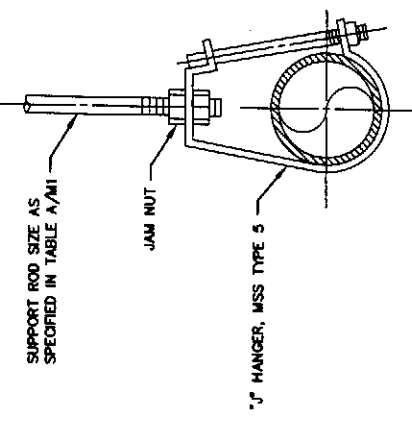
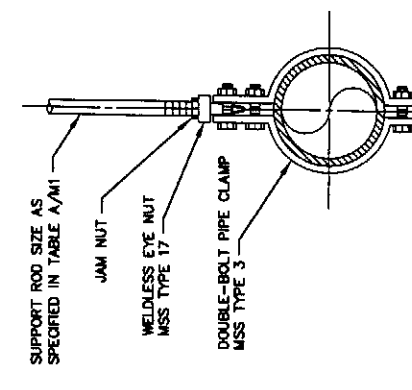


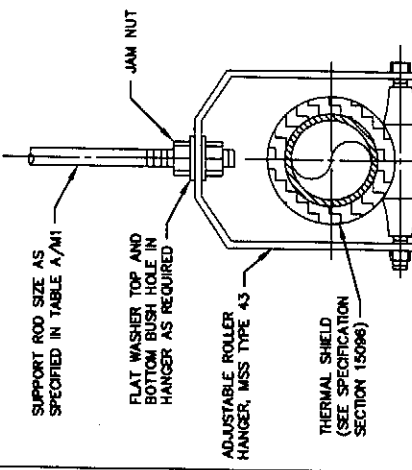
**TYPE 1 PIPE HANGER**  
1/2" THROUGH 12" PIPE



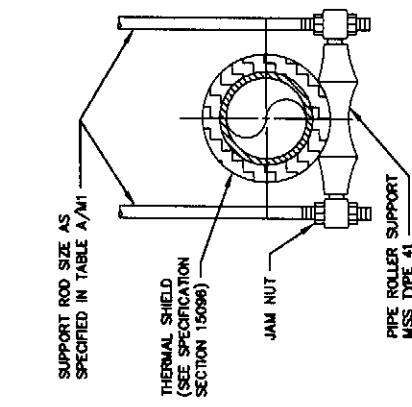
**TYPE 2 PIPE HANGER**  
1/2" THROUGH 6" PIPE



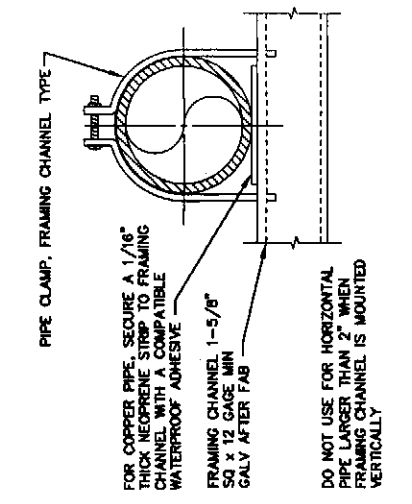
**TYPE 3 PIPE HANGER**  
3/4" THROUGH 12" PIPE



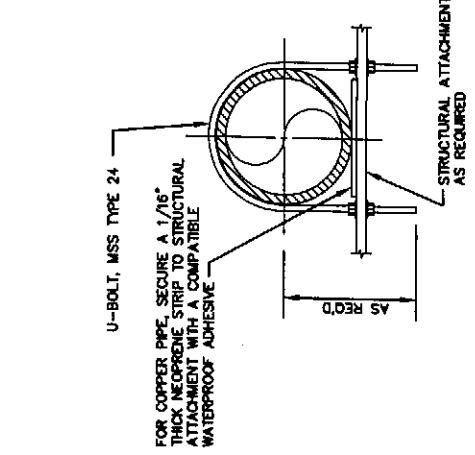
**TYPE 4 PIPE HANGER**  
3/8" THROUGH 12" PIPE



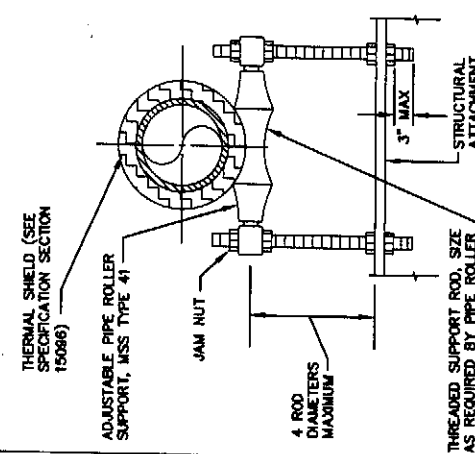
**TYPE 5 PIPE HANGER**  
6" THROUGH 12" PIPE



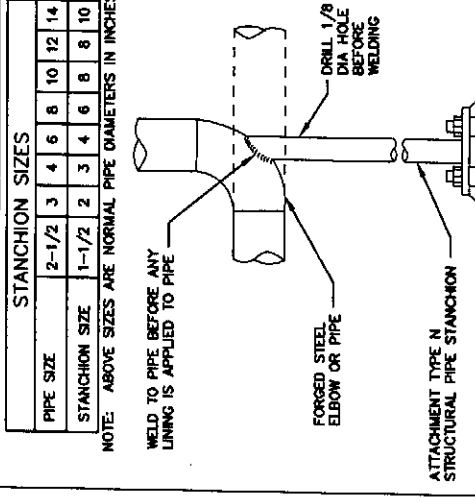
**TYPE 6 PIPE HANGER**  
3/8" THROUGH 12" PIPE



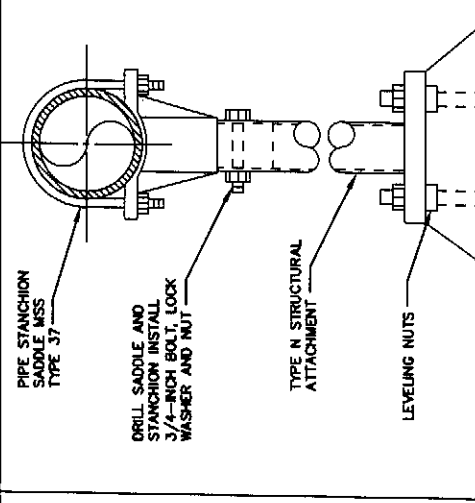
**TYPE 7 PIPE HANGER**  
1/2" THROUGH 12" PIPE



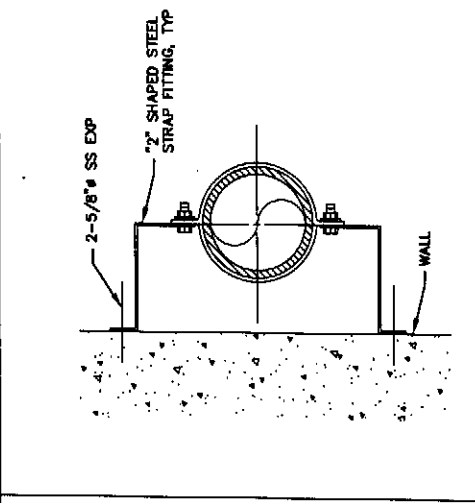
**TYPE 8 PIPE HANGER**  
1" THROUGH 12" PIPE



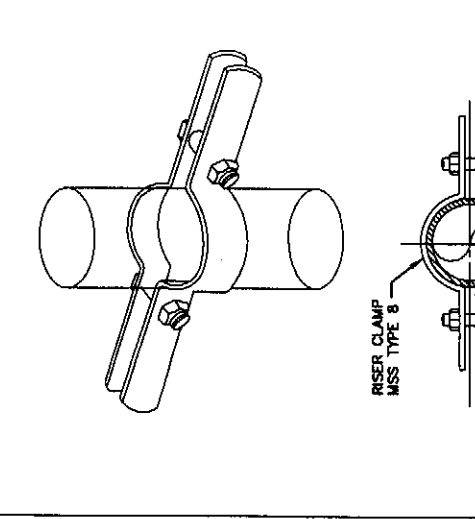
**TYPE 9 PIPE HANGER**  
3" THROUGH 20" PIPE



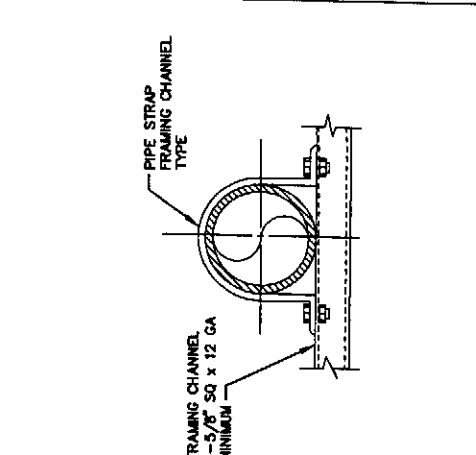
**TYPE 10 PIPE HANGER**  
3" THROUGH 20" PIPE



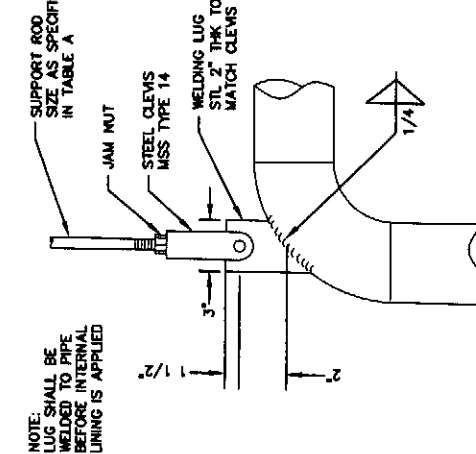
**TYPE 11 PIPE HANGER**  
FOR VERTICAL PIPE ONLY  
3/4" THROUGH 8" PIPE



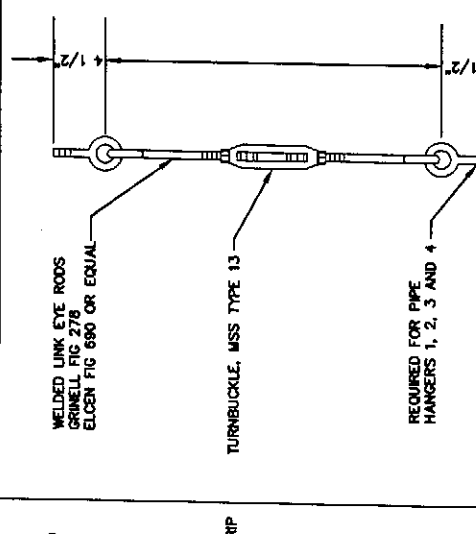
**TYPE 14 PIPE HANGER**  
2" THROUGH 12" PIPE



**TYPE 13 PIPE HANGER**  
1/2" THROUGH 6" PIPE



**TYPE 14 PIPE HANGER**  
2" THROUGH 12" PIPE



**TYPICAL SUPPORT ROD FOR PIPES SUBJECT TO HORIZONTAL MOVEMENT**  
SEE NOTE 9 TABLE "A" NOTES

STANCHION SIZES

PIPE SIZE	2-1/2	3	4	6	8	10	12	14
STANCHION SIZE	1-1/2	2	3	4	6	8	10	10

NOTE: ABOVE SIZES ARE NORMAL PIPE DIAMETERS IN INCHES

**CALL THREE BUSINESS DAYS BEFORE YOU DIG**  
1-800-424-5555

**HAMMOND COLLIER**  
WADE LIVINGSTONE

SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (360) 826-3861  
LAKEMOOD (253) 472-1992

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS

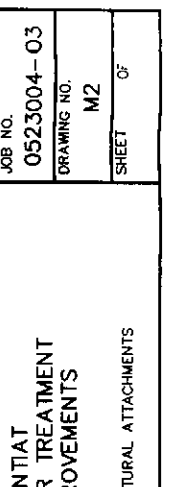
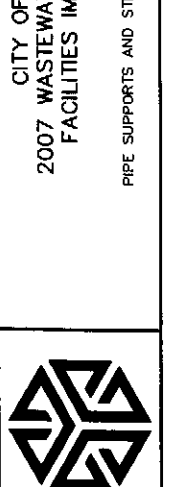
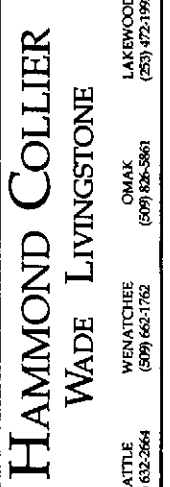
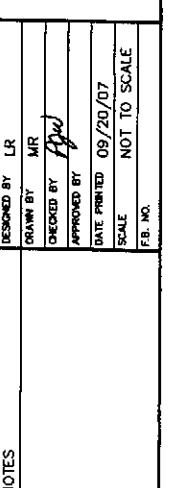
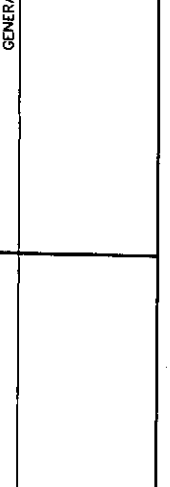
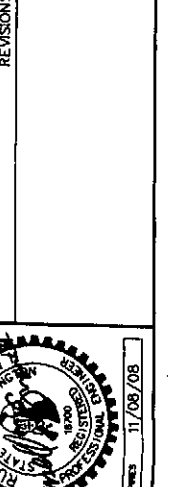
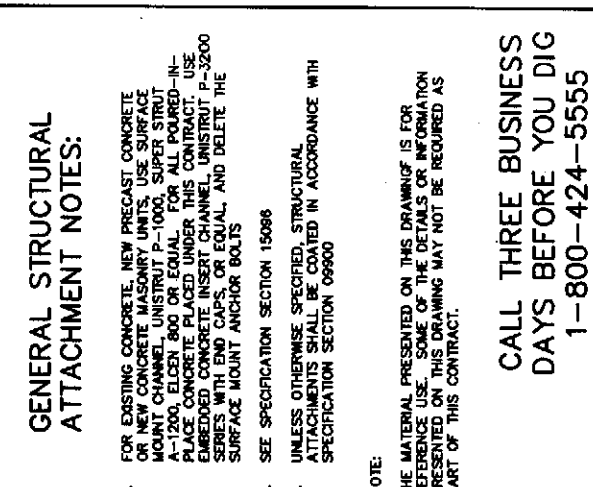
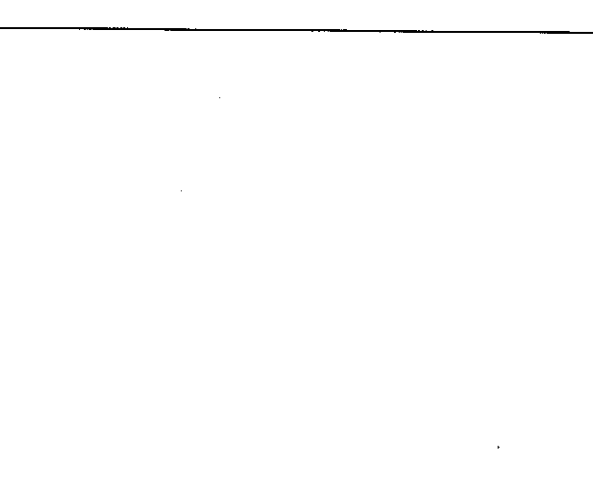
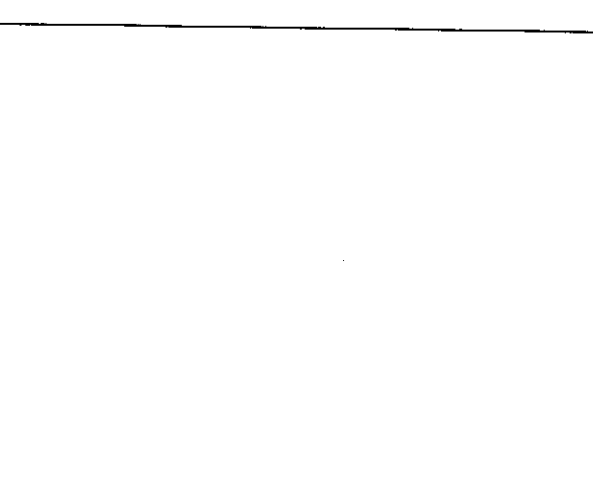
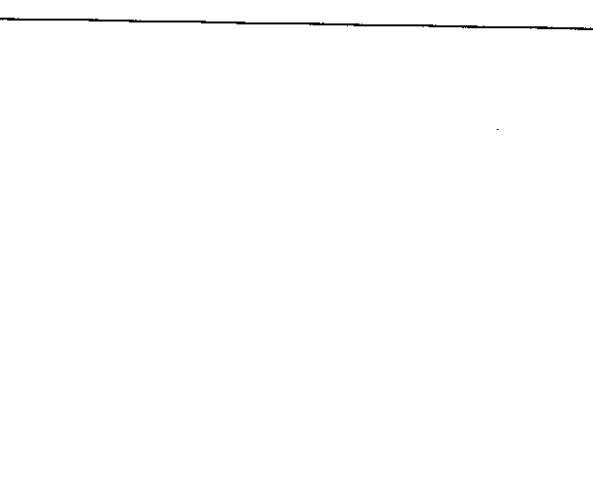
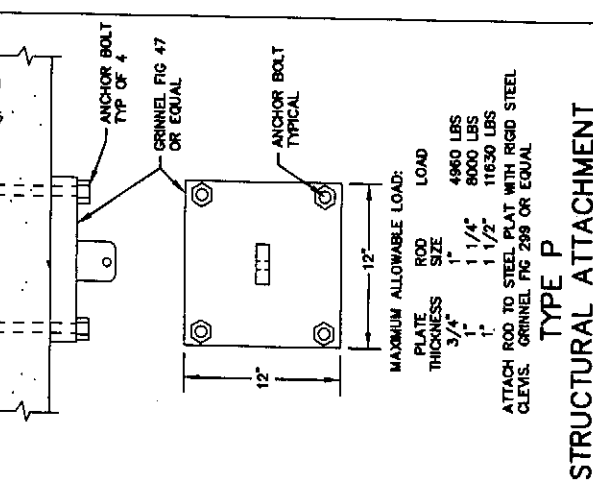
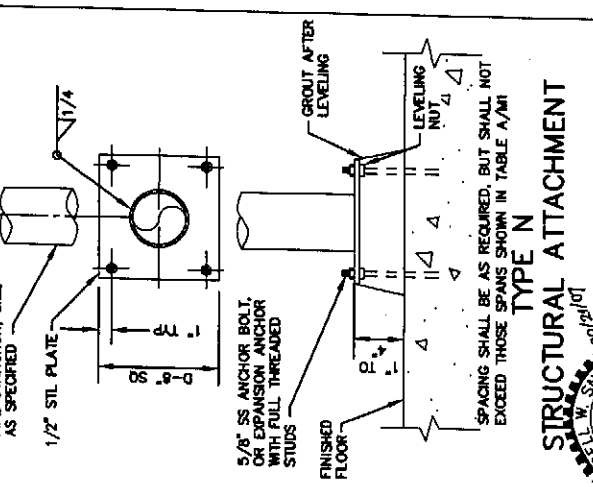
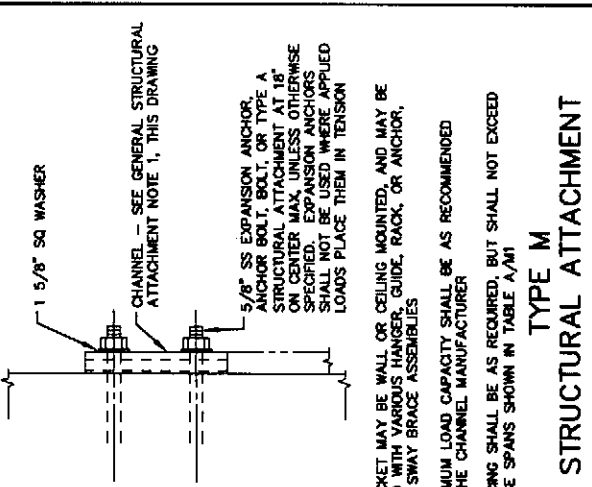
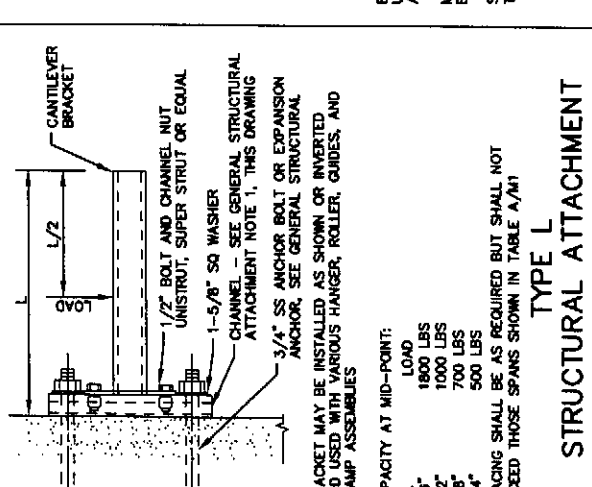
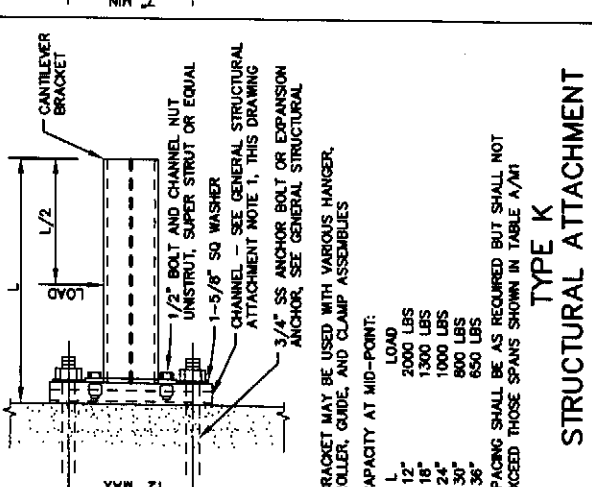
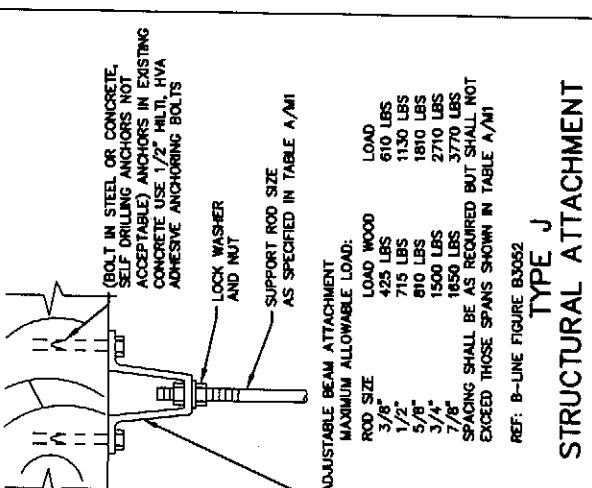
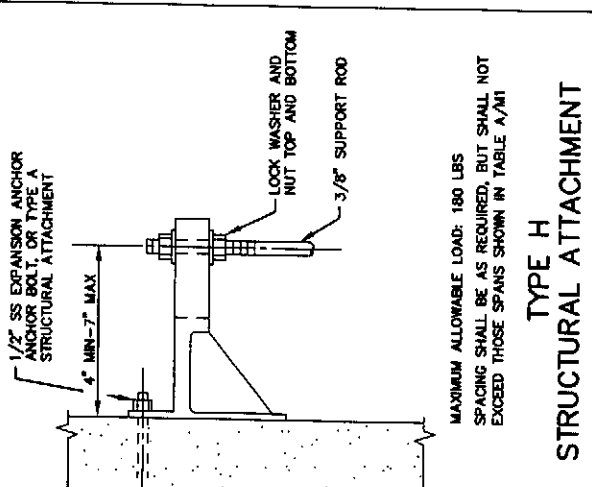
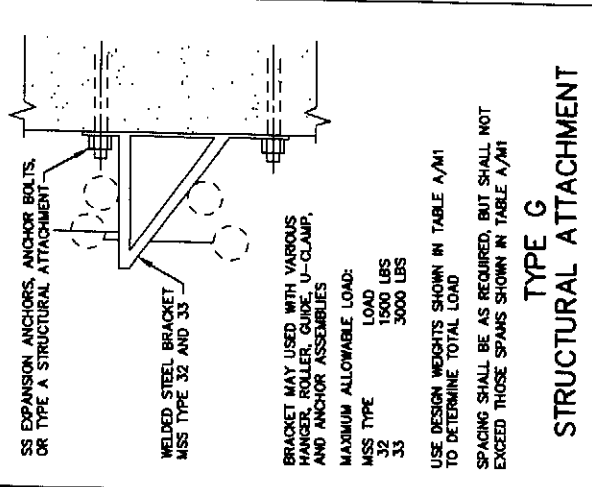
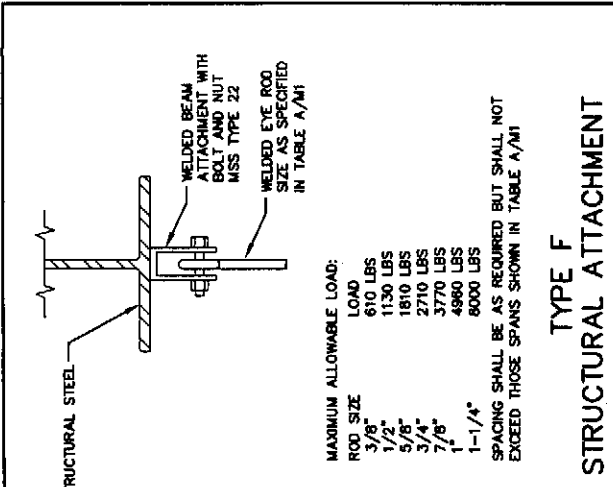
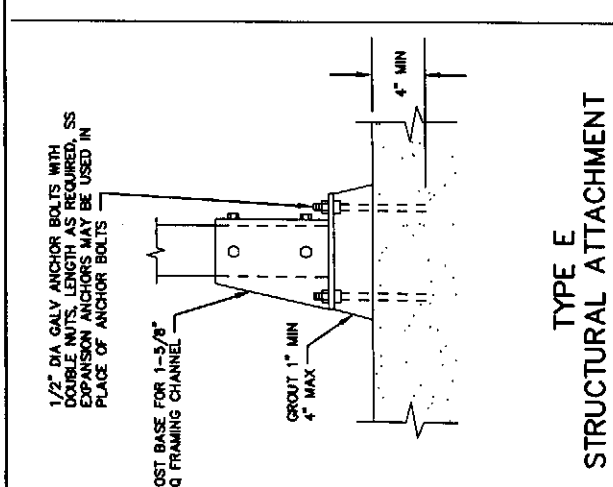
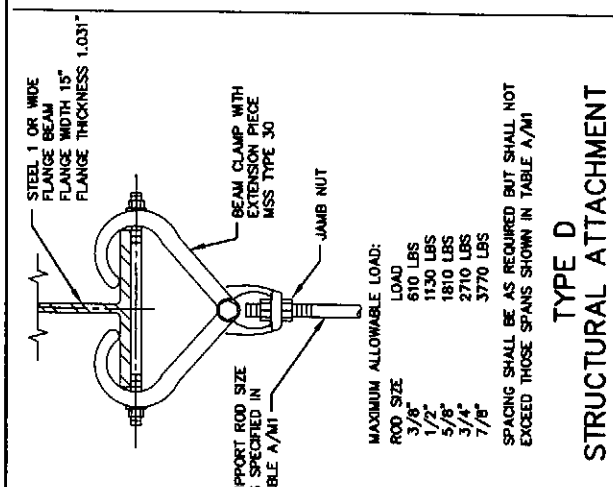
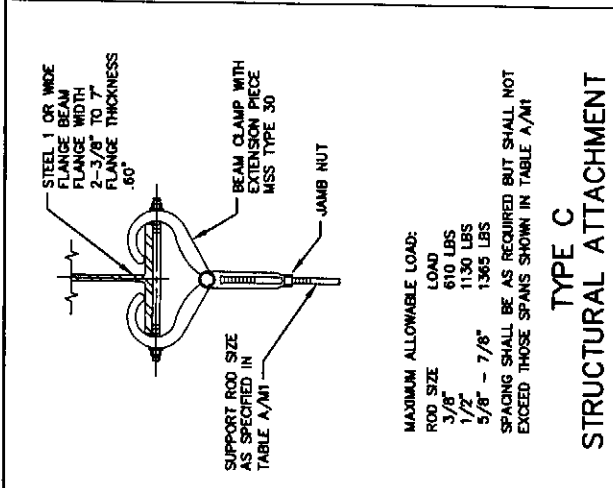
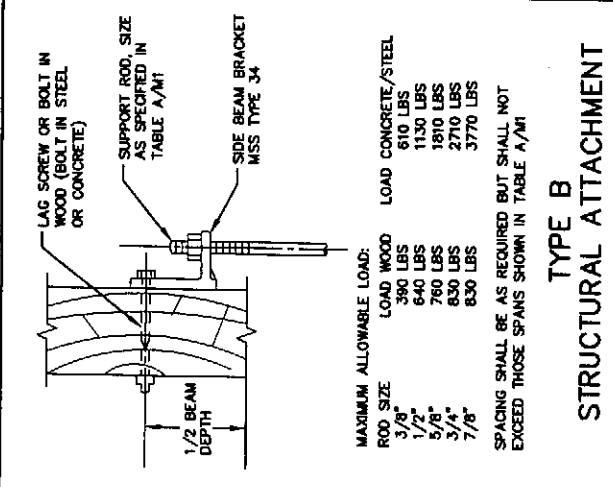
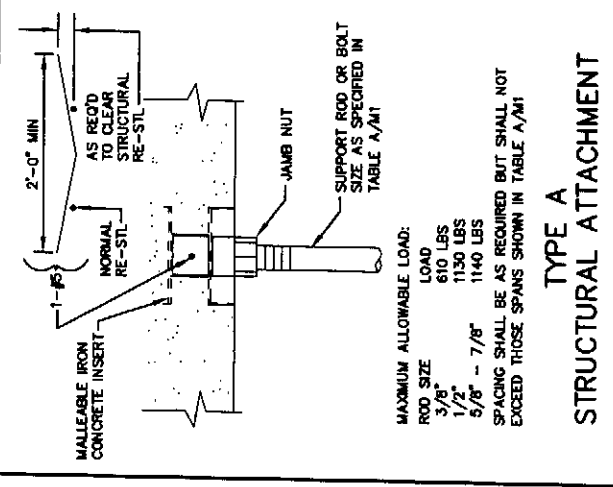
PIPE SUPPORTS AND PIPE ATTACHMENTS

JOB NO. 0523004-03  
DRAWING NO. M1  
SHEET OF

DESIGNED BY LR  
DRAWN BY MR  
CHECKED BY *gfw*  
APPROVED BY  
DATE PRINTED 09/20/07  
SCALE NOT TO SCALE  
FBI. NO.

