RIO BUENA VISTA WATER AND SEWER SYSTEM

EVALUATION & RECOMMENDATION OF ACTION

APRIL 16, 2025

BACKGROUND

Rio Buena Vista (RBU) subdivision was designed by Summit Engineering Corporation in 1994 and was constructed around 1995. It was intended that the subdivision would become part of the city with the utilities operated by the City. Through a series of events the subdivision remained a private subdivision thus being operated by a home owners association (Association) and not by the City.

2016 Study: RBU partitioned to have the City take over the subdivision and utilities. They hired Merrell Johnson Engineering to evaluate the condition of the water and sewer to determine improvements needed before the City was willing to consider taking over the subdivision.

2022 Study: An evaluation study was completed in 2022, where EPIC Engineering reviewed the recommendations listed in the 2016 study. This evaluation included a detailed review of the previous study and a site visit to confirm needed improvements. A technical Memorandum was generated listing recommendations and a list of improvements which Epic felt would be needed in order for the City to be willing to take over the subdivision.

2025 Study: The City has requested a more detailed evaluation of the system and an update of any improvements the Home Owners Association has already completed. This document addresses that evaluation and provides a detailed recommendation for each of the listed items in each of the previous studies and to provide more detailed action for the Home Owners Association to take.

CULINARY WATER SYSTEM

1) Valve Operation

   2022 Study: Recommended each system valves be operated from open to close to verify that each valve is operational.

Action: The Association has operated and tested each of the valves verifying they operate open to close. Attached are documents showing when the valves were operated.

2) Isolation Valve Installation
2022 Study: Recommended an additional new isolation valve be installed in Beach Drive near the parking lot in the center of the development.

Action: The Association still need to take this action. Attached is a typical valve installation detail that needs to be used for installation of this valve.

Fire Hydrant Operation

2022 Study: Recommended each of the 9 fire hydrants be operated to ensure that each hydrant opened and closed and reached shutoff.

Action: The Association had each fire hydrant operated to verify operation and proper shut off. Two of the hydrants were found to be defective and were replaced. Attached is a record documenting operation of each of fire hydrants.

3) Fire Hydrant Painting:

2022 Study: Recommended each of the fire hydrants to painted.

Action: All of the fire hydrants have been painted yellow. Attached is a record documenting that each of the 9 fire hydrants have been painted.

4) Leakage test:

2022 Study: Recommend that the distribution system be pressure tested to verify there are no existing leaks in the existing piping.

Action: The Association needs to contract with a knowledgeable contractor to perform a pressure test of each segment/street of the development. This process will require the contractor to provide testing equipment to add water under pressure and to monitor the pressure in accordance with the City's testing procedures. Home owners will need to be notified the water will be shut off for the purpose of pressure testing of the street or segment of pipe.

5) Easements:

2022 Study: The study indicated that that some of the waterlines, and fire hydrants appeared to be cross over private property. It was recommended that easements be generated and obtained to ensure these facilities were on City property or easements dedicated to the City.

Action: The following areas need to be verified that the waterlines have easements. We recommend the Association blue stake the location of the waterlines and then contract with a surveyor to research each of the property deeds to see if easements for the following have been recorded. The surveyor then needs to survey in the field each of the following to see if the pipes and fire hydrants do actually sit on private property. Easements would then need to be generated by the surveyor and signed by the property owners and subsequently recorded.

