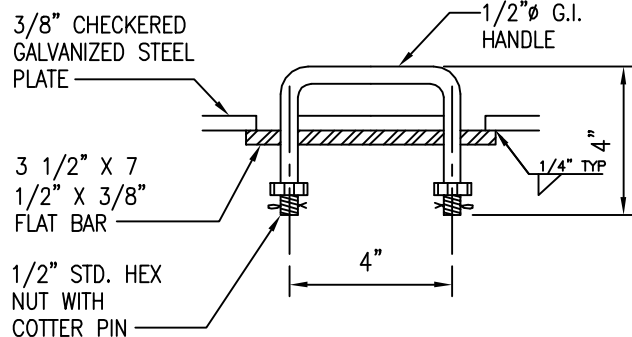
SECTION "B2-B2"  
NOT TO SCALE



PLAN  
NOT TO SCALE



SECTION "E2-E2"  
NOT TO SCALE



SECTION

HANDLE DETAIL  
NOT TO SCALE

2002

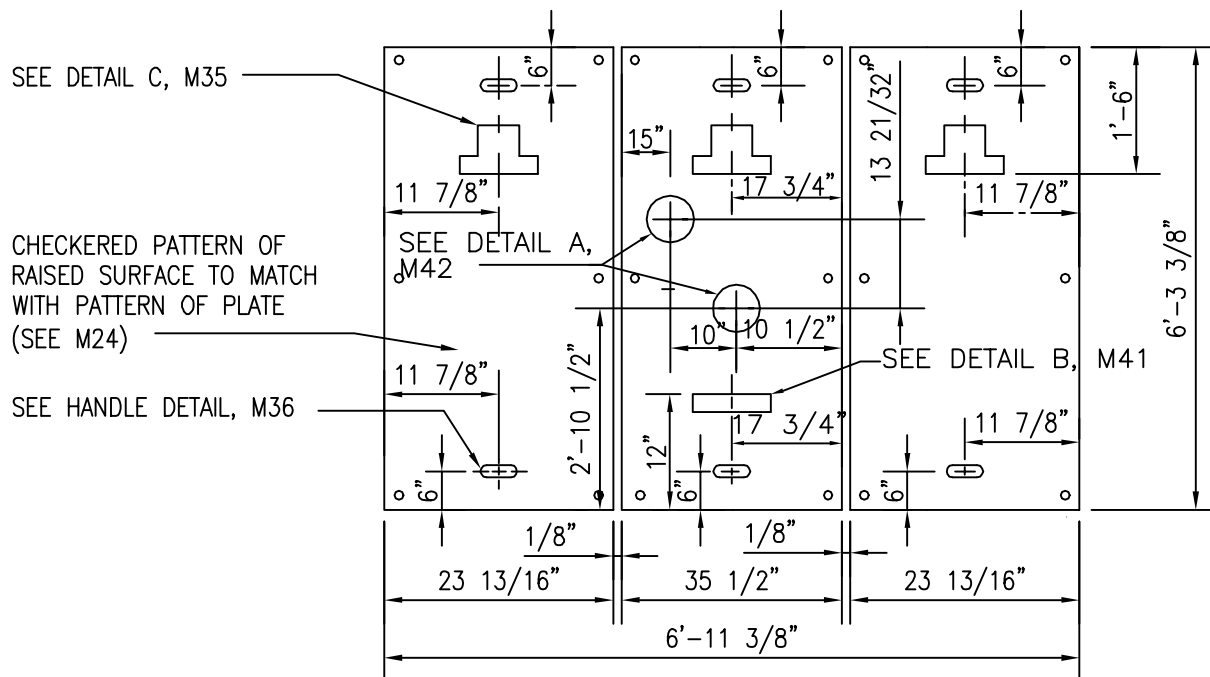
REVISION

OAHU

**8" X 2" FM METER & BOX**  
BOX DETAILS-PRECAST / CAST-IN-PLACE WALLS  
