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- V-2 VALVE PIT INSSTALLATION-NARROW ROW
- V-3 MINIMUM SPACING BETWEEN CONNECTIONS
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- V-16 VACUUM STATION LAYOUT

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER



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 Tampa, Florida 33637 (813) 977-6005

**LISTING OF VACUUM
SEWER DETAILS**

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-LIST

HOUSE GRAVITY LATERAL
TO BE DIRECTLY CONNECTED
TO COLLECTION SUMP

5'-0" (MIN.)

4", 6", 8", OR 10"
VACUUM SEWER

3" SCH.
40 PVC

10" x 10" x 3" OR
8" x 8" x 3" OR
6" x 6" x 3" OR
4" x 4" x 3" WYE

LOT #1

LOT #2

45°

45°

6' MIN. LENGTH GRAVITY
STUB WITH GLUED CAP

NOTE: MAXIMUM NUMBER
OF CONNECTIONS - 4.

YARD

RIGHT-OF-WAY

DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER



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TYPICAL VALVE PIT
INSTALLATION

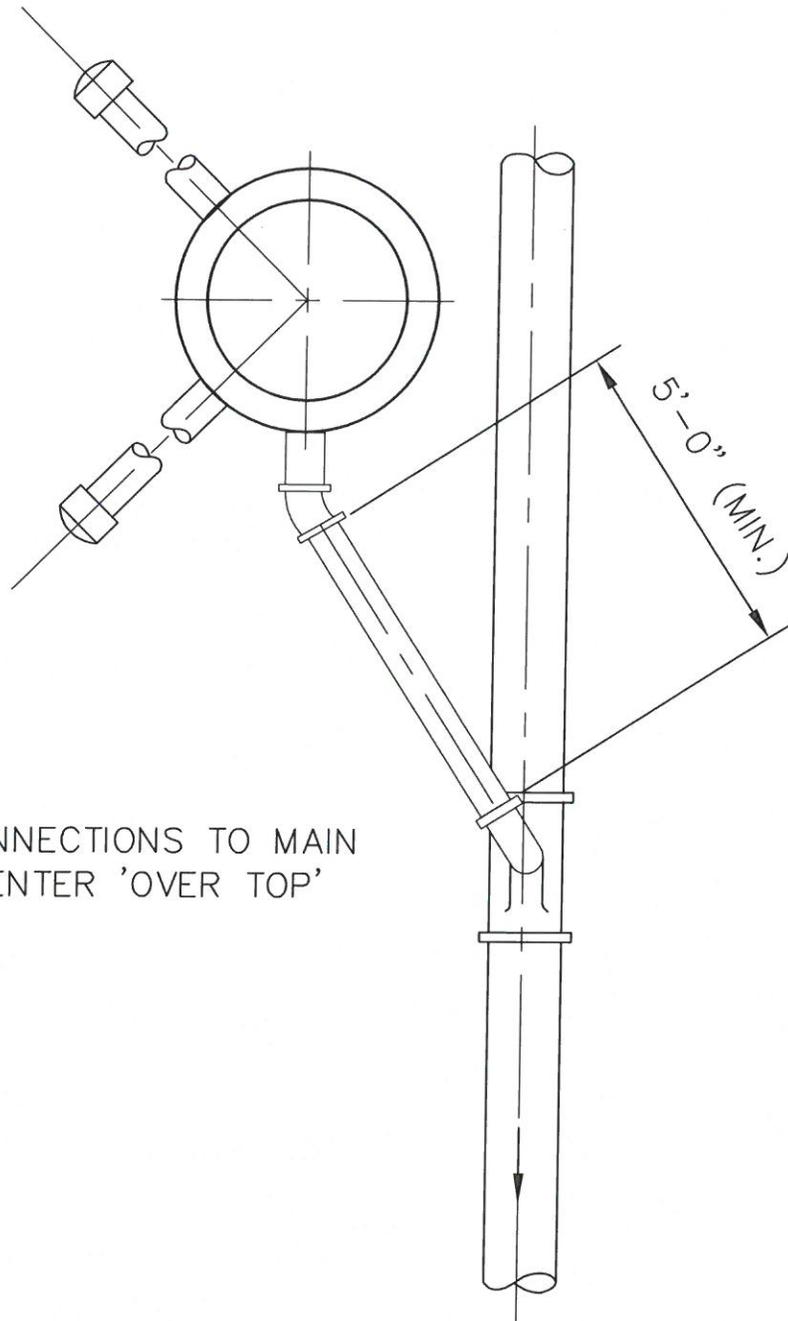
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SCALE: N.T.S.

V-1

NARROW RIGHT-OF-WAY

LOT #1

LOT #2



ALL CONNECTIONS TO MAIN
SHALL ENTER 'OVER TOP'

DETAILS BASED
ON AIRVAC, INC.

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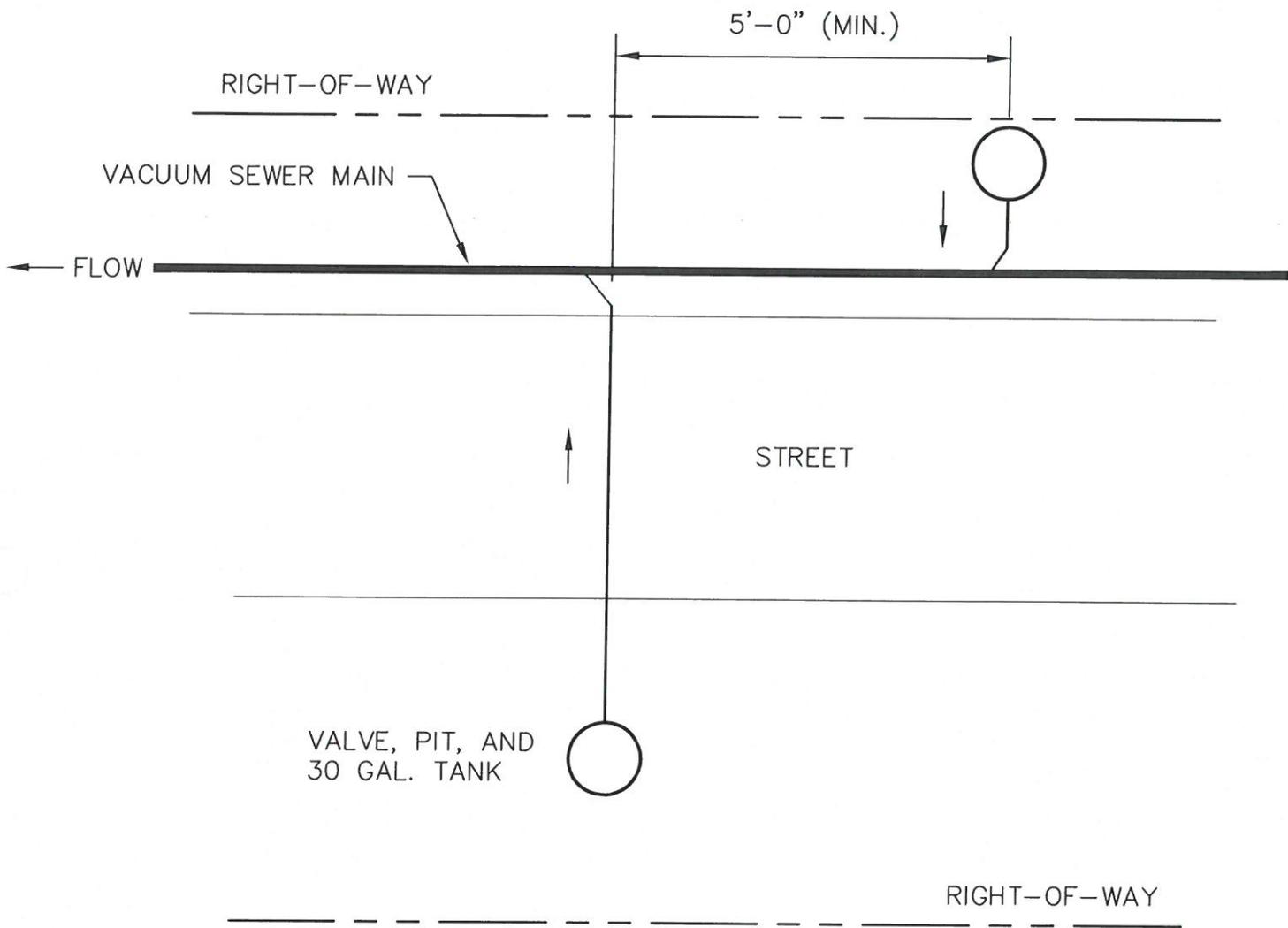


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**VALVE PIT INSTALLATION
NARROW ROW**

DATE: JULY 7, 2008
SCALE: N.T.S.

