



CITY OF SANDY PWB INTERTIE PROJECT

VOLUME 3 OF 3 NOVEMBER 2012

INDEX OF DRAWINGS

GENERAL

1	GEN-G-1	COVER SHEET, INDEX OF DRAWINGS
2	GEN-G-2	VICINITY AND LOCATION MAPS
3	GEN-G-3	SYMBOLS AND LEGEND
4	GEN-G-4	ABBREVIATIONS
5	GEN-G-5	GENERAL NOTES

CIVIL

6	GEN-C-1	MISCELLANEOUS CIVIL DETAILS
7	GEN-C-2	MISCELLANEOUS CIVIL DETAILS

MECHANICAL

8	GEN-M-1	PUMP STATION MECHANICAL DETAILS
---	---------	---------------------------------

ELECTRICAL

9	GEN-E-1	LEGEND AND ABBREVIATIONS
10	GEN-E-2	PROCESS AND INSTRUMENTATION DIAGRAM

EROSION CONTROL

11	ESC-1	EROSION AND SEDIMENT CONTROL COVER SHEET
12	ESC-2	EROSION AND SEDIMENT CONTROL PLAN SCHEDULE A - TRANSMISSION MAIN
13	ESC-3	EROSION AND SEDIMENT CONTROL PLAN SCHEDULE A - TRANSMISSION MAIN
14	ESC-4	EROSION AND SEDIMENT CONTROL PLAN; SCHEDULES B & C - BOOSTER PUMP STATION AND RESERVOIR SITES INITIAL CLEARING AND GRADING
15	ESC-5	EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE B RESERVOIR SITE CONSTRUCTION AND FINAL GRADING
16	ESC-6	EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE C BOOSTER PUMP STATION CONSTRUCTION AND FINAL GRADING
17	ESC-7	EROSION AND SEDIMENT CONTROL PLAN; DETAILS-1

SCHEDULE A - PWB INTERTIE TRANSMISSION MAIN

CIVIL

18	TM-C-1	TRANSMISSION MAIN PLAN & PROFILE STA 1+15 TO STA 6+60
19	TM-C-2	TRANSMISSION MAIN PLAN & PROFILE STA 6+60 TO STA 12+20
20	TM-C-3	TRANSMISSION MAIN PLAN & PROFILE STA 12+20 TO STA 17+80
21	TM-C-4	TRANSMISSION MAIN PLAN & PROFILE STA 17+80 TO STA 23+40
22	TM-C-5	TRANSMISSION MAIN PLAN & PROFILE STA 23+40 TO STA 29+00
23	TM-C-6	TRANSMISSION MAIN PLAN & PROFILE STA 29+00 TO STA 34+60
24	TM-C-7	TRANSMISSION MAIN PLAN & PROFILE STA 34+60 TO STA 40+20
25	TM-C-8	TRANSMISSION MAIN PLAN & PROFILE STA 40+20 TO STA 45+80
26	TM-C-9	TRANSMISSION MAIN PLAN & PROFILE STA 45+80 TO STA 51+40
27	TM-C-10	TRANSMISSION MAIN PLAN & PROFILE STA 51+40 TO STA 57+00
28	TM-C-11	TRANSMISSION MAIN PLAN & PROFILE STA 57+00 TO STA 62+60

ATTENTION: OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW THE RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES BY CALLING THE UTILITY NOTIFICATION CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS 503-246-6699.)

SCHEDULE A - CONTINUED

29	TM-C-12	TRANSMISSION MAIN PLAN & PROFILE STA 62+60 TO STA 68+20
30	TM-C-13	TRANSMISSION MAIN PLAN & PROFILE STA 68+20 TO STA 73+80
31	TM-C-14	TRANSMISSION MAIN PLAN & PROFILE STA 73+80 TO STA 79+40
32	TM-C-15	TRANSMISSION MAIN PLAN & PROFILE STA 79+40 TO STA 85+00
33	TM-C-16	TRANSMISSION MAIN PLAN & PROFILE STA 85+00 TO STA 90+60
34	TM-C-17	TRANSMISSION MAIN PLAN & PROFILE STA 90+60 TO STA 96+20
35	TM-C-18	TRANSMISSION MAIN PLAN & PROFILE STA 96+20 TO STA 101+80
36	TM-C-19	TRANSMISSION MAIN PLAN & PROFILE STA 101+80 TO STA 107+40
37	TM-C-20	TRANSMISSION MAIN PLAN & PROFILE STA 107+40 TO STA 113+00
38	TM-C-21	TRANSMISSION MAIN PLAN & PROFILE STA 113+00 TO STA 118+60
39	TM-C-22	TRANSMISSION MAIN PLAN & PROFILE STA 118+60 TO STA 124+20
40	TM-C-23	TRANSMISSION MAIN PLAN & PROFILE STA 124+20 TO STA 129+80
41	TM-C-24	TRANSMISSION MAIN PLAN & PROFILE STA 129+80 TO STA 135+40
42	TM-C-25	TRANSMISSION MAIN PLAN & PROFILE STA 135+40 TO STA 141+00
43	TM-C-26	TRANSMISSION MAIN PLAN & PROFILE STA 141+00 TO STA 146+60
44	TM-C-27	TRANSMISSION MAIN PLAN & PROFILE STA 146+60 TO STA 152+20
45	TM-C-28	TRANSMISSION MAIN PLAN & PROFILE STA 152+20 TO STA 157+80
46	TM-C-29	TRANSMISSION MAIN PLAN & PROFILE STA 157+80 TO STA 163+40
47	TM-C-30	TRANSMISSION MAIN PLAN & PROFILE STA 163+40 TO STA 169+00
48	TM-C-31	TRANSMISSION MAIN PLAN & PROFILE STA 169+00 TO STA 174+60
49	TM-C-32	TRANSMISSION MAIN PLAN & PROFILE STA 174+60 TO STA 180+20
50	TM-C-33	TRANSMISSION MAIN PLAN & PROFILE STA 180+20 TO STA 185+80
51	TM-C-34	TRANSMISSION MAIN PLAN & PROFILE STA 185+80 TO STA 191+40
52	TM-C-35	TRANSMISSION MAIN PLAN & PROFILE STA 191+40 TO STA 197+00
53	TM-C-36	TRANSMISSION MAIN PLAN & PROFILE STA 197+00 TO STA 202+60
54	TM-C-37	TRANSMISSION MAIN PLAN & PROFILE STA 202+60 TO STA 208+20
55	TM-C-38	TRANSMISSION MAIN PLAN & PROFILE STA 208+20 TO STA 213+80
56	TM-C-39	TRANSMISSION MAIN PLAN & PROFILE STA 213+80 TO STA 219+40
57	TM-C-40	TRANSMISSION MAIN PLAN & PROFILE STA 219+40 TO STA 225+00
58	TM-C-41	TRANSMISSION MAIN PLAN & PROFILE STA 225+00 TO STA 229+60
59	TM-C-42	TRANSMISSION MAIN PLAN & PROFILE STA 229+60 TO STA 235+20
60	TM-C-43	TRANSMISSION MAIN PLAN & PROFILE STA 235+20 TO STA 240+80
61	TM-C-44	TRANSMISSION MAIN PLAN & PROFILE STA 240+80 TO STA 246+40
62	TM-C-45	TRANSMISSION MAIN PLAN & PROFILE STA 246+40 TO STA 251+60
63	TM-C-46	TRANSMISSION MAIN PLAN & PROFILE STA 251+60 TO STA 256+80
64	TM-C-47	TRANSMISSION MAIN PLAN & PROFILE STA 256+80 TO STA 262+40
65	TM-C-48	TRANSMISSION MAIN PLAN & PROFILE STA 262+40 TO STA 267+60
66	TM-C-49	TRANSMISSION MAIN PLAN & PROFILE STA 267+60 TO STA 271+20
67	TM-C-50	TRANSMISSION MAIN CIVIL DETAILS
68	TM-C-51	TRANSMISSION MAIN CIVIL DETAILS
69	TM-C-52	TRANSMISSION MAIN CIVIL DETAILS CATHODIC PROTECTION
70	TM-C-53	TRANSMISSION MAIN CIVIL DETAILS TYPICAL ROADWAY RESURFACING SECTIONS

TRAFFIC CONTROL

71	TM-TC-1	TRANSMISSION MAIN TRAFFIC CONTROL PLAN DETOUR MAP
72	TM-TC-2	TRANSMISSION MAIN TYPICAL TRAFFIC CONTROL PLAN AND ROAD CLOSURE

SCHEDULE B - 1.0 MG RESERVOIR AND TRANSFER PUMP STATION

CIVIL

73	RES-C-1	SITE LAYOUT PLAN
74	RES-C-2	SITE GRADING AND TREE REMOVAL PLAN
75	RES-C-3	SITE ACCESS DRIVEWAY PROFILE AND DETAILS
76	RES-C-4	RESERVOIR SECTION AND UNDERDRAIN DETAILS
77	RES-C-5	RESERVOIR FLOOR PLAN
78	RES-C-6	SITE PIPING PLAN
79	RES-C-7	SITE PIPING PROFILES
80	RES-C-8	CHECK VALVE VAULT AND DETAILS
81	RES-C-9	RESERVOIR MONITORING MANHOLE AND RESERVOIR SITE DETAILS
82	RES-C-10	RESERVOIR AND PUMP STATION CIVIL DETAILS

RECORD DRAWINGS

THIS DRAWING IS FOR RECORD PURPOSES ONLY, AND HAS BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS RELATIVE TO REPORTED CONSTRUCTED CONDITIONS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, MURRAY, SMITH & ASSOCIATES, INC. MAKES NO ASSURANCES, STATED OR IMPLIED, AS TO THE ACCURACY OF THIS DRAWING. THOSE RELYING ON THIS RECORD DRAWING FOR ANY PURPOSE ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY. CONTRACT MODIFICATION INFORMATION, FABRICATOR'S SHOP DRAWINGS AND OTHER PROJECT SUBMITTAL INFORMATION PROVIDED BY THE CONTRACTOR WHICH FURTHER CLARIFY DETAILS OF CONSTRUCTION MAY BE ON FILE. SEE ORIGINAL CONTRACT DRAWINGS FOR ENGINEER'S SEAL AND SIGNATURES.

VERSION 4.1 12-9-97

STRUCTURAL

83	RES-S-1	RESERVOIR GENERAL STRUCTURAL NOTES
84	RES-S-2	RESERVOIR QUALITY CONTROL PLAN
85	RES-S-3	RESERVOIR ROOF AND FLOOR PLANS
86	RES-S-4	RESERVOIR SECTION AND COLUMN DETAILS
87	RES-S-5	RESERVOIR ROOF SLAB REINFORCING DETAILS
88	RES-S-6	PRESTRESSED RESERVOIR WALL SECTIONS AND DETAILS
89	RES-S-7	PRESTRESSED RESERVOIR WALL ELEVATION AND DETAILS
90	RES-S-8	MISCELLANEOUS RESERVOIR DETAILS AND PRESTRESSING NOTES
91	RES-S-9	RESERVOIR FOUNDATION AND PIPE BLOCK DETAILS
92	RES-S-10	RESERVOIR INTERIOR LADDER AND HATCH DETAILS
93	RES-S-11	RESERVOIR PIPING ENTRANCE/EXIT PLAN AND SECTIONS
94	RES-S-12	RESERVOIR OVERFLOW PIPING SECTIONS AND DETAILS
95	RES-S-13	RESERVOIR ROOF VENT DETAILS

MECHANICAL (TRANSFER PUMP STATION)

96	RES-M-1	TRANSFER PUMP STATION MECHANICAL FLOOR PLAN AND SECTION
97	RES-M-2	TRANSFER PUMP STATION SECTIONS AND ARCHITECTURAL DETAILS
98	RES-M-3	TRANSFER PUMP STATION MECHANICAL DETAILS

ELECTRICAL

99	RES-E-1	TRANSFER PUMP STATION ONE-LINE DIAGRAM
100	RES-E-2	SITE LAYOUT PLAN
101	RES-E-3	TRANSFER PUMP STATION SCHEDULES AND DETAILS

LANDSCAPING

102	RES-L-1	RESERVOIR SITE PLANTING PLAN
103	RES-L-2	RESERVOIR SITE LANDSCAPING DETAILS

SCHEDULE C - BOOSTER PUMP STATION

CIVIL

104	BPS-C-1	BOOSTER PUMP STATION SITE PLAN, SITE PIPING PLAN AND GENERAL NOTES
105	BPS-C-2	BOOSTER PUMP STATION SITE GRADING AND TREE REMOVAL PLAN
106	BPS-C-3	BOOSTER PUMP STATION CIVIL DETAILS

ARCHITECTURAL

107	BPS-A-1	BOOSTER PUMP STATION BUILDING ELEVATIONS
108	BPS-A-2	BOOSTER PUMP STATION ARCHITECTURAL DETAILS

MECHANICAL

109	BPS-M-1	BOOSTER PUMP STATION MECHANICAL FLOOR PLAN
110	BPS-M-2	BOOSTER PUMP STATION MECHANICAL SECTIONS AND DETAILS
111	BPS-M-3	BOOSTER PUMP STATION CHLORINE FEED SYSTEM PLAN AND DETAILS
112	BPS-M-4	BOOSTER PUMP STATION MECHANICAL DETAILS

ELECTRICAL

113	BPS-E-1	BOOSTER PUMP STATION ONE-LINE DIAGRAM
114	BPS-E-2	ELECTRICAL SITE PLAN
115	BPS-E-3	BOOSTER PUMP STATION SCHEDULES AND DETAILS

LANDSCAPING

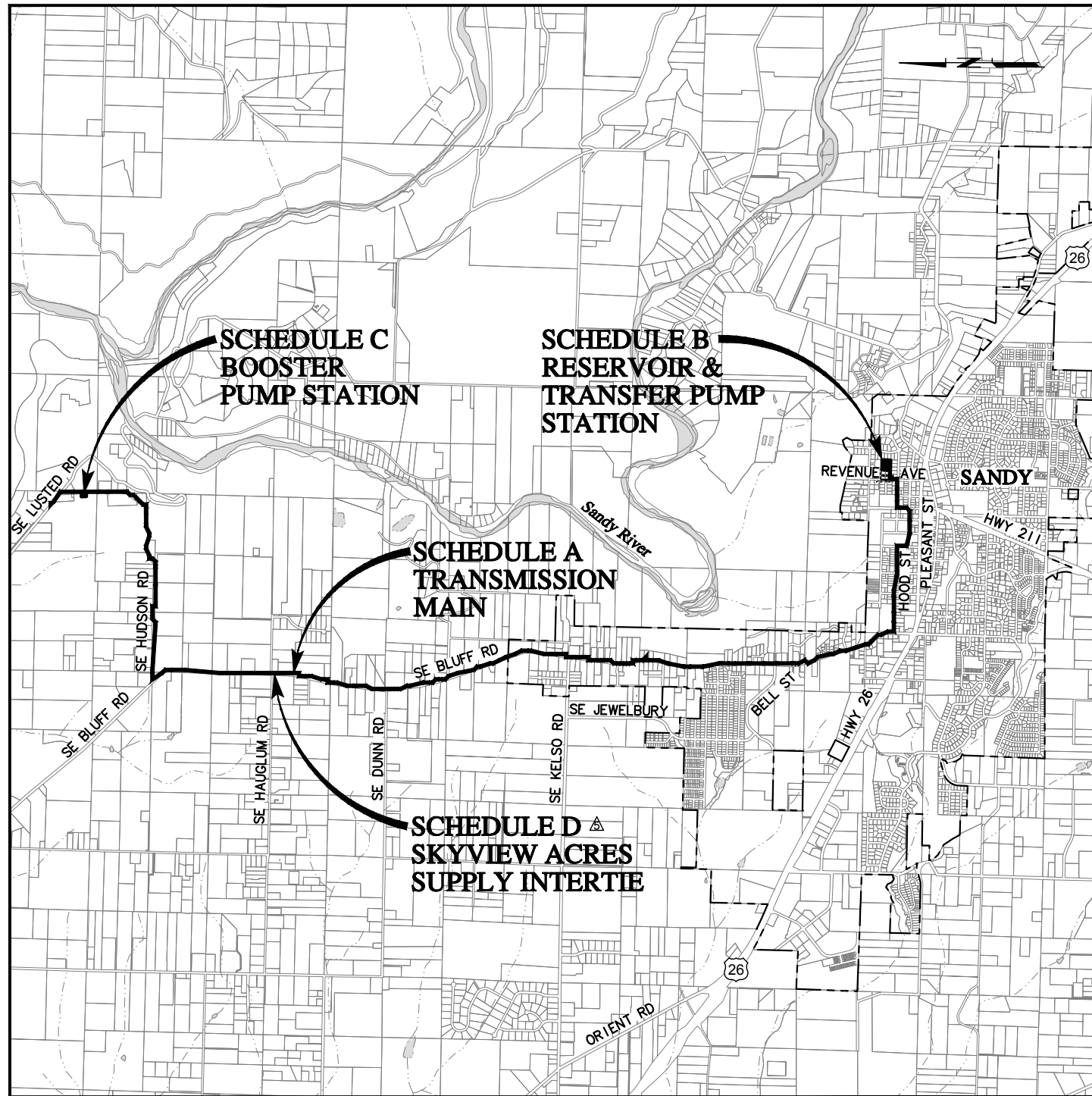
116	BPS-L-1	BOOSTER PUMP STATION PLANTING PLAN
117	BPS-L-2	BOOSTER PUMP STATION LANDSCAPING DETAILS

▲ SCHEDULE D - SKYVIEW ACRES SUPPLY INTERTIE

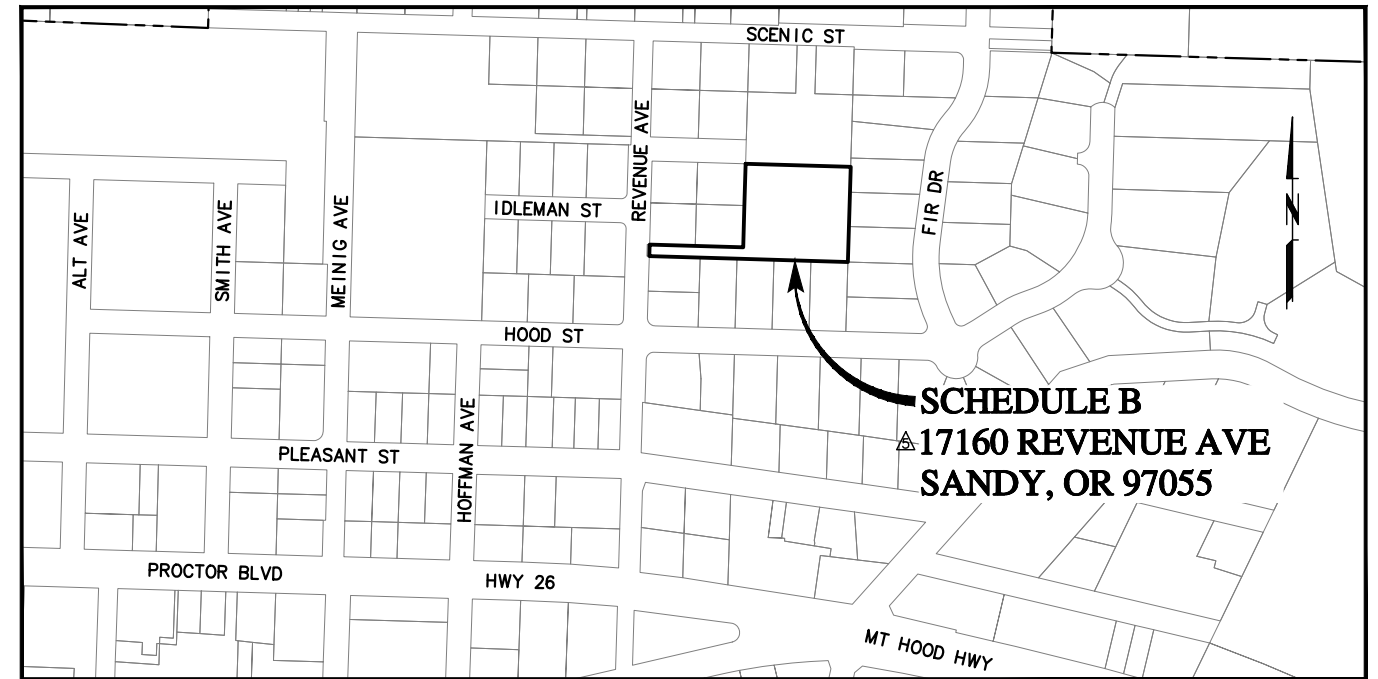
118	SVA-C-1	SE HAUGLUM ROAD CONNECTION SITE PLAN
119	SVA-C-2	FLOW METERING AND PRESSURE REDUCING VALVE VAULT
120	SVA-C-3	DOUBLE CHECK BACKFLOW PREVENTER VALVE VAULT
121	SVA-C-4	EXISTING BOOSTER PUMP STATION SITE
122	SVA-C-5	PRV VAULT AT EXISTING BOOSTER PUMP STATION SITE
123	SVA-C-6	BYPASS CONNECTION AT EXISTING RESERVOIR

MSA Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

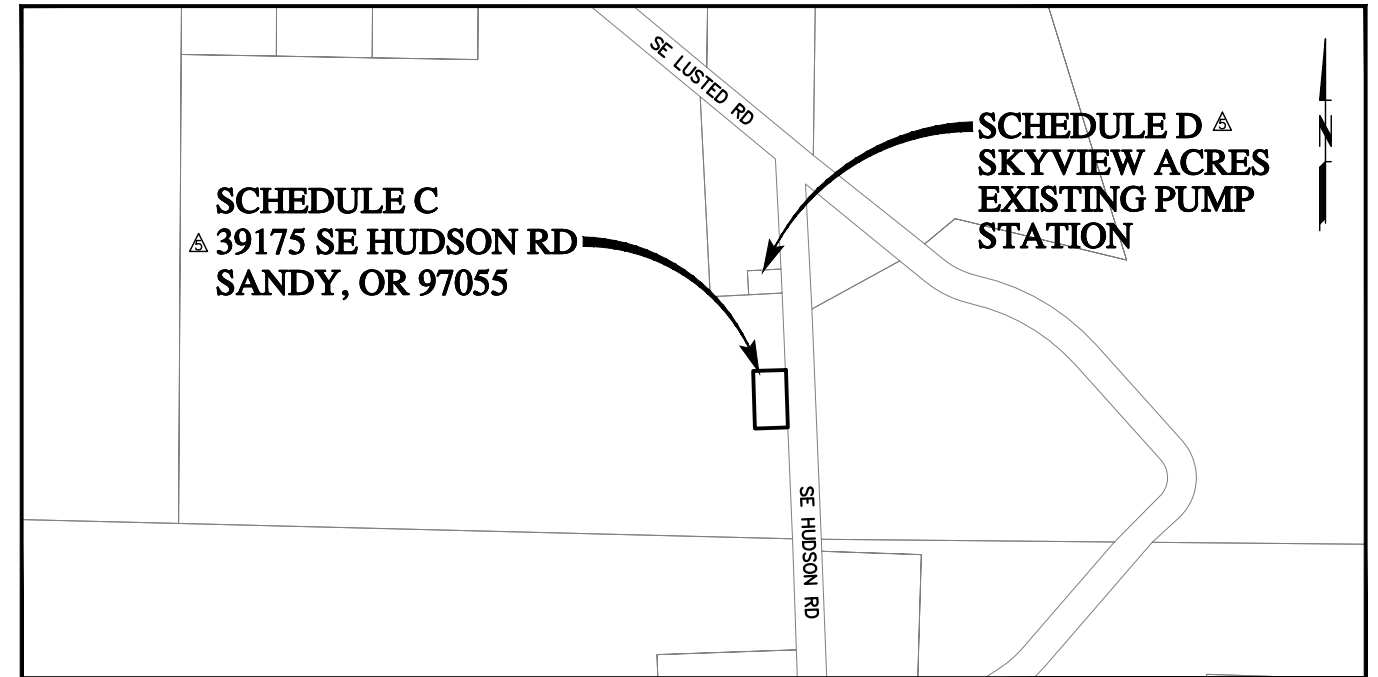
G:\PDX_Projects\111265\OR-G-R.dwg GEN-G-2 10/30/2014 3:15 PM DAK 20.0s (LMS Tech)



VICINITY MAP
SCALE: 1"=1,600'



SCHEDULE B - LOCATION MAP
SCALE: 1"=200'



SCHEDULE C - LOCATION MAP
SCALE: 1"=200'

NO.	DATE	BY	REVISION
1	10/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

VICINITY AND LOCATION MAPS
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

PIPE SYMBOLS

PLANT	SCHEMATIC	
		WELDED JOINT
		FLANGED JOINT
		GROOVED END JOINT
		MECHANICAL JOINT
		PUSH-ON JOINT (RUBBER GASKET)
		FLANGED COUPLING ADAPTER
		DOUBLE BALL FLEXIBLE EXTENSION COUPLING
		FLEXIBLE COUPLING W/ THRUST RING
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		BLIND FLANGE
		CAP
		LONG SLEEVE
		FLEXIBLE COUPLING
		CAPPED END OR PLUGGED END
		FITTING

VALVE SYMBOLS

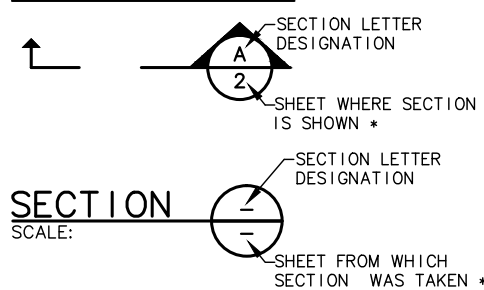
PLANT	SCHEMATIC	
		BUTTERFLY VALVE
		GATE VALVE
		GLOBE VALVE
		BALL VALVE
		BALANCING VALVE
		DIAPHRAGM VALVE
		PLUG VALVE (TOP)
		PLUG VALVE (SIDE)
		3-WAY PLUG VALVE
		SWING CHECK VALVE
		DOUBLE CHECK ASSEMBLY
		BALL SWING CHECK
		SILENT CHECK VALVE
		PRESSURE REDUCING VALVE
		ALTITUDE CONTROL VALVE
		SOLENOID VALVE
		RELIEF VALVE
		NEEDLE VALVE
		HOSE VALVE
		REDUCED PRESSURE BACKFLOW PREVENTER W/ GATE VALVES
		HOSE BIBB/ YARD HYDRANT

TOPOGRAPHIC LEGEND & NOTES

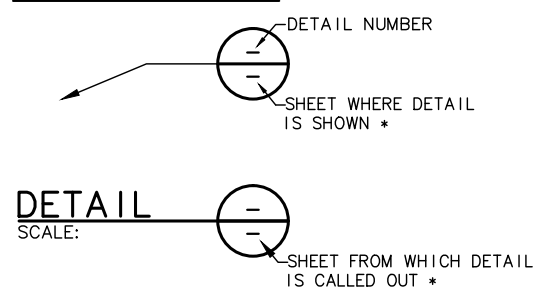
	EXISTING	PROPOSED
WATERLINE	-----8"W-----	-----10" DI W-----
ELECTRICAL	-----E-----	-----E-----
TELEPHONE	-----T-----	-----T-----
GAS	-----4"G-----	-----4"G-----
CABLE TELEVISION	-----CATV-----	-----CATV-----
SANITARY SEWER LINE	-----8"SS-----	-----8"SS-----
STORM DRAIN	-----8"SD-----	-----8"SD-----
CULVERT	>-----8"SD-----<	>-----18"D-----<
ABANDON PIPE		//////////
DRAINAGE DITCH	-----	-----
FENCE	x x x	x x x
ROCK WALL	-----	-----
TREE/ BUSH LINE	-----	-----
CENTERLINE	-----	-----
EASEMENT/ PROPERTY LINE	-----	-----
CITY LIMITS	-----	-----
EDGE OF PAVEMENT/ AC	-----	-----
EDGE OF GRAVEL	-----	-----
CURB	-----	-----
SIDEWALK	S/W	S/W
STRUCTURE OR FACILITY	-----	-----
CONTOUR MINOR	-----	-----
CONTOUR MAJOR	-200	-200
MANHOLE	○	●
CATCH BASIN/ FIELD INLET	□	□
THRUST BLOCK	○	▲
VALVE	⊗	⊙
CAP/PLUG	⊕	⊕
FIRE HYDRANT	⊙	⊙
REDUCER	▽	▽
TAPPING SLEEVE	⊔	⊔
6" PERMANENT BLOW-OFF ASSEMBLY	⊕	⊕
TF500 BLOW-OFF ASSEMBLY	⊕	⊕
TEMPORARY BLOW-OFF ASSEMBLY	⊕	⊕
AIR RELEASE ASSEMBLY	⊕	⊕
WATER METER	⊕	⊕
PULL BOX/ JUNCTION BOX	⊕	⊕
UTILITY POLE	⊕	⊕
TELEPHONE JUNCTION BOX	⊕	⊕
MAIL BOX	⊕	⊕
GUY WIRE	→	→
SIGN	⊕	⊕
BENCH MARK	⊕	⊕
TREE DECIDUOUS	⊕	⊕
TREE CONIFEROUS	⊕	⊕
LIGHT POST	⊕	⊕
SURFACE ELEVATION	+ 176.63	+ 176.63
FLOW DIRECTION	-----	-----
RETAINING WALL	-----	-----

SECTION AND DETAIL DESIGNATIONS

SECTION DESIGNATIONS



DETAIL DESIGNATIONS



* NOTE: IF PLAN AND SECTION FOR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED WITH A DASH.

MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	PRESSURE GAUGE W/ COCK
	PRESSURE SWITCH W/ COCK
	METER
	SLIP ON JOINT PIPE
	RESTRAINED JOINT PIPE

PLAN AND PROFILE SYMBOLS

	AC
	N
	GR

C:\PDX_Projects\111265\CAD\DR\PROJECTS\GENERAL\11-1265-OR-G-R.dwg GEN-G-3 10/30/2014 3:15 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA/DAM
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

SYMBOLS AND LEGEND

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
GEN-G-3
3 of 123

C:\PDX_Projects\111265\CAD\GENERAL\11-1265-OR-G-R.dwg GEN-G-4 10/30/2014 3:15 PM DAK 20.0s (LMS Tech)

Ⓢ	AT
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN (D)	ABANDON (ED)
ABS	ACRYLONITRILE BUTADIENE STYRENE
ABV	ABOVE
AC	ASPHALTIC CONCRETE
ACP	ASPHALTIC CONCRETE PAVING
ADJ	ADJUSTABLE
ADJC	ADJACENT
ADPTR	ADAPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHR	ANCHOR
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APPVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH	ARCHITECTURAL
ARV	AIRE RELEASE VALVE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B&S	BELL & SPIGOT
BC	BOLT CIRCLE
BD	BOARD
BETW	BETWEEN
BF	BOTH FACE
BFD	BACKFLOW PREVENTION DEVICE
BFILL	BACK FILL
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BKGD	BACKGROUND
BLDG	BUILDING
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCH MARK / BEAM
BMP	BEST MANAGEMENT PRACTICE
BO	BLOWOFF
BOC	BACK OF CURB
BS	BOTH SIDES
BSMT	BASEMENT
BTF	BOTTOM FACE
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BW	BOTH WAYS
C	CELSIUS
C TO C	CENTER TO CENTER
CATV	CABLE TELEVISION
CAV	COMBINATION AIR VALVE
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCW	COUNTER CLOCKWISE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHAN	CHANNEL
CHEM	CHEMICAL
CHFR	CHAMFER
CHKV	CHECK VALVE
CI	CAST IRON
CIP	CAST IRON PIPE
CIPC	CAST IN PLACE CONCRETE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL or ☉	CENTER LINE
CL2	CHLORINE
CLG	CEILING
CLJ	CONTROL JOINT
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATION (S)

CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACT (OR)
COORD	COORDINATE
COP	COPPER
CORP	CORPORATION
CORR	CORRUGATED
CP	CONTROL POINT
CPLG	COUPLING
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CRUSHED ROCK
CS	COMBINED SEWER
CSP	CONCRETE SEWER PIPE
CT	COURT
CTR	CENTER
CU	CUBIC
CULV	CULVERT
CV	CONTROL VALVE
CW	CLOCKWISE / COLD WATER
CY	CUBIC YARDS
CYL	CYLINDER LOCK
D	DRAIN
DC	DIRECT CURRENT
DEFL	DEFLECTION
DET	DETAIL
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
DR	DRIVE
DS	DOWNSPOUT
DWG	DRAWING
DWL	DOWEL
DWV	DRAIN WASTE AND VENT
DWY	DRIVEWAY
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELB	ELBOW
ELEC	ELECTRICAL
ENCL	ENCLOSURE
EOP	EDGE OF PAVEMENT
EQL	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY
EXC	EXCAVATE
EXIST	EXISTING
EXIST GR	EXISTING GRADE
EXP	EXPANSION
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
F	FAHRENHEIT
F TO F	FACE TO FACE
FAB	FABRICATE
FB	FLAT BAR
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FDN	FOUNDATION
FEXT	FIRE EXTINGUISHER
FF	FAR FACE
FGL	FIBERGLASS
FH	FIRE HYDRANT
FIN FL	FINISH FLOOR
FIN GR	FINISH GRADE
FIPT	FEMALE IRON PIPE THREAD
FITG	FITTING
FL	FLOOR LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
FO	FIBER OPTIC
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT

FTG	FOOTING
FUT	FUTURE
FXTR	FIXTURE
G	GAS
GAL	GALLON
GALV	GALVANIZED
GC	GROOVED COUPLING
GEN	GENERAL
GFA	GROOVED FLANGE ADAPTER
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GJ	GRIP JOINT
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPS	GALLONS PER SECOND
GR	GRADE
GR LN	GRADE LINE
GRTG	GRATING
GV	GATE VALVE
GRVL	GRAVEL
GYP	GYPSUM
HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDWE	HARDWARE
HGR	HANGER
HGT	HEIGHT
HH	HANDHOLD
HM	HOLLOW METAL
HNDRL	HAND RAIL
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HIGH PRESSURE / HORSEPOWER
HPG	HIGH PRESSURE GAS
HPT	HIGH POINT
HR	HOUR
HSB	HIGH STRENGTH BOLT
HV	HOSE VALVE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWL	HIGH WATER LINE
HWY	HIGHWAY
HYD	HYDRANT
HYDR	HYDRAULIC
I&C	INSTRUMENTATION & CONTROL
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IMPVT	IMPROVEMENT
IN	INCH
INCC	INCLUDE (D) (ING)
INFL	INFLUENT
INJ	INJECTION
INSTL	INSTALLATION / INSTALL
INSUL	INSULATION
INTER	INTERCEPTOR
INTR	INTERIOR
INV	INVERT
IP	IRON PIPE
IPT	IRON PIPE THREAD
IR	IRON ROD
IRRIG	IRRIGATION
JT	JOINT
JUNC	JUNCTION
KPL	KICK PLATE
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWY	KEYWAY
L	LENGTH OF CURVE
LAB	LABORATORY
LAV	LAVATORY
LB	POUND
LF	LINEAL FOOT
LIN	LINEAL / LINEAR
LN	LANE
LOC	LOCATION
LONG	LONGITUDINAL

LP	LOW PRESSURE
LPT	LOW POINT
LRG	LARGE
LS	LONG SLEEVE / LUMP SUM
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LINE
MAN	MANUAL
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCP	MASTER CONTROL PANEL
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIPT	MALE IRON PIPE THREAD
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT / MONOLITHIC
MOT	MOTOR
MP	MILEPOST
MSL	MEAN SEA LEVEL
MTD	MOUNTED
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NE	NORTHEAST
NF	NEAR FACE
NO / NO.	NOT IN CONTRACT
NOM	NOMINAL
NORM	NORMAL
NRS	NON-RISING STEM
NTS	NOT TO SCALE
O TO O	OUT TO OUT
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODOT	OREGON DEPARTMENT OF TRANSPORTATION
OE	OVERFLOW ELEVATION
OF	OVERFLOW / OUTSIDE FACE
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OVHD	OVERHEAD
P	POWER
P&ID	PROCESS & INSTRUMENTATION DIAGRAM
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PCVC	POINT OF CURVATURE ON VERTICAL CURVE
PE	PLAIN END
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PG	PRESSURE GAGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL or P/L	PROPERTY LINE / PLATE / PLASTIC
PLBG	PLUMBING
PNL	PANEL
PCC	POINT ON CURVE
POLY	POLYETHYLENE
POT	POINT ON TANGENCY
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRCST	PRECAST
PREP	PREPARATION
PRESS	PRESSURE
PRKG	PARKING
PROP	PROPERTY
PRV	PRESSURE REDUCING VALVE
PS	PUMP STATION
PSIG	POUNDS PER SQUARE INCH GAGE
PSL	PIPE SLEEVE
PSPT	PIPE SUPPORT
PT	POINT OF TANGENCY
PTVC	POINT OF TANGENCY ON VERTICAL CURVE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWB	PORTLAND WATER BUREAU
PWR	POWER
QTY	QUANTITY

RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD / ROOF DRAIN
RDCR	REDUCER
REF	REFERENCE
REINF	REINFORCE (D) (ING) (MENT)
REQD	REQUIRED
RES	RESERVOIR
RESTR	RESTRAINED
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW or R/W	RIGHT OF WAY
RPBPD	REDUCED PRESSURE BACKFLOW PREVENTION DEVICE
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RST	REINFORCING STEEL
RT	RIGHT
SALV	SALVAGE
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDL	SADDLE
SDR	STANDARD DIMENSION RATIO
SECT	SECTION
SHLDR	SHOULDER
SHT	SHEET
SIM	SIMILAR
SLP	SLOPE
SLV	SLEEVE
SOLN	SOLUTION
SP	SOIL PIPE / SEWER PIPE
SPCL	SPECIAL
SPEC (S)	SPECIFICATION (S)
SPG	SPACING
SPL	SPOOL
SPRT	SUPPORT
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SS	SANITARY SEWER
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRUCT	STRUCTURE / STRUCTURAL
SUBMG	SUBMERGED
SUCT	SUCTION
SV	SOLENOID VALVE
S/W	SIDEWALK
SW	SOUTHWEST
SWD	SIDEWATER DEPTH
SWGR	SWITCH GEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
T	TELEPHONE
T&B	TOP & BOTTOM
TB	THRUST BLOCK
TBM	TEMPORARY BENCH MARK
TC	TOP OF CONCRETE / TOP OF CURB
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
TEMP	TEMPERATURE / TEMPORARY
T&G	TONGUE & GROOVE
THK	THICKNESS
THRD	THREAD(ED)
THRU	THROUGH
TRU	TEST PIT/TOP OF PAVEMENT/TURNING POINT
TRANS	TRANSITION
TSP	TRI-SODIUM PHOSPHATE
TST	TOP OF STEEL
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNION
UON	UNLESS OTHERWISE NOTED
USGS	UNITED STATES GEOLOGIC SURVEY

V	VENT / VOLT
VAC	VACUUM
VB	VACUUM BREAKER
VBOX	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W	WATER
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WD	WOOD
WF	WIDE FLANGE
WH	WALL HYDRANT
WHTR	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WP	WORKING POINT / WATERPROOFING
WS	WATER SERVICE
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WT	WEIGHT
WTP	WATER TREATMENT PLANT
WTRT	WATERTIGHT
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT
X SECT	CROSS SECTION
XFMR	TRANSFORMER
YD	YARD DRAIN/YARD
YH	YARD HYDRANT
YR	YEAR
ZN	ZINC

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA/DAM
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

ABBREVIATIONS
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
GEN-G-4
4 of 123

GENERAL NOTES:

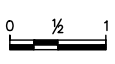
1. THE CONTRACTOR SHALL POTHOLE AND VERIFY LOCATIONS, ELEVATIONS, TYPES AND SIZES OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTING NEW PIPING FAR ENOUGH IN ADVANCE TO ALLOW NECESSARY ADJUSTMENTS IN GRADE AND SHALL NOTIFY ENGINEER OF NEED TO ADJUST PIPING INSTALLATION ACCORDINGLY. POTHOLING SHALL SUFFICIENTLY PRECEDE LAYING OF PIPE TO ALLOW REQUIRED ELEVATION ADJUSTMENTS TO BE ACCOMPLISHED WITHOUT REWORK. ELEVATION ADJUSTMENTS SHALL BE EXPECTED AND ARE INCIDENTAL TO THE WORK. DEFLECT PIPE AS REQUIRED AND WITHIN MANUFACTURER'S TOLERANCES TO AVOID EXISTING UTILITIES AND COMPLETE TIE-INS.
2. ALL PIPING TO BE RESTRAINED JOINT PIPING UNLESS OTHERWISE SPECIFICALLY IDENTIFIED AS STANDARD PUSH-ON JOINT PIPING. SEE SPECS FOR APPROVED TYPES OF RESTRAINT.
3. BORE HOLES AT THE RESERVOIR SITE ARE REFERENCED IN A GEOTECHNICAL INVESTIGATION REPORT DATED JUNE 2012. BORE HOLES AT THE BOOSTER PUMP STATION SITE ARE REFERENCED IN A GEOTECHNICAL REPORT DATED AUGUST 2012. THESE REPORTS ARE INCLUDED AS SUPPLEMENTARY INFORMATION FOR CONTRACTOR REFERENCE ONLY AND ARE NOT A PART OF THE CONTRACT DOCUMENTS.
4. SEE SPECIAL PROVISIONS OF SPECIFICATIONS FOR SPECIAL CONSTRUCTION SCHEDULING.
5. ALL CONCRETE SHALL BE A MINIMUM OF 3000 PSI 28 DAY COMPRESSION STRENGTH, UNLESS OTHERWISE NOTED.
6. LOCATIONS OF EXISTING UTILITIES ARE BASED ON INFORMATION SUPPLIED BY THE UTILITIES AND CONSIDERED APPROXIMATE ONLY.
7. RESTRAIN ALL VALVES, TEES, BENDS, AND FITTINGS UNLESS OTHERWISE NOTED. ALL FITTINGS TO BE MECHANICAL JOINT UNLESS OTHERWISE NOTED.
8. ALL FLANGED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF AWWA C115 AND C207, LATEST EDITION.
9. PROVIDE POLYETHYLENE ENCASEMENT FOR ALL PIPING WITHIN TEN (10) FEET OF EXISTING GAS MAIN ACCORDING TO ANSI/AWWA C105/A21.5.
10. TEST PRESSURE FOR DI WATER PIPING TO BE 1.5xWORKING PRESSURE OR 150 PSI, WHICHEVER IS GREATER, UNLESS OTHERWISE NOTED.
11. HYDROSTATIC TEST PRESSURE FOR PVC WATER PIPING SHALL BE 150 PSI AT THE POINT OF HIGHEST ELEVATION OF THE PIPE BEING TESTED. SEE SPECIFICATIONS FOR DETAILS.
12. UNLESS NOTED ON THE DRAWINGS OR SPECIFIED OTHERWISE, ALL WORK IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT VERSION OF ODOT/APWA CONSTRUCTION STANDARDS, THE CITY OF SANDY CONSTRUCTION STANDARD, CLACKAMAS COUNTY STANDARDS, AND THE OREGON ADMINISTRATIVE RULES (OAR), CHAPTER 333.
13. CONTRACTOR SHALL PROVIDE TEMPORARY TAPS AND BLOWOFFS AND THRUST BLOCKING AS REQUIRED TO FACILITATE FLUSHING, TESTING AND DISINFECTION OF WATERLINES. AT COMPLETION OF DISINFECTION, REMOVE TEMPORARY TEST TAPS AND REPLACE WITH PERMANENT DUCTILE IRON OR BRASS PLUGS. SEE SHEET GEN-C-1 FOR TEMPORARY BLOWOFF DETAIL.
14. CONNECTIONS TO EXISTING WATERLINES MAY REQUIRE TEMPORARY SHUTDOWNS OF EXISTING FACILITIES. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CITY OF SANDY AND PROVIDE A MINIMUM OF 72 HOURS ADVANCE NOTICE PRIOR TO PERFORMING WATERLINE TIE-IN WORK. CONTRACTOR TO VERIFY WITH CITY OF SANDY IF EXISTING LINES ARE TO BE DEPRESSURIZED PRIOR TO PERFORMING THIS WORK. SEE SPECIFICATIONS FOR SEQUENCE OF CONSTRUCTION REQUIREMENTS. OPERATION OF EXISTING VALVES SHALL BE BY CITY OF SANDY PERSONNEL ONLY.
15. ALL EXISTING FEATURES INCLUDING, BUT NOT LIMITED TO, ROADWAYS, STRUCTURES, LOTS, CURBS, SIDEWALKS, FENCES, WALLS, PLANTING, DITCHES, MAILBOXES, SIGNS, PIPING AND UTILITIES DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO AS GOOD OR BETTER THAN EXISTING CONDITION UNLESS OTHERWISE SPECIFIED. IF A UTILITY IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT OWNER OF UTILITY FOR INSPECTION OF DAMAGE PRIOR TO REPAIRS. CONTRACTOR SHALL REPAIR ALL UTILITY SERVICES DAMAGED DURING CONSTRUCTION AND SUCH REPAIR SHALL BE CONSIDERED INCIDENTAL.
16. CONTRACTOR TO OBTAIN AND COMPLY WITH APPLICABLE CITY OF SANDY AND CLACKAMAS COUNTY PERMITS AND REQUIREMENTS FOR WORK IN, AND RESTORATION OF, CITY AND COUNTY ROADWAYS.
17. ALL PIPING SHALL HAVE A MINIMUM OF 4 FEET OF COVER FROM TOP OF PIPE BELL TO STREET GRADE OR OTHER FINISH GRADE, UNLESS OTHERWISE SHOWN OR APPROVED BY ENGINEER.
18. DO NOT REMOVE TREES UNLESS THEY HAVE BEEN PREVIOUSLY IDENTIFIED IN THE FIELD FOR REMOVAL PER ENGINEER. CONTRACTOR SHALL COORDINATE REMOVAL OF IMPACTED TREES WITH ADJACENT HOMEOWNER WITH REGARDS TO TREE CUTTING, REMOVAL, FIREWOOD RETENTION AND TREE REPLACEMENT.
19. FINAL LOCATIONS OF ALL VALVE BOXES, WATER QUALITY STATIONS, AIR RELEASE VALVES AND BLOWOFFS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION PER ENGINEER.
20. PROVIDE "AS CONSTRUCTED" DRAWINGS INDICATING ALL CHANGES IN GRADE, ALIGNMENT, FITTINGS AND MATERIALS INSTALLED AND ANY OTHER UTILITIES OR OBSTACLES NOT SO INDICATED ON THESE PLANS. AS CONSTRUCTED DRAWINGS SHALL BE "RED LINES" OF THE DESIGN DRAWINGS.
21. AT THE END OF EACH WORK DAY ALL OPEN TRENCHES SHALL BE BACKFILLED TO GRADE OR PLATED TO THE SATISFACTION OF THE ENGINEER AND PERMITTING AUTHORITY. SEE SECTION 02222 OF SPECIFICATIONS.
22. CONTRACTOR SHALL COMPLY WITH ALL OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) AND LOCAL AGENCY REQUIREMENTS IN THE DISPOSAL OF CHLORINATED WATER. SEE SPECIFICATIONS.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING CONSTRUCTION SURVEYS. PRIOR TO CONSTRUCTION, FIELD LAYOUT SHALL BE APPROVED BY ENGINEER (MSA). SEE CONTRACT DOCUMENTS FOR SURVEY REQUIREMENTS.

