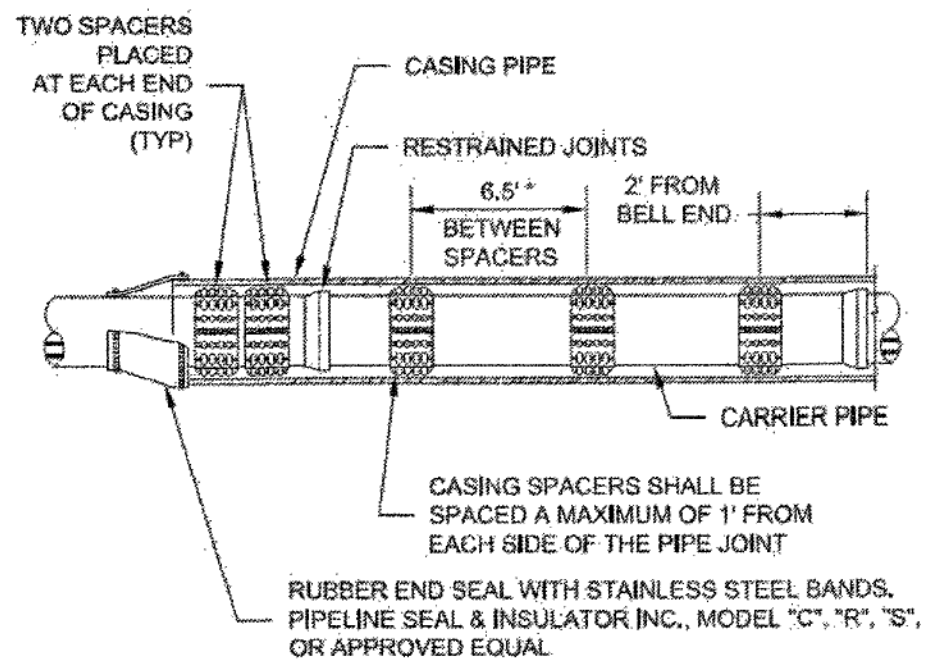
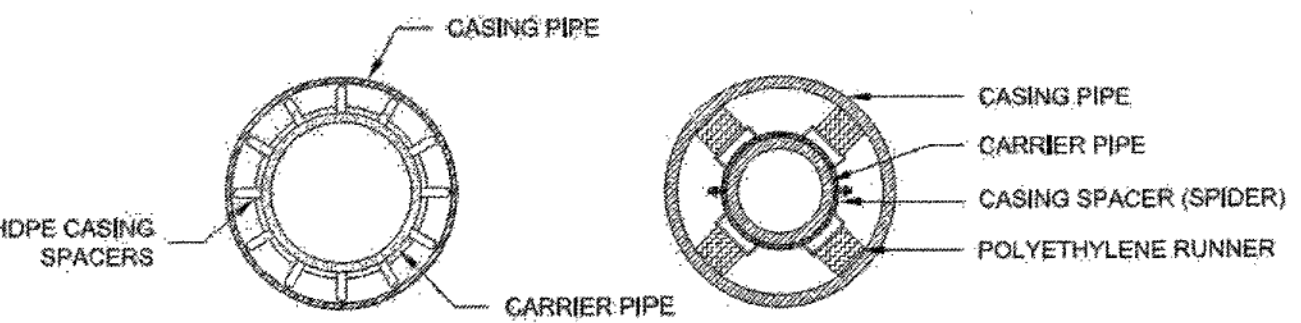