- Waterline crossing from Beach Drive to Marina Drive on the north side of Lot 80.
- Waterline crossing the northwest corner of Lot 136.
- Fire hydrant in front of Lot 79.
- Fire hydrant in front of Lot 83.
- Fire hydrant in front of Lot 130.
- Fire hydrant in front of Lot 93.
- Fire hydrant in front of Lot 123.
- Fire hydrant in front of Lot 100.
- Fire hydrant in front of Lot 114.
- Fire hydrant in front of Lot 108.
- Fire hydrant in front of Lot 110.
- Waterline crossing the northwest corner of Lot 42.
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SANITARY SEWER SYSTEM

6) Collection System Piping

2022 Study: The study listed several points of flat pipe and defects in the pipe.

Action: Three segments of the sewer system appear to have flat spots that are causing ponding in the pipe. These segments can be repaired by two methods as follows:

- Total Replacement: This would involve the total replacement and installation of a new sewer, either though replacement at the same location or installation of new manholes and piping routing around the defective segments. This replacement is very expensive and disruptive to the operation of the existing system. By-pass pumping may be necessary.
- Raising the sewer: Review of the flowline elevations shows the sewer pipes to be very shallow. The sewer in these short segments could be repaired by excavating the top and sides of the sewer mains from manhole to manhole, exposing the top of pipe and each of the service laterals. Using a laser mounted on the top of pipe, the pipe can be carefully lifted to eliminate the low spots. Sand would then need to be packed into the void under the pipe and possibly water jetted to ensure full compaction. Any sewer laterals in the area being raised may need to be

disconnected prior to lifting and reconnected after lifting to ensure that the process has not caused backing in the sewer lateral. Once lifted water needs to be flowed though the pipe and the segment videoed verifying the low spot has been eliminated. This method will be tedious but will eliminate the need to bypass pump, and the need for expensive new manholes.

- These segments include:
    - Sewer lift station to the manhole in front of Lot 76 in Marina Drive.
    - Manhole in front of Lot 20 to manhole in front of Lot 25 in Beach Drive. While it is exposed repair a slight bend in the pipe south of the manhole at Lot 20 and remove debris in the pipe, if still there.
    - Manhole in front of Lot 25 to manhole in front of Lot 32 in Beach Drive. While it is exposed repair a "dogleg bend' in the main at Lot 32.
- A repair of the sewer main is needed at manhole north of Lots 82 and 136. After the repair, the segment of sewer main from that manhole to the south to the manhole between Lots 87 and 131 needs to be videoed.

7) Repair manhole

2022 Study: The study indicated some significant damage to the concrete inside the manhole at the discharge point of the forced main into the manhole in front of Lot 16 in Beach Drive.

Action: This manhole will need to be inspected to determine if the manhole needs to be replaced or if the manhole can be re-lined with a corrosion resistant lining. If the manhole is relined it needs to performed by qualified service persons trained in that process.

8) Pipe Bollards for Lift Station Protection

2022 Study: Recommend installation of (4) pipe bollards, one on each side of the sewer lift station to provide protection against the accidental damage by a vehicle driving over the pump station.

Action: We support the installation of the protective pipe bollards on each side of the lift station. Attached is a detail showing the installation of a typical bollard.

9) Sewer Lift Station

2022 Study: The study indicated problems with the operation of the pump station including, flooding, pump operation, float settings, and smell.

Action: The Association has completed significant work on the sewer lift station including the following:

- Replacement of pumps
- Replacement of floats and updating controls to operate properly

- Cleaning of vault

It was determined that the floats and pumps were not operating properly. The lift station was being allowed to over fill causing backup in the supply sewer pipes draining into the lift station. Because of the setting of the floats the pump cycling was way too slow thus allowing the sewage to become septic as it waited between pumping cycles.

Since the pumps and floats have been replaced and readjusted the sewage is being pumped at a much faster frequency eliminating the septic condition and associated smell. The flooding or backing of sewage into the sewer mains has been eliminated.

There was a concern that maybe the lift station enclosure may have damage due to the corrosion caused by the sewer gases. Once the pumps were serviced and the pump station cleaned there was no evidence of chemical attack or damage.

It is Epic's believe that the lift station, pumps, and floats can be accepted by the City now the repairs have been made.

10) Sewer Lift Station Back Up Power

2002 Study: The study recommended installation of a manual transfer switch to facilitate connection of a City owed backup generator in the event of a delayed power outage.