REVISIONS

DATE 11/08/08

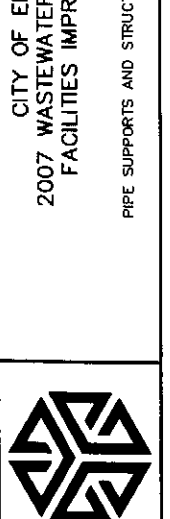


**GENERAL STRUCTURAL ATTACHMENT NOTES:**

- FOR EXISTING CONCRETE, NEW PRECAST CONCRETE OR NEW CONCRETE MASONRY UNITS, USE SURFACE MOUNT CHANNEL, UNISTRUT P-1000, SUPER STRUT A-1200, ELDEX 900 OR EQUAL. FOR ALL POURED-IN-PLACE CONCRETE USE GRINNEL'S CONTRACT USE SERIES WITH ENDO CLIPS OR EQUAL, AND DELETE THE SURFACE MOUNT ANCHOR BOLTS
- SEE SPECIFICATION SECTION 15086
- UNLESS OTHERWISE SPECIFIED, STRUCTURAL ATTACHMENTS SHALL BE COATED IN ACCORDANCE WITH SPECIFICATION SECTION 09900

NOTE:  
THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE ONLY. THE DETAILS OR INFORMATION PRESENTED ON THIS DRAWING MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
1-800-424-5555



HAMMOND COLLIER  
WADE LIVINGSTONE

SEATTLE (206) 632-2664  
WENATCHEE (509) 663-1762  
OMAX (509) 828-5861  
LAKEWOOD (253) 472-1992

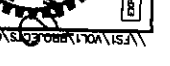
DESIGNED BY LR  
DRAWN BY MR  
CHECKED BY JPL  
APPROVED BY  
DATE PRINTED 09/20/07  
SCALE NOT TO SCALE  
FBI NO.

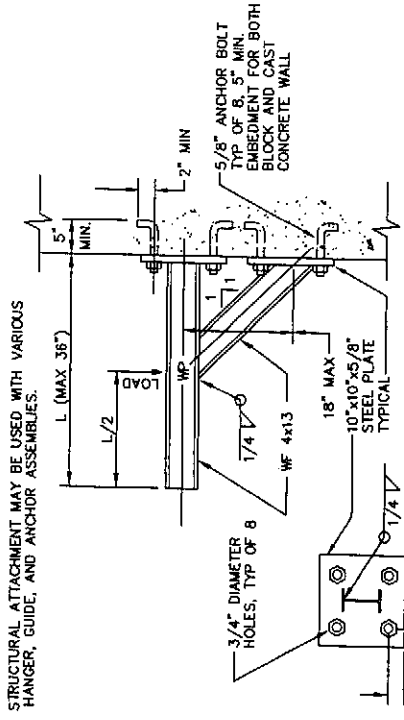
GENERAL NOTES

REVISIONS

DATE DESCRIPTION

11/09/08

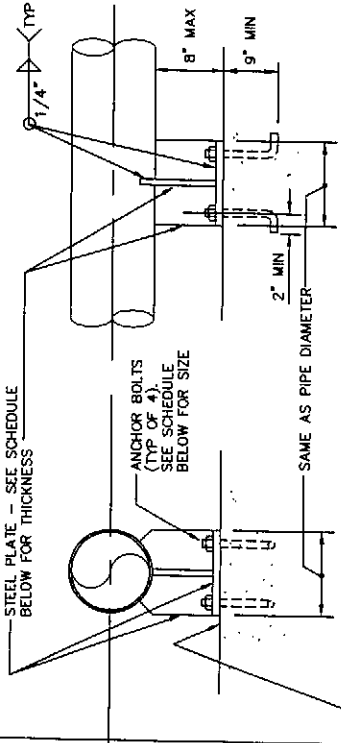




STRUCTURAL ATTACHMENT MAY BE USED WITH VARIOUS HANGER, GUIDE, AND ANCHOR ASSEMBLIES.

USE TYPE R ONLY WHERE SPECIFIED ON THE DRAWINGS. SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

**TYPE R**  
STRUCTURAL ATTACHMENT



STEEL PLATE - SEE SCHEDULE BELOW FOR THICKNESS.

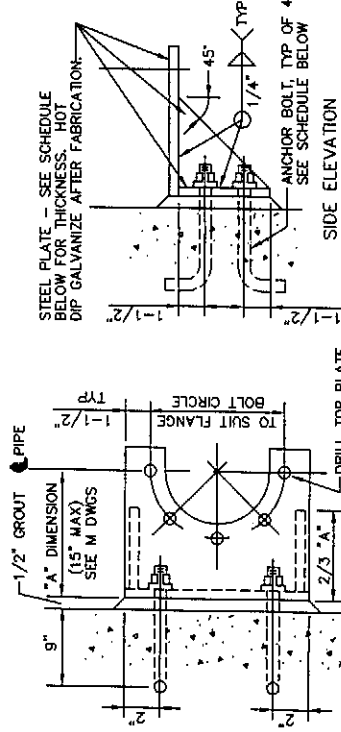
ANCHOR BOLTS (TYP OF 4) BELOW FOR SIZE.

SAME AS PIPE DIAMETER.

STRUCTURAL ATTACHMENT OR CONCRETE. ANCHOR BOLTS AS SHOWN, WHEN ATTACHED TO CONCRETE. ANCHOR BOLTS FOR STRUCTURAL ATTACHMENTS.

USE TYPE S ONLY WHERE SPECIFIED ON THE DRAWINGS. SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

**TYPE S**  
STRUCTURAL ATTACHMENT



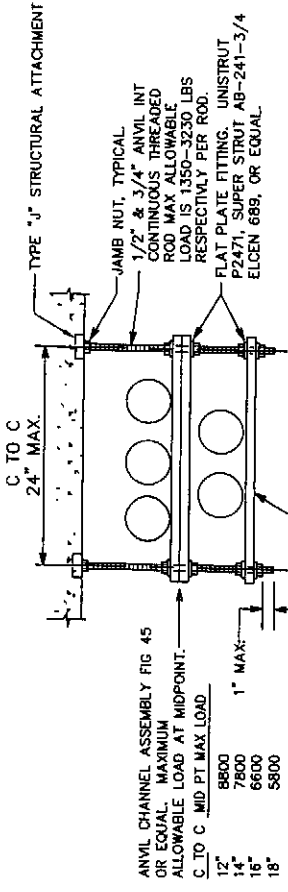
STEEL PLATE - SEE SCHEDULE BELOW FOR THICKNESS. HOT DIP GALVANIZE AFTER FABRICATION.

ANCHOR BOLT, TYP OF 4. SEE SCHEDULE BELOW.

DRILL TOP PLATE FOR FLANGE BOLTS. SIZE, NUMBER AND LOCATION TO MATCH PIPE FLANGE.

USE TYPE T ONLY WHERE SPECIFIED ON THE DRAWINGS. SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A/M1.

**TYPE T**  
STRUCTURAL ATTACHMENT



ANVIL CHANNEL ASSEMBLY FIG 45 OR EQUAL. MAXIMUM ALLOWABLE LOAD AT MIDPOINT. C TO C MID PT MAX LOAD:

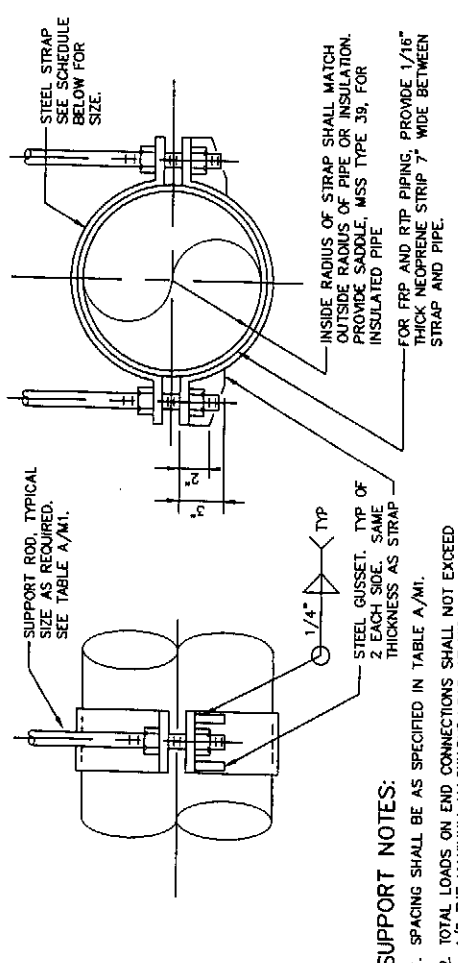
12"	8800
14"	7800
16"	6800
18"	5800

CHANNEL, UNISTRUT P1000, SUPER STRUT A-1200, ELGEN 600, OR EQUAL. MAXIMUM ALLOWABLE LOAD AT MIDPOINT.

TRAPEZE NOTES:

- SPACING SHALL BE AS SPECIFIED IN TABLE A/M1. SEE TABLE A/M1, NOTE 2.
- MAXIMUM DESIGN WEIGHTS SHALL BE AS FOLLOWS:  
3/8" TO 1 1/4" PIPE -- 100% OF DESIGN WEIGHT, TABLE A/M1.  
1 1/2" TO 12" PIPE -- 50% OF DESIGN WEIGHT, TABLE A/M1.
- TOTAL LOADS ON END CONNECTIONS SHALL NOT EXCEED 1/2 THE MAXIMUM ALLOWABLE LOAD AT MID-POINT.
- VERTICAL SPACING SHALL BE AS REQUIRED.

**TYPE 20**  
TYPICAL TRAPEZE PIPE SUPPORT RACK



SUPPORT NOTES:

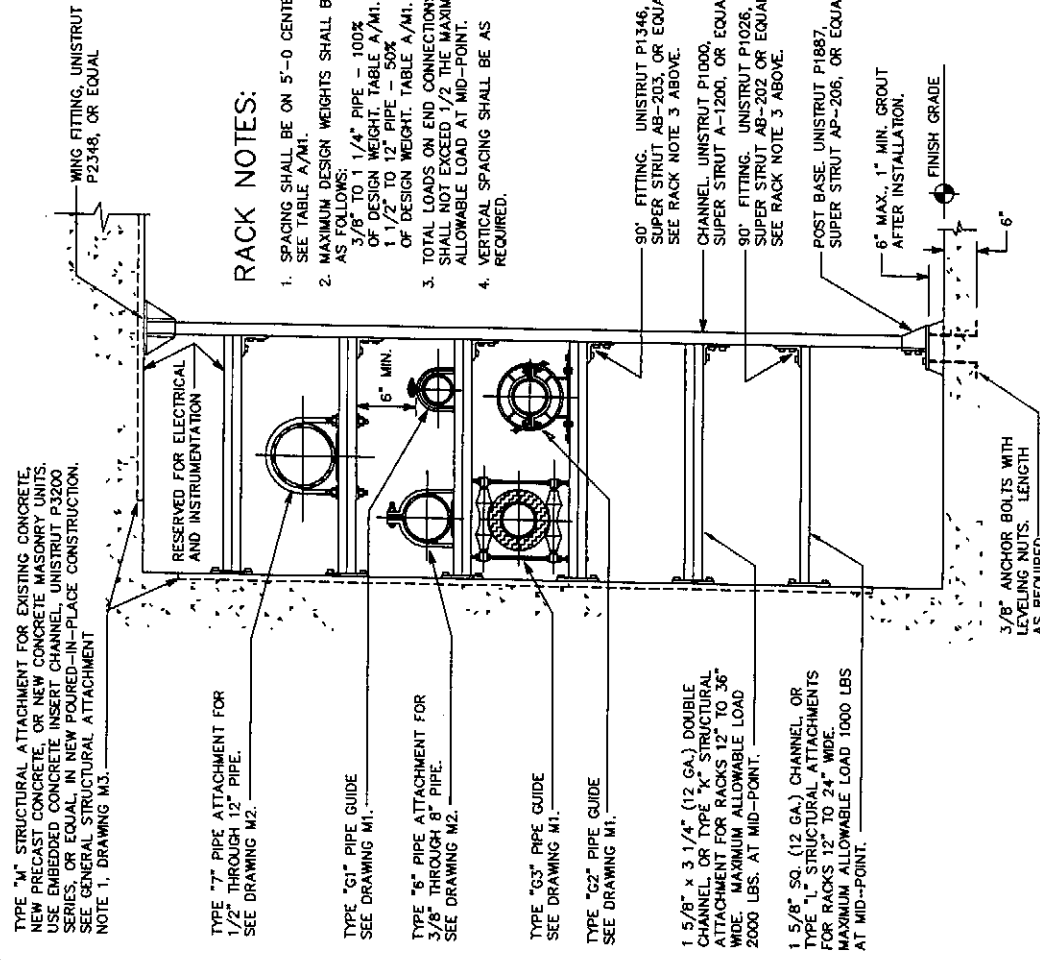
- SPACING SHALL BE AS SPECIFIED IN TABLE A/M1.
- TOTAL LOADS ON END CONNECTIONS SHALL NOT EXCEED 1/2 THE MAXIMUM ALLOWABLE LOAD AT MID-POINT.

INSIDE RADIUS OF STRAP SHALL MATCH OUTSIDE RADIUS OF PIPE OR INSULATION. PROVIDE SADDLE, MSS TYPE 39, FOR INSULATED PIPE.

FOR FRP AND RTP PIPING, PROVIDE 1/16" THICK NEOPRENE STRIP 7" WIDE BETWEEN STRAP AND PIPE.

PIPE SIZE	STRAP SCHEDULE
14" THROUGH 30" PIPE	STRAP SCHEDULE
14" TO 16"	1/2"x6"
16" TO 20"	5/8"x6"
24" TO 30"	3/4"x6"

**TYPE 22**  
PIPE SUPPORT



RESERVED FOR ELECTRICAL AND INSTRUMENTATION.

TYPE "7" PIPE ATTACHMENT FOR 1/2" THROUGH 12" PIPE. SEE DRAWING M2.

TYPE "G1" PIPE GUIDE. SEE DRAWING M1.

TYPE "6" PIPE ATTACHMENT FOR 3/8" THROUGH 8" PIPE. SEE DRAWING M2.

TYPE "G3" PIPE GUIDE. SEE DRAWING M1.

TYPE "G2" PIPE GUIDE. SEE DRAWING M1.

**RACK NOTES:**

- SPACING SHALL BE ON 5'-0 CENTERS. SEE TABLE A/M1.
- MAXIMUM DESIGN WEIGHTS SHALL BE AS FOLLOWS:  
3/8" TO 1 1/4" PIPE -- 100% OF DESIGN WEIGHT, TABLE A/M1.  
1 1/2" TO 12" PIPE -- 50% OF DESIGN WEIGHT, TABLE A/M1.
- TOTAL LOADS ON END CONNECTIONS SHALL NOT EXCEED 1/2 THE MAXIMUM ALLOWABLE LOAD AT MID-POINT.
- VERTICAL SPACING SHALL BE AS REQUIRED.

90° FITTING, UNISTRUT P1346, SUPER STRUT AB-205, OR EQUAL. SEE RACK NOTE 3 ABOVE.

CHANNEL, UNISTRUT P1000, SUPER STRUT A-1200, OR EQUAL.

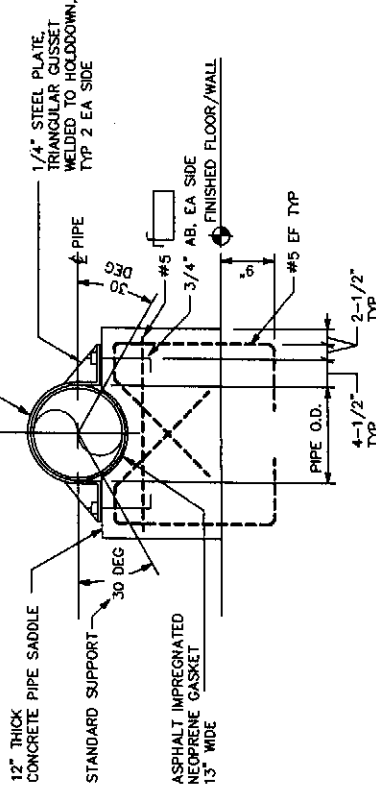
90° FITTING, UNISTRUT P1026, SUPER STRUT AB-202 OR EQUAL. SEE RACK NOTE 3 ABOVE.

POST BASE, UNISTRUT P1887, SUPER STRUT AP-206, OR EQUAL.

6" MAX., 1" MIN. GROUT AFTER INSTALLATION.

3/8" ANCHOR BOLTS WITH LEVELING NUTS. LENGTH AS REQUIRED.

**TYPE 21**  
TYPICAL PIPE SUPPORT RACK



**TYPE 23**  
CONCRETE SADDLE PIPE SUPPORT

NOTE:  
THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE. SOME OF THE DETAILS OR INFORMATION PRESENTED ON THIS DRAWING MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
1-800-424-5555

**HAMMOND COLLIER**  
WADE LIVINGSTONE

SEATTLE (206) 632-2664  
OMAK (509) 826-3861  
LAKEWOOD (253) 472-1992

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS

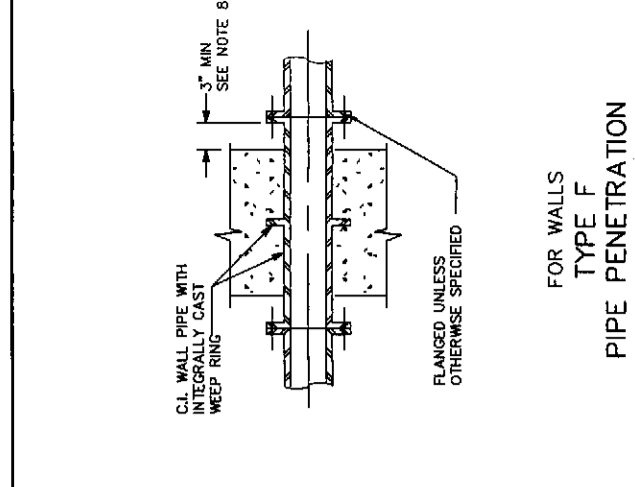
PIPE SUPPORTS, STRUCTURAL ATTACHMENTS AND SUPPORT ASSEMBLIES

DESIGNED BY: LR  
DRAWN BY: MR  
CHECKED BY: JFW  
DATE PRINTED: 09/20/07  
SCALE: NOT TO SCALE  
F.B. NO.

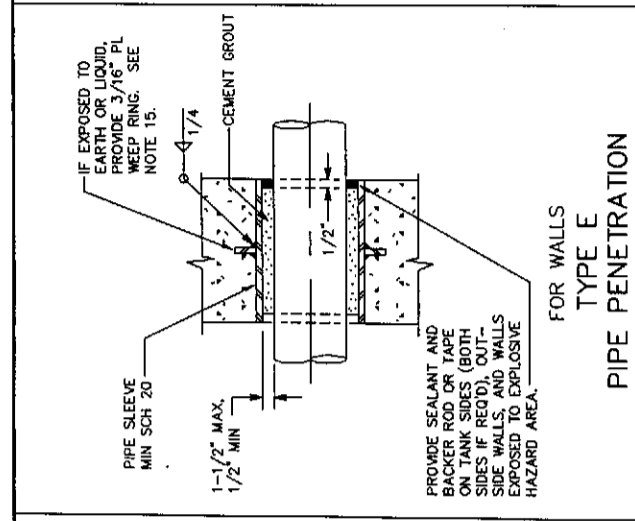
REVISIONS

NO.	DATE	DESCRIPTION
1	11/08/06	

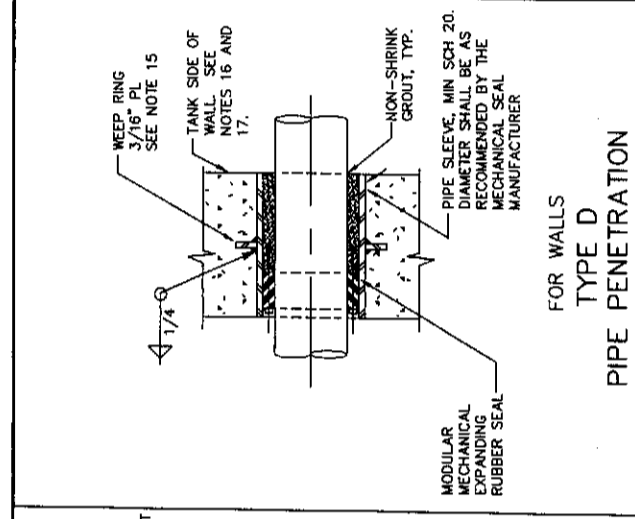
JOB NO. 0523004-03  
DRAWING NO. M3  
SHEET OF



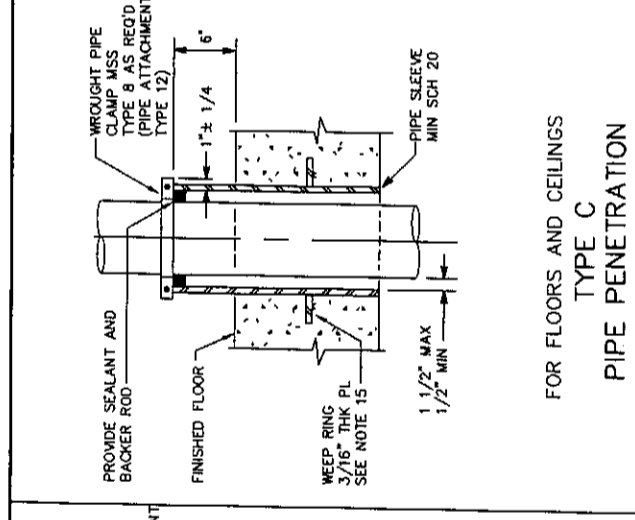
FOR FLOORS  
TYPE A  
PIPE PENETRATION



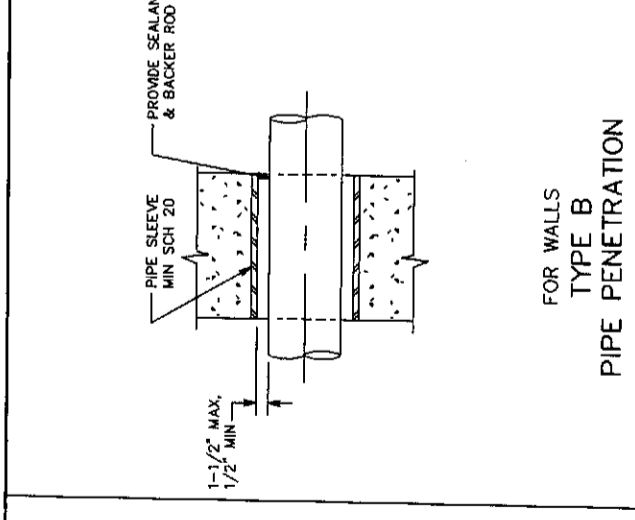
FOR WALLS  
TYPE B  
PIPE PENETRATION



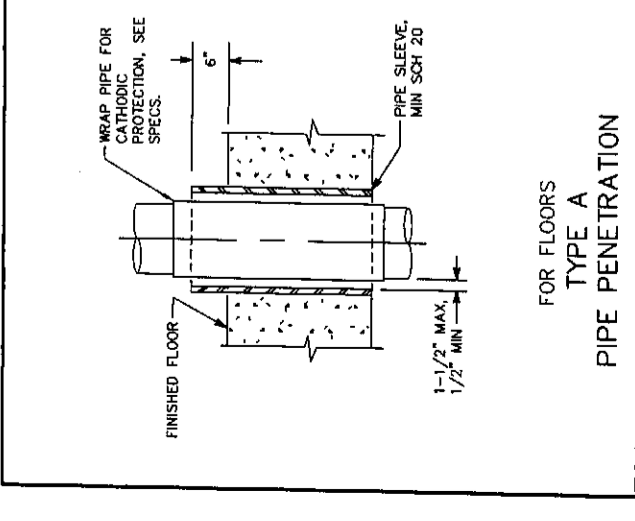
FOR FLOORS AND CEILINGS  
TYPE C  
PIPE PENETRATION



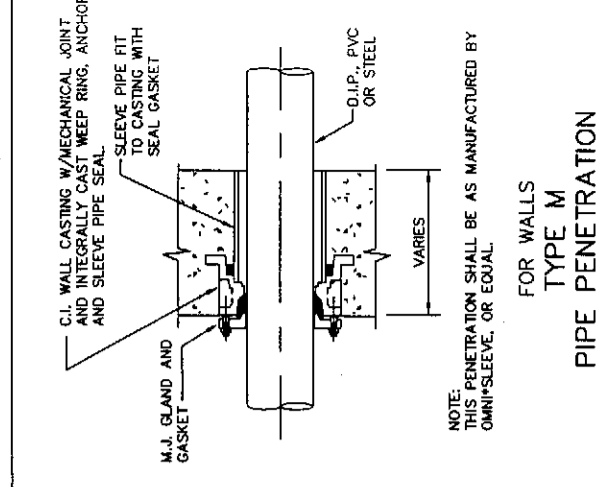
FOR WALLS  
TYPE D  
PIPE PENETRATION



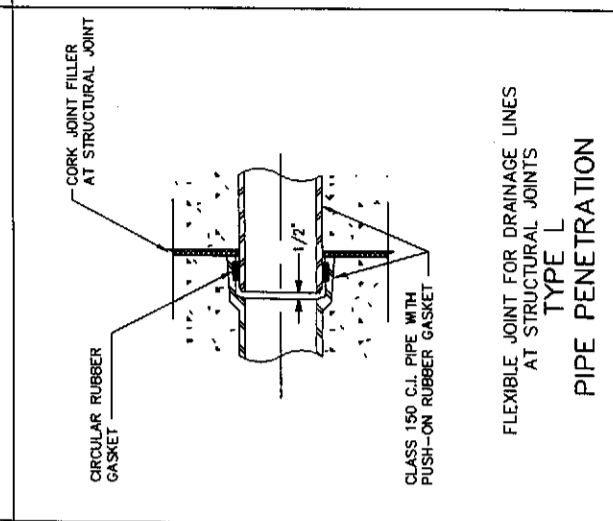
FOR WALLS  
TYPE E  
PIPE PENETRATION



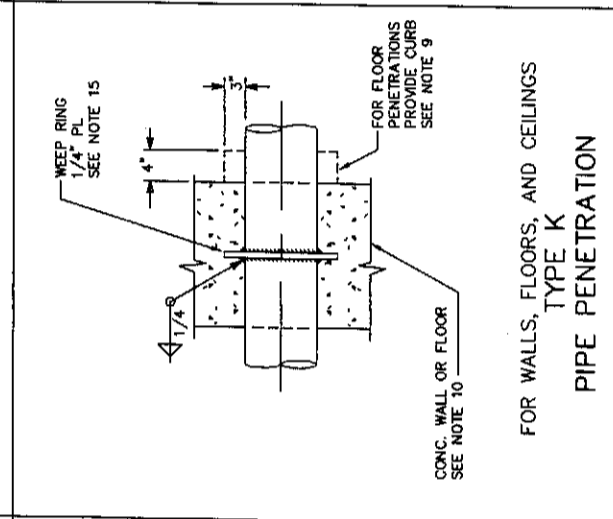
FOR WALLS  
TYPE F  
PIPE PENETRATION



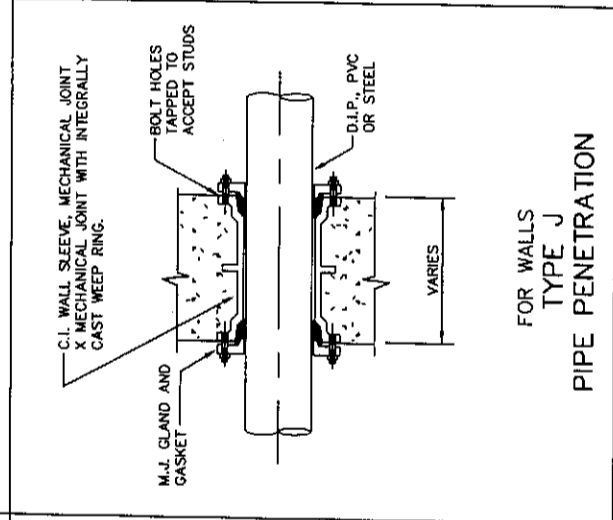
FOR WALLS  
TYPE G  
PIPE PENETRATION



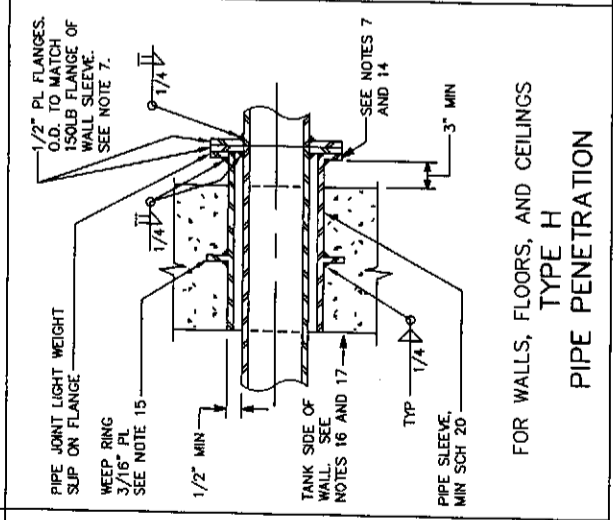
FOR WALLS, FLOORS, AND CEILINGS  
TYPE H  
PIPE PENETRATION



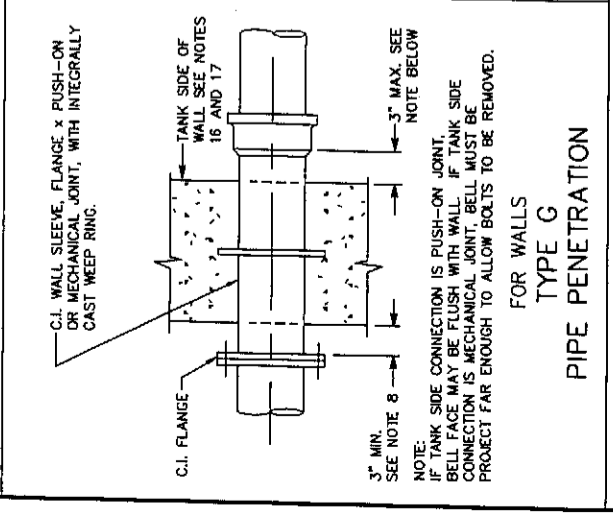
FOR WALLS  
TYPE I  
PIPE PENETRATION



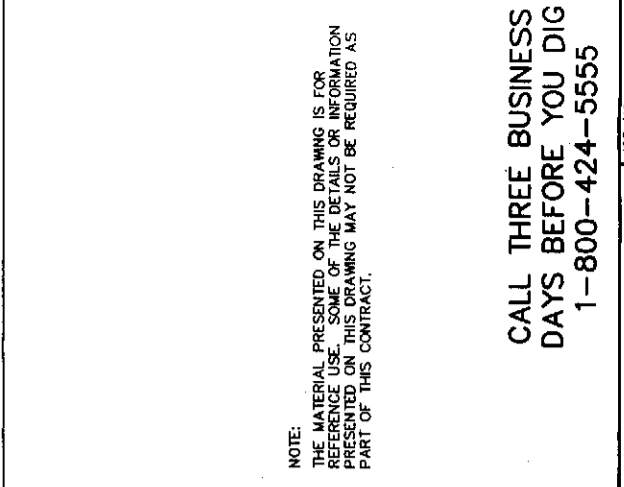
FOR WALLS, FLOORS, AND CEILINGS  
TYPE J  
PIPE PENETRATION



FOR WALLS, FLOORS, AND CEILINGS  
TYPE K  
PIPE PENETRATION



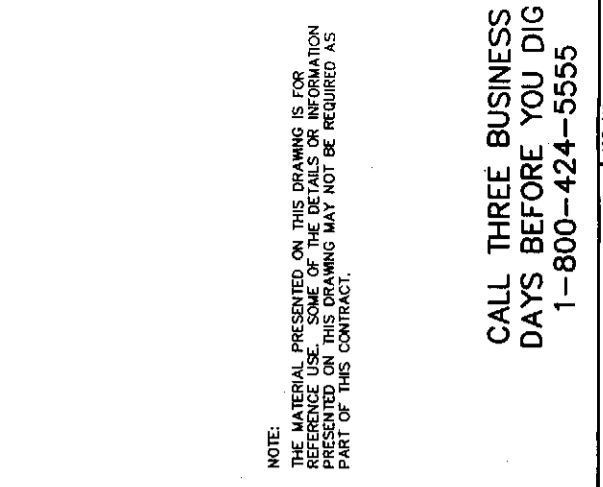
FOR WALLS  
TYPE L  
PIPE PENETRATION



FOR WALLS  
TYPE M  
PIPE PENETRATION

PIPE PENETRATION NOTES:

- WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE AT LEFT, EXCEPT AS OTHERWISE SPECIFIED.
- IN TABLE AT LEFT, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
- IN TABLE AT LEFT, "PASSAGE" SHALL MEAN ANY ROOM, GALLERY, TUNNEL, OR SIMILAR ENCLOSURE.
- IN TABLE AT LEFT, WATER SURFACE "MS" SHALL MEAN AN ELEVATION 9-INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
- ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- IN CONDITION 5, TYPE D,E,H,J, OR K SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
- SEAL FLANGES SHALL BE FACED AND DRILLED TO 150 POUND STANDARD. EACH JOINT SHALL BE FULL FACE GASKETED.
- WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
- PROVIDE CURB WHERE PENETRATING FLOOR, EXCEPT FOR PENETRATION TYPES A, C, AND H. CURB SHALL BE 4" HIGH BY 3" WIDE.
- PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.