1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING PIPE.
2. SPACERS SHALL BE RACI HDPE SPACERS OR EQUIVALENT. STAINLESS STEEL SPACERS MAY BE USED IF IN COMPLIANCE WITH THE FOLLOWING CRITERIA:
 - INTERIOR SURFACES OF THE CIRCULAR STAINLESS STEEL BAND SHALL BE LINED WITH EPDM OR NEOPRENE MATERIAL.
 - ABRASION RESISTANT RUNNERS/SKIDS SHALL BE POLYMER MATERIAL WITH EACH END BEVELED TO FACILITATE EASE OF INSTALLATION INTO CASING PIPE.
3. SPACERS SHALL BE SPACED 6 1/2" ON SEWER PIPE.
4. CARRIER PIPE SHALL BE DUCTILE OR HDPE IN ACCORDANCE WITH REGIONAL STANDARDS.
5. IF HDPE CARRIER PIPE IS USED AND PRECISE GRADES ARE NOT REQUIRED THROUGH CASING, SPACERS MAY BE OMITTED.
6. CASING PIPE TO BE STEEL IN ACCORDANCE WITH VDOT STANDARD DETAIL EP-1 OR HDPE AS SPECIFIED IN THE STANDARDS IF APPROVED BY THE PARTICIPATING UTILITY.
7. CONCRETE CASING PIPE WILL NOT BE ALLOWED.
8. DIAMETER OF CASING PIPE SHALL BE AS SHOWN IN THE TABLE BELOW UNLESS OTHERWISE SPECIFIED BY THE PARTICIPATING UTILITY. WHERE SPACERS ARE NOT REQUIRED, CASING PIPE SHALL BE MINIMUM DIAMETER TO ADEQUATELY INSTALL AND PASS CARRIER PIPE THROUGH AND TO MINIMIZE VOID SPACE BETWEEN CARRIER AND CASING PIPES.

CASING PIPE SIZE CHART	
CARRIER PIPE (NOMINAL DIAMETER)	CASING PIPE (DIAMETER)
6"	12"
8"	16"
10"	24"
12"	24"
14"	24"
16"	30"
18"	30"
24"	42"
30"	42"