24. ATTENTION: OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW THE RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES BY CALLING THE UTILITY NOTIFICATION CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS 1-800-332-2344.

25. WHERE A WATERLINE CROSSES A SANITARY SEWER LINE, ONE PIPE LENGTH OF THE WATERLINE MUST BE CENTERED AT THE CROSSING. COMPLY WITH OAR CHAPTER 333 RULES FOR REQUIRED WATERLINE - SEWERLINE SEPARATION AND CROSSINGS.
26. PIPE DEFLECTION IS LIMITED TO THE ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
27. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND PERMITTING AGENCY IN FIELD LOCATING DAMAGED PAVEMENT AREAS TO BE REMOVED AND REPLACED PRIOR TO FINAL SAW CUTTING AND RESURFACING.
28. MANHOLE AND INLET COVERS SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON PLANS.
29. MAINLINE VALVE OPERATOR NUTS TO BE PLACED ON SIDE CLOSEST TO EDGE OF PAVEMENT.
30. CONTRACTOR SHALL COORDINATE WITH ENGINEER POTHOLING OF EXISTING UTILITIES AND MAKING APPROPRIATE ADJUSTMENTS FOR ANY ALIGNMENT CONFLICTS WHERE CONNECTING TO EXISTING UTILITIES.
31. CONTRACTOR SHALL SUPPORT AND PROTECT AS NECESSARY ANY PIPE OR CONDUIT EXPOSED AS PART OF THE NEW PIPE TRENCH EXCAVATION. CONTRACTOR SHALL PROVIDE CONDUIT SUPPORT PLAN FOR ALL TRANSMISSION MAIN CROSSINGS UNDER EXISTING PORTLAND WATER BUREAU PIPING. CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE AT ALL TIMES AND SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES TO MAINTAIN AND PROTECT SERVICES. ANY DAMAGES TO PIPE, CONDUIT OR ANY OTHER UTILITY SHALL BE REPLACED TO THE UTILITY OWNER'S SATISFACTION AT THE SOLE COST OF THE CONTRACTOR.
32. ENGINEER TO PROVIDE LOCAL SURVEY CONTROL.
33. NUMEROUS EXISTING OVERHEAD POWER LINES OCCUR ALONG THE TRANSMISSION MAIN ALIGNMENT. CONTRACTOR TO CONFORM TO CONDITIONS IN VICINITY OF OVERHEAD LINES.
34. ALL COPPER, BRASS AND BRONZE PIPING SHALL BE WRAPPED IN POLYETHYLENE TAPE.
35. FOR TRANSMISSION MAIN INSTALLATION WITHIN CLACKAMAS COUNTY AND OUTSIDE OF PAVED AREA OF ROADWAY, THE CONTRACTOR SHALL COORDINATE WITH DEVIN PATTERSON CLACKAMAS COUNTY ENGINEERING (PHONE: 503-919-0091) TO DOCUMENT THE CONDITIONS OF ROAD SHOULDER, ROAD DRAINAGE, DRIVEWAYS, LANDSCAPING, AND ANY OTHER RELATED ITEMS THAT WILL REQUIRE RESTORATION FOLLOWING CONSTRUCTION.
36. CONTRACTOR SHALL NOTE THAT THERE MAY BE EXISTING AND UNLOCATABLE TERRA COTTA FIELD TILE WITHIN ROADWAYS AND RIGHT-OF-WAY. IF DISCOVERED DURING INSTALLATION OF TRANSMISSION MAIN, CONTRACTOR SHALL MAINTAIN EXISTING FACILITIES. IF FIELD TILE IS BROKEN OR OTHERWISE DAMAGED DURING CONSTRUCTION, CONTRACTOR SHALL CONTACT INSPECTOR FOR INSPECTION OF DAMAGE AND REPLACE IN KIND TO THE SATISFACTION OF INSPECTOR AT THE SOLE EXPENSE OF THE CONTRACTOR.
37. UPON TRENCHING FOR INSTALLATION OF TRANSMISSION MAIN, STEEL RUNNING PLATES OR OTHER SATISFACTORY METHODS SHALL BE USED TO MAINTAIN TRAFFIC. NO MORE THAN TWO HUNDRED AND FIFTY (250) FEET OF LONGITUDINAL TRENCH ALONG ROADWAY SHALL BE OPEN AT ANY ONE TIME AND NO TRENCH SHALL BE LEFT OPEN OVERNIGHT. STEEL PLATES SHALL BE PINNED AND RAMPED EVERY NIGHT. REFER TO DRAFT CLACKAMAS COUNTY UTILITY PLACEMENT PERMIT INCLUDED IN THE SUPPLEMENTAL INFORMATION SECTION OF THE CONTRACT DOCUMENTS FOR MORE DETAILS.

C:\PDX_Projects\111265\CAD\DR\SHETS\GENERAL\11-1265-OR-G-R.dwg GEN-G-5 10/30/2014 3:15 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING
2	12/04/12	LLA	ADDENDUM NO. 2


NOTICE

 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA/DAM
 DESIGNED
 JHF
 DRAWN
 MLH
 CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97



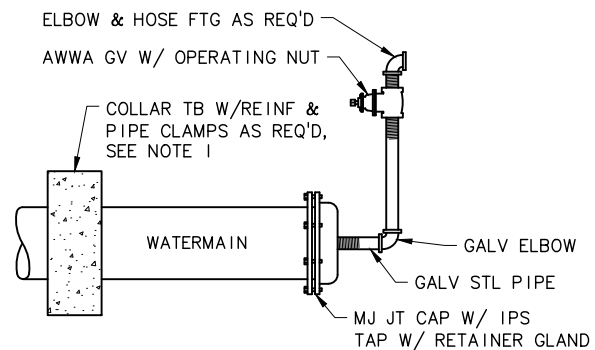
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022



CITY OF SANDY
PWB INTERTIE PROJECT

GENERAL NOTES			
PROJECT NO.:	11-1265	SCALE:	AS SHOWN
DATE:	NOVEMBER 2012		

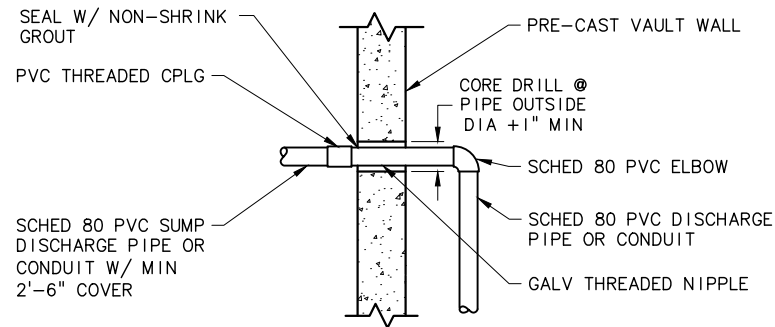
SHEET
GEN-G-5
 5 of 123



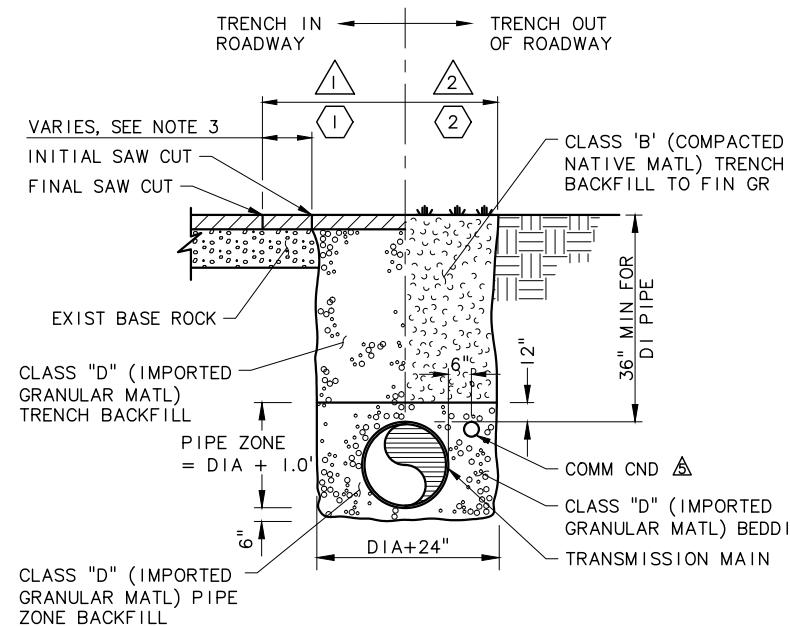
NOTES:

1. FOR TEMPORARY BLOW-OFFS, CONTRACTOR TO PROVIDE TEMPORARY THRUST RESTRAINT AS REQUIRED.
2. SEE SPECIFICATIONS REGARDING DISPOSAL/DECHLORINATION FOR SUPERCHLORINATED WATER.
3. PROVIDE LARGER BLOW-OFF PIPING MATERIALS AT CONTRACTOR OPTION.
4. FOR CONCRETE CYLINDER PIPE OR STEEL PIPE, PROVIDE SIMILAR ASSEMBLY AT TEST HEADS.
5. PROVIDE PIPING TO ACHIEVE 2.5 FTS IN WATERMAIN FOR FLUSHING, 2" MINIMUM.

TEMPORARY BLOW-OFF ASSEMBLY (1)
SCALE: NTS



CONDUIT/SMALL PIPE WALL PENETRATION (2)
SCALE: NTS



SINGLE PIPE TRENCH DETAIL (3)
SCALE: NTS

NOTES:

1. DELETE BEDDING AND TRENCH WIDTH REQUIREMENTS FOR ELECTRICAL CONDUIT.
2. TRENCH BENEATH GRAVEL ROAD SIMILAR TO TRENCH IN ROADWAY WITH 6-INCHES OF GRAVEL SURFACING INSTEAD OF PAVEMENT.
3. FOR ADDITIONAL RESURFACING REQUIREMENTS WITHIN PROJECT LIMITS, SEE DETAILS ON SHEET TM-C-53.

SYMBOL SURFACE RESTORATION REQUIREMENTS

- (1) REPLACE REMOVED ASPHALT W/A MIN OF 3" LEVEL 2 AC OR EXIST PAVEMENT DEPTH, WHICHEVER IS GREATER, TO A MAX DEPTH OF 6". SEE SPECS.
- (2) REPLACE TOPSOIL & BACKFILL W/CLASS 'B' NATIVE MATL. FINISH TRENCH SURFACE TO MATCH ORIG CONTOURS. REPLACE EXIST LANDSCAPING.

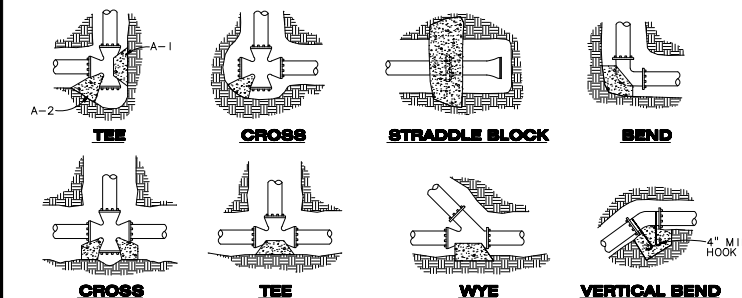
BACKFILL REQUIREMENTS

- (1) FURNISH AND INSTL CLASS 'D' BEDDING, PIPE ZONE & TRENCH BACKFILL, TO PAVEMENT BASE. COMPACT MATL IN LIFTS TO ACHIEVE 95% OF MAX DENSITY IN ACCORDANCE W/AASHTO T-99.
- (2) FURNISH & INSTL CLASS 'D' BEDDING & PIPE ZONE BACKFILL COMPACTED TO 90% OF MAX DENSITY PER AASHTO T-99. FURNISH & INSTL CLASS 'B' NATIVE TRENCH BACKFILL TO FIN GR COMPACTED TO 90% MAX DENSITY PER AASHTO T-99.

FITTING SIZE	(HORIZONTAL) BEARING AREA OF THRUST BLOCKS IN SQUARE FEET								(VERTICAL) VOLUME OF THRUST BLOCK IN CUBIC YARDS			
	TEE, WYE, AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS	PLUGGED ON RUN		45° BEND	22-1/2° BEND	11-1/4° BEND	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
				A-1	A-2							
4	1.0	1.6	1.4	1.9	1.4	1.0	---	---	---	---	---	---
6	2.1	3.7	3.0	4.3	3.0	1.6	1.0	---	1.3	---	---	---
8	3.8	6.5	5.3	7.6	5.4	2.9	1.5	1.0	2.3	1.1	---	---
10	5.9	10.2	8.4	11.8	8.4	4.6	2.4	1.2	3.7	1.8	---	---
12	8.5	14.7	12.0	17.0	12.0	6.6	3.4	1.7	5.5	2.8	1.2	---
14	11.5	---	16.3	23.0	16.3	8.9	4.6	2.3	7.6	3.9	1.7	---
16	15.0	26.1	21.3	30.0	21.3	11.6	6.0	3.0	9.9	5.1	2.3	0.9
18	19.0	---	27.0	38.0	27.0	14.6	7.6	3.8	---	---	---	---
20	23.5	40.8	33.3	47.0	33.3	18.1	9.4	4.7	---	---	---	---
24	34.0	58.8	48.0	68.0	48.0	26.2	13.6	6.8	---	---	---	---

NOTES:

1. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
BEARING AREA = (TEST PRESSURE / 150) x (2000 / SOIL BEARING STRESS) x (TABLE VALUE)
2. ABOVE VOLUMES BASED ON TEST PRESSURE OF 150 PSI AND THE WEIGHT OF CONCRETE = 4050 POUNDS PER CUBIC YARD. TO COMPUTE FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:
VOLUME = (TEST PRESSURE / 150) x (TABLE VALUE)



FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	30"
14"-16"	#8	36"

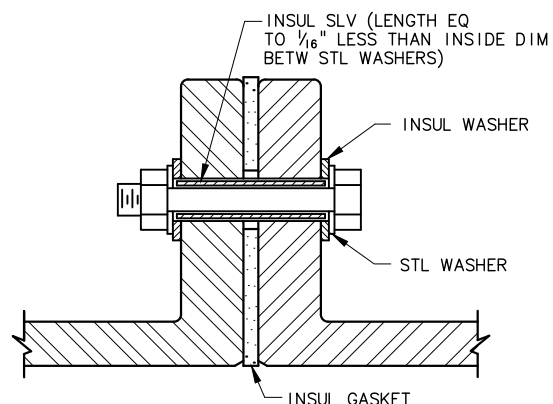
NOTES:

1. CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. ALL CONCRETE TO BE CLASS 2400 MINIMUM.
3. INSTALL ISOLATION MATERIAL BETWEEN PIPE AND/OR FITTINGS BEFORE POURING CONCRETE BLOCKING.
4. CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES.
5. TIE RODS SHALL BE DEFORMED GALVANIZED COLD ROLLED STEEL, 40000 PSI TENSILE STRENGTH.

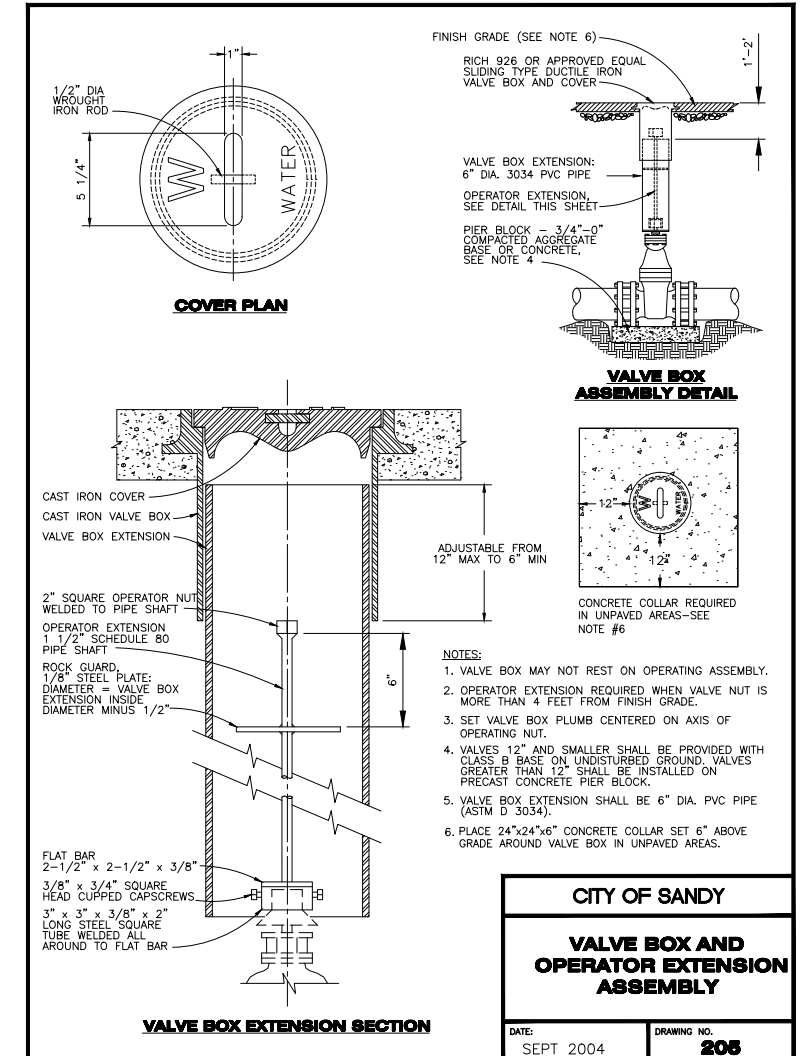
THRUST BLOCKING

DATE: MAY 1992 DRAWING NO: 401

FILENAME: APWA000.DWG



INSULATED FLANGE JOINT DETAIL (4)
SCALE: NTS



NOTES:

1. VALVE BOX MAY NOT REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS MORE THAN 4 FEET FROM FINISH GRADE.
3. SET VALVE BOX PLUMB CENTERED ON AXIS OF OPERATING NUT.
4. VALVES 12" AND SMALLER SHALL BE PROVIDED WITH CLASS B BASE ON UNDISTURBED GROUND. VALVES GREATER THAN 12" SHALL BE INSTALLED ON PRECAST CONCRETE PIER BLOCK.
5. VALVE BOX EXTENSION SHALL BE 6" DIA. PVC PIPE (ASTM D 3034).
6. PLACE 24"x24"x6" CONCRETE COLLAR SET 6" ABOVE GRADE AROUND VALVE BOX IN UNPAVED AREAS.

CITY OF SANDY

VALVE BOX AND OPERATOR EXTENSION ASSEMBLY

DATE: SEPT 2004 DRAWING NO: 205

FILENAME: APWA000.DWG

C:\PDX_Projects\111265-OR-GEN-C-DETS-R.dwg GEN-C-1 10/27/2014 4:17 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

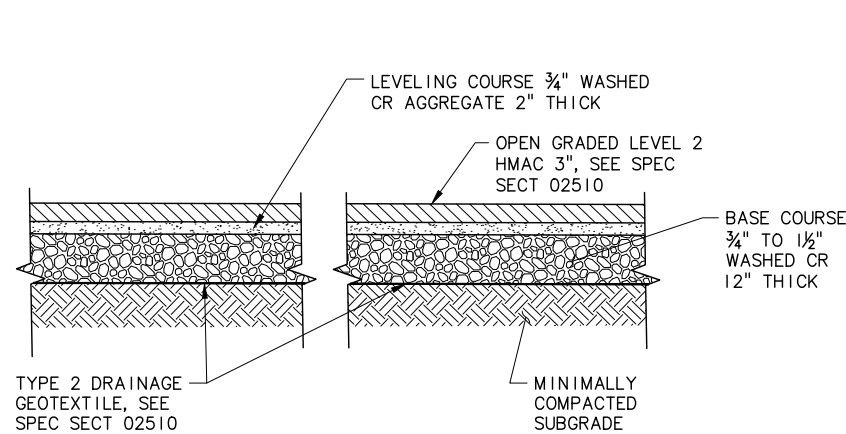
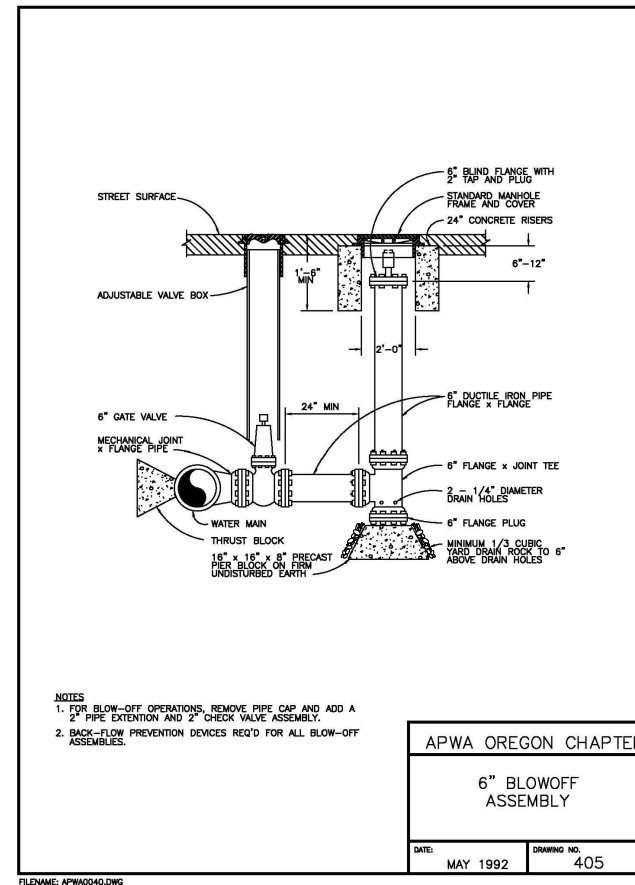
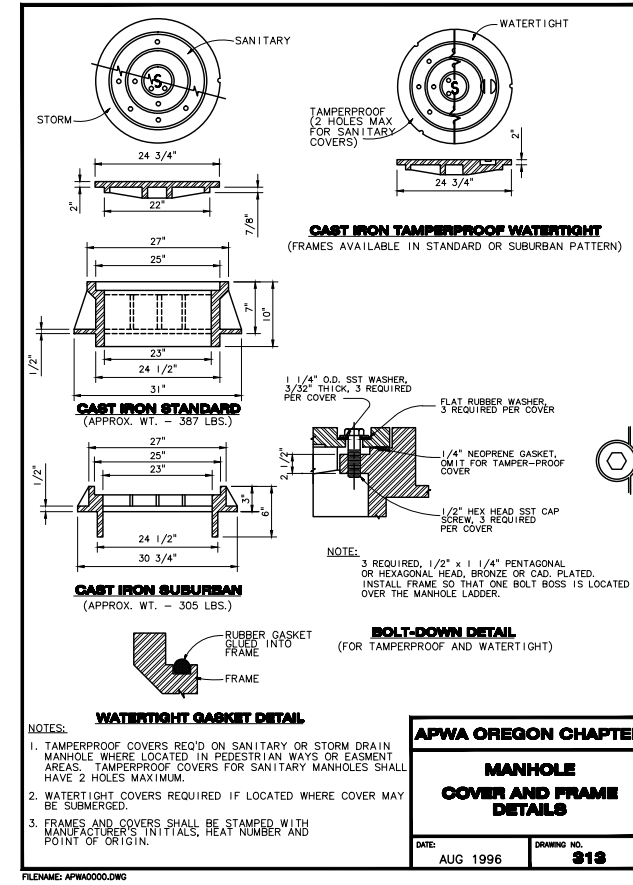
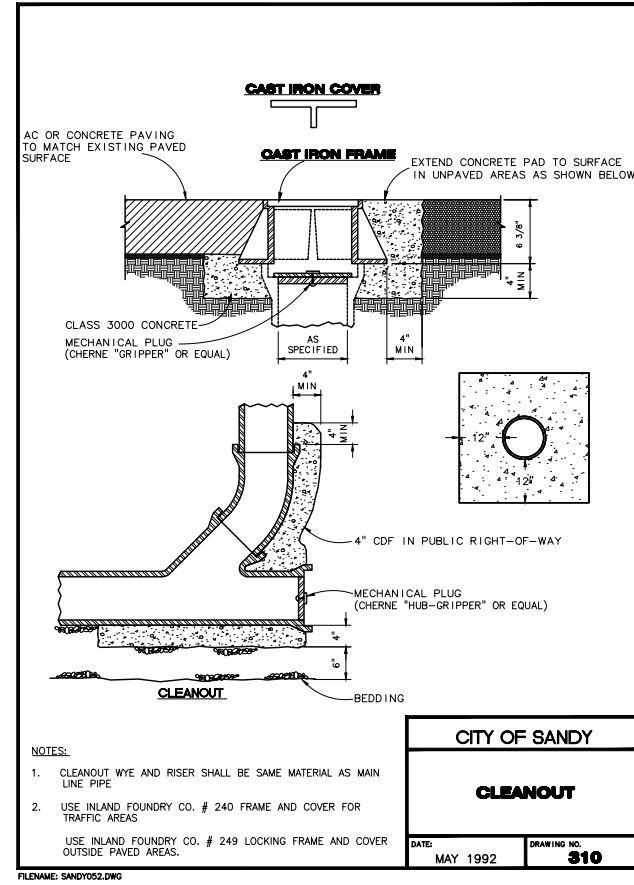
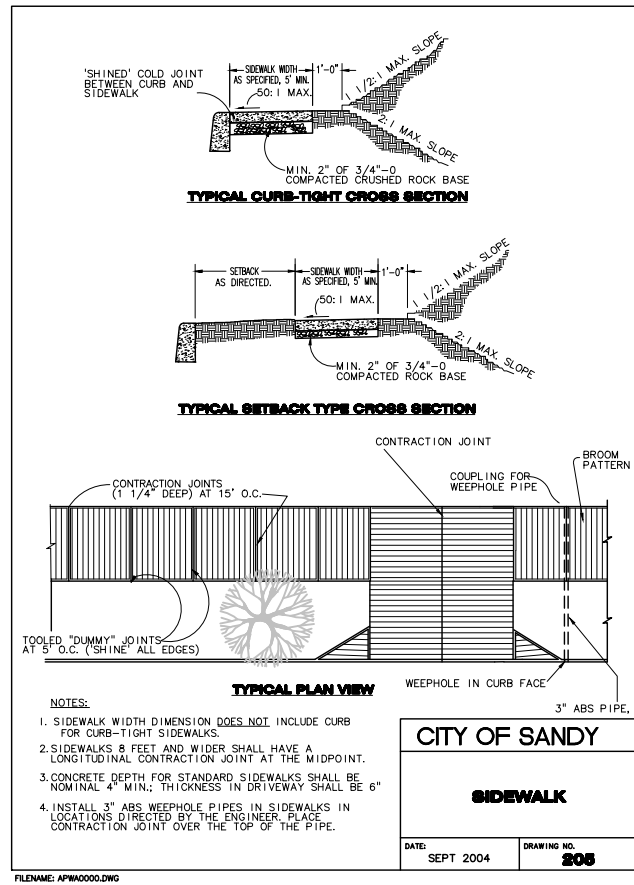
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

MISCELLANEOUS CIVIL DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
GEN-C-1
6 of 123

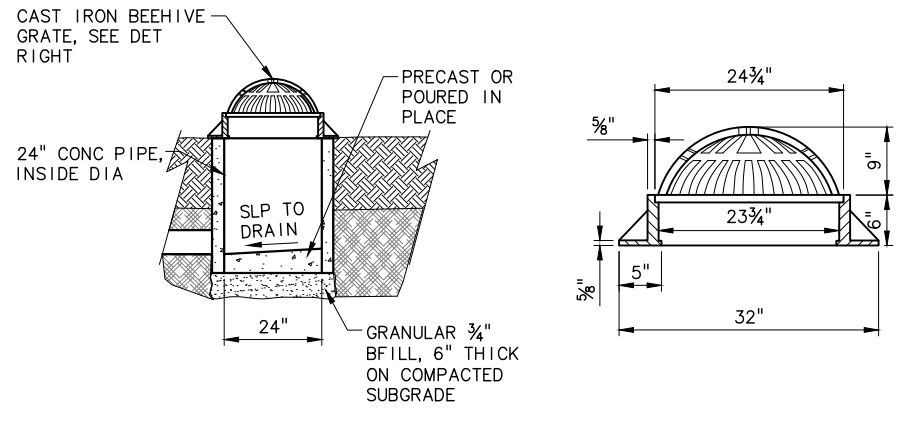
C:\PDX_Projects\111265-OR-GEN-C-DETS-R.dwg GEN-C-2 10/27/2014 4:17 PM DAK 20.0s (LMS Tech)



PERVIOUS AC PAVEMENT

SCALE: NTS

1



ATRIVM GRATE DETAIL

SCALE: NTS

2

RES-C-6

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

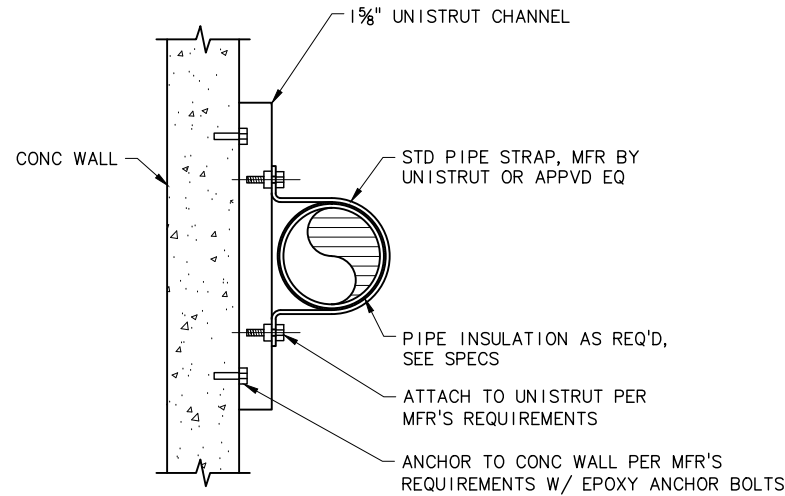
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

MISCELLANEOUS CIVIL DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

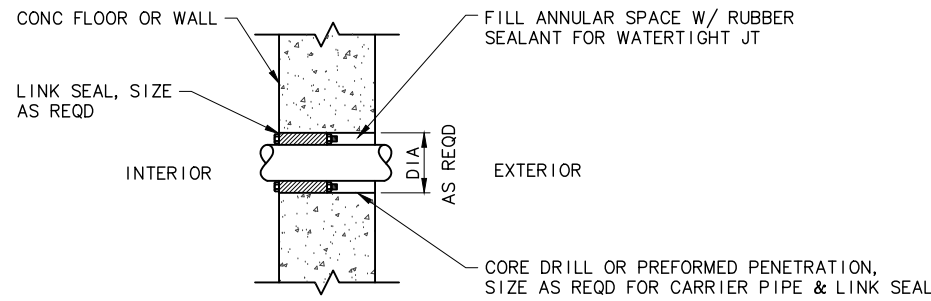
SHEET
GEN-C-2
7 of 123

C:\PDX_Projects\11\1265\OR-GEN-M-DETS-R.dwg GEN-M-1 10/30/2014 4:08 PM DAK 20.0s (LMS Tech)



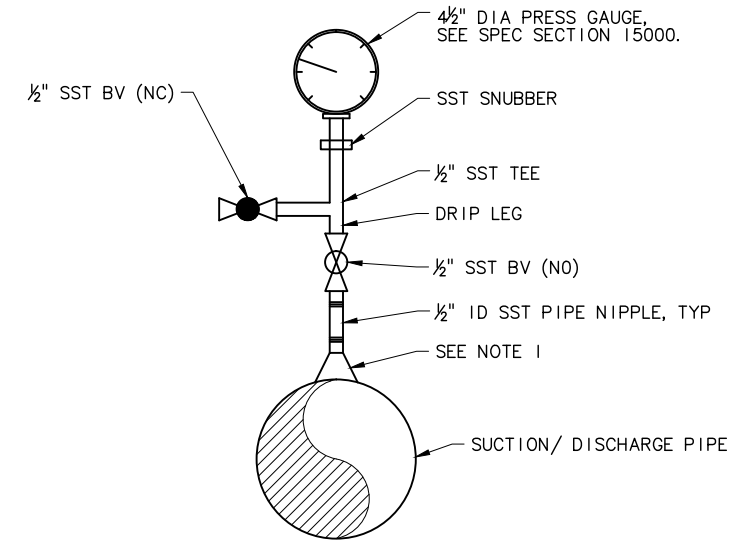
- NOTE:**
1. ORIENT UNISTRUT CHANNEL VERTICALLY OR HORIZONTALLY DEPENDING ON APPLICATION.
 2. AT A MINIMUM, SUPPORT PIPE HORIZONTALLY EVERY 6 FEET AND VERTICALLY AT EVERY 10 FEET.

PIPE SUPPORT (1)
SCALE: NTS



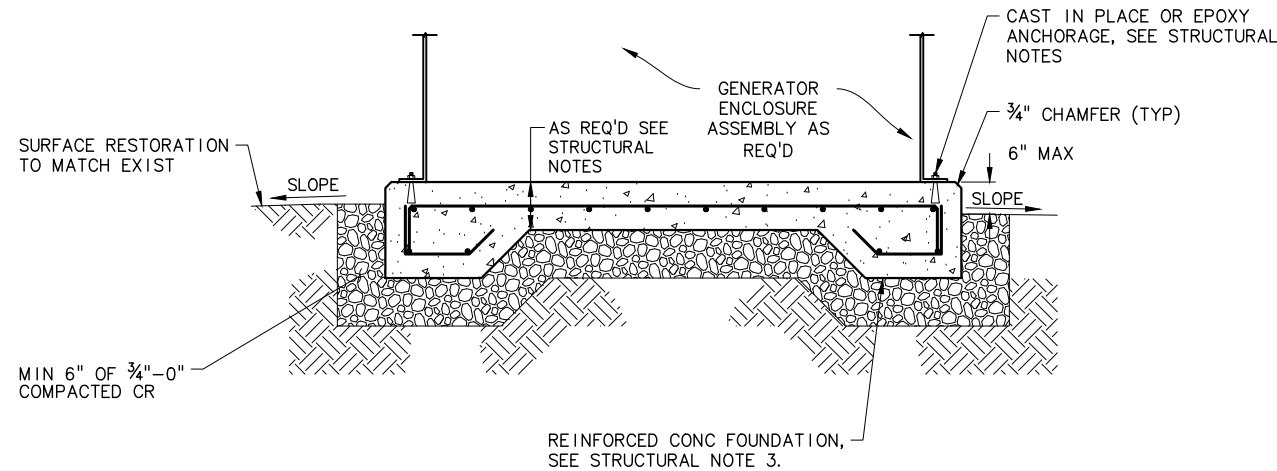
- NOTE:**
1. SEAL ALL WALL PIPE PENETRATIONS WITH LINK SEAL TYPE SEAL UNLESS OTHERWISE NOTED. FOR PIPE SIZES TOO SMALL FOR LINK SEALS, SEAL WITH POLYURETHANE SEALANT, SEE SPECIFICATIONS.

LINK SEAL DETAIL (2)
SCALE: NTS



- NOTES:**
1. INSTALL GAUGES WITH DRIP LEG AS SHOWN ON 1/2" WELD-O-LET, THREAD-O-LET, OR AS SHOWN ON OTHER DETAILS.
 2. ALL PIPE SHALL BE STAINLESS STEEL SCHEDULE 40 UNLESS OTHERWISE SHOWN.
 3. SUCTION SIDE PRESSURE GAUGE SHALL HAVE A RANGE OF 0 PSI TO 150 PSI
 4. DISCHARGE SIDE PRESSURE GAUGE SHALL HAVE A RANGE OF 0 PSI TO 300 PSI

TYPICAL PRESSURE GAUGE (3)
SCALE: NTS



- FOUNDATION STRUCTURAL NOTES:**
1. THE GENERATOR/ENCLOSURE ASSEMBLY SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. PLAN AND CROSS SECTION ARRANGEMENT SHOWN ON THE DRAWINGS IS BASED UPON THE BEST INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND IS NOT INTENDED TO SHOW EXACT DIMENSIONS SPECIFIC TO ANY PARTICULAR EQUIPMENT UNLESS OTHERWISE NOTED OR SPECIFIED. ALL NECESSARY CALCULATIONS AND DRAWINGS FOR FOUNDATION SLAB DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE FOUNDATION WORK. SEE GEOTECHNICAL REPORTS AND SHEET RES-S-1 FOR FURTHER REQUIREMENTS.
 2. DESIGN LOADS:

a. WIND LOAD:	100 MPH, EXPOSURE C
b. SEISMIC:	PER IBC, SEE NOTE 1.
c. ALLOWABLE SOIL PRESSURE	2,000 PSI
d. GENERATOR/ENCLOSURE WEIGHT	PER MANUFACTURER
e. GENERATOR/ENCLOSURE DIMENSIONS	PER MANUFACTURER
 3. CONTRACTOR SHALL SUBMIT MONOLITHIC SLAB FOUNDATION AND ANCHORAGE DESIGN, INCLUDING CALCULATIONS, TO ENGINEER FOR REVIEW PRIOR TO FOUNDATION SLAB CONSTRUCTION. FOUNDATIONS AND ANCHORAGE SHALL BE DESIGNED ACCORDING TO THE REQUIREMENTS OF CURRENT STRUCTURAL CODES USING THE DESIGN LOADS AND GENERATOR DIMENSIONS LISTED. AFTER ENGINEER REVIEW, CONTRACTOR SHALL SUBMIT DESIGN WITH CALCULATIONS TO COUNTY WITH BUILDING PERMIT APPLICATION, SEE SPECIAL CONDITIONS FOR PERMITTING REQUIREMENTS.
 4. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 28 DAYS. ALL CONCRETE SHALL CONTAIN 5% (1 1/2%) AIR ENTRAINMENT. SLUMP SHALL BE 1" TO 3" FOR FOUNDATIONS.
 5. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. GRADE 40 MAY BE USED FOR #3 AND SMALLER TIES AND STIRRUPS. DETAIL AND PLACE ACCORDING TO ACI MANUAL SP-66. UNLESS OTHERWISE NOTED, MINIMUM COVER SHALL BE 1 1/2" FOR #5 AND SMALLER BARS, 2" FOR #6 AND LARGER BARS AND 3" WHEN PLACED AGAINST EARTH. UNLESS OTHERWISE NOTED, BEND ALL HORIZONTAL REINFORCING A MINIMUM OF 2'-0" AT CORNERS AND WALL INTERSECTIONS.

GENERATOR FOUNDATION SLAB SECTION (4)
SCALE: NTS

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

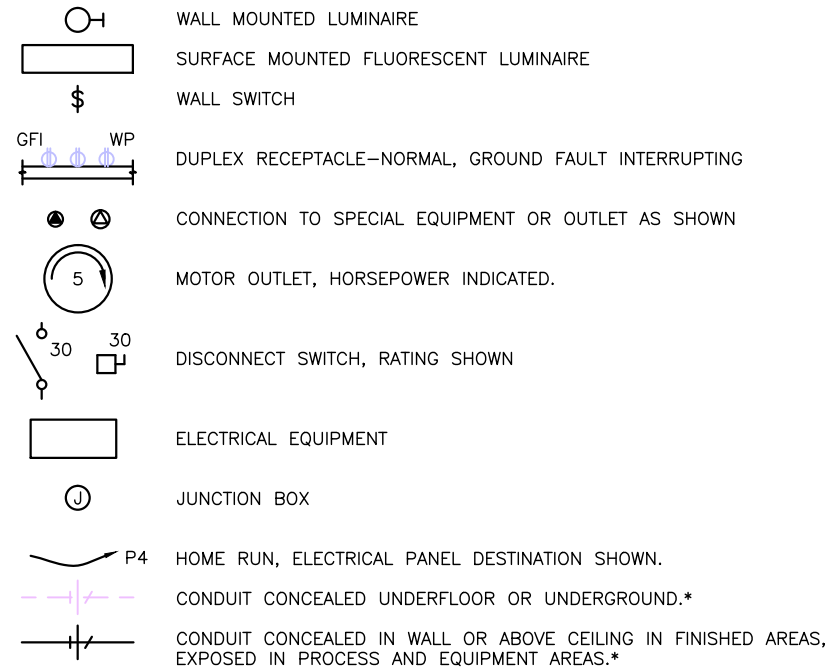
1911 SANDY OREGON CENTENNIAL 2011

PUMP STATION MECHANICAL DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

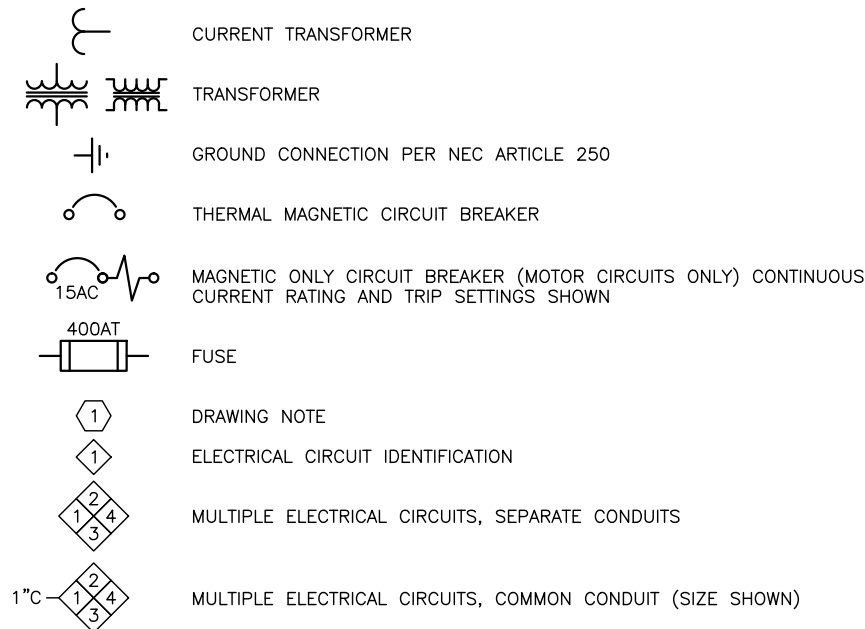
SHEET
GEN-M-1
8 of 123

ELECTRICAL LEGEND



***NOTES:**

1. RUNS MARKED WITH CROSS-HATCHES INDICATE NUMBER OF NO. 12 WIRE. LARGER GAUGES ARE SHOWN OR NOTED ELSEWHERE. LONG CROSS HATCH INDICATES NEUTRAL, REVERSE SLANT INDICATES GREEN GROUND WIRE.
2. FOR UNMARKED CONDUIT RUNS, CONTRACTOR SHALL INSTALL REQUIRED NUMBER OF WIRES FOR POWER AND/OR CONTROL OF ELEMENTS IN CIRCUIT(S) SHOWN. SIZE OF WIRE SHALL BE NO. 12, UNLESS OTHERWISE NOTED OR REQUIRED BY CODE.
3. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.