FOR WALLS  
TYPE N  
PIPE PENETRATION

CONDITION		PIPE PENETRATION TYPES	
FROM	TO	TYPE	
1	TANK	STEEL PIPE	CAST IRON
2	TANK	TANK BELOW W.S.	TANK ABOVE W.S.
3	PASSAGE	TANK BELOW W.S.	TANK ABOVE W.S.
4	PASSAGE	TANK BELOW W.S.	TANK ABOVE W.S.
5	PASSAGE	PASSAGE	PASSAGE
6	PASSAGE	OUTSIDE WALL	ROOF
7	PASSAGE	OUTSIDE WALL	ROOF
8	TANK	OUTSIDE WALL	OUTSIDE WALL

**CALL THREE BUSINESS DAYS BEFORE YOU DIG**  
1-800-424-5555

**HAMMOND COLLIER**  
WADE LIVINGSTONE

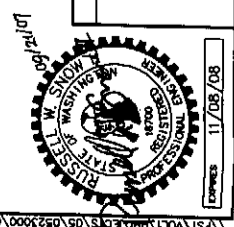
SEATTLE (206) 632-2664  
OMAK (509) 826-9861  
WENATCHEE (509) 662-1762  
LAKEWOOD (253) 472-1992

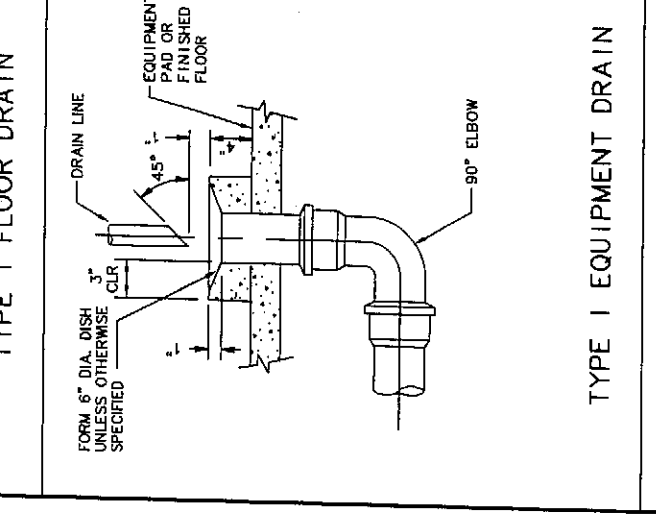
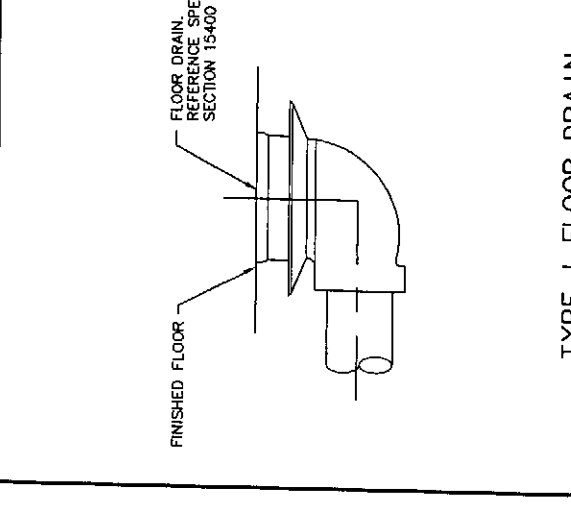
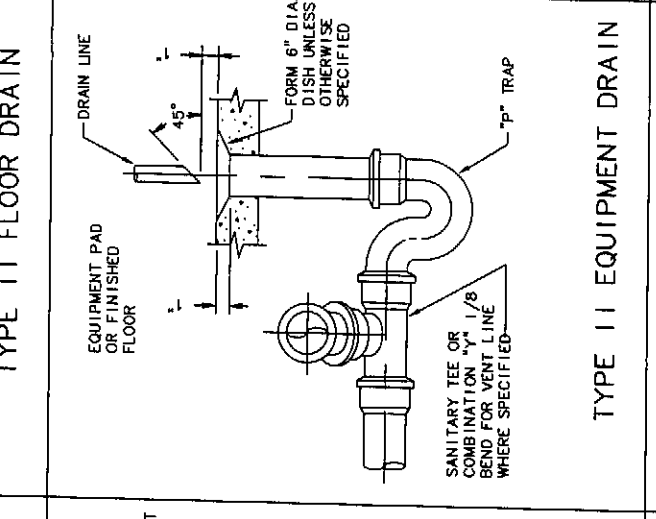
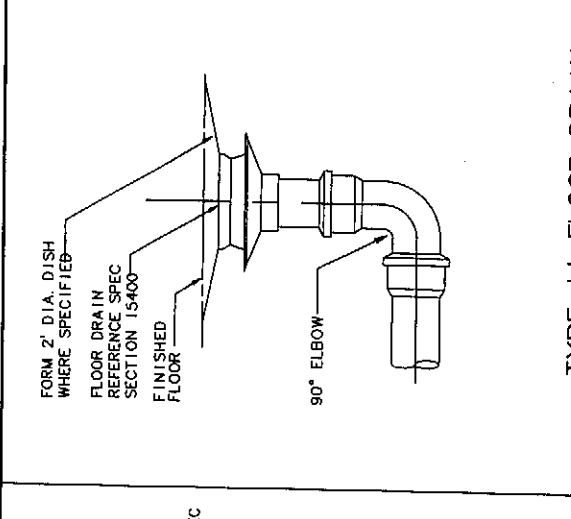
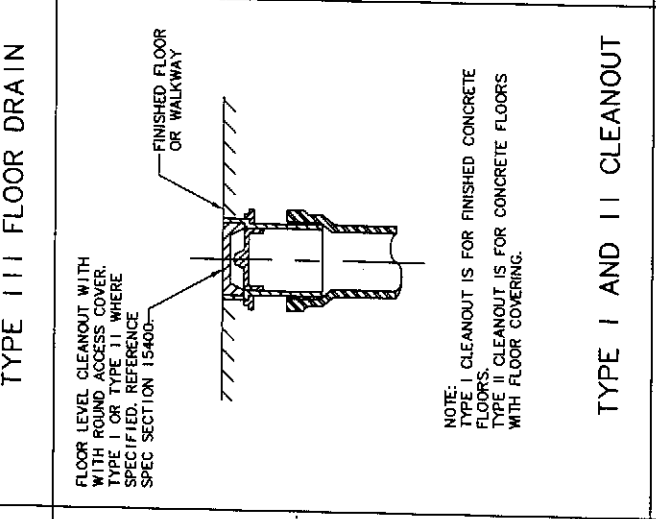
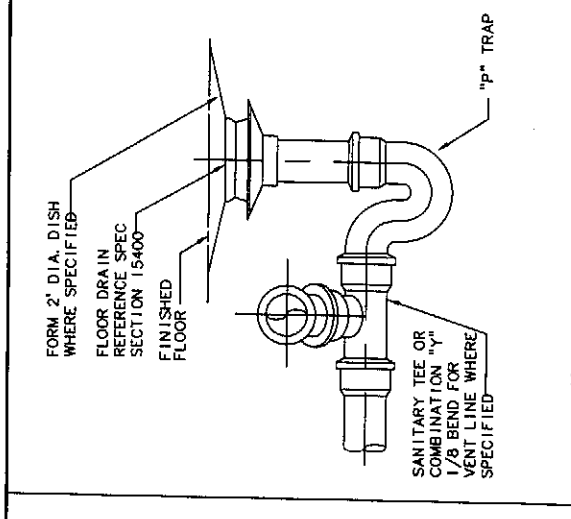
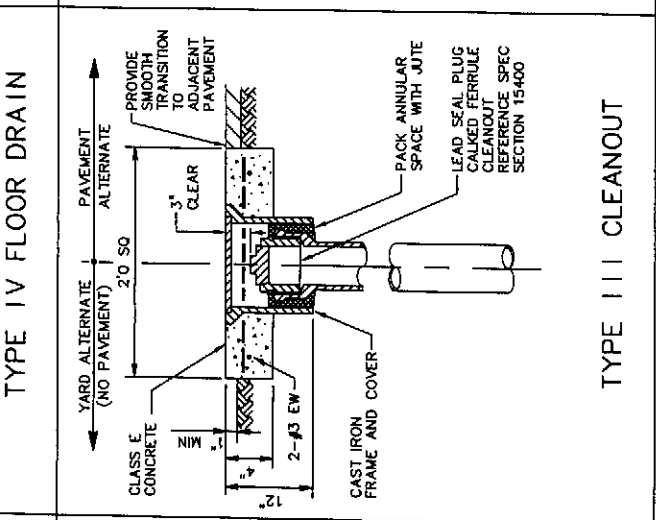
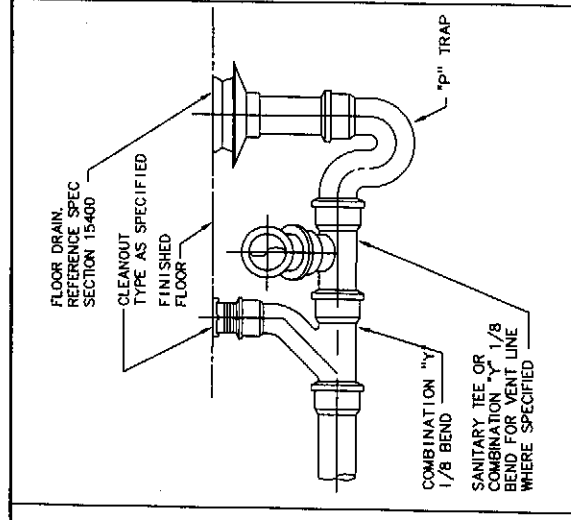
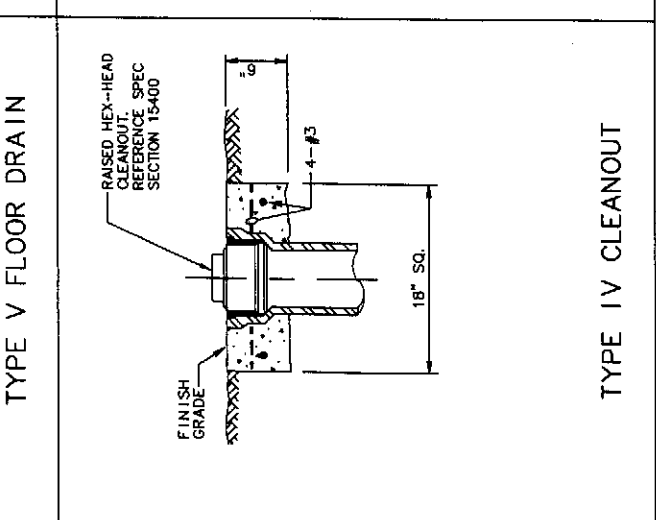
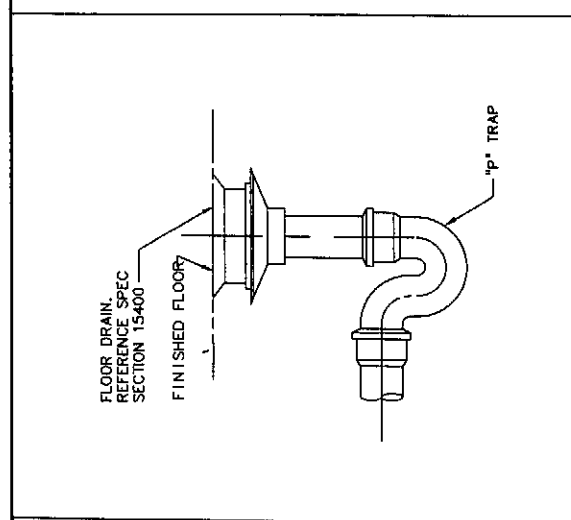
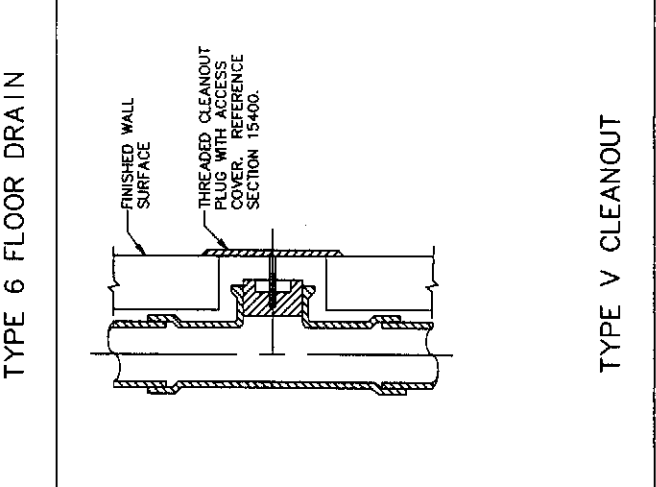
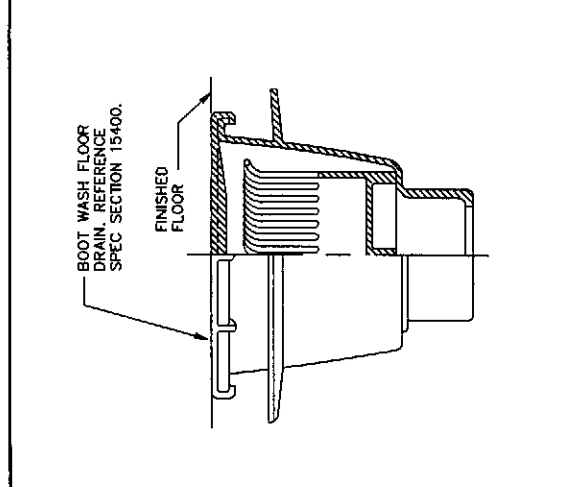
CITY OF ENTIAI  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS

PIPE PENETRATION DETAILS

DESIGNED BY	RS
DRAWN BY	MR
CHECKED BY	<i>[Signature]</i>
APPROVED BY	<i>[Signature]</i>
DATE PRINTED	09/20/07
SCALE	NOT TO SCALE
FB. NO.	

JOB NO. 0523004-03  
DRAWING NO. M4  
SHEET OF





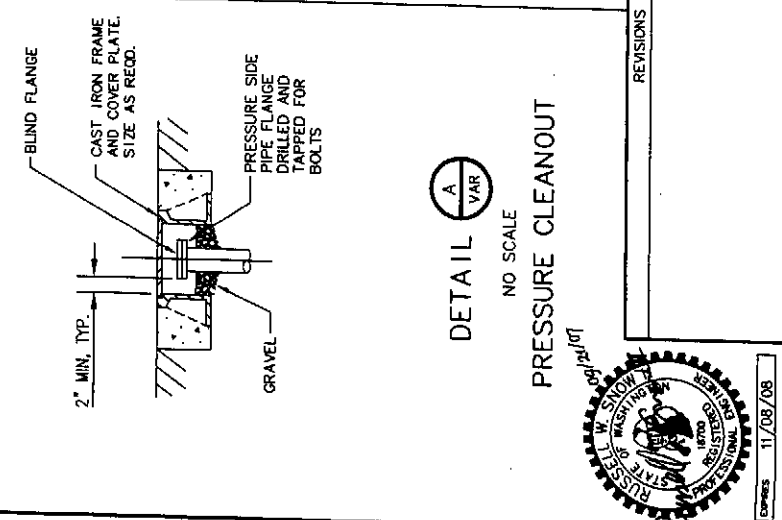
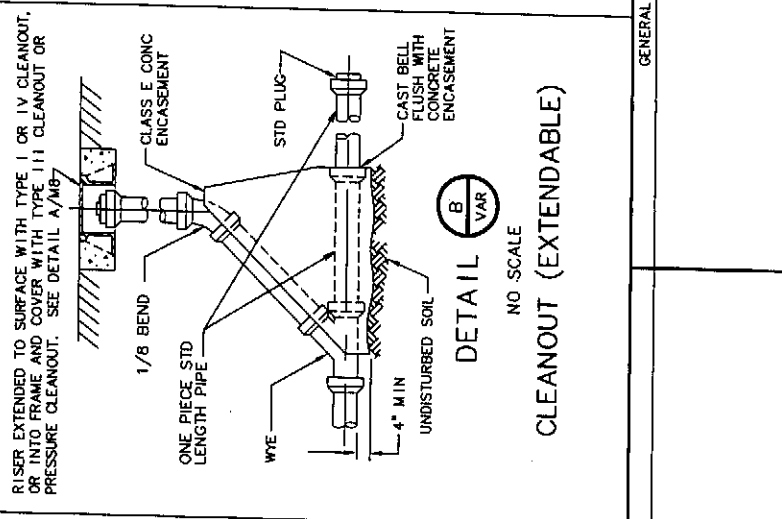
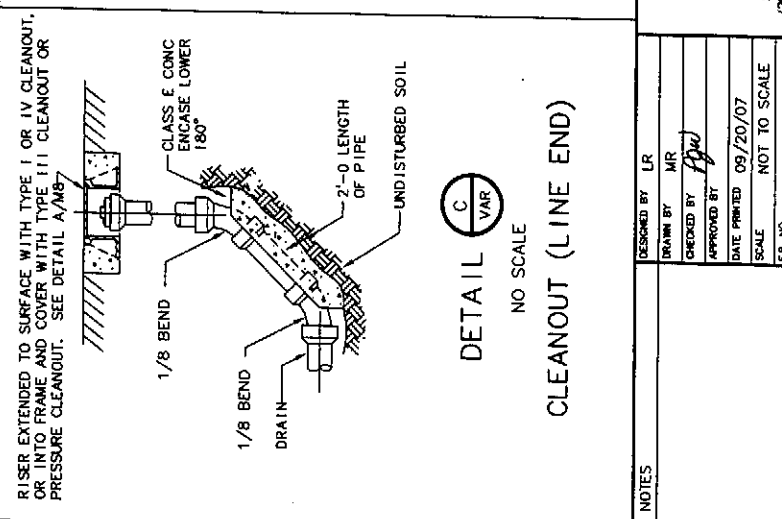
**ABBREVIATIONS**

CO	CLEANOUT
D	DRAIN
ED	EQUIPMENT DRAIN
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
RD	ROOF DRAIN
SCD	SCUPPER DRAIN
SD	SANITARY DRAIN
SSK	SERVICE SINK
T	TRAP
TP	TRAP PRIMER
V	VENT
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
YCO	YARD CLEANOUT

**NOTES:**

1. THE CONTRACTOR SHALL DO ALL WORK REQUIRED BY AND IN ACCORDANCE WITH STATE AND LOCAL PLUMBING CODES.
2. UNLESS OTHERWISE SPECIFIED AND EXCEPT IN PEDESTRIAN AREAS SUCH AS OFFICES, LABORATORY AREAS, WASHROOMS, JANITOR ROOMS, ETC., ALL FLOOR DRAINS AND CLEANOUTS SHALL BE PROVIDED WITH GALLY DIKROME DUCTILE GRATES.
3. HORIZONTAL DRAINAGE SHALL HAVE A SLOPE OF 1/4-INCH PER FOOT.
4. CLEANOUTS FOR HORIZONTAL DRAINAGE PIPES SHALL BE PROVIDED IN ACCORDANCE WITH THE PLUMBING CODE.
5. NOT ALL CLEANOUTS AND DRAINS ARE USED IN THESE CONTRACT DRAWINGS.

**NOTE:**  
THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE. SOME OF THE DETAILS OR INFORMATION PRESENTED ON THIS DRAWING MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.



**CALL THREE BUSINESS DAYS BEFORE YOU DIG**  
1-800-424-5555

**CITY OF ENTIAI**  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS

**HAMMOND COLLIER**  
WADE LIVINGSTONE

PLUMBING DRAINS AND CLEANOUTS

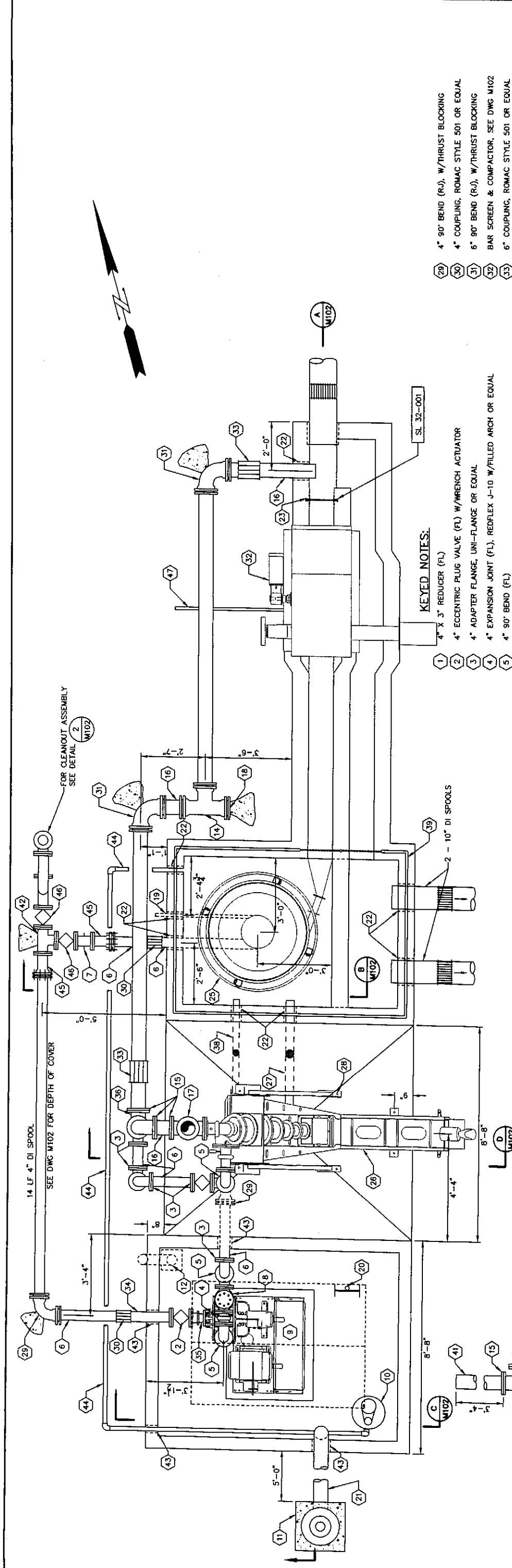
JOB NO. 0523004-03  
DRAWING NO. M5  
SHEET OF

DESIGNED BY LR  
DRAWN BY MR  
CHECKED BY  
DATE PRINTED 09/20/07  
SCALE NOT TO SCALE  
F.B. NO.