Action: The Association still needs to install a manual transfer switch connected to the existing power supply and pump control panel. We would recommend the following:

- Sized for the amp rating of the main disconnect serving the lift station. (Thus, rated to power both pumps).
- Outdoor weather enclosure.
- Work to be performed by a licensed electrical contractor.
- Need to coordinate the connection blocks that match the City's portable stand-by generator

11) Access Easement

2002 Study: Recommended obtaining an easement or access to several manholes so that the City has access the manholes to service the manholes.

Action: Easements, deed restrictions for surface landscaping, and structures to the following locations:

- Manhole at the pool (access through lot 131)
- Force main and sewer main, as it crosses the southwest corner of Lot 81.

The same direction as listed above for the easements for the water would apply for the generation of the easements for the sewer listed here.

Study by Epic Engineering
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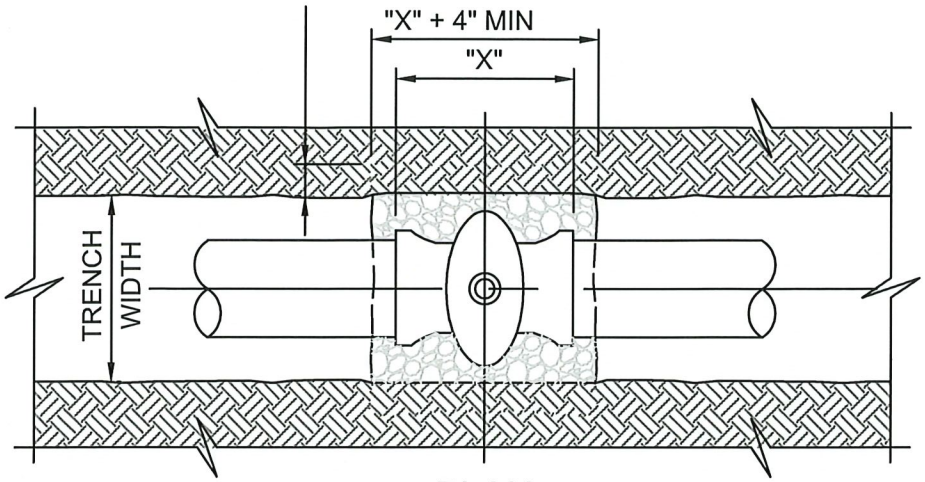
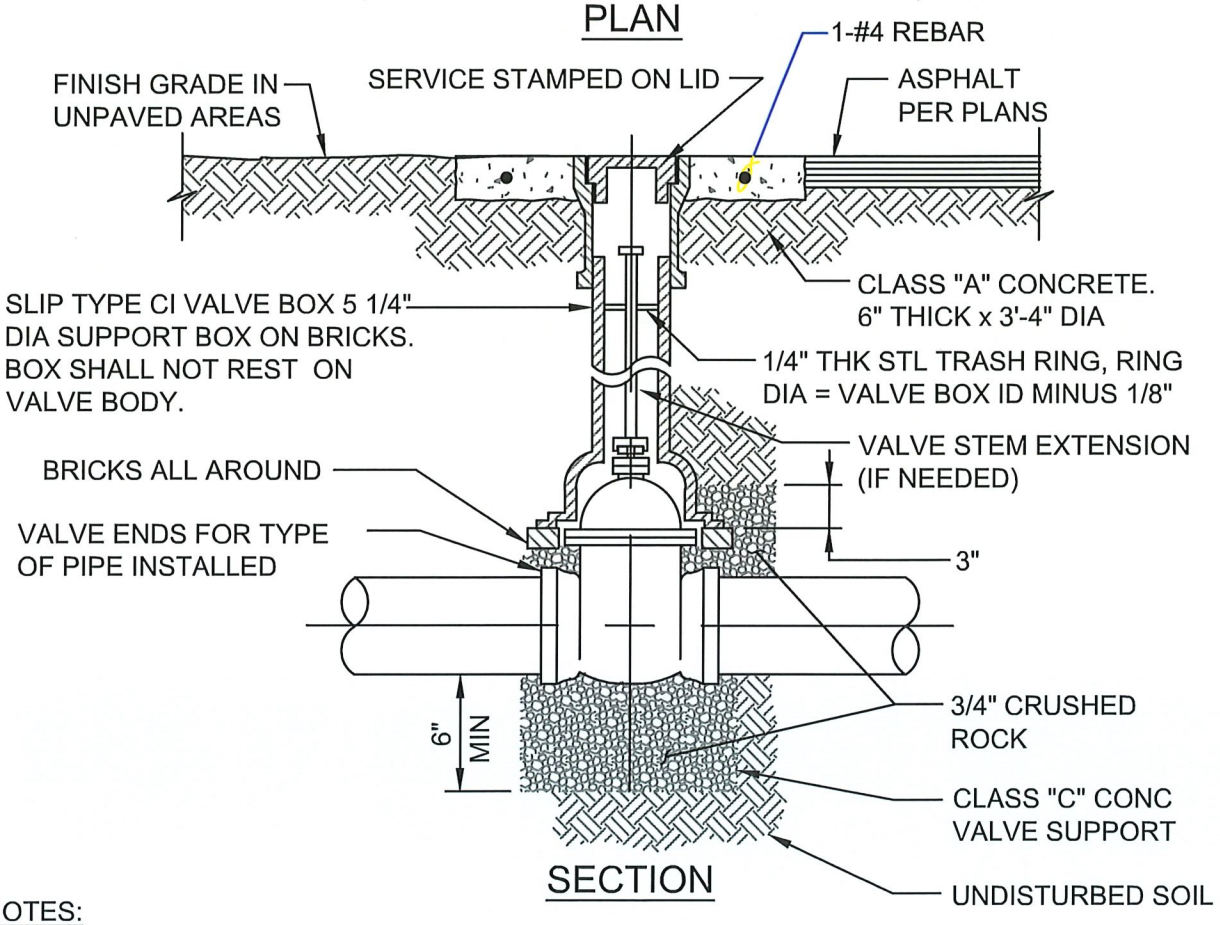
West Valley, Ut 84120