ABBREVIATIONS

A	AMPERES	FVNR	FULL VOLTAGE NON-REVERSING	MIN	MINIMUM	TB	TERMINAL BLOCK
AC	ALTERNATING CURRENT	G, GND	GROUND	MISC	MISCELLANEOUS	TDR	TIME DELAY RELAY
AIC	AMPERE INTERRUPTING CAPACITY	GFI	GROUND FAULT INTERRUPTER	MTS	MANUAL TRANSFER SWITCH	TJB	TERMINAL JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	GRS	GALVANIZED RIGID STEEL CONDUIT	N, NEUT	NEUTRAL	TSP	TWISTED SHIELDED PAIR
A.G.	ABOVE GRADE	HH	HANDHOLE	NEC	NATIONAL ELECTRIC CODE	TST	TWISTED SHIELDED TRIAD
ATS	AUTOMATIC TRANSFER SWITCH	HID	HIGH INTENSITY DISCHARGE	NO	NUMBER	TTB	TELEPHONE TERMINAL BOARD
BBTP	BLOWER BUILDING TELEMETRY PANEL	HOA	HAND-OFF-AUTOMATIC	OC	OPERATION COUNTER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
B.G.	BELOW GRADE	HP	HORSEPOWER	OL	OVERLOAD RELAY	TYP	TYPICAL
BLDG	BUILDING	IC	INTERRUPTING CAPACITY, ISOLATION CONTACTOR	ORN	ORANGE	UG	UNDERGROUND
BLU	BLUE	INT	INTERIOR	PC	PHOTOCELL	UH	UNIT HEATER
CAD	CAPTIVE AIR DEVICE	ISB	INTRINSICALLY SAFE BARRIER	PDP	PUMP DISCONNECT PANEL	USLC	ULTRASONIC LEVEL CONTROLLER
CB	CIRCUIT BREAKER	J, JB	JUNCTION BOX	PFR	PHASE FAIL RELAY	V	VOLT
CGD	COMBUSTIBLE GAS DETECTOR	KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY	PHH	POWER HANDHOLE	VA	VOLT-AMP
CHH	CONTROL HANDHOLE	KVA	KILO VOLT-AMP	PLC	PROGRAMMABLE LOGIC CONTROLLER	VFD	VARIABLE FREQUENCY DRIVE
CKT	CIRCUIT	KW	KILOWATT	PM	POWER MONITOR	VP	VAPOR PROOF
CO	CONDUIT ONLY	LC	LIGHTING CONTACTOR	PNL	PANEL	W	WATT, WIRE
CPT	CONTROL POWER TRANSFORMER	LCP	LIGHTING CONTROL PANEL	PVC	POLYVINYL CHLORIDE	WH	WATER HEATER
CR	CONTROL RELAY	LB	LOAD BANK	PVC-RGS	PVC COATED RGS	WP	WEATHERPROOF
CT	CURRENT TRANSFORMER	LEL	LOWER EXPLOSIVE LIMIT	RCPT	RECEPTACLE	XDCR	TRANSDUCER
CU	COPPER	LOS	LOCK-OUT-STOP	RGS	RIGID GALVANIZED STEEL	XFMR	TRANSFORMER
DC	DIRECT CURRENT	LP	LIGHTING PANEL	RTM	RUN TIME METER	XMTR	TRANSMITTER
E	EMERGENCY	MB	METER BASE	SF	SUPPLY FAN		
EF	EXHAUST FAN	MCC	MOTOR CONTROL CENTER	SIM	SIMILAR		
EH	ELECTRIC HEATER	MCP	MOTOR CIRCUIT PROTECTOR	SS	STAINLESS STEEL		
ETM	ELAPSED TIME METER	MD	MAIN DISCONNECT	SSPC	SMALL STATION PUMP CONTROLLER		
EXT	EXTERIOR	MDP	MAIN DISTRIBUTION PANEL	SSRV	SOLIDE STATE REDUCED VOLTAGE STARTER		
F, FU	FUSE	MFR	MANUFACTURER				
FLUOR	FLUORESCENT						
FM	FLOW METER						

**RECORD
DRAWING**

SEE DISCLAIMER,
SHEET 1.

VERSION 4.1
12-9-97



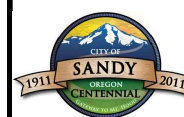
NO.	DATE	BY	REVISION
△	08/14	SMR	RECORD DRAWINGS

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR
DESIGNED
JDR
DRAWN
GHS
CHECKED

**RECORD
DRAWING**
SEE DISCLAIMER,
SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



**CITY OF SANDY
PWB INTERTIE PROJECT**

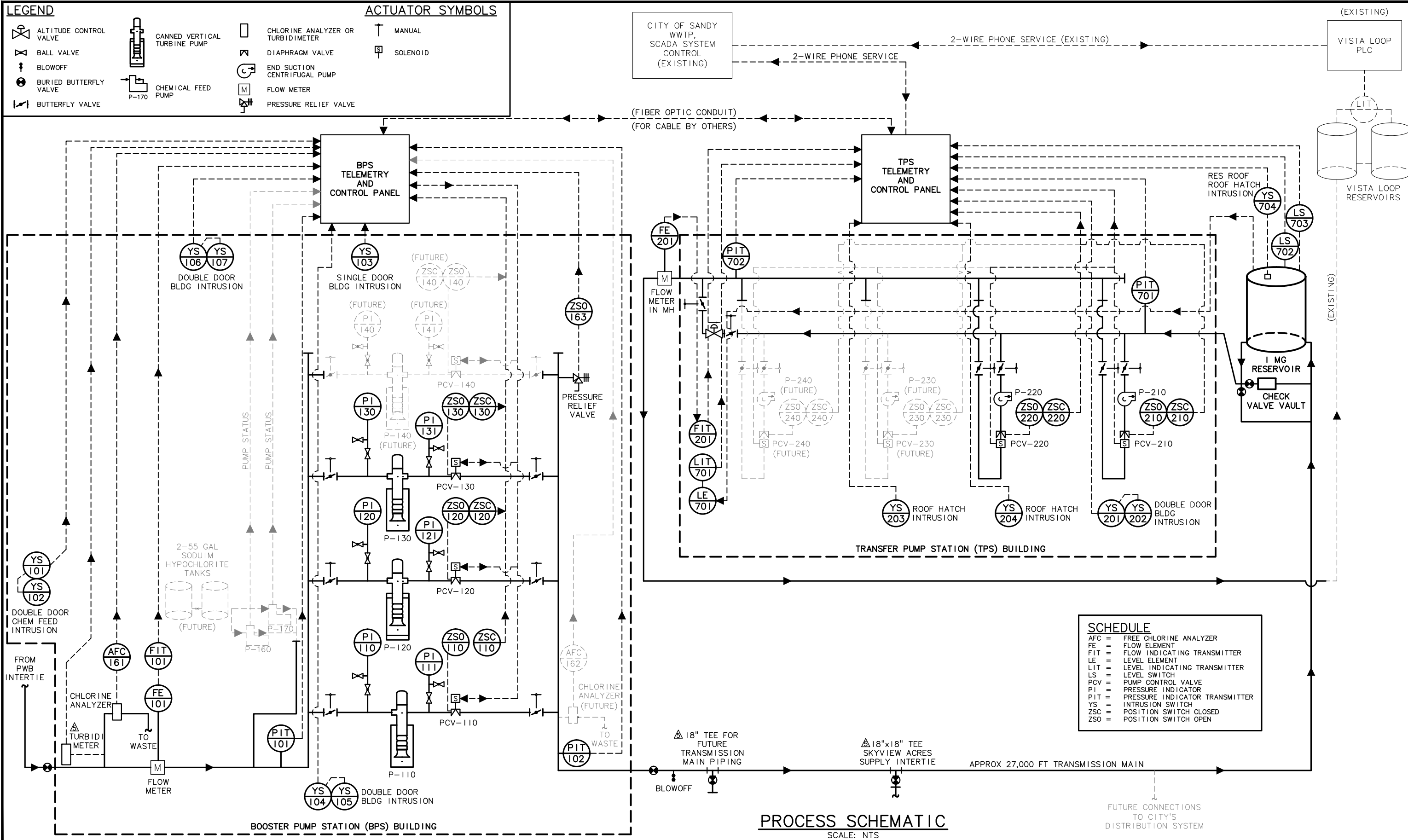
LEGEND & ABBREVIATIONS

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET

GEN-E-1

9 of 123



C:\PDX_Projects\111265-OR-GEN-E-2-R.dwg GEN-E-2 10/27/2014 11:02 AM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK/LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

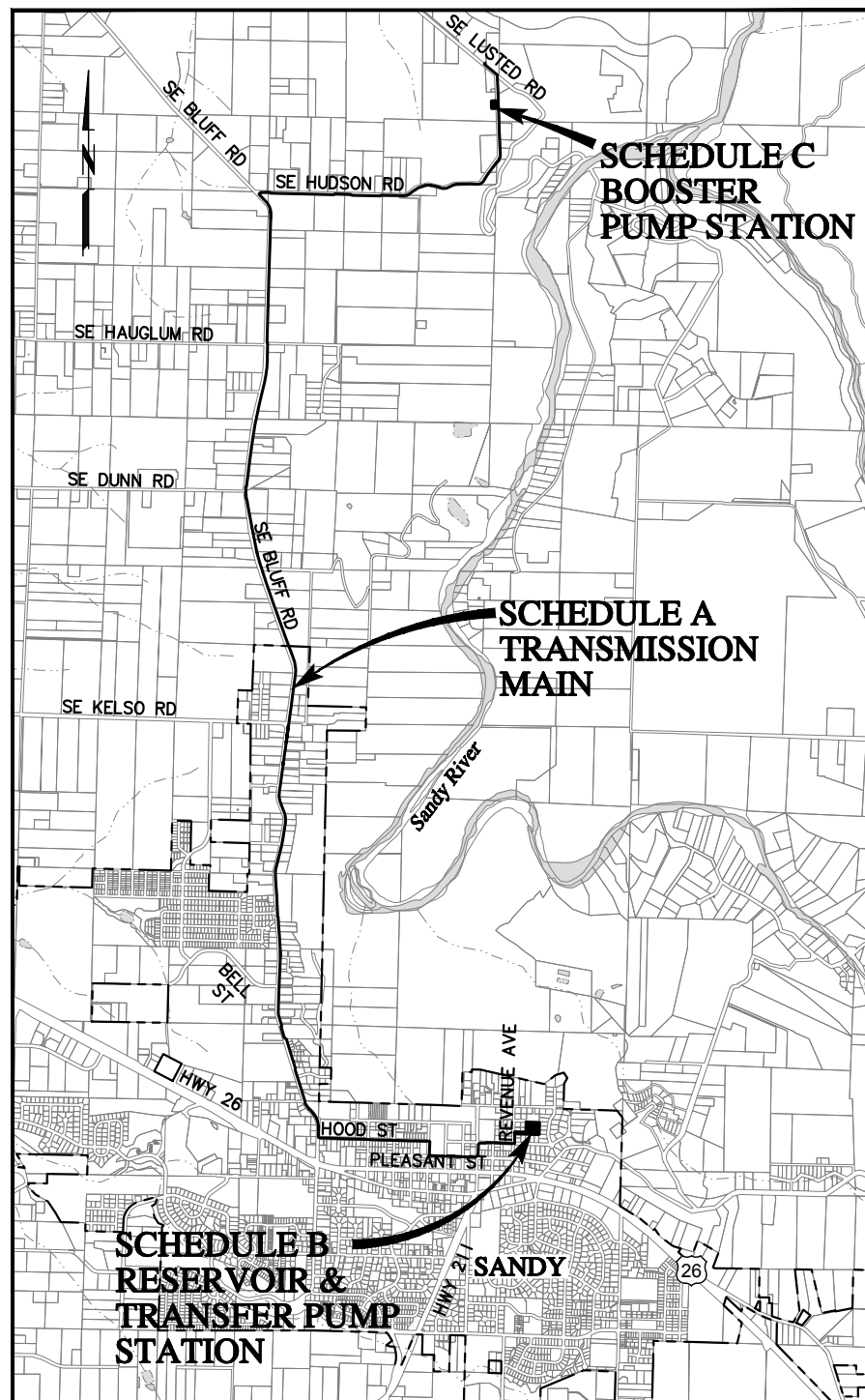
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

PROCESS AND INSTRUMENTATION DIAGRAM

PROJECT NO.: 11-1265 SCALE: NONE DATE: NOVEMBER 2012

SHEET
GEN-E-2
10 of 123

ESC PLAN FOR 1200-C SITES



VICINITY MAP
SCALE: 1"=1600'

PROJECT LOCATIONS:

BOOSTER PUMP STATION - 250 FEET SOUTH OF INTERSECTION OF SE LUSTED RD AND SE HUDSON RD; CLACKAMAS COUNTY.
 TRANSMISSION MAIN - PRIMARILY WITHIN THE FOLLOWING RIGHTS-OF-WAY: SE LUSTED, HUDSON, BLUFF AND CITY OF SANDY ROADS.
 RESERVOIR & TRANSFER PUMP STATION - EAST OF REVENUE AVE AND SOUTH OF McELROY STREET IN THE CITY OF SANDY.

PROPERTY DESCRIPTIONS:

BOOSTER PUMP STATION - TOWNSHIP 1 SOUTH, RANGE 4 EAST, SECTION 25, TAXLOT 02200.
 TRANSMISSION MAIN - UNINCORPORATED CLACKAMAS COUNTY RURAL ROADWAYS, CITY OF SANDY ROADWAYS.
 RESERVOIR & TRANSFER PUMP STATION - TOWNSHIP 1 SOUTH, RANGE 3 EAST, SECTION 24, TAXLOT 00200.

OWNER

CITY OF SANDY
 CONTACT: MIKE WALKER, P.E.
 39250 PIONEER BLVD
 SANDY, OR 97055
 PHONE: (503) 668-5533

PLANNING / ENGINEERING / SURVEYING FIRM

MURRAY, SMITH & ASSOCIATES
 CONTACT: SUSAN M. GERGA, P.E.
 121 SW SALMON (SUITE 900)
 PORTLAND, OR 97204
 PHONE: (503) 225-9010
 FAX: (503) 225-9022

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

* AGRICULTURAL PARCEL; CLACKAMAS COUNTY & CITY OF SANDY ROADWAYS AND RIGHTS-OF-WAY; COMMERCIAL PARCEL

DEVELOPED CONDITIONS

* WATER RESERVOIR, PUMP STATION BUILDING, AND ASSOCIATED UTILITIES (WATER, STORM, AND SANITARY PIPING), TRANSMISSION MAIN

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE

* MASS GRADING (4/2013)
 * CONSTRUCTION OF RESERVOIR AND PUMP STATIONS (4-10/2013)
 * BACKFILL RESERVOIR AND FINISH FINAL SITE GRADING (3/2014)
 STABILIZE SITE WITH EC MEASURES THROUGHOUT WET SEASON

TOTAL SITE AREA = BOOSTER PUMP STATION = 0.33 ACRES
 RESERVOIR & TRANSFER PUMP STATION = 1.1 ACRES
 TRANSMISSION MAIN = 3.7 ACRES

TOTAL DISTURBED AREA = 3.5 ACRES

SITE SOIL CLASSIFICATION:

SPRINGWATER FORMATION, CONGLOMERATE ROCK, BOULDERS, COBBLES, GRAVEL, INTERBEDDED WITH SAND AND MUD FLOWS, 0% TO 10% SLOPES.

RECEIVING WATER BODIES:

SANDY RIVER WATERSHED

ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

PERMITTEE'S SITE INSPECTOR: DAPHNE A. MARCYAN, P.E.

COMPANY/AGENCY: MURRAY, SMITH & ASSOCIATES, INC.
 PHONE: 503-225-9010
 FAX: 503-225-9022

E-MAIL: marcyand@msa-ep.com

DESCRIPTION OF EXPERIENCE: CESCL TRAINING, AND SEVERAL YEARS OF EXPERIENCE WITH PREPARATION OF ESC PLANS.

INSPECTION FREQUENCY:

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY TWO WEEKS, REGARDLESS OF WHETHER OR NOT RUNOFF IS OCCURRING.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CALENDAR DAYS.	ONCE EVERY TWO (2) WEEKS.
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.

* HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
 * ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
 * INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
 * RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. (SCHEDULE B.2.A)

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

- ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A.8.A)
- THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. (SCHEDULE A.8.C.I.(1)(C))
- SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT. (SCHEDULE A.12.C.II)
- PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.8.C.I.(1)(D))
- IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) & (2))
- PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS. RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.B.II(1) AND A.7.B.II(3))
- EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.7.D.I AND A.8.C)
- ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
- APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.8.C.I.(2))
- ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
- PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPs SUCH AS: GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPs MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES. (SCHEDULE A.7.D.II(1) AND A.8.C.I.(4))
- WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II(3))
- USE BMPs TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS, VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
- IMPLEMENT THE FOLLOWING BMPs WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCH A.7.E.III)
- USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A.7.B.II)
- THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.II)
- IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
- TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A.7.F)
- AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPs MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A.7.E.II(2))
- CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER. (SCHEDULE A.7.A.I)
- SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
- OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT, AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.II)
- CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
- WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
- THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
- THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER. TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
- PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
- PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. HOWEVER, DO REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS, PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPs. (Schedule A.7.b.iii(2) and A.8.c.iii)

LOCAL AGENCY-SPECIFIC EROSION CONTROL NOTES:

- IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NO LATER THAN SEPTEMBER 1; THE TYPE AND PERCENTAGES OF SEED IN THE MIX MUST BE IDENTIFIED ON THE PLANS.
- ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE DISCHARGED UNDER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP I.E. (FILTER BAG).
- ALL EXPOSED SOILS MUST BE COVERED DURING THE WET WEATHER PERIOD, OCTOBER 01 - MAY 31.

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

BMP MATRIX FOR CONSTRUCTION PHASES

REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S.

	CLEARING	MASS GRADING	UTILITY INSTALLATION	STREET CONSTRUCTION	FINAL STABILIZATION	WET WEATHER (OCT. 1 - MAY 31ST)
EROSION PREVENTION						
PRESERVE NATURAL VEGETATION	**X	X	X	X	X	X
GROUND COVER					X	X
PLASTIC SHEETING						X
DUST CONTROL	X	X	X	X		X
TEMPORARY / PERMANENT SEEDING		X	X	X	X	X
MATTING					X	X
SEDIMENT CONTROL						
SEDIMENT FENCE (PERIMETER)	**X	X	X	X		X
SEDIMENT FENCE (INTERIOR)			X	X		X
BIO BAGS		X	X	X		X
INLET PROTECTION	**X	X	X	X		X
DEWATERING (GENERAL)			X	X		
STRAW MATTING			X	X	X	X
FILTER BERM	X	X	X	X		
RUN-OFF CONTROL						
CONSTRUCTION ENTRANCE	**X	X	X	X		
CHECK DAMS	**X	X	X	X		X
OUTLET PROTECTION	X	X	X	X		
SURFACE ROUGHENING						
POLLUTION PREVENTION						
PROPER SIGNAGE	X	X	X	X	X	X
HAZ WASTE MGMT	X	X	X	X	X	X
SPILL KIT ON-SITE	X	X	X	X	X	X
CONCRETE WASH OUT AREA	X	X	X	X		X

** SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP'S WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

SMG
INITIAL

SHEET INDEX

EROSION AND SEDIMENT CONTROL PLANS

- ESC-1 EROSION AND SEDIMENT CONTROL - COVER SHEET
- ESC-2 EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE A - TRANSMISSION MAIN
- ESC-3 EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE A - TRANSMISSION MAIN
- ESC-4 EROSION AND SEDIMENT CONTROL PLAN; SCHEDULES B & C - BOOSTER PUMP STATION & RESERVOIR SITES INITIAL CLEARING AND GRADING
- ESC-5 EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE B - RESERVOIR CONSTRUCTION AND FINAL GRADING
- ESC-6 EROSION AND SEDIMENT CONTROL PLAN; SCHEDULE C - BOOSTER PUMP STATION CONSTRUCTION AND FINAL GRADING
- ESC-7 EROSION AND SEDIMENT CONTROL PLAN - DETAILS 1

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMG
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

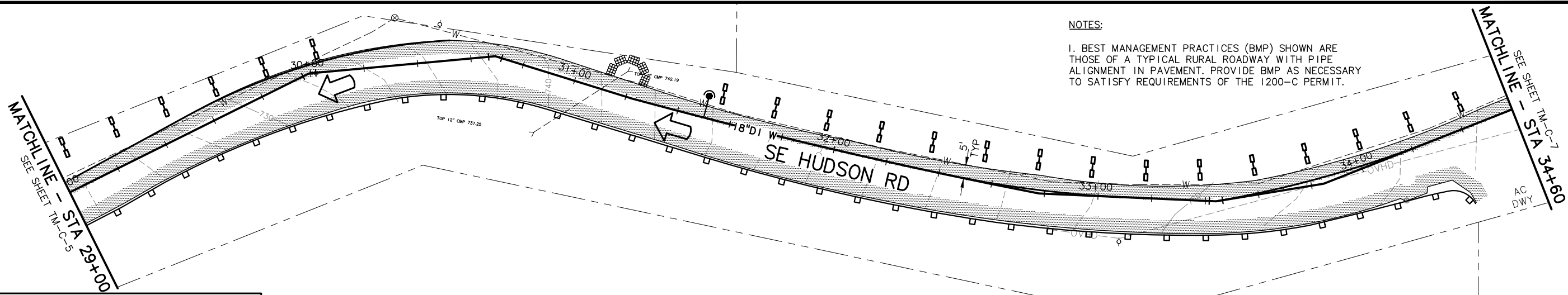
EROSION AND SEDIMENT CONTROL COVER SHEET

SHEET ESC-1

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012 11 of 123

G:\PDX_Projects\11-1265\CAD\DRS\SHEETS\ESC\11-1265-OR-ESC-R.dwg ESC-1 10/30/2014 3:29 PM DAK 20.0s (LMS Tech)

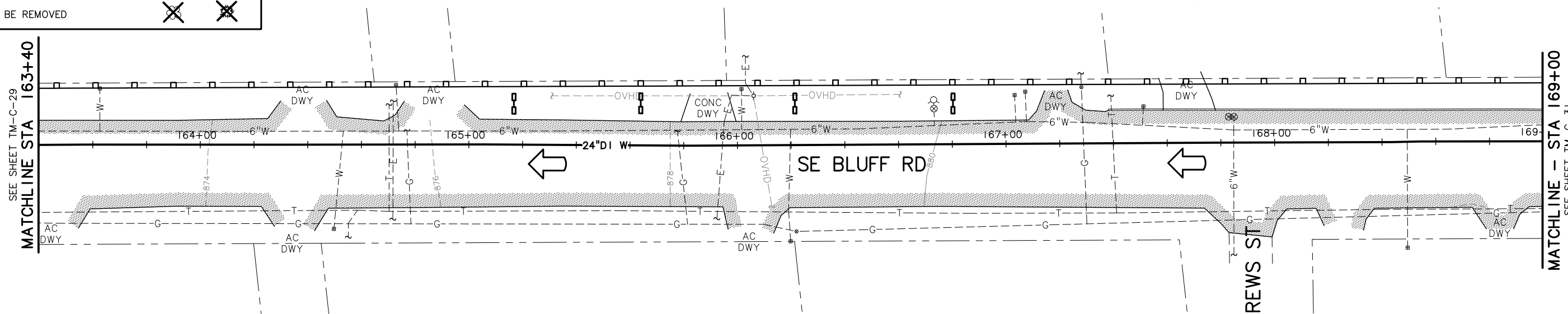
G:\PDX_Projects\11\1265-OR-ESC2-3-R.dwg ESC-2 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)



NOTES:
 1. BEST MANAGEMENT PRACTICES (BMP) SHOWN ARE THOSE OF A TYPICAL RURAL ROADWAY WITH PIPE ALIGNMENT IN PAVEMENT. PROVIDE BMP AS NECESSARY TO SATISFY REQUIREMENTS OF THE 1200-C PERMIT.

LEGEND	
EXISTING CONTOURS (2')	
EXISTING CONTOURS (10')	
INLET PROTECTION	
WATTLE	
DRAINAGE FLOW DIRECTION	
SEDIMENT FENCING (PERIMETER)	
CONSTRUCTION FENCING (ORANGE)	
CHECK DAM	
PROPOSED WATERLINE	
TREES TO BE REMOVED	

TYPICAL SE HUDSON ROAD
 ALIGNMENT AND EROSION CONTROL MEASURES
 STA 29+00 TO STA 34+60
PLAN
 SCALE: 1"=20'



NOTES:
 1. BEST MANAGEMENT PRACTICES (BMP) SHOWN ARE THOSE OF A TYPICAL URBAN ROADWAY WITH PIPE ALIGNMENT IN PAVEMENT. PROVIDE BMP AS NECESSARY TO SATISFY REQUIREMENTS OF THE 1200-C PERMIT.

TYPICAL SE BLUFF ROAD
 IN-ROAD ALIGNMENT AND EROSION CONTROL MEASURES
 STA 163+40 TO STA 169+00
PLAN
 SCALE: 1"=20'

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMG DESIGNED
 JHF DRAWN
 MLH CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

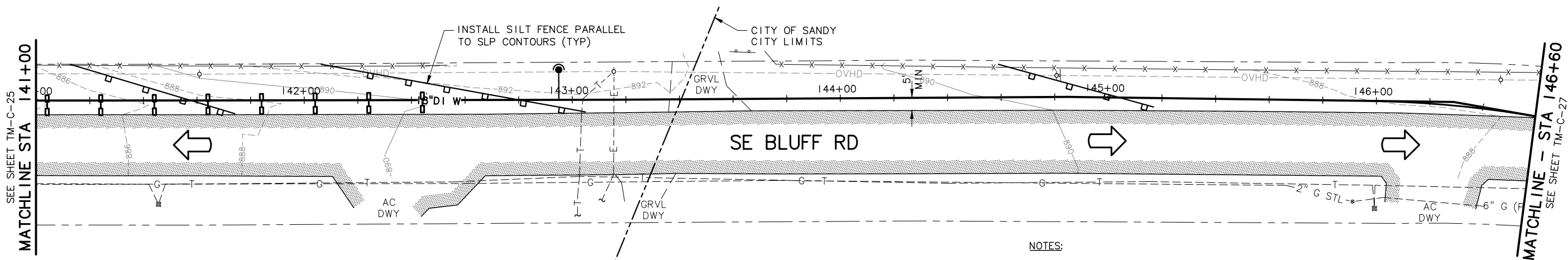
CITY OF SANDY
 PWB INTERTIE PROJECT

EROSION AND SEDIMENT CONTROL PLAN
 SCHEDULE A - TRANSMISSION MAIN

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
 ESC-2
 12 of 123

C:\PDX_Projects\11\1265\OR-ESC2-3-R.dwg ESC-3 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)

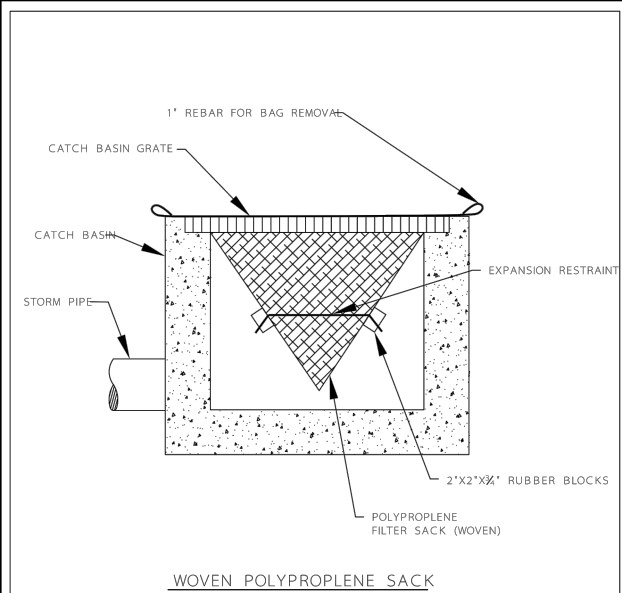


NOTES:
 1. BEST MANAGEMENT PRACTICES (BMP) SHOWN ARE THOSE OF A TYPICAL ROADWAY WITH PIPE ALIGNMENT OUTSIDE THE PAVEMENT. PROVIDE BMP AS NECESSARY TO SATISFY REQUIREMENTS OF THE 1200-C PERMIT.

**TYPICAL SE BLUFF ROAD
 OUT-OF-ROAD ALIGNMENT AND EROSION CONTROL MEASURES
 STA 141+00 TO STA 146+60**

PLAN
 SCALE: 1"=20'

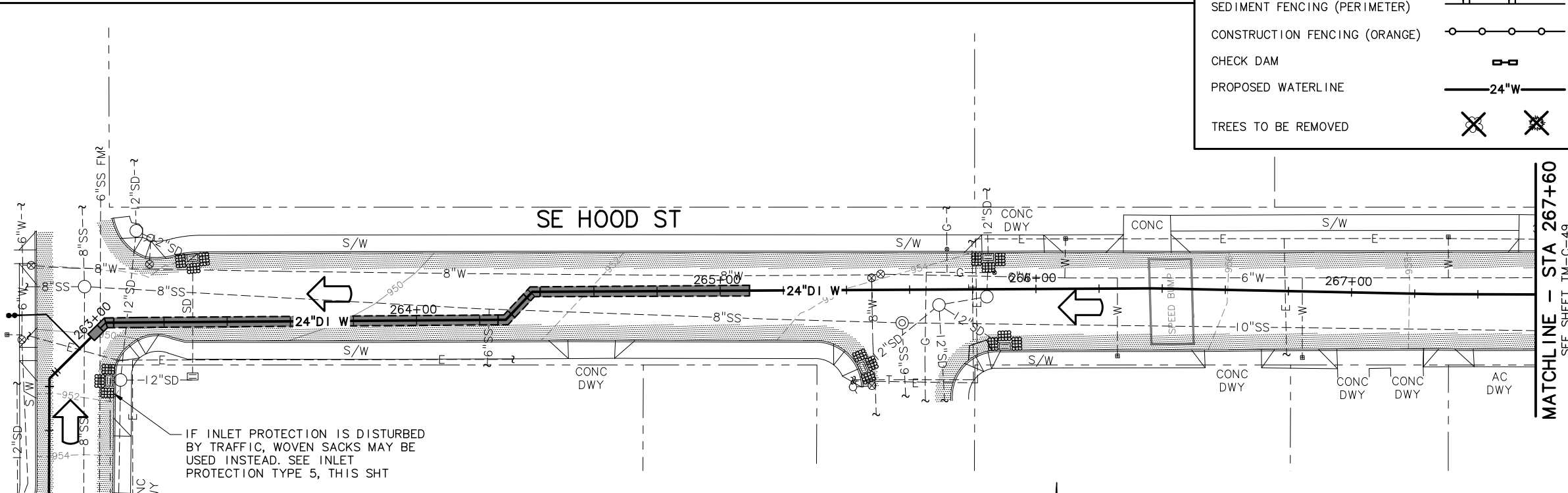
LEGEND	
EXISTING CONTOURS (2')	---
EXISTING CONTOURS (10')	—820'—
INLET PROTECTION	
WATTLE	
DRAINAGE FLOW DIRECTION	
SEDIMENT FENCING (PERIMETER)	
CONSTRUCTION FENCING (ORANGE)	
CHECK DAM	
PROPOSED WATERLINE	—24"W—
TREES TO BE REMOVED	



NOTE:
 1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

INLET PROTECTION TYPE 5

DETAIL DRAWING 4-19 REVISED 01-09



**TYPICAL URBAN STREET
 ALIGNMENT AND EROSION CONTROL MEASURES
 STA 262+40 TO STA 267+60**

PLAN
 SCALE: 1"=20'

NOTES:
 1. BEST MANAGEMENT PRACTICES (BMP) SHOWN ARE THOSE OF A TYPICAL URBAN ROADWAY WITH PIPE ALIGNMENT IN PAVEMENT. PROVIDE BMP AS NECESSARY TO SATISFY REQUIREMENTS OF THE 1200-C PERMIT.

IF INLET PROTECTION IS DISTURBED BY TRAFFIC, WOVEN SACKS MAY BE USED INSTEAD. SEE INLET PROTECTION TYPE 5, THIS SHT

MATCHLINE - STA 262+40
 SEE SHEET TM-C-47

MATCHLINE - STA 267+60
 SEE SHEET TM-C-49

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
SMG DESIGNED	JHF DRAWN
MLH CHECKED	

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

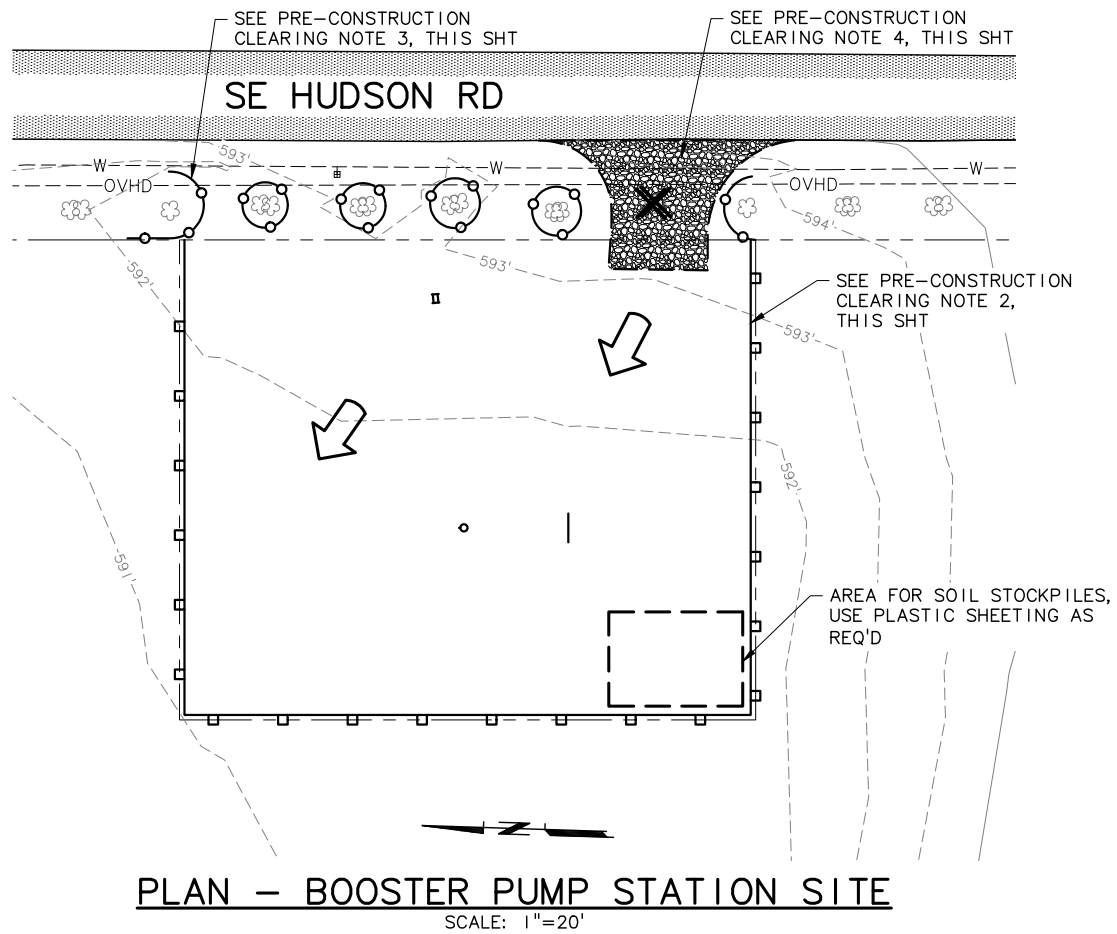
MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
 PWB INTERTIE PROJECT

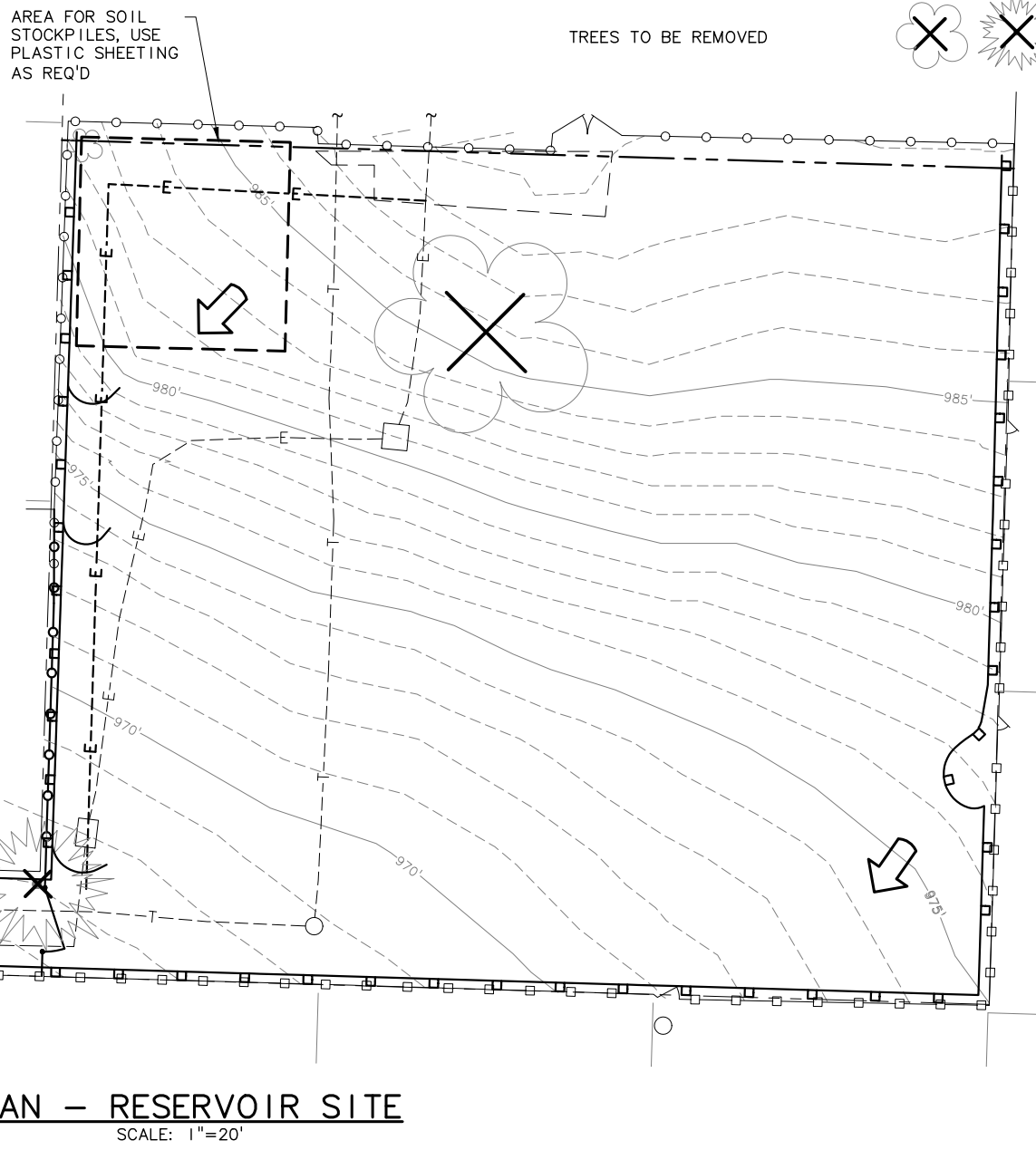
EROSION AND SEDIMENT CONTROL PLAN
 SCHEDULE A - TRANSMISSION MAIN

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

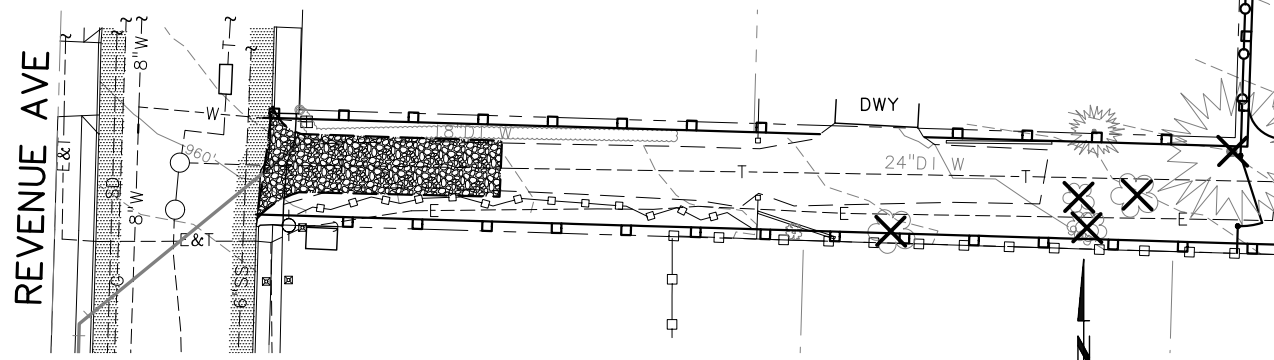
C:\PDX_Projects\11265\CAD\DR\SCHEETS\ESC\11-1265-OR-ESC4-7-R.dwg, ESC-4 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)



PLAN - BOOSTER PUMP STATION SITE
SCALE: 1"=20'



PLAN - RESERVOIR SITE
SCALE: 1"=20'



LEGEND

- EXISTING CONTOURS (1') - - - - -
- EXISTING CONTOURS (5') — 985' —
- INLET PROTECTION
- WATTLE
- DRAINAGE FLOW DIRECTION
- SEDIMENT FENCING (PERIMETER)
- CONSTRUCTION FENCING (ORANGE)
- CHECK DAM
- PROPOSED WATERLINE — 24\"/>
- TREES TO BE REMOVED

PRE-CONSTRUCTION CLEARING NOTES:

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS, OR OTHER SUITABLE MATERIAL, STRAW WATTLES, OR OTHER APPROVED MATERIALS.
3. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
4. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT. SEE DETAIL SHEET ESC-7.
5. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMS, SURFACE ROUGHENING, AND BANK STABILIZATION.
6. LIMIT SPEED OF VEHICLES ON SITE AND MOISTEN HAUL ROADS AS NECESSARY TO CONTROL DUST.
7. THE PAVING/GRADING CONTRACTOR NEEDS TO INSTALL IRRIGATION SLEEVES ACROSS THE ROADWAY, UNDER WALLS, DITCHES, ETC.

PRE-CONSTRUCTION EROSION & GLOBAL SEDIMENTATION CONTROL NOTES:

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS, OR OTHER SUITABLE MATERIAL, STRAW WATTLES, OR OTHER APPROVED MATERIALS.
3. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
4. CONSTRUCTION ENTRANCES/ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
5. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMS, SURFACE ROUGHENING, AND BANK STABILIZATION.

