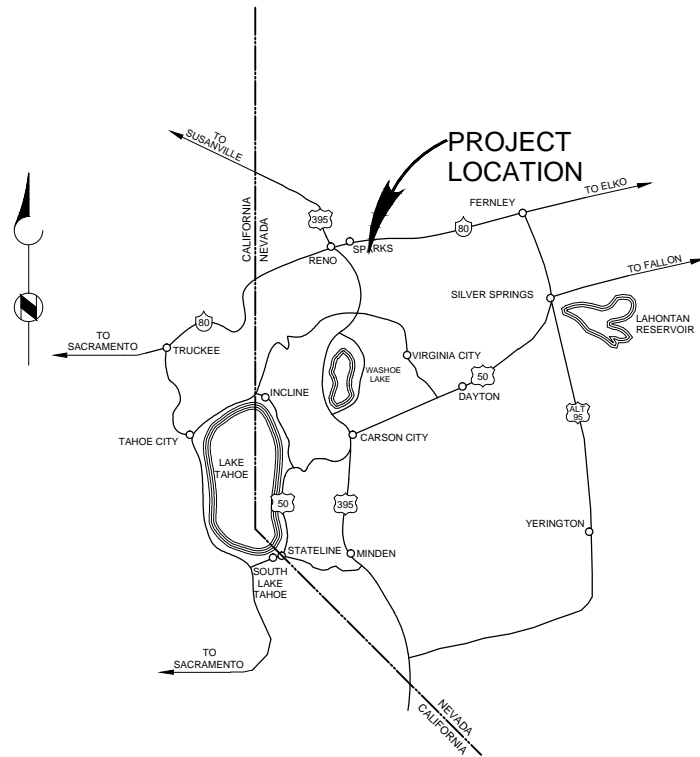


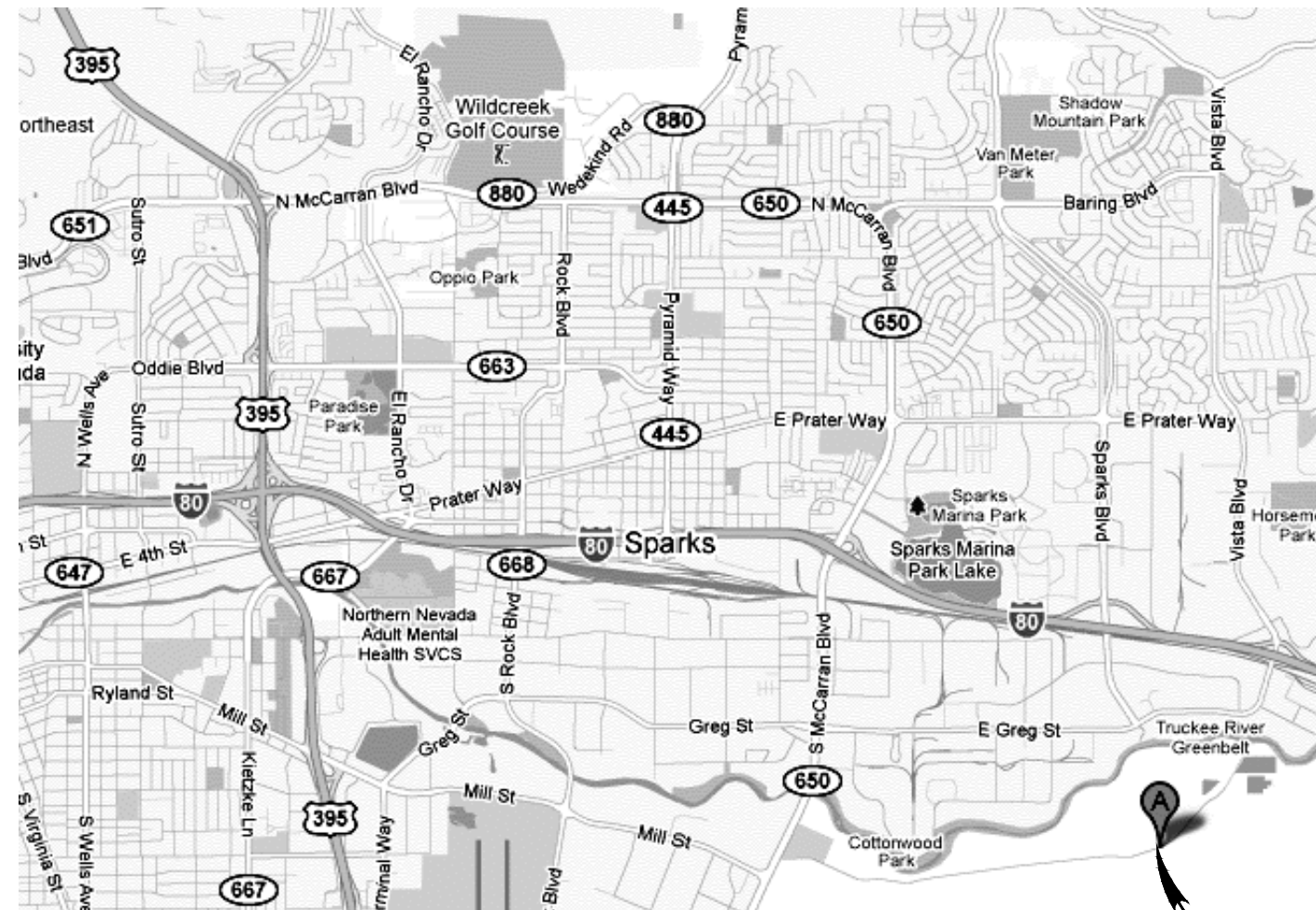
# CITY OF SPARKS/ TRUCKEE MEADOWS WATER RECLAMATION FACILITY

## IMPROVEMENT PLANS FOR DIGESTER 5 INTERIOR COATING PROJECT

BID No. 13/14 - 018  
PWP-WA-2014-112



VICINITY MAP  
NO SCALE



LOCATION MAP  
NO SCALE

PROJECT LOCATION  
8500 CLEANWATER WAY  
RENO, NEVADA

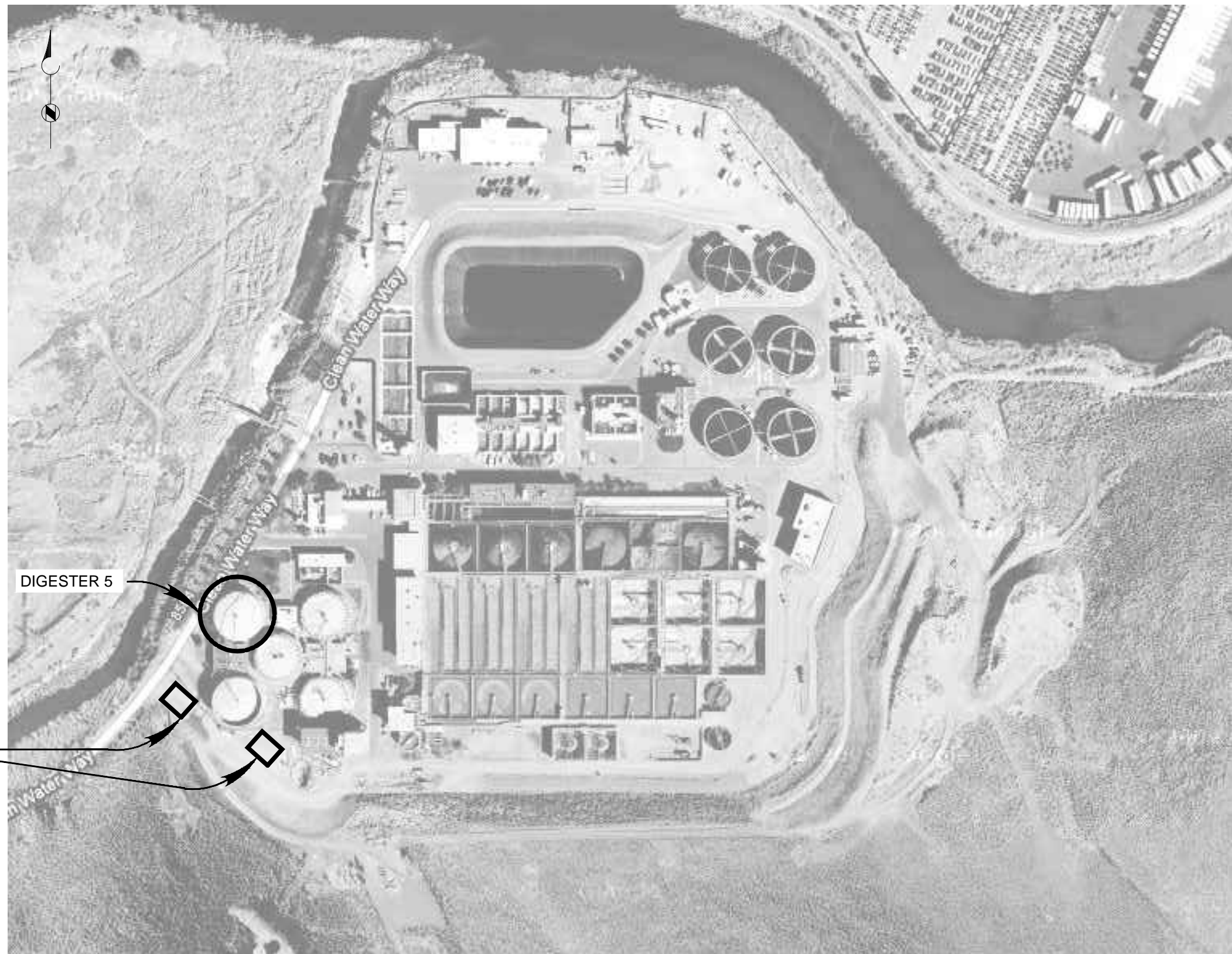
*Tracy Stigers*  
TRACY STIGERS, P.E., No. 20234  
BROWN AND CALDWELL