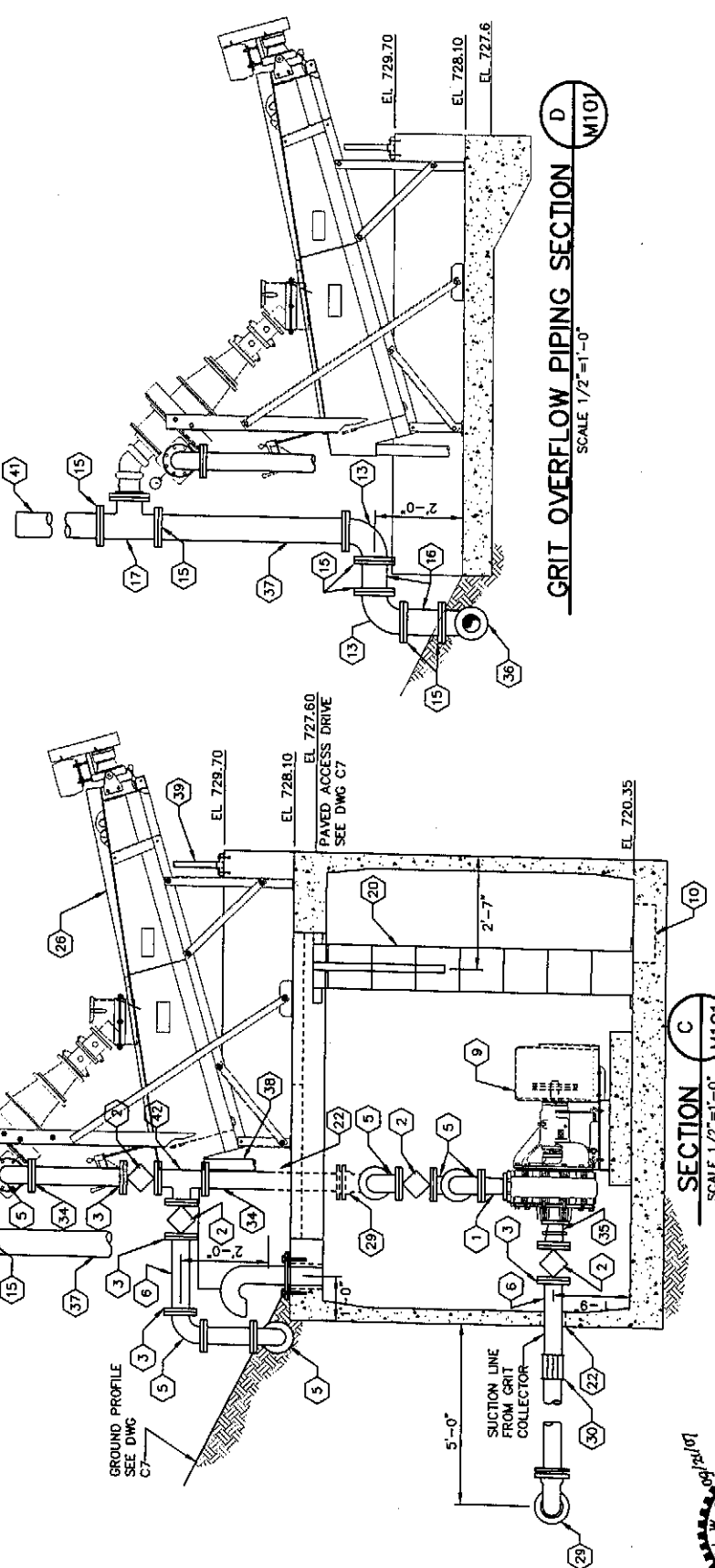
REVISIONS

SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-3861  
LAKEWOOD (253) 472-1992

EXPIRES 11/09/08



**HEADWORKS PLAN**  
SCALE 1/2"=1'-0"



**GRIT OVERFLOW PIPING SECTION**  
SCALE 1/2"=1'-0"

- 29 4" 90° BEND (R), W/THRUST BLOCKING
- 30 4" COUPLING, ROMAC STYLE 501 OR EQUAL
- 31 6" 90° BEND (R), W/THRUST BLOCKING
- 32 BAR SCREEN & COMPACTOR, SEE DWG M102
- 33 6" COUPLING, ROMAC STYLE 501 OR EQUAL
- 34 4" DI SPOOL (FL) (PE)
- 35 4"x3" CONCENTRIC REDUCING EXPANSION JOINT (FL), REDIFLEX J-11 WITH FILLED ARCH OR EQUAL
- 36 6"x6"x4" REDUCING TEE (FL)
- 37 6" DI SPOOL (FL) (PE)
- 38 3" DIP FROM 2 1/2" NPT TANK OVERFLOW W/3" BACKWATER VALVE W/SLAB LEVEL CLEANOUT, ZURN Z1085-15 OR EQUAL. SEE DWG M105 FOR CONNECTION DETAILS
- 39 NEW GUARDRAIL AND CHAIN GATE, SEE C507
- 40 4" TEE (R), W/THRUST BLOCKING
- 41 6" PVC SCH 40 SPOOL (PE)
- 42 4" TEE (FL)
- 43 TYPE D PIPE PENETRATION
- 44 1 1/2" SCH. 80 PVC
- 45 4" ADAPTER (FL) (R)
- 46 4" ECCENTRIC PLUG VALVE SUITABLE FOR BURIED SERVICE WITH WORM GEAR ACTUATOR, 2" SQUARE OPERATOR NUT VALVE BOX AND COVER. INSTALL 6" CONCRETE COLLAR AROUND COVER
- 47 1" PLANT WATER SUPPLY TO BAR SCREEN, SEE DWG C3

**KEYED NOTES:**

- 1 4" X 3" REDUCER (FL)
- 2 4" ECCENTRIC PLUG VALVE (FL) W/WRENCH ACTUATOR
- 3 4" ADAPTER FLANGE, UNI-FLANGE OR EQUAL
- 4 4" EXPANSION JOINT (FL), REDIFLEX J-10 W/FILLED ARCH OR EQUAL
- 5 4" 90° BEND (FL)
- 6 4" DI SPOOL (PE), LENGTH TO FIT
- 7 4" 1 1/4" BEND (FL), W/THRUST BLOCKING
- 8 4" SWING CHECK VALVE W/SPRING ASSIST (FL)
- 9 GRIT PUMP, MEMCO 3" MODEL C TORQUE FLOW OR EQUAL
- 10 16" DIA. X 6" DEEP SUMP WITH HYDROMATIC SD33 SUMP PUMP OR EQUAL, SEE C407
- 11 EXPLOSION-PROOF BLOWER W/SPARK-PROOF FAN BLADES, AERVENT 900R, DIRECT DRIVE, 115V, 1Ø, 3Ø, 3Ø, 1/3 HP, W/RELIEF MODULE-AIRE MA 15 MOLDED FIBERGLASS DOME STYLE ROOF VENT, ON 24" X 24" X 4" CONCRETE PAD (EL 728.0) AND PVC COATED BRD SCREEN.
- 12 5" SCH 40 GALVANIZED GRIT PUMP VAULT AIR INTAKE ELL. SEE DETAIL M107
- 13 6" 90° BEND (FL)
- 14 6" TEE (R), W/THRUST BLOCKING
- 15 6" ADAPTER FLANGE, UNI-FLANGE OR EQUAL
- 16 6" DI SPOOL (PE), LENGTH TO FIT
- 17 6" TEE (FL)
- 18 6" PLUG WITH THRUST BLOCKING
- 19 1" FLUIDIZING SUPPLY WATER LINE, SEE DWG C3
- 20 GALVANIZED STEEL LADDER W/BILCO LADDER-UP" MODEL LU-2 OR EQUAL
- 21 6" SCH 40 PVC PIPE, ELBOWS AND FITTINGS TO BLOWER DISCHARGE
- 22 TYPE E PIPE PENETRATION
- 23 2"-6 1/4" X 1"-3/8" FIBERGLASS STOP PLATE WITH HEAVY DUTY CAST ALUMINUM HANDLE AND EMBEDDED GUIDES WITH FLUSH BOTTOM GUIDE SEALS, PLASTI-FAB OR EQUAL
- 24 BAR SCREEN, SELF-CLEANING WITH WASHER AND COMPACTOR, SCHLOSS MARK IX-A BAR SCREEN H&I OR EQUAL
- 25 GRIT COLLECTOR WITH (3)- 4FT TRAYS, CENTRIFUGAL MANIFOLD AND SUPPORT STRUCTURE GROUTED IN-PLACE, EUTEK SYSTEMS HEADCELL OR EQUAL. SUBMIT SHOPS
- 26 GRIT CLASSIFIER & WASHER, MEMCO WEIR END MOUNTED 1000C MEMCONE STRAIGHT TANK 12" HYDROGRITTER OR EQUAL
- 27 4" D.I. DRAIN PIPE W/BACKWATER VALVE, SEE DWG M102
- 28 SEE DWG M105 FOR ANCHOR BOLT PLAN

**HAMMOND COLLIER**  
WADE LIVINGSTONE

SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
ONIAK (509) 826-3861  
LAKEWOOD (253) 472-1992

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS

HEADWORKS PLAN AND PROFILE

DESIGNED BY: RNI  
DRAWN BY: MR. DC  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]  
DATE PRINTED: 09/20/07  
SCALE: AS SHOWN  
F.B. NO.

JOB NO. 0523004-03  
DRAWING NO. M101  
SHEET OF

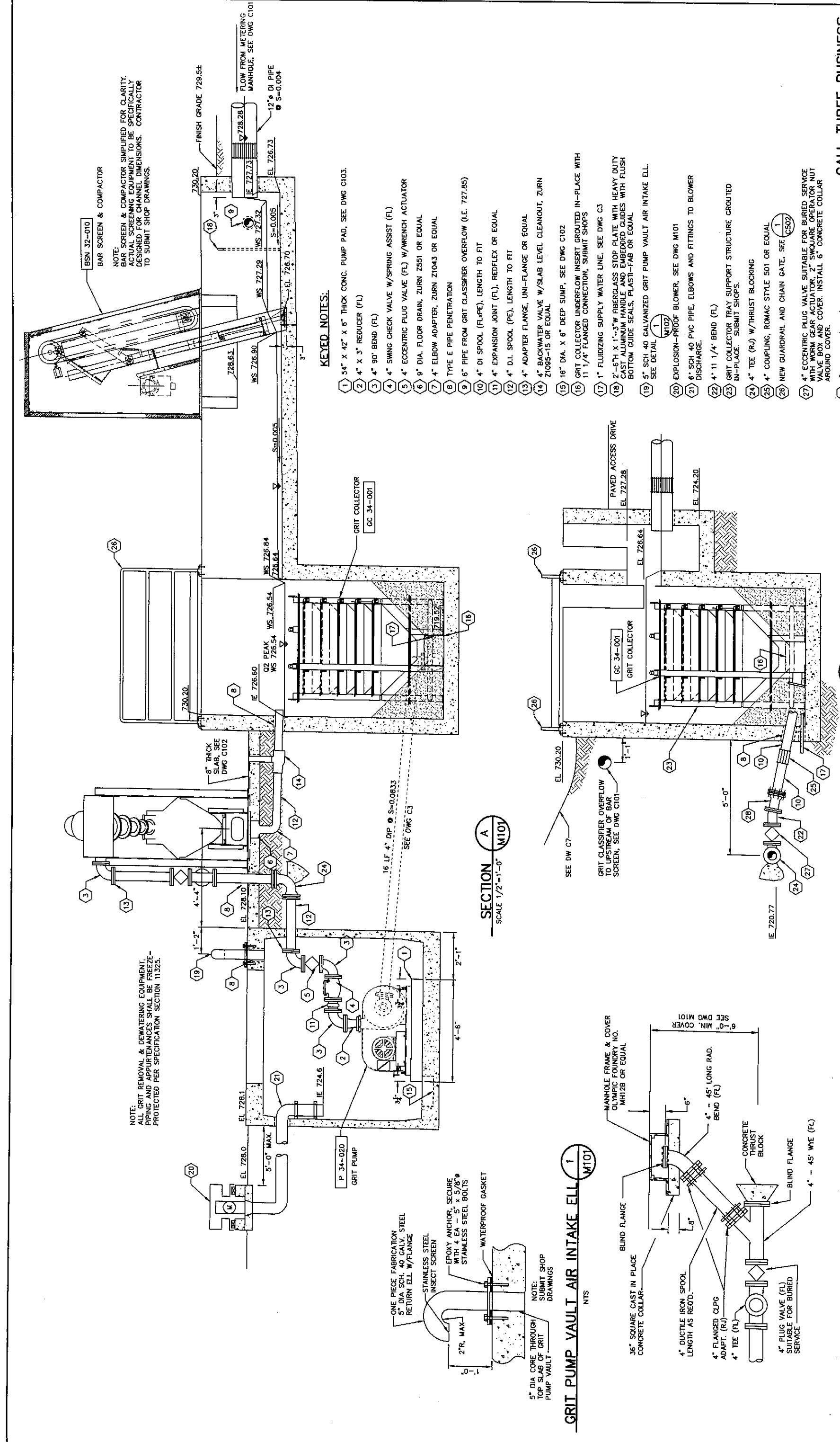
GENERAL NOTES

REVISIONS

11/08/08  
DWG

NOTE:  
ALL GRIT REMOVAL & DEWATERING EQUIPMENT,  
PIPING AND APPURTENANCES SHALL BE FREEZE-  
PROTECTED PER SPECIFICATION SECTION 11323.

NOTE:  
BAR SCREEN & COMPACTOR SIMPLIFIED FOR CLARITY.  
ACTUAL SCREENING EQUIPMENT TO BE SPECIFICALLY  
DESIGNED FOR CHANNEL DIMENSIONS. CONTRACTOR  
TO SUBMIT SHOP DRAWINGS.



**KEYED NOTES:**

- 1 54" X 42" X 6" THICK CONC. PUMP PAD, SEE DWG C103.
- 2 4" X 3" REDUCER (FL)
- 3 4" X 90° BEND (FL)
- 4 4" SWNG CHECK VALVE W/SPRING ASSIST (FL)
- 5 4" ECCENTRIC PLUG VALVE (FL) W/WRENCH ACTUATOR
- 6 9" DIA. FLOOR DRAIN, ZURN Z551 OR EQUAL
- 7 4" ELBOW ADAPTER, ZURN Z1043 OR EQUAL
- 8 TYPE E PIPE PENETRATION
- 9 6" PIPE FROM GRIT CLASSIFIER OVERFLOW (I.E. 727.85)
- 10 4" DI SPOOL (FL-PE), LENGTH TO FIT
- 11 4" EXPANSION JOINT (FL), REDIFLEX OR EQUAL
- 12 4" D.I. SPOOL (PE), LENGTH TO FIT
- 13 4" ADAPTER FLANGE, UNI-FLANGE OR EQUAL
- 14 4" BACKWATER VALVE W/SLAB LEVEL CLEANOUT, ZURN Z1095-15 OR EQUAL
- 15 16" DIA. X 6" DEEP SUMP, SEE DWG C102
- 16 GRIT COLLECTOR UNDERFLOW INSERT GROUDED IN-PLACE WITH 1 1/4" FLANGED CONNECTION, SUBMIT SHOPS
- 17 1" FLUIDIZING SUPPLY WATER LINE, SEE DWG C3
- 18 2"-5" H X 1"-3" W FIBERGLASS STOP PLATE WITH HEAVY DUTY CAST ALUMINUM HANDLE AND EMBEDDED GUIDES WITH FLUSH BOTTOM GUIDE SEALS, PLASTI-FAB OR EQUAL
- 19 5" SCH 40 GALVANIZED GRIT PUMP VAULT AIR INTAKE ELL. SEE DETAIL 1
- 20 EXPLOSION-PROOF BLOWER, SEE DWG M101
- 21 6" SCH 40 PVC PIPE, ELBOWS AND FITTINGS TO BLOWER DISCHARGE.
- 22 4" X 1 1/4" BEND (FL)
- 23 GRIT COLLECTOR TRAY SUPPORT STRUCTURE GROUDED IN-PLACE. SUBMIT SHOPS.
- 24 4" TEE (R.J) W/THRUST BLOCKING
- 25 4" COUPLING, ROMAC STYLE 501 OR EQUAL
- 26 NEW GUARDRAIL AND CHAIN GATE, SEE 1
- 27 4" ECCENTRIC PLUG VALVE SUITABLE FOR BURIED SERVICE WITH WORM GEAR ACTUATOR, 2" SQUARE OPERATOR NUT VALVE BOX AND COVER. INSTALL 6" CONCRETE COLLAR AROUND COVER.
- 28 4" ADAPTER (FL-RJ)

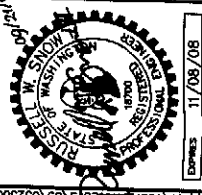
**SECTION A**  
SCALE 1/2"=1'-0"  
M101

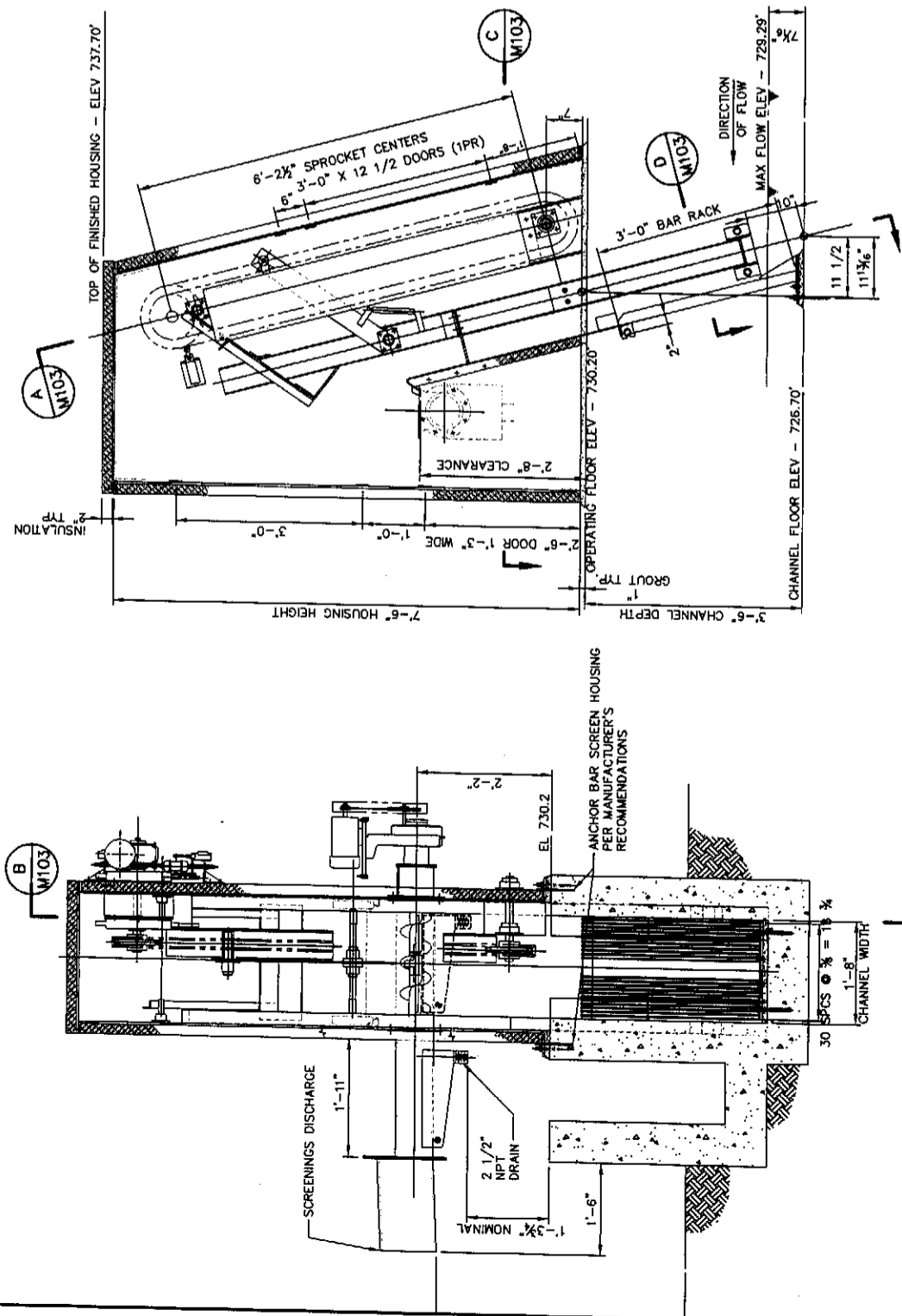
**SECTION B**  
SCALE 1/2"=1'-0"  
M101

**GRIT PUMP VAULT AIR INTAKE ELL**  
NTS  
M101

**FORCE MAIN CLEANOUT ASSEMBLY**  
NTS  
M101

<p>DESIGNED BY: RN DRAWN BY: MR. DG CHECKED BY: JFW APPROVED BY: [Signature] DATE PRINTED: 09/20/07 SCALE: AS SHOWN F.E. NO.</p>		<p>GENERAL NOTES</p>	
<p>REVISIONS</p>		<p>CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS</p>	
<p>SEATTLE (206) 632-2664 WENATCHEE (509) 662-1762 OMAK (899) 828-5861 LAKENWOOD (253) 472-1992</p>		<p>HEADWORKS SECTIONS &amp; DETAILS</p>	
<p>CALL THREE BUSINESS DAYS BEFORE YOU DIG 1-800-424-5555</p>		<p>JOB NO. 0523004-03 DRAWING NO. M102 SHEET OF</p>	

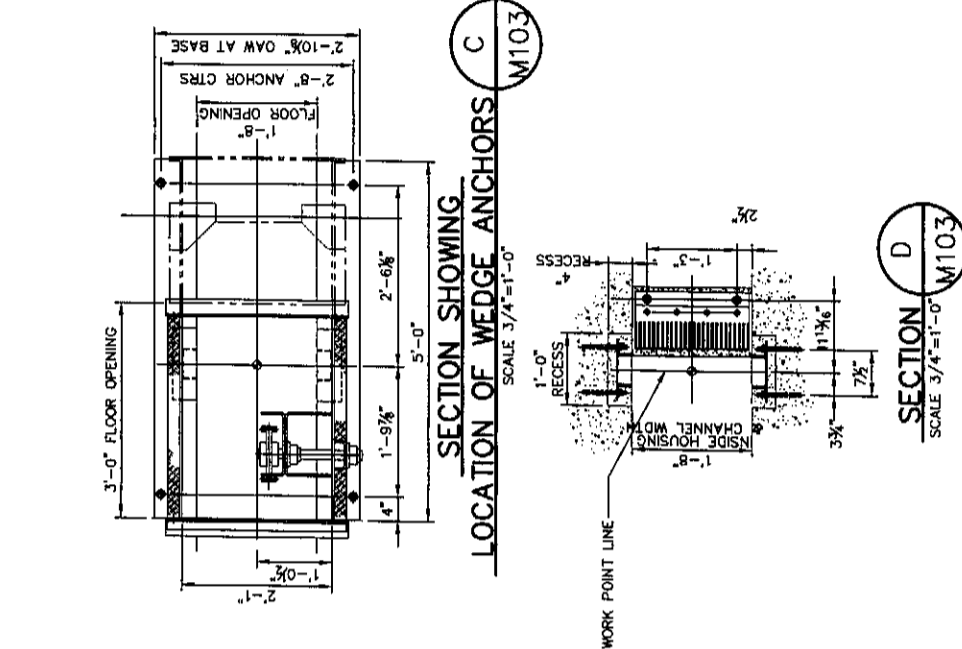




**SECTIONAL FRONT ELEVATION (DOWNSTREAM) A**  
 SCALE 3/4"=1'-0"  
 BOTH DRIVES ON RIGHT, DISCH TO LEFT  
 (RIGHT HAND AS SHOWN)

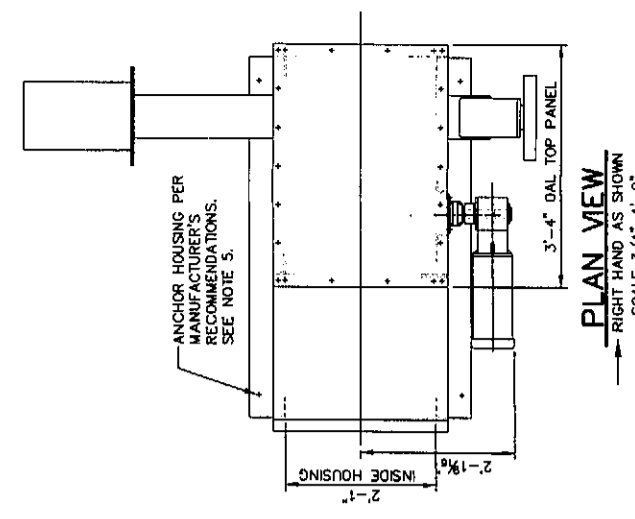
**SECTION B**  
 SCALE 3/4"=1'-0"  
 M103

**SECTION D**  
 SCALE 3/4"=1'-0"  
 M103



**SECTION SHOWING LOCATION OF WEDGE ANCHORS C**  
 SCALE 3/4"=1'-0"  
 M103

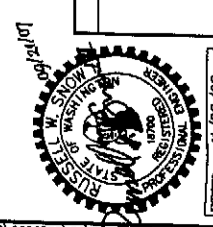
**SECTION D**  
 SCALE 3/4"=1'-0"  
 M103



**PLAN VIEW**  
 RIGHT HAND AS SHOWN  
 SCALE 3/4"=1'-0"

**GENERAL NOTES:**

1. SURFACE PREPARATION, PAINTING AND PROTECTIVE COATINGS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
2. GROUTING OF EQUIPMENT TO BE DONE ONLY AFTER ALIGNMENT IS COMPLETED AND TEST RUN IS PERFORMED.
3. PROVIDE AND INSTALL TWO (2) WARNING SIGNS: "DO NOT PUT HANDS OR TOOLS IN MOVING MACHINERY" AND "CAUTION - THIS MACHINE CONTROLLED AUTOMATICALLY AND MAY START AT ANYTIME."
4. LUBRICANTS TO BE FURNISHED BY CONTRACTOR AS RECOMMENDED BY MANUFACTURER TO SUIT LOCAL CONDITIONS PER INSTALLATION INSTRUCTIONS.
5. BAR SCREEN SHALL BE A SCHLOSS MARK IV-A OR EQUAL. SUBMIT SHOP DRAWINGS.

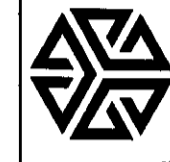


REVISIONS

GENERAL NOTES

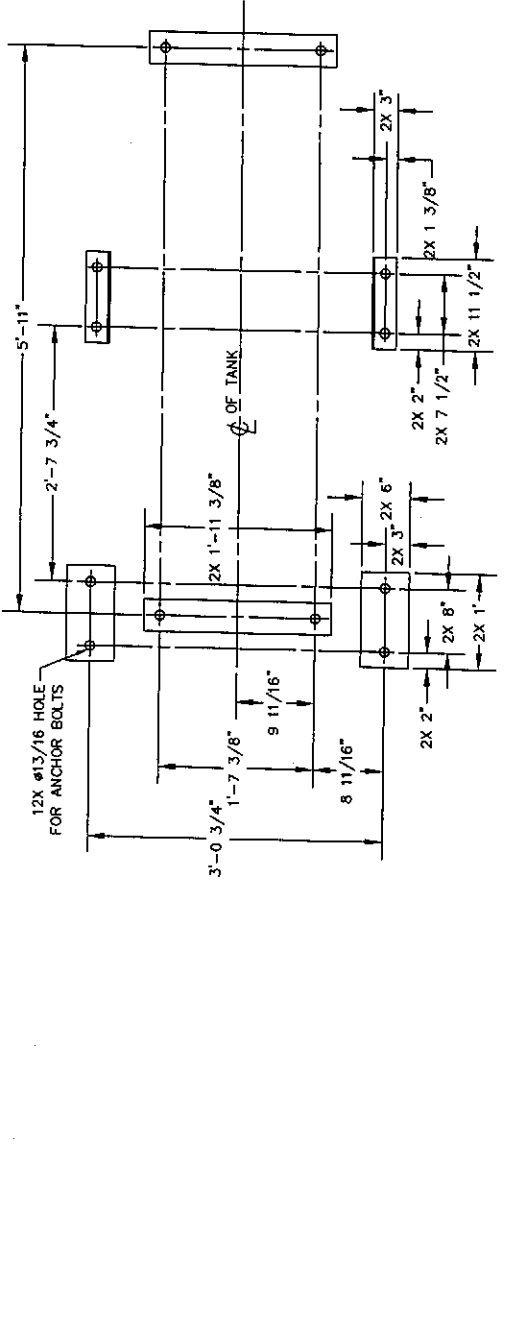
DESIGNED BY	RN
DRAWN BY	MR, DG
CHECKED BY	<i>[Signature]</i>
APPROVED BY	<i>[Signature]</i>
DATE PRINTED	09/20/07
SCALE	AS SHOWN
SHEET NO.	

**HAMMOND COLLIER**  
**WADE LIVINGSTONE**  
 SEATTLE (206) 832-2664  
 WENATCHEE (509) 662-1762  
 OMAHA (509) 826-5861  
 LAKEWOOD (253) 472-1992

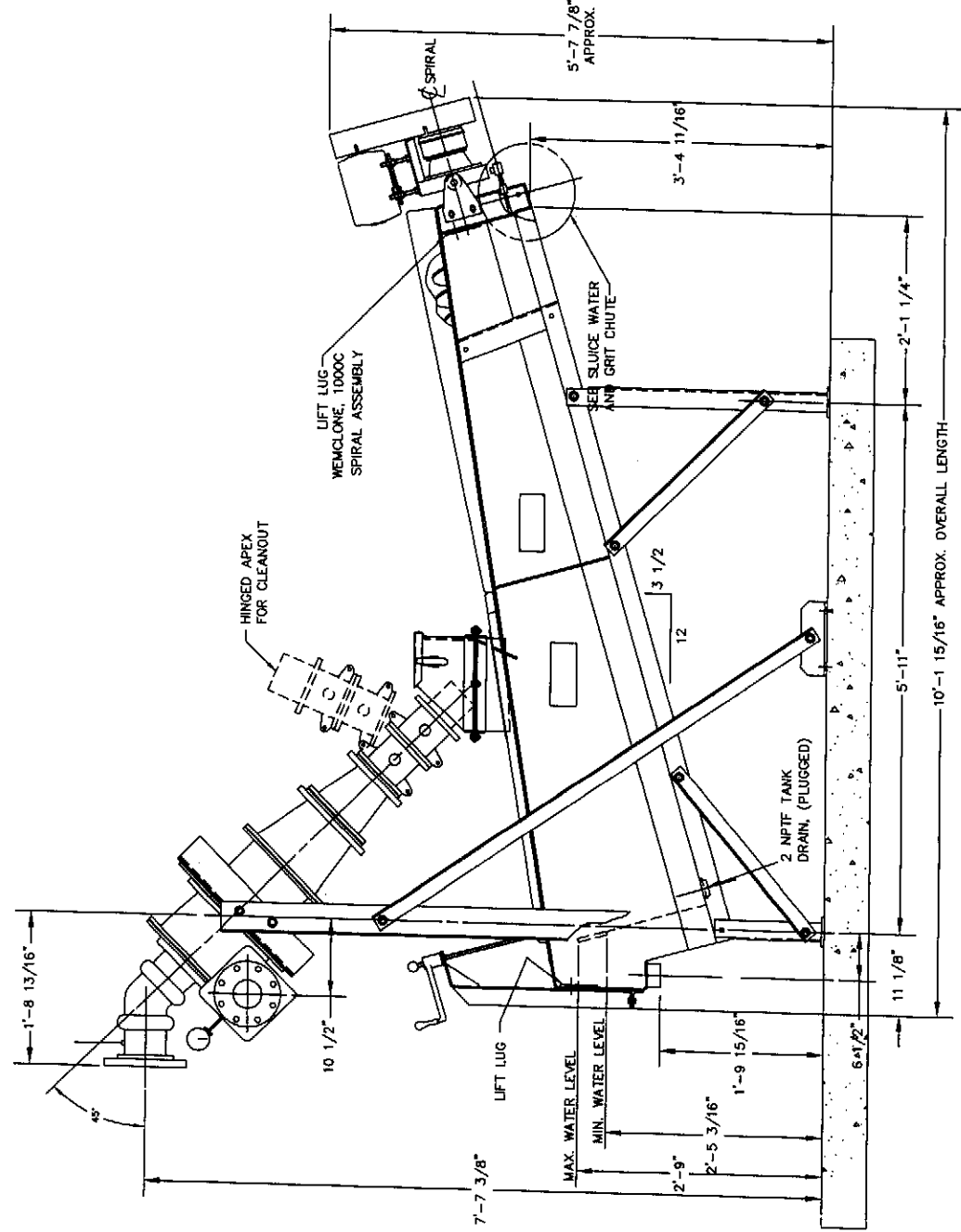


CITY OF ENTIAI  
 2007 WASTEWATER TREATMENT  
 FACILITIES IMPROVEMENTS  
 BAR SCREEN PLAN AND SECTIONS

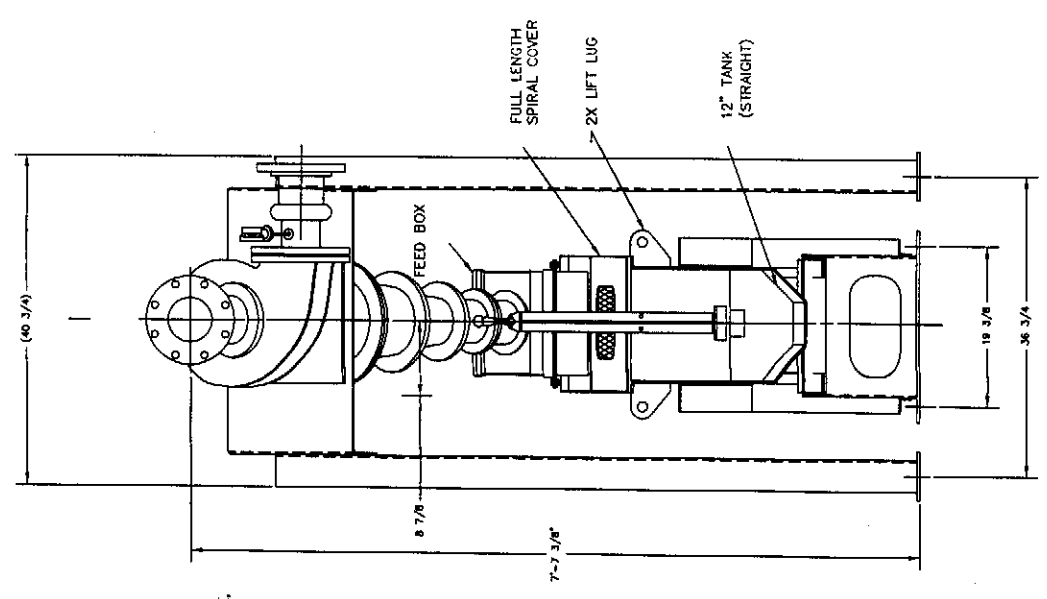
JOB NO.	0523004-03
DRAWING NO.	M103
SHEET	OF