NO.	DATE	BY	REVISION

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMG DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

EROSION AND SEDIMENT CONTROL PLAN;
SCHEDULES B & C - BOOSTER PUMP STATION AND RESERVOIR SITES
INITIAL CLEARING AND GRADING

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

- SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
 - VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES. SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX.
 - DWARF GRASS MIX (MINIMUM 100 LB/AC)
 - DWARF PERENNIAL RYEGRASS (80% BY WEIGHT).
 - CREeping RED FESCUE (20% BY WEIGHT).
 - STANDARD HEIGHT GRASS MIX (MINIMUM 100 LB/AC)
 - ANNUAL RYEGRASS (40% BY WEIGHT).
 - TURF-TYPE FESCUE (60% BY WEIGHT).
- SLOPES AND DISTURBED AREAS TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
- LONG TERM SLOPE AND DISTURBED AREAS STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE. SEE SPECIFICATIONS.
- TEMPORARY SLOPE AND DISTURBED AREAS STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.
- STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
- EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
- AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
- CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
- SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
- AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SECONDARY MEASURES SUCH AS BERM OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.
- SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
- AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.
- USE BMPs SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
- COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION:

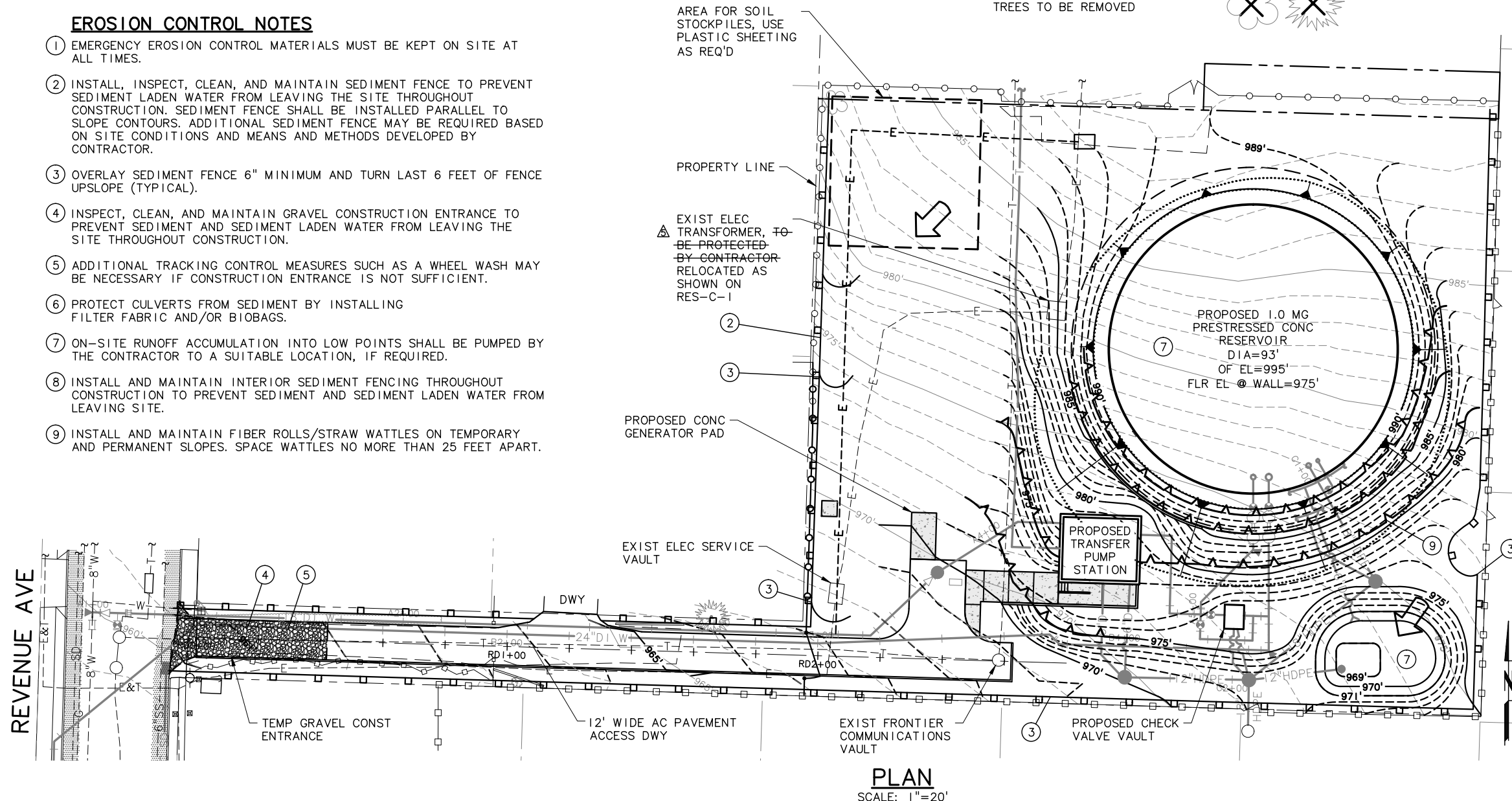
- ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- "STOCK PILE AREA" SHALL BE DESIGNATED PRIOR TO EXCAVATION CUT ACTIVITIES.
- ALL "SEDIMENT BARRIERS (TO BE INSTALLED AFTER GRADING)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
- LONG TERM SLOPE STABILIZATION MEASURES "INCLUDING SEEDING, JUTE MATTING, WATTLES, AND ROCK CHECK DAMS" SHALL BE IN-PLACE OVER ALL EXPOSED SOILS BY OCTOBER 1.
- THE STORM WATER FACILITIES SHALL BE CONSTRUCTED AND LANDSCAPED PRIOR TO THE STORM WATER SYSTEM FUNCTIONING AND SITE PAVING.
- INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.

EROSION CONTROL NOTES

- EMERGENCY EROSION CONTROL MATERIALS MUST BE KEPT ON SITE AT ALL TIMES.
- INSTALL, INSPECT, CLEAN, AND MAINTAIN SEDIMENT FENCE TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE THROUGHOUT CONSTRUCTION. SEDIMENT FENCE SHALL BE INSTALLED PARALLEL TO SLOPE CONTOURS. ADDITIONAL SEDIMENT FENCE MAY BE REQUIRED BASED ON SITE CONDITIONS AND MEANS AND METHODS DEVELOPED BY CONTRACTOR.
- OVERLAY SEDIMENT FENCE 6" MINIMUM AND TURN LAST 6 FEET OF FENCE UPSLOPE (TYPICAL).
- INSPECT, CLEAN, AND MAINTAIN GRAVEL CONSTRUCTION ENTRANCE TO PREVENT SEDIMENT AND SEDIMENT LADEN WATER FROM LEAVING THE SITE THROUGHOUT CONSTRUCTION.
- ADDITIONAL TRACKING CONTROL MEASURES SUCH AS A WHEEL WASH MAY BE NECESSARY IF CONSTRUCTION ENTRANCE IS NOT SUFFICIENT.
- PROTECT CULVERTS FROM SEDIMENT BY INSTALLING FILTER FABRIC AND/OR BIOBAGS.
- ON-SITE RUNOFF ACCUMULATION INTO LOW POINTS SHALL BE PUMPED BY THE CONTRACTOR TO A SUITABLE LOCATION, IF REQUIRED.
- INSTALL AND MAINTAIN INTERIOR SEDIMENT FENCING THROUGHOUT CONSTRUCTION TO PREVENT SEDIMENT AND SEDIMENT LADEN WATER FROM LEAVING SITE.
- INSTALL AND MAINTAIN FIBER ROLLS/STRAW WATTLES ON TEMPORARY AND PERMANENT SLOPES. SPACE WATTLES NO MORE THAN 25 FEET APART.

LEGEND

- EXISTING CONTOURS (1')
- EXISTING CONTOURS (5')
- INLET PROTECTION
- WATTLE
- DRAINAGE FLOW DIRECTION
- SEDIMENT FENCING (PERIMETER)
- CONSTRUCTION FENCING (ORANGE)
- CHECK DAM
- PROPOSED WATERLINE
- TREES TO BE REMOVED



C:\PDX_Projects\111265\CAD\DR\SHEETS\ESC\11-1265-OR-ESC4-7-R.dwg ESC-5 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMG DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900
Portland, Oregon 97204

PHONE 503-225-9010
FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

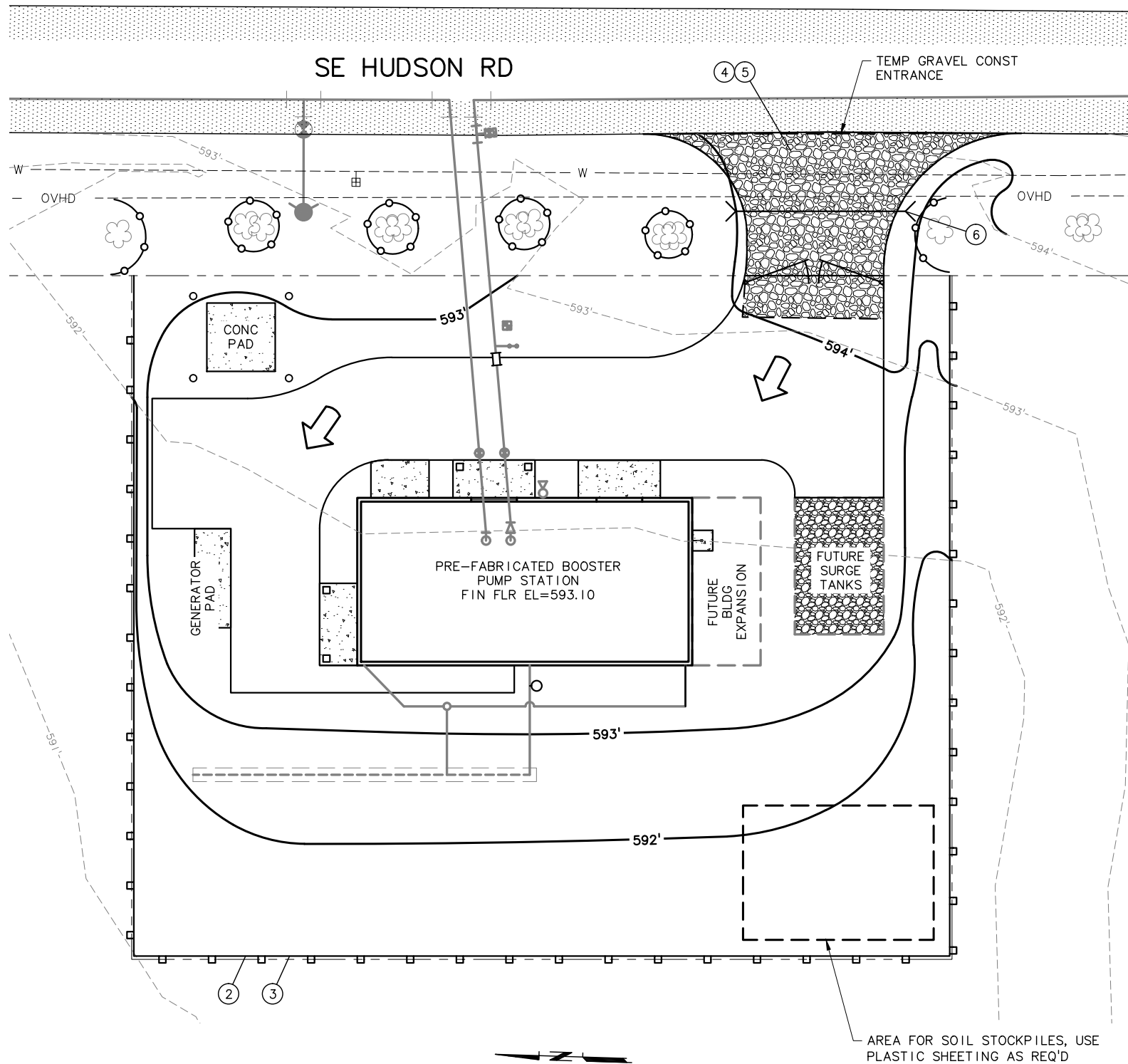
1911 OREGON CENTENNIAL 2011

**EROSION AND SEDIMENT CONTROL PLAN;
SCHEDULE B
RESERVOIR SITE
CONSTRUCTION AND FINAL GRADING**

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
ESC-5
15 of 123

C:\PDX_Projects\11265\CAD\DR\SCHEETS\ESC\11-1265-OR-ESC4-7-R.dwg ESC-6 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)



PLAN
SCALE: 1"=10'

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

1. SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
 - A. VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES. SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX.
 - B. DWARF GRASS MIX (MINIMUM 100 LB/AC).
 1. DWARF PERENNIAL RYEGRASS (80% BY WEIGHT).
 2. CREEPING RED FESCUE (20% BY WEIGHT).
 - C. STANDARD HEIGHT GRASS MIX (MINIMUM 100 LB/AC).
 1. ANNUAL RYEGRASS (40% BY WEIGHT).
 2. TURF-TYPE FESCUE (60% BY WEIGHT).
2. SLOPES AND DISTURBED AREAS TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
3. LONG TERM SLOPE AND DISTURBED AREAS STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE. SEE SPECIFICATIONS.
4. TEMPORARY SLOPE AND DISTURBED AREAS STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.
5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
8. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
9. ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
10. SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
11. AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SECONDARY MEASURES SUCH AS BERM OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.
12. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
13. AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.
14. USE BMPs SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
15. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION:

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. "STOCK PILE AREA" SHALL BE DESIGNATED PRIOR TO EXCAVATION CUT ACTIVITIES.
3. ALL "SEDIMENT BARRIERS (TO BE INSTALLED AFTER GRADING)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
4. LONG TERM SLOPE STABILIZATION MEASURES "INCLUDING SEEDING, JUTE MATTING, WATTLES, AND ROCK CHECK DAMS" SHALL BE IN-PLACE OVER ALL EXPOSED SOILS BY OCTOBER 1.
5. THE STORM WATER FACILITIES SHALL BE CONSTRUCTED AND LANDSCAPED PRIOR TO THE STORM WATER SYSTEM FUNCTIONING AND SITE PAVING.
6. INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.

EROSION CONTROL NOTES

- ① EMERGENCY EROSION CONTROL MATERIALS MUST BE KEPT ON SITE AT ALL TIMES.
- ② INSTALL, INSPECT, CLEAN, AND MAINTAIN SEDIMENT FENCE TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE THROUGHOUT CONSTRUCTION. SEDIMENT FENCE SHALL BE INSTALLED PARALLEL TO SLOPE CONTOURS. ADDITIONAL SEDIMENT FENCE MAY BE REQUIRED BASED ON SITE CONDITIONS AND MEANS AND METHODS DEVELOPED BY CONTRACTOR.
- ③ OVERLAY SEDIMENT FENCE 6" MINIMUM AND TURN LAST 6 FEET OF FENCE UPSLOPE (TYPICAL).
- ④ INSPECT, CLEAN, AND MAINTAIN GRAVEL CONSTRUCTION ENTRANCE TO PREVENT SEDIMENT AND SEDIMENT LADEN WATER FROM LEAVING THE SITE THROUGHOUT CONSTRUCTION.
- ⑤ ADDITIONAL TRACKING CONTROL MEASURES SUCH AS A WHEEL WASH MAY BE NECESSARY IF CONSTRUCTION ENTRANCE IS NOT SUFFICIENT.
- ⑥ PROTECT CULVERTS FROM SEDIMENT BY INSTALLING FILTER FABRIC AND/OR BIOBAGS.
- ⑦ ON-SITE RUNOFF ACCUMULATION INTO LOW POINTS SHALL BE PUMPED BY THE CONTRACTOR TO A SUITABLE LOCATION, IF REQUIRED.
- ⑧ INSTALL AND MAINTAIN INTERIOR SEDIMENT FENCING THROUGHOUT CONSTRUCTION TO PREVENT SEDIMENT AND SEDIMENT LADEN WATER FROM LEAVING SITE.

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

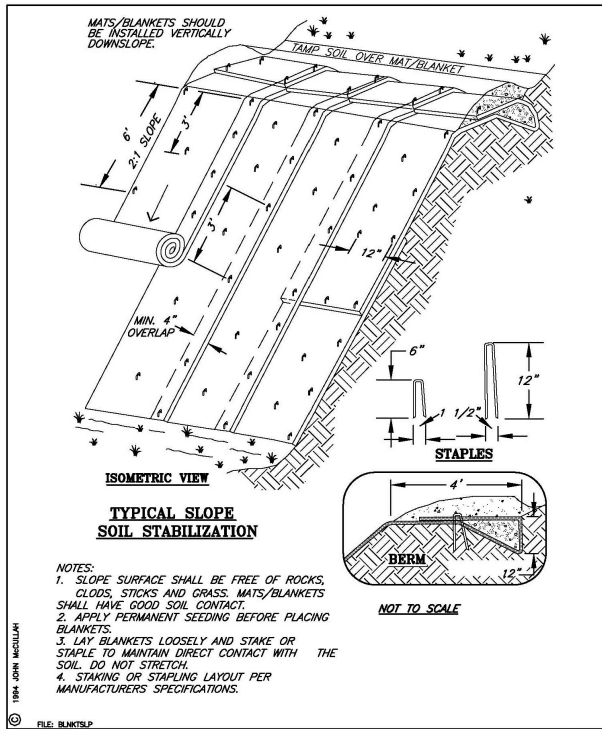
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

EROSION AND SEDIMENT CONTROL PLAN;
SCHEDULE C
BOOSTER PUMP STATION
CONSTRUCTION AND FINAL GRADING

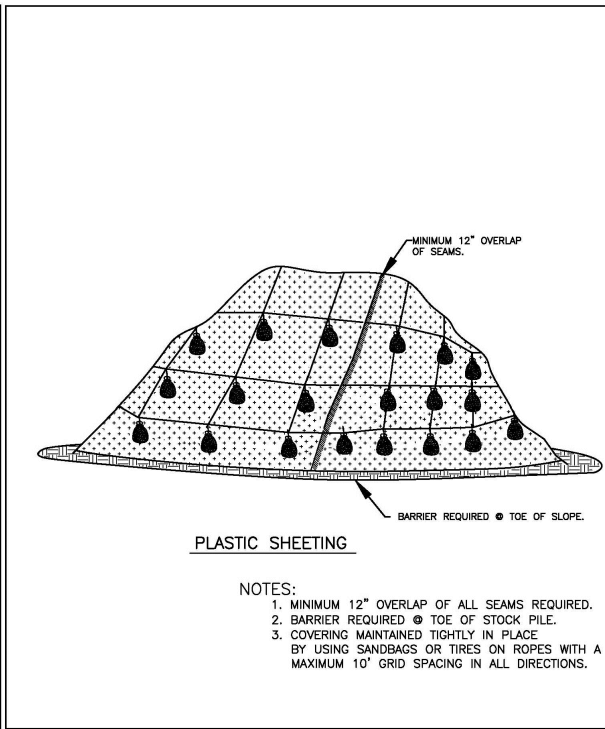
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

C:\PDX_Projects\11265\CAD\DR\SCHEETS\ESC\11-1265-OR-ESC4-7-R.dwg ESC-7 10/30/2014 3:30 PM DAK 20.0s (LMS Tech)



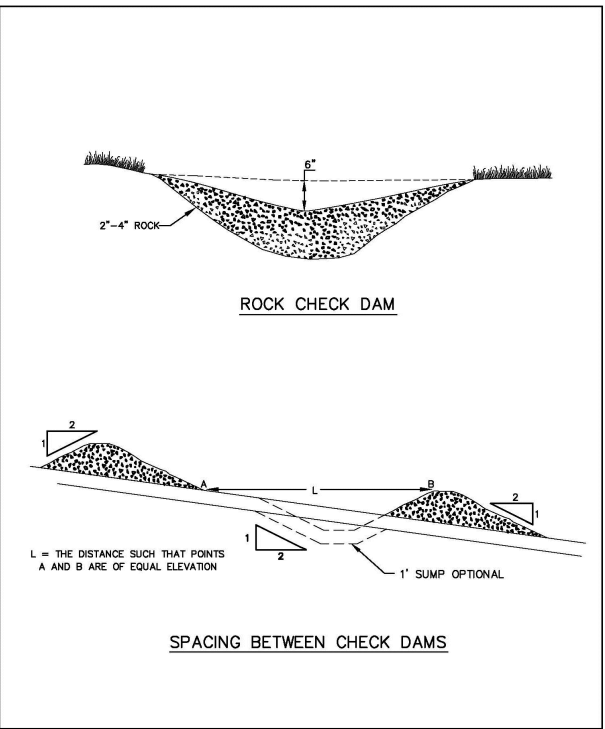
MATTING - SLOPE INSTALLATION

DETAIL DRAWING 4-1 REVISED 01-09



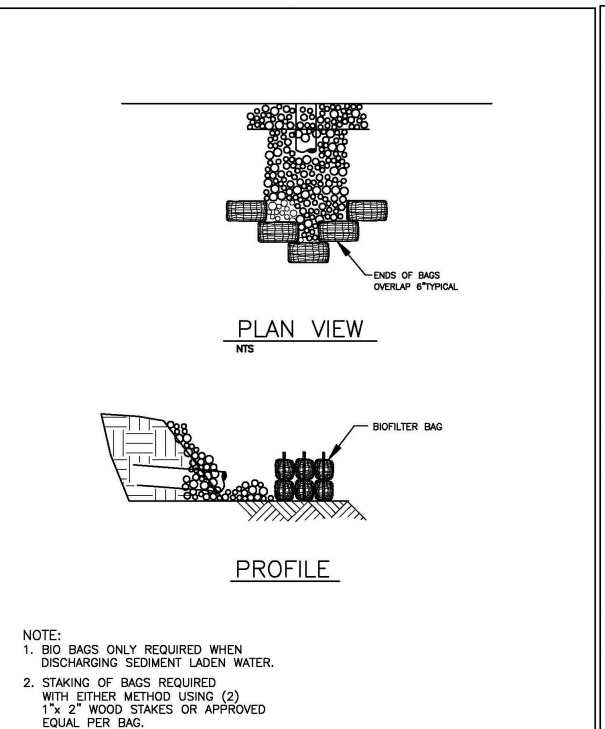
PLASTIC SHEETING

DETAIL DRAWING 4-3 REVISED 01-09



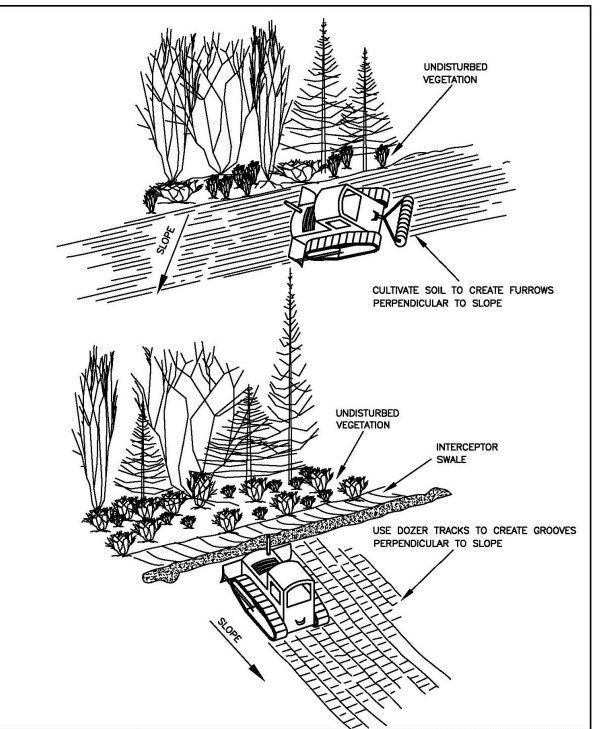
CHECK DAM - ROCK

DETAIL DRAWING 4-4 REVISED 01-09



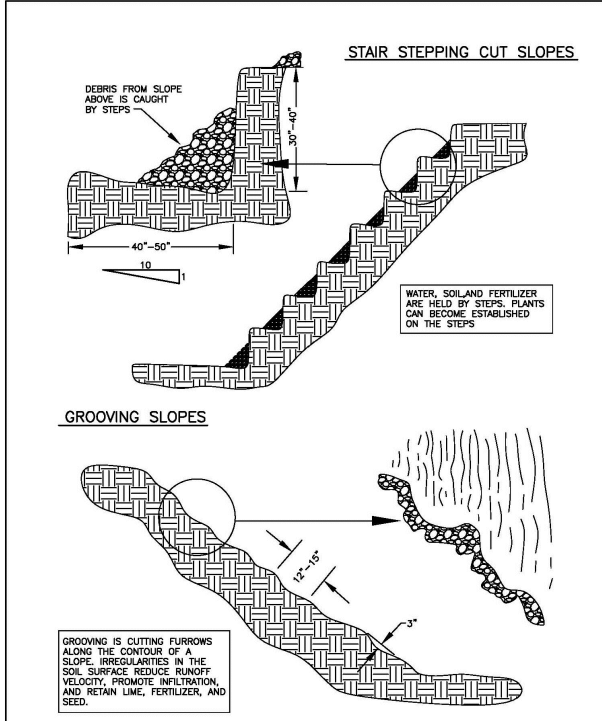
OUTLET PROTECTION - RIP RAP

DETAIL DRAWING 4-7 REVISED 01-09



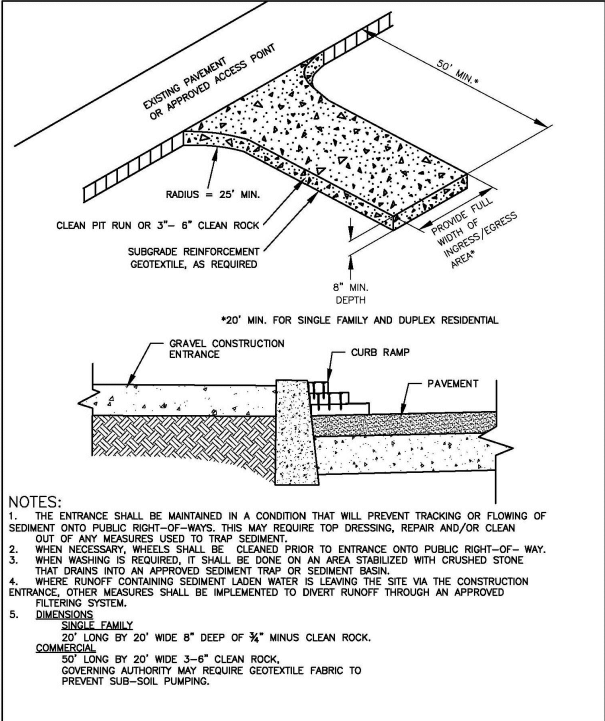
SURFACE ROUGHENING - CAT TRACKING

DETAIL DRAWING 4-10 REVISED 01-09



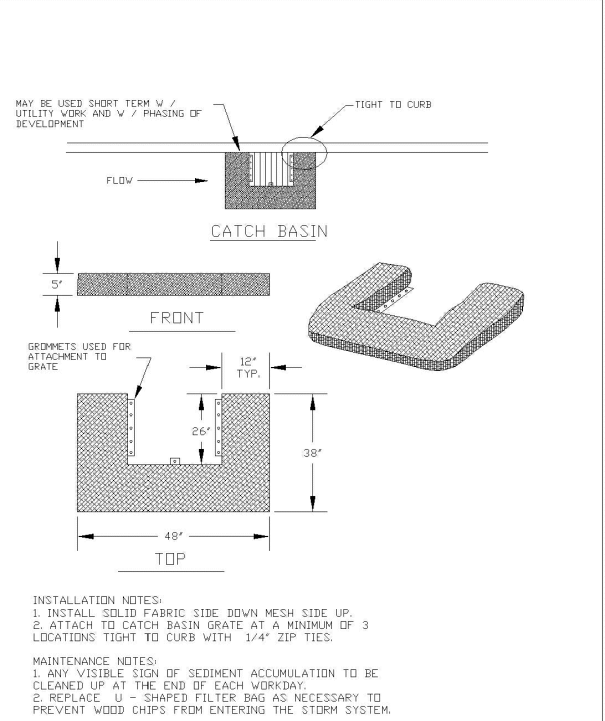
SURFACE ROUGHENING - STAIR STEPPING/GROOVING

DETAIL DRAWING 4-11 REVISED 01-09



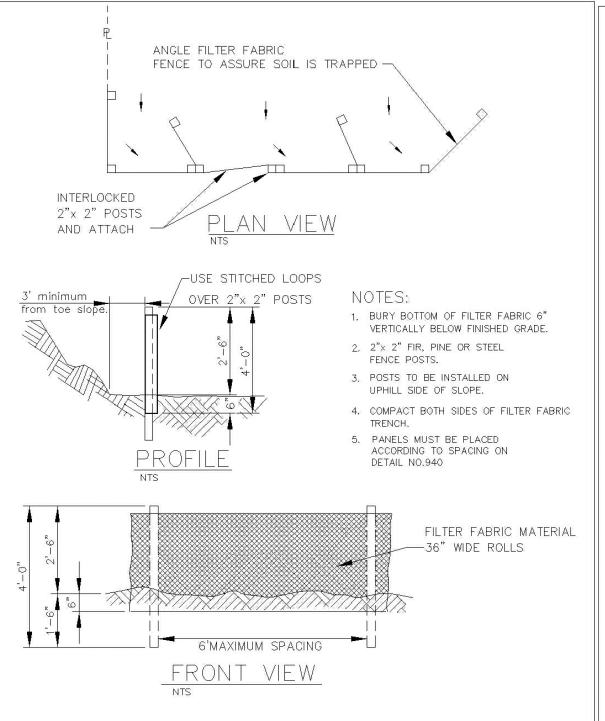
CONSTRUCTION ENTRANCE

DETAIL DRAWING 4-13 REVISED 01-09



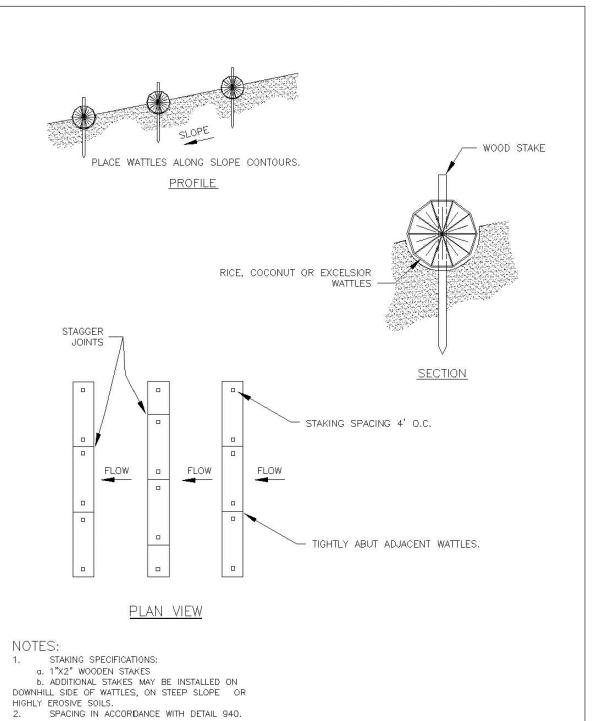
INLET PROTECTION TYPE 6

DETAIL DRAWING 4-20 REVISED 01-09



SEDIMENT FENCE

DETAIL DRAWING 4-23 REVISED 01-09



WATTLES

DETAIL DRAWING 4-27 REVISED 01-09

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMG DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

EROSION AND SEDIMENT CONTROL PLAN; DETAILS-1

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
ESC-7
17 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
- CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.
- DOUBLE WRAP TRANSMISSION MAIN IN 8 MIL POLYETHYLENE AND INSTALL A 12 MIL HECULINER BARRIER FOR ENTIRE LENGTH OF JACK AND BORE INSTALLATION, MINIMUM 10' EACH SIDE OF EACH PWB CONDUIT. IF VERTICAL SEPARATION BETWEEN NEW TRANSMISSION MAIN AND EITHER CONDUIT IS LESS THAN 3', INSTALL A RIBBON ANODE BETWEEN THE BARRIER AND THE NEW TRANSMISSION MAIN, CONNECT ENDS OF ANODE TO PIPE, SEE DETAIL, SHEET TM-C-52.

STA 1+00=STA A1+00
 BEGIN SCHEDULE A,
 REMOVE APPROX 15 LF OF EXIST 20" DI & THREE EXIST VALVE CANS AND APPURTENANCES, CONNECT TO EXIST 20" DI W
 FURNISH & INSTALL:
 1-24"X20" RDCR, MJ
 1-24" BFV, MJ
 1-24" 45° HORIZ BEND, MJ
 1-24" IJ
 1-CP TEST STATION

STA A1+12 TO STA A1+52
 FURNISH & INSTALL:
 40 LF OF 36" STEEL CASING JACK AND BORE INSTALLATION W/HAND DIG

PROTECT EXIST 52" PWB CND NO. 2 & EXIST 66" PWB CND NO. 4

REMOVE AND REPLACE EXISTING TREES/SHRUBS ADJACENT TO DRIVEWAY AS REQ'D

PROTECT EXIST SKYVIEW ACRES BACKFLOW PREVENTER VAULT

SKYVIEW ACRES EXIST METER VAULT

PROTECT 6 EXISTING TREES, TYP

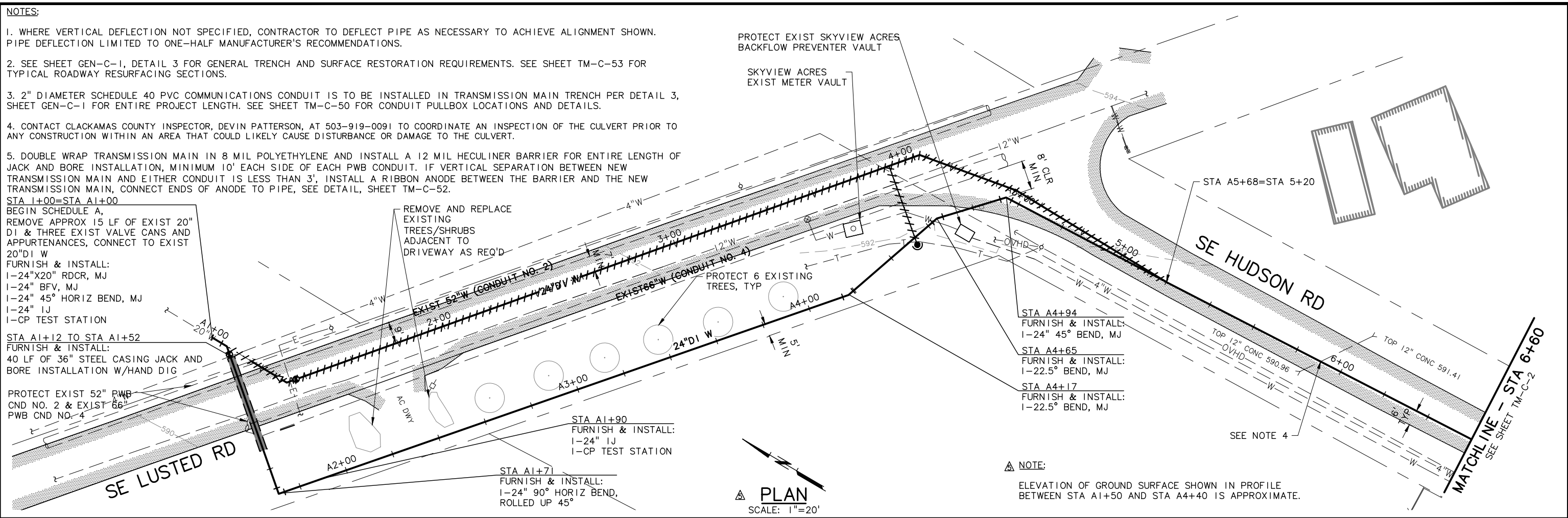
STA A4+94
 FURNISH & INSTALL:
 1-24" 45° BEND, MJ

STA A4+65
 FURNISH & INSTALL:
 1-22.5° BEND, MJ

STA A4+17
 FURNISH & INSTALL:
 1-22.5° BEND, MJ

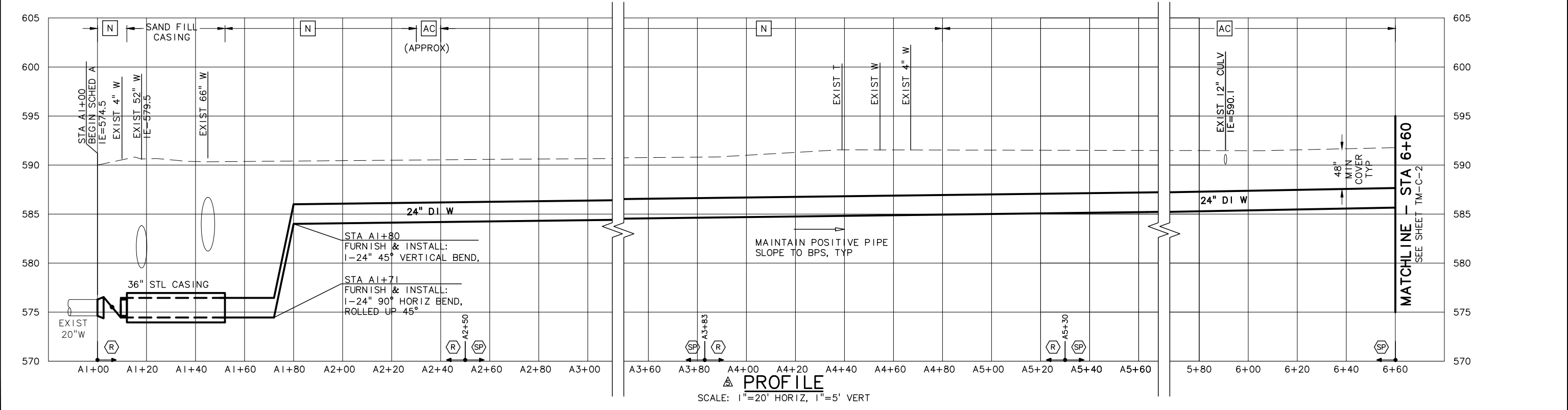
STA A1+90
 FURNISH & INSTALL:
 1-24" IJ
 1-CP TEST STATION

STA A1+71
 FURNISH & INSTALL:
 1-24" 90° HORIZ BEND, ROLLED UP 45°



PLAN
 SCALE: 1"=20'

NOTE:
 ELEVATION OF GROUND SURFACE SHOWN IN PROFILE BETWEEN STA A1+50 AND STA A4+40 IS APPROXIMATE.



PROFILE
 SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11265\CAD\DRS\SHEETS\SCHED A\INTERTIE REVISION 06-13\11-1265-OR-C1-R.dwg TM-C-1 11/19/2014 3:50 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
 JHF DRAWN
 MLH CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

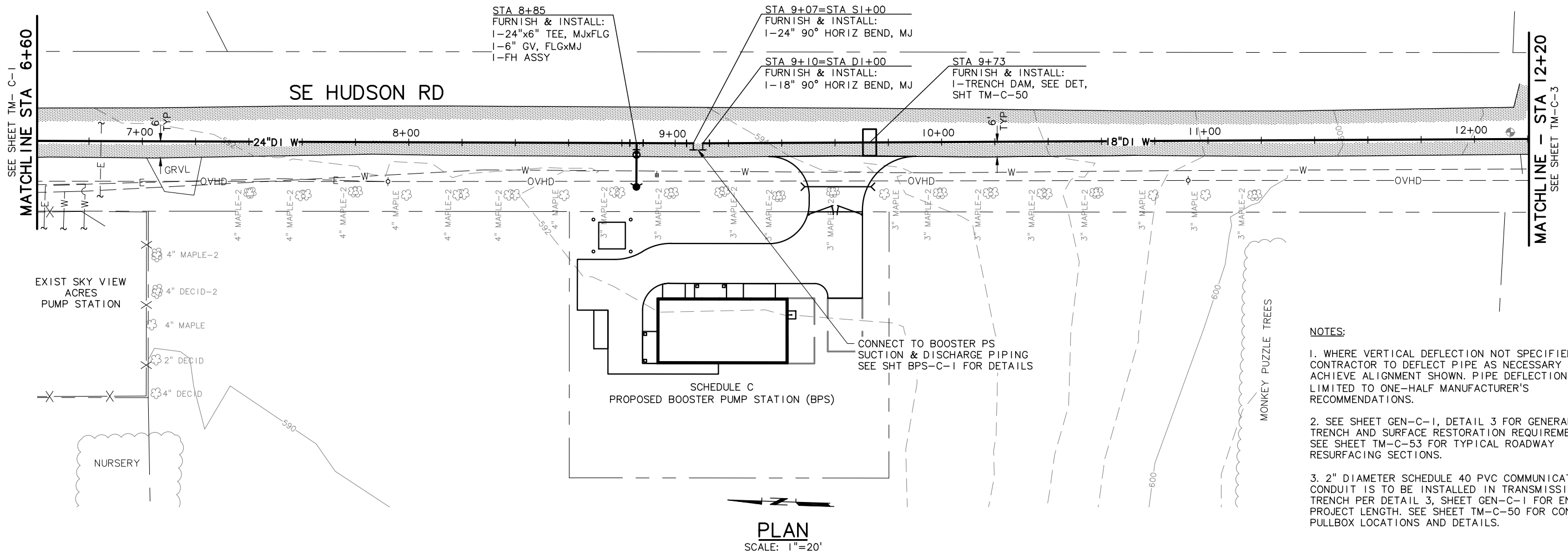
MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
 PWB INTERTIE PROJECT
 SCHEDULE A
 TRANSMISSION MAIN

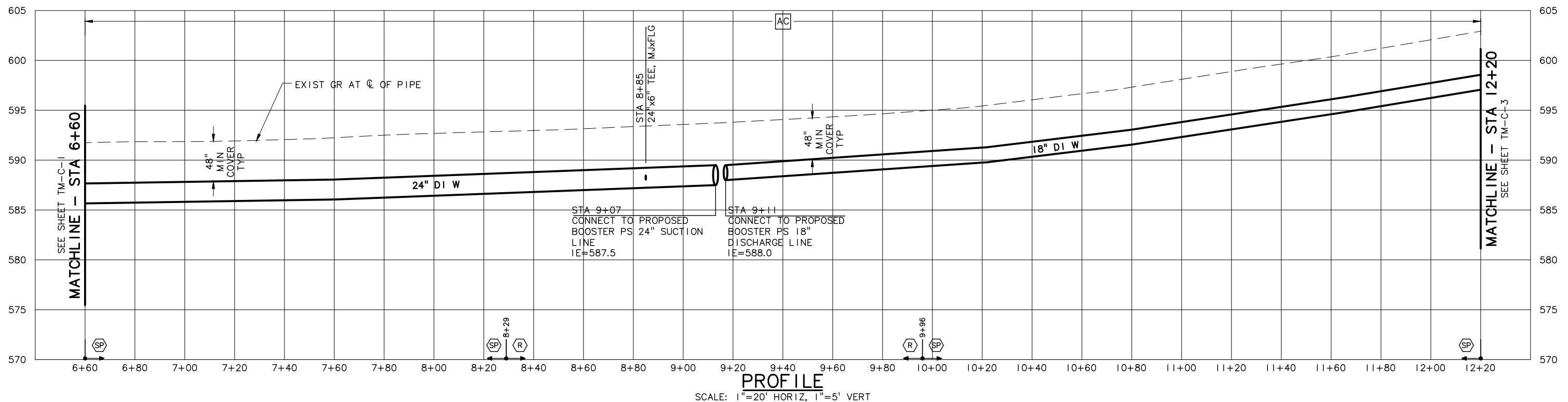
TRANSMISSION MAIN
 PLAN AND PROFILE
 STA 1+00 TO STA 6+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-2 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

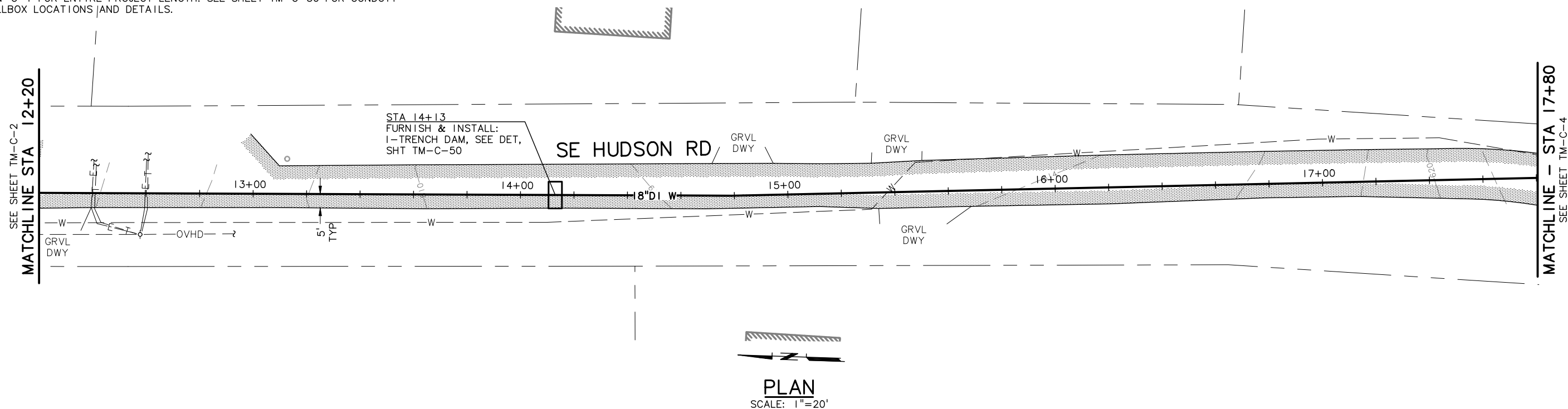
TRANSMISSION MAIN
PLAN AND PROFILE
STA 6+60 TO STA 12+20