KIM LABER  
TMWRF MAINTENANCE MANAGER



**INDEX OF DRAWINGS:**

SHT NO.	DWG NO.	DRAWING TITLE
<b>GENERAL</b>		
1	G-001	COVER SHEET, LOCATION AND VICINITY MAPS
2	G-002	INDEX OF DRAWINGS AND SITE PLAN
<b>MECHANICAL</b>		
3	M-101	DIGESTER AREA SITE PLAN
4	M-102	DIGESTER 5 COVER PLAN AND SECTION
5	M-103	TYPICAL DIGESTER MIXING PIPING
6	M-104	TOP PLAN AND ELEVATION
7	M-105	DETAILS
8	M-106	GAS DOME PRESSURE RELIEF/VACUUM BREAKER VALVE/FLAME ARRESTOR ASSEMBLY
9	M-107	DIGESTER COVER HISTORICAL CONDITIONS PHOTOGRAPHS



CONTRACTOR STAGING AREAS

DIGESTER 5

**Brown and Caldwell**

WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
PROJECT MANAGER  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
BROWN AND CALDWELL

LINE IS 2 INCHES  
AT FULL SIZE  
(IF NOT 2" - SCALE ACCORDINGLY)  
SCALE: NO SCALE  
DESIGNED: L. JONES  
DRAWN: F. BURKE  
CHECKED: L. SLEZAK  
APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



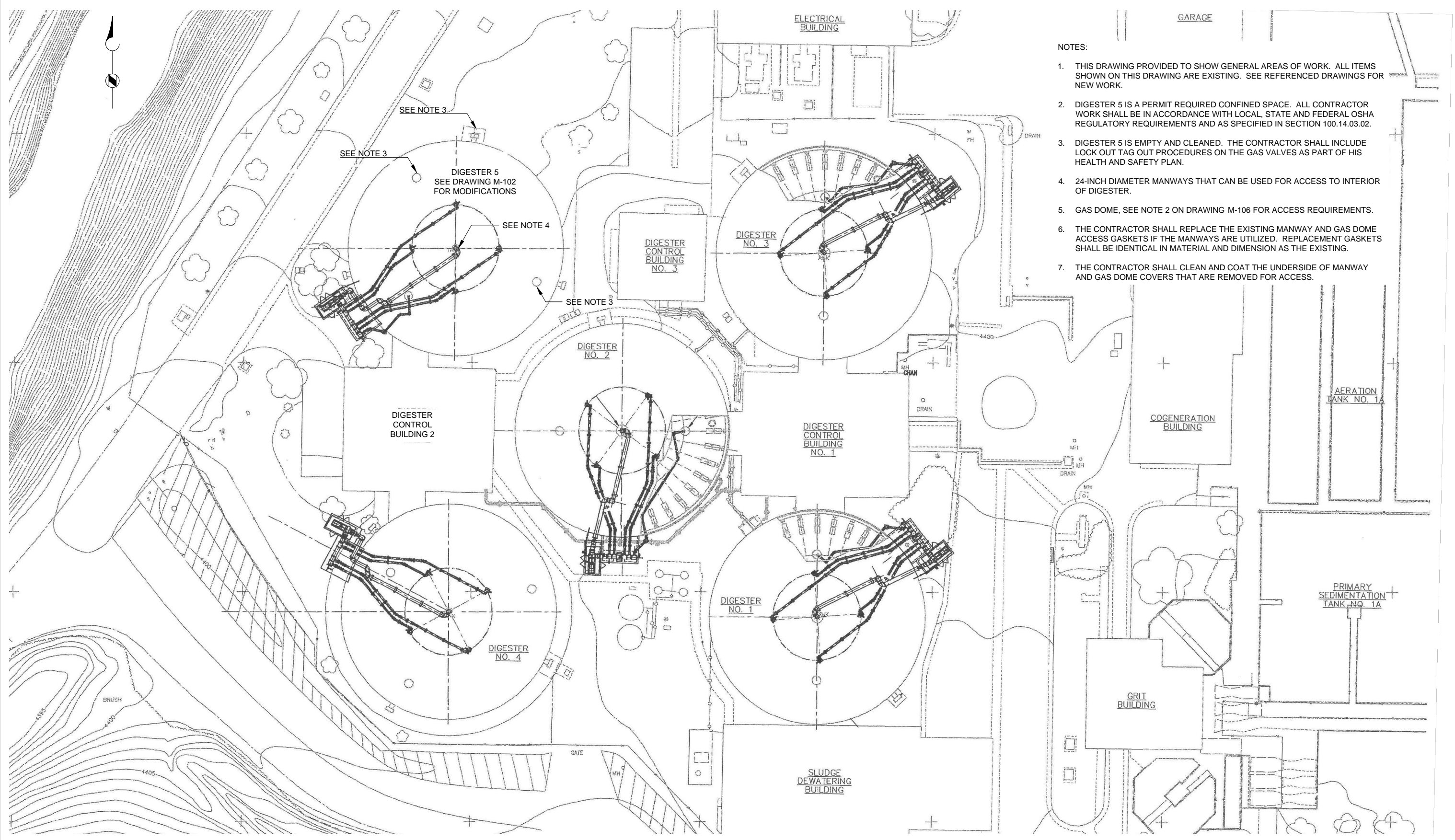
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



DIGESTER 5 INTERIOR COATING PROJECT

INDEX OF DRAWINGS AND SITE PLAN

FILENAME  
138059-G-SF-G-002.DWG  
BC PROJECT NUMBER  
138059  
February 5, 2014  
DRAWING NUMBER  
**G-002**  
SHEET NUMBER  
2 OF 9



- NOTES:
1. THIS DRAWING PROVIDED TO SHOW GENERAL AREAS OF WORK. ALL ITEMS SHOWN ON THIS DRAWING ARE EXISTING. SEE REFERENCED DRAWINGS FOR NEW WORK.
  2. DIGESTER 5 IS A PERMIT REQUIRED CONFINED SPACE. ALL CONTRACTOR WORK SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL OSHA REGULATORY REQUIREMENTS AND AS SPECIFIED IN SECTION 100.14.03.02.
  3. DIGESTER 5 IS EMPTY AND CLEANED. THE CONTRACTOR SHALL INCLUDE LOCK OUT TAG OUT PROCEDURES ON THE GAS VALVES AS PART OF HIS HEALTH AND SAFETY PLAN.
  4. 24-INCH DIAMETER MANWAYS THAT CAN BE USED FOR ACCESS TO INTERIOR OF DIGESTER.
  5. GAS DOME, SEE NOTE 2 ON DRAWING M-106 FOR ACCESS REQUIREMENTS.
  6. THE CONTRACTOR SHALL REPLACE THE EXISTING MANWAY AND GAS DOME ACCESS GASKETS IF THE MANWAYS ARE UTILIZED. REPLACEMENT GASKETS SHALL BE IDENTICAL IN MATERIAL AND DIMENSION AS THE EXISTING.
  7. THE CONTRACTOR SHALL CLEAN AND COAT THE UNDERSIDE OF MANWAY AND GAS DOME COVERS THAT ARE REMOVED FOR ACCESS.

