GIS INTEGRATION OF SEWER PIPELINE INSPECTION DATA

1.0 GENERAL GIS INTEGRATION OF SEWER PIPELINE INSPECTION DATA

1.1 This specification is for the integration of data collected during a sewer pipeline inspection into a geographic information system (GIS) program. Work shall be performed in conjunction with and in addition to other video inspection of the sewer pipelines, as required by the plans. The purpose of which is to enable Marana Water to import the inspection data, specified herein, into an interactive, graphical map sorting each level of coded information into separate layers, viewable in part or in all within the GIS program, and overlay such data seamlessly along the Marana Water's other GIS mapped data (such as aerial photographs, streets, asset ID's, etc.). All work shall be completed and submitted prior to final acceptance by Marana Water.

1.2 The inspection deliverable, as specified herein, shall be delivered complete will all specified pipeline codes (and ratings if specified) for importation by Marana Water.

1.3 Differentiating symbols shall be used to distinguish the various features in the event that Marana Water needs to view all inspection feature layers for a comprehensive overview in GIS.

1.4 All deliverable inspection data and GIS related information provided to launch the inspection or received as a result of inspection shall be the property of Marana Water and such information shall not be subject to any subscriptions or rights outside of Marana Water's control.

2.0 PREPARATION

2.1 Inspection data shall be launched utilizing asset ID's provided by Marana Water. Actual ID's shall be quality control managed to enable a seamless import into the Marana Water's GIS program. Assets to be identified include manholes and pipelines. Manhole asset ID's shall be the manhole number identified on the project plans (i.e. MW-XXXX-XX). The asset ID of each pipe shall match that the numeric portion of the nearest upstream manhole ID number. For example: If the upstream manhole ID number is MW-1234-56, the pipeline asset ID shall be labeled "1234-56".

2.2 Specific attributes to be included for manholes and pipelines are shown in **Table 1 – Manhole Data** and **Table 2 – Pipeline Data**. Contractor shall populate all items identified in the attribute tables where "Per Plan" is shown, or as otherwise stated in the table. The contractor is not required to complete blank values in the "Value" column. The project will not be accepted until all data complies with the requirements stated herein.

2.3 Databases created during the actual pipeline inspection shall be in a compatible format with the Marana Water's GIS program and as further specified by the Marana Water for integration with other programs. Marana Water will provide contractor a sample shapefile of existing GIS data for Manholes and Pipelines for reference.

2.4 The coordinate system used shall be "NAD 1983 State Plane Arizona Central FIPS 0202 Feet Intl".

Table 1 - Manhole Data

Field	Value	Format
STATUS		
SYMBOLNAME		
ADDRKEY		
ADDRQUAL		
ASBLT	*Per Plan*	S-XXXX-XX
CVRDIAM		
CVRTYPE		
DROPMH	*Per Plan*	"Y" or "N"
INSTDATE	*Per Plan*	YYYY-MM-DD (Install Date)
INSPDATE	*Per Plan*	YYYY-MM-DD (Inspection Date)
LOC		
MAPNO		
METERED		
MHDPTH	*Per Plan*	Depth of Manhole
SUBAREA		
SURF		
UNITID		
MWUNITID	*Per Plan*	MW-XXXX-XX
UNITTYPE		
STNO		
PREDIR		
STNAME	*Per Plan*	Street Name
SUFFIX	*Per Plan*	"ST", "RD", "AVE", ETC.
POSTDIR		
STSUB		
CITY	MARANA	Unless outside Town Limits
STATE	AZ	
ZIP	*Per Plan*	
COMPTYPE		
TRS	*Per Plan*	TTRRSS
POLYGONID		
SCALE	1	
ANGLE		

Table 2 - Pipeline Data

Field	Value	Format
Zero_val_1		
zero_val		
UNITTYPE		
UNITID2	*Per Plan*	XXXX-XX (Numeric Portion of Downstream Manhole ID)
UNITID	*Per Plan*	XXXX-XX (Numeric Portion of Upstream Manhole ID)
SURF		
SUBAREA		
STATUS		
SLP	*Per Plan*	X.XXXXXX (in units of ft/ft)
SHAPE.len	*Per Plan*	XXX.XX (Length between manholes measured in feet)
SHAPE		
RPOLY_		
PIPETYPE	*Per Plan*	PVC, DIP, STL, HDPE, ETC. (Pipe material)
PIPELEN	*Per Plan*	XXX.XX (Length of pipe between manholes measured in feet)
PIPEHT		
PIPEDIAM	*Per Plan*	XX (Nominal pipe diameter in inches)
MAPNO		
LPOLY_		
LOC		
length_1	*Per Plan*	XXX.XX (Length of pipe between manholes measured in feet)
LENGTH	*Per Plan*	XXX.XX (Length of pipe between manholes measured in feet)
INSTDATE	*Per Plan*	YYYY-MM-DD (Install/Inspection date)
GXP_ID		
DWNDPTH	*Per Plan*	XX.XX (Depth of downstream manhole)
ASBLT	*Per Plan*	S-XXXX-XX
ADDRQUAL		
ADDRKEY		

3.0 DELIVERABLE

3.1 The inspection data shall be delivered to Marana Water and shall include the following:

A) Compatible GIS/ESRI Shape Files and/or Geo-Databases.

B) Complete, raw databases utilized to populate the GIS deliverable.

C) All other video inspection reports as required by the plans.

3.2 The Inspection Data shall be delivered complete including all feature codes either per NASSCO or the Marana Water's designated code system.

3.3 All data shall be delivered in a flash-drive, hard-drive, or equal digital media delivery system, subject to the Marana Water's designation and specifications, with enough data storage room to facilitate the entire project or applicable phase of the project.

3.4 The deliverable will be considered delivered upon transmittal of the data on the specified media and capable of being seamlessly imported into Marana Water's GIS program.

4.0 PAYMENT

4.1 All costs associated with pipeline inspection and GIS integration data shall be borne by the Contractor.

5.0 QUALIFICATIONS

5.1 Pipeline inspection company shall have a minimum of one (1) year's experience in delivering inspection data in accordance with the specifications herein.

5.2 Pipeline inspection company shall perform all GIS integration services "In-House" and possess all necessary software licenses to perform such.

5.3 Pipeline inspection company shall have performed a minimum of fifty (50) miles of GIS integrated pipeline inspection services within the past one (1) year.

6.0 SUBMITTALS

6.1 Written documentation supporting the minimum footage of GIS integrated pipeline inspection within the last one (1) year.

6.2 References, complete with names, addresses and contact numbers for the minimum experience required herein.

6.3 Example deliverable in the form of shape files and or geo-databases in accordance with the specifications herein.