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

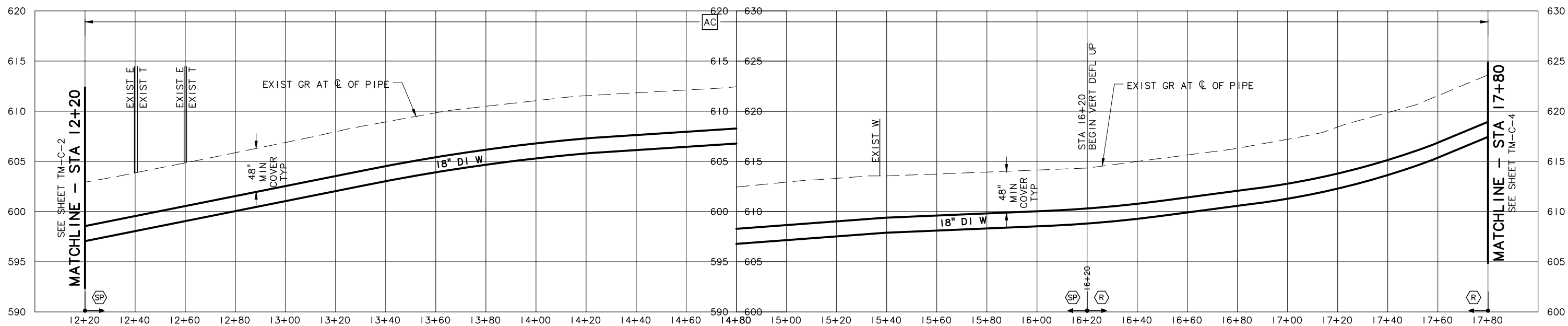
SHEET
TM-C-2
19 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11\1265\OR-C1-C12-R.dwg TM-C-3 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE	
0 1/2 1	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
LLA	DESIGNED
JHF	DRAWN
MLH	CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

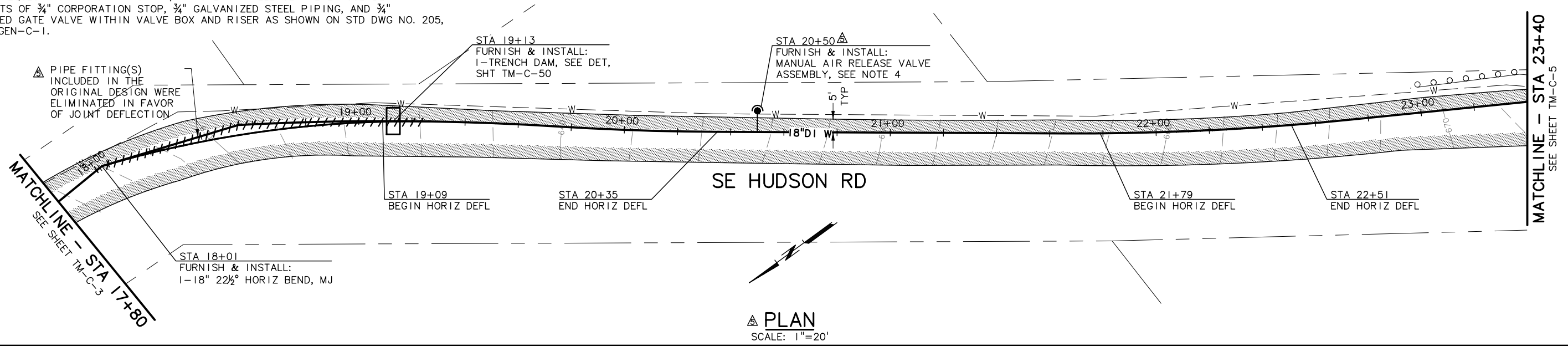
TRANSMISSION MAIN
PLAN AND PROFILE
STA 12+20 TO STA 17+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

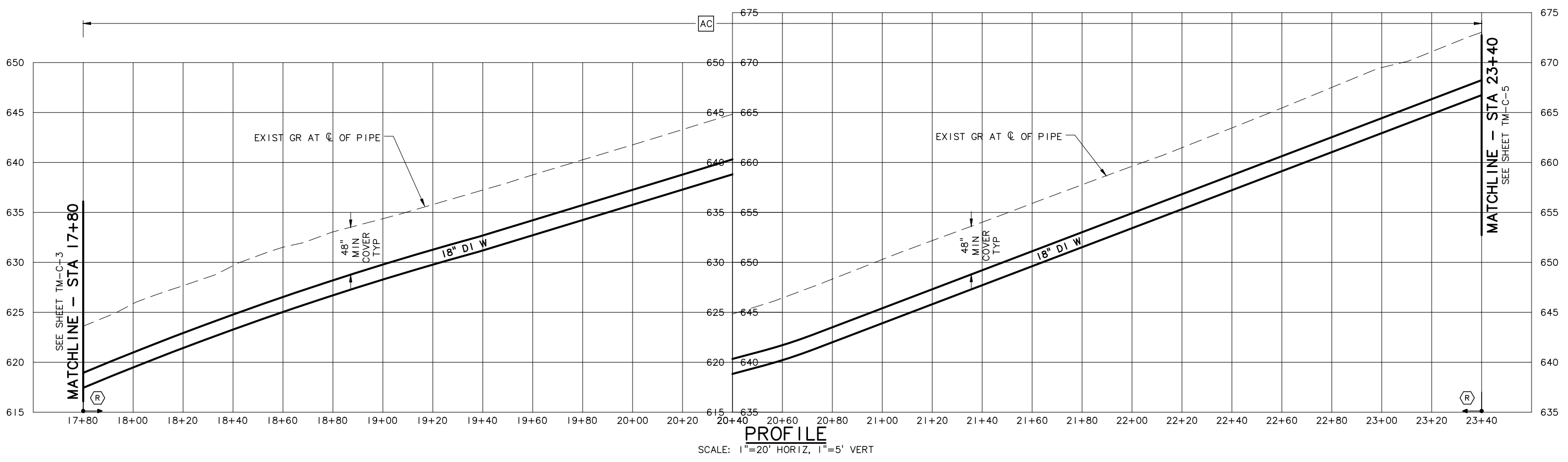
SHEET
TM-C-3
20 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
- PER REQUEST FOR INFORMATION 17, MANUAL AIR RELEASE VALVE ASSEMBLY CONSISTS OF 3/4" CORPORATION STOP, 3/4" GALVANIZED STEEL PIPING, AND 3/4" THREADED GATE VALVE WITHIN VALVE BOX AND RISER AS SHOWN ON STD DWG NO. 205, SHEET GEN-C-1.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11\1265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-4 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

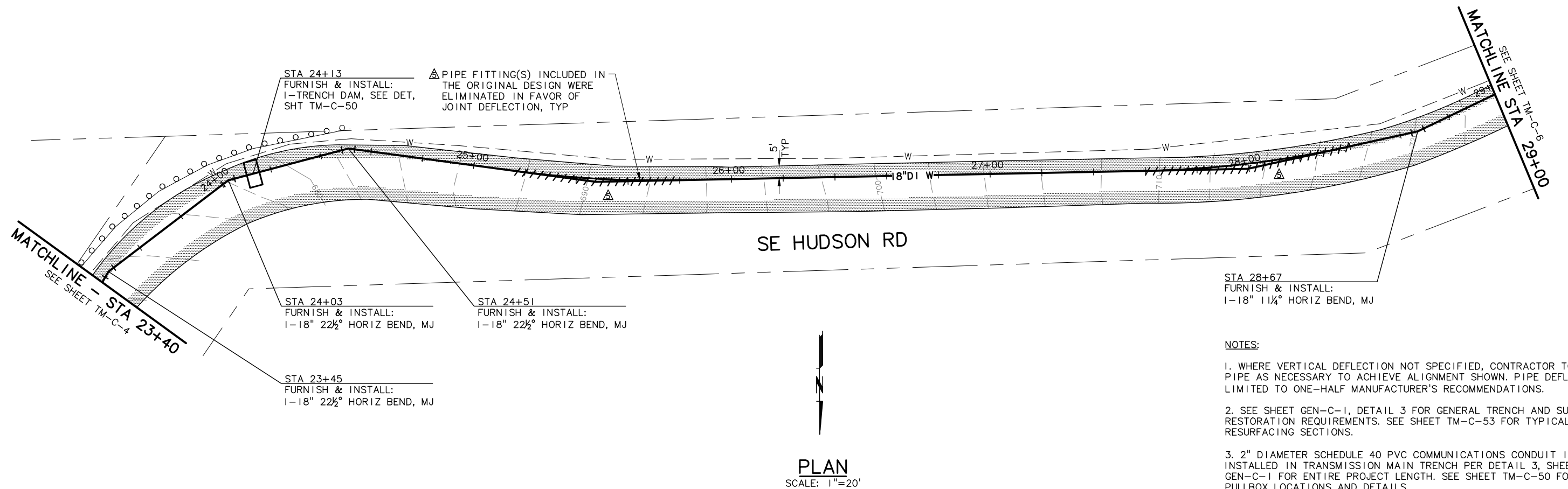
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 17+80 TO STA 23+40**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-4
21 of 123

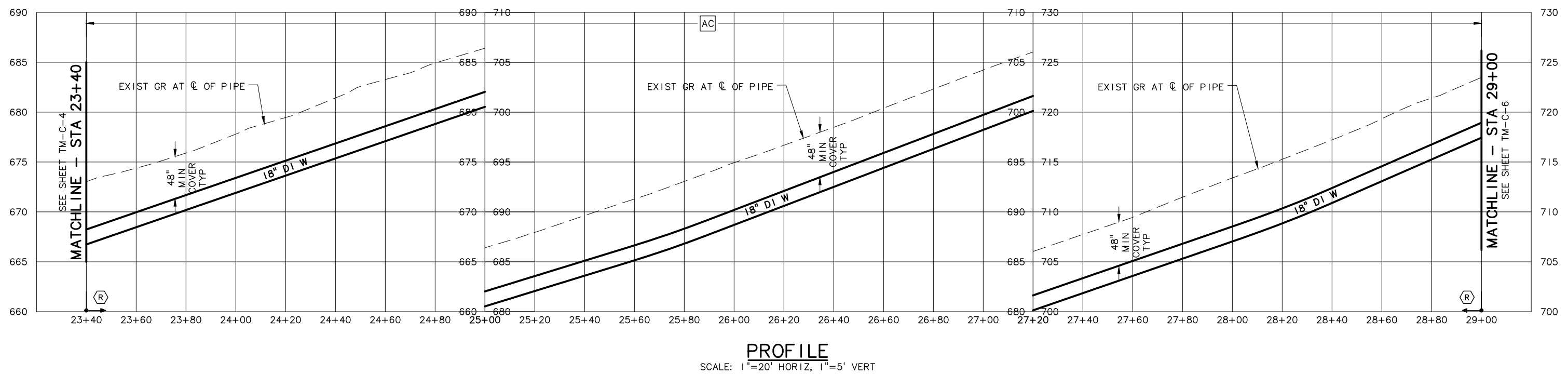
C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-5 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



STA 28+67
FURNISH & INSTALL:
1-18" 1 1/4° HORIZ BEND, MJ

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

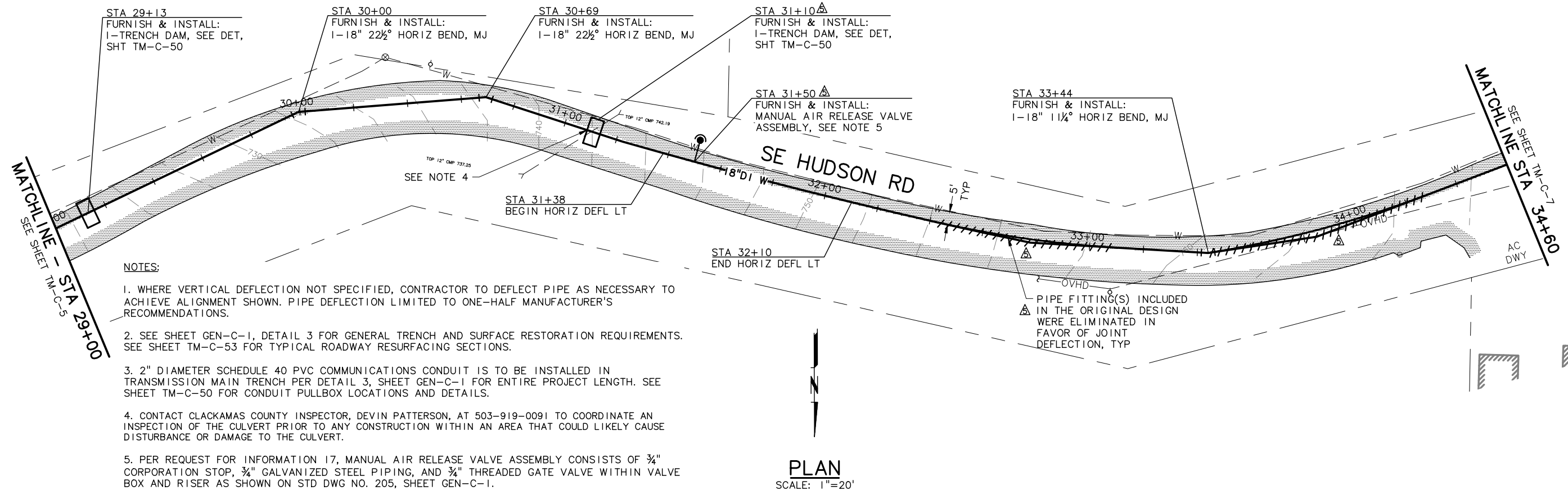
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 23+40 TO STA 29+00**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

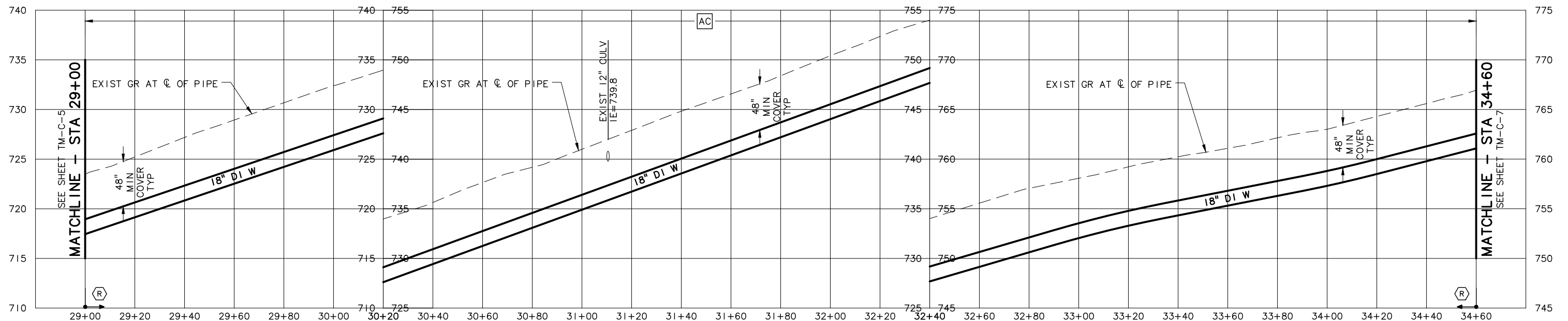
SHEET
TM-C-5
22 of 123

C:\PDX_Projects\11\1265\CAD\DOT\DOT\DOT\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-6 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
- CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.
- PER REQUEST FOR INFORMATION 17, MANUAL AIR RELEASE VALVE ASSEMBLY CONSISTS OF 3/4" CORPORATION STOP, 3/4" GALVANIZED STEEL PIPING, AND 3/4" THREADED GATE VALVE WITHIN VALVE BOX AND RISER AS SHOWN ON STD DWG NO. 205, SHEET GEN-C-1.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

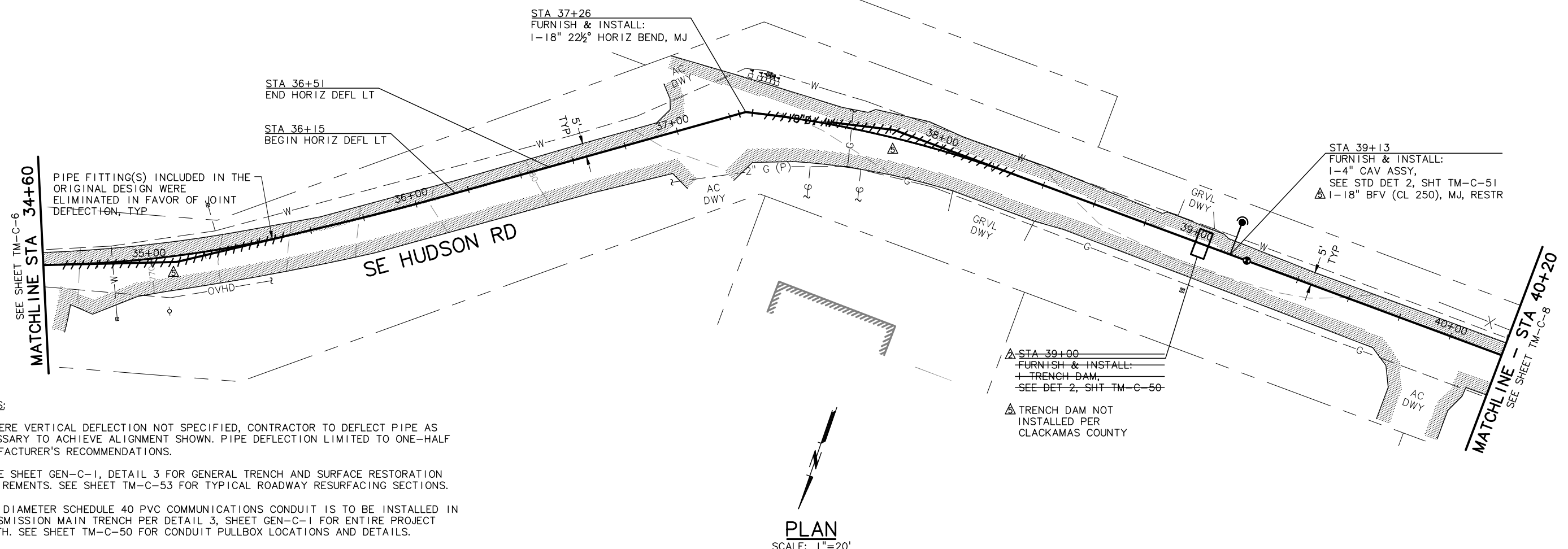
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 29+00 TO STA 34+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

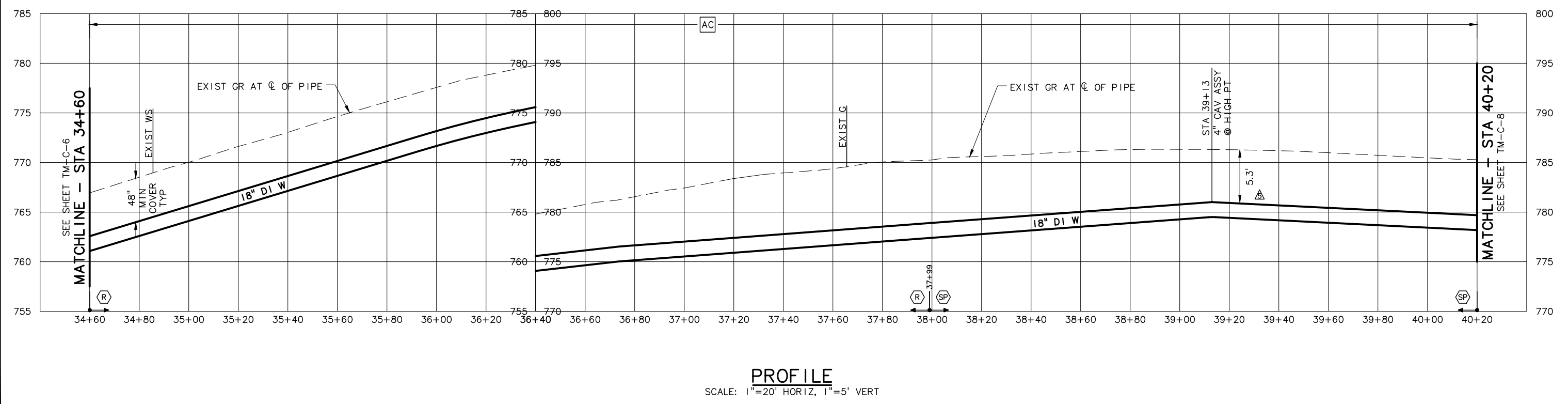
SHEET
TM-C-6
23 of 123

C:\PDX_Projects\111265-CAD\DR\SHEETS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-7 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING
2	12/04/12	LLA	ADDENDUM NO. 2

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

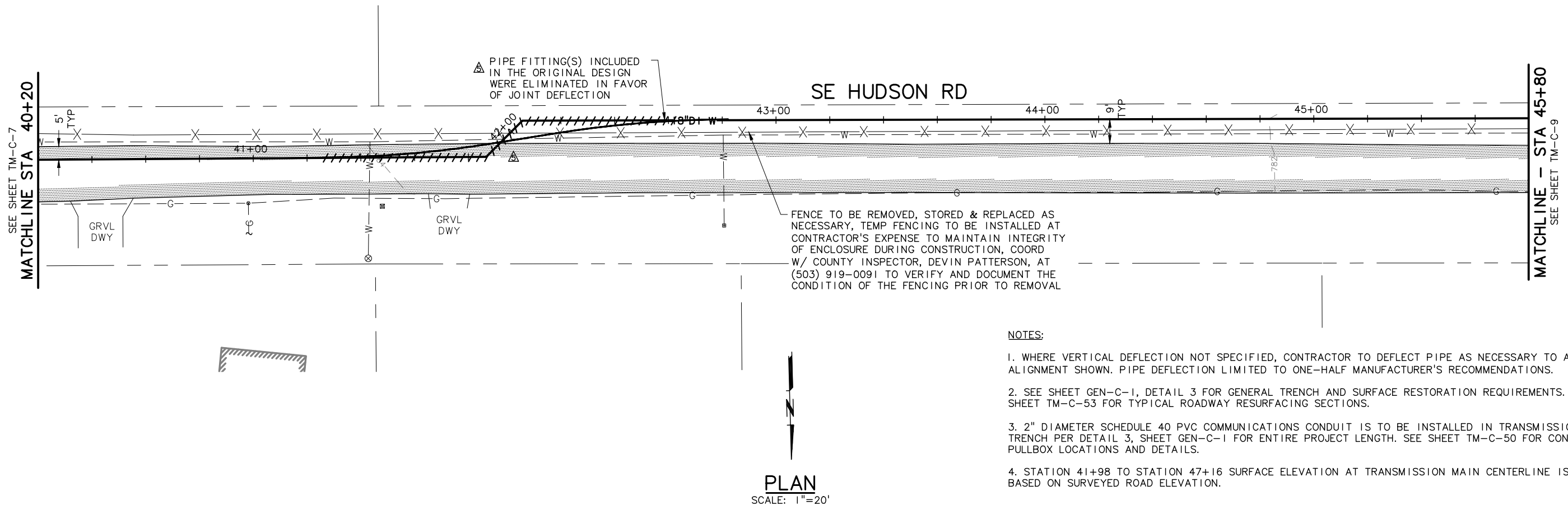
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 34+60 TO STA 40+20

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

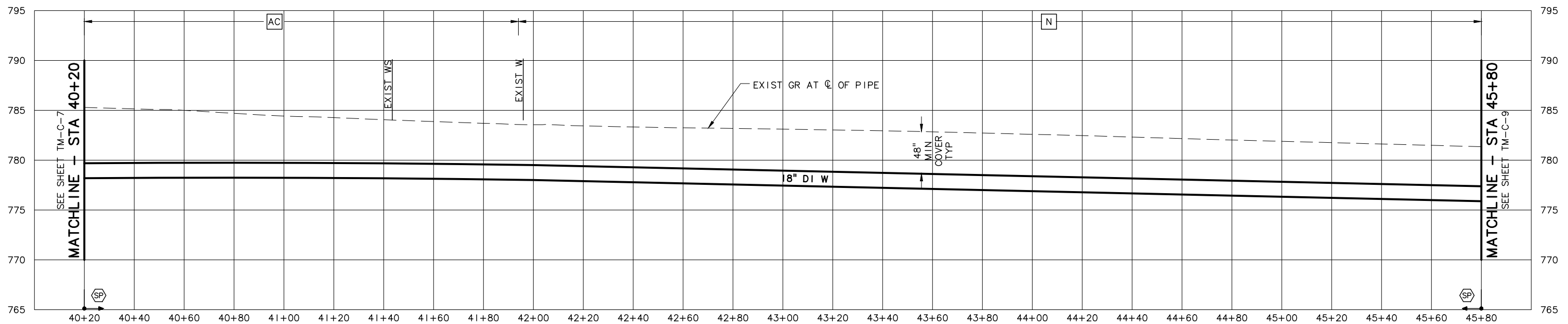
SHEET
TM-C-7
24 of 123

C:\PDX_Projects\11\1265\CAD\DRS\SHEETS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-8 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. STATION 41+98 TO STATION 47+16 SURFACE ELEVATION AT TRANSMISSION MAIN CENTERLINE IS ASSUMED BASED ON SURVEYED ROAD ELEVATION.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

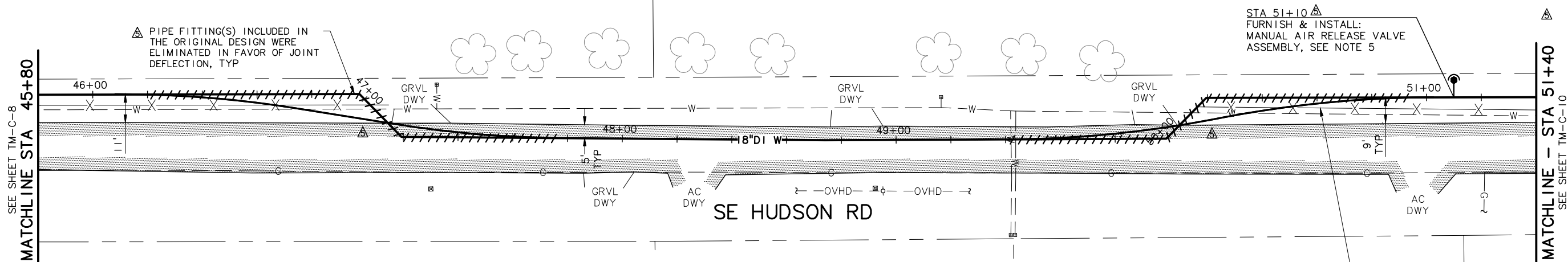
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 40+20 TO STA 45+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-8
25 of 123

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-9 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)

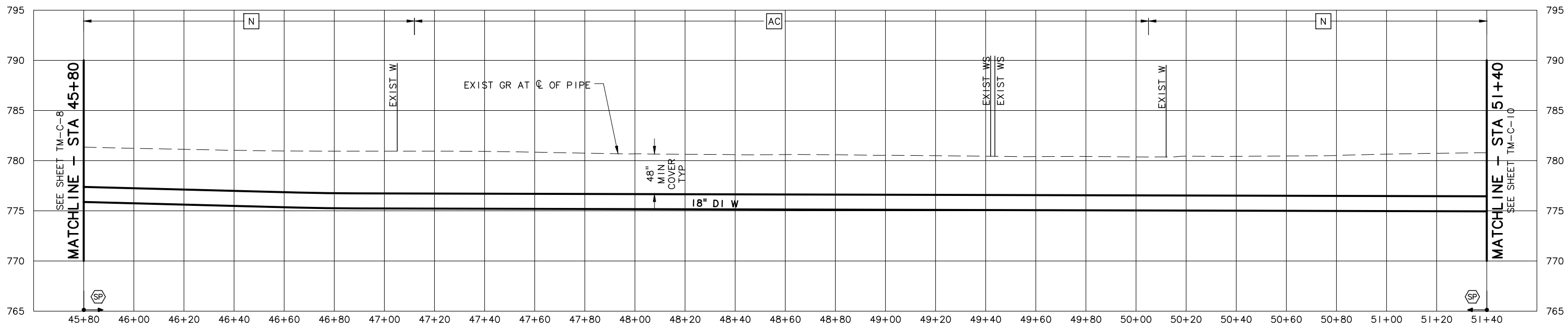


NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. STATION 41+98 TO STATION 47+16 AND STATION 50+10 TO STATION 61+17 SURFACE ELEVATION AT TRANSMISSION MAIN CENTERLINE IS ASSUMED BASED ON SURVEYED ROAD ELEVATION.
5. PER REQUEST FOR INFORMATION 17, MANUAL AIR RELEASE VALVE ASSEMBLY CONSISTS OF 3/4" CORPORATION STOP, 3/4" GALVANIZED STEEL PIPING, AND 3/4" THREADED GATE VALVE WITHIN VALVE BOX AND RISER AS SHOWN ON STD DWG NO. 205, SHEET GEN-C-1.

FENCE TO BE REMOVED, STORED & REPLACED AS NECESSARY, TEMP FENCING TO BE INSTALLED AT CONTRACTOR'S EXPENSE TO MAINTAIN INTEGRITY OF ENCLOSURE DURING CONSTRUCTION, COORD W/ COUNTY INSPECTOR, DEVIN PATTERSON, AT (503) 919-0091 TO VERIFY AND DOCUMENT THE CONDITION OF THE FENCING PRIOR TO REMOVAL

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

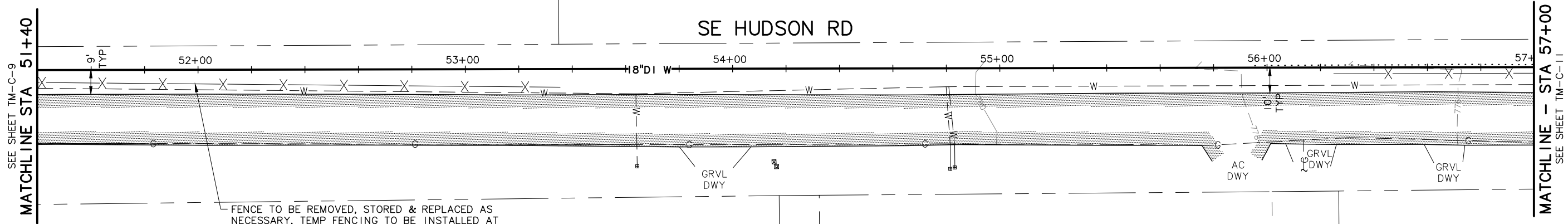
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 45+80 TO STA 51+40

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-9
26 of 123

C:\PDX_Projects\11265\CAD\DRS\SHEETS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-10 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



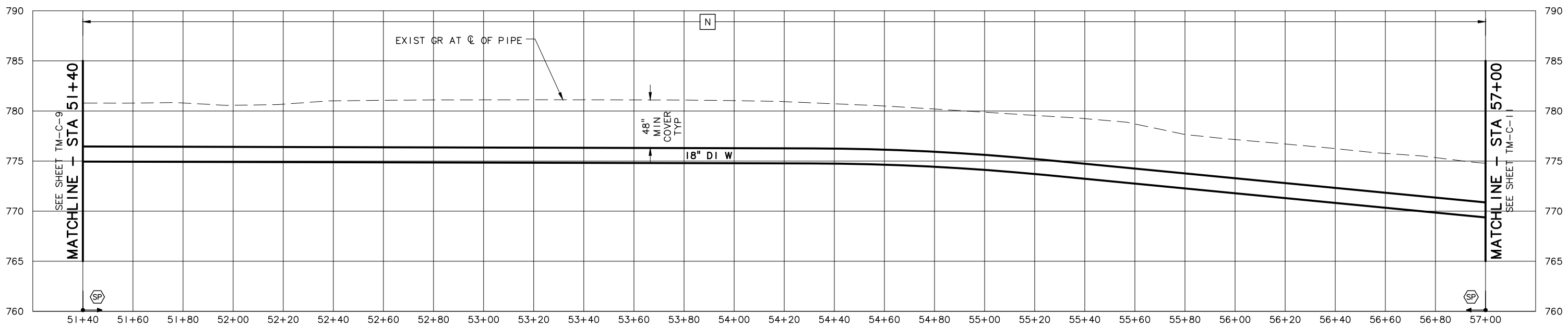
FENCE TO BE REMOVED, STORED & REPLACED AS NECESSARY, TEMP FENCING TO BE INSTALLED AT CONTRACTOR'S EXPENSE TO MAINTAIN INTEGRITY OF ENCLOSURE DURING CONSTRUCTION, COORD W/ COUNTY INSPECTOR, DEVIN PATTERSON, AT (503) 919-0091 TO VERIFY AND DOCUMENT THE CONDITION OF THE FENCING PRIOR TO REMOVAL

NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. STATION 50+10 TO STATION 61+17 SURFACE ELEVATION AT TRANSMISSION MAIN CENTERLINE IS ASSUMED BASED ON SURVEYED ROAD ELEVATION.

PLAN

SCALE: 1"=20'



PROFILE

SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

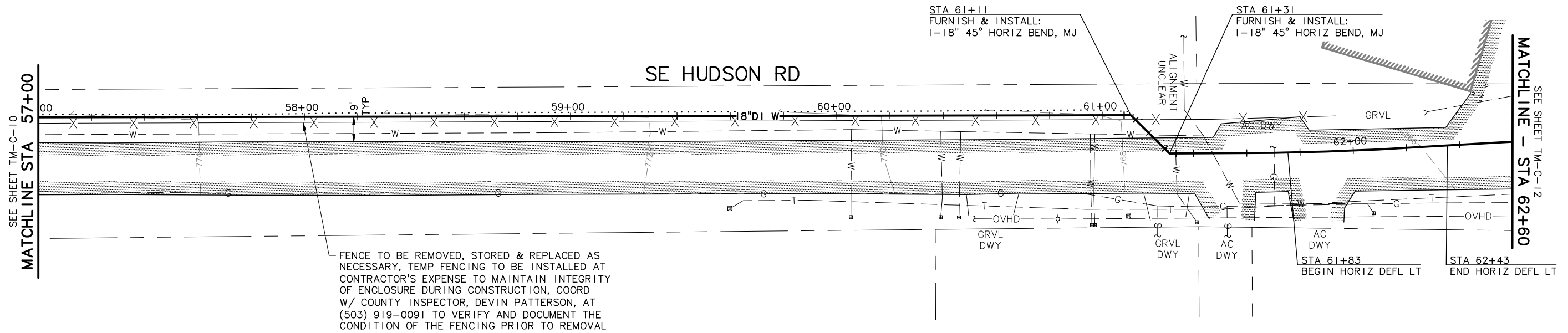
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 51+40 TO STA 57+00

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-10
27 of 123

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C1-C12-R.dwg TM-C-11 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)

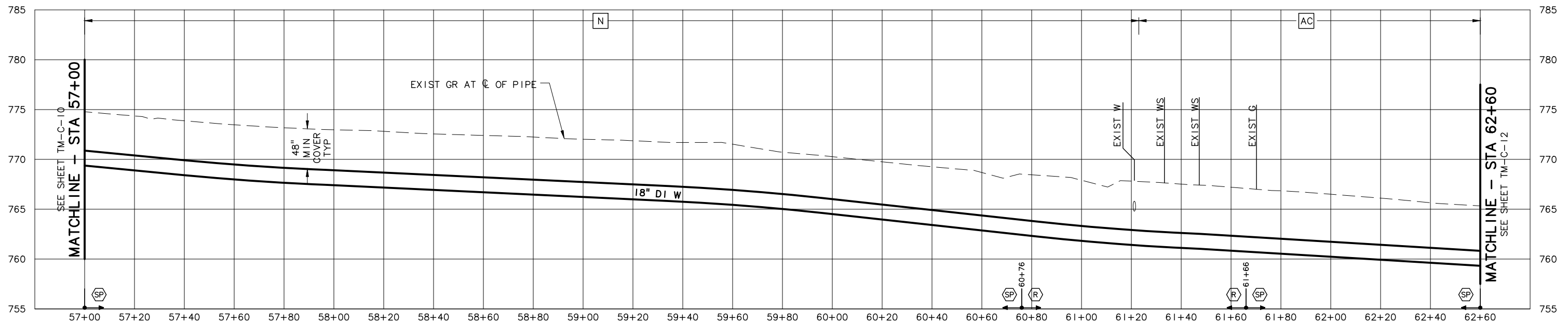


FENCE TO BE REMOVED, STORED & REPLACED AS NECESSARY, TEMP FENCING TO BE INSTALLED AT CONTRACTOR'S EXPENSE TO MAINTAIN INTEGRITY OF ENCLOSURE DURING CONSTRUCTION, COORD W/ COUNTY INSPECTOR, DEVIN PATTERSON, AT (503) 919-0091 TO VERIFY AND DOCUMENT THE CONDITION OF THE FENCING PRIOR TO REMOVAL

NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.
5. STATION 50+10 TO STATION 61+17 SURFACE ELEVATION AT TRANSMISSION MAIN CENTERLINE IS ASSUMED BASED ON SURVEYED ROAD ELEVATION.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

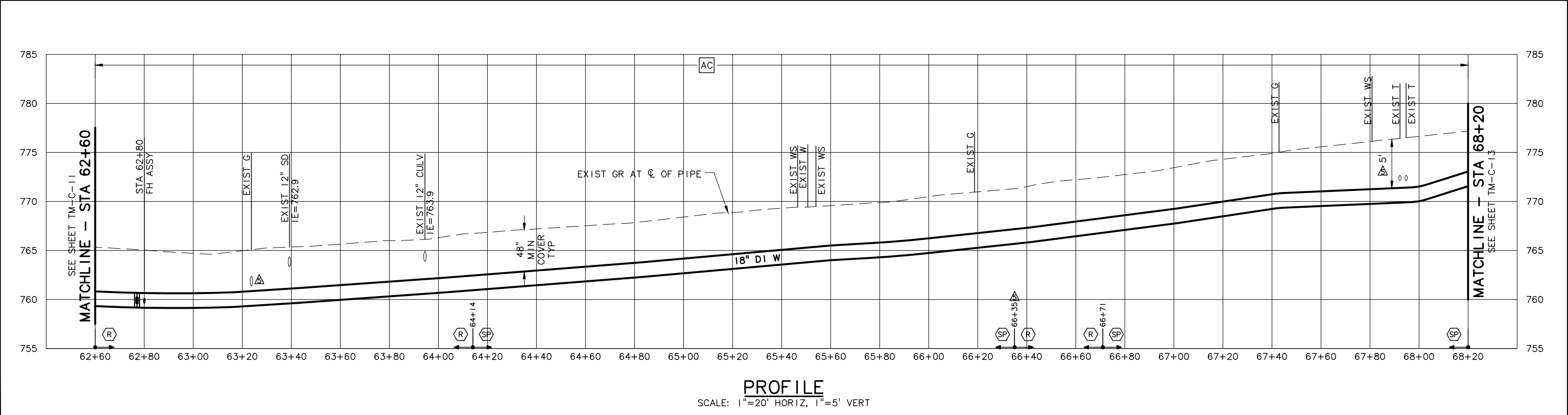
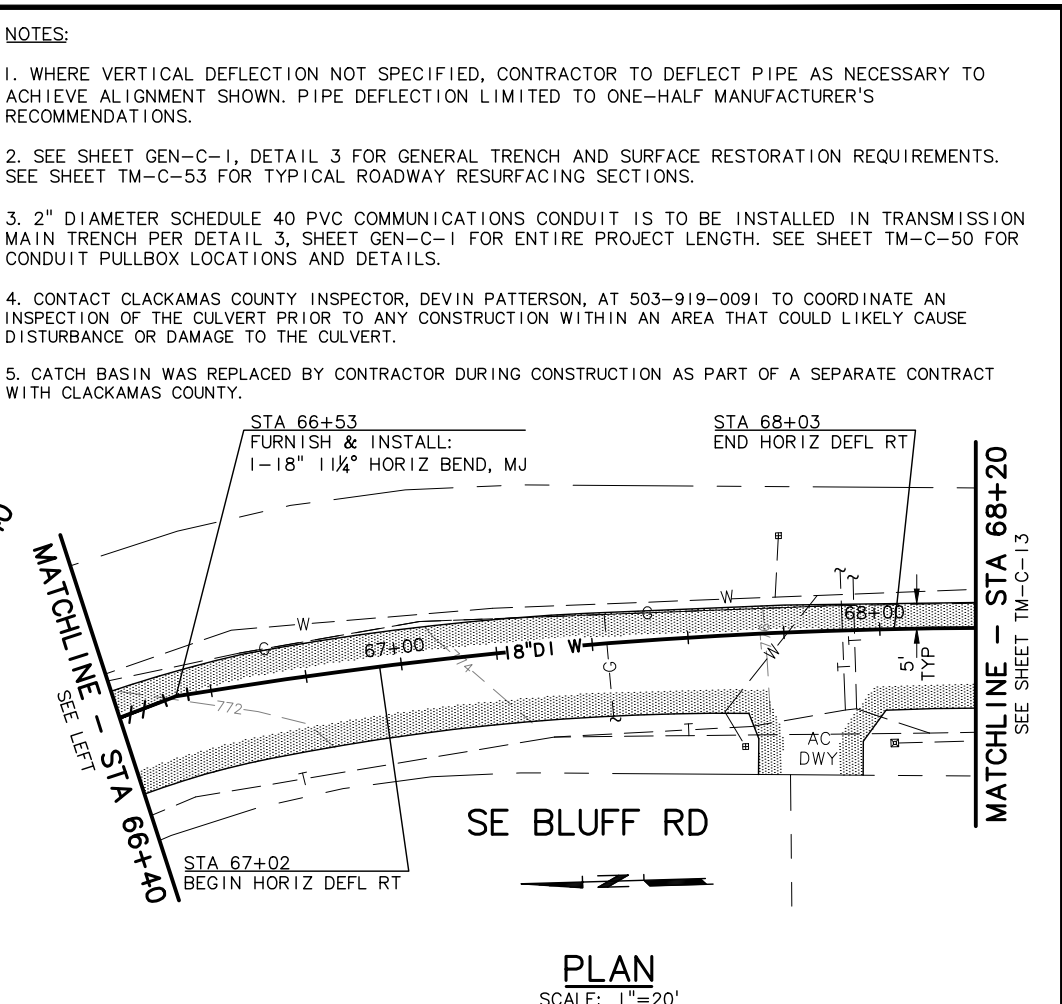
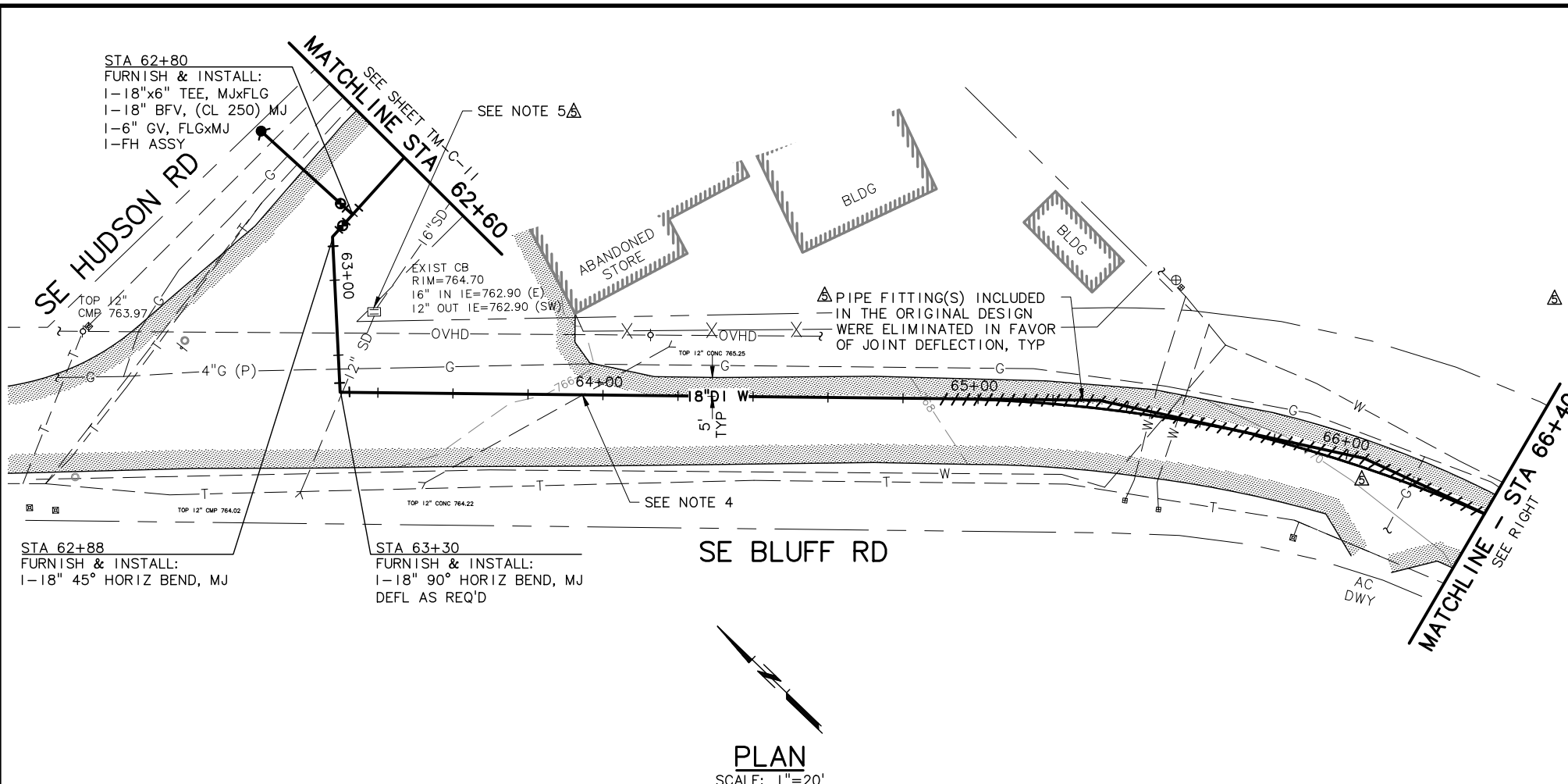
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 57+00 TO STA 62+60**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-11
28 of 123