* ADDITIONAL SPACING ALLOWED AS RECOMMENDED BY PIPE MANUFACTURER.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

PIPE SUPPORT IN CASING PIPE

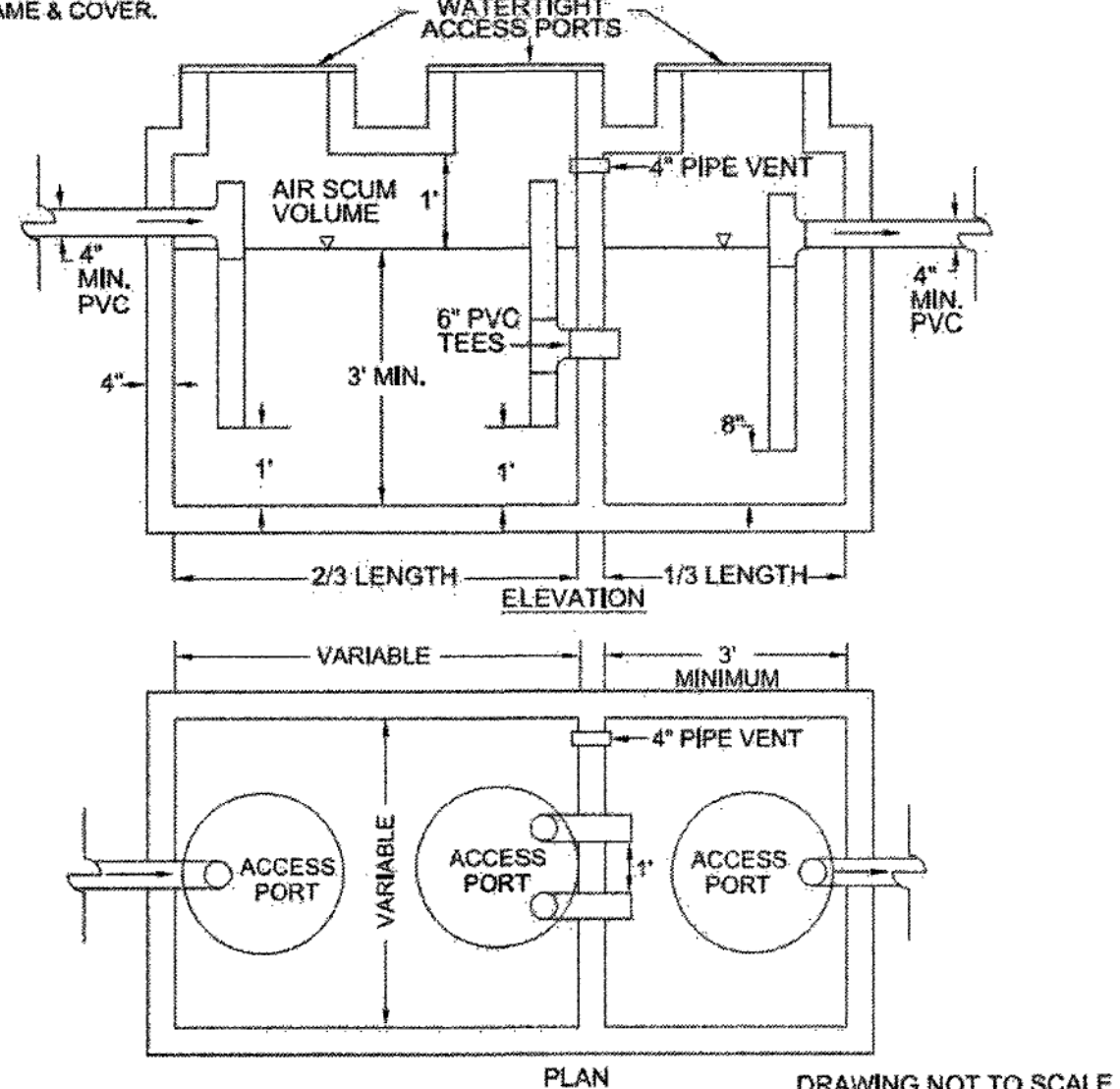


G-6

05/05/15

NOTES:

1. MINIMUM RETENTION TIME SHOULD BE 30 MINUTES AT PEAK FLOW.
2. GREASE INTERCEPTOR SHOULD BE DESIGNED TO WITHSTAND TRAFFIC LOADS IF APPLICABLE.
3. FRAMES AND COVERS SHALL BE CAST IRON & WATER TIGHT; NO PLASTIC COVERS SHALL BE ALLOWED.
4. GREASE SHALL BE CAST INTO COVER.
5. A NON-MONOLITHIC UNIT SHALL HAVE THE FOLLOWING INSTALLED PER MANUFACTURER'S SPEC:
 - A.) A CONEAL CS-102 BUTYL RUBBER SEALANT (OR EQUIVALENT) IN THE JOINT.
 - B.) 24" CONEAL CS-212 POLYURETHANE BACKED EXTERIOR WRAP (OR EQUIVALENT) CENTERED OVER THE EXTERIOR OF THE JOINT.
6. GREASE INTERCEPTOR SHALL BE INSPECTED AND APPROVED BY THE PARTICIPATING UTILITY PRIOR TO SITE RECEIVING WATER SERVICE CONNECTION.
7. FORTY-EIGHT (48) HOURS PRIOR TO INSTALLATION, THE CONTRACTOR SHALL COMPLETE THE FOLLOWING:
 - A.) CONTACT PARTICIPATING UTILITY TO DETERMINE PROPER SUBMITTAL AND INSPECTION PROCEDURE.
 - B.) FOR UNITS INSTALLED INTO THE WESTERN VIRGINIA WATER AUTHORITY'S SYSTEM:
 - 1.) SUBMIT SHOP DRAWINGS TO C. ALTICE, 601 S. JEFFERSON ST., SUITE 300, ROANOKE, VA 24011.
 - 2.) CALL (540) 537-3460 TO SCHEDULE GREASE INTERCEPTOR INSPECTION. THE INSPECTION SHALL OCCUR PRIOR TO THE CONTRACTOR COVERING THE GREASE INTERCEPTOR.
8. CONCRETE SHALL BE TYPE III AND CONFORM TO ASTM C150.
9. ALL OTHER DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF ASTM C1613.
10. ALL PVC PIPES SHALL EXTEND 5' ABOVE WATER SURFACE.
11. IF INTERCEPTOR IS SUBJECT TO TRAFFIC, ACCESS FOR BAFFLE TEES SHALL BE TRAFFIC RATED CAST IRON FRAME & COVER.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