Path: P:\138000\138059 - TWWRF Digester Upgrade\03-Detailed Design\CAD\02-Sheets\Mechanical File: 138059-M-SFHP-006.dwg Plot Date: February 10, 2014 8:46 AM CADD User: Burke, Fred

**Brown and Caldwell**  
 WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PROJECT MANAGER

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)  
 SCALE: 1" = 20'  
 DESIGNED: L. JONES  
 DRAWN: F. BURKE  
 CHECKED: L. SLEZAK  
 APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES	



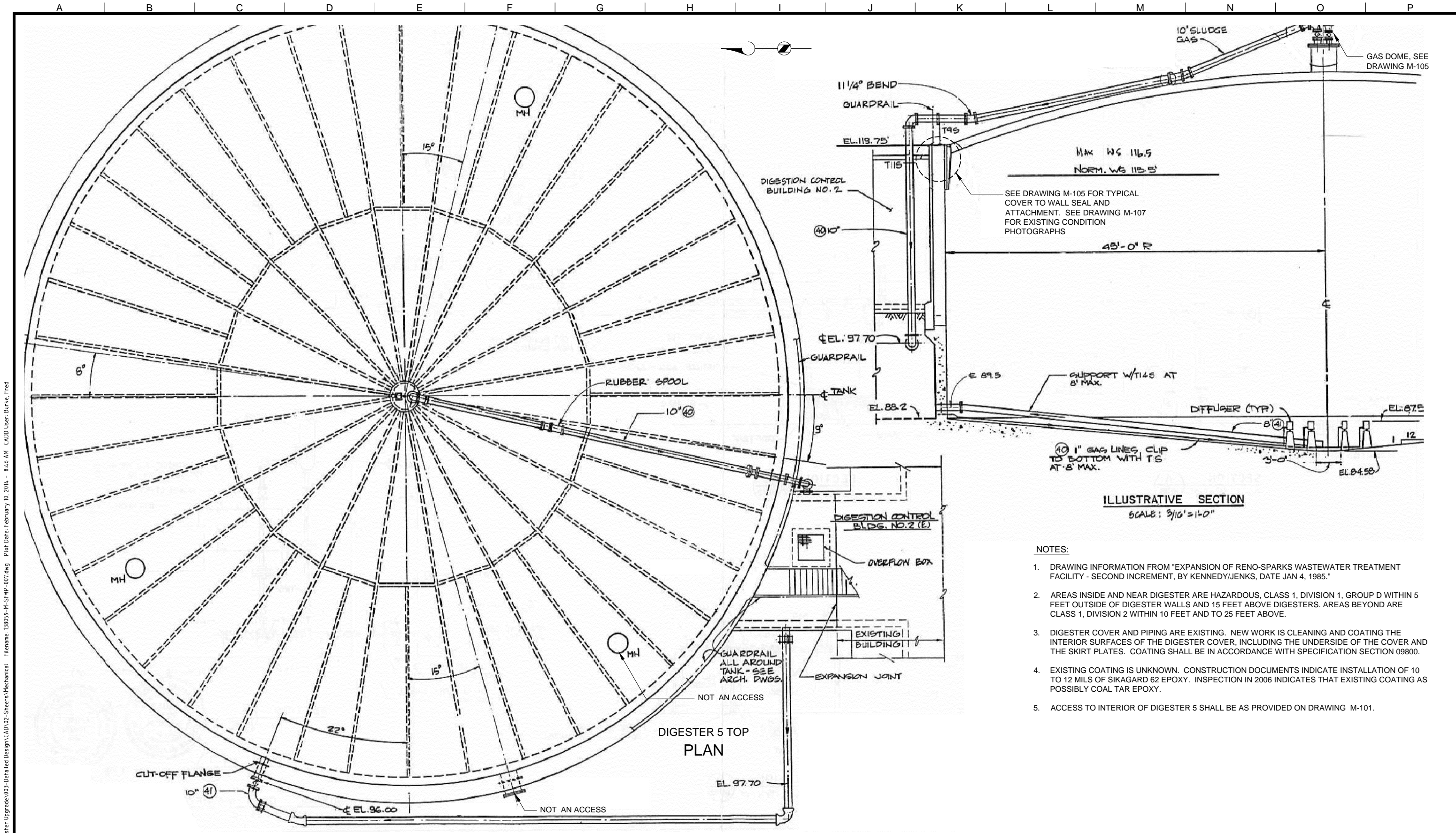
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ZONE	REV.	DESCRIPTION	BY	DATE	APP.



DIGESTER 5 INTERIOR COATING PROJECT

FILENAME: 138059-M-SFHP-006.DWG  
 BC PROJECT NUMBER: 138059  
 February 5, 2014  
 DRAWING NUMBER: M-101  
 SHEET NUMBER: 3 OF 9

**DIGESTER AREA SITE PLAN**



- NOTES:**
- DRAWING INFORMATION FROM "EXPANSION OF RENO-SPARKS WASTEWATER TREATMENT FACILITY - SECOND INCREMENT, BY KENNEDY/JENKS, DATE JAN 4, 1985."
  - AREAS INSIDE AND NEAR DIGESTER ARE HAZARDOUS, CLASS 1, DIVISION 1, GROUP D WITHIN 5 FEET OUTSIDE OF DIGESTER WALLS AND 15 FEET ABOVE DIGESTERS. AREAS BEYOND ARE CLASS 1, DIVISION 2 WITHIN 10 FEET AND TO 25 FEET ABOVE.
  - DIGESTER COVER AND PIPING ARE EXISTING. NEW WORK IS CLEANING AND COATING THE INTERIOR SURFACES OF THE DIGESTER COVER, INCLUDING THE UNDERSIDE OF THE COVER AND THE SKIRT PLATES. COATING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 09800.
  - EXISTING COATING IS UNKNOWN. CONSTRUCTION DOCUMENTS INDICATE INSTALLATION OF 10 TO 12 MILS OF SIKAGARD 62 EPOXY. INSPECTION IN 2006 INDICATES THAT EXISTING COATING AS POSSIBLY COAL TAR EPOXY.
  - ACCESS TO INTERIOR OF DIGESTER 5 SHALL BE AS PROVIDED ON DRAWING M-101.

**Brown and Caldwell**  
 WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ PROJECT MANAGER DATE: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)