SCALE: NTS

STANDARD  
DETAILS

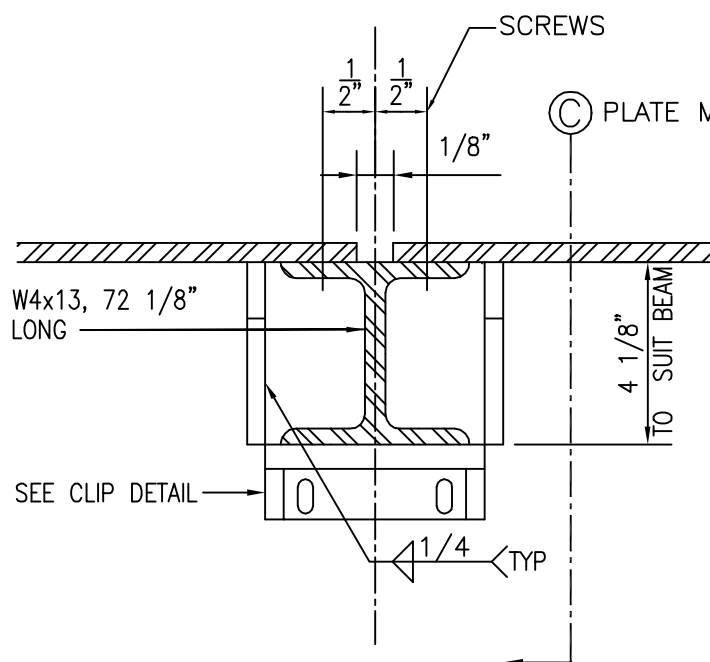
**M39**



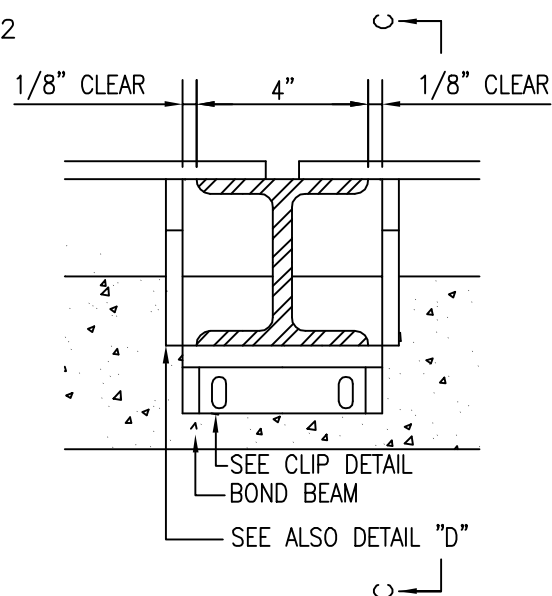
**NOTES:**

1. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. LOCATION OF READING LID SHALL BE VERIFIED BY CONTRACTOR.