G:\PDX_Projects\11\1265-OR-C1-C12-R.dwg TM-C-12 11/18/2014 4:30 PM JHF 20.0s (LMS Tech)



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
 JHF DRAWN
 MLH CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

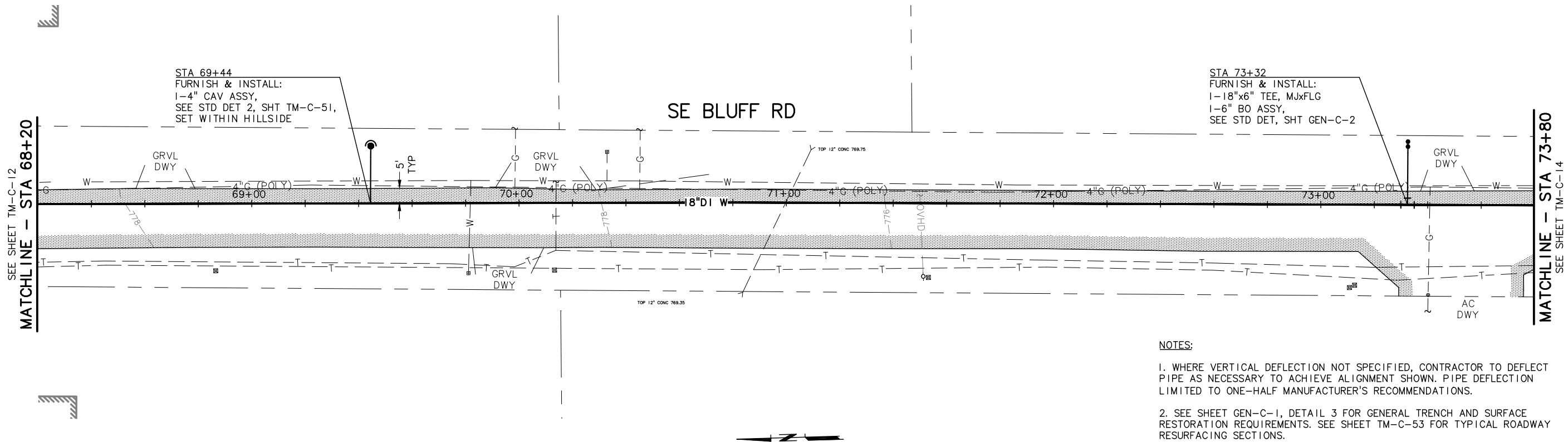
CITY OF SANDY
 PWB INTERTIE PROJECT
 SCHEDULE A
 TRANSMISSION MAIN

TRANSMISSION MAIN
 PLAN AND PROFILE
 STA 57+00 TO STA 62+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

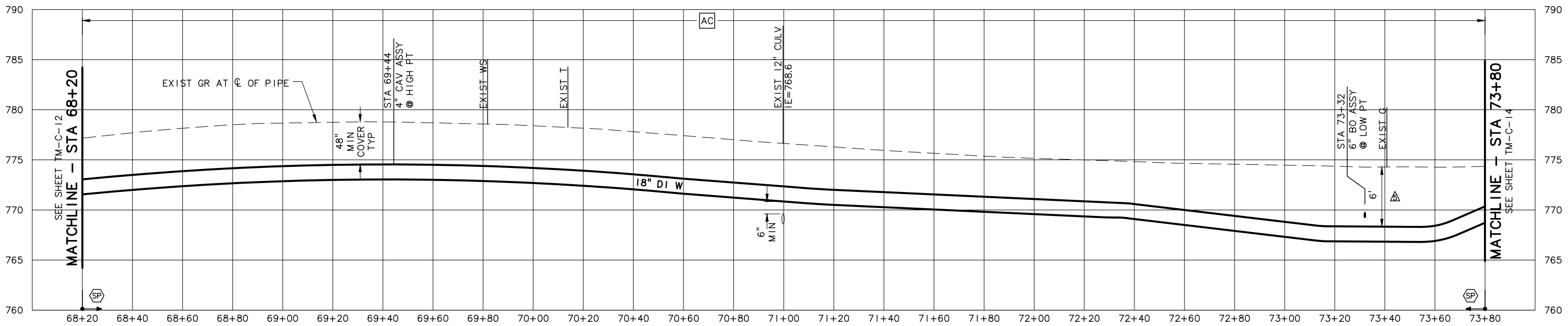
SHEET
TM-C-12
 29 of 123

C:\PDX_Projects\111265-OR-C13-C25-R.dwg, TM-C-13 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 68+20 TO STA 73+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

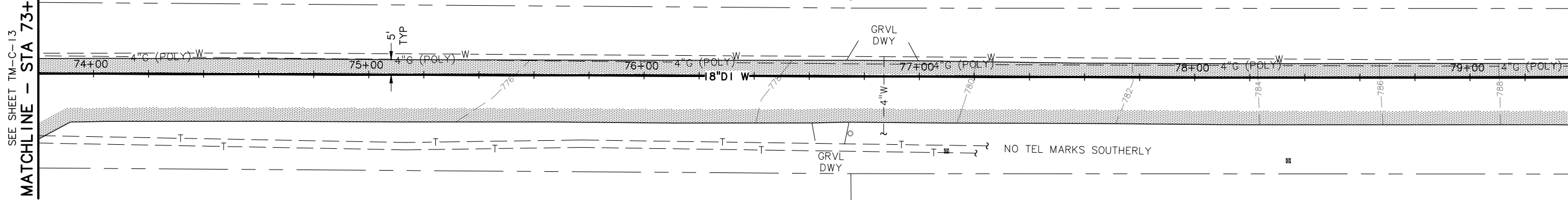
SHEET
TM-C-13
30 of 123

C:\PDX_Projects\11\1265-OR-C13-C25-R.dwg TM-C-14 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)

SEE SHEET TM-C-13
MATCHLINE - STA 73+80

MATCHLINE - STA 79+40
SEE SHEET TM-C-15

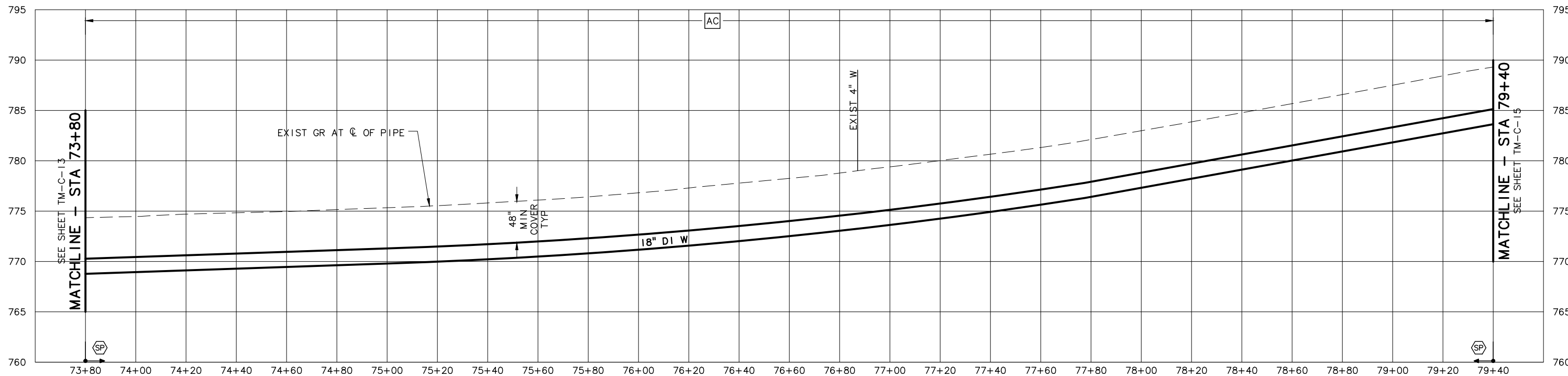
SE BLUFF RD



PLAN
SCALE: 1"=20'

NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

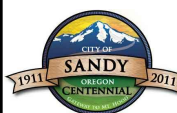
NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



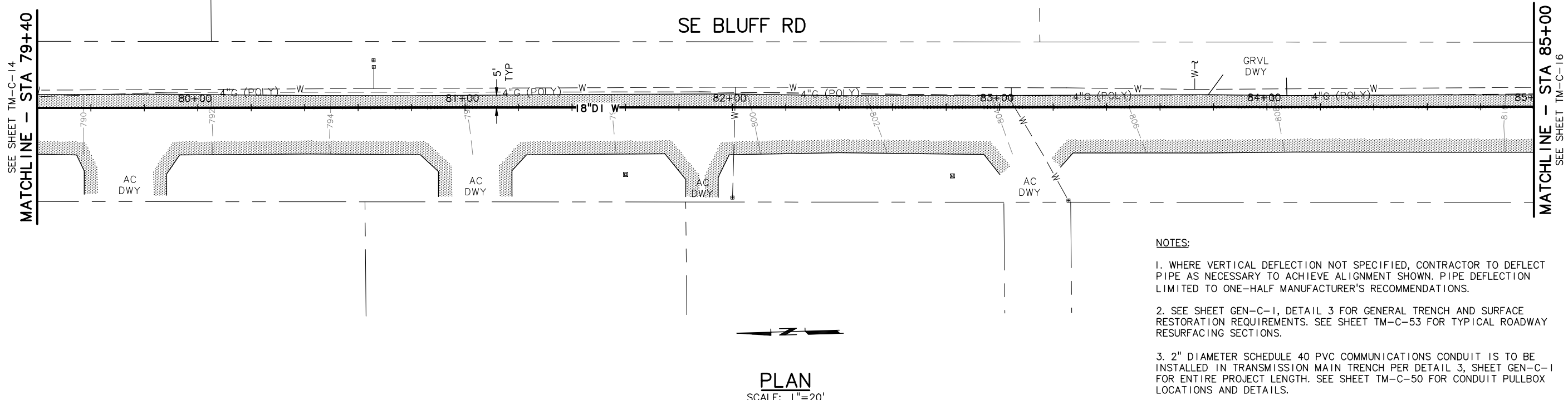
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 73+80 TO STA 79+40

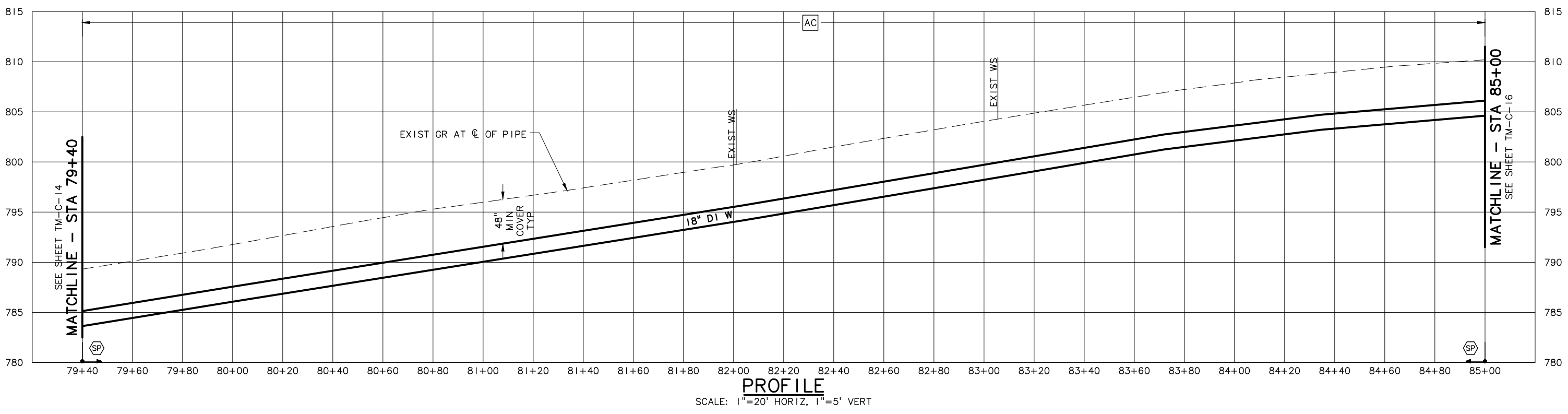
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-14
31 of 123

C:\PDX_Projects\11\1265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C13-C25-R.dwg TM-C-15 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

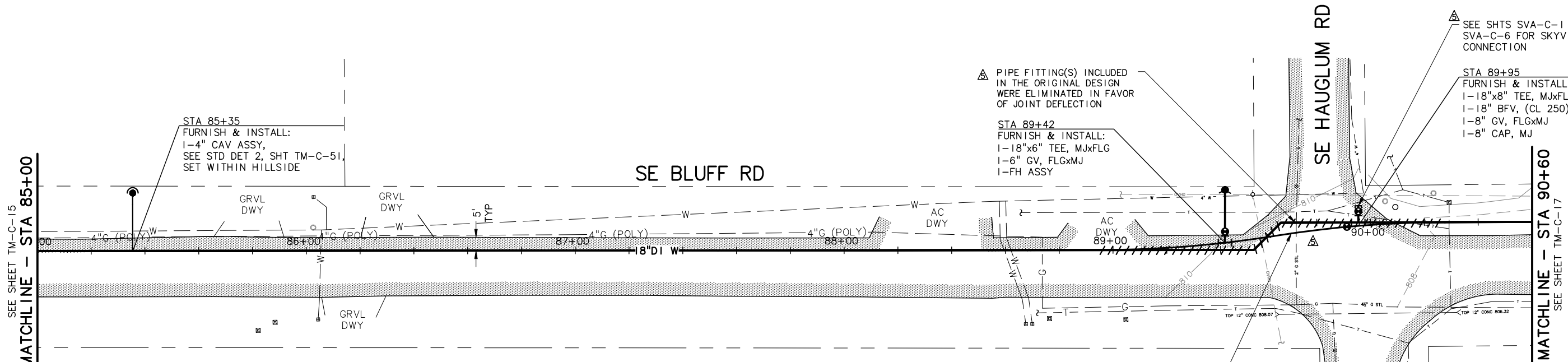
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 79+40 TO STA 85+00**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-15
32 of 123

C:\PDX_Projects\11\1265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C13-C25-R.dwg, TM-C-16 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

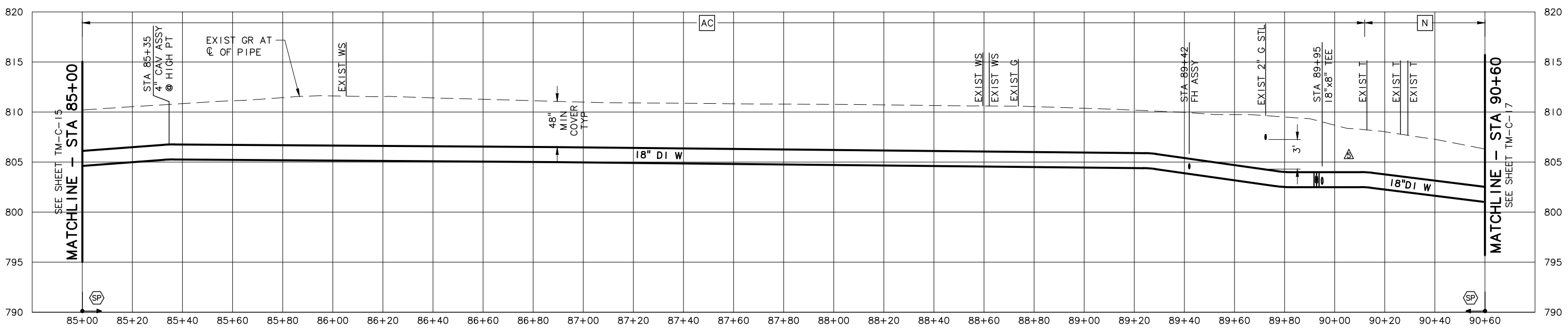
FOR A DISTANCE OF 10' EA SIDE OF STL GAS LINE, ENCASE TRANSMISSION MAIN W/ 8 MIL POLYETHYLENE, INSTALL A 12 MIL HECULINER BARRIER FOR A DISTANCE OF 10' ON EA SIDE OF STL GAS LINE AND INSTALL A RIBBON ANODE BETW THE BARRIER AND THE PIPE; CONNECT ENDS OF ANODE TO PIPE; SEE DETAILS, SHT-TM-C-52

3' OF VERTICAL SEPARATION EXISTS BETWEEN 18" DI W AND 2" STL G TO ELIMINATE NEED FOR RIBBON ANODE AND TEST STATION. INSTALLATION DOES INCLUDE POLYETHYLENE WRAP AND HECULINER 10' EACH SIDE OF CROSSING.



PLAN

SCALE: 1"=20'



PROFILE

SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

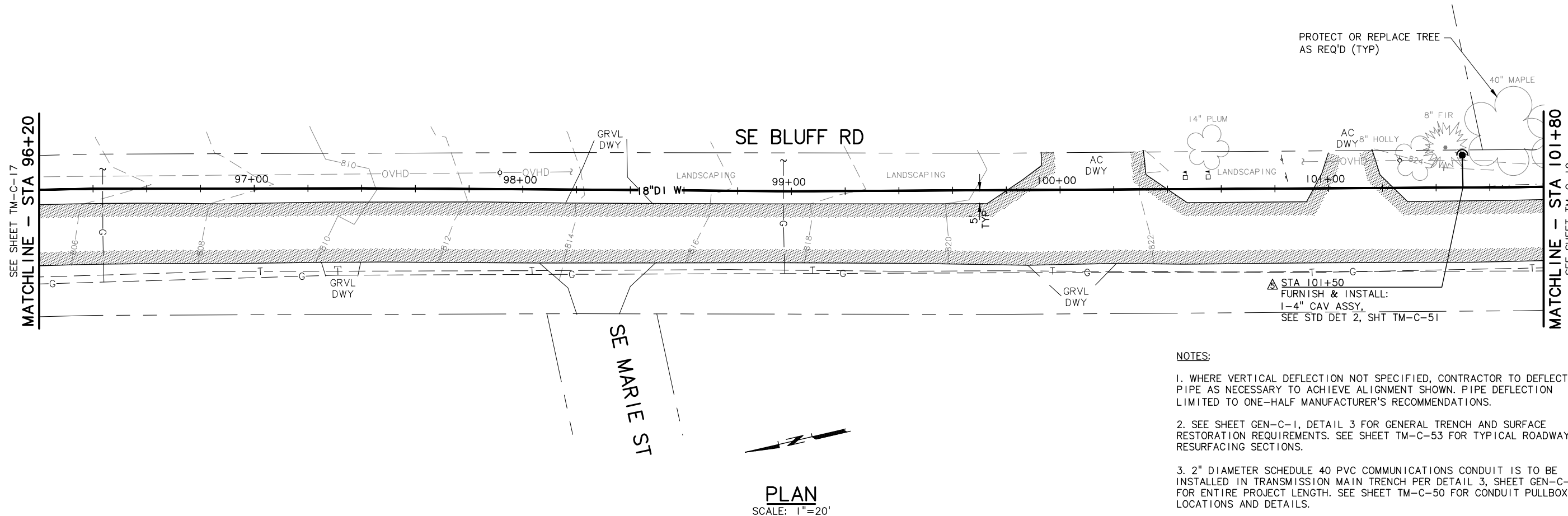
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 85+00 TO STA 90+60**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

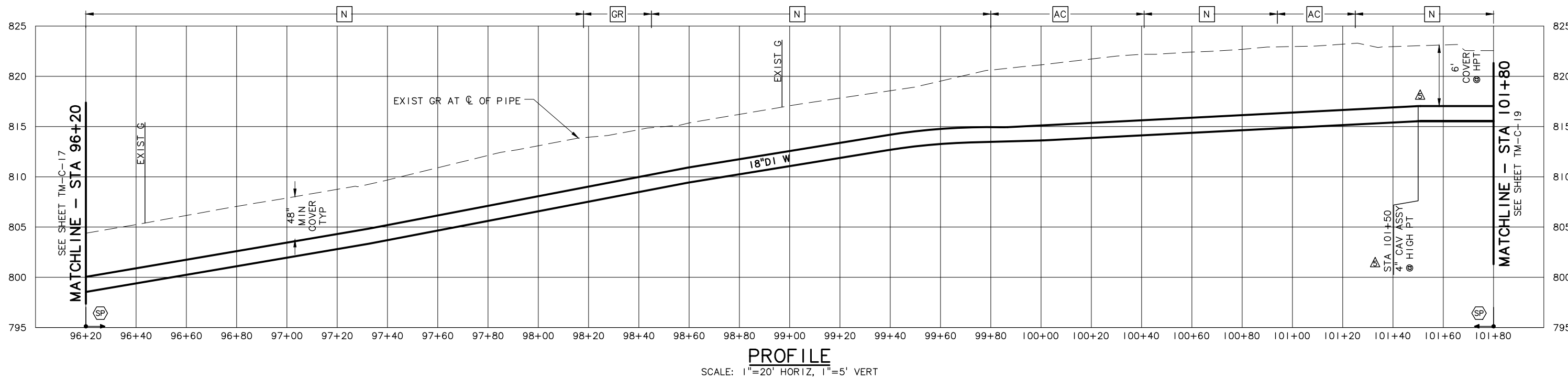
SHEET
TM-C-16
33 of 123

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C13-C25-R.dwg TM-C-18 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

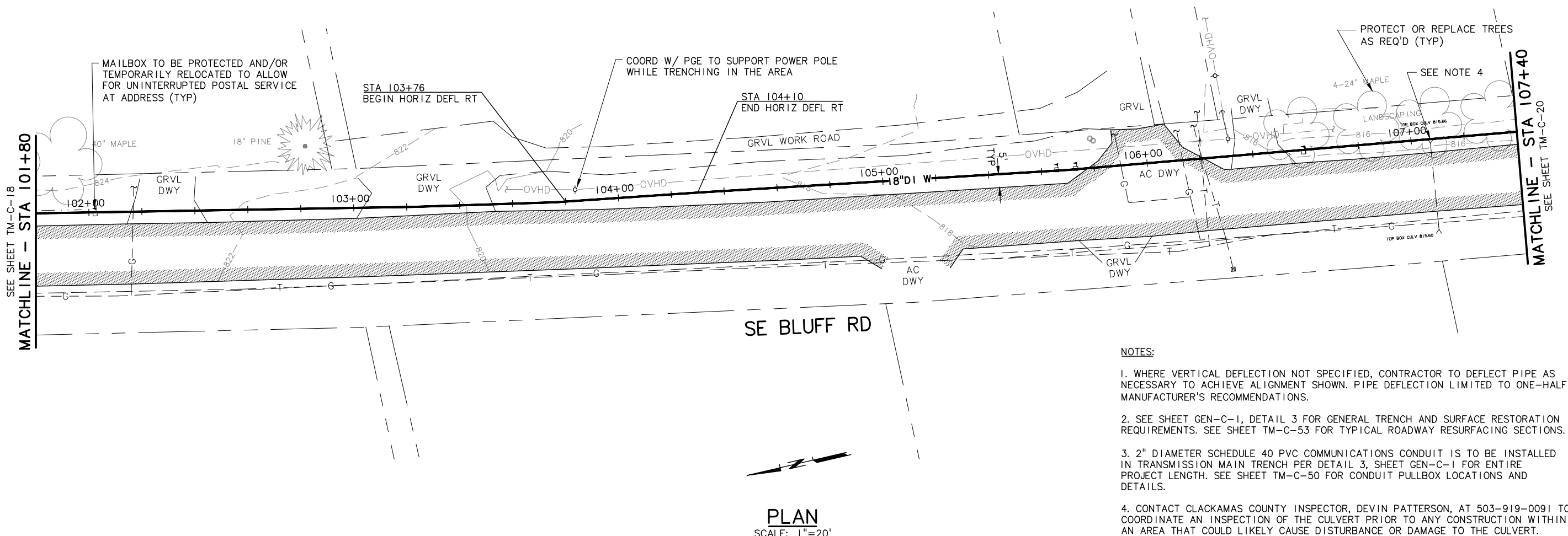
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 96+20 TO STA 101+80

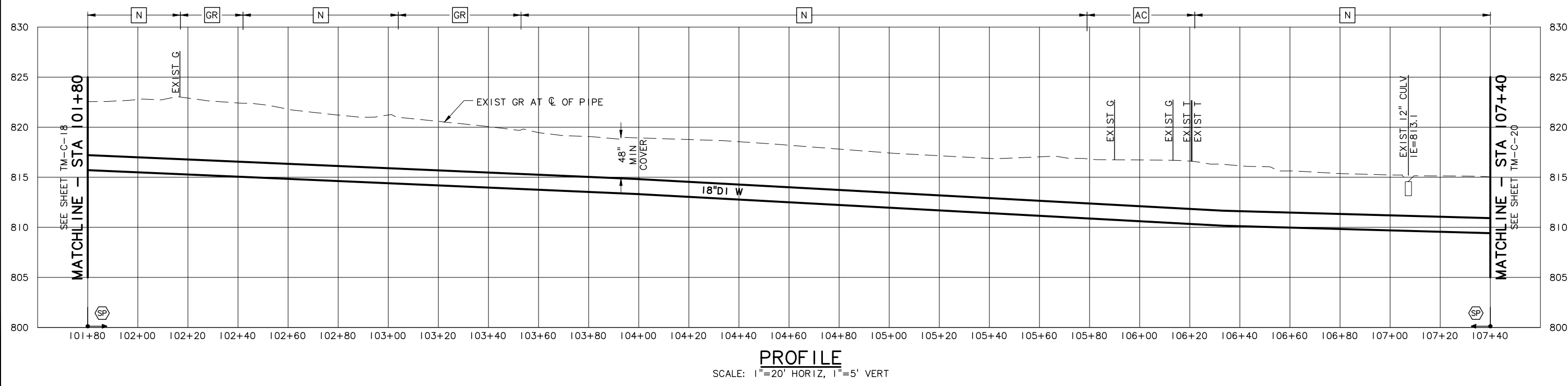
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-18
35 of 123

C:\PDX_Projects\11\1265-OR-C13-C25-R.dwg TM-C-19 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
 - CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
 JHF DRAWN
 MLH CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

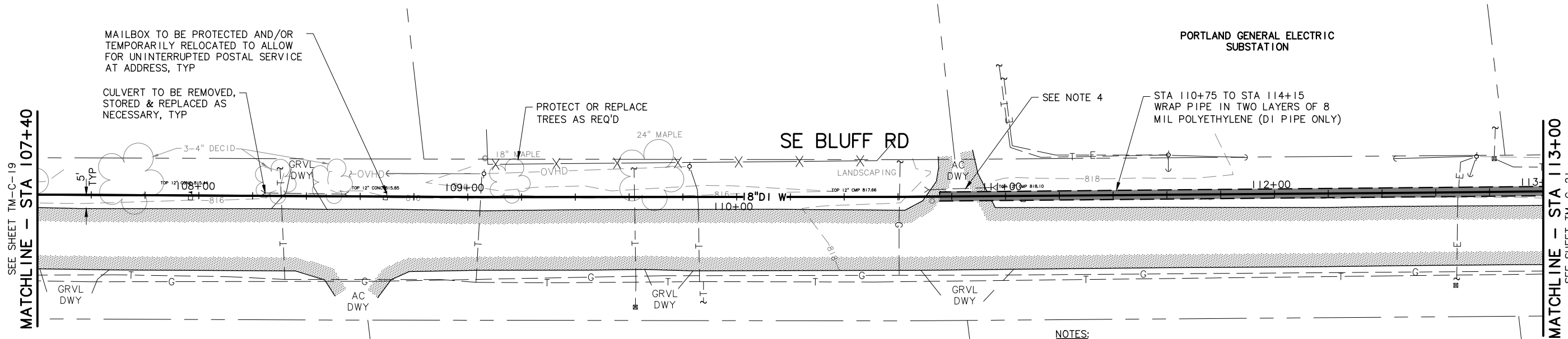
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 101+80 TO STA 107+40

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-19
 36 of 123

C:\PDX_Projects\11\1265\OR-C13-C25-R.dwg TM-C-20 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)

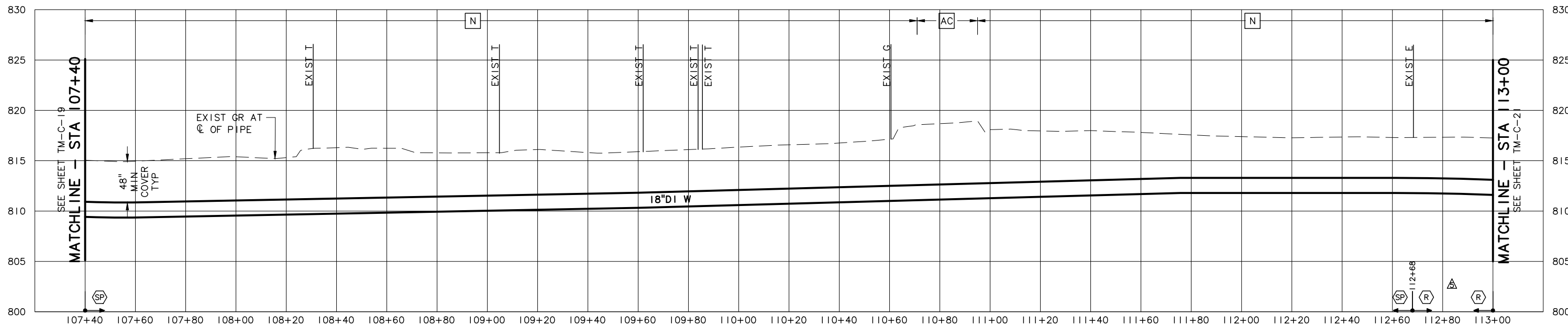


NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.

PLAN

SCALE: 1"=20'



PROFILE

SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
 DESIGNED
 JHF
 DRAWN
 MLH
 CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022



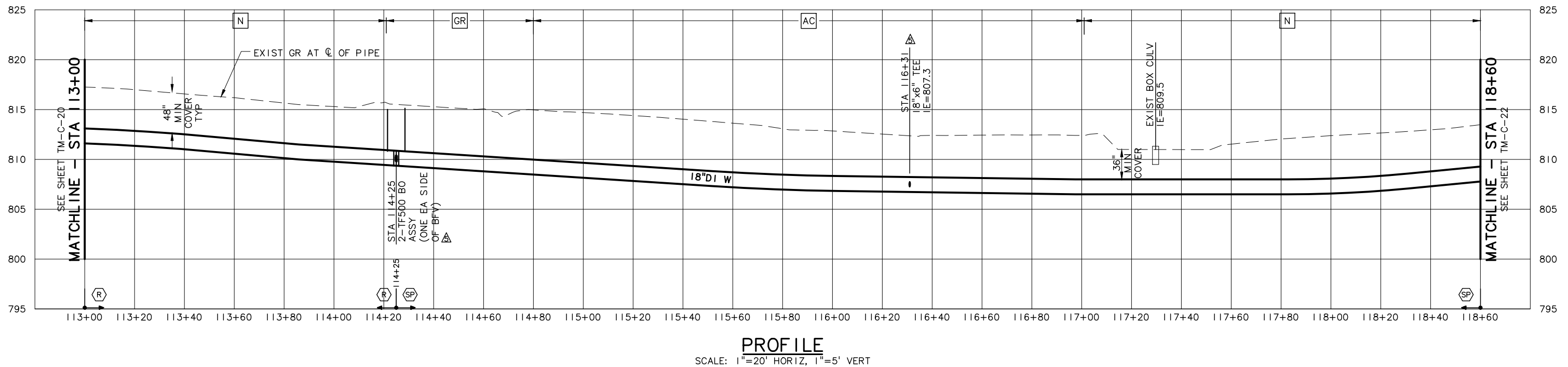
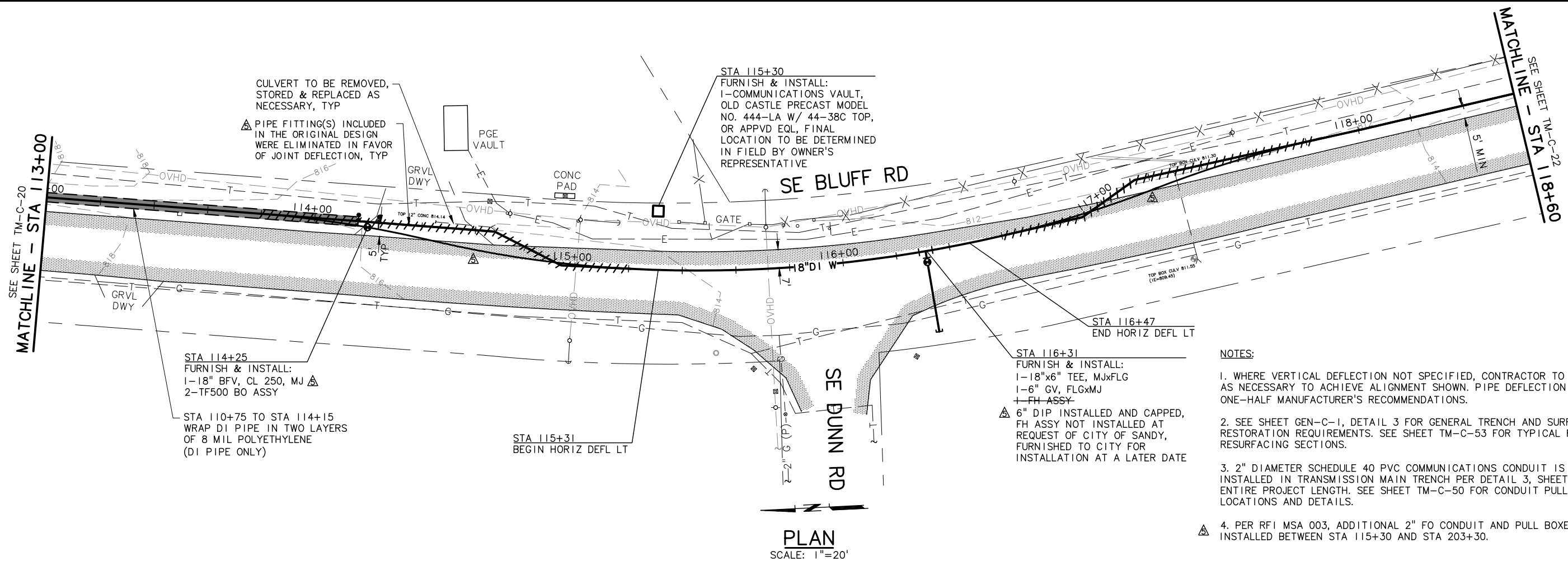
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 107+40 TO STA 113+00

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-20
 37 of 123

C:\PDX_Projects\111265\OR-C13-C25-R.dwg, TM-C-21, 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

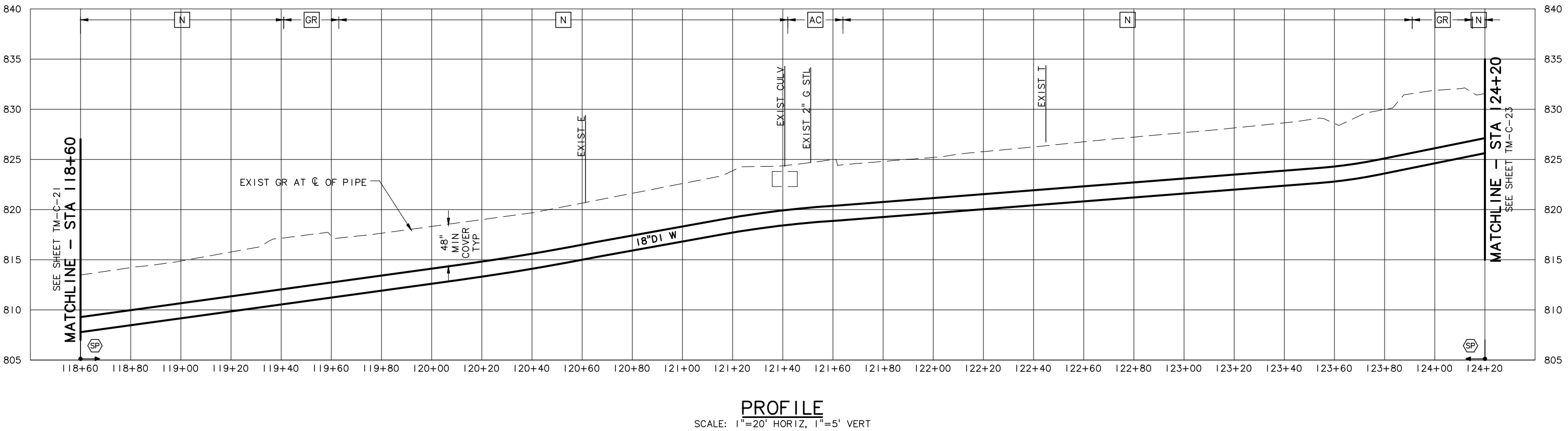
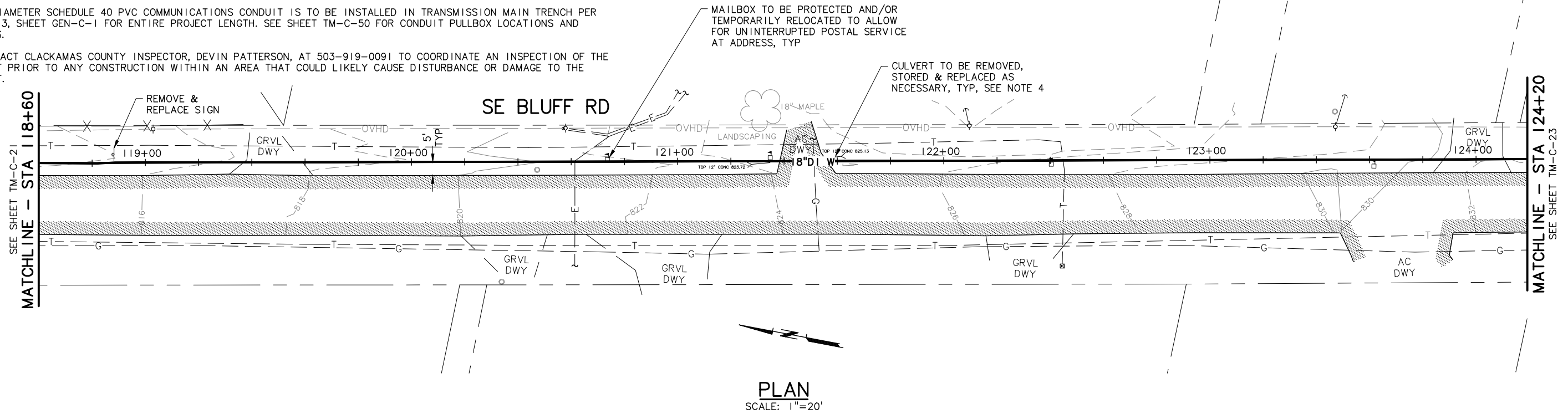
TRANSMISSION MAIN
PLAN AND PROFILE
STA 113+00 TO STA 118+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-21
38 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
- CONTACT CLACKAMAS COUNTY INSPECTOR, DEVIN PATTERSON, AT 503-919-0091 TO COORDINATE AN INSPECTION OF THE CULVERT PRIOR TO ANY CONSTRUCTION WITHIN AN AREA THAT COULD LIKELY CAUSE DISTURBANCE OR DAMAGE TO THE CULVERT.