SCALE: NO SCALE

DESIGNED: L. JONES  
 DRAWN: F. BURKE  
 CHECKED: L. SLEZAK  
 APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



DIGESTER 5 INTERIOR COATING PROJECT

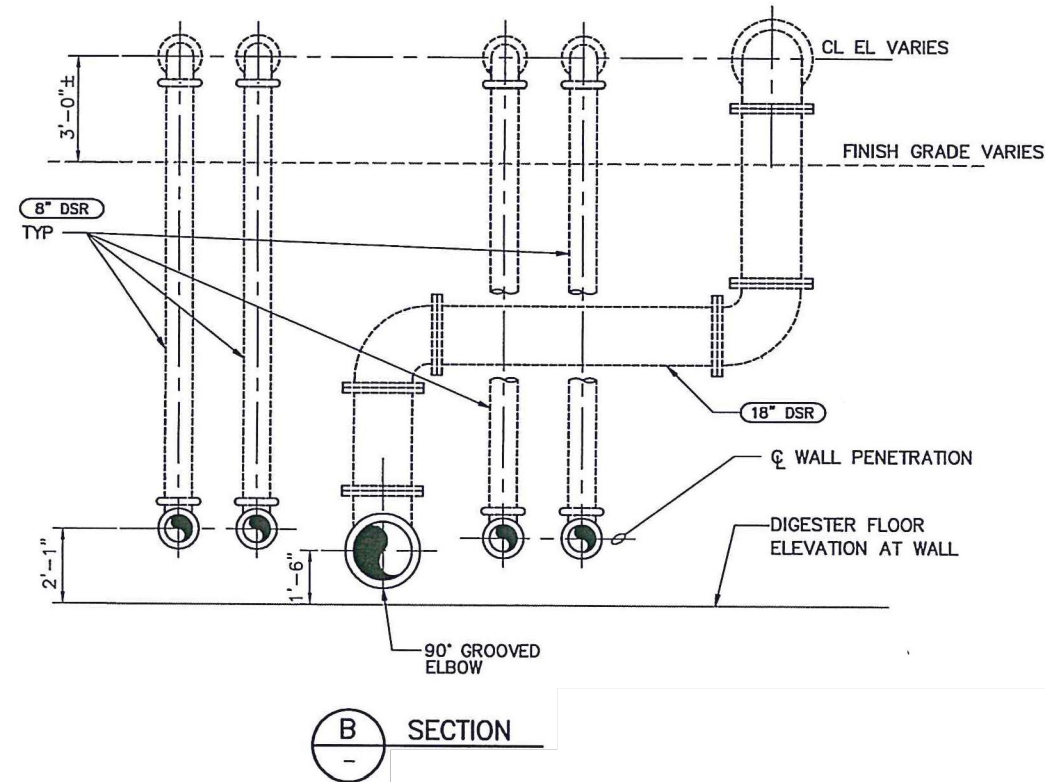
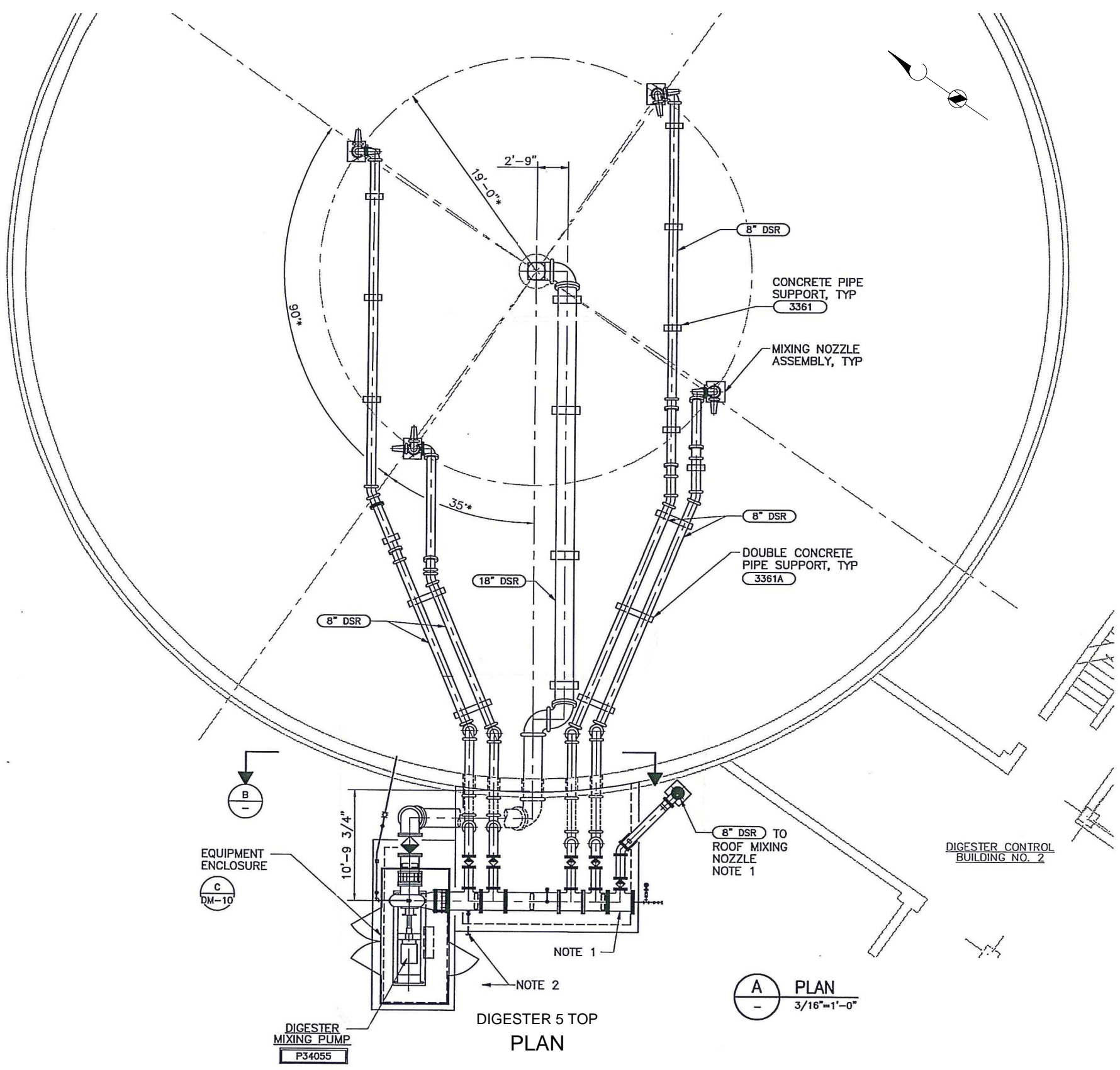
FILENAME: 138059-M-SF#P-007.DWG  
 BC PROJECT NUMBER: 138059  
 February 5, 2014  
 DRAWING NUMBER: **M-102**  
 SHEET NUMBER: 4 OF 9

DIGESTER 5 COVER PLAN AND SECTION

Path: P:\138000\138059 - TWRWF Digester Upgrade\03-Detailed Design\CADD\02-Sheets\Mechanical File\138059-M-SF#P-007.dwg Plot Date: February 10, 2014 8:46 AM CADD User: Burke, Fred

**NOTES:**

- DRAWING INFORMATION FROM CITY OF RENO AND SPARKS, TMWRF 2002 EXPANSION PROJECT, DIGESTER NO. 5, TYPICAL DIGESTER MIXING PIPING, CAROLLO ENGINEERS, JULY 2004.
- AREAS INSIDE AND NEAR DIGESTER ARE HAZARDOUS, CLASS 1, DIVISION 1, GROUP D WITHIN 5 FEET OUTSIDE OF DIGESTER WALLS AND 15 FEET ABOVE DIGESTERS. AREAS BEYOND ARE CLASS 1, DIVISION 2 WITHIN 10 FEET AND TO 25 FEET ABOVE.
- DIGESTER COVER AND PIPING ARE EXISTING. NEW WORK IS CLEANING AND COATING THE INTERIOR SURFACES OF THE DIGESTER COVER, INCLUDING THE UNDERSIDE OF THE COVER AND THE SKIRT PLATES. COATING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 09800.
- EXISTING COATING IS UNKNOWN. CONSTRUCTION DOCUMENTS INDICATE INSTALLATION OF 10 TO 12 MILS OF SIKAGARD 62 EPOXY. INSPECTION IN 2006 INDICATES THAT EXISTING COATING AS POSSIBLY COAL TAR EPOXY.
- CONTRACTOR IS MADE AWARE OF EXISTING EXPOSED PIPING AND EQUIPMENT LOCATED ON FLOOR AND INTERIOR WALLS OF DIGESTER. CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING PIPING AND EQUIPMENT. IF DAMAGE TO PIPING OR EQUIPMENT OCCURS DUE TO CONTRACTOR'S WORK, THE CONTRACTOR SHALL BEAR THE COST OF REPLACEMENT OF THE DAMAGED PIPING OR EQUIPMENT TO THE OWNER'S APPROVAL AND AT NO ADDITIONAL COST TO THE OWNER.