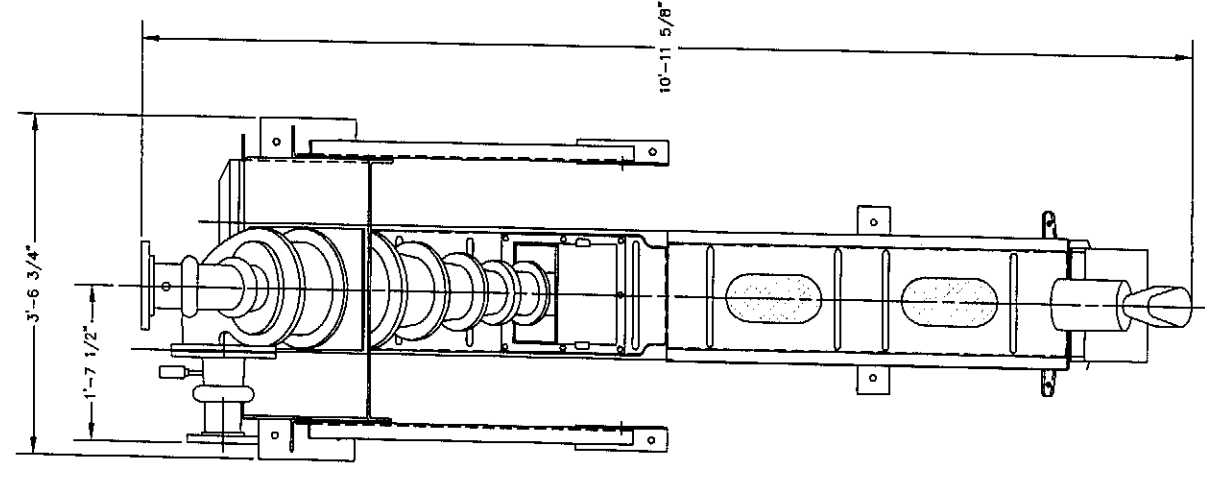
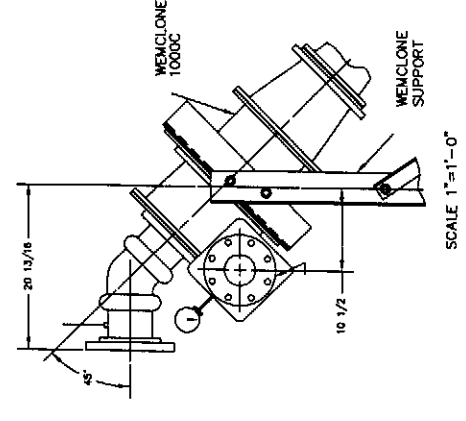
**ANCHOR BOLT PLAN VIEW**  
SCALE 1"=1'-0"



**12" HYDROGRITTER WITH WEIR END MOUNTED 1000C WEMCLONE**  
SCALE 1"=1'-0"



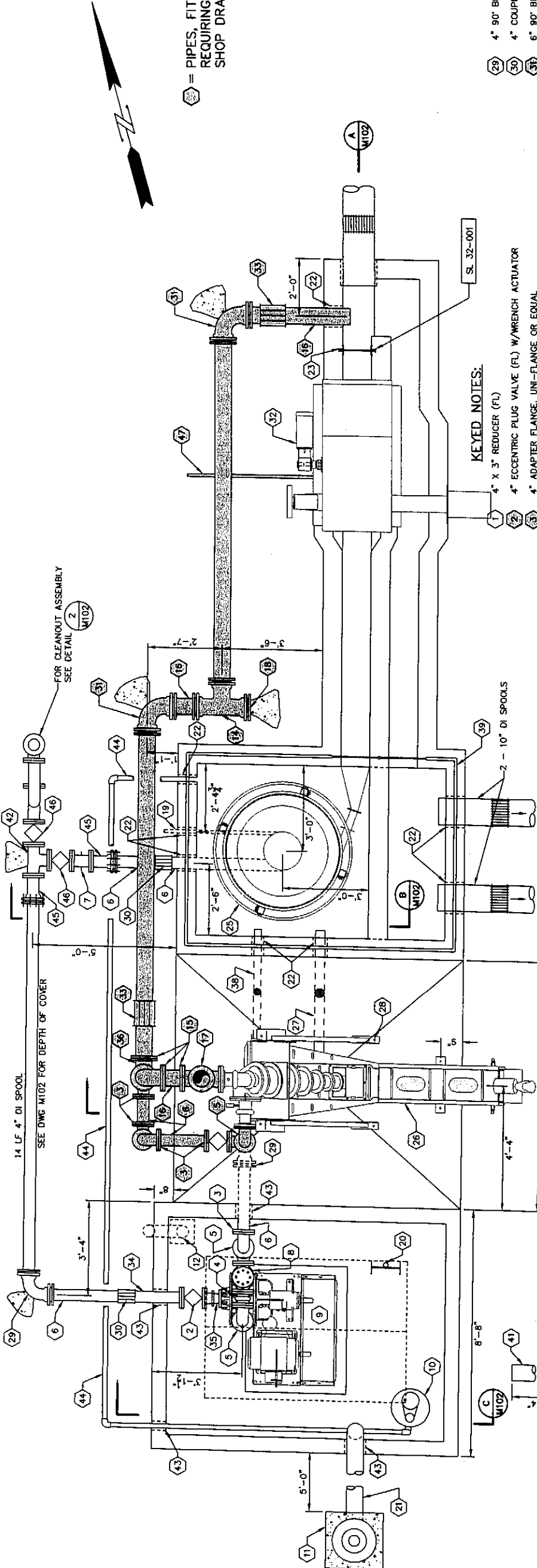
**INLET ARRANGEMENTS 'B' & 'D'**  
SCALE 1"=1'-0"



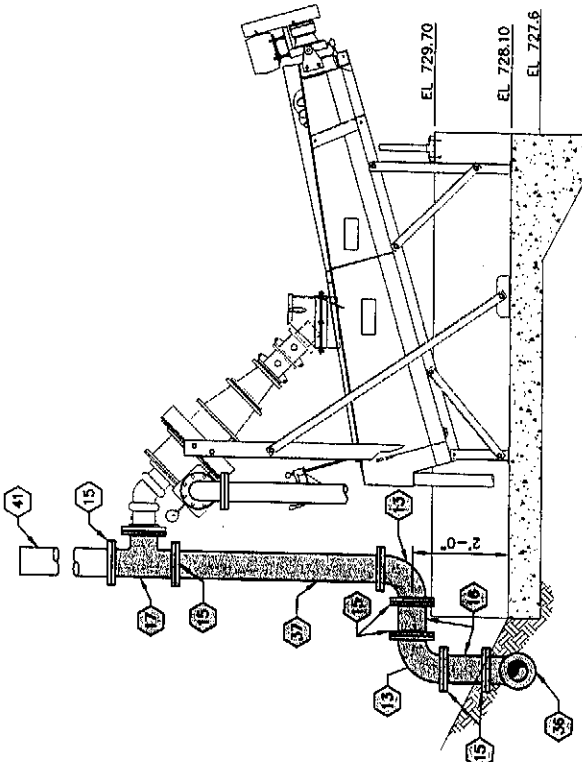
**12" HYDROGRITTER PLAN VIEW**  
SCALE 1"=1'-0"

<p><b>HAMMOND COLLIER WADE LIVINGSTONE</b></p> <p>SEATTLE (206) 632-2664          WENATCHEE (509) 662-1762          OMAHA (888) 826-5861          LAKENWOOD (253) 872-1992</p>	<p>CITY OF ENTIAI          2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS</p>	<p>JOB NO. 0523004-03          DRAWING NO. M104          SHEET 07</p>
	<p>HYDROGRITTER ELEVATIONS AND DETAILS</p>	<p>CALL THREE BUSINESS DAYS BEFORE YOU DIG          1-800-424-5555</p>
<p>DESIGNED BY RN          DRAWN BY MR, DG          CHECKED BY [Signature]          APPROVED BY [Signature]          DATE PRINTED 09/20/07          SCALE AS SHOWN          F.B. NO.</p>	<p>GENERAL NOTES</p>	<p>REVISIONS</p>

⊗ = PIPES, FITTINGS AND APPURTENANCES REQUIRING FREEZE PROTECTION, SUBMIT SHOP DRAWINGS.



**HEADWORKS PLAN**  
SCALE 1/2"=1'-0"



**GRIT OVERFLOW PIPING SECTION D**  
SCALE 1/2"=1'-0"  
M101

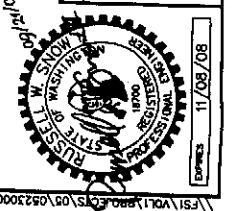
- ⊗ 28 4" 90° BEND (R.U.), W/THRUST BLOCKING
- ⊗ 30 4" COUPLING, ROMAC STYLE 501 OR EQUAL
- ⊗ 31 6" 90° BEND (R.U.), W/THRUST BLOCKING
- ⊗ 32 BAR SCREEN & COMPACTOR, SEE DWG M102
- ⊗ 33 6" COUPLING, ROMAC STYLE 501 OR EQUAL
- ⊗ 34 4" DI SPOOL (FL/PE)
- ⊗ 35 4"x3" CONCENTRIC REDUCING EXPANSION JOINT (FL), REDIFLEX J-11 WITH FILLED ARCH OR EQUAL
- ⊗ 36 6"x6"x4" REDUCING TEE (FL)
- ⊗ 37 6" DI SPOOL (FL/PE)
- ⊗ 38 3" DIP FROM 2 1/2" NPT TANK OVERFLOW W/3" BACKWATER VALVE W/SLAB LEVEL CLEANOUT, ZURN Z1095-15 OR EQUAL. SEE DWG M105 FOR CONNECTION DETAILS
- ⊗ 39 NEW GUARDRAIL AND CHAIN GATE, SEE C502
- ⊗ 40 4" TEE (R.U.), W/THRUST BLOCKING
- ⊗ 41 6" PVC SCH 40 SPOOL (PE)
- ⊗ 42 4" TEE (FL)
- ⊗ 43 TYPE D PIPE PENETRATION
- ⊗ 44 1 1/2" SCH. 80 PVC FROM SUMP PUMP
- ⊗ 45 4" ADAPTER (FL/R.U)
- ⊗ 46 4" ECCENTRIC PLUG VALVE SUITABLE FOR BURIED SERVICE WITH WORM GEAR ACTUATOR, 2" SQUARE OPERATOR NUT VALVE BOX AND COVER, INSTALL 6" CONCRETE COLLAR AROUND COVER
- ⊗ 47 1" PLANT WATER SUPPLY TO BAR SCREEN, SEE DWG C3

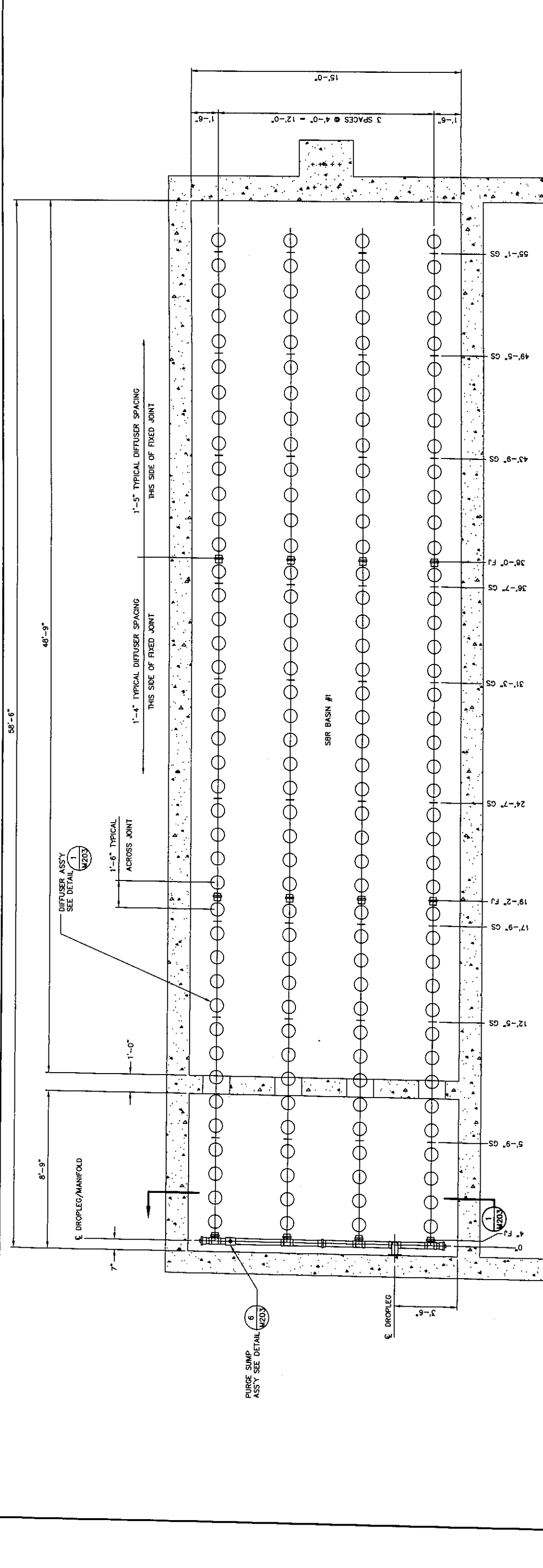
**KEYED NOTES:**

- ⊗ 1 4" X 3" REDUCER (FL)
- ⊗ 2 4" ECCENTRIC PLUG VALVE (FL) W/WRENCH ACTUATOR
- ⊗ 3 ADAPTER FLANGE, UNI-FLANGE OR EQUAL
- ⊗ 4 EXPANSION JOINT (FL), REDIFLEX J-10 W/FILLED ARCH OR EQUAL
- ⊗ 5 90° BEND (FL)
- ⊗ 6 DI SPOOL (FL), LENGTH TO FIT
- ⊗ 7 1 1/4" BEND (FL), W/THRUST BLOCKING
- ⊗ 8 SWING CHECK VALVE W/SPRING ASSIST (FL)
- ⊗ 9 GRIT PUMP, MEMCO 3" MODEL C TORQUE FLOW OR EQUAL
- ⊗ 10 16" DIA. X 6" DEEP SUMP WITH HYDROMATIC SD33 SUMP PUMP OR EQUAL, SEE C402
- ⊗ 11 EXPLOSION-PROOF BLOWER W/SPARK-PROOF FAN BLADES, AERVOENT 900R, DIRECT DRIVE, 115V, 1Ø, 3500 RPM, 1/3 HP, W/RELIEF MODULE-AIRE MA 15 MOLDED FIBERGLASS DOME STYLE ROOF VENT, ON 24" X 24" X 4" CONCRETE PAD (EL 728.0) AND PVC COATED BIRD SCREEN.
- ⊗ 12 5" SCH 40 GALVANIZED GRIT PUMP VAULT AIR INTAKE ELL. SEE DETAIL M102
- ⊗ 13 6" 90° BEND (FL)
- ⊗ 14 6" TEE (R.U.), W/THRUST BLOCKING
- ⊗ 15 6" ADAPTER FLANGE, UNI-FLANGE OR EQUAL
- ⊗ 16 6" DI SPOOL (PE), LENGTH TO FIT
- ⊗ 17 6" TEE (FL)
- ⊗ 18 6" PLUG WITH THRUST BLOCKING
- ⊗ 19 1" FLUIDIZING SUPPLY WATER LINE, SEE DWG C3
- ⊗ 20 GALVANIZED STEEL LADDER W/BILCO LADDER-UP\* MODEL LU-2 OR EQUAL
- ⊗ 21 6" SCH 40 PVC PIPE, ELBOWS AND FITTINGS TO BLOWER DISCHARGE
- ⊗ 22 TYPE E PIPE PENETRATION
- ⊗ 23 2"-6" X 1-3/4" FIBERGLASS STOP PLATE WITH HEAVY DUTY CAST ALUMINUM HANDLE AND EMBEDDED GUIDES WITH FLUSH BOTTOM GUIDE SEALS, PLASTI-FAB OR EQUAL
- ⊗ 24 BAR SCREEN, SELF-CLEANING WITH WASHER AND COMPACTOR, SCHLOSS MARK IX-A BAR SCREEN H&I OR EQUAL
- ⊗ 25 GRIT COLLECTOR WITH (3)-4FT TRAYS, CENTRIFUGAL MANIFOLD AND SUPPORT STRUCTURE GROUTED IN-PLACE, EUTEK SYSTEMS HEADCELL OR EQUAL. SUBMIT SHOPS
- ⊗ 26 GRIT CLASSIFIER & WASHER, MEMCO WEIR END MOUNTED 1000C WEMCLONE STRAIGHT TANK 12" HYDROGRITTER OR EQUAL
- ⊗ 27 4" DI. DRAIN PIPE W/BACKWATER VALVE, SEE DWG M102
- ⊗ 28 SEE DWG M105 FOR ANCHOR BOLT PLAN

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
1-800-424-5555

<p>DESIGNED BY: RN DRAWN BY: MR. DG CHECKED BY: JFW APPROVED BY: JFW DATE PRINTED: 09/20/07 SCALE: AS SHOWN SHEET NO. OF</p>		<p>JOB NO. 0523004-03 DRAWING NO. M105 SHEET 07</p>
<p>CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS</p>		
<p>INSULATED PIPE AND FITTING PLAN</p>		
<p>SEATTLE (206) 632-2664 WENATCHEE (509) 662-1762 OMAK (509) 828-5861 LAKEWOOD (253) 472-1952</p>		<p>INSULATED PIPE AND FITTING PLAN</p>
<p><b>HAMMOND COLLIER WADE LIVINGSTONE</b></p>		





MEMBRANE DISC AERATION SYSTEM MATERIAL AND MANUFACTURING SPECIFICATIONS (304L PVC)

ITEM	MATERIAL SPECIFICATION	MANUFACTURING SPECIFICATION	NOTES
DROPLEG	304L STAINLESS STEEL ASTM A240	FITTINGS: ASTM A774 ASTM A778 ASTM A554 DIMENSIONS:	150# DRILLING FOR TERMINATION FLANGE CONNECTION, 1/2 GAUGE PIPE (0.109") WALL THICKNESS ON DROPLEG. *SEE BELOW
SUPPORTS	304L STAINLESS STEEL PLATES PER ASTM A240 THREADED RODS PER ASTM A276		1" GRADE NOT REQUIRED FOR NON-WELDED PARTS
BOLTS, NUTS, WASHERS	18-8 STAINLESS STL		
FIXED JOINT O-RING	NATURAL RUBBER/SBR		45 ± 5 DUROMETER SHORE A COMPRESSION SET 5% MAX
EXPANSION JOINT O-RING	NATURAL RUBBER/SBR		40 ± 5 DUROMETER SHORE A 0.45 COEFFICIENT OF FRICTION MAX.
LOWER DROPLEG	PVC, ASTM D1784 COMPOUND 12454-B	PIPE: ASTM D1785 FITTINGS: ASTM D2466	
AIR DISTRIBUTORS AND MANIFOLDS	PVC, ASTM D3915 COMPOUND 124524	PIPE: ASTM D3034 FITTINGS: ASTM D3024	MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER HOLDER SUBPLATE, RETAINING RING	PVC, ASTM D3915 COMPOUND 124524		MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER ELEMENT	EPDM		
PVC SOLVENT WELDING	ASTM D2564	ASTM D2855	

\*STAINLESS STEEL DROPLEG FABRICATION FACTORY WELD ONLY WITH MIG, TIG, OR PLASMA-ARC WELDING INERT GAS PROCESSES. FULL PENETRATION BUTT WELDS, ER 316L FILLER WIRE. AFTER FABRICATION-FINISH CLEAN ALL WELDED STAINLESS STEEL ASSEMBLIES BY FULL IMMERSION CLEANING TECHNIQUES IN ACCORDANCE TO 6.2.11 OF ASTM A380-88. THE ACID FOR USE DEFINED BY TABLE A2.1 OF ANNEX A2 OF ASTM A380. FINAL RINSE AND DRY IN ACCORDANCE TO SECTION 8.3 OF ASTM A380. ALL WELDED SURFACES TO CONFORM TO AISI NO. 2D FINISH.

SBR BASIN #1 SHOWN  
SBR BASIN #2 MIRROR IMAGE  
PLAN VIEW  
SCALE 3/8"=1'-0"

- GRID TYPE '1'
- 2 - TANK(S)
  - 1 - GRID(S) PER TANK
  - 4 - AIR DISTRIBUTORS PER GRID
  - 41 - DIFFUSERS PER AIR DISTRIBUTOR
  - 164 - DIFFUSERS PER GRID
  - 328 - TOTAL DIFFUSERS INSTALLED
- FOR THIS GRID TYPE


LEGEND

- FJ - FIXED JOINT SEE DETAIL W203
- GS - GUIDE SUPPORT SEE DETAIL W203
- FOR TYPICAL AIR DISTRIBUTOR SECTION SEE DETAIL W202

DESIGNED BY: NS, RS  
DRAWN BY: MR  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]  
DATE PRINTED: 09/20/07  
SCALE: AS SHOWN  
F.B. NO.:

REVISIONS

GENERAL NOTES



**HAMMOND COLLIER  
WADE LIVINGSTONE**

SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-5861  
LAKWOOD (253) 472-1992

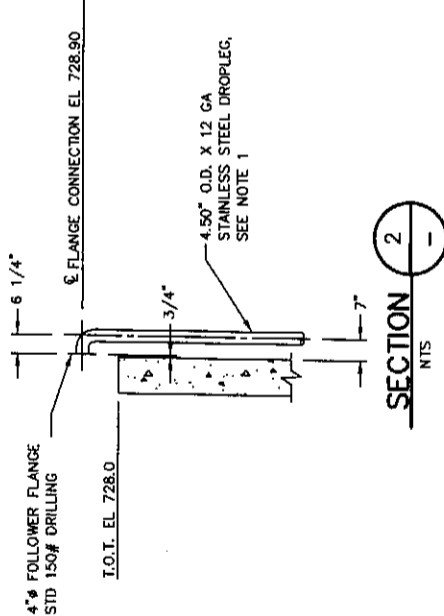
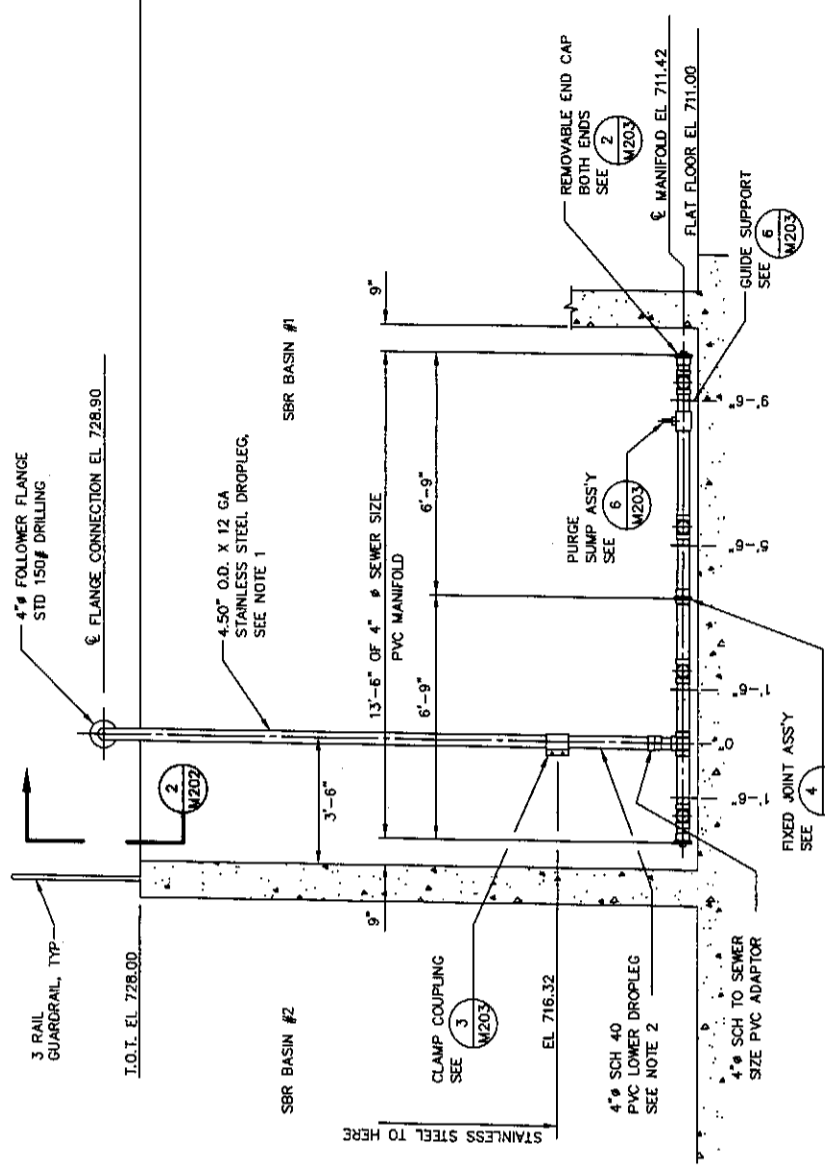
CITY OF ENTIAI  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS

SBR AERATION PLAN VIEW

JOB NO. 0523004-03  
DRAWING NO. M201  
SHEET OF

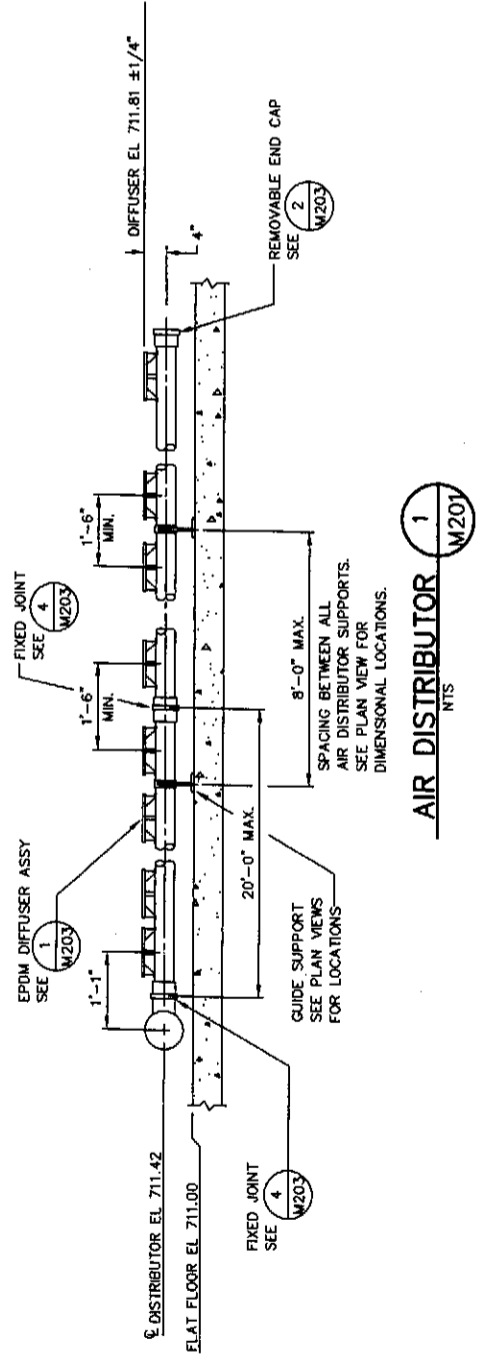
CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

EXPIRES 11/08/08



- NOTES:**
1. INSTALLATION OF THE DROPLEG REQUIRES A PROPERLY SUPPORTED AIR MAIN AND CONNECTION.
  2. MANUFACTURER PROVIDES PVC DROPLEG 6" LONGER THAN REQUIRED, TO ACCOUNT FOR TANK VARIANCES. CONTRACTOR TO CUT TO SUIT AND SOLVENT WELD INTO MANIFOLD TO MAINTAIN 1/8" MAXIMUM GAP BETWEEN STAINLESS STEEL AND PVC DROPLEGS.

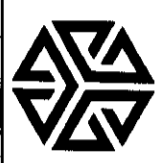
**DROPLEG/MANIFOLD--SBR BASINS 1 & 2**  
 (1) RECD AS SHOWN--(1) MIRROR IMAGE  
 NTS



**AIR DISTRIBUTOR 1**  
 NTS  
 M201

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
 1-800-424-5555

JOB NO.	0523004-03
DRAWING NO.	M202
SHEET	OF



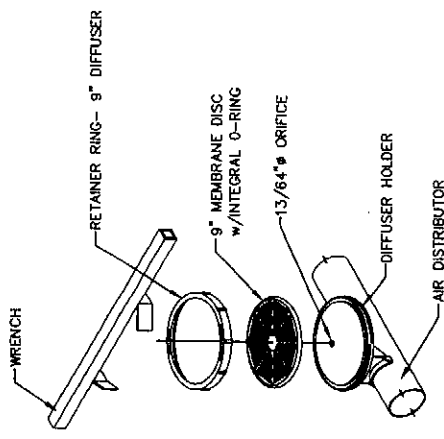
**HAMMOND COLLIER WADE LIVINGSTONE**  
 ONAK (509) 828-5861  
 WENATCHEE (509) 665-1762  
 SEATTLE (206) 632-2664  
 LAKENWOOD (253) 472-1992

DESIGNED BY	NS, RS
DRAWN BY	MR
CHECKED BY	<i>[Signature]</i>
APPROVED BY	
DATE PRINTED	09/20/07
SCALE	AS SHOWN
FILE NO.	