Don Olsen, PE



PLAN



SECTION

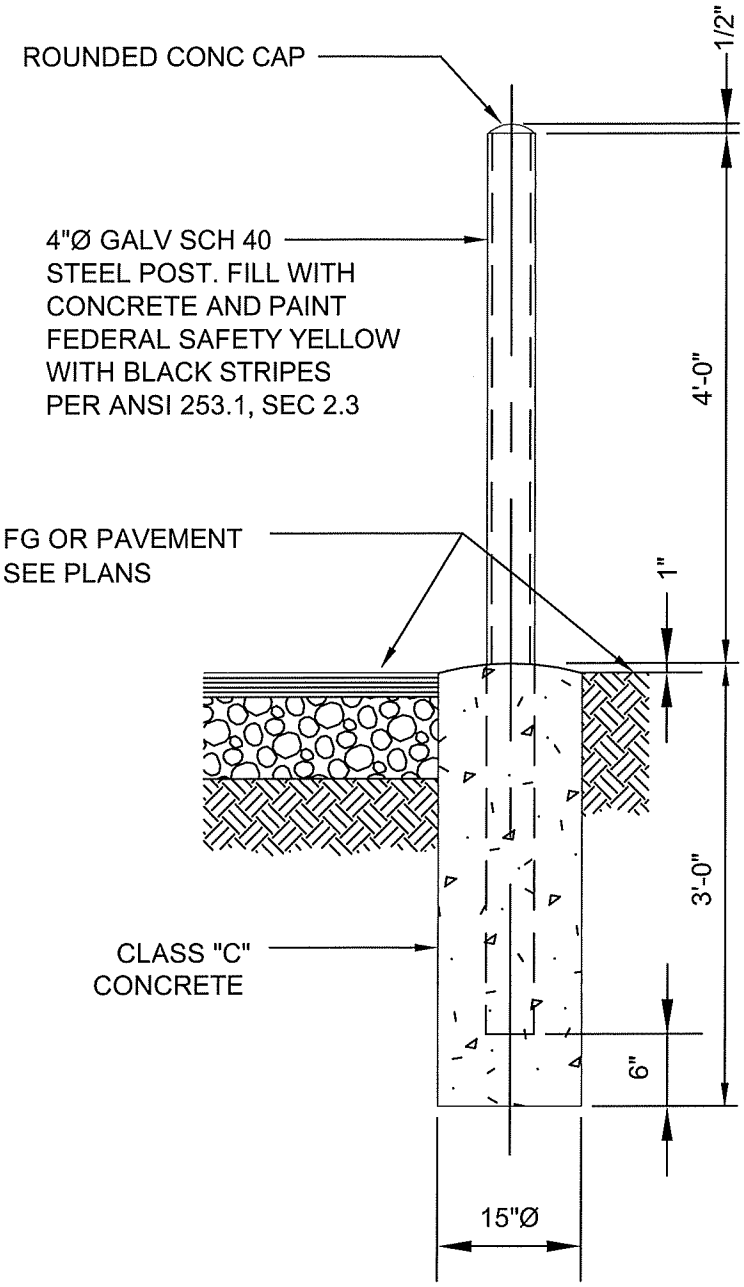
NOTES:

1. ALL BURIED VALVES SHALL BE PROVIDED W/EXTENSION STEM OPERATOR W/2" SQ AWWA NUT WITHIN 36" OF VALVE BOX COVER. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
2. DOWE COAT BURIED PIPE & VALVE BOX PER SPECIFICATIONS.