Path: P:\138000\138059 - TMWRF Digester Upgrade\03-Detailed Design\CAD\02-Sheets\Mechanical Filename: 138059-M-SF#P-008.dwg Plot Date: February 10, 2014 8:46 AM CADD User: Burke, Fred

**Brown and Caldwell**  
 WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PROJECT MANAGER

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)

SCALE: NO SCALE

DESIGNED: L. JONES  
 DRAWN: F. BURKE  
 CHECKED: L. SLEZAK  
 APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

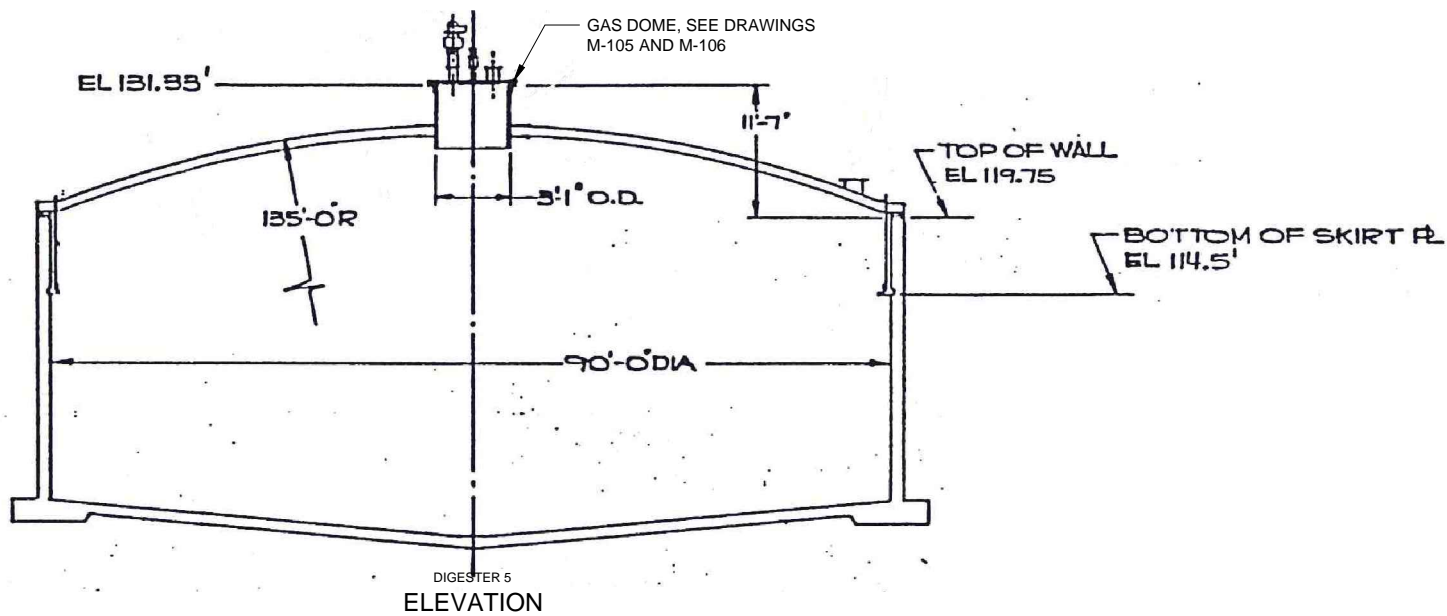
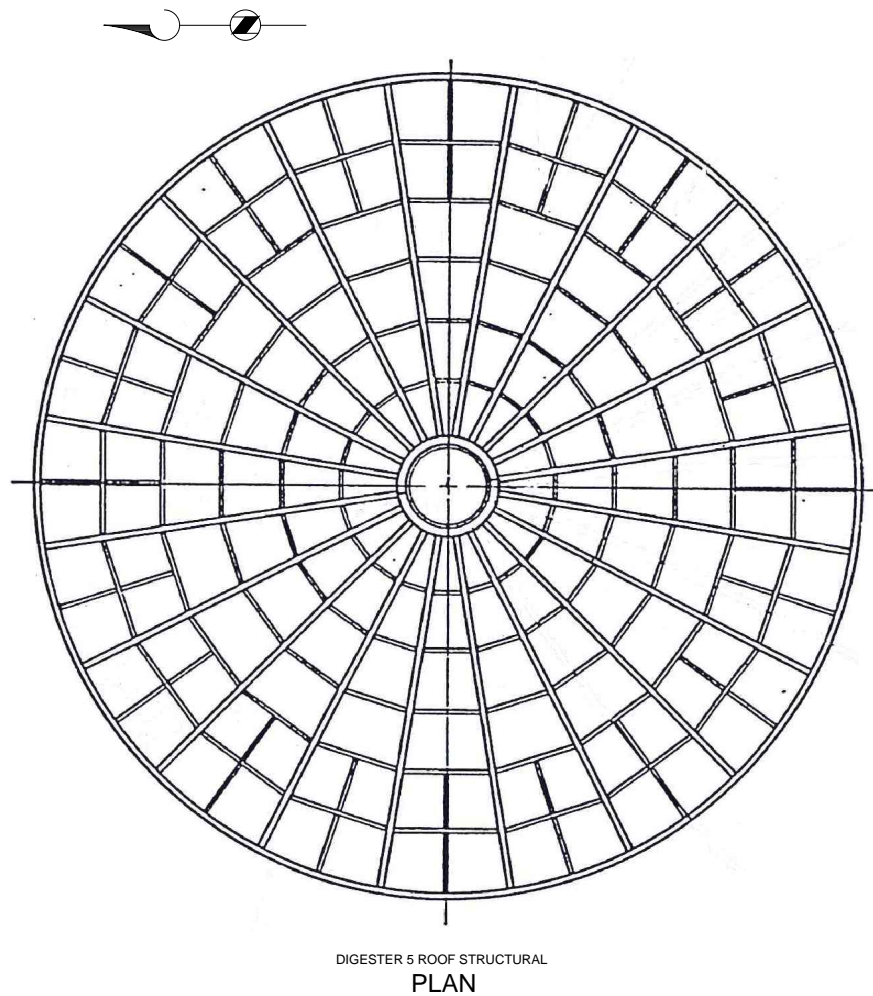
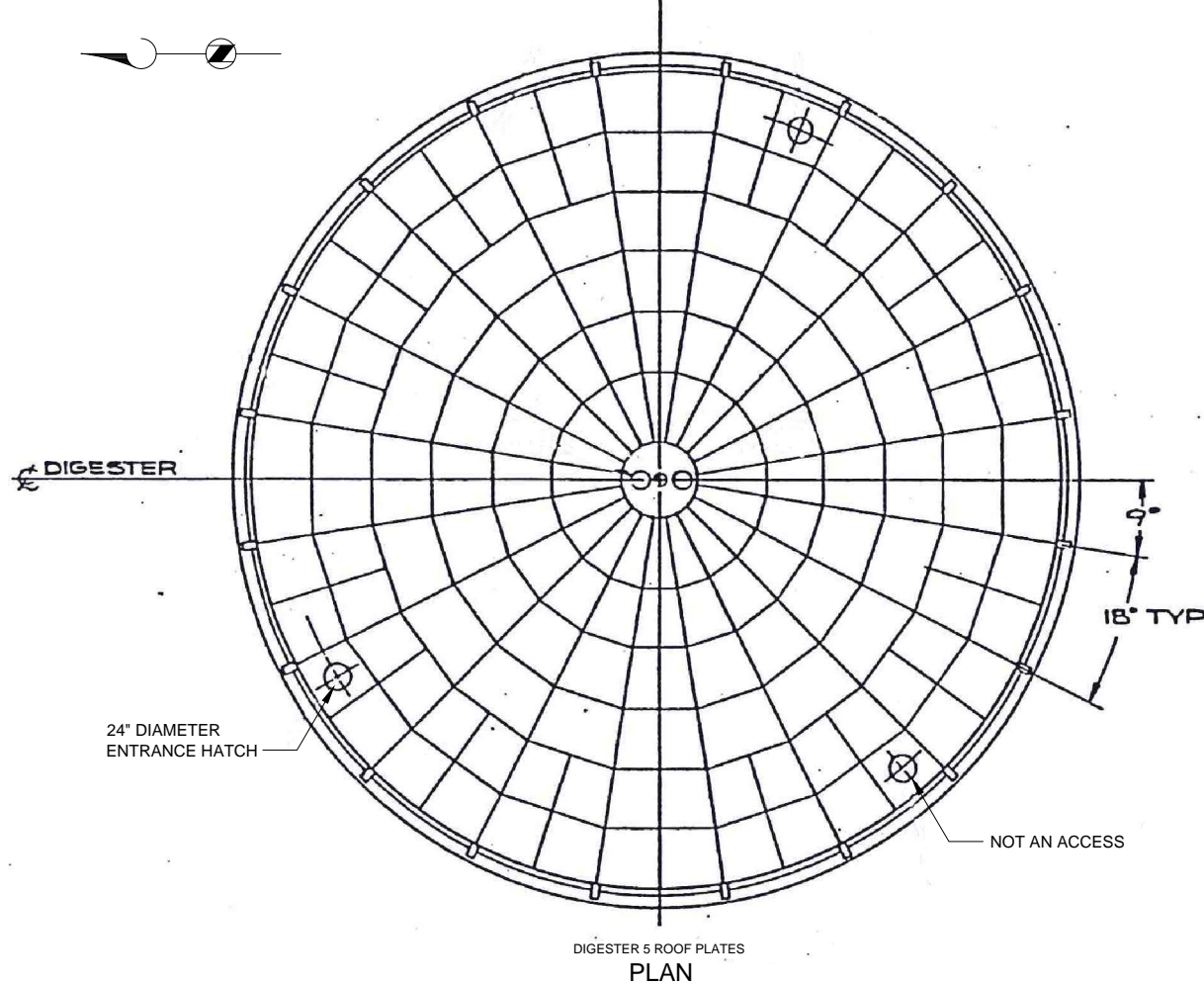