V-2



DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

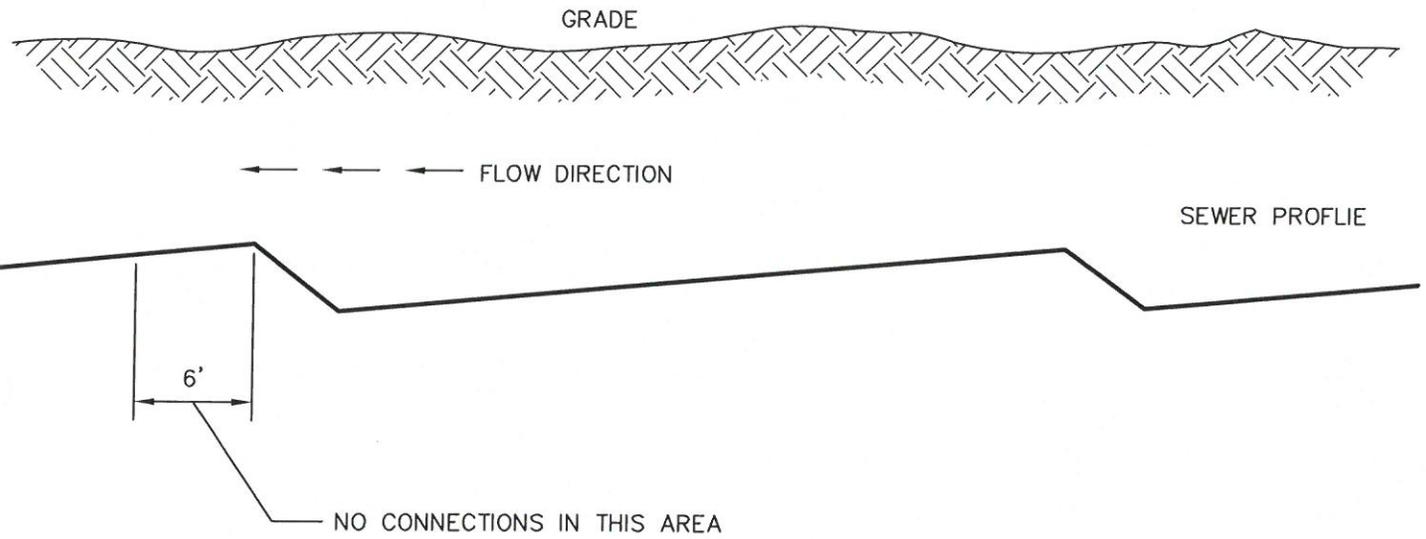


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**MINIMUM SPACING
BETWEEN
CONNECTIONS**

DATE: JULY 7, 2008
SCALE: N.T.S.

V-3



DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

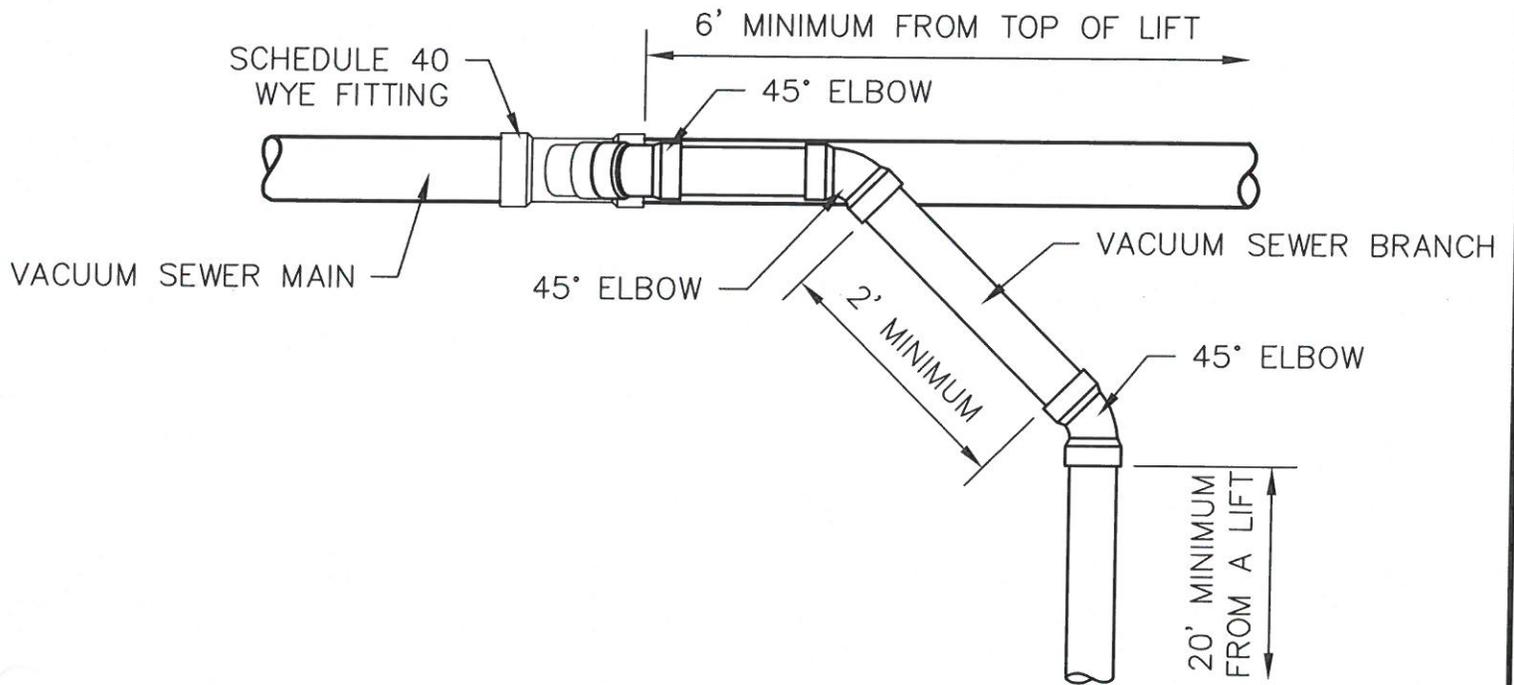


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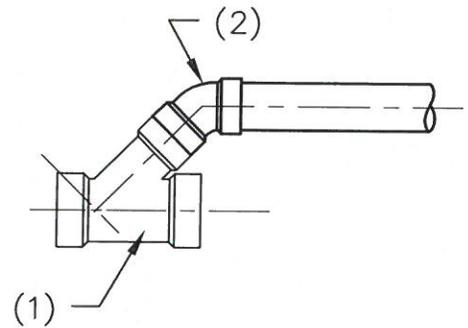
**CONNECTION LOCATIONS
TO AVOID**

DATE: JULY 7, 2008
SCALE: N.T.S.