**PLAN - FM METER COVER**  
NOT TO SCALE

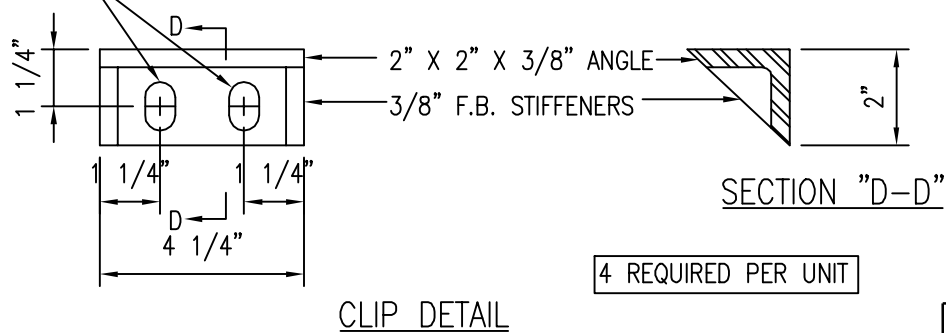
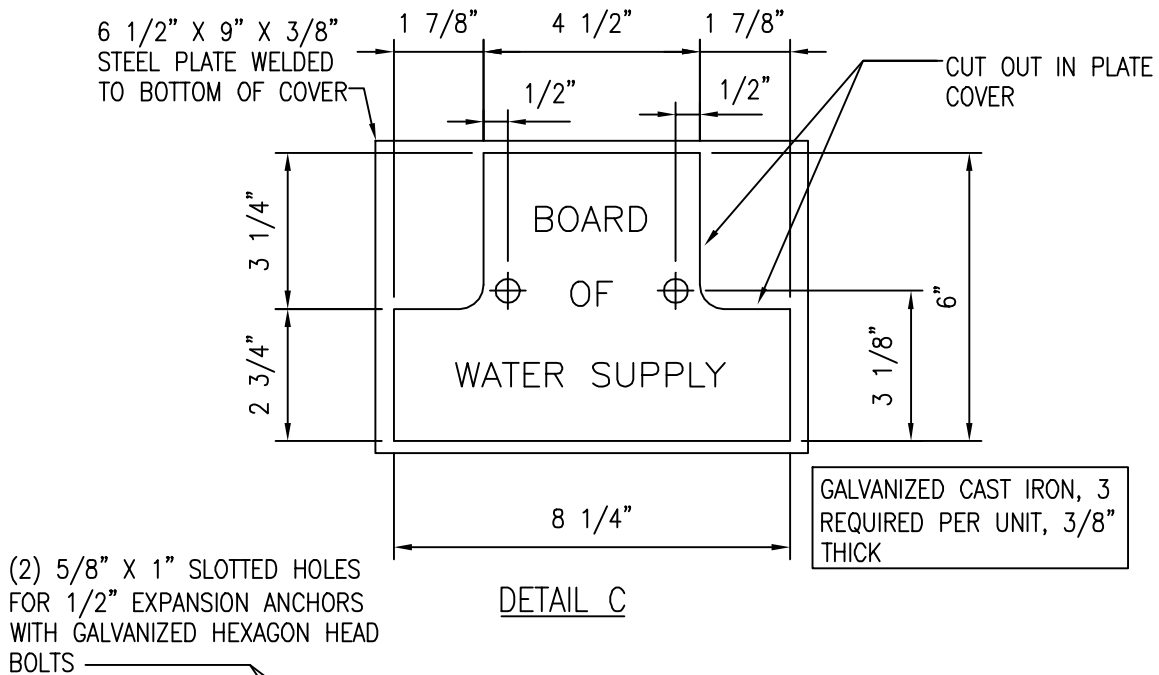
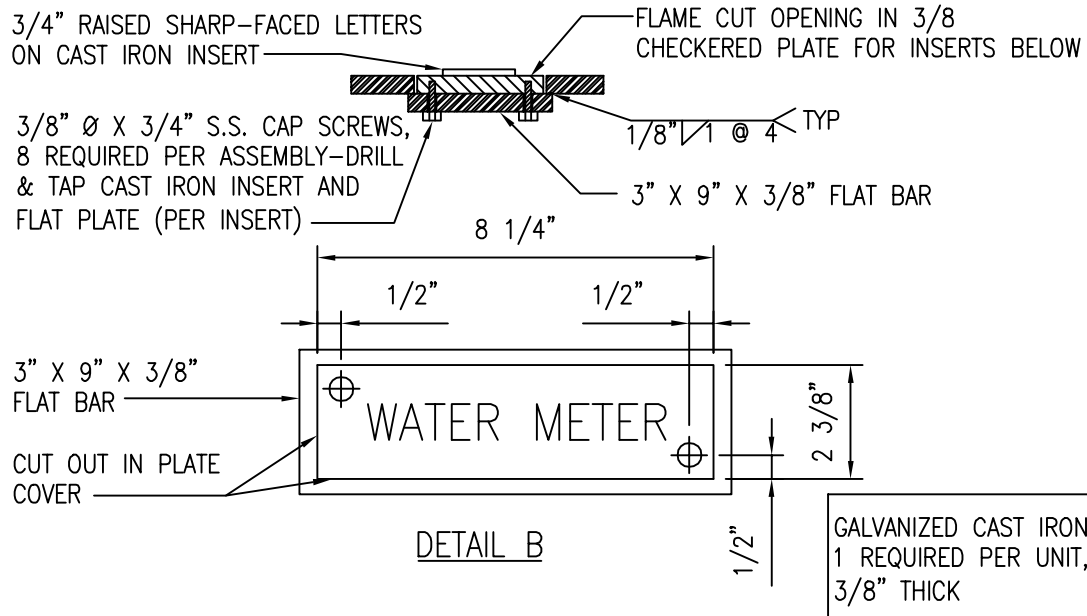