3. CLEAN VALVE BOX OF ALL DEBRIS & SOIL.
4. VALVE TYPE AS INDICATED ON THE PLANS.

266 TYP

VALVE BOX INSTALLATION

SCALE: N.T.S.



NOTE:

1. PROVIDE 3/8" EJ MATERIAL WHERE INSTALLED IN CONC PAVING

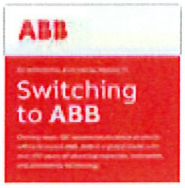
345 TYP GUARD POST

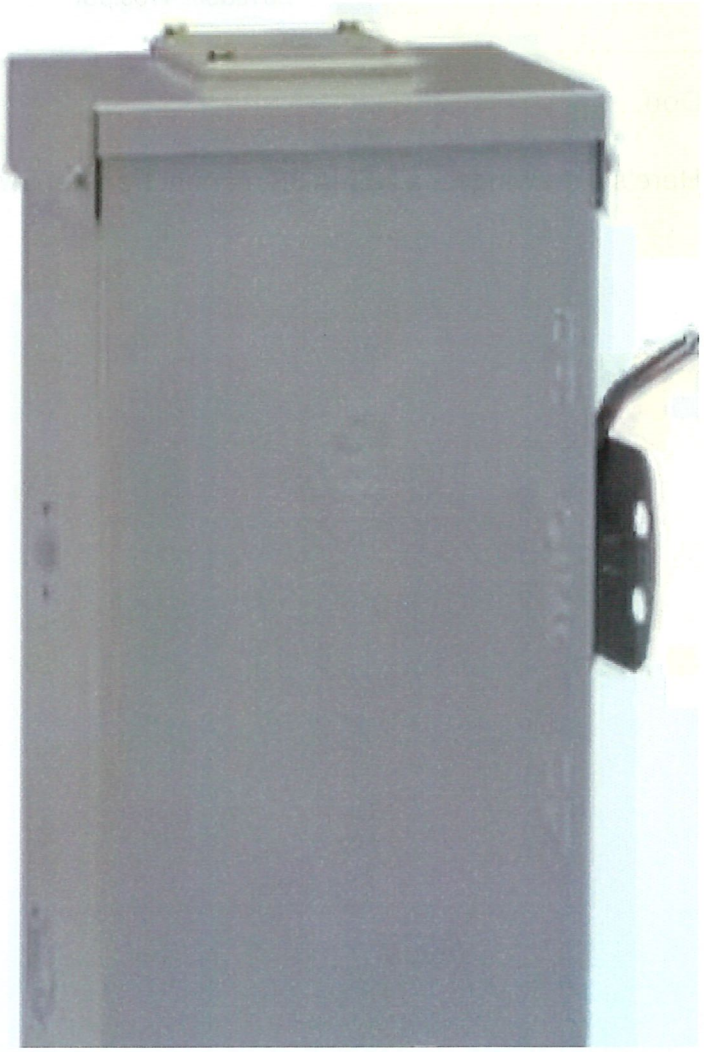
SCALE: N.T.S.