V-4



- (1) 45 DEG WYE, SOCKET x SOCKET x SOCKET
- (2) 45 DEG ELL, SOCKET x SOCKET



DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

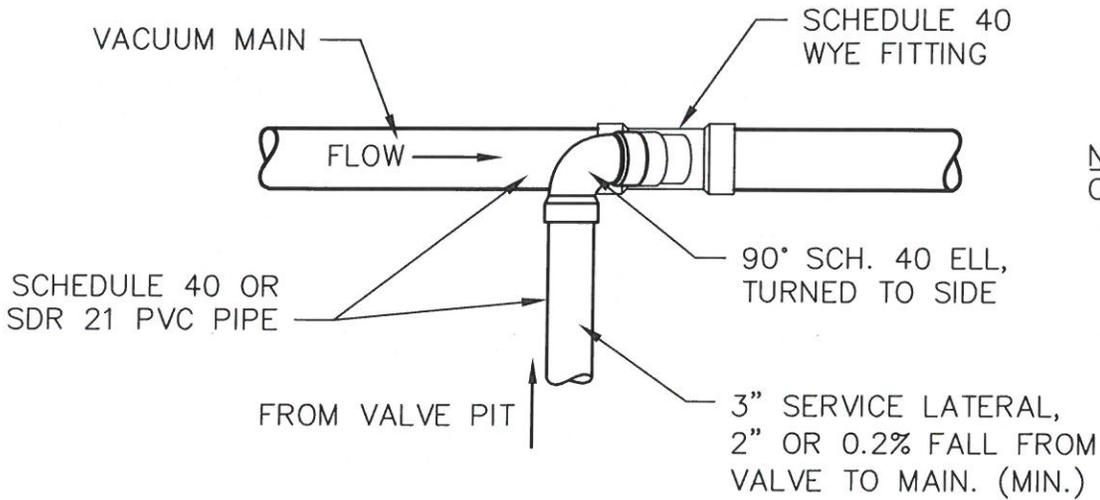


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**VACUUM BRANCH TO
MAIN
LINE CONNECTION**

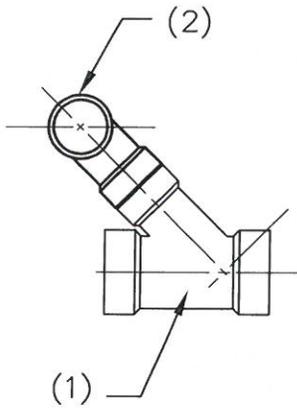
DATE: JULY 7, 2008
SCALE: N.T.S.

V-5



NOTE: MAXIMUM NUMBER OF CONNECTIONS - 4.

VALVE PIT TO MAIN CONNECTIONS



- (1) 45 DEG WYE, SOCKET x SOCKET x SOCKET
- (2) 90 DEG ELL, SOCKET x SOCKET

VACUUM SERVICE LATERAL TO MAIN OR BRANCH CONNECTION

DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

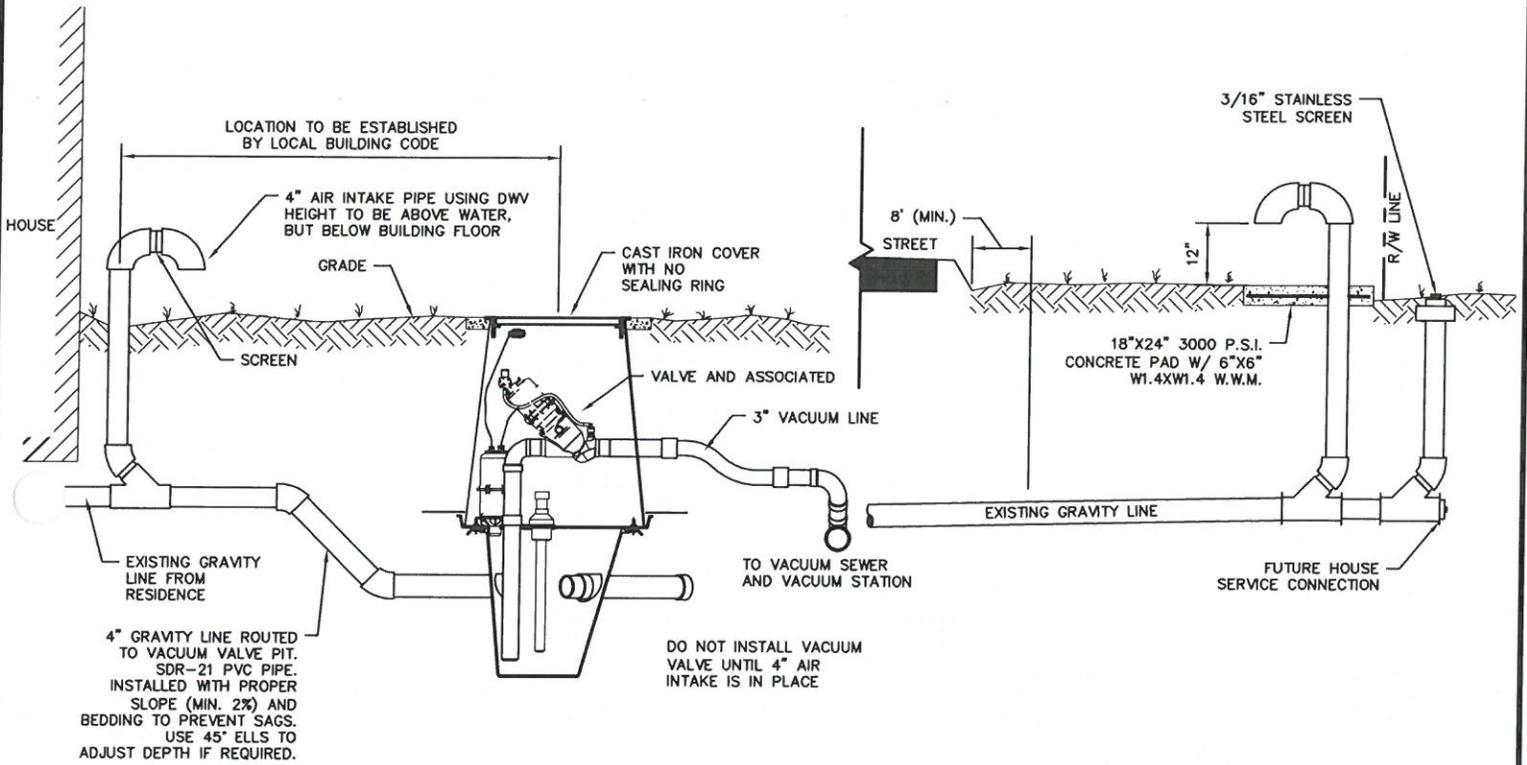


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VACUUM SEWER CONNECTIONS

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-6



DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

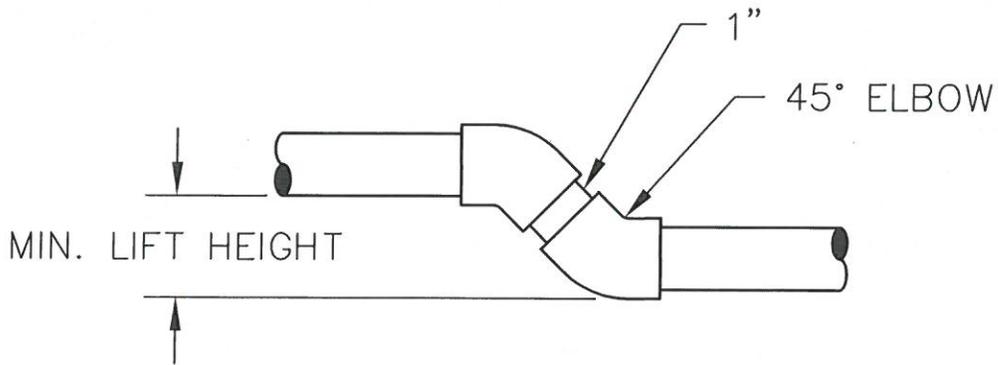


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VALVE PIT AFTER HOME HOOK-UP