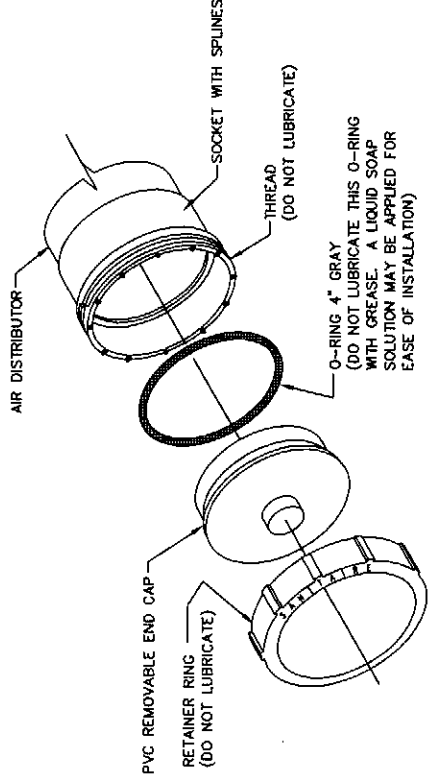
REVISIONS

GENERAL NOTES

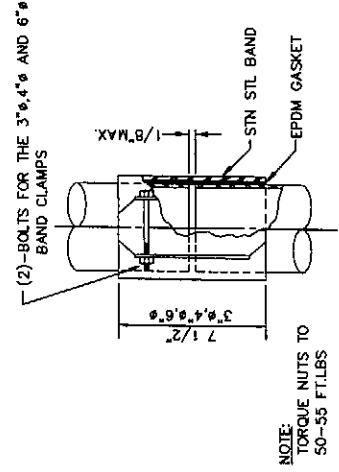
11/08/08



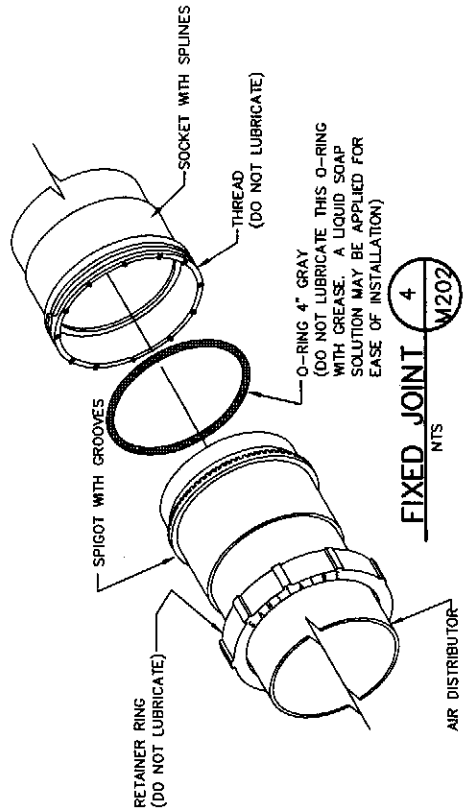
**9" EPDM DIFFUSER ASSEMBLY 1 VAR**  
NTS



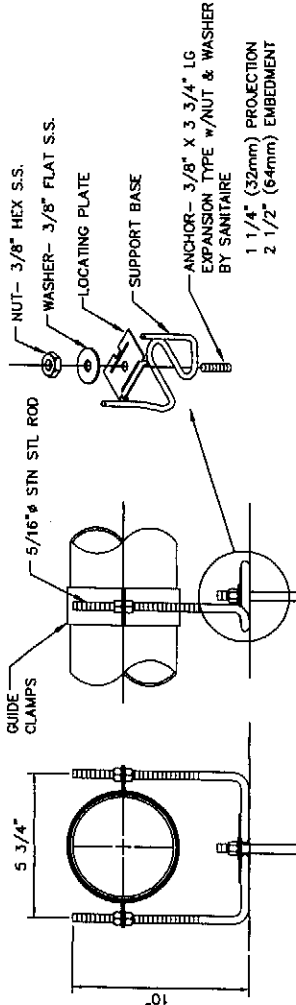
**PVC REMOVABLE END CAP 2**  
NTS



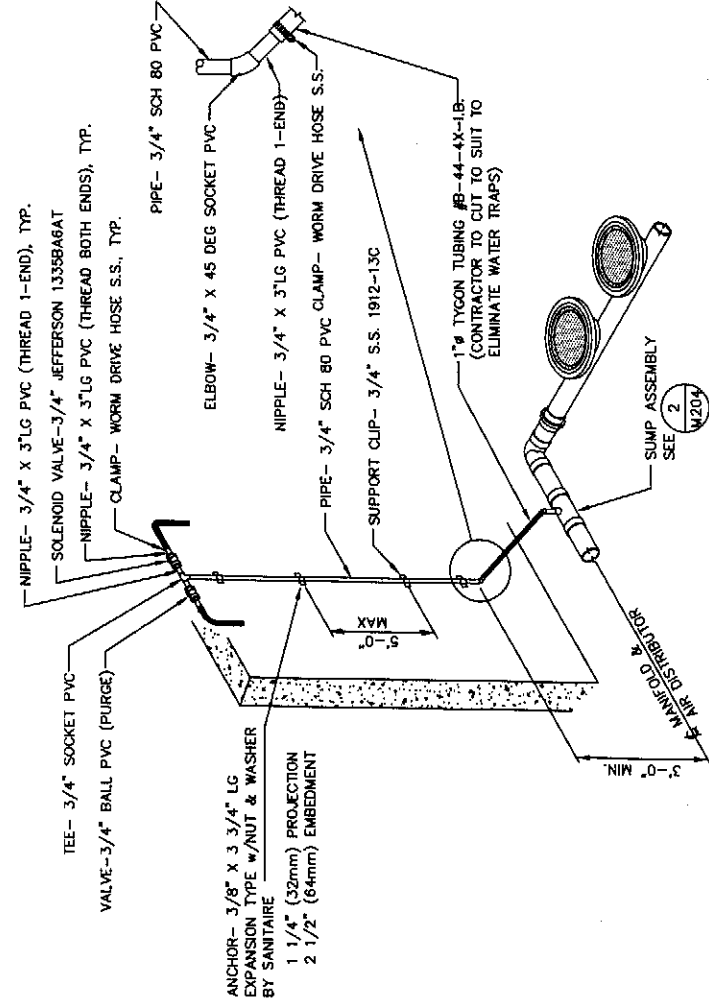
**CLAMP COUPLING 3**  
NTS



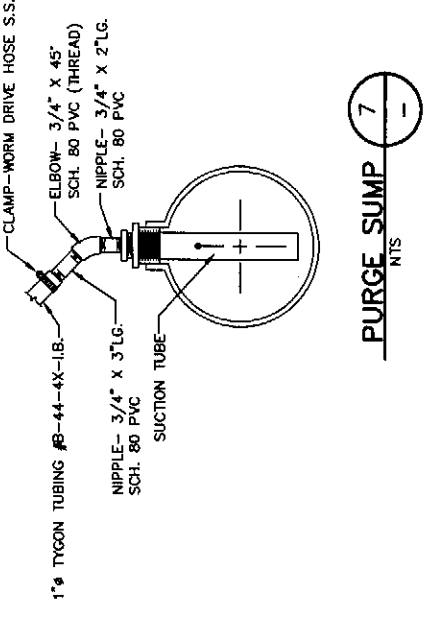
**FIXED JOINT 4**  
NTS



**GUIDE SUPPORT 5 VAR**  
NTS



**PURGE SUMP ASSEMBLY 6**  
NTS



**PURGE SUMP 7**  
NTS

REVISIONS	GENERAL NOTES	DESIGNED BY	NS, RS
		DRAWN BY	MR
		CHECKED BY	AW
		APPROVED BY	
		DATE PRINTED	09/20/07
		SCALE	AS SHOWN
		F.B. NO.	

**HAMMOND COLLIER WADE LIVINGSTONE**

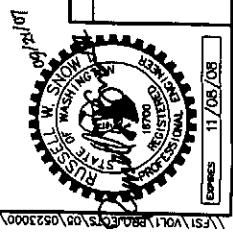
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-5861  
LAKEWOOD (253) 472-1992

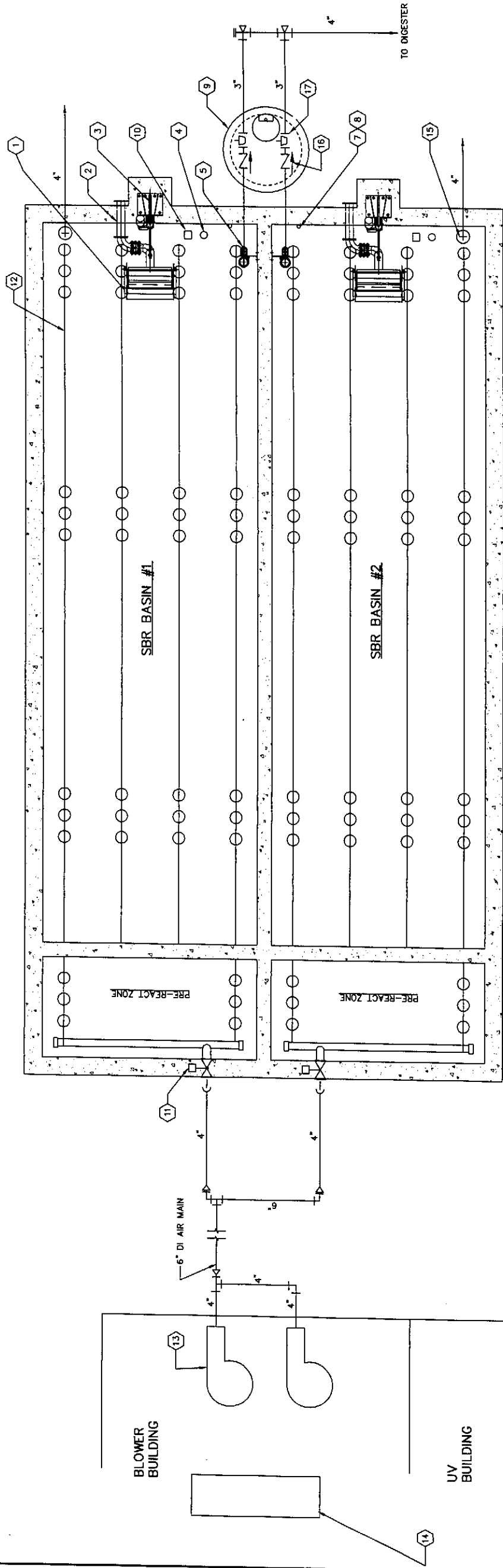
**CITY OF ENTIAI**  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS

SBR BASINS AERATION PIPING DETAILS

JOB NO. 0523004-03  
DRAWING NO. M203  
SHEET 07

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
1-800-424-5555





**SBR PLAN**  
SCALE 1/4" = 1'-0"

**KEYED NOTES:**

ITEM	QUANTITY	DESCRIPTION	MANUFACTURER
1	2	DECANTER 3'-0" WEIR	ARMOR METAL GROUP
2	2	6" WALL PIPE	ARMOR METAL GROUP
3	2	ACTUATOR MODEL 9002	DUFF NORTON
4	2	STORM FLOAT	ANCHOR SCIENTIFIC
5	2	WASTE SLUDGE PUMP	FLYGT
6		NOT USED	
7	2	HOIST	HALLIDAY
8	2	HOIST ANCHOR (WALL MOUNTED)	HALLIDAY
9	1	72" DIA. MH, TYPE 2	
10	2	LEVEL TRANSDUCER	WKA
11	2	4" AIR CONTROL VALVE W/AUMA ACTUATOR	DORNER
12	2	FINE BUBBLE AERATION SYSTEM	SANITAIRE
13	2	BLOWER	EXCELSIOR
14	1	BLOWER CONTROL PANEL	ABSOLUTE AUTOMATION
15	2	TELESCOPING VALVE	HALLIDAY
16	2	3" FLANGED CHECK VALVE	PRATT
17	2	3" PLUG VALVE W/ HANDWHEEL	PRATT

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

JOB NO. 0523004-03  
DRAWING NO. M204  
SHEET OF

CITY OF ENTIAT  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS  
SBR SYSTEM GENERAL ARRANGEMENT

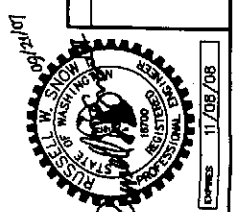


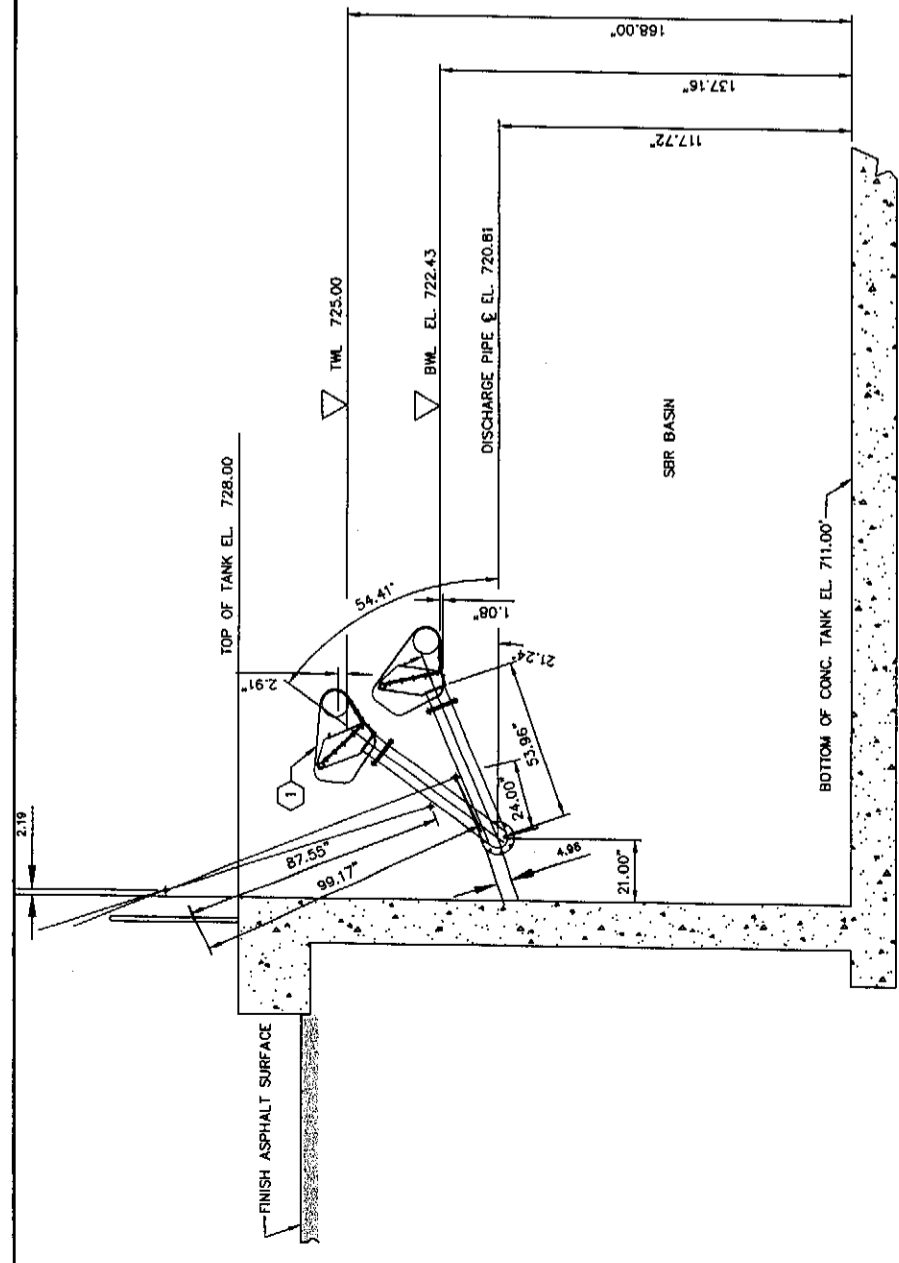
**HAMMOND COLLIER  
WADE LIVINGSTONE**  
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAX (809) 826-5861  
LAKEWOOD (253) 472-1992

DESIGNED BY NS, RS  
DRAWN BY MR, DC  
CHECKED BY [Signature]  
APPROVED BY [Signature]  
DATE PRINTED 09/20/07  
SCALE AS SHOWN  
SHEET NO.

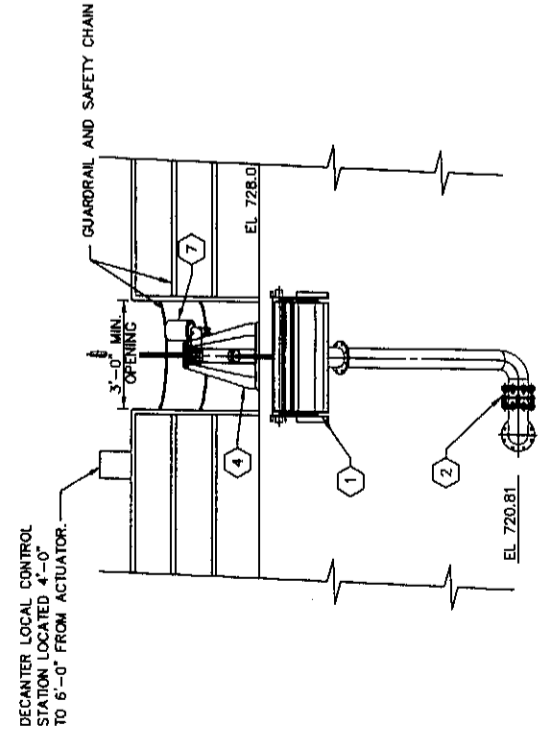
GENERAL NOTES

REVISIONS

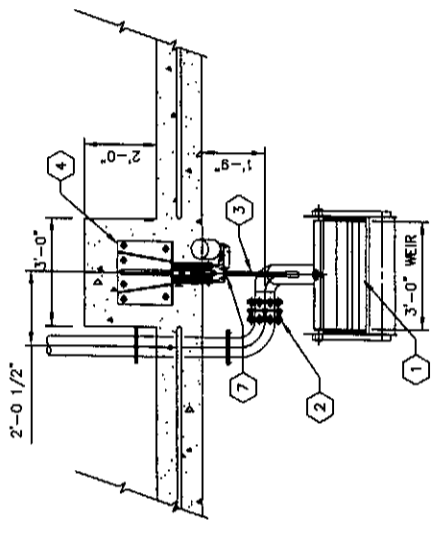




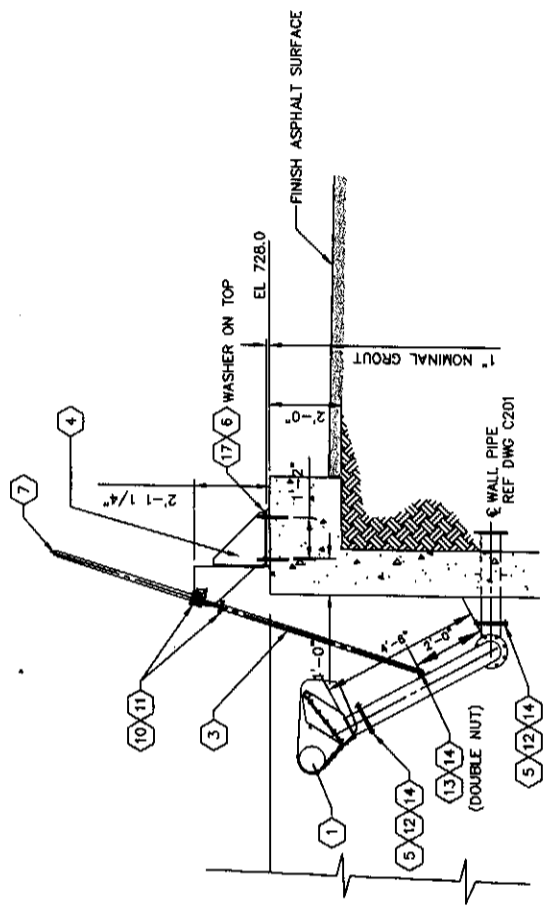
**ELEVATION**  
SCALE 3/8"=1'-0"



**EAST VIEW ELEVATION**



**PLAN**



**NORTH VIEW ELEVATION**

**KEYED NOTES:**

ITEM	QUANTITY	DESCRIPTION	MAT'L.
1	1	3'-0" WEIR DECANTER SUB-ASSEMBLY	S.S.
2	1	SWIVEL JOINT, 6" FLANGED - DUFF NORTON	S.S.
3	1	CONNECTING ROD	S.S.
4	1	ACTUATOR BRACKET ASSEMBLY	S.S.
5	2	6" GASKET, STD. 150# DRILLING	NEOPRENE
6	7	PLATE WASHER 2 X 2 X 1/4	S.S.
7	1	ACTUATOR, MODEL 9001	-
8	8	NOT USED	
9	8	NOT USED	
10	8	BOLT, HEX HEAD, 3/8-16UNC X 1 3/4" LG	S.S.
11	8	NUT, HEX HEAD, 3/8-16UNC	S.S.
12	16	BOLT, HEX HEAD, 3/4-10UNC X 2 1/4" LG	S.S.
13	1	BOLT, HEX HEAD, 3/4-10UNC X 2 3/4" LG	S.S.
14	20	NUT, HEX HEAD, 3/4-10UNC	S.S.
15	8	NOT USED	
16	7	NOT USED	
17	7	3/4" x 9 5/8" LG ADHESIVE ANCHOR	S.S.
		W/2 NUTS & WASHER, 6 1/2" EMBEDMENT	
		HILT OR EQUAL	

S.S. = STAINLESS STEEL

**GENERAL NOTES:**

- 1.) QUANTITIES SHOWN ARE FOR ONE DECANTER. TOTAL ASSEMBLIES REQUIRED: 2 R.H. (RIGHT HAND DECANTER SHOWN).
- 2.) ALL THREADED CONNECTIONS MADE IN THE FIELD TO BE DRESSED WITH LOCTITE 262 OR EQUAL.
- 3.) ALL PARTS TO BE ASSEMBLED BY FABRICATOR TO CHECK FIT AND MATCH MARKED BEFORE DISASSEMBLY AND SHIPPING. MATCH MARKS TO BE ALPHA CHARACTERS (A,B,C,...). STEEL PUNCHED AND THE LOCATION HIGHLIGHTED W/1 1/2" CIRCLE OR YELLOW PAINT.



DESIGNED BY	NS, RS
DRAWN BY	MR
CHECKED BY	<i>[Signature]</i>
APPROVED BY	
DATE PRINTED	09/20/07
SCALE	AS SHOWN
F.B. NO.	

**GENERAL NOTES**

**REVISIONS**

11/08/08

**HAMMOND COLLIER**  
**WADE LIVINGSTONE**

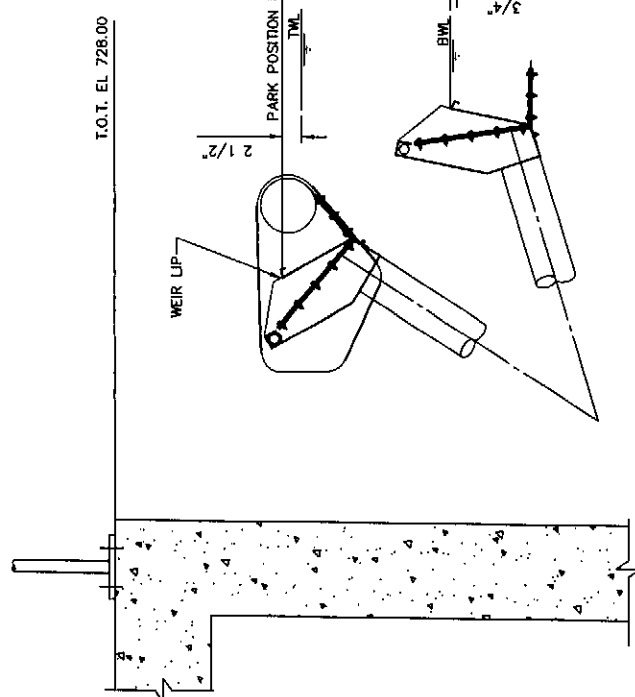
SEATTLE (206) 632-2664  
OMAK (509) 662-1762  
LAKEMOOD (253) 472-1992

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS

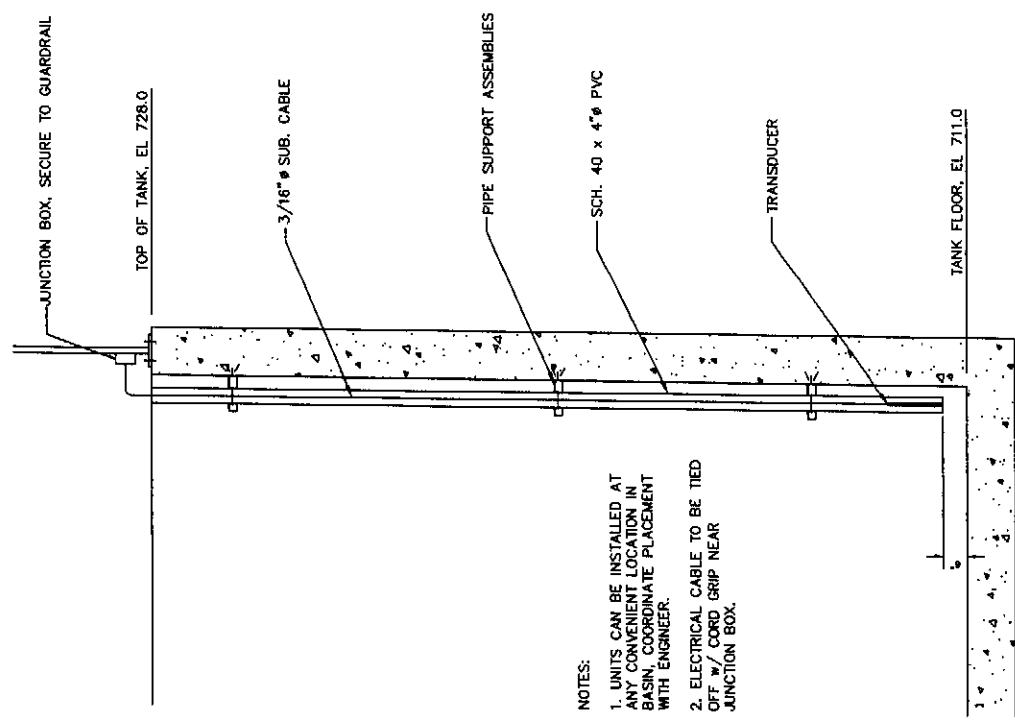
JOB NO. 0523004-03  
DRAWING NO. M205  
SHEET OF

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

11/08/08



**DECANTER WEIR ELEVATION SETTINGS**  
NTS



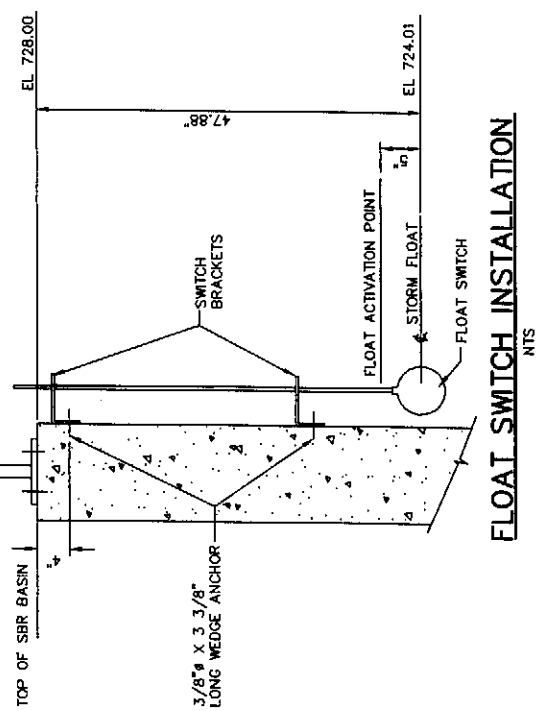
- NOTES:
1. UNITS CAN BE INSTALLED AT ANY CONVENIENT LOCATION IN BASIN, COORDINATE PLACEMENT WITH ENGINEER.
  2. ELECTRICAL CABLE TO BE TIED OFF W/ CORD GRIP NEAR JUNCTION BOX.