GREASE INTERCEPTOR



S-17

01/01/14



WESTERN VIRGINIA
WATER AUTHORITY

Engineering
Services

Availability # 15-142
Address: 4524 CHALLENGER AVE
Tax Map Number(s): 040.10-03-01.00-0000
Contact: Charles Beedles (404) 601-3928
Prepared by: David Vogelsgang, P.E., Engineer II (540) 853-5688

May 6, 2015
Accounting Code:None
Card #:none

Water
Location: 2' existing service lateral connected to 6" main located in entrance road into parking lot.
Anticipated Pressure: 120 to 130 PSI. WVWA to install PRV
WVWA work required: install new meter

Sewer
Location: 6" proposed service lateral connected to 8" main located in easement next to Challenger Ave.
WVWA work required: Tap only, contractor to install lateral

- To proceed with service, please follow the steps below:
1. Make Payment to Roanoke County Admin Center, 5204 Bernard Drive, Roanoke, VA 24018
 2. Billing name and/or Authorized contact, address, phone #, SSN or Tax ID must be provided with payment to set up new account, a deposit and application fee will be charged on first billing cycle.
 3. Applicant is responsible for acquiring all permits required by Roanoke County.
 4. Address must be clearly posted on site to have any Water Authority services installed.
 5. Once installed, all water services will be locked in the off position until project is issued Substantial Completion by the WVWA project manager.

Cost Connection Summary		Fees valid until: January 1, 2016	
Description	Fire	Water	Sewer
Meter size	size	1"	N/A
Connection Fees	\$0.00	\$0.00	\$0.00
Availability Fees	\$0.00	\$7,500.00	\$7,500.00
Existing Credits (if applicable)	\$0.00	\$0.00	\$0.00
Meter Fees (2)	\$0.00	\$500.00	N/A
Tap Fees	\$0.00	\$0.00	\$250.00
Subtotal of Fees	\$0.00	\$8,000.00	\$7,750.00
Payment Due		\$15,750.00	