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-7



3" PIPE	0.42 FT
4" PIPE	0.43 FT
6" PIPE	0.71 FT
8" PIPE	0.86 FT
10" PIPE	1.07 FT

DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

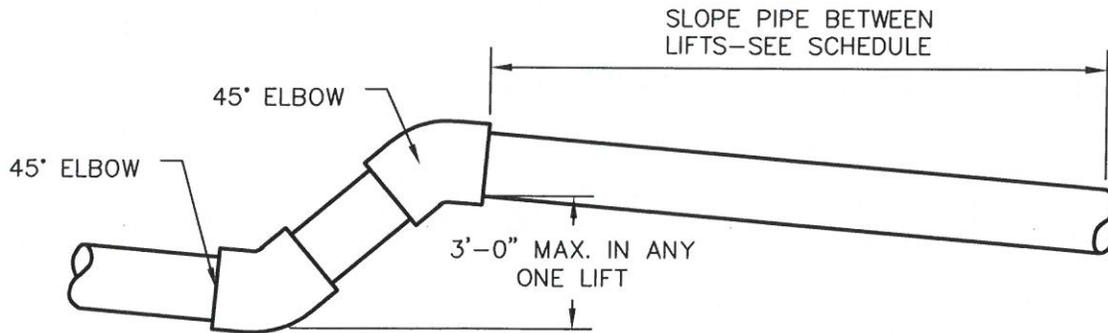


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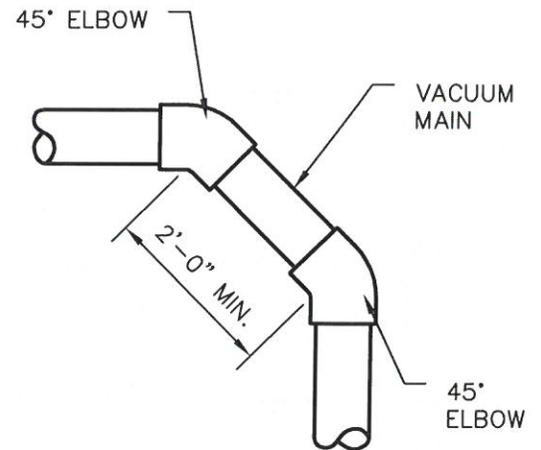
MINIMUM LIFT HEIGHT

DATE: JULY 7, 2008
SCALE: N.T.S.

V-8



SLOPE SCHEDULE				
PIPE DIAMETER	MINIMUM FALL	0.2% OF DISTANCE		
3"	0.20 FT	0.2%	100 FT	▲
4"	0.25 FT	0.2%	125 FT	▲
6"	0.25 FT	0.2%	125 FT	▲
8"	0.25 FT	0.2%	125 FT	▲
10"	0.25 FT	0.2%	125 FT	▲



CHANGE IN DIRECTION

USE WHICHEVER SLOPE IS GREATER BETWEEN LIFTS. ABOVE THIS LENGTH ▲ IN DISTANCE, THE 0.2% SLOPE IS GREATER. ANYTHING SHORTER THAN THIS DISTANCE SHOULD USE MINIMUM FALL INDICATED. WHEN NOT BETWEEN TWO LIFTS, USE 0.2% SLOPE.

DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

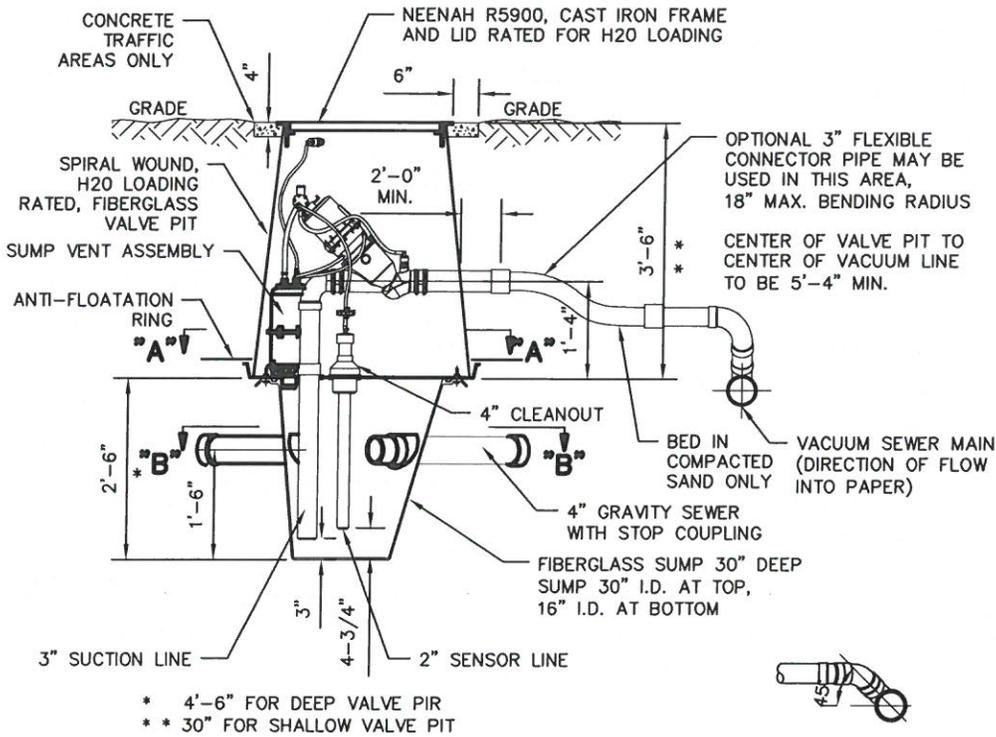


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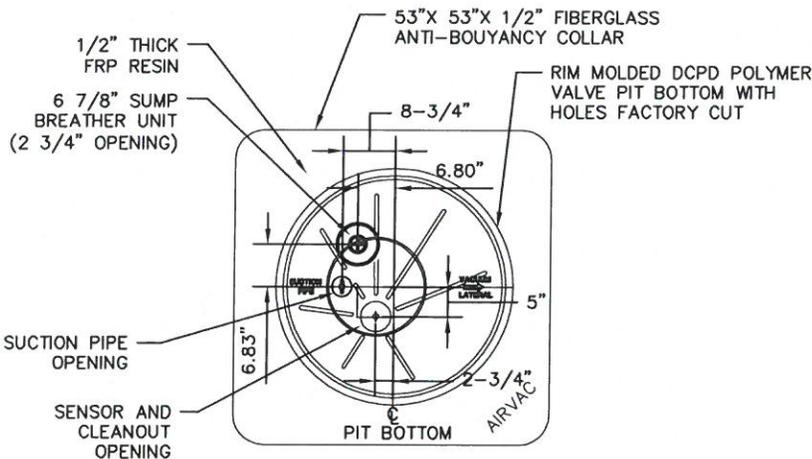
LIFT DETAIL AND SLOPE SCHEDULE

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-9

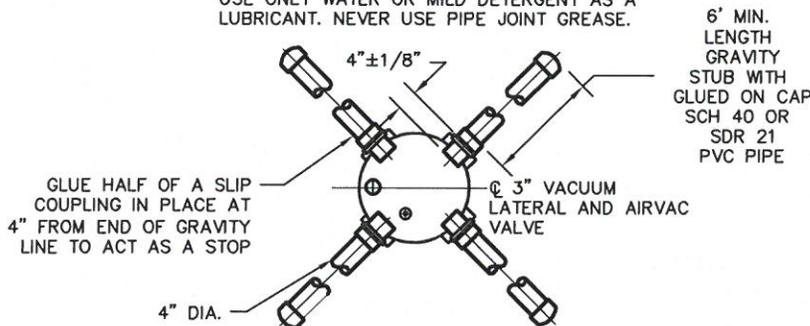


PLAN



NOTE: SECTION 'A'-A'

WHEN INSTALLING ANY PIPE THROUGH A GROMMET USE ONLY WATER OR MILD DETERGENT AS A LUBRICANT. NEVER USE PIPE JOINT GREASE.