ABB

100 Amp 240-Volt Non-Fused Emergency Power Transfer Sw

★★★★★ (517) Questions & Answers (104)





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epic EST. 1997
Celebrating 25 years!

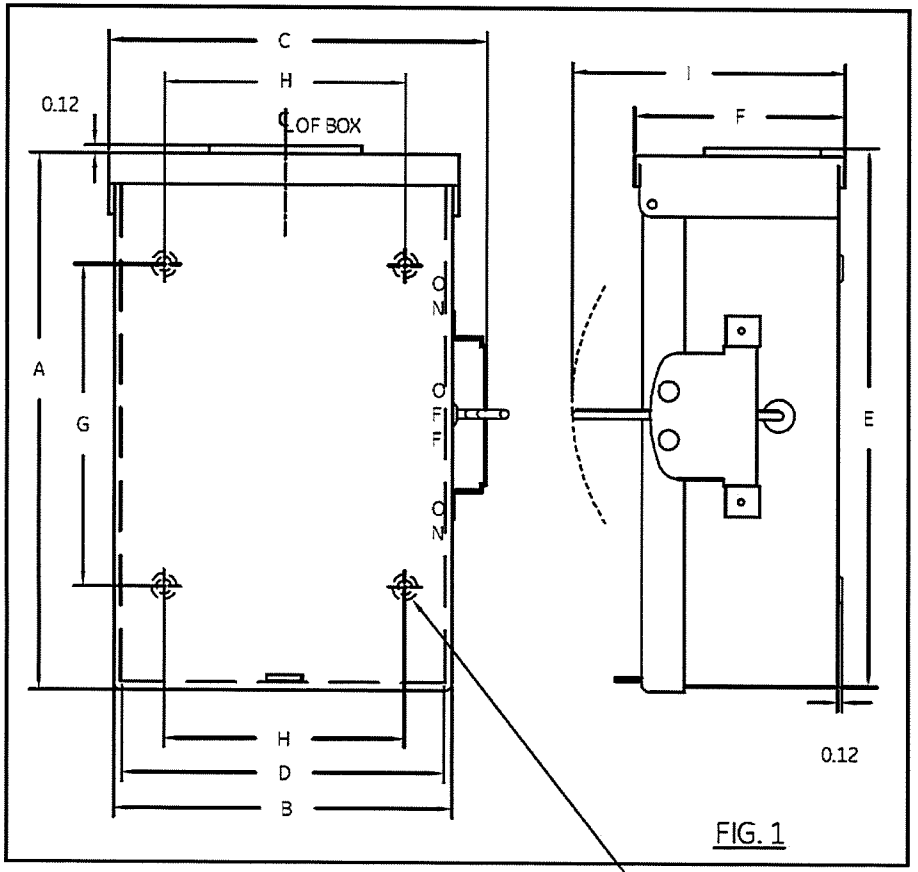
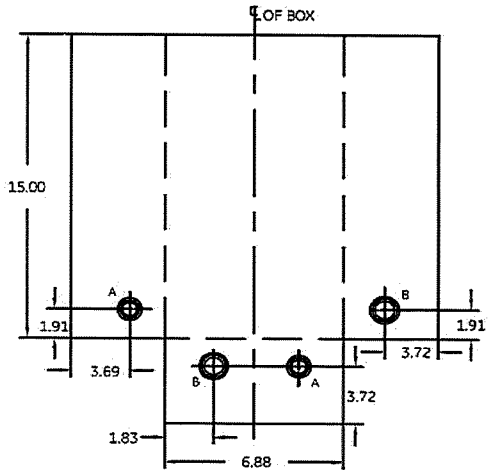
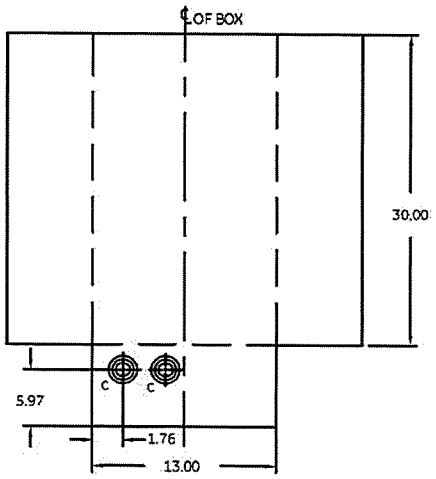