DIGESTER 5 INTERIOR COATING PROJECT

TYPICAL DIGESTER MIXING PIPING

FILENAME: 138059-M-SF#P-008.DWG  
 BC PROJECT NUMBER: 138059  
 February 5, 2014  
 DRAWING NUMBER: **M-103**  
 SHEET NUMBER: 5 OF 9

NOTE:  
 1. DRAWING INFORMATION FROM SHOP DRAWINGS "GENERAL PLAN - 90' FIXED COVER, RENO/SPARKS, NEVADA, BY WALKER PROCESS CORPORATION, DATED NOVEMBER 1, 1985".



**Brown and Caldwell**

WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PROJECT MANAGER  
 APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)  
 SCALE: NO SCALE  
 DESIGNED: L. JONES  
 DRAWN: F. BURKE  
 CHECKED: L. SLEZAK  
 APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES




REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

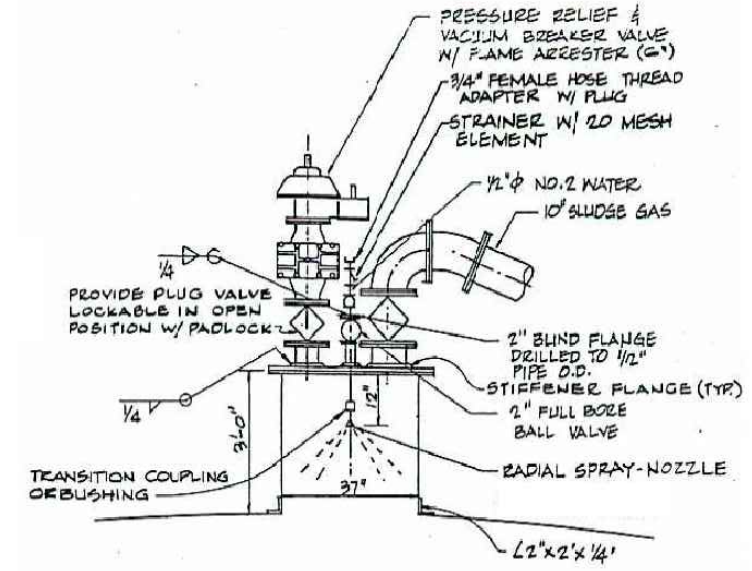


DIGESTER 5 INTERIOR COATING PROJECT

FILENAME: 138059-M-SF#P-012.DWG  
 BC PROJECT NUMBER: 138059  
 February 5, 2014  
 DRAWING NUMBER: M-104  
 SHEET NUMBER: 6 OF 9

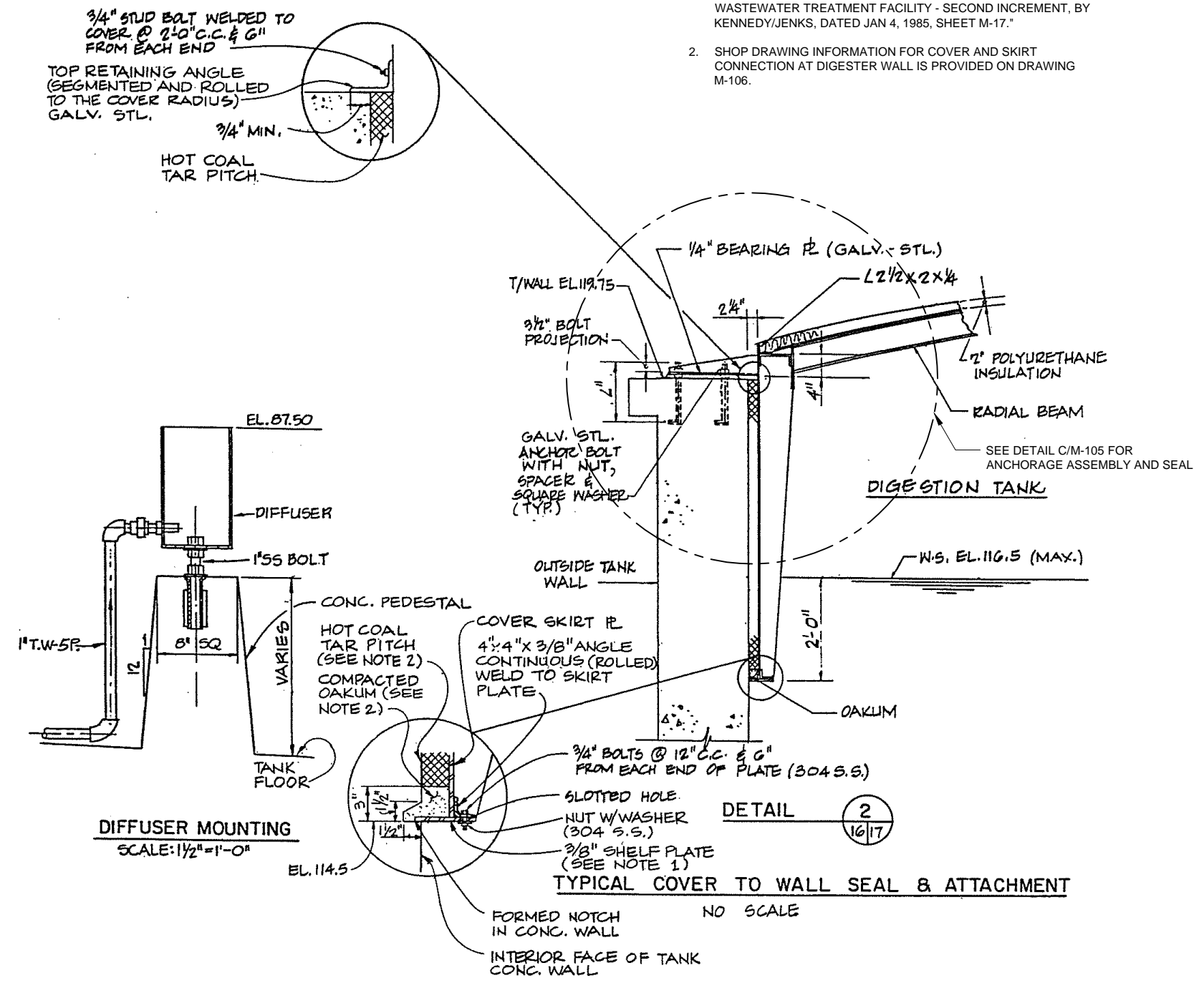
TOP PLAN AND ELEVATION

- NOTES:
- DRAWING INFORMATION FROM "EXPANSION OF RENO-SPARKS WASTEWATER TREATMENT FACILITY - SECOND INCREMENT, BY KENNEDY/JENKS, DATED JAN 4, 1985, SHEET M-17."
  - SHOP DRAWING INFORMATION FOR COVER AND SKIRT CONNECTION AT DIGESTER WALL IS PROVIDED ON DRAWING M-106.