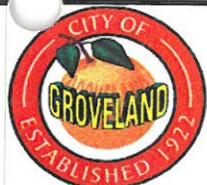


SECTION 'B'-B'

SHOWING UP TO 4 GRAVITY CONNECTIONS TO SUMP

DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

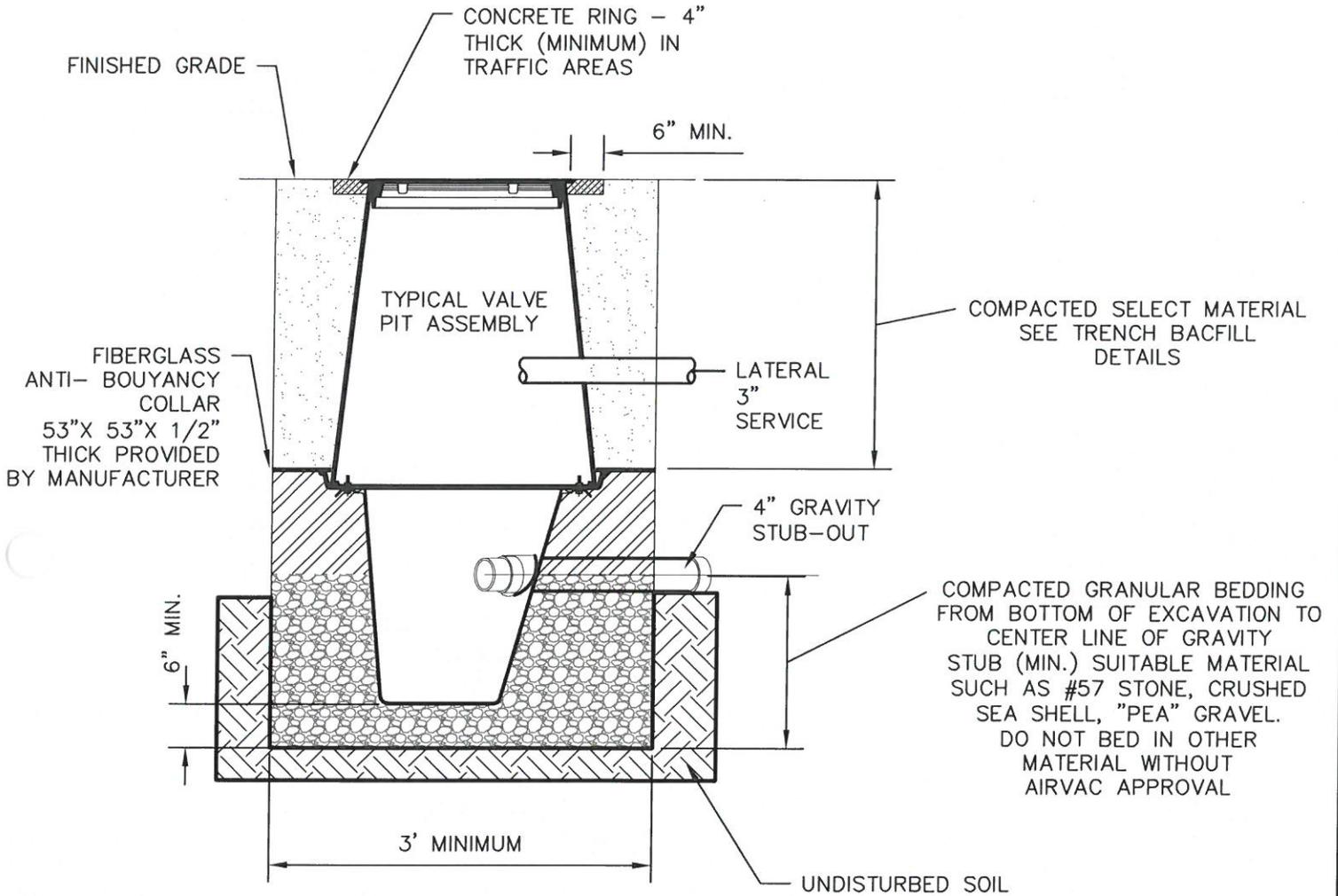


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VALVE PIT DETAILS

DATE: JULY 7, 2008
SCALE: N.T.S.

V-10



DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER



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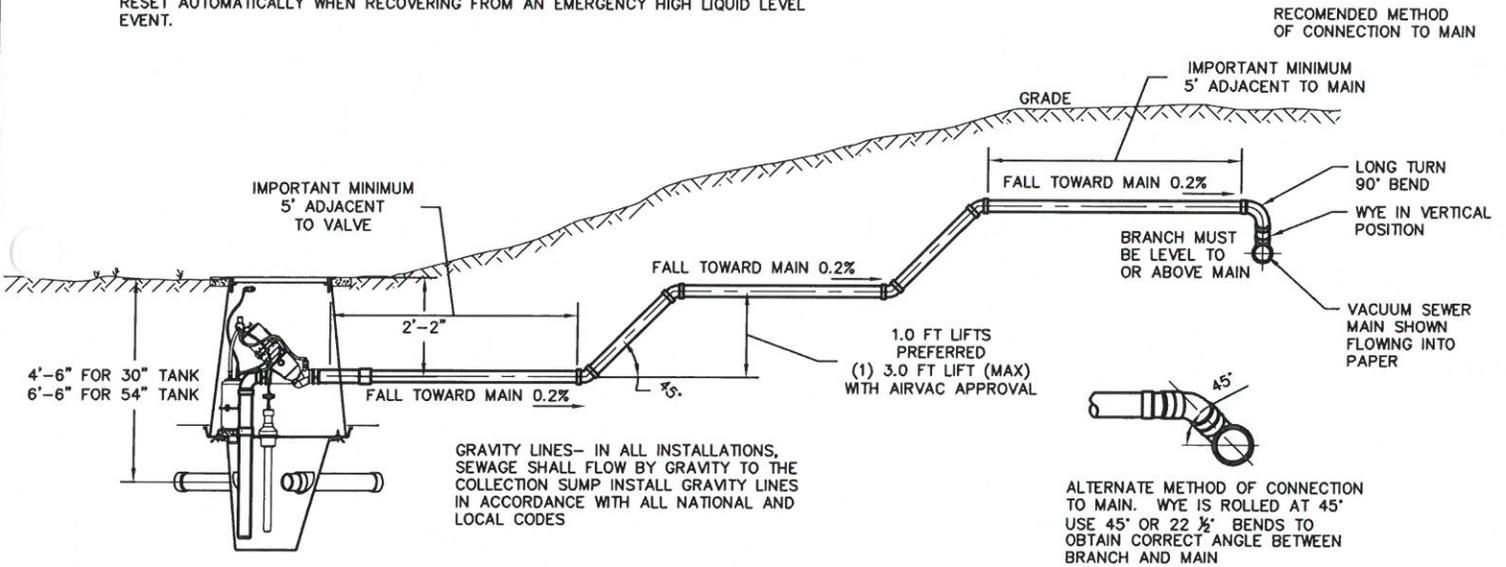
VALVE PIT BEDDING AND BACK FILL

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-11

NOTES:

1. ALL GROMMETS FOR VALVE PIT AND SUMP SUPPLIED BY MANUFACTURER.
2. ALL HOLES IN VALVE PIT AND PIT BOTTOM ARE FACTORY CUT. ALL GRAVITY LINE CONNECTION OPENING IN THE SUMP ARE FIELD CUT.
3. ONLY HOMES OR APARTMENTS WHOSE LOWER FLOOR ELEVATIONS ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. WITH MULTIPLE FLOOR APARTMENTS, EACH FLOOR LEVEL SHOULD BE SERVICED BY ITS OWN VACUUM VALVE PIT PKG.
4. WHEN INSTALLING ANY PIPE THROUGH A GROMMET, USE ONLY WATER OR MILD DETERGENT AS A LUBRICANT, NEVER USE PIPE JOINT GREASE.
5. DO NOT INSTALL VACUUM VALVE UNTIL HOME GRAVITY LINE IS NEARING COMPLETION AND AIR INTAKE PIPING IS IN PLACE.
6. INTERNAL SUMP BREATHER IS TO BE EQUIPPED WITH AUTOMATIC SHUT OFF DEVICES TO PREVENT LIQUID CONTAMINATION OF THE CONTROLLER AND INTERFACE VALVE DURING AN EMERGENCY HIGH LIQUID LEVEL EVENT. THESE DEVICES SHALL BE POSITIVE SEALING, SHALL NOT INHIBIT THE VALVE'S PERFORMANCE UNDER NORMAL CONDITIONS AND SHALL RESET AUTOMATICALLY WHEN RECOVERING FROM AN EMERGENCY HIGH LIQUID LEVEL EVENT.



DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

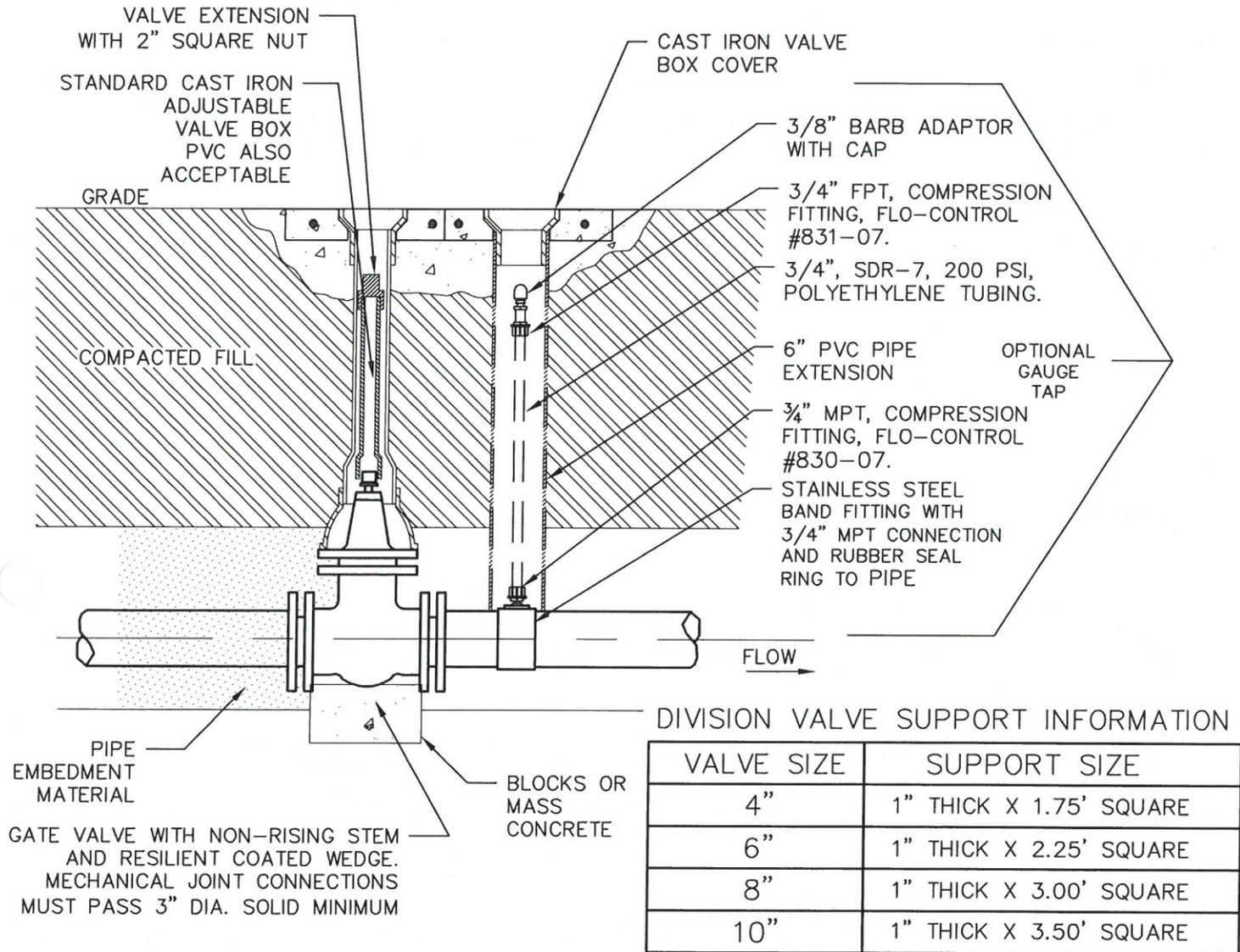


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LIFT DETAILS FOR 3" SERVICE LATERAL

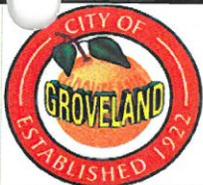
DATE: JULY 7, 2008
SCALE: N.T.S.

V-12



DETAILS BASED ON AIRVAC, INC.

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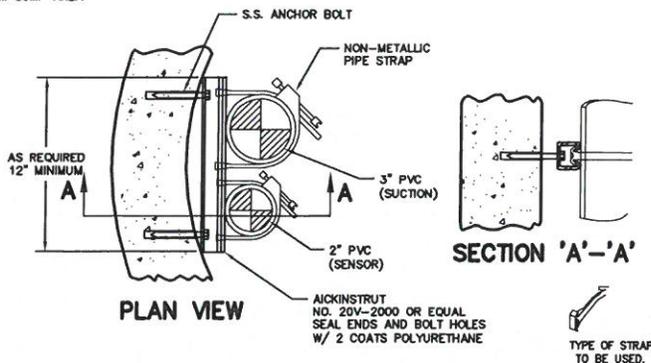
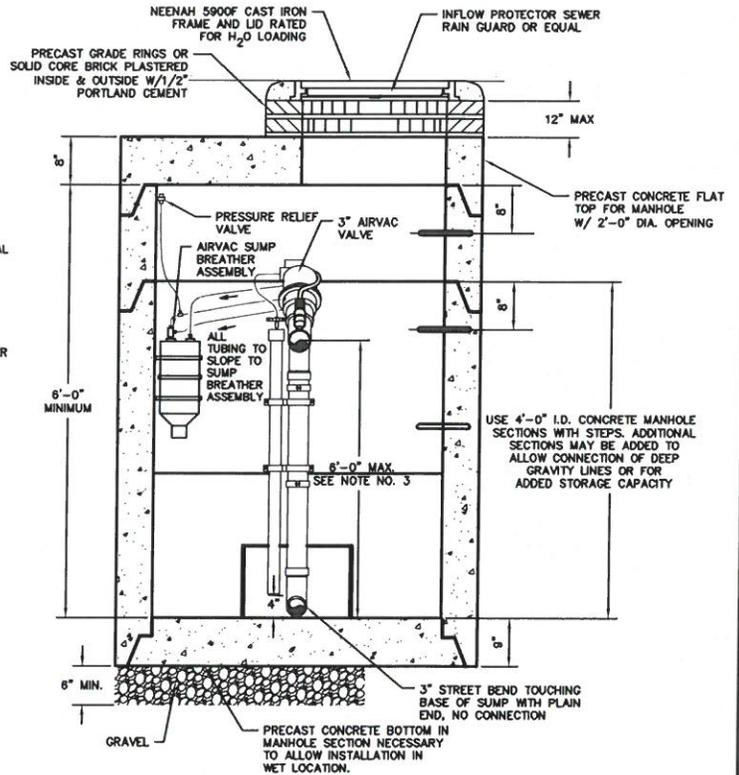
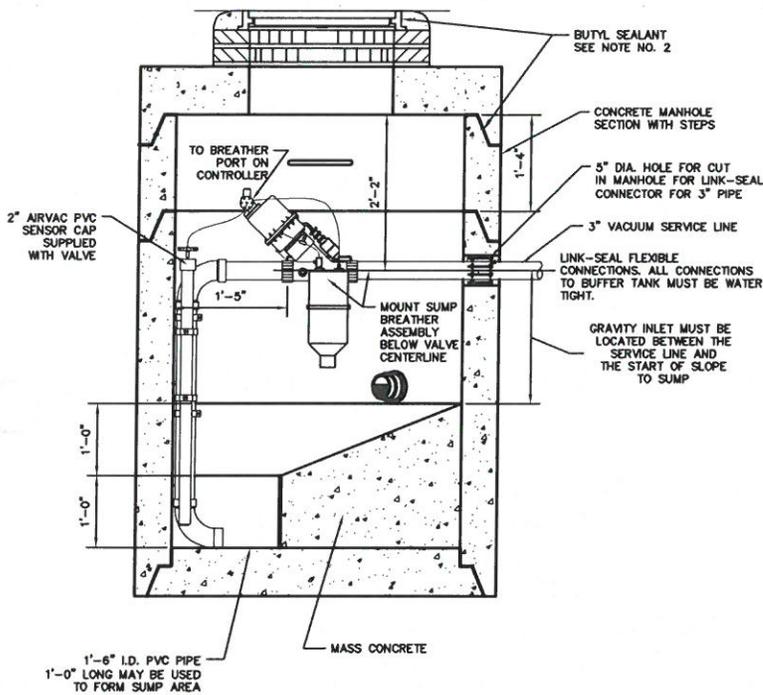
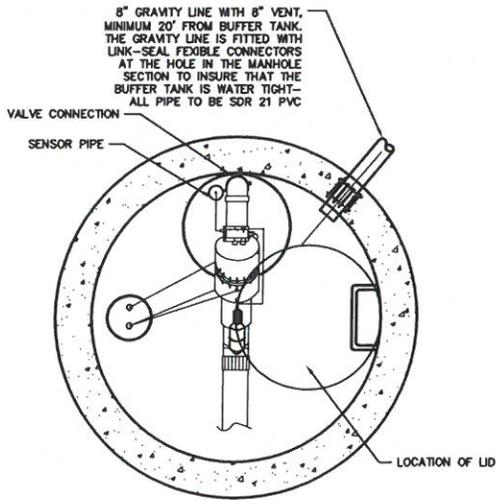