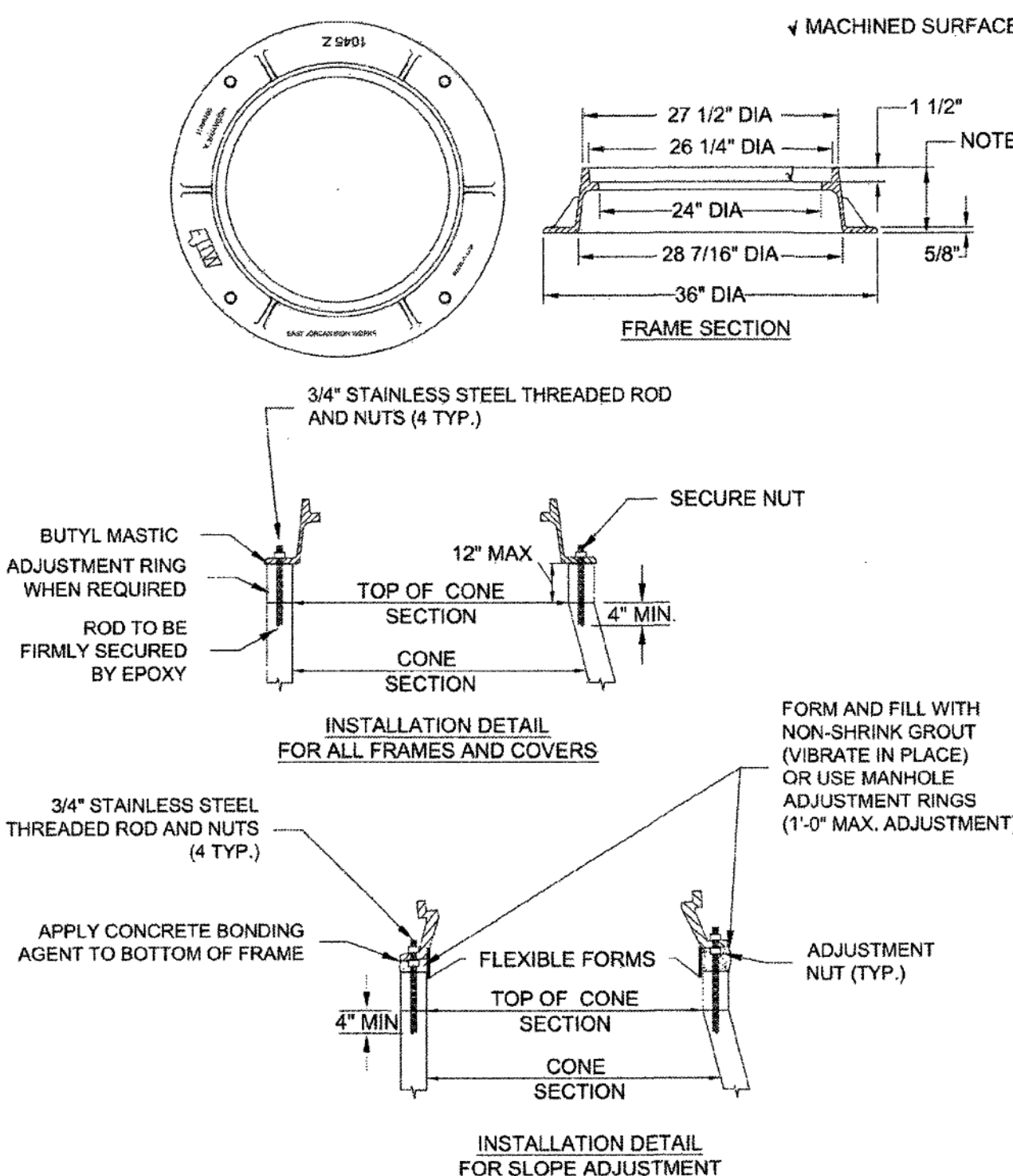
NOTES:

- All work performed will be in accordance with the approved plans. Any inspections required by the WVWA will need to be coordinated with the assigned inspector.
- All taps must be scheduled at least 48 hours in advance.
- Applicant is responsible for constructing the private portion of the sewer (including clean out) and water services from the main to the building.
- Applicant shall not alter or disturb plumbing connections within the water meter box.
- Applicant is responsible for confirming that there is at least three feet of fall from the lowest floor served to the top of the sewer main. If not, a private pumping station will be required.
- For work being completed by a contractor, please contact WVWA Construction Inspector's office at (540) 537-3460 to schedule inspection prior to backfilling.
- Prior to any excavation in the vicinity of the Authority's water main, please contact WVWA Construction Inspector's office at (540) 537-3460.
- The second meter is for a sewer subtraction meter.
- This availability letter is based on the telephone conversation with the engineer designing the Murphy gas station and this site plan shall be approved prior to payment.