- NOTE:
- SEE DRAWING M-106 FOR GAS DOME HATCH AND EQUIPMENT ASSEMBLY.

GAS DOME  
DETAIL B  
M-102



DETAIL 2  
M-102

DETAIL A  
M-102

DIFFUSER MOUNTING  
SCALE: 1/2" = 1'-0"

TYPICAL COVER TO WALL SEAL AND ATTACHMENT

**Brown and Caldwell**

WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
PROJECT MANAGER  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)  
SCALE: NO SCALE  
DESIGNED: L. JONES  
DRAWN: F. BURKE  
CHECKED: L. SLEZAK  
APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



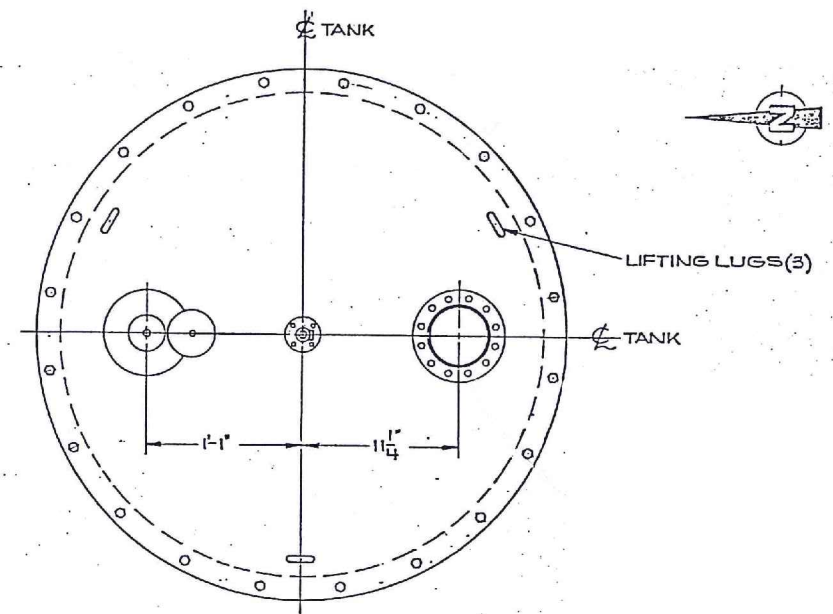
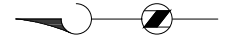
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



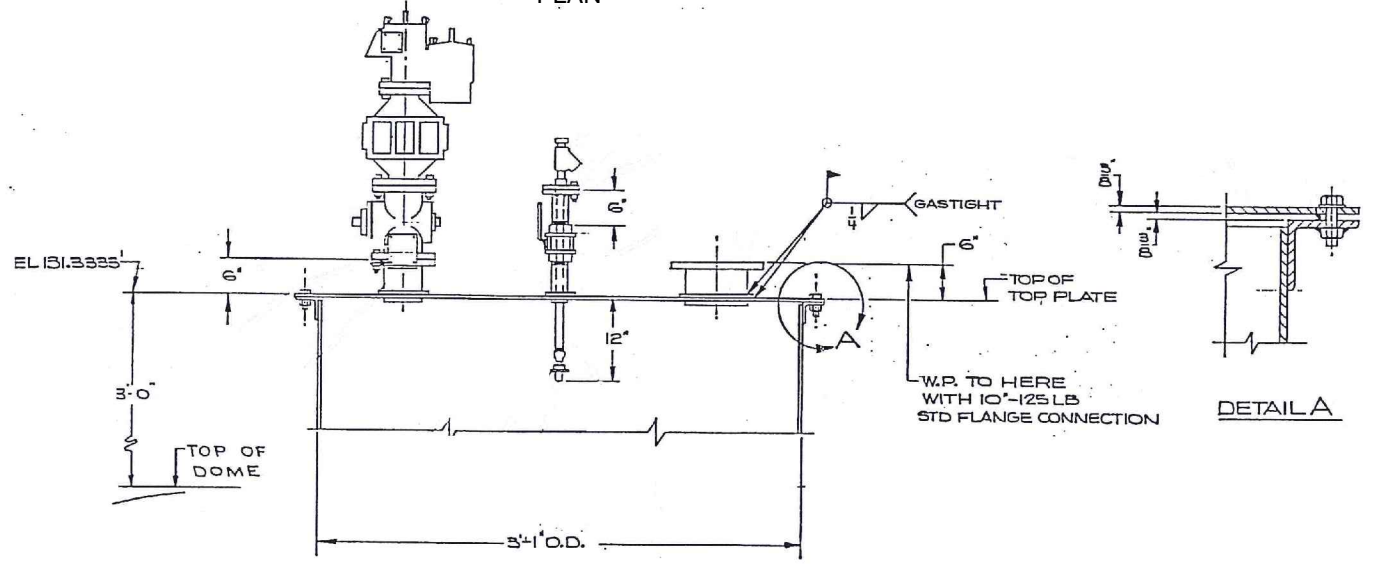
DIGESTER 5 INTERIOR COATING PROJECT

FILENAME: 138059-M-SF#P-010.DWG  
BC PROJECT NUMBER: 138059  
February 5, 2014  
DRAWING NUMBER: M-105  
SHEET NUMBER: 7 OF 9