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**DIVISION VALVE AND
 OPTIONAL GAUGE TAP**

DATE: JULY 7, 2008
 SCALE: N.T.S.

V-13



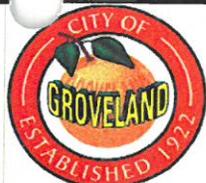
SINGLE BUFFER TANK PIPE ANCHOR

NOTES:

1. NOT USED.
2. BUFFER TANK UNIT MUST BE WATER TIGHT. SEAL ALL JOINTS WITH BUTYL SEALANT. TEST FOR LEAKS PER AIRVAC SPECIFICATIONS IN INSTALLATION MANUAL.
3. ANY LIFT EXCEEDING 6'-0" MUST BE ADDED TO HEAD LOSSES ON VACUUM MAIN AND SERVICE LINE TO DETERMINE IF SUFFICIENT VACUUM HEAD IS AVAILABLE.
4. IF MANHOLE IS MORE THAN 6'-0" DEEP A SERVICE PLATFORM MAY BE REQUIRED FOR VALVE MAINTENANCE.
5. SEWER RAIN GUARDS SHALL BE INSTALLED ON ALL MANHOLES.
6. SEWER RAIN GUARDS SHALL BE AS MANUFACTURED BY FOSROC-PRCO INDUSTRIES, INC., OR SOUTH WEST PACKING AND SEALS, INC., OR APPROVED EQUAL.
7. COAT INTERIOR & EXTERIOR WITH 2 COATS COAL TAR EPOXY, 8 MIL DFT MIN. EACH COAT.

DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

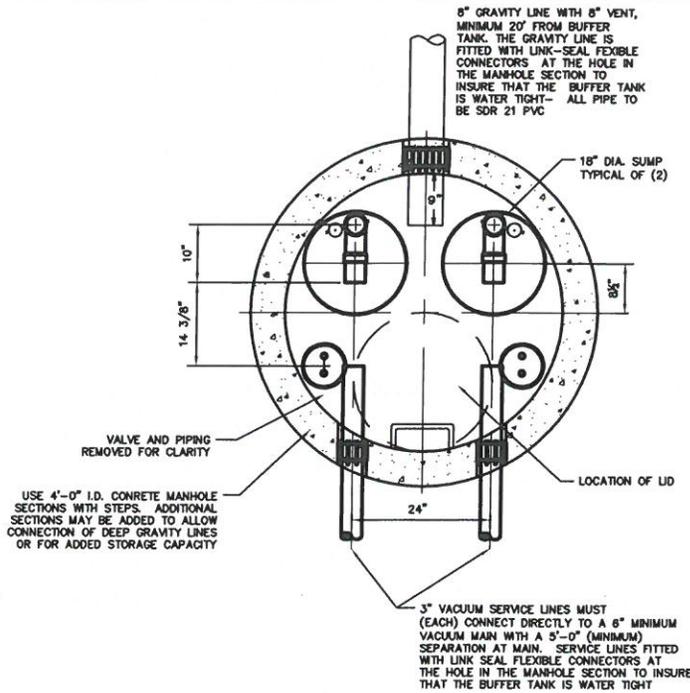


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**SINGLE BUFFER TANK
DETAILS**

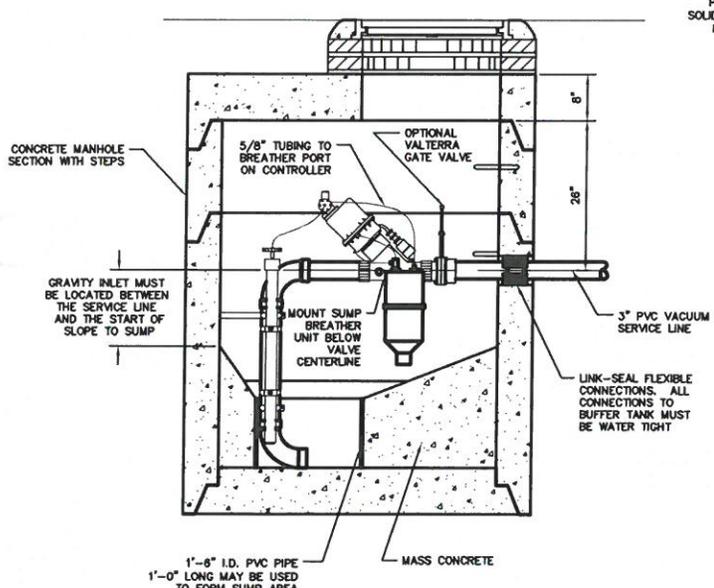
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SCALE: N.T.S.

V-14

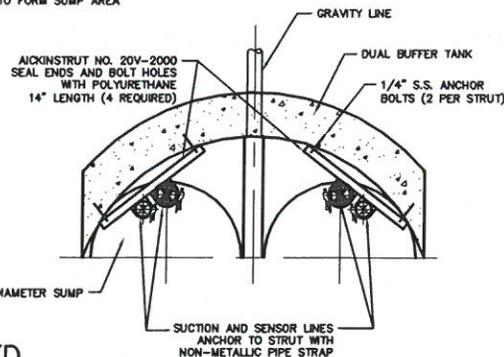
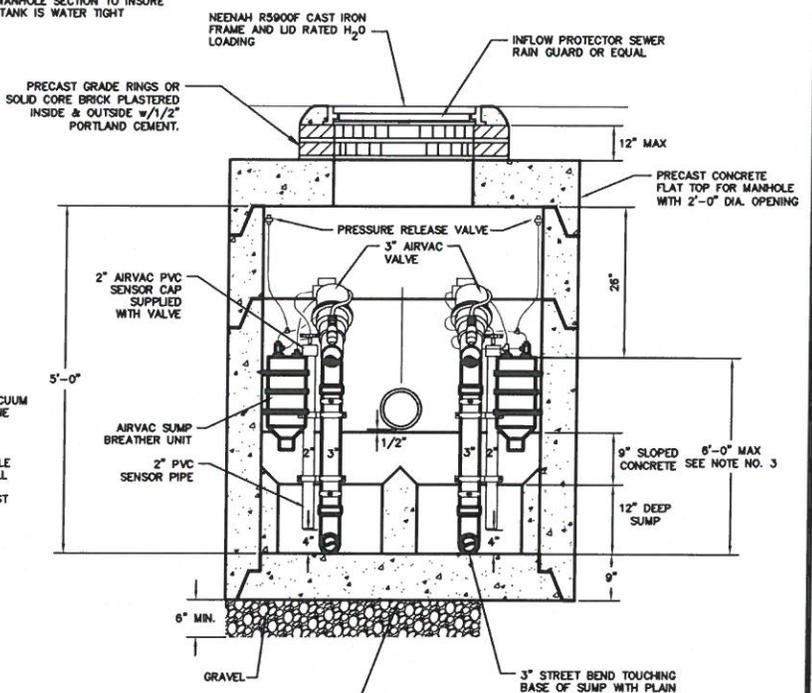