G:\PDX_Projects\11265\CAD\DRS\SHEETS\SCHED A\11-1265-OR-C13-C25-R.dwg TM-C-22 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

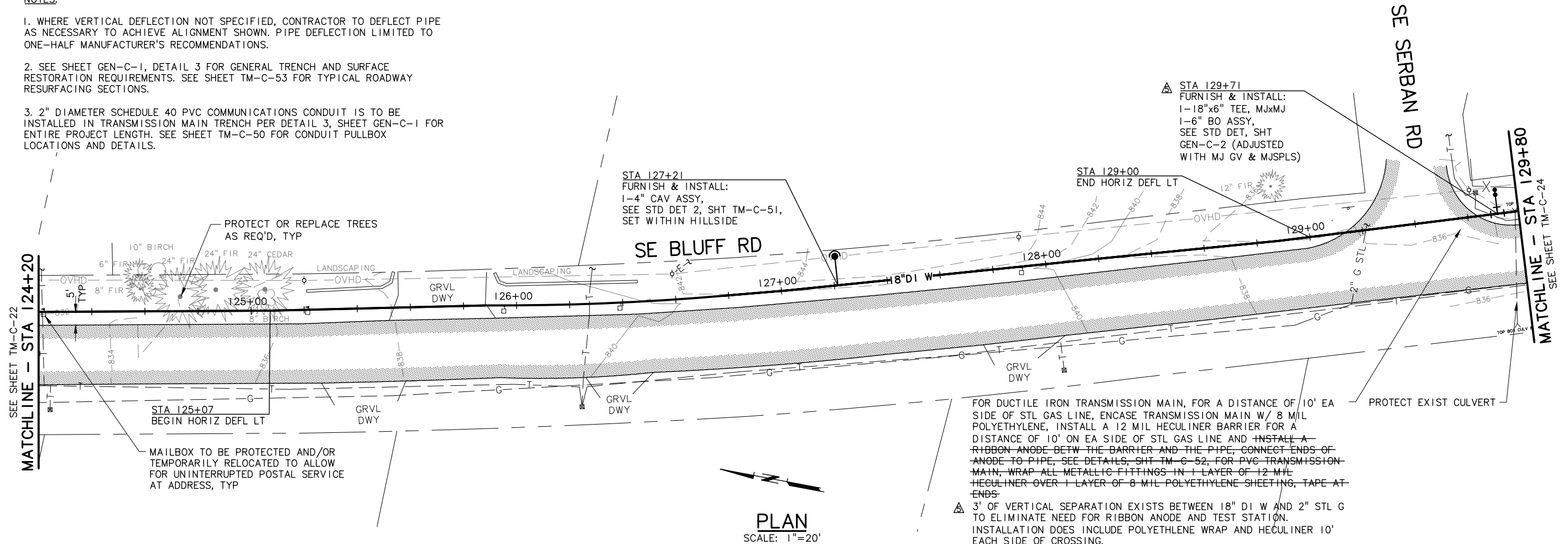
TRANSMISSION MAIN
PLAN AND PROFILE
STA 118+60 TO STA 124+20

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

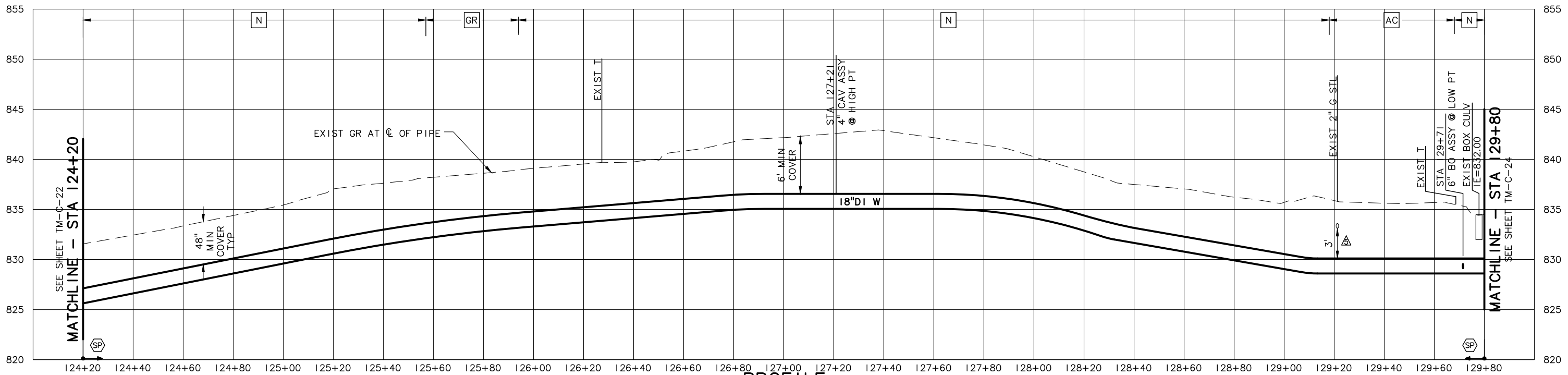
SHEET
TM-C-22
39 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

G:\PDX_Projects\11\1265\OR-C13-C25-R.dwg TM-C-23 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE	0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
LLA DESIGNED	JHF DRAWN
MLH CHECKED	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

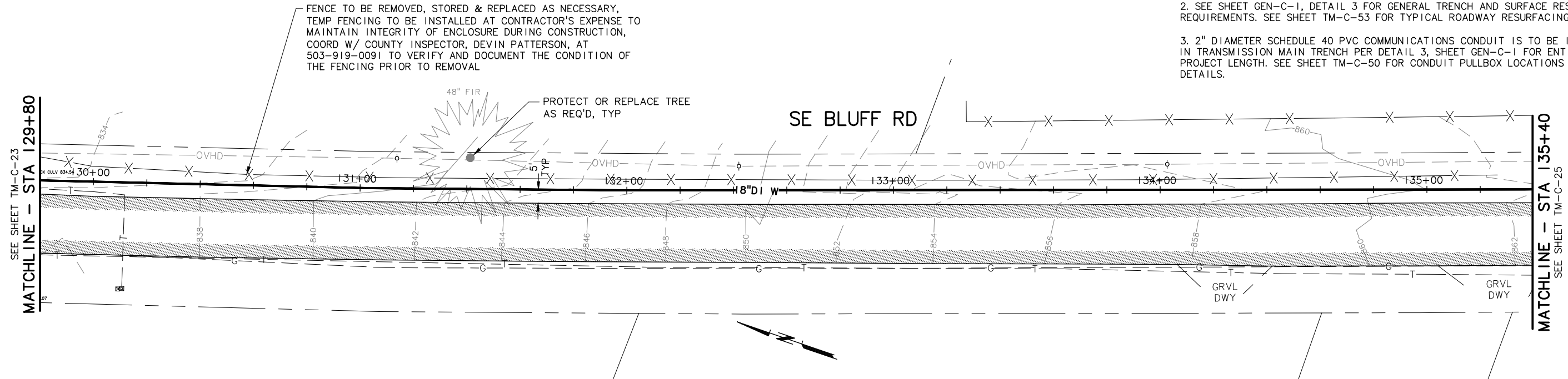
TRANSMISSION MAIN
PLAN AND PROFILE
STA 124+20 TO STA 129+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

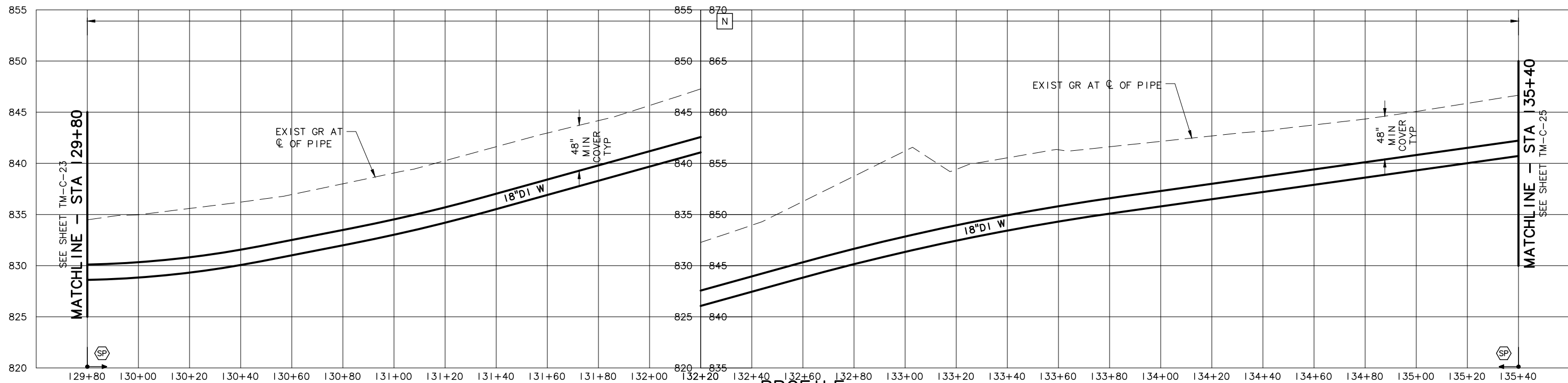
SHEET
TM-C-23
40 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11\1265\OR-C13-C25-R.dwg TM-C-24 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

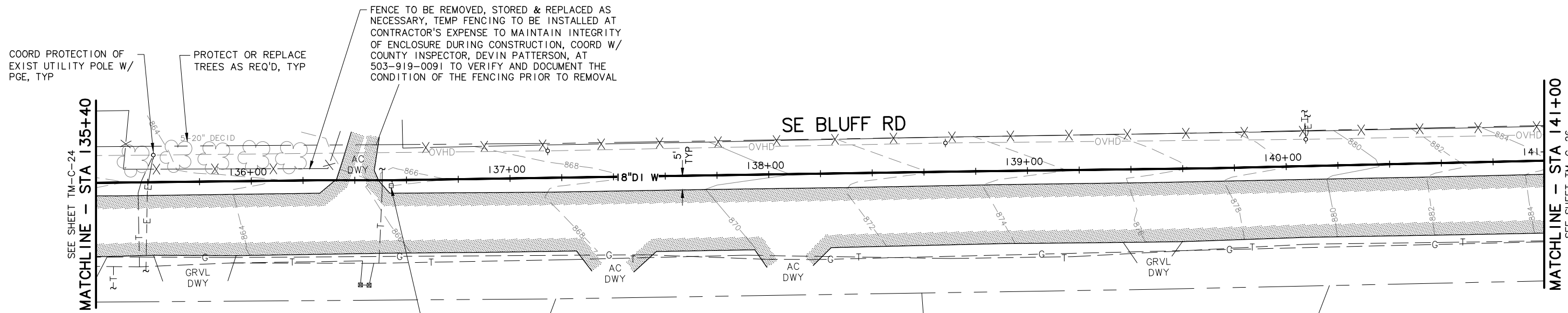
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 129+80 TO STA 135+40

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

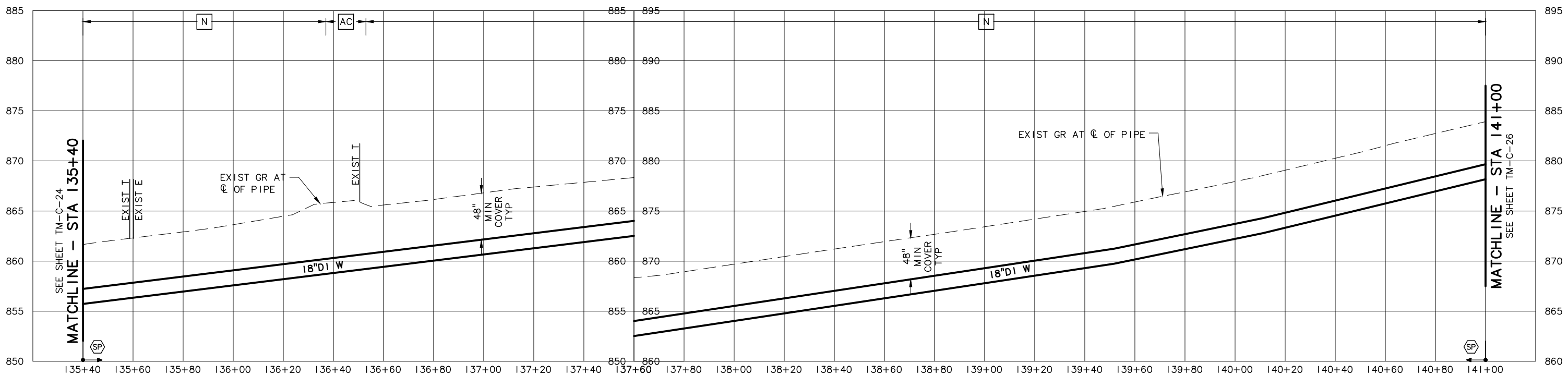
SHEET
TM-C-24
41 of 123

C:\PDX_Projects\11\1265\OR-C13-C25-R.dwg TM-C-25 11/18/2014 4:42 PM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

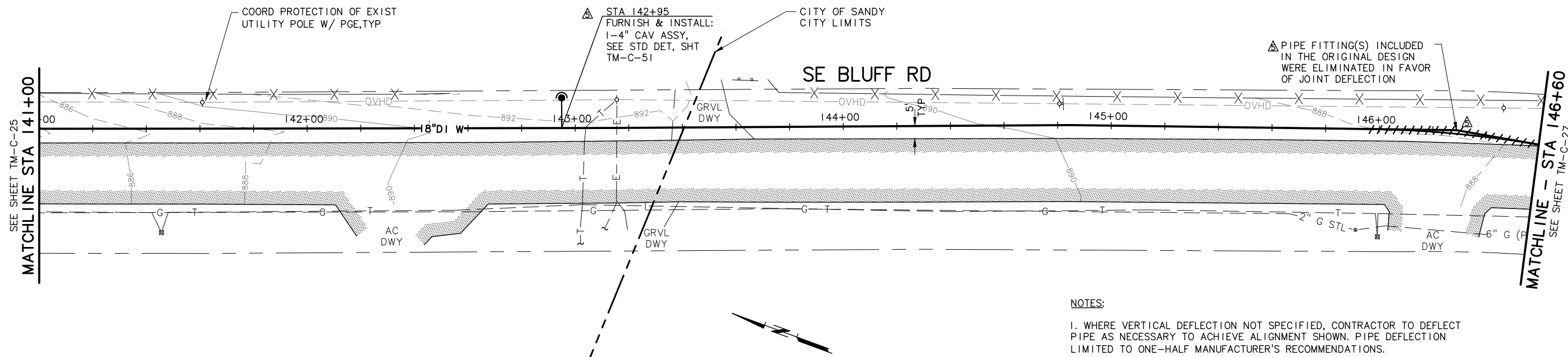
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 135+40 TO STA 141+00

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-25
42 of 123

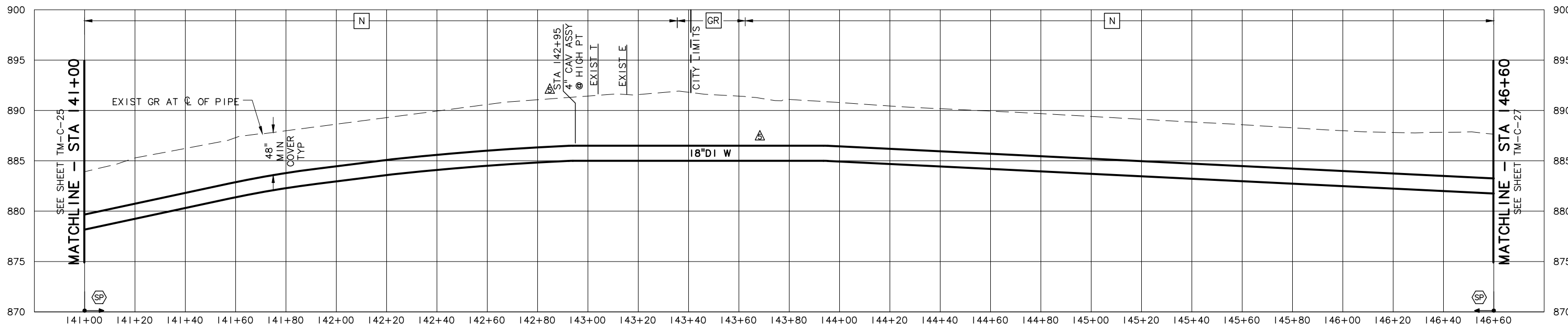
C:\PDX_Projects\11265\CAD\DRS\SCHEDULE A\11-1265-OR-C26-C38-R.dwg TM-C-26 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

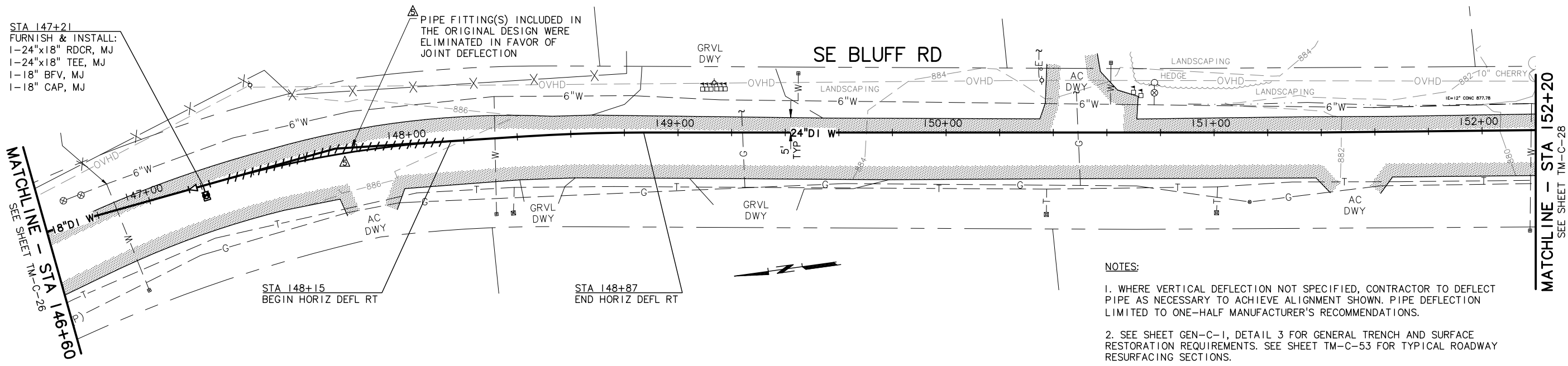


CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 141+00 TO STA 146+60
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

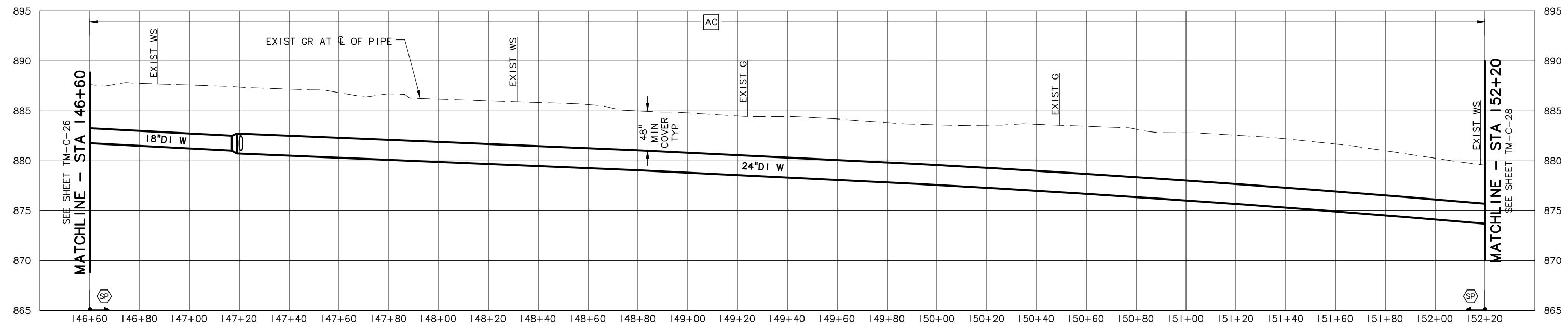
SHEET
TM-C-26
43 of 123

C:\PDX_Projects\11\1265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C26-C38-R.dwg TM-C-27 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 146+60 TO STA 152+20

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-27
44 of 123

NOTES:

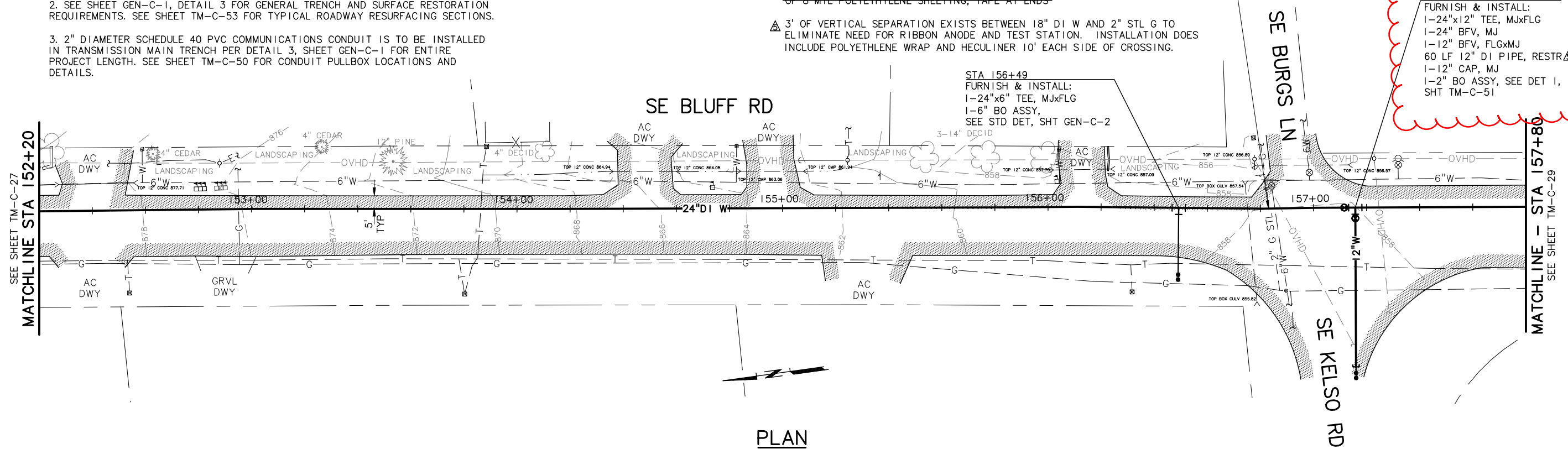
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

FOR DUCTILE IRON TRANSMISSION MAIN, FOR A DISTANCE OF 10' EA SIDE OF STL GAS LINE, ENCASE TRANSMISSION MAIN W/ 8 MIL POLYETHYLENE, INSTALL A 12 MIL HECULINER BARRIER FOR A DISTANCE OF 10' ON EA SIDE OF STL GAS LINE AND INSTALL A RIBBON ANODE BETW THE BARRIER AND THE PIPE, CONNECT ENDS OF ANODE TO PIPE, SEE DETAILS, SHT TM-C-52, FOR PVC TRANSMISSION MAIN, WRAP ALL METALLIC FITTINGS IN 1 LAYER OF 12 MIL HECULINER OVER 1 LAYER OF 8 MIL POLYETHYLENE SHEETING, TAPE AT ENDS.

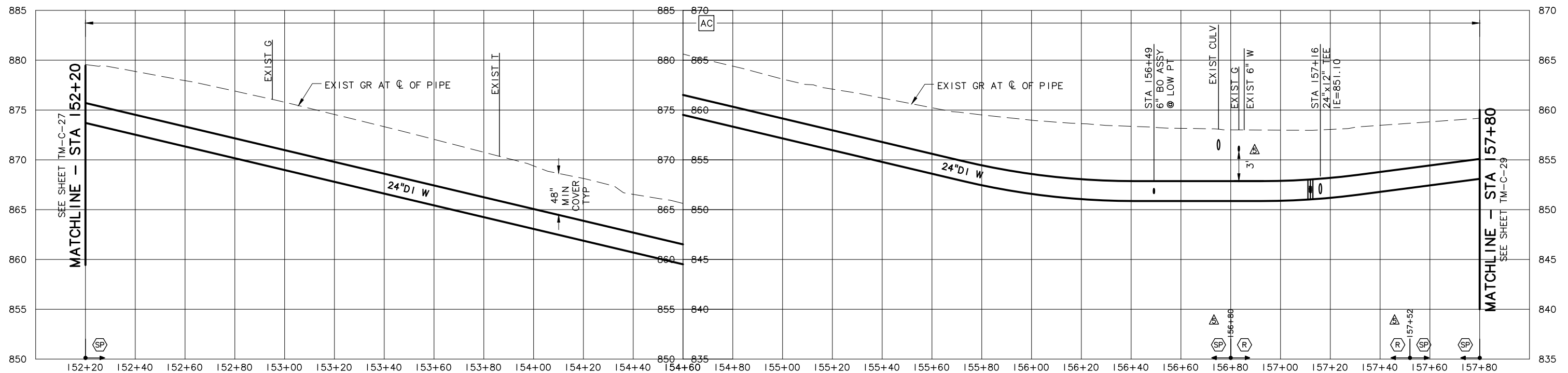
▲ 3' OF VERTICAL SEPARATION EXISTS BETWEEN 18" DI W AND 2" STL G TO ELIMINATE NEED FOR RIBBON ANODE AND TEST STATION. INSTALLATION DOES INCLUDE POLYETHYLENE WRAP AND HECULINER 10' EACH SIDE OF CROSSING.

STA 157+16
 FURNISH & INSTALL:
 1-24"x12" TEE, MJxFLG
 1-24" BFV, MJ
 1-12" BFV, FLGxMJ
 60 LF 12" DI PIPE, RESTR
 1-12" CAP, MJ
 1-2" BO ASSY, SEE DET 1,
 SHT TM-C-51

STA 156+49
 FURNISH & INSTALL:
 1-24"x6" TEE, MJxFLG
 1-6" BO ASSY,
 SEE STD DET, SHT GEN-C-2



PLAN
 SCALE: 1"=20'



PROFILE
 SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11\1265\OR-C26-C38-R.dwg TM-C-28 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
 JHF DRAWN
 MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
 PWB INTERTIE PROJECT
 SCHEDULE A
 TRANSMISSION MAIN

TRANSMISSION MAIN
 PLAN AND PROFILE
 STA 152+20 TO STA 157+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

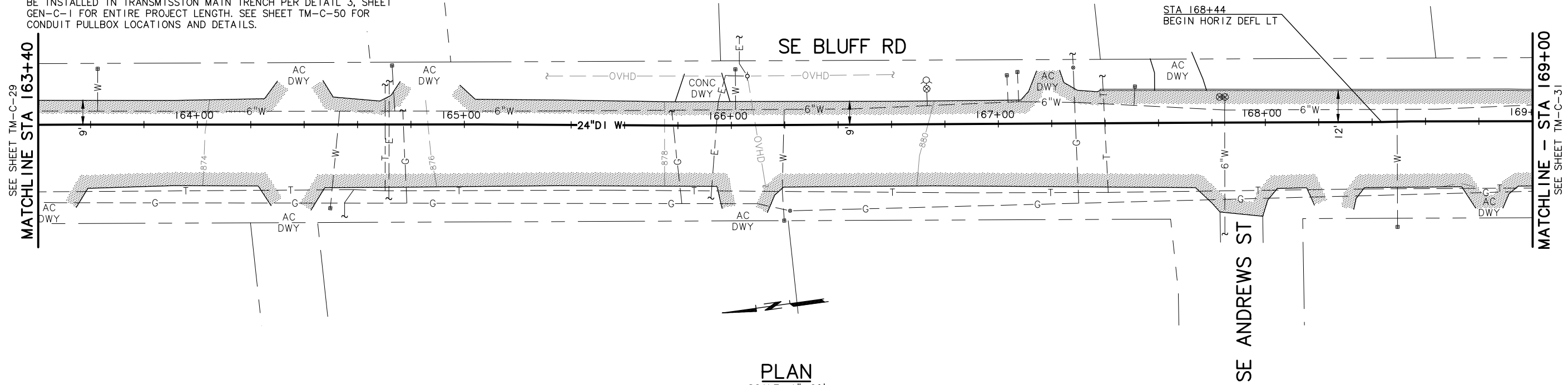
SHEET
TM-C-28
 45 of 123

NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.

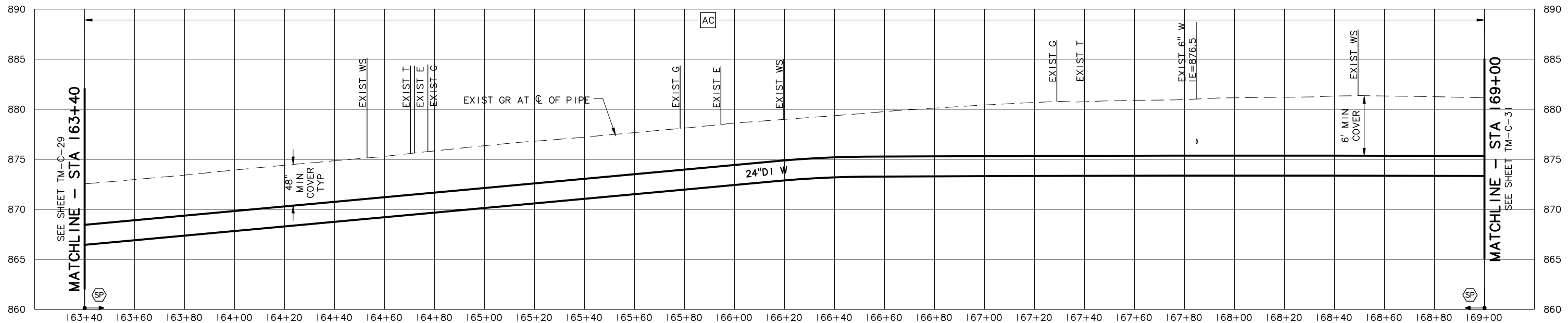
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.

3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN

SCALE: 1"=20'



PROFILE

SCALE: 1"=20' HORIZ, 1"=5' VERT

G:\PDX_Projects\11\1265-OR-C26-C38-R.dwg TM-C-30 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
 DESIGNED
 JHF
 DRAWN
 MLH
 CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

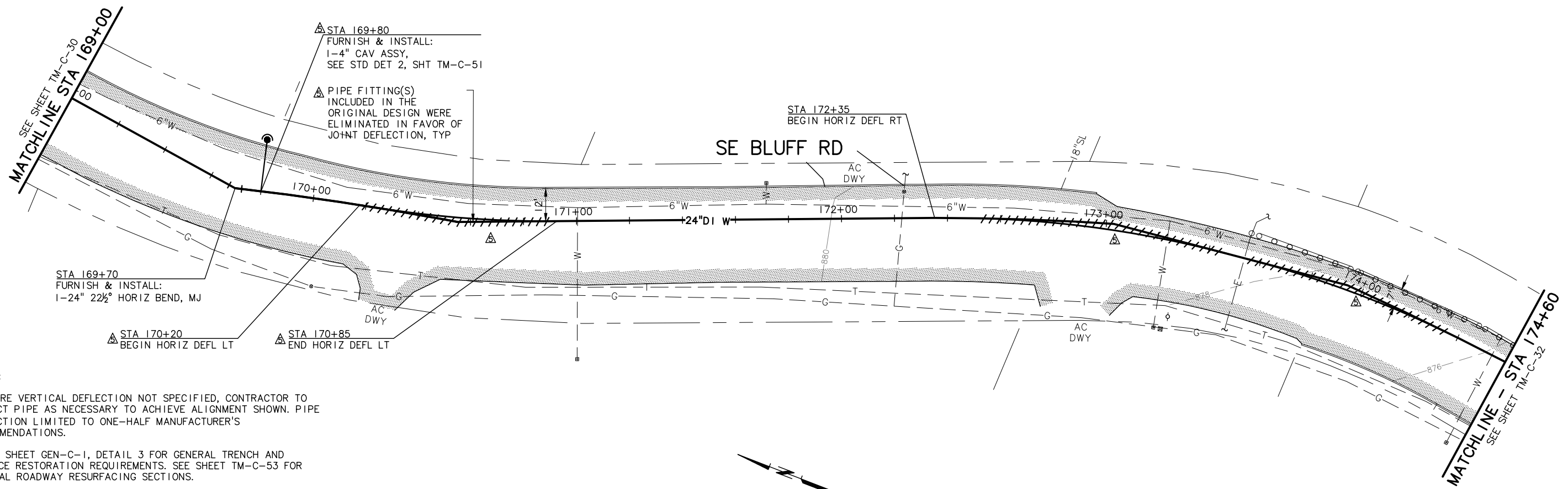
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 163+40 TO STA 169+00

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-30
 47 of 123

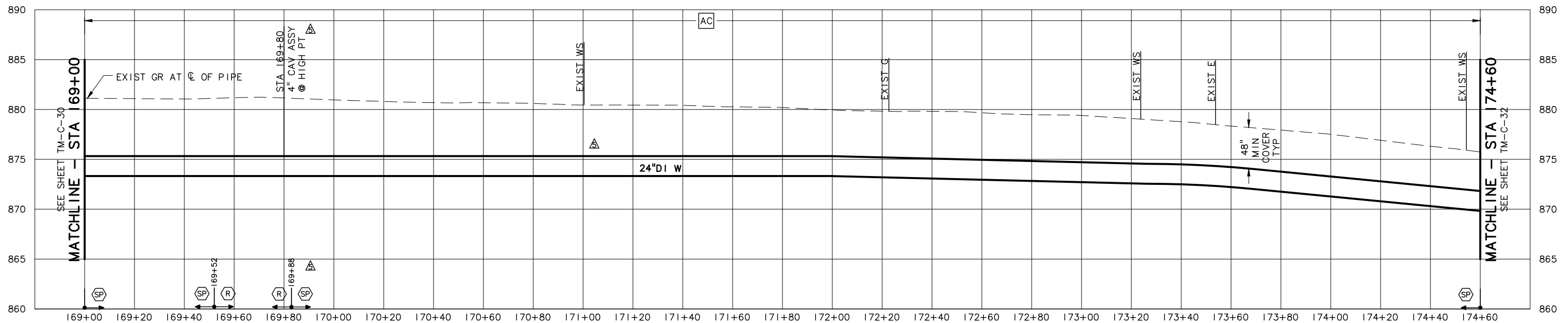
C:\PDX_Projects\11\1265\CAD\DRS\DRS\SCHED A\11-1265-OR-C26-C38-R.dwg TM-C-31 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

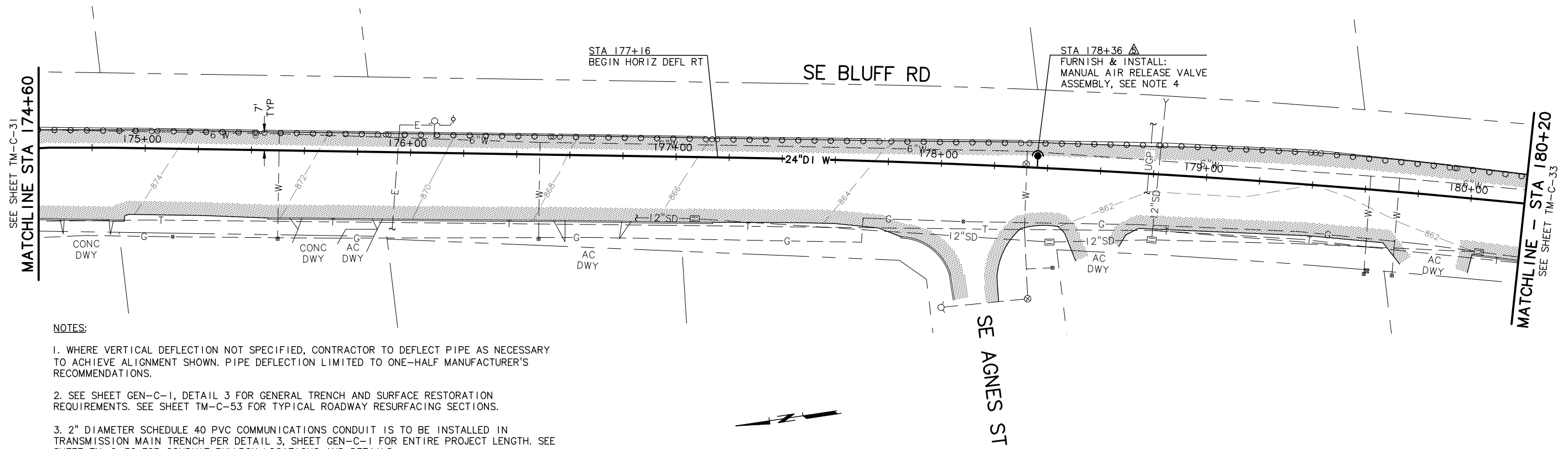
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 169+00 TO STA 174+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-31
48 of 123

G:\PDX_Projects\11265\OR-C26-C38-R.dwg TM-C-32 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)

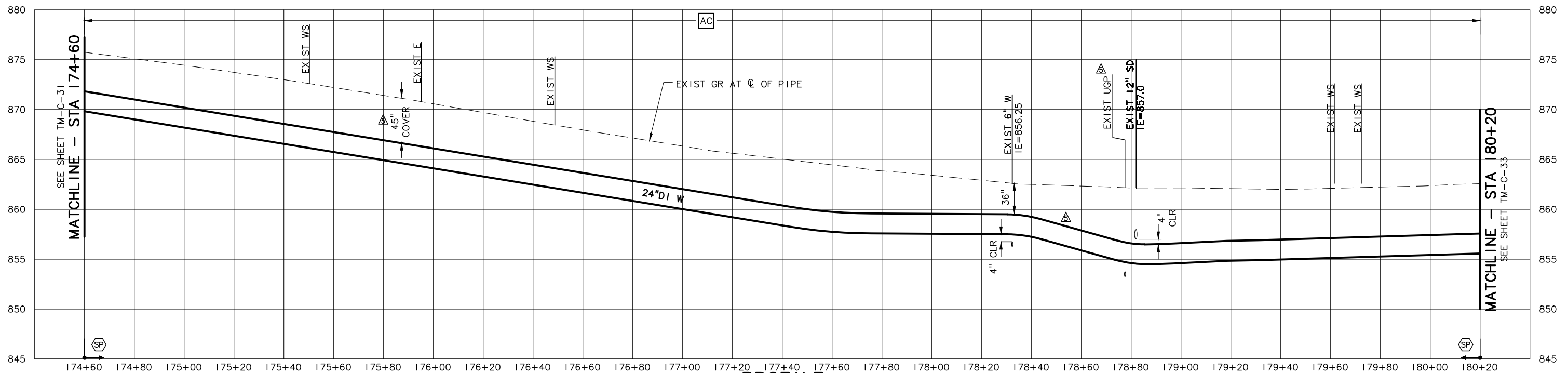


NOTES:

1. WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
2. SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
3. 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
4. PER REQUEST FOR INFORMATION 17, MANUAL AIR RELEASE VALVE ASSEMBLY CONSISTS OF 3/4" CORP STOP, 3/4" GALVANIZED STEEL PIPING, AND 3/4" THREAD GATE VALVE WITHIN VALVE BOX AND RISER AS SHOWN ON STD DWG NO. 205, SHEET GEN-C-1.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

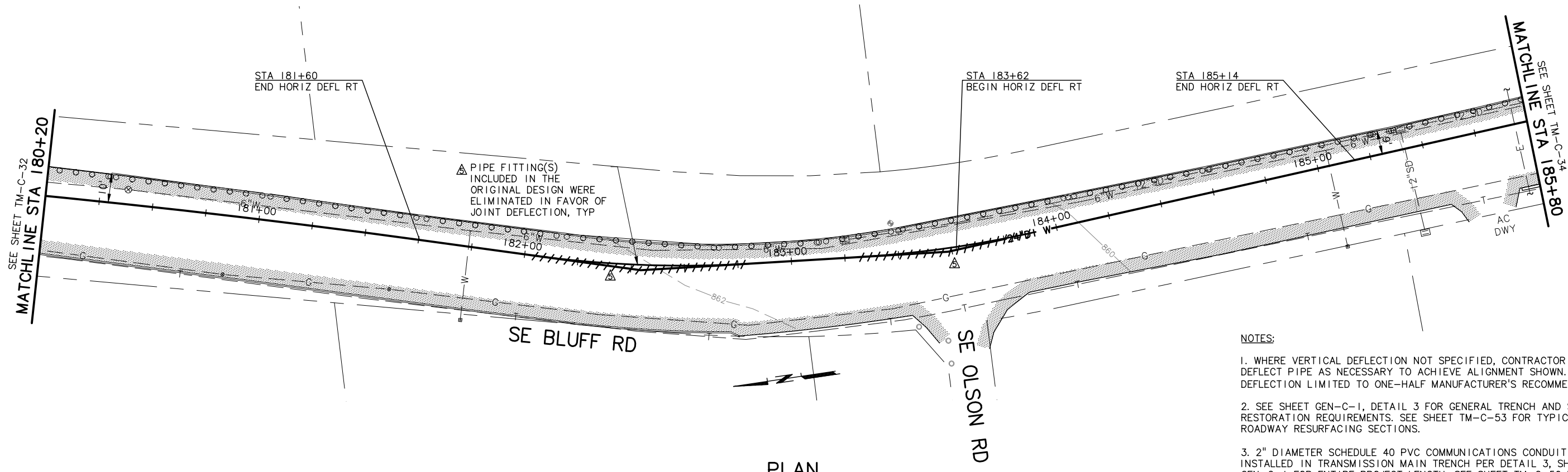
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
PLAN AND PROFILE
STA 174+60 TO STA 180+20**

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

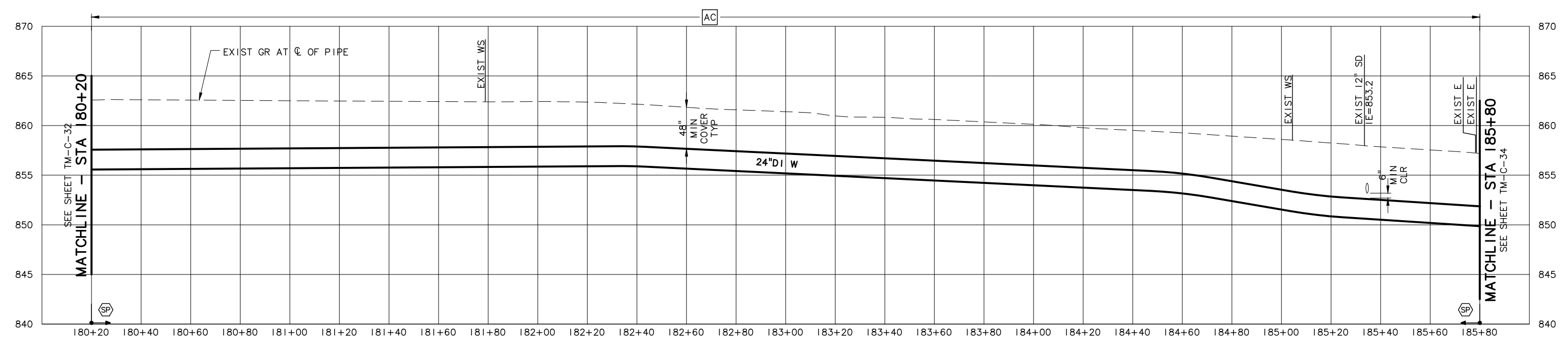
SHEET
TM-C-32
49 of 123

C:\PDX_Projects\11265\CAD\DRS\PROJECTS\SCHED A\11-1265-OR-C26-C38-R.dwg TM-C-33 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

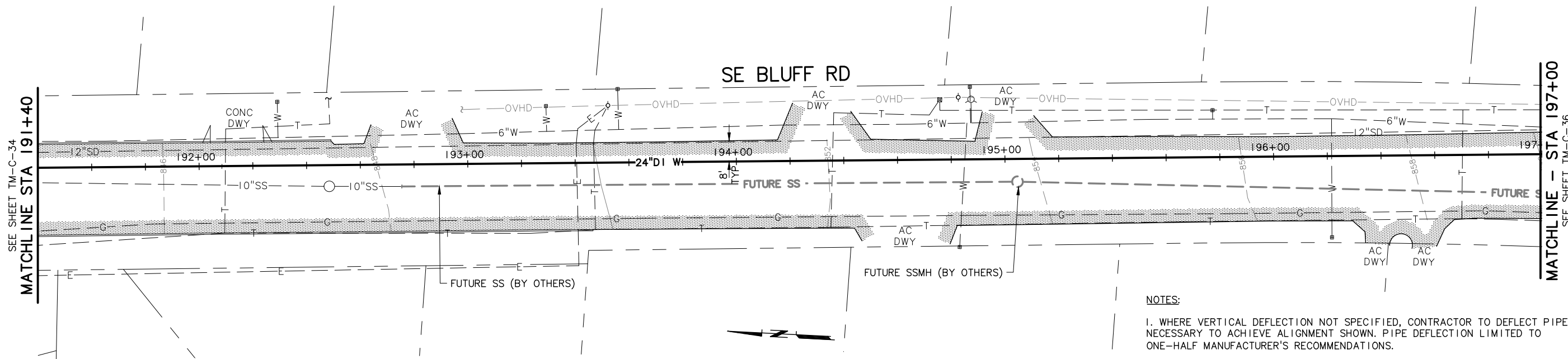
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 180+20 TO STA 185+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

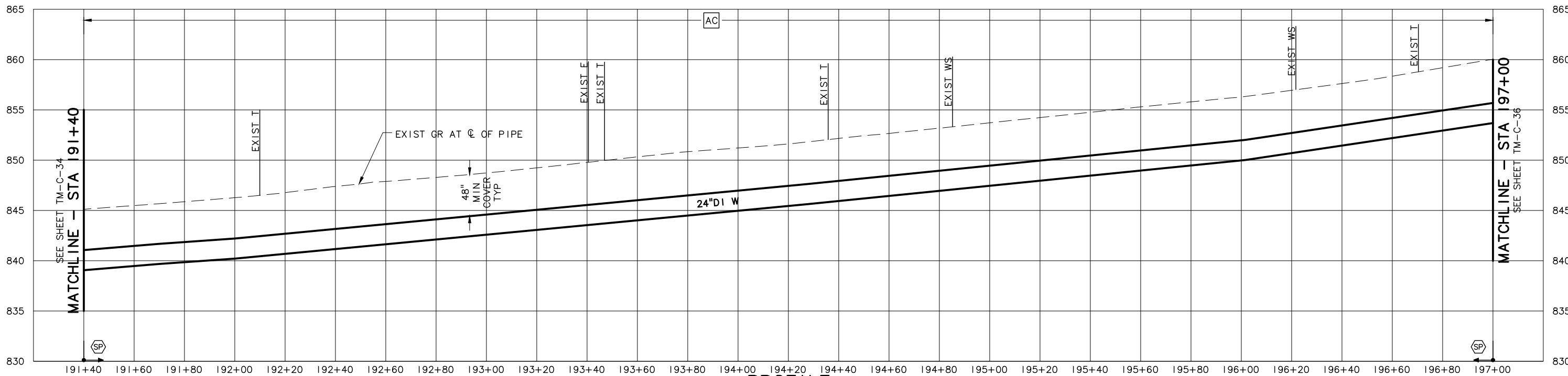
SHEET
TM-C-33
50 of 123

C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C26-C38-R.dwg TM-C-35 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 191+40 TO STA 197+00