DETAILS

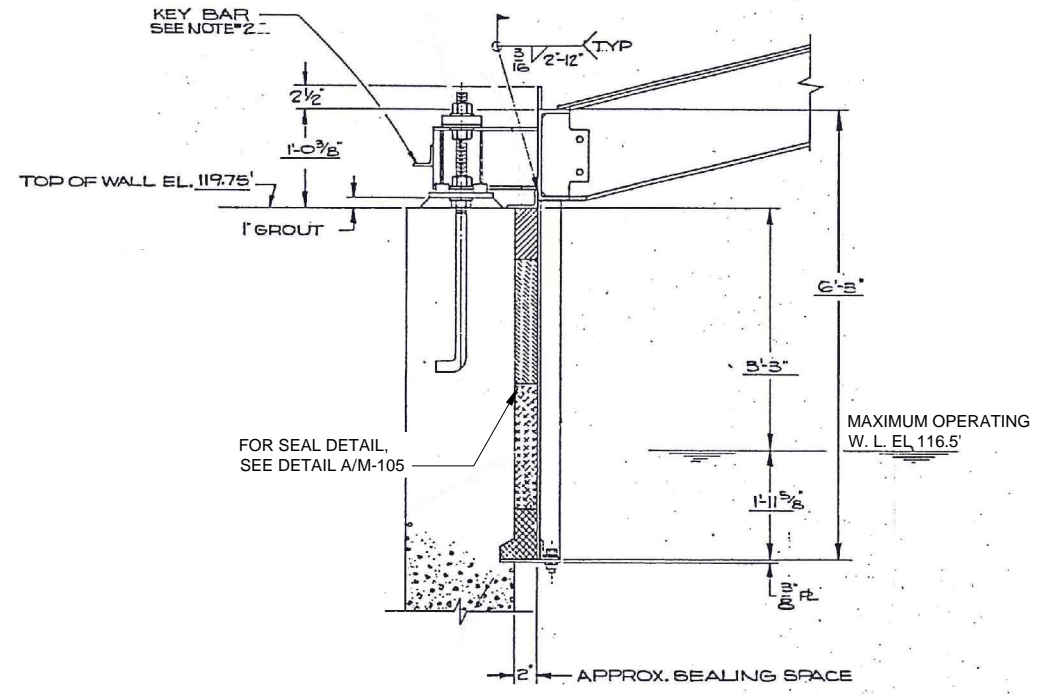


GAS DOME PRESSURE RELIEF/VACUUM BREAKER VALVE/FLAME ARRESTOR ASSEMBLY  
PLAN



GAS DOME PRESSURE RELIEF/VACUUM BREAKER VALVE/FLAME ARRESTOR ASSEMBLY  
ELEVATION

DETAIL B  
M-105



ANCHORAGE ASSEMBLY AND SEAL DETAIL  
DETAIL A  
M-106

- NOTES:
1. DRAWING INFORMATION FROM SHOP DRAWINGS "GENERAL PLAN - 90' FIXED COVER, RENO/SPARKS, NEVADA, BY WALKER PROCESS CORPORATION, DATED NOVEMBER 1, 1985".
  2. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING GAS DOME ASSEMBLY. IF THE CONTRACTOR CHOOSES TO USE THE GAS DOME FOR ACCESS TO THE INTERIOR OF THE DIGESTER, THE CONTRACTOR SHALL DISCONNECT THE GAS LINE PIPING AND SECURE AND SUPPORT THE GAS PIPING ON THE DIGESTER COVER WITHOUT DAMAGING THE PIPING OR DIGESTER COVER. THE CONTRACTOR SHALL REMOVE, STORE AND REPLACE THE GAS DOME EQUIPMENT ASSEMBLY WITHOUT DAMAGE. THE UNDERSIDE OF THE GAS DOME COVER IS PART OF THE DIGESTER COVER, AND SHALL BE COATED BEFORE REINSTALLATION.

Path: P:\138000\138059 - 1MWR\Digester Upgrade\003-Detailed Design\CAD\02-Sheets\Mechanical File: 138059-M-SF#P-013.dwg Plot Date: February 10, 2014 - 9:32 AM CADD User: Burke, Fred

**Brown and Caldwell**  
WALNUT CREEK, CALIFORNIA

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" SCALE ACCORDINGLY)  
SCALE: NO SCALE  
DESIGNED: L. JONES  
DRAWN: F. BURKE  
CHECKED: L. SLEZAK  
APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



DIGESTER 5 INTERIOR COATING PROJECT  
GAS DOME PRESSURE RELIEF/VACUUM BREAKER VALVE/FLAME ARRESTOR ASSEMBLY

FILENAME: 138059-M-SF#P-013.DWG  
BC PROJECT NUMBER: 138059  
February 5, 2014  
DRAWING NUMBER: M-106  
SHEET NUMBER: 8 OF 9



NOTE:  
 1. FROM TECHNICAL MEMORANDUM - TMWRF - SUMMARY OF STEEL DIGESTER COVERS, DATED JANUARY 10, 2007.

Photographs  
 TMWRF Digester No. 5  
 November 7, 2006  
 SEE NOTE 1



Photo 1: Overview of digester cover. Gray surface is coated polyurethane foam insulation. Edge of steel cover is visible behind handrail. Two cover connection brackets are visible at photo right center.



Photo 2: Skirt area of cover. Top of concrete tank wall is at photo lower left. Cover includes coated foam insulation, sidewall, and steel angle. Connection bracket is visible at far top left of photo.

DIGESTER 5 COVER HISTORICAL CONDITION

PHOTO A  
M-107

TMWRF Digester No. 5  
 November 7, 2006  
 SEE NOTE 1

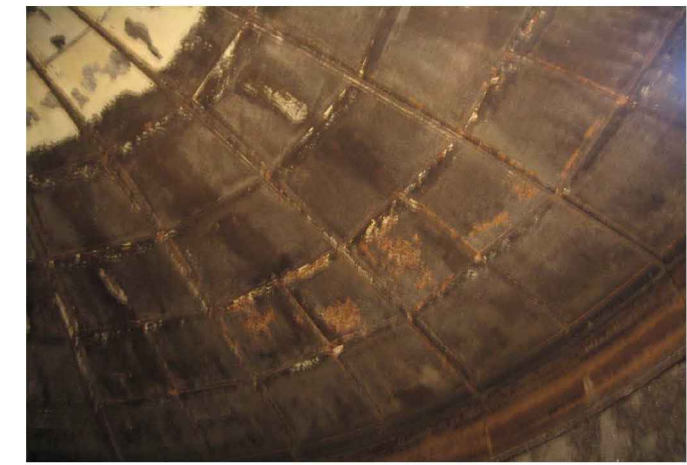


Photo 3: Typical condition of cover interior. Center of cover is at photo upper left. Black areas appear to be coated with coal tar epoxy. Orange areas are rusty steel exposed at areas of deteriorated coating.

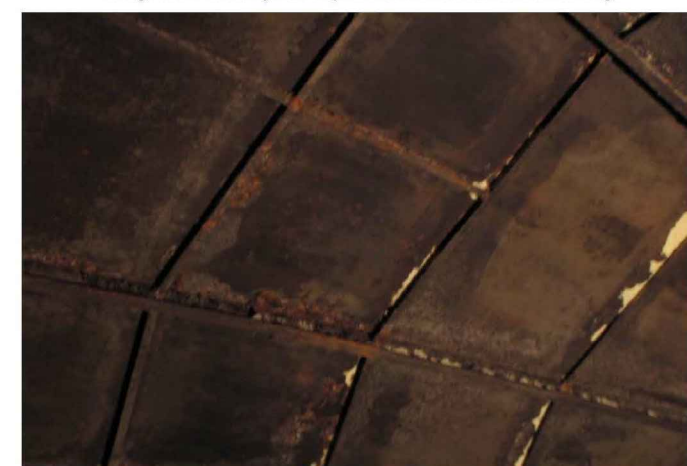


Photo 4: Typical appearance of steel framing showing rust (corrosion products) along edges. White areas are deposits from digester operation.

DIGESTER COVER HISTORICAL CONDITION

PHOTO B  
M-107

TMWRF Digester No. 5  
 November 7, 2006  
 SEE NOTE 1



Photo 5: Center portion of cover as viewed from floor of digester. White areas are deposits from digester operation. Orange-brown areas are rusted steel, including connection bolts at center ring.

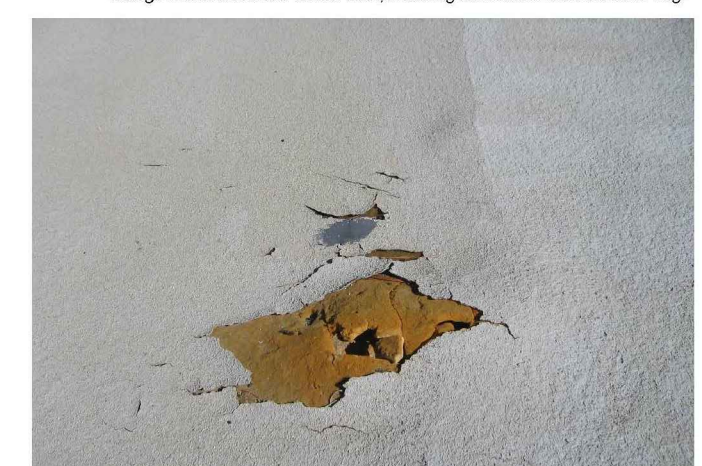


Photo 6: Typical damaged area in polyurethane foam insulation on top of cover. Area shown is approximately 1 foot square. About 25 such areas exist.

DIGESTER COVER HISTORICAL CONDITION

PHOTO C  
M-107

**Brown and Caldwell**  
 WALNUT CREEK, CALIFORNIA

SUBMITTED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 PROJECT MANAGER  
 APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2" - SCALE ACCORDINGLY)  
 SCALE: NO SCALE  
 DESIGNED: L. JONES  
 DRAWN: F. BURKE  
 CHECKED: L. SLEZAK  
 APPROVED: T. STIGERS

EXTERNAL REFERENCE FILES



REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.



DIGESTER 5 INTERIOR COATING PROJECT  
 DIGESTER COVER HISTORICAL CONDITIONS PHOTOGRAPHS

FILENAME: 138059-M-SF#P-011.DWG  
 BC PROJECT NUMBER: 138059  
 February 5, 2014  
 DRAWING NUMBER: M-107  
 SHEET NUMBER: 9 OF 9

Path: P:\138000\138059 - TMWRF Digester Upgrade\003-Detailed Design\CAD\02-Sheets\Mechanical File: 138059-M-SF#P-011.dwg Plot Date: February 10, 2014 - 8:46 AM CADD User: Burke, Fred