USE 4'-0" I.D. CONCRETE MANHOLE SECTIONS WITH STEPS. ADDITIONAL SECTIONS MAY BE ADDED TO ALLOW CONNECTION OF DEEP GRAVITY LINES OR FOR ADDED STORAGE CAPACITY

3" VACUUM SERVICE LINES MUST (EACH) CONNECT DIRECTLY TO A 6" MINIMUM VACUUM MAIN WITH A 5'-0" (MINIMUM) SEPARATION AT MAIN. SERVICE LINES FITTED WITH LINK SEAL FLEXIBLE CONNECTORS AT THE HOLE IN THE MANHOLE SECTION TO INSURE THAT THE BUFFER TANK IS WATER TIGHT



1'-6" I.D. PVC PIPE 1'-0" LONG MAY BE USED TO FORM SUMP AREA



DUAL BUFFER TANK PIPE ANCHOR

- NOTES:
1. NOT USED.
 2. BUFFER TANK UNIT MUST BE WATER TIGHT. SEAL ALL JOINTS WITH BUTYL SEALANT. TEST FOR LEAKS PER AIRVAC SPECIFICATIONS IN INSTALLATION MANUAL.
 3. ANY LIFT EXCEEDING 6'-0" MUST BE ADDED TO HEAD LOSSES ON VACUUM MAIN AND SERVICE LINE TO DETERMINE IF SUFFICIENT VACUUM HEAD IS AVAILABLE.
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 6. SEWER RAIN GUARDS SHALL BE AS MANUFACTURED BY TOSROC-PRECO INDUSTRIES, INC. OR SOUTH WEST PACKING AND SEALS, INC. OR APPROVED EQUAL.
 7. COAT INTERIOR & EXTERIOR WITH 2 COATS COAL TAR EPOXY, 8 MIL DFT MIN. EACH COAT.

DETAILS BASED ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER

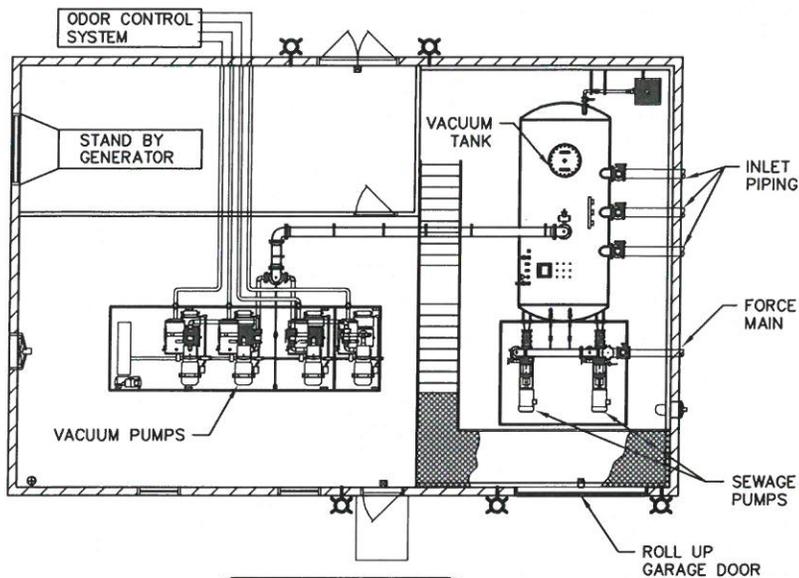


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**DUAL BUFFER TANKS
 DETAILS**

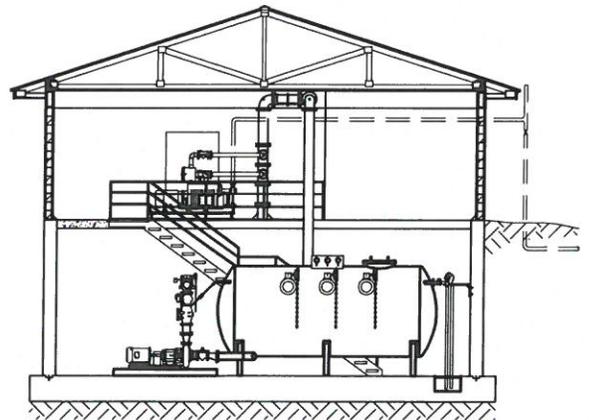
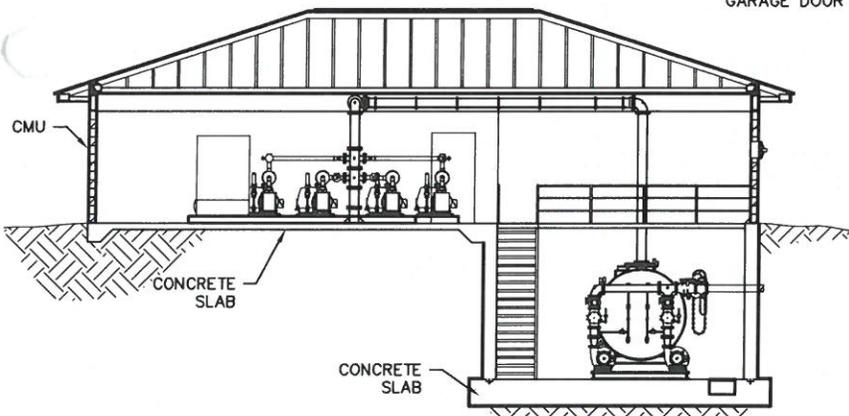
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V-15



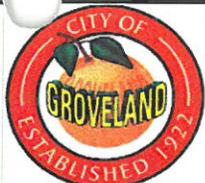
NOTES:

1. SCHEMATIC ONLY. OPTIONAL DESIGNS MAY BE SUBMITTED TO CITY OF GROVELAND FOR APPROVAL.
2. EQUIPMENT SELECTION AND SIZING BY ENGINEER OF RECORD.
3. BUILDING DESIGN BY QUALIFIED PROFESSIONALS.
4. COORDINATE BUILDING FINISHES AND ROOF WITH DEVELOPER. FINAL DESIGN APPROVAL BY CITY OF GROVELAND.
5. PROVIDE CRANE/HOIST FOR REMOVAL OF PUMPS.
6. ODOR CONTROL SYSTEM TO BE APPROVED BY CITY OF GROVELAND.
7. INCORPORATE APPROPRIATE DOORS/WINDOWS, LIGHTING, VENTILATION SYSTEM, SOUNDPROOFING, ETC.
8. MAY USE EXTERIOR GENERATOR WHERE APPROVED BY CITY OF GROVELAND SEE LIFT STATION DETAILS
9. BASED ON AIRVAC, INC.



DETAILS BASED
ON AIRVAC, INC.

CITY OF GROVELAND STANDARD DETAILS: VACUUM SEWER



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VACUUM STATION LAYOUT

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V-16