**LEVEL TRANSDUCER ASSEMBLY DETAIL**  
NTS

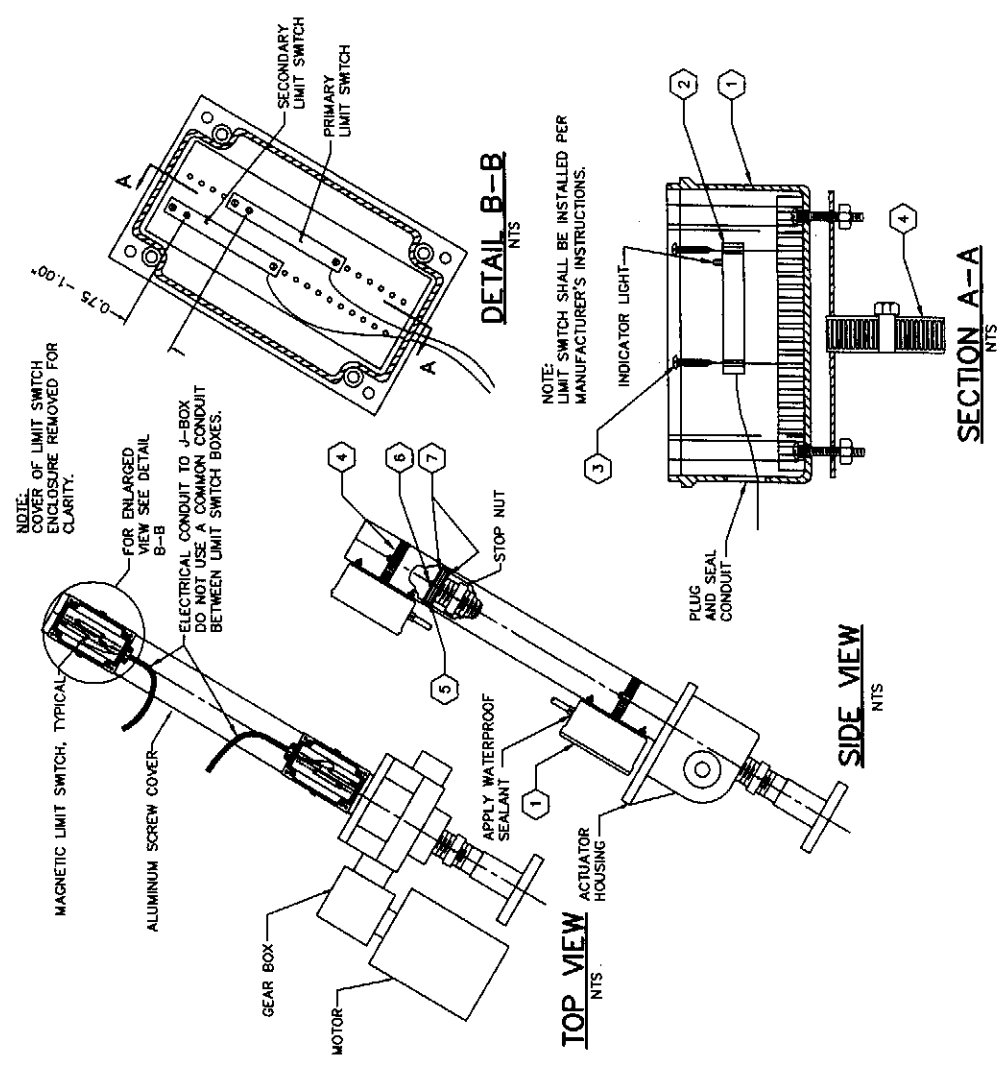
**KEYED NOTES:**

ITEM	QUANTITY*	DESCRIPTION	MATERIAL
(1)	2	LIMIT SWITCH ENCLOSURE ASSEMBLY	FIBERGLASS
(2)	4	LIMIT SWITCH - MAGNETIC W / 20'-0" CABLE	CELANEX
(3)	8	SCREW, SELF TAPPING, No. 4 X 3/4" LG.	S.S.
(4)	2	WORM DRIVE HOSE CLAMP, 5" DIA.	S.S.
(5)	2	MAGNET - # AMAG9002	CERAMIC
(6)	1	BOLT 3/8-16 UNC X 1 1/4" LG.	S.S.
(7)	2	WASHER - #AWASH900	S.S.

\*QUANTITIES ARE FOR ONE ACTUATOR  
S.S. = STAINLESS STEEL

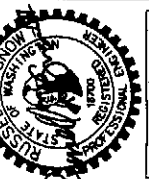


**FLOAT SWITCH INSTALLATION**  
NTS



**DETAIL B-B**  
NTS

**SECTION A-A**  
NTS



REVISIONS

GENERAL NOTES

DESIGNED BY	MS, RS
DRAWN BY	MR
CHECKED BY	<i>[Signature]</i>
APPROVED BY	<i>[Signature]</i>
DATE PRINTED	09/20/07
SCALE	AS SHOWN
F.B. NO.	

**HAMMOND COLLIER**  
**WADE LIVINGSTONE**

SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAX (509) 826-5861  
LAKEWOOD (253) 472-1992



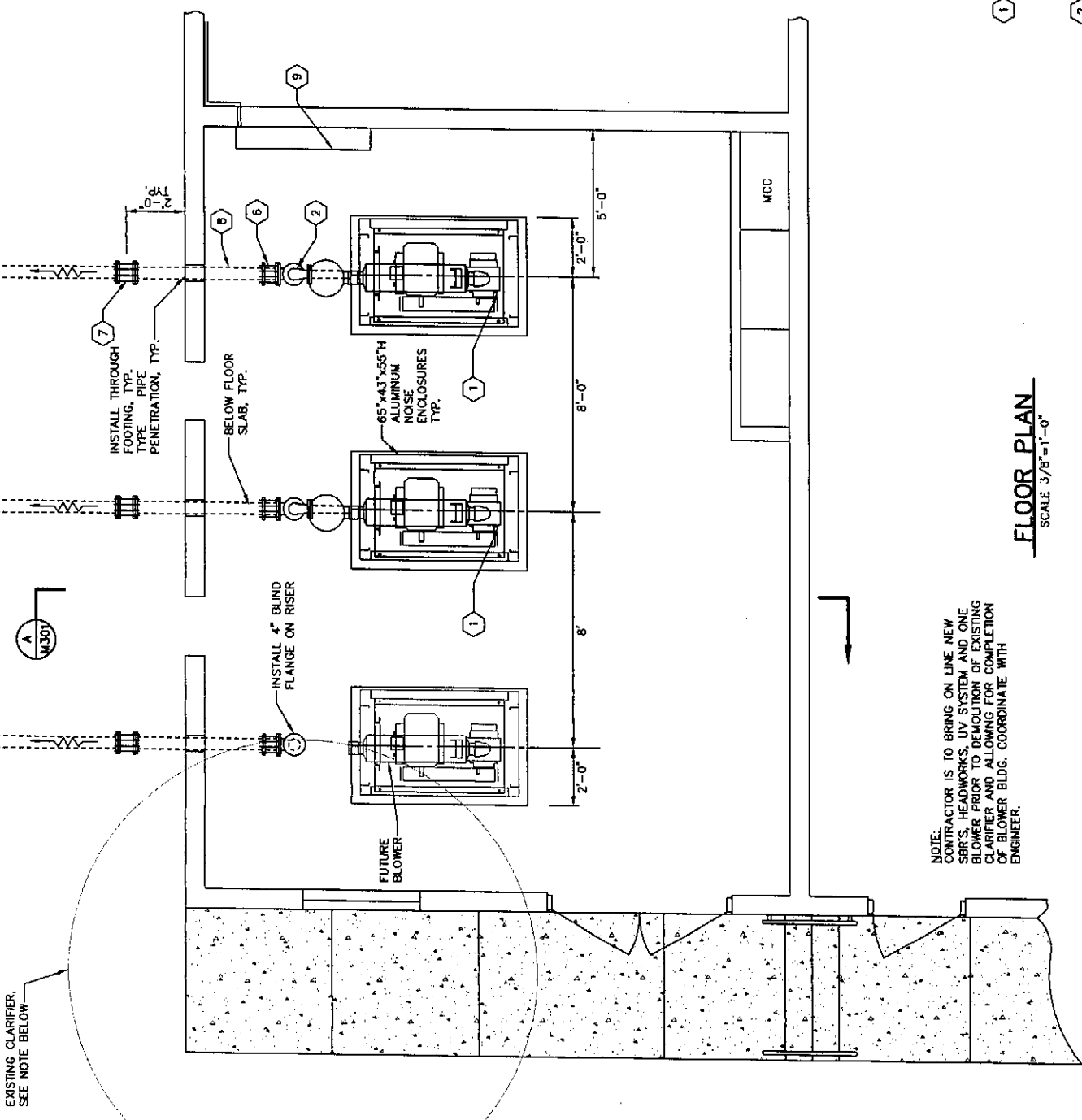
CITY OF ENTIAI  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS

MISCELLANEOUS SBR DETAILS

JOB NO. 0523004-03  
DRAWING NO. M206  
SHEET OF

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

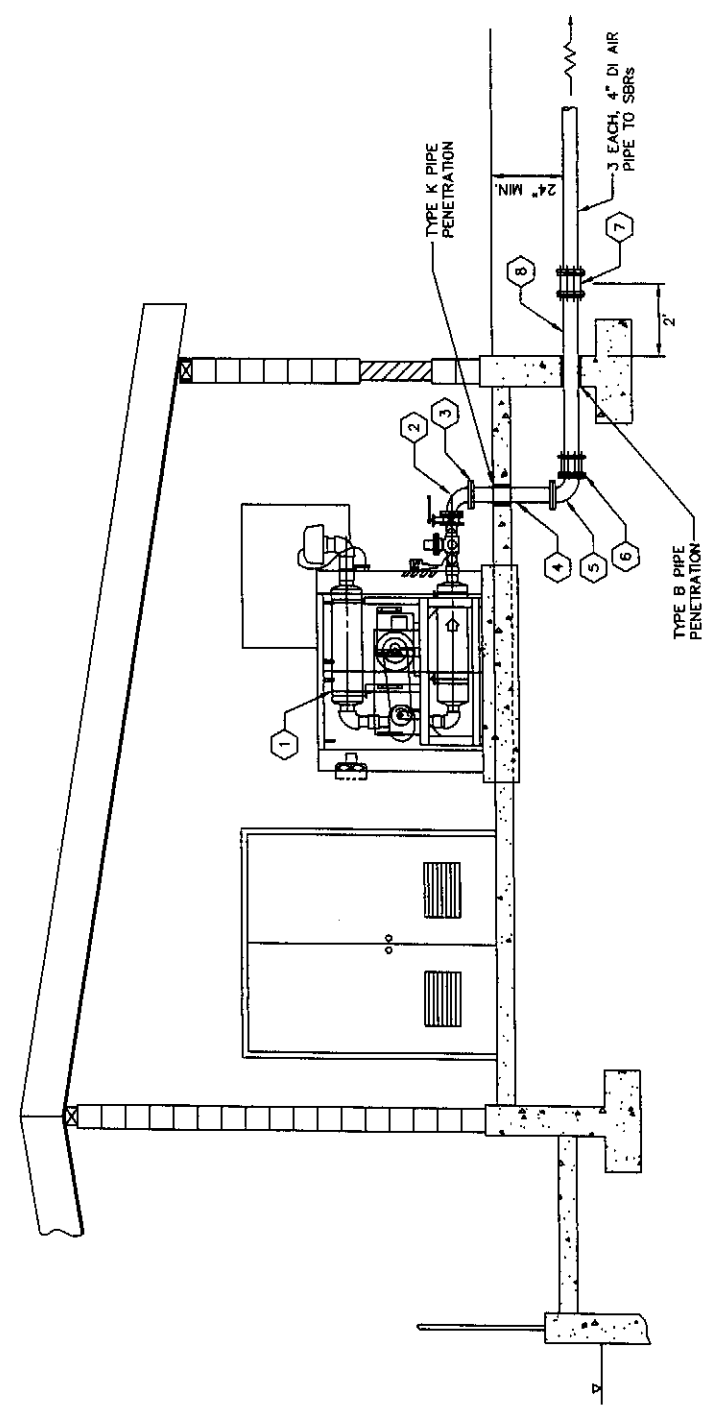




EXISTING CLARIFIER. SEE NOTE BELOW.

NOTE:  
CONTRACTOR IS TO BRING ON LINE NEW SBR'S, HEADWORKS, UV SYSTEM AND ONE BLOWER PRIOR TO DEMOLITION OF EXISTING CLARIFIER AND ALLOWING FOR COMPLETION OF BLOWER BLDG. COORDINATE WITH ENGINEER.

**FLOOR PLAN**  
SCALE 3/8"=1'-0"



**SECTION A**  
SCALE 3/8"=1'-0" M301

**KEYED NOTES:**

- 1 EXCELSIOR BLOWER SYSTEM WITH SUITORBILT 4 LP, 250 SCFM, 2200 RPM BLOWER, 15 HP, 1800 RPM MOTOR. SEE M301
- 2 4"x3" REDUCING 90° BEND (FL)
- 3 4" UNIFLANGE
- 4 4" DI SPOOL (FL)
- 5 4" 90° BEND (FL)
- 6 4" ADAPTER (FL/MA)
- 7 4" DRESSER STYLE CPLG
- 8 4" DI SPOOL, LENGTH TO FIT
- 9 WALL MOUNT CONDENSOR COIL SEE C301

CALL THREE BUSINESS DAYS BEFORE YOU DIG  
1-800-424-5555

JOB NO. 0523004-03  
DRAWING NO. M301  
SHEET OF

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS



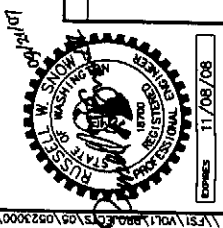
**HAMMOND COLLIER WADE LIVINGSTONE**

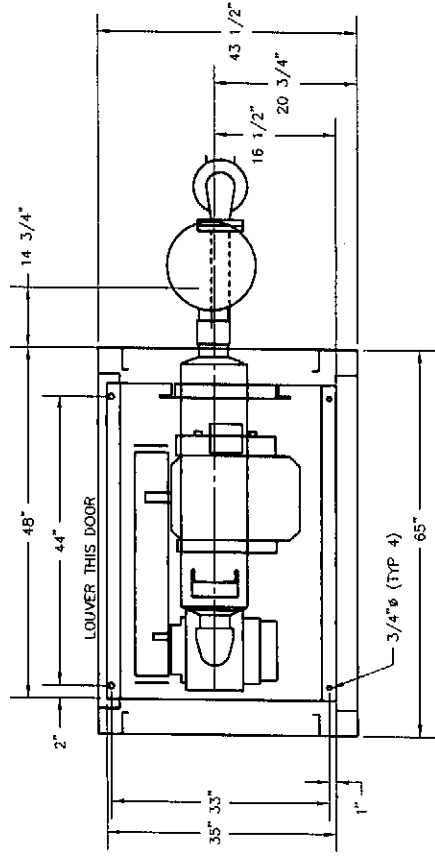
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-3861  
LAKEMOOD (253) 472-1992

DESIGNED BY	RS
DRAWN BY	MR. DG
CHECKED BY	<i>[Signature]</i>
APPROVED BY	
DATE PRINTED	05/20/07
SCALE	AS SHOWN
SHEET NO.	

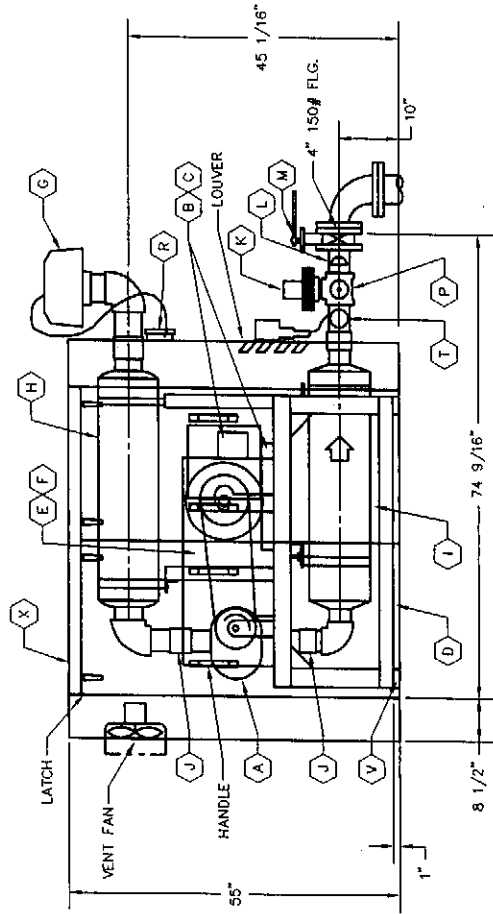
GENERAL NOTES

REVISIONS





PLAN



ELEVATION

**KEYED NOTES:**

- A BLOWER: SUTORBILT 4LP, 250 SCFM / 286 ICFM, 2200 RPM, 6.7 PSIG
- B MOTOR: 15 HP, 1800 RPM, TEFC, 230/480/3/60, 254T, W/N.C. T-STATS
- C MOTOR SLIDE BASE: 254
- D ELEVATED STEEL BASE
- E V-BELT DRIVE  
BLOWER SHV: 2/3/16.5 - SDS x 7/8"  
MOTOR SHV: 2/3/16.0 - SDS x 1 3/8"  
BELT: 3/8X650, CD = 21.1"
- F BELT GUARD
- G INLET FILTER: UNIVERSAL CCF-4"
- H INLET SILENCER: UNIVERSAL RIS-4"
- I DISCHARGE SILENCER: UNIVERSAL RD-3"
- J FLEXIBLE PIPE CONNECTOR: FLEX-FAB TYPE II-3"
- K RELIEF VALVE: SUTORBILT PL-2", SET @ 8.0 PSI
- L CHECK VALVE: F.E. 502-3"
- M BUTTERFLY VALVE: MUELLER 6SM-3"
- P PRESSURE GAUGE: MIKA 213.53, 0-15 PSI
- R RESTRICTION GAUGE: DWYER 2020, 0-20" WC
- T THERMOMETER: WINTERS T32025-B9, 50-300° F
- TS TEMPERATURE SWITCH: UE E100-3BC, 100-400° F, SET 210° F
- V VIBRATION ISOLATION PAD: V.M.C. CORK-RIB 3" x 4"
- X NOISE ENCLOSURE: ALUMINUM W. ACOUSTIC FOAM, PERFORATED GALVANIZED STEEL INNER LINER, 4 LATCHING DOORS, LOUVERS AND EXHAUST FAN (115/1/60) W. T-STAT

**BLOWER DETAIL**  
SCALE 3/4"=1'-0"

1  
M3017

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

JOB NO. 0523004-03  
DRAWING NO. M302  
SHEET 0F

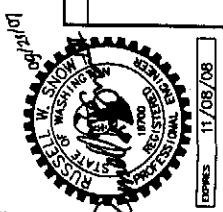
CITY OF ENTIAT  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS  
BLOWER BUILDING MECHANICAL DETAILS

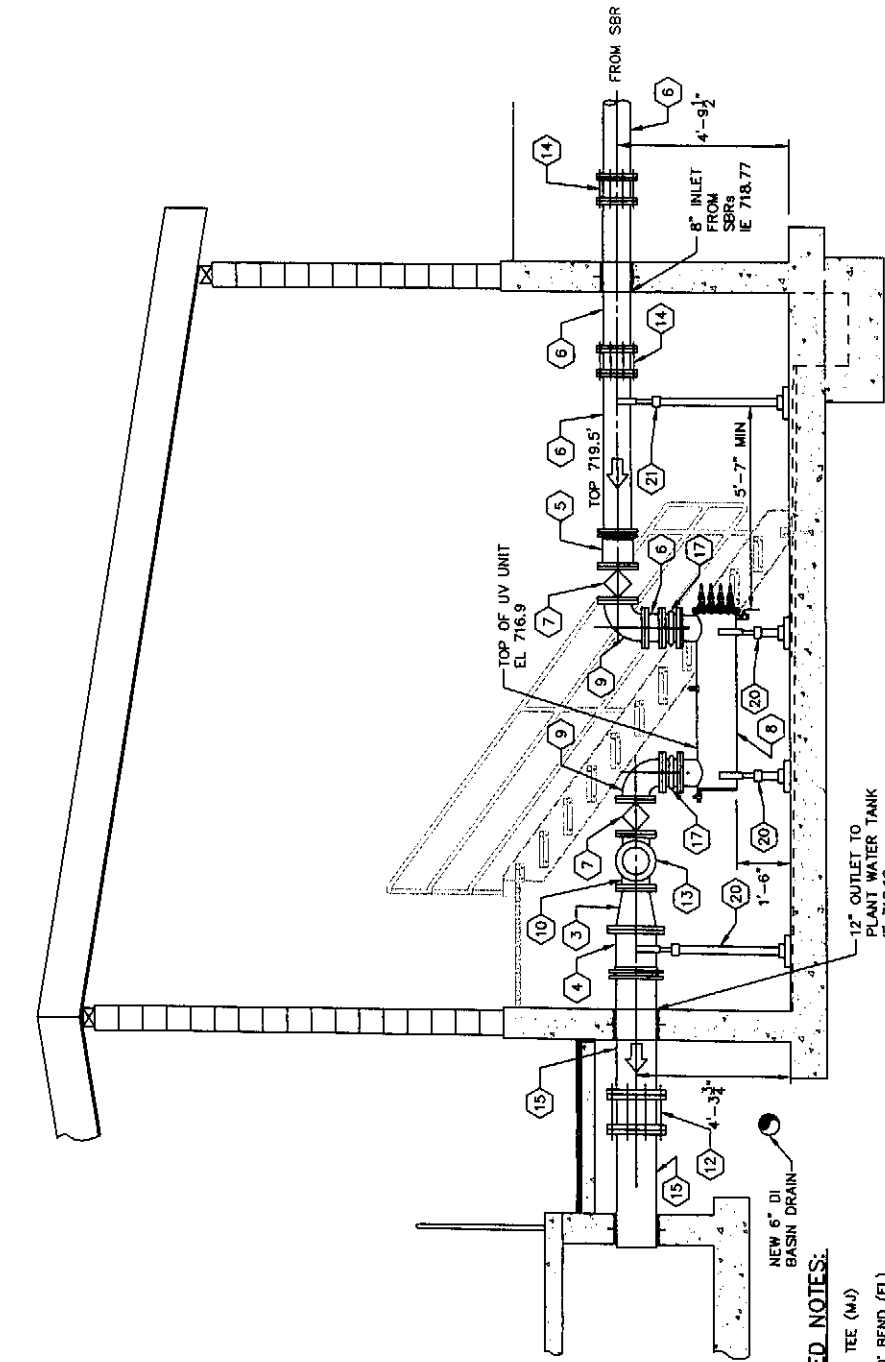


**HAMMOND COLLIER  
WADE LIVINGSTONE**  
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-5861  
LAKEWOOD (253) 472-1992

DESIGNED BY	RS
DRAWN BY	MR. DG
CHECKED BY	<i>[Signature]</i>
APPROVED BY	
DATE PRINTED	09/20/07
SCALE	AS SHOWN
SHEET NO.	

GENERAL NOTES	
REVISIONS	



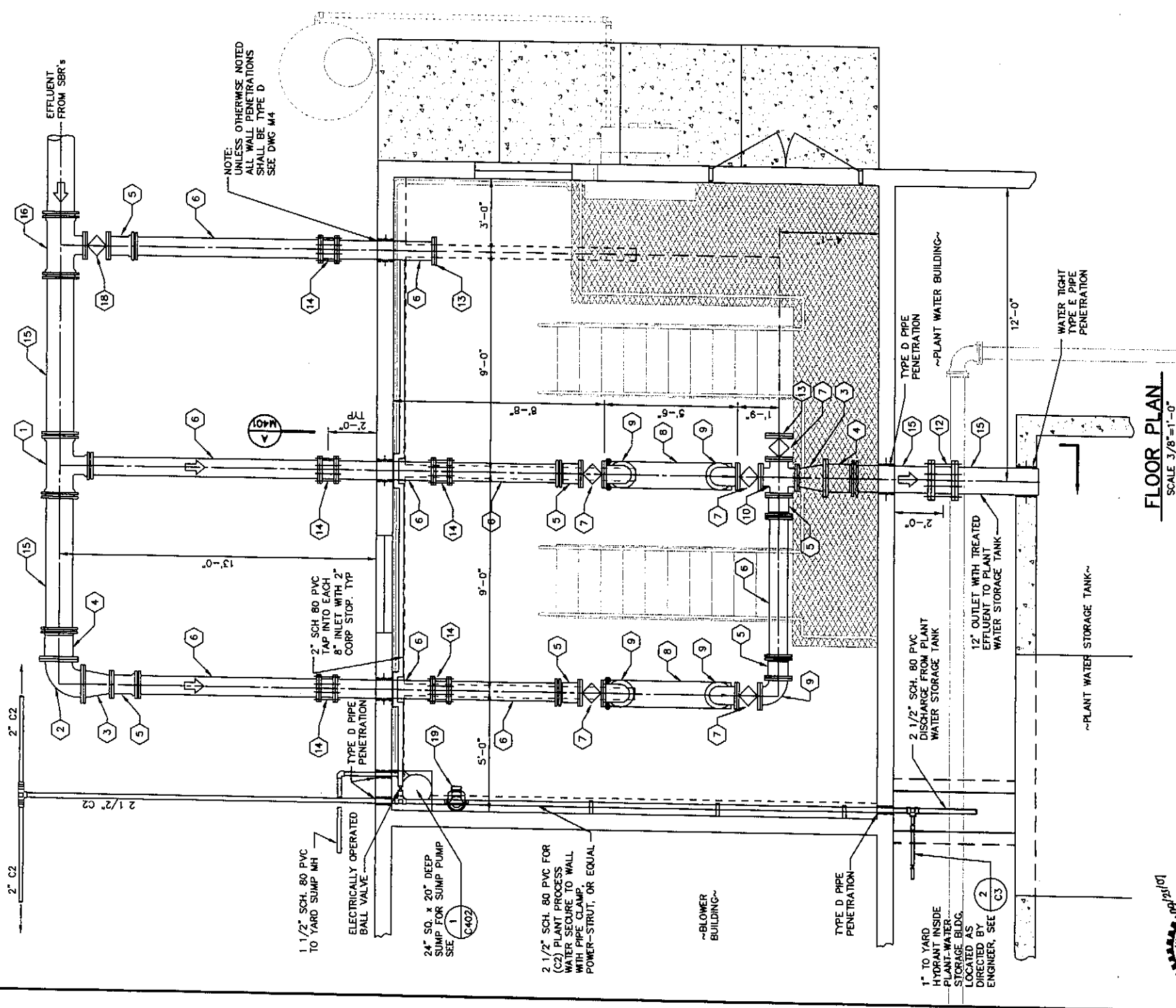


**SECTION A**  
SCALE 3/8"=1'-0"  
M401


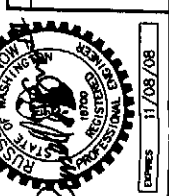
NOTE: UNLESS OTHERWISE SHOWN, ALL PIPE PENETRATIONS SHALL BE TYPE D

**KEYED NOTES:**

- 1 12"x8" TEE (M/J)
- 2 12" 90° BEND (FL)
- 3 12"x8" REDUCER (FL)
- 4 12" ADAPTER (FL/M/J)
- 5 8" ADAPTER (FL/M/J)
- 6 8" SPOOL
- 7 8" PLUG VALVE (FL)
- 8 UV UNIT, SEE M402
- 9 8" 90° VERT. BEND (FL)
- 10 8" CROSS (FL)
- 11 NOT USED
- 12 12" DRESSER STYLE FLEX COUPLING
- 13 8" BLIND FLANGE
- 14 8" DRESSER STYLE FLEX COUPLING
- 15 12" SPOOL
- 16 12"x8" TEE (M/JFL)
- 17 8" REDFLEX EXPANSION JOINT
- 18 8" PLUG VALVE (FL) SUITABLE FOR BURIED SERVICE
- 19 2" AMIAD "TAF" AUTOMATIC ELECTRIC FILTER WITH 300 MICRO SS SCREEN
- 20 12" ADJUSTABLE PIPE SADDLE SUPPORT, STANDON S92, OR EQUAL, ANCHOR TO FLOOR AS RECOMMENDED BY MANUFACTURER.
- 21 8" ADJUSTABLE PIPE SADDLE SUPPORT, STANDON S92, OR EQUAL, ANCHOR TO FLOOR AS RECOMMENDED BY MANUFACTURER.



**FLOOR PLAN**  
SCALE 3/8"=1'-0"

<p><b>CALL THREE BUSINESS DAYS BEFORE YOU DIG</b> 1-800-424-5555</p>		<p>JOB NO. 0523004-03 DRAWING NO. M401 SHEET 07</p>
<p>CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS</p>		<p>UV DISINFECTION SYSTEM PLAN AND SECTION</p>
 <p><b>HAMMOND COLLIER WADE LIVINGSTONE</b></p>		<p>SEATTLE (206) 632-3664 OMAK (509) 826-5861 WENATCHEE (509) 662-1762 LAKENWOOD (253) 472-1992</p>
<p>DESIGNED BY: NS, RS DRAWN BY: MR, DG CHECKED BY: [Signature] APPROVED BY: [Signature] DATE PRINTED: 09/20/07 SCALE: AS SHOWN P.R. NO.:</p>	<p>GENERAL NOTES</p>	<p>REVISIONS</p>
		

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

JOB NO.	0523004-03
DRAWING NO.	M402
SHEET	OF

CITY OF ENTIAT  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS  
UV DISINFECTION SYSTEM DETAILS



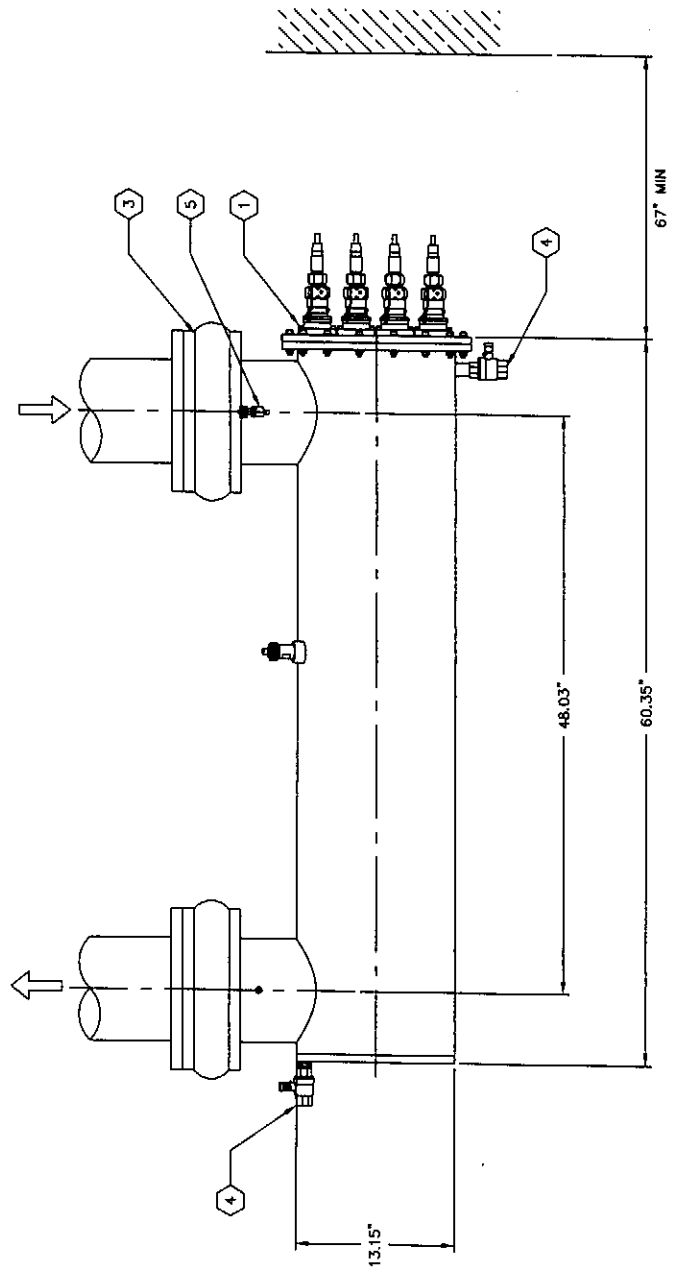
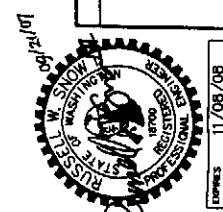
**HAMMOND COLLIER  
WADE LIVINGSTONE**  
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-5861  
LAKWOOD (253) 472-1992

DESIGNED BY	LR
DRAWN BY	MR, DG
CHECKED BY	<i>[Signature]</i>
APPROVED BY	<i>[Signature]</i>
DATE PRINTED	09/20/07
SCALE	1 1/2" = 1'-0"
F.B. NO.	