**DETAIL "D"**  
**REMOVABLE SUPPORT**  
NOT TO SCALE



**SECTION "F-F"**  
NOT TO SCALE

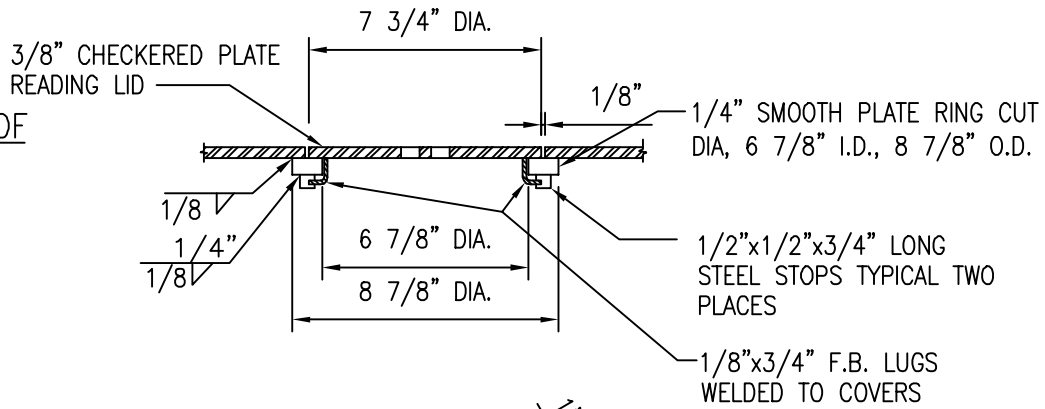
OAHU	<b>8" X 2" FM METER &amp; BOX</b> <b>COVER PLATE &amp; SUPPORT DETAILS</b> SCALE: NTS	STANDARD DETAILS	
			2002
			REVISION
			M40



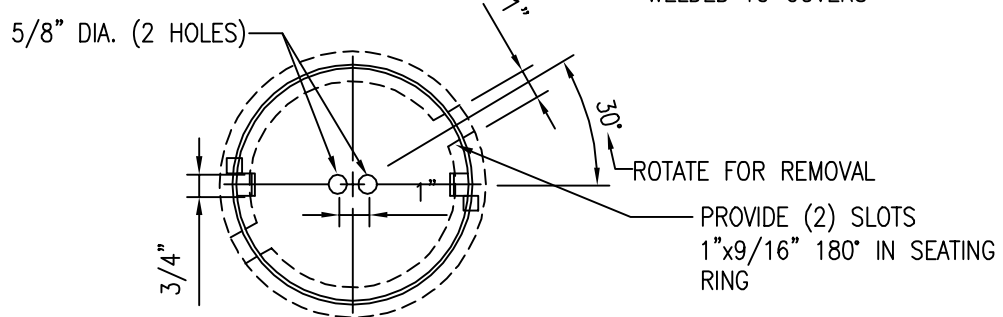
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OAHU	8" X 2" FM METER & BOX IDENTIFICATION INSERTS AND CLIP DETAILS SCALE: NTS	STANDARD DETAILS	M41
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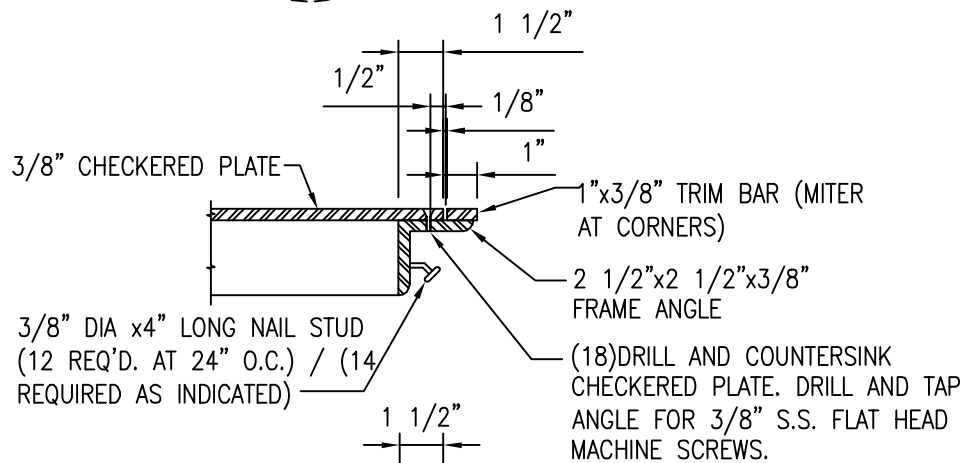
SECTION OF  
DETAIL A