Our Mission Is Clear

601 South Jefferson Street • Suite 300 • Roanoke, VA 24011
540-853-5641 • www.westernvwa.org

1. WATER TIGHT MANHOLE FRAME MODEL #1045Z BY EAST JORDAN IRON WORKS, INC. OR EQUIVALENT.
2. HOPE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING, AND SHALL BE INTERLOCKING OR UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING TO FORM A WATER TIGHT JOINT.
3. CONCRETE ADJUSTMENT RINGS SHALL MEET H-20 LOAD RATING AND UTILIZE BUTYL MASTIC JOINT SEALANT BETWEEN EACH RING AND FRAME AN COVER TO FORM A WATER TIGHT JOINT.
4. FRAME HEIGHT SHALL BE 7" FOR BURIED LOCATIONS AND 4" FOR EXPOSED LOCATIONS.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATER TIGHT MANHOLE FRAME



S-4

01/01/14

1. MATERIALS AND FABRICATION IN ACCORDANCE WITH ASTM C478-09.
2. WHEN USED AS SAMPLING MANHOLE FLOW SHALL PASS STRAIGHT THROUGH, i.e., 180°.
3. STEPS SHALL BE VERTICALLY ALIGNED. FIRST STEP SHALL BE WITHIN 12" OF COVER, BOTTOM STEP SHALL BE WITHIN 24" OF BOTTOM OF MANHOLE.
4. FRAME AND COVER SHALL BE PROPERLY ALIGNED WITH THE 2 FOOT OPENING OF THE MANHOLE STRUCTURE AND BOLTED IN PLACE.
5. FLAT TOP MANHOLES MAY ONLY BE SUBSTITUTED WITH THE PERMISSION OF THE PARTICIPATING UTILITY.
6. FLEXIBLE JOINT MANHOLE CONNECTION SHALL BE AS MANUFACTURED BY PRES-SEAL GASKET CORPORATION OR EQUAL.
7. GROUT ANNUAL SPACE BETWEEN PIPE AND PRECAST MANHOLE ON INSIDE OF MANHOLE.
8. WHEN REPLACING AN EXISTING MANHOLE OR INSTALLING A NEW PRECAST MANHOLE ON AN EXISTING SEWER, A MINIMUM OF SIX FEET (6') OF EXISTING PIPE SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL ON INLET AND OUTLET OF MANHOLE.
9. MANHOLES WHERE THE INVERT IS LOWER THAN THE NORMAL GROUNDWATER ELEVATION (I.E., ALONG CREEKS, RIVERS, LOW-LYING AREAS, ETC.) SHALL HAVE A FULL EXTERIOR COATING AND JOINT WRAP APPLIED IN ADDITION TO JOINT SEALANT. SEE NOTES 10 & 11.
10. IF REQUIRED EXTERIOR VERTICAL WALL SURFACES SHALL BE FACTORY COATED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. COATING SHALL BE HIGH BUILD COAL TAR EPOXY MEETING ASTM D1227. COATING SHALL BE APPLIED IN TWO COATS TO A MINIMUM TOTAL THICKNESS OF 16 MILS.
11. IF REQUIRED ALL MANHOLES SHALL UTILIZE AN EXTERNAL FRAME AND JOINT SEAL AT ALL JOINTS AND AT THE FRAME/CHIMNEY INTERFACE. SEAL SHALL BE MADE OF EPDM RUBBER IN ACCORDANCE WITH ASTM D412 OR POLYURETHANE BACKED EXTERIOR JOINT WRAP IN ACCORDANCE WITH ASTM F-1745, C-977, AND C-980. EDM SEAL SHALL HAVE A MINIMUM THICKNESS OF 60 MILS. POLYURETHANE BACKED EXTERIOR JOINT WRAP SHALL HAVE A BACKING BAND ELEMENT WITH MINIMUM THICKNESS OF 4 MILS. AND BUTYL ROLLER ADHESIVE WITH MINIMUM THICKNESS OF 60 MILS. SEAL SHALL AGGRESSIVELY BOND TO CONCRETE AND METAL STRUCTURES.
12. FOR PIPE LARGER THAN 15 INCHES IN DIAMETER, THE MINIMUM INSIDE DIAMETER OF THE MANHOLE SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS BASED ON PIPE SIZE AND ANGLE BETWEEN INLET AND OUTLET PIPING.
13. 6" MINIMUM DIAMETER MANHOLE SHALL BE REQUIRED WHEN DEPTHS EXCEED 15'.