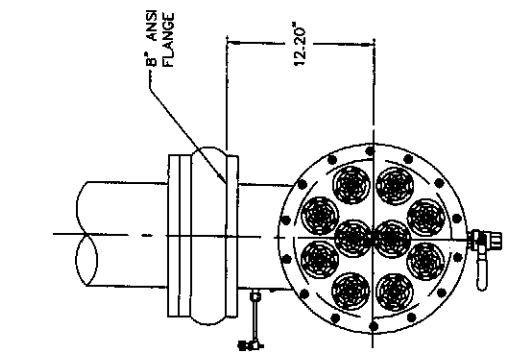
GENERAL NOTES

REVISIONS

DATE	DESCRIPTION
11/09/08	



SECTION

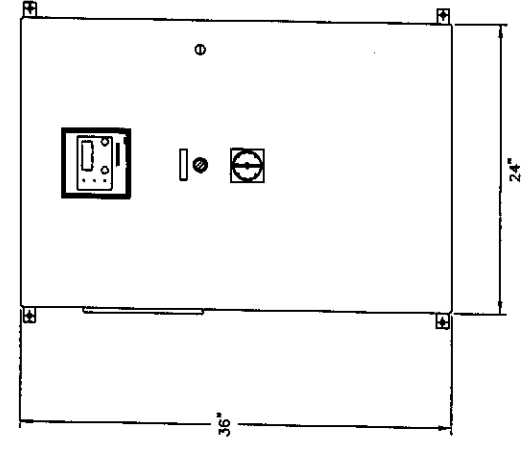


END VIEW

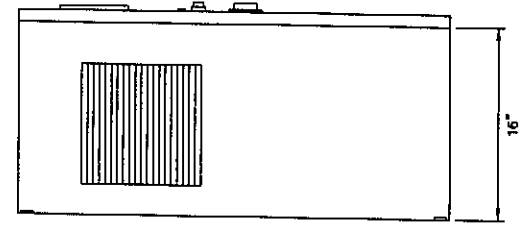
UV LAMP, TYP. 1  
NTS M401

- KEYED NOTES:**
- 1 LAMP CONNECTOR
  - 2 UV-SENSOR
  - 3 8" REDFLEX EXPANSION JOINT
  - 4 CLEANING VALVE
  - 5 SAMPLE VALVE

NOTE:  
COORDINATE THIS  
INSTALLATION WITH  
ELECTRICAL DESIGN



CONTROL PANEL  
NTS



CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

JOB NO. 0523004-03  
DRAWING NO. M501  
SHEET 07

CITY OF ENTIAI  
2007 WASTEWATER TREATMENT  
FACILITIES IMPROVEMENTS



**HAMMOND COLLIER**  
**WADE LIVINGSTONE**

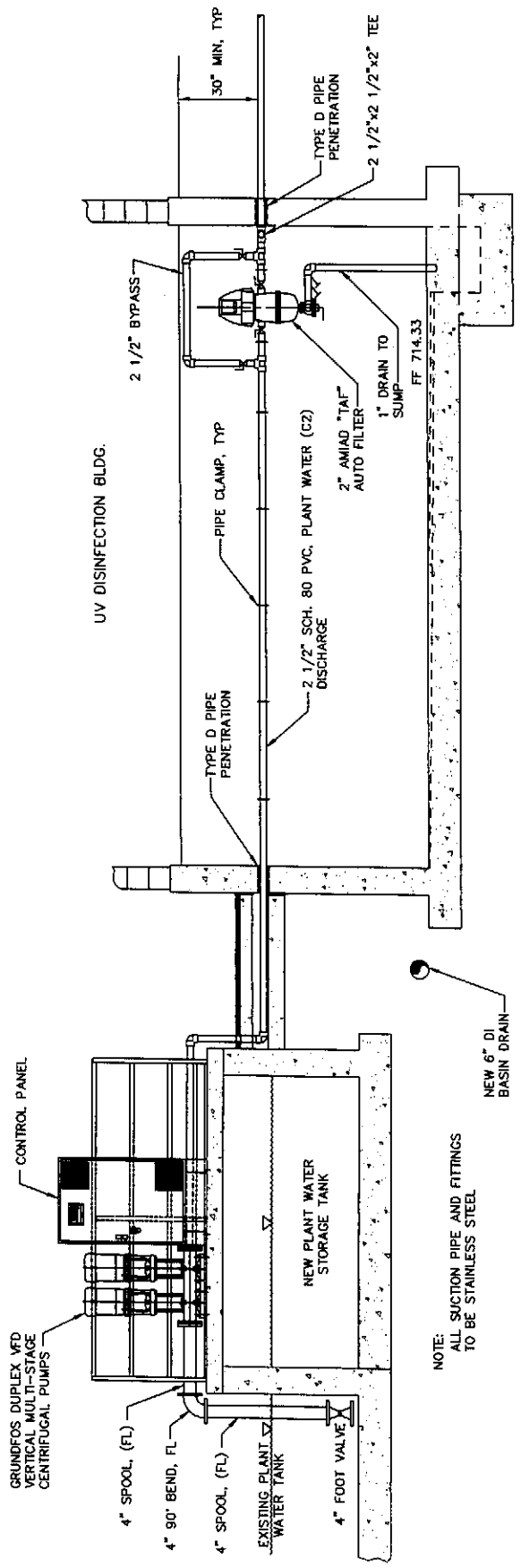
SEATTLE (206) 632-2664  
WENATCHEE (509) 662-1762  
OMAK (509) 826-5861  
LAKEWOOD (253) 472-1992

DESIGNED BY RS  
DRAWN BY MR, DC  
CHECKED BY [Signature]  
APPROVED BY [Signature]  
DATE PRINTED 09/20/07  
SCALE AS SHOWN  
P.B. NO.

GENERAL NOTES

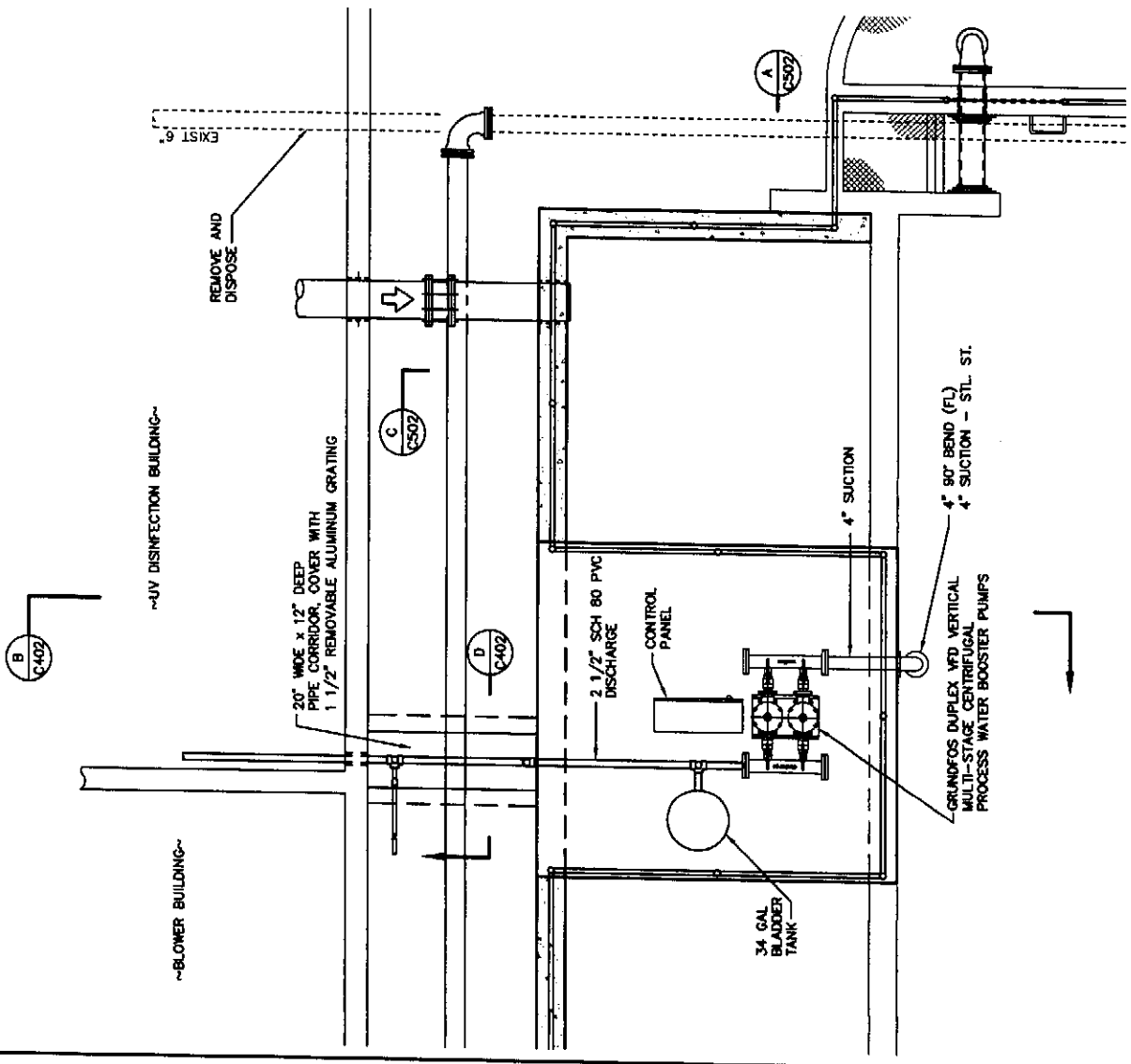
REVISIONS

11/08/08  
ENGINEER

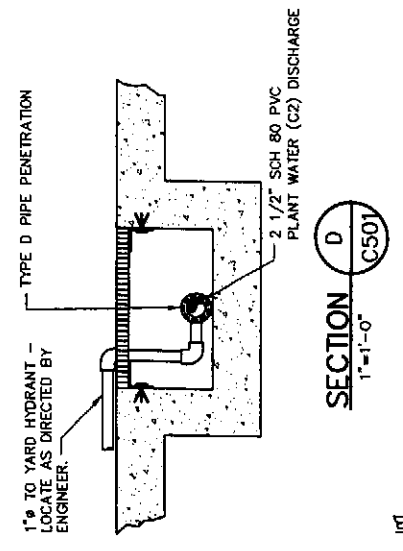


NOTE:  
ALL SUCTION PIPE AND FITTINGS  
TO BE STAINLESS STEEL

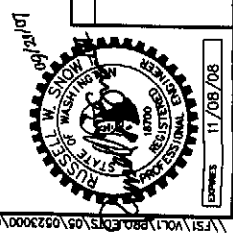
**SECTION B B**  
SCALE 3/8"=1'-0"  
C401 C501

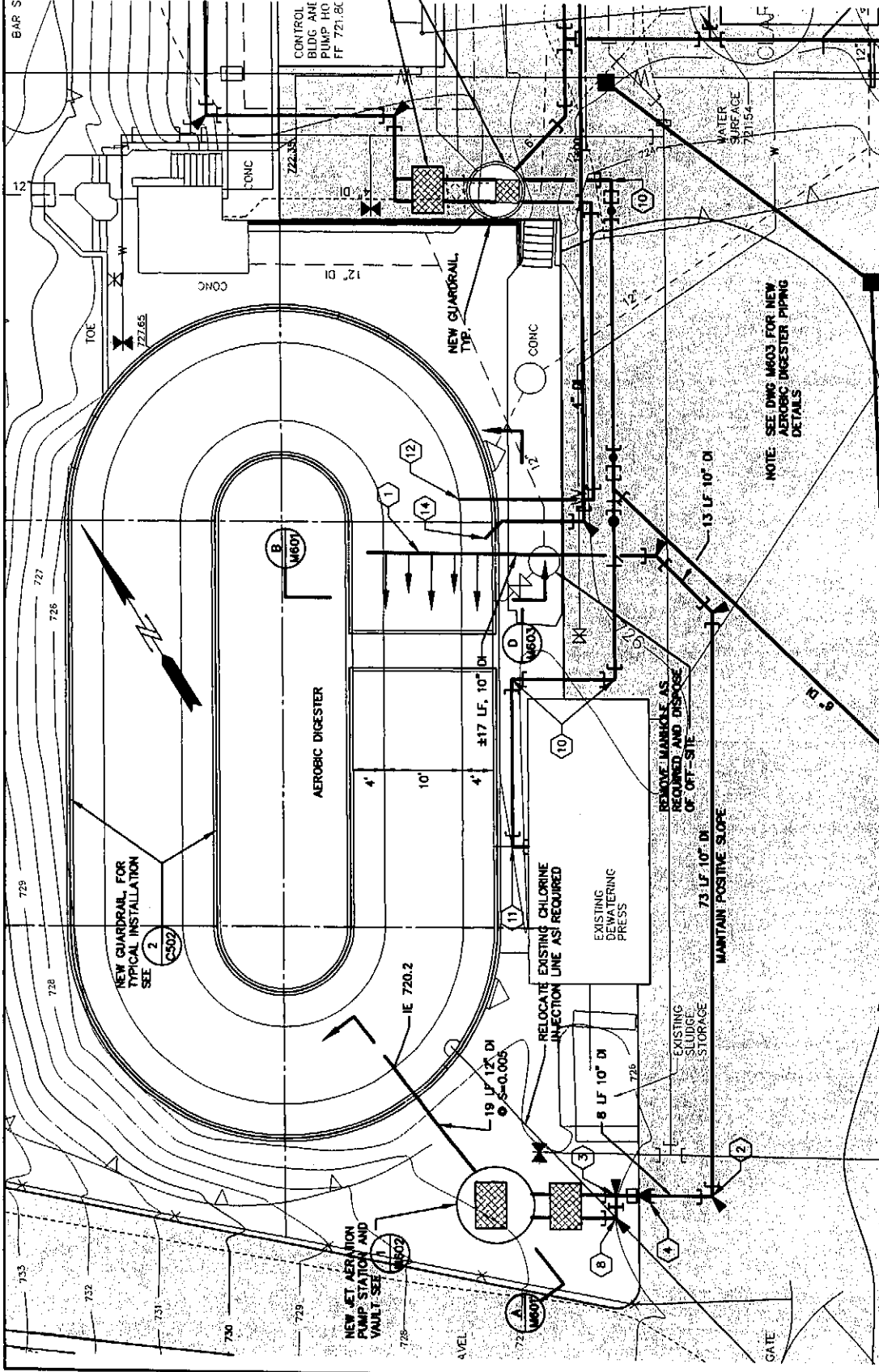


**PLAN**  
SCALE 3/8"=1'-0"

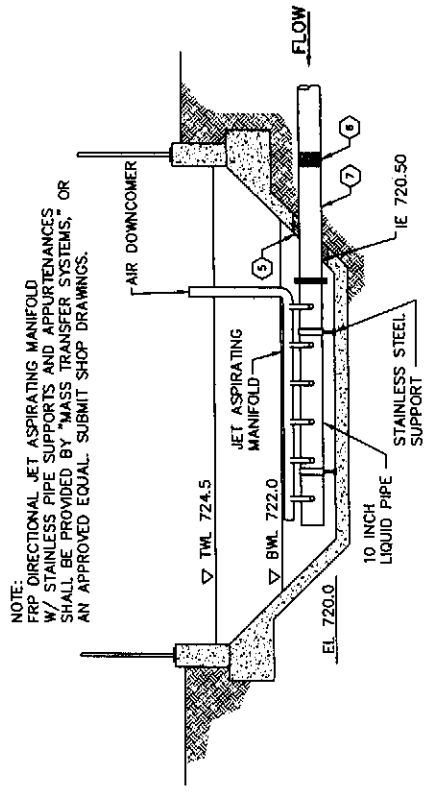


**SECTION D D**  
SCALE 1"=1'-0"  
C501



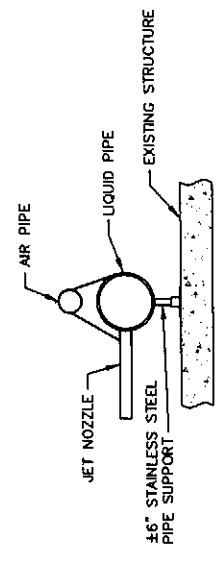


**NEW AEROBIC DIGESTER PIPING PLAN**  
SCALE 1"=10'



**TYPICAL JET AERATION MANIFOLD SECTION B M601**  
NTS

NOTE: SUBMIT SHOP DRAWINGS FOR JET ASPIRATING MANIFOLD, SUPPORTS & APPURTENANCES.

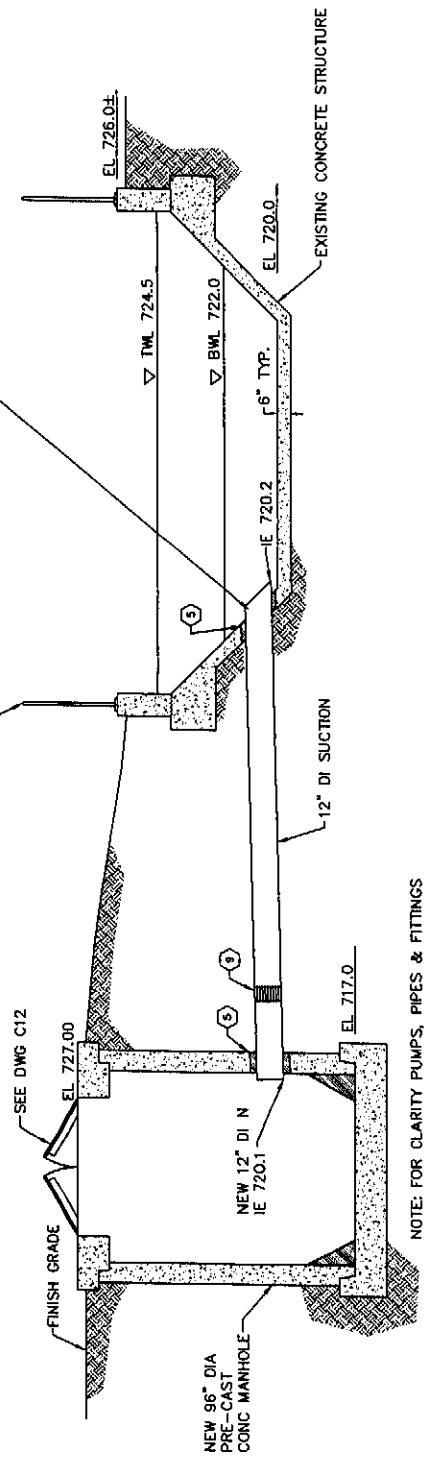


**TYPICAL MANIFOLD SECTION C M601**  
NTS

**KEYED NOTES**

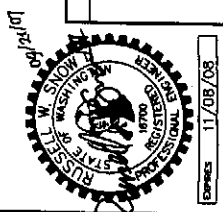
- 1 FRP DIRECTIONAL JET ASPIRATING MANIFOLD W/ STAINLESS PIPE SUPPORTS AND APPURTENANCES, SEE B M601
- 2 10" - 90° BEND (RJ) W/ CONCRETE BLOCKING
- 3 8" TEE (RJ) W/ CONCRETE BLOCKING
- 4 10" x 8" REDUCER (RJ)
- 5 WATER TIGHT NON-SHRINK GROUT SEAL, TYP.
- 6 10" COUPLING, ROMAC STYLE 501 OR EQUAL (RJ)
- 7 10" DI SPOOL (FL x PE)
- 8 8" - 90° BEND (RJ) W/ CONCRETE THRUST BLOCKING
- 9 12" COUPLING, ROMAC STYLE 501 OR EQUAL
- 10 6" - 90° BEND
- 11 6" - 90° BEND
- 12 NEW DECANTER, SEE DWG M603
- 13 NEW CHAINGATE, SEE DWG M603
- 14 WAS FROM SBR'S

NEW 12" DI SUCTION PIPE CORE DRILL HOLE IN EXISTING STRUCTURE AND PROVIDE TEMPORARY SUPPORT TO EXISTING CONCRETE STRUCTURE PER STRUCTURAL ENGINEER'S RECOMMENDATIONS.



**PUMP STATION INLET SECTION A M601**  
NTS

NOTE: FOR CLARITY PUMPS, PIPES & FITTINGS ARE NOT SHOWN. SEE DWG C12 FOR DETAIL.



DESIGNED BY	RS
DRAWN BY	MR. DC
CHECKED BY	AW
APPROVED BY	AW
DATE PRINTED	08/20/07
SCALE	AS SHOWN
P.L. NO.	0523004-03

**GENERAL NOTES**

**REVISIONS**

EXPIRES 11/08/08

**HAMMOND COLLIER WADE LIVINGSTONE**  
SEATTLE (206) 632-2664  
OMAK (509) 826-5861  
LAKEMOOD (253) 472-1992

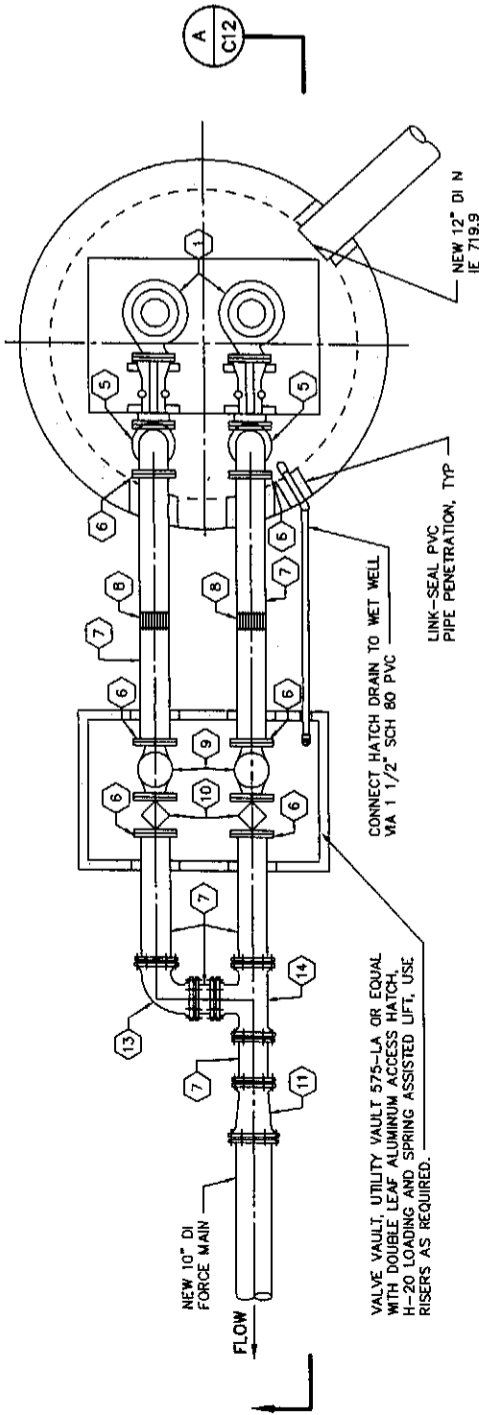
**CITY OF ENTIAI**  
**2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS**  
AEROBIC DIGESTER PLAN AND SECTIONS

JOB NO. 0523004-03  
DRAWING NO. M601  
SHEET OF

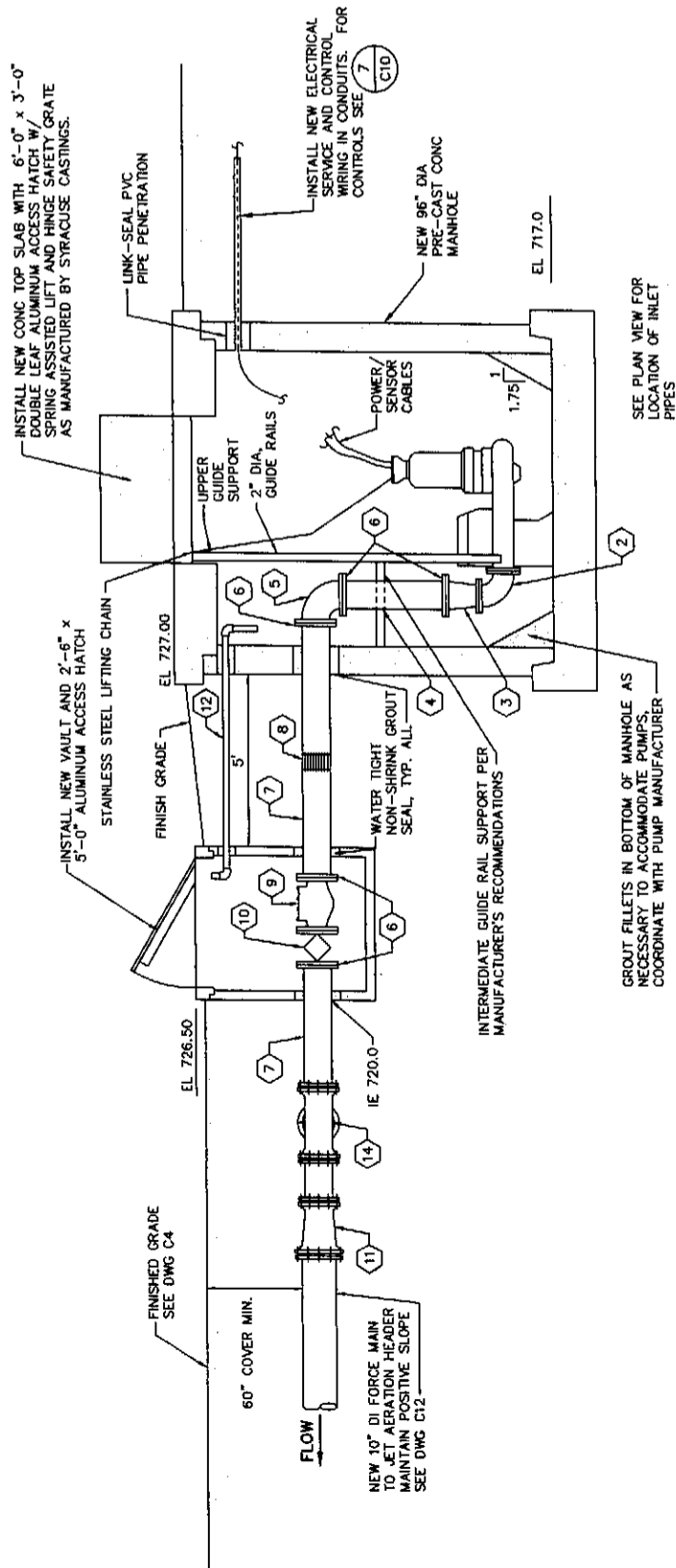


**KEYED NOTES**

- 1 2 EACH - NEW ESSCO 25 HP SUBMERSIBLE PUMPS MODEL 6" x 6" x 12" x 3", 1150 RPM, 3 PH, 460V, 1560 GPM @ 42' TDH.
- 2 6" x 6" - 90° BEND (FL)
- 3 8" x 6" - REDUCER (FL)
- 4 8" DI DISCHARGE SPOOL, LENGTH TO FIT
- 5 8" - 90° BEND (FL)
- 6 8" FLANGE ADAPTER, UNI-FLANGE OR EQUAL
- 7 8" DI SPOOL, LENGTH TO FIT (PE)
- 8 8" COUPLING (R/J)
- 9 8" CHECK VALVE W/ OUTSIDE SPRING AND LEVER (FL) W/ EXPLOSION PROOF LIMIT SWITCH TO CONFIRM PUMP OPERATION
- 10 8" ECCENTRIC PLUG VALVE W/ WORM GEAR AND HANDWHEEL (FL)
- 11 10" x 8" - REDUCER (R/J)
- 12 1-1/2" SCH 80 PVC HATCH DRAIN PIPE AND FITTINGS, LENGTH TO FIT
- 13 8" - 90° BEND (R/J)
- 14 8" TEE (R/J)




**JET AERATION PUMP STATION PLAN** 1  
NTS (C11)



**JET AERATION PUMP STATION ELEVATION** A  
NTS (C12)

CALL THREE BUSINESS  
DAYS BEFORE YOU DIG  
1-800-424-5555

 <b>HAMMOND COLLIER WADE LIVINGSTONE</b>	CITY OF ENTIAI 2007 WASTEWATER TREATMENT FACILITIES IMPROVEMENTS JET AERATION PUMP STATION	OMAK (909) 826-5861 WENATCHEE (509) 662-1752 SEATTLE (206) 632-2664	LAKEWOOD (253) 472-1992	JOB NO. 0523004-03 DRAWING NO. M602 SHEET OF
DESIGNED BY: RS DRAWN BY: MR, DG CHECKED BY: <i>[Signature]</i> APPROVED BY: <i>[Signature]</i> DATE PRINTED: 09/20/07 SCALE: AS SHOWN F.B. NO.				
GENERAL NOTES REVISIONS				