FIG. 1



KO VIEW 1



KO VIEW 2

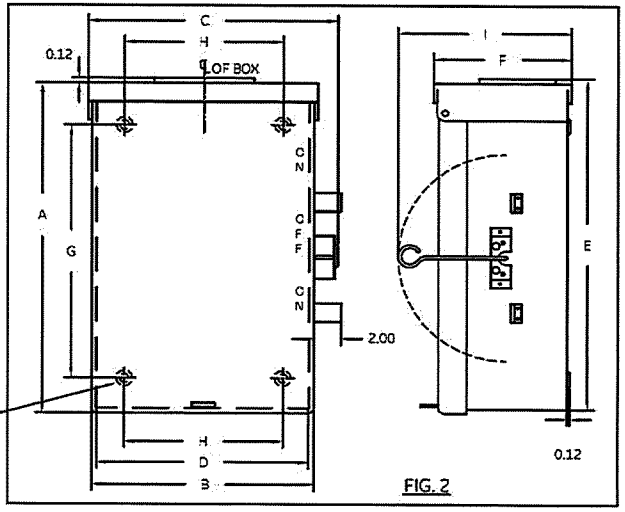


FIG. 2

NOTE:
1. ALL DIMENSIONS ARE IN INCHES.
2. ALL DIMENSIONS HAVE ±0.125 TOLERANCE.

DIMENSION TABLE											
GCAT NO.	FIG	KO VIEW	A	B	C	D	E	F	G	H	I
TC10323R	1	1	15.13	7.20	8.18	6.99	15.35	5.22	9.00	5.50	8.54
TC10324R/ TC10424R	2	2	30.16	13.27	16.75	13.11	30.35	8.47	26.94	9.75	12.07

KNOCKOUT TABLE			
SYM	SIZE	QTY VIEW 1	QTY VIEW 2
A	3/4 X 1 X 1-1/4 X 1-1/2 KO	2	-
B	1 X 1-1/4 X 1-1/2 X 2 KO	2	-
C	1 X 1-1/2 X 2 X 2-1/2 KO	-	2

Industrial Solutions — by ABB

OUTLINE DRAWING-OUTDOOR POWER TRANS SWITCH
100 & 200A, NEMA - TYPE 3R ENCLOSURE

THIRD ANGLE	SHEET#	DWG NO.	DATE	REV
	1 of 1	10103091SH131	08/19	04