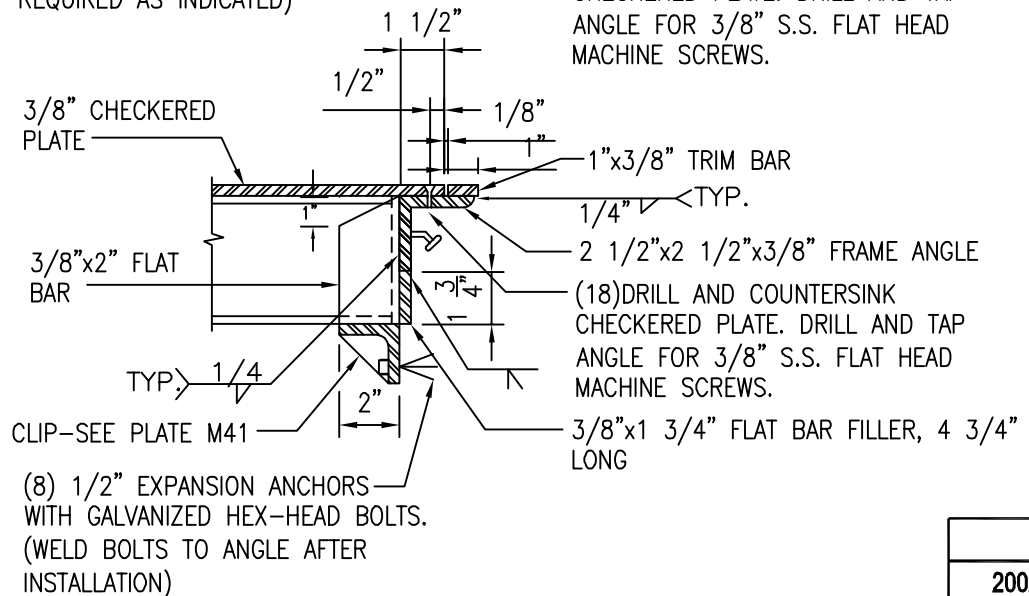
DETAIL A  
PLAN



DETAIL E



SECTION "C-C"



2002

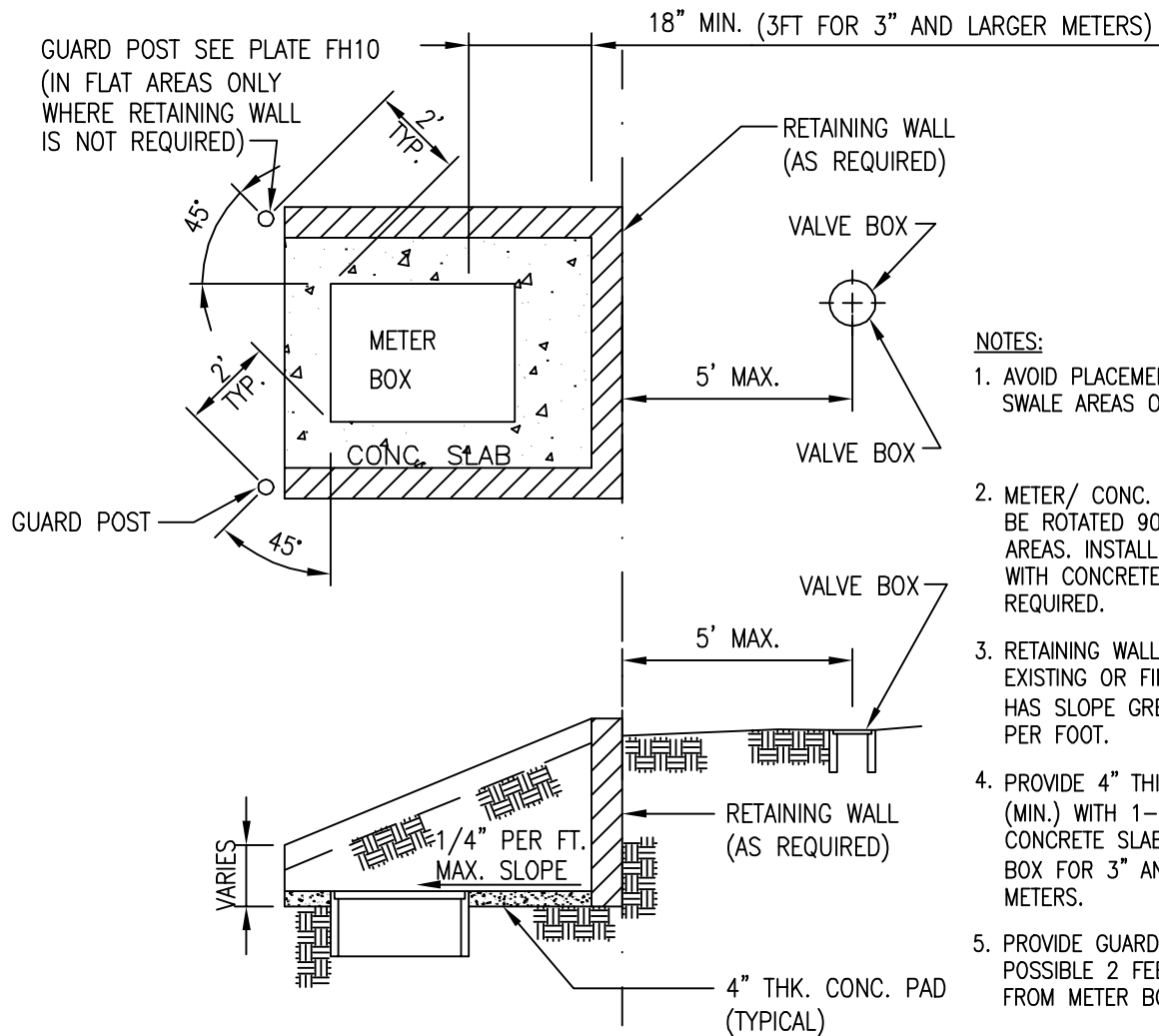
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OAHU

**8" X 2" FM METER & BOX**  
**READING LID & FRAME DETAILS**  
SCALE: NTS

STANDARD  
DETAILS

**M42**



**NOTES:**

1. AVOID PLACEMENT OF METERS IN SWALE AREAS OR LOW POINTS.
2. METER/ CONC. SLAB DETAIL MAY BE ROTATED 90° TO FIT IN TIGHT AREAS. INSTALL FL x BELL PIECE WITH CONCRETE BEAM, AS REQUIRED.
3. RETAINING WALL REQUIRED IF EXISTING OR FINISH GROUND HAS SLOPE GREATER THAN 1/4" PER FOOT.
4. PROVIDE 4" THICK BY 12" WIDE (MIN.) WITH 1-#4 REBAR, CONCRETE SLAB AROUND METER BOX FOR 3" AND LARGER METERS.
5. PROVIDE GUARD POSTS WHEREVER POSSIBLE 2 FEET MINIMUM CLEAR FROM METER BOX.

WATER METER BOX DETAIL FOR NON-SIDEWALK AREAS

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**WATER METER BOX FOR  
NON-SIDEWALK AREAS**

SCALE: NTS

STANDARD  
DETAILS

**M43**