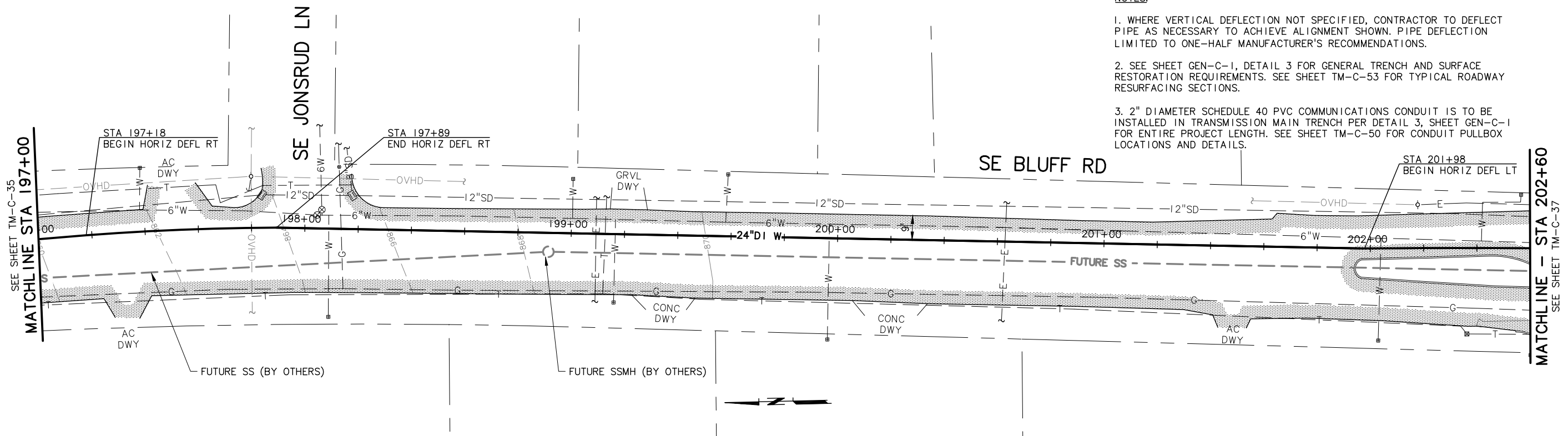
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-35
52 of 123

C:\PDX_Projects\11\1265\OR-C26-C38-R.dwg TM-C-36 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)

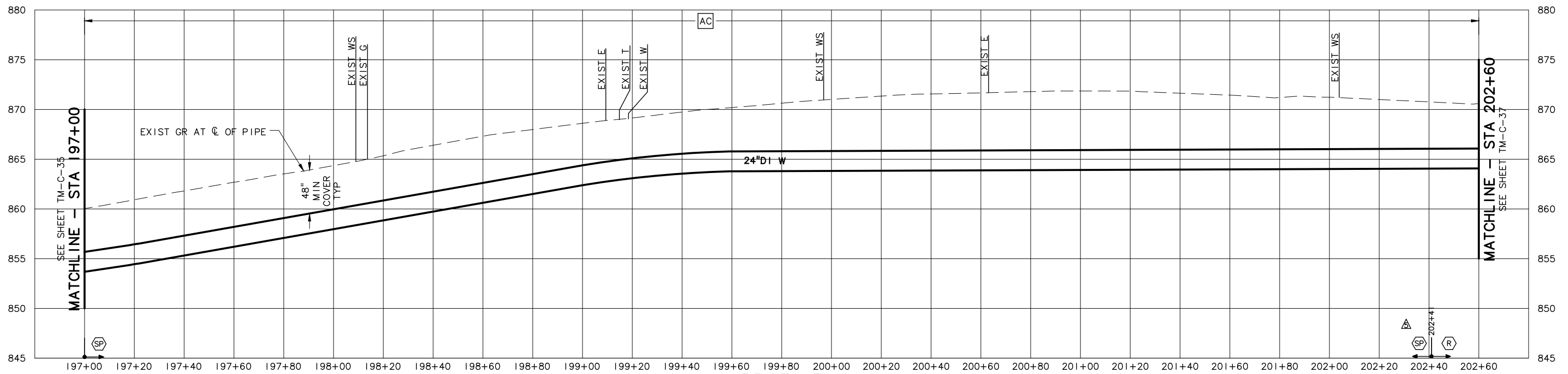
NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN

SCALE: 1"=20'



PROFILE

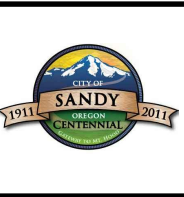
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
LLA	DESIGNED
JHF	DRAWN
MLH	CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

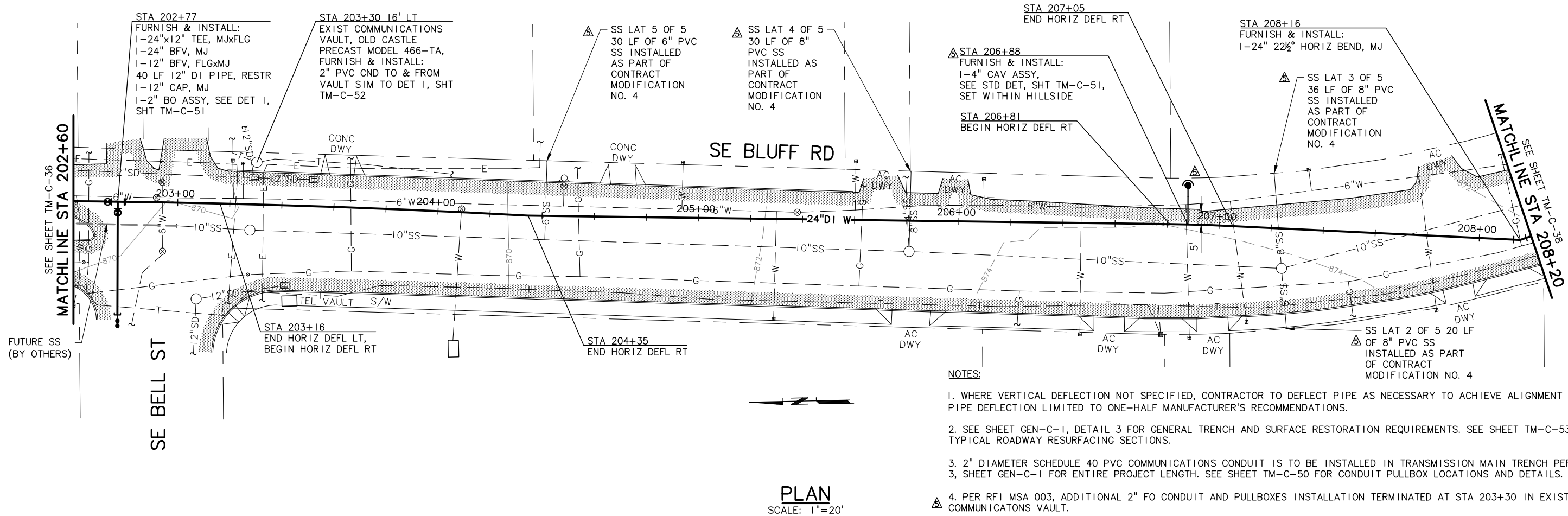


CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 197+00 TO STA 202+60
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

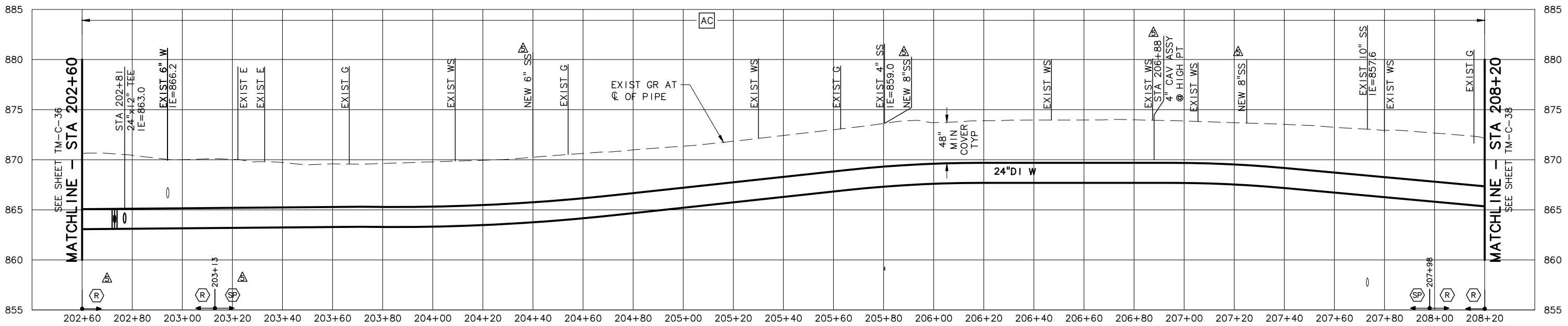
SHEET
TM-C-36
53 of 123

C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C26-C38-R.dwg, TM-C-37 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
 - PER RFI MSA 003, ADDITIONAL 2" FO CONDUIT AND PULLBOXES INSTALLATION TERMINATED AT STA 203+30 IN EXISTING COMMUNICATIONS VAULT.

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 202+60 TO STA 208+20

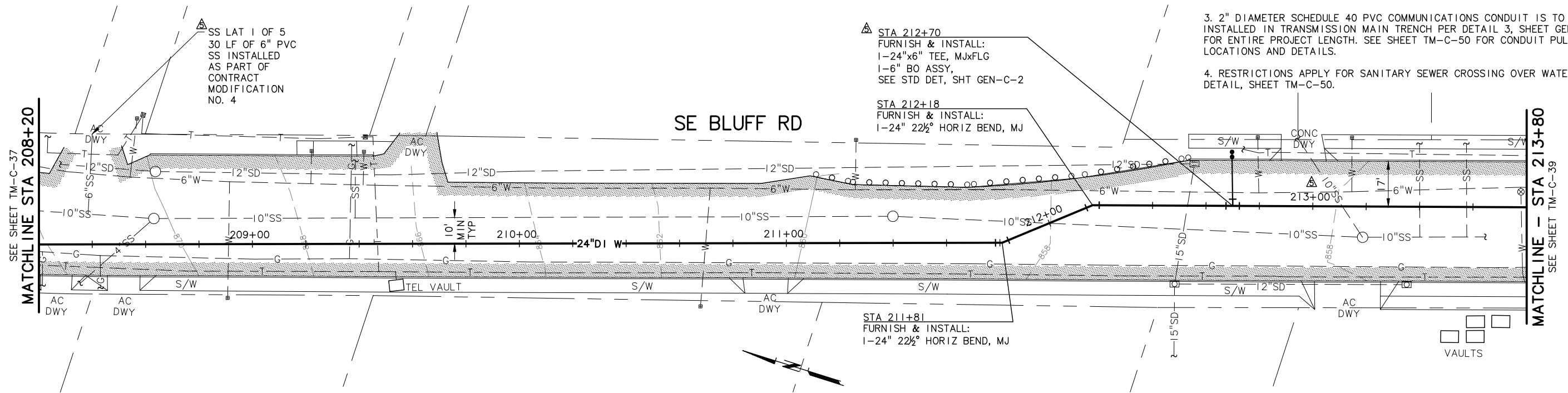
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-37
54 of 123

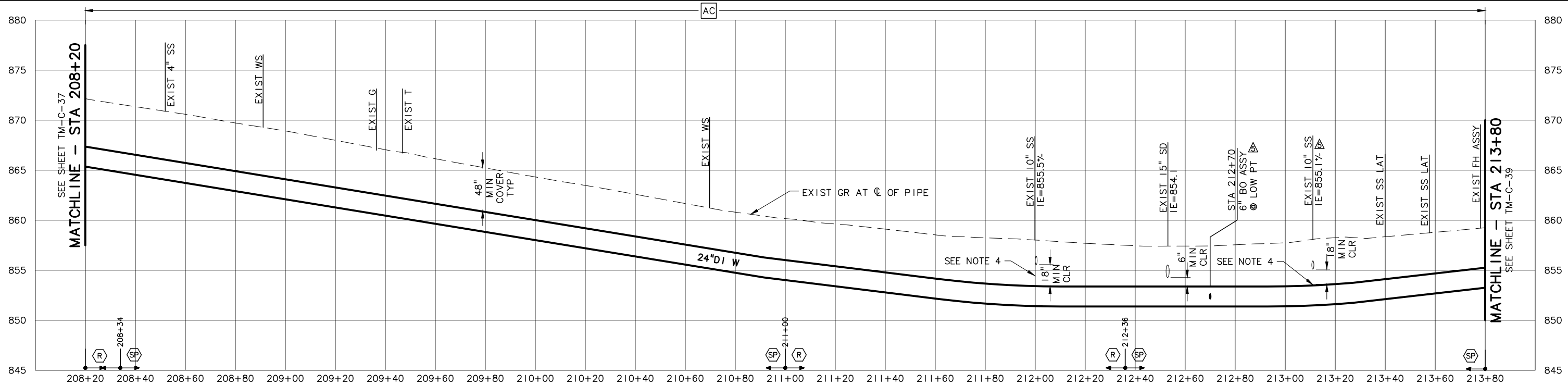
C:\PDX_Projects\11265\OR-C26-C38-R.dwg TM-C-38 11/19/2014 5:00 PM JHF 20.0s (LMS Tech)

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
- RESTRICTIONS APPLY FOR SANITARY SEWER CROSSING OVER WATER, SEE DETAIL, SHEET TM-C-50.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 208+20 TO STA 213+80

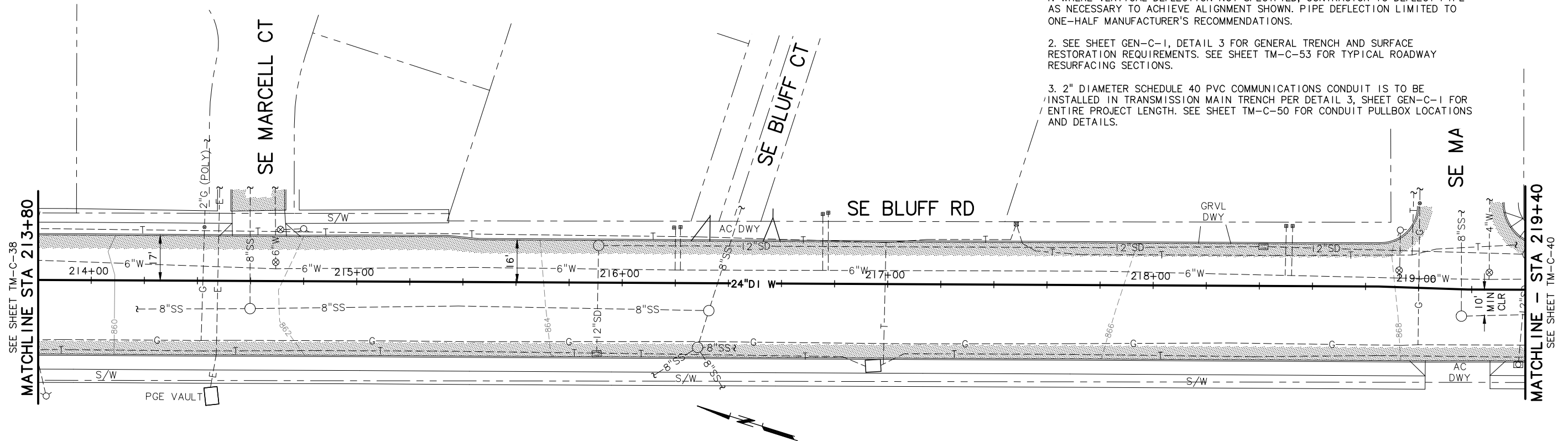
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-38
55 of 123

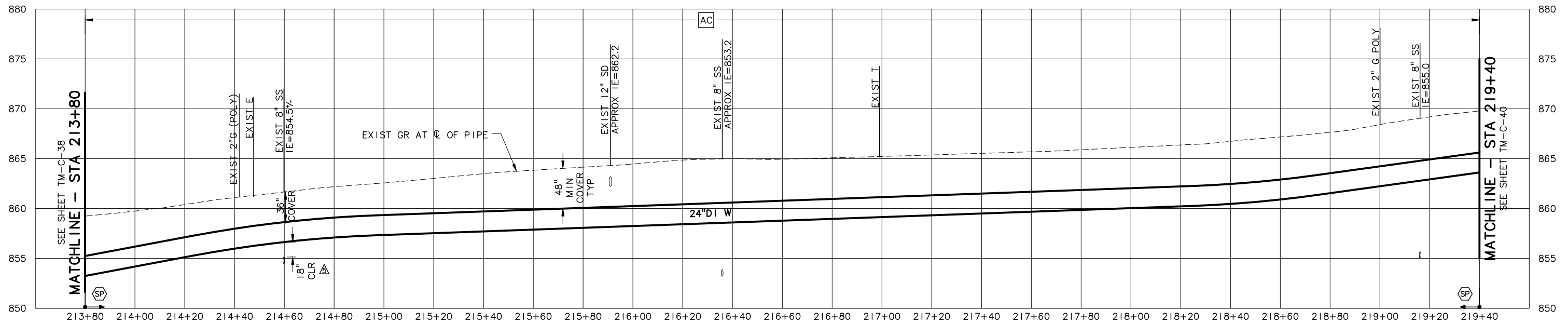
C:\PDX_Projects\11265\CAD\DRS\PROJECTS\SCHED A\11-1265-OR-C39-R.dwg TM-C-39 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

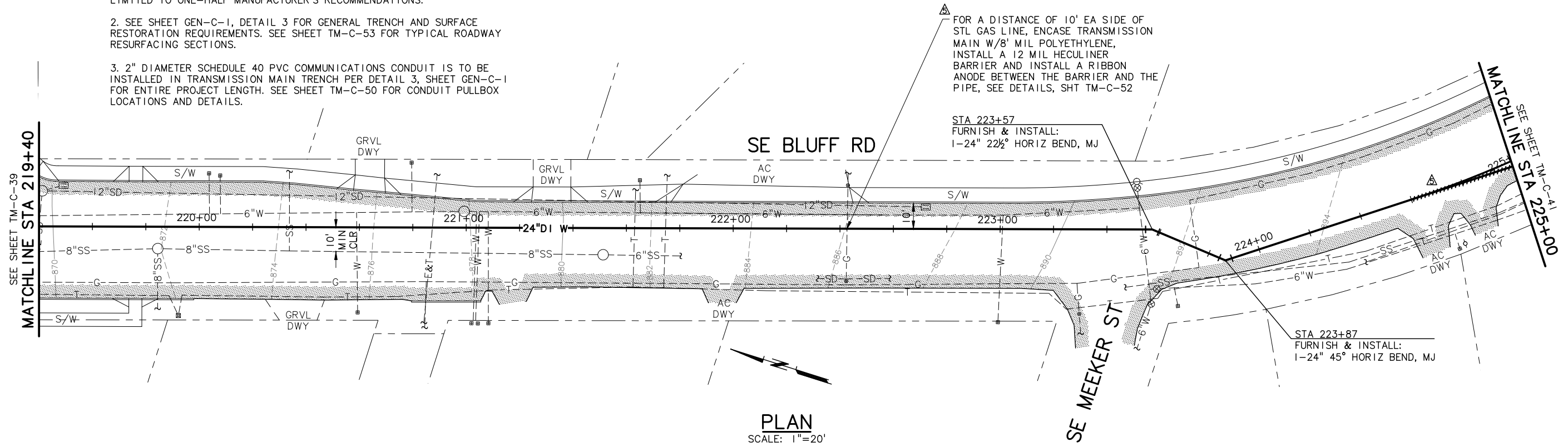
TRANSMISSION MAIN
PLAN AND PROFILE
STA 213+80 TO STA 219+40

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

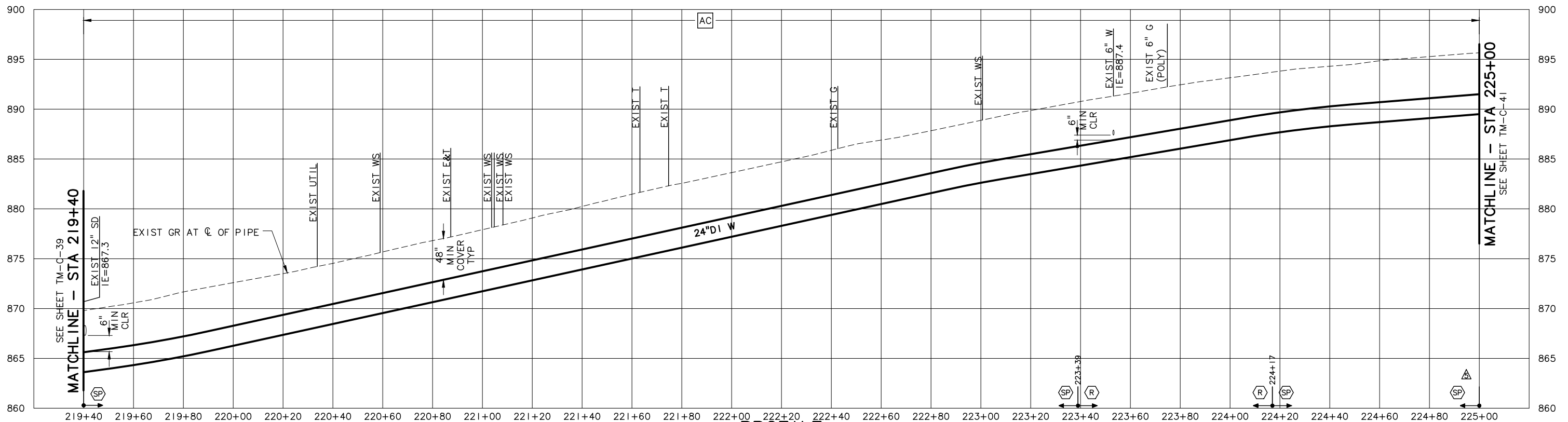
SHEET
TM-C-39
56 of 123

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C39-C49-R.dwg TM-C-40 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

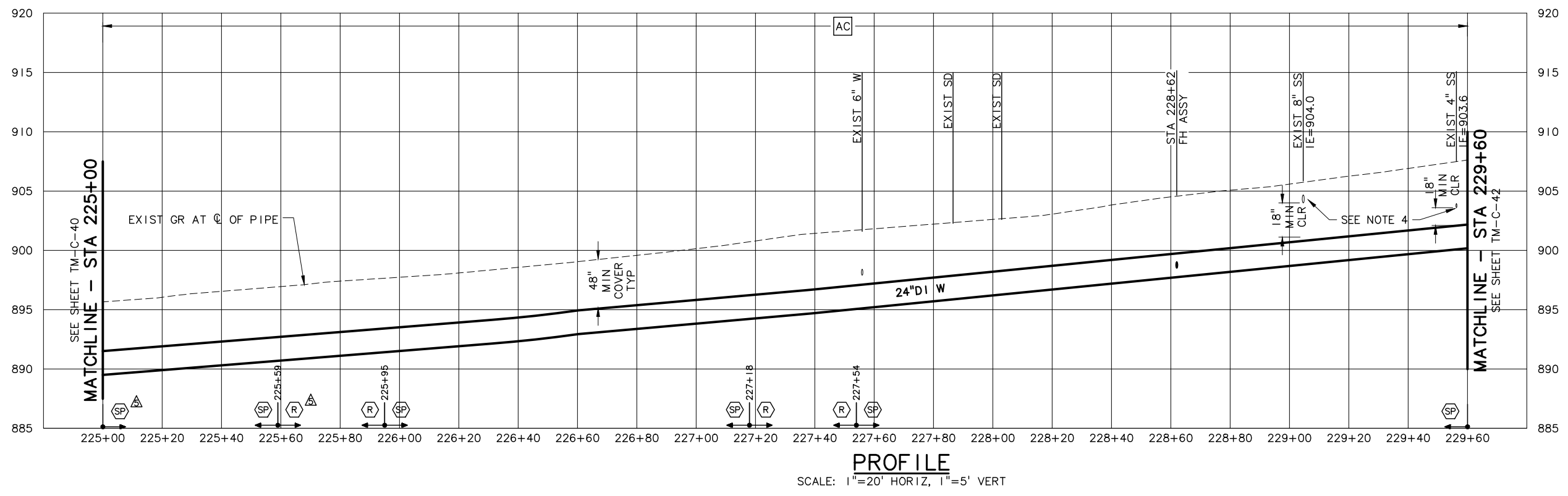
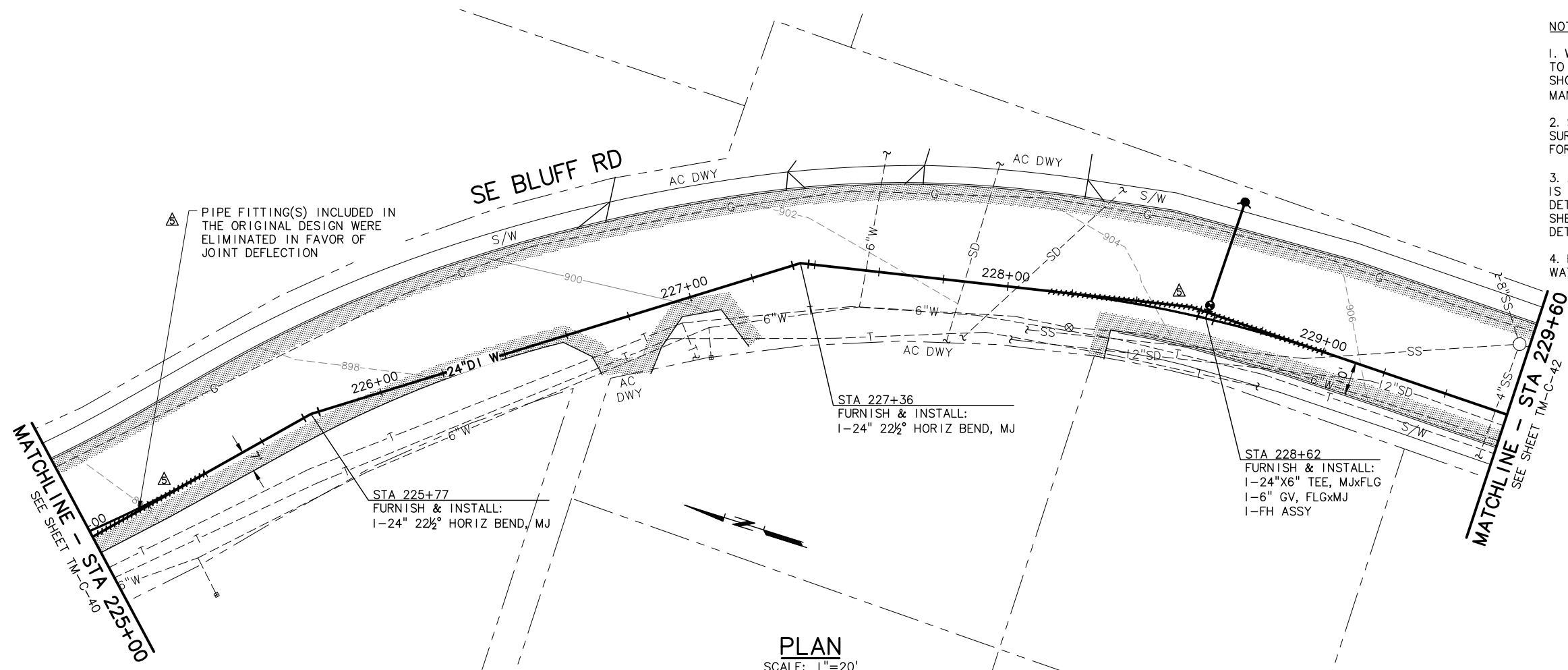
TRANSMISSION MAIN
PLAN AND PROFILE
STA 219+40 TO STA 225+00

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-40
57 of 123

C:\PDX_Projects\11\1265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C39-C49-R.dwg TM-C-41 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
 - RESTRICTIONS APPLY FOR SANITARY SEWER CROSSING OVER WATER, SEE DETAIL, SHEET TM-C-50.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

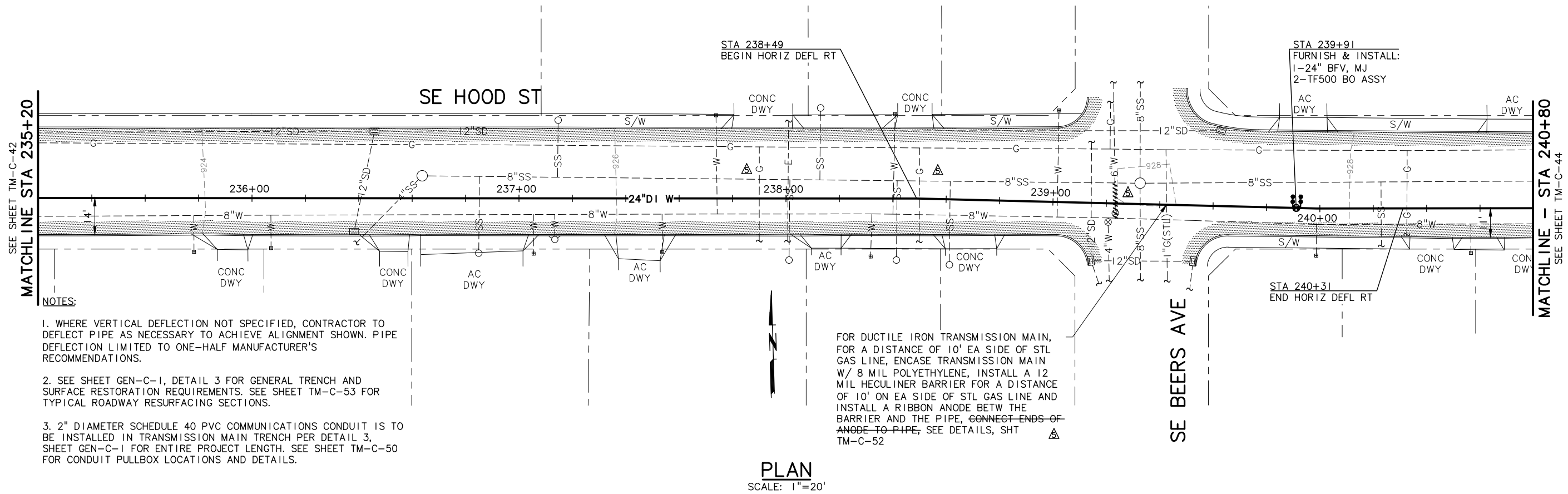
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 225+00 TO STA 229+60

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-41
58 of 123

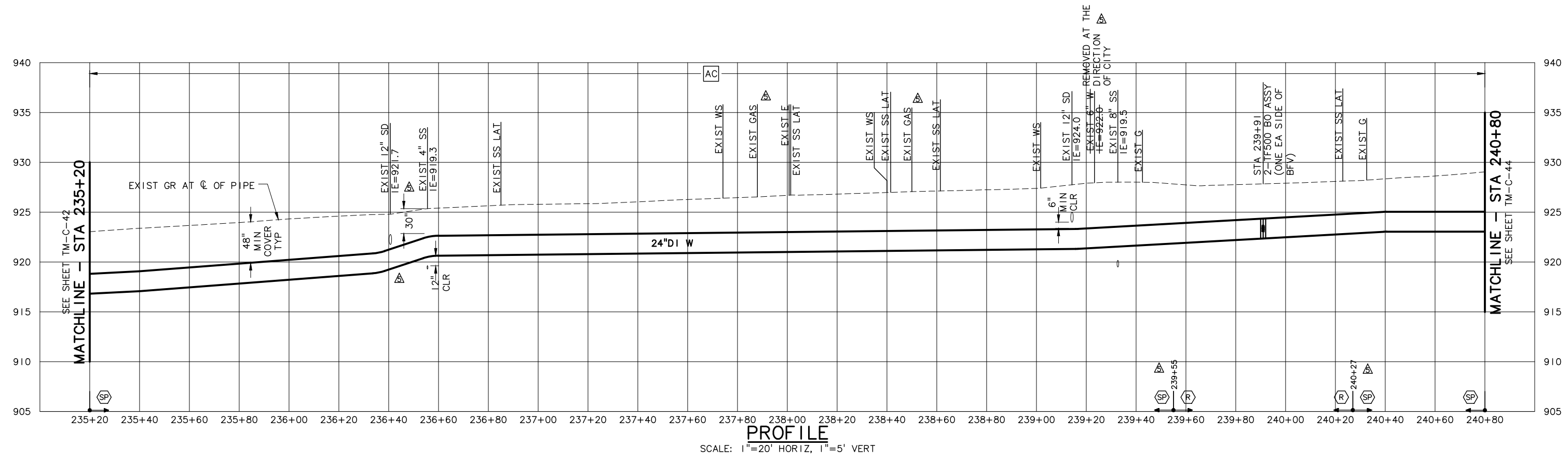
C:\PDX_Projects\11265\OR-C39-C49-R.dwg TM-C-43 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)



- NOTES:
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

FOR DUCTILE IRON TRANSMISSION MAIN, FOR A DISTANCE OF 10' EA SIDE OF STL GAS LINE, ENCASE TRANSMISSION MAIN W/ 8 MIL POLYETHYLENE, INSTALL A 12 MIL HECULINER BARRIER FOR A DISTANCE OF 10' ON EA SIDE OF STL GAS LINE AND INSTALL A RIBBON ANODE BETW THE BARRIER AND THE PIPE, CONNECT ENDS OF ANODE TO PIPE; SEE DETAILS, SHT TM-C-52

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

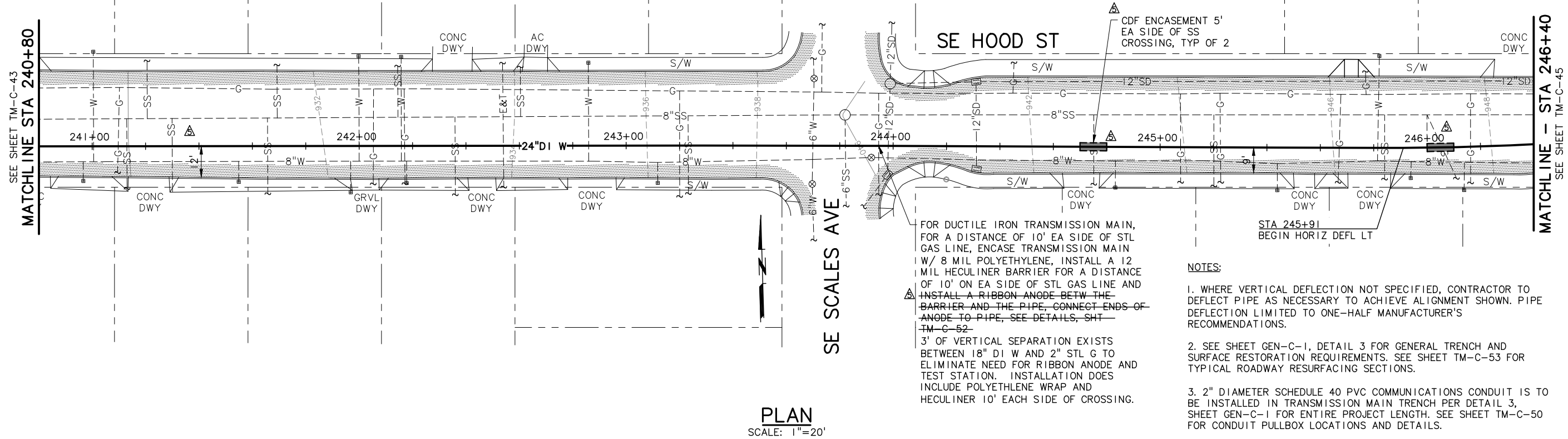
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 235+20 TO STA 240+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

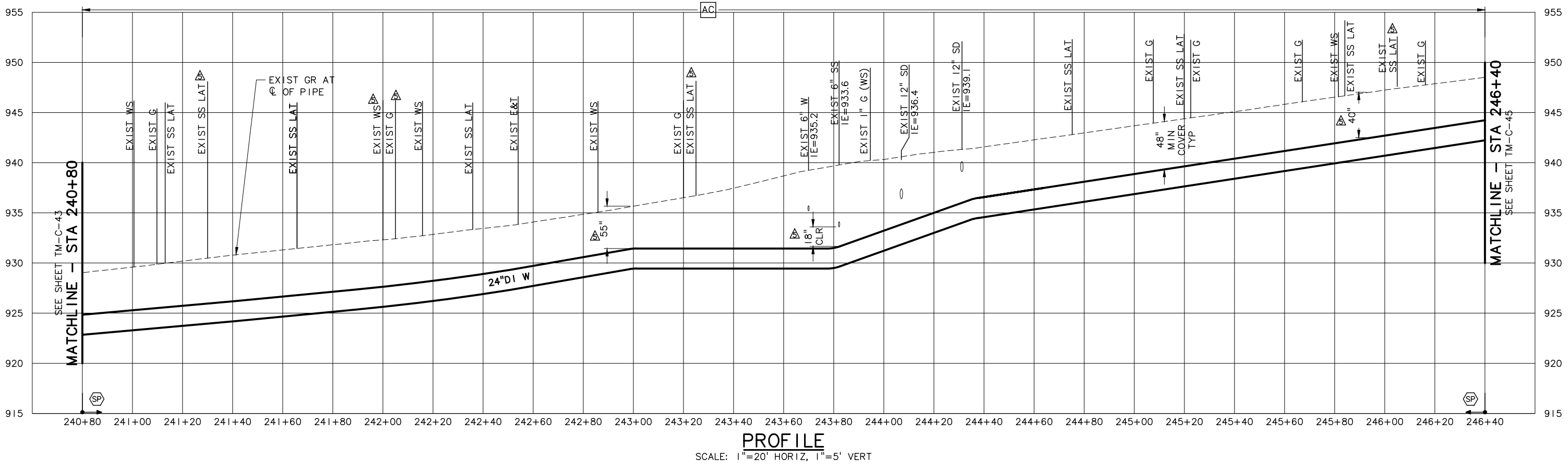
SHEET
TM-C-43
60 of 123

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C39-C49-R.dwg TM-C-44 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'

- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

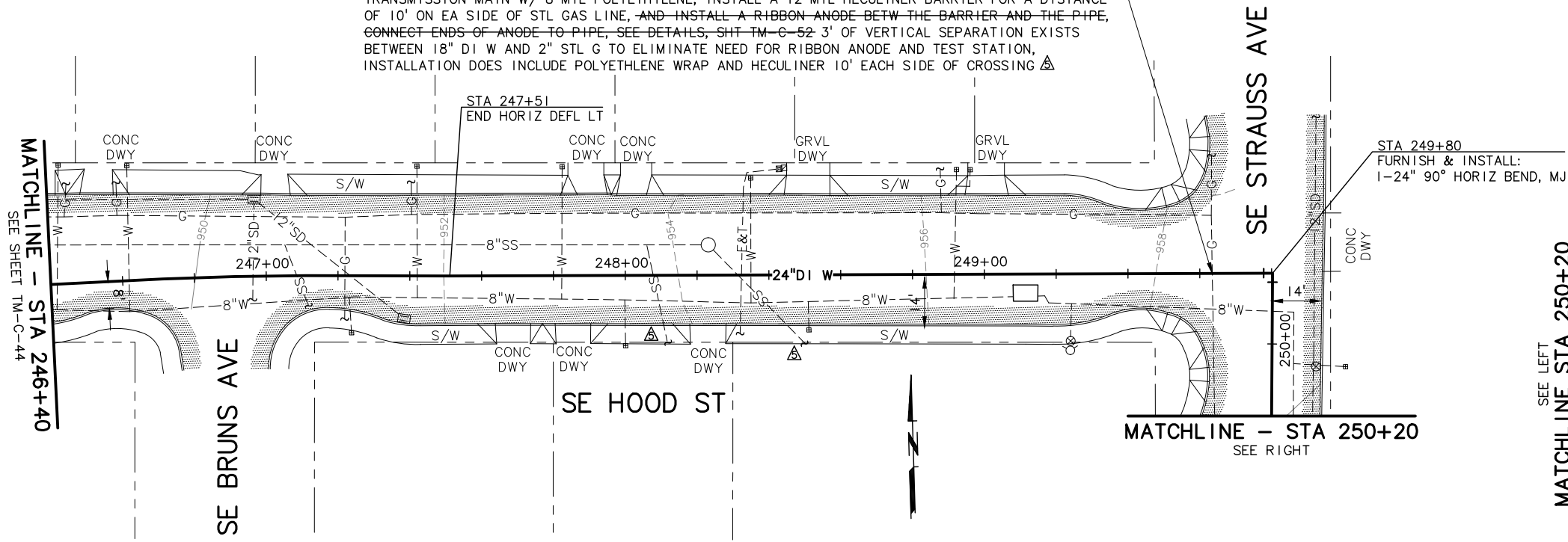
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 240+80 TO STA 246+40

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-44
61 of 123

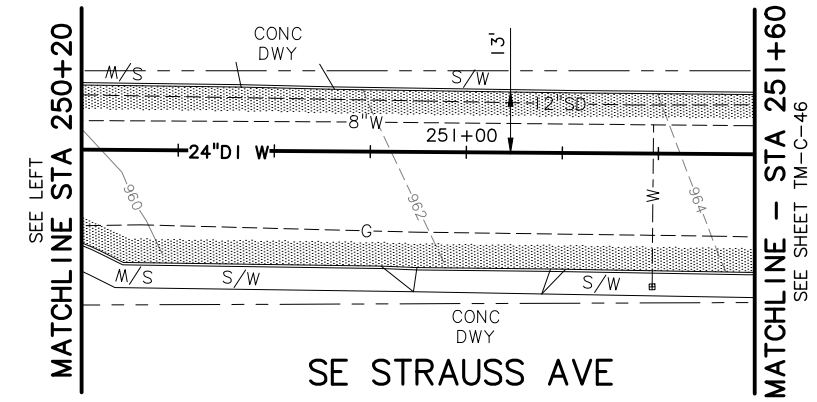
FOR DUCTILE IRON TRANSMISSION MAIN, FOR A DISTANCE OF 10' EA SIDE OF STL GAS LINE, ENCASE TRANSMISSION MAIN W/ 8 MIL POLYETHYLENE, INSTALL A 12 MIL HECLINER BARRIER FOR A DISTANCE OF 10' ON EA SIDE OF STL GAS LINE, AND INSTALL A RIBBON ANODE BETW THE BARRIER AND THE PIPE, CONNECT ENDS OF ANODE TO PIPE, SEE DETAILS, SHIT TM-C-52 3' OF VERTICAL SEPARATION EXISTS BETWEEN 18" DI W AND 2" STL G TO ELIMINATE NEED FOR RIBBON ANODE AND TEST STATION, INSTALLATION DOES INCLUDE POLYETHYLENE WRAP AND HECLINER 10' EACH SIDE OF CROSSING



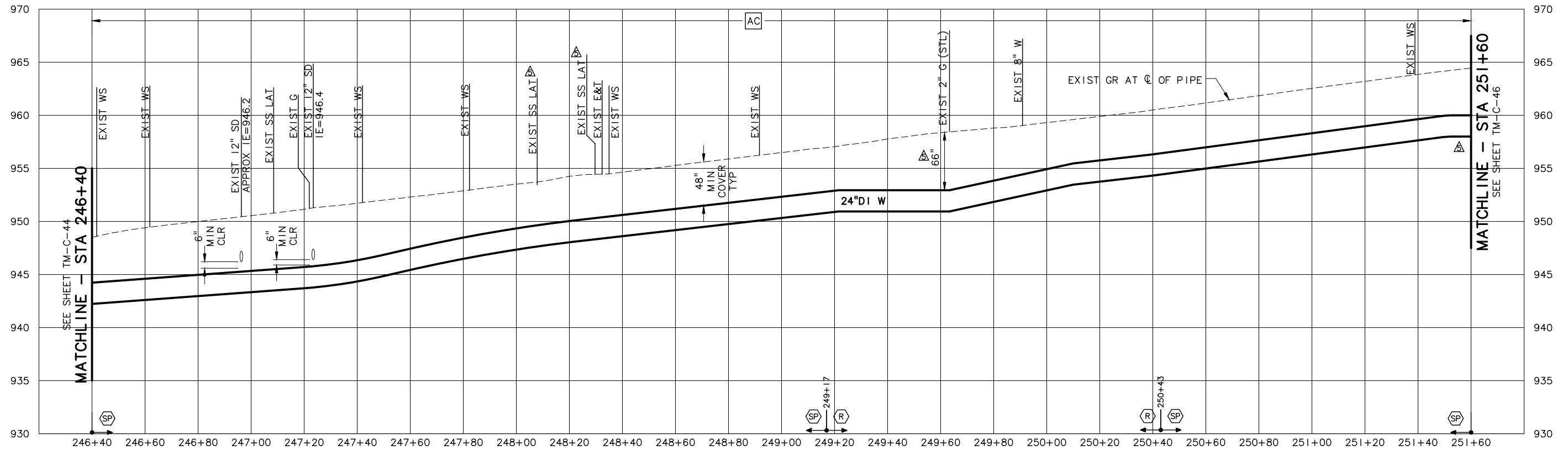
PLAN
SCALE: 1"=20'

NOTES:

- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

C:\PDX_Projects\11265\CAD\DRS\DRS\SCHD A\11-1265-OR-C39-C49-R.dwg TM-C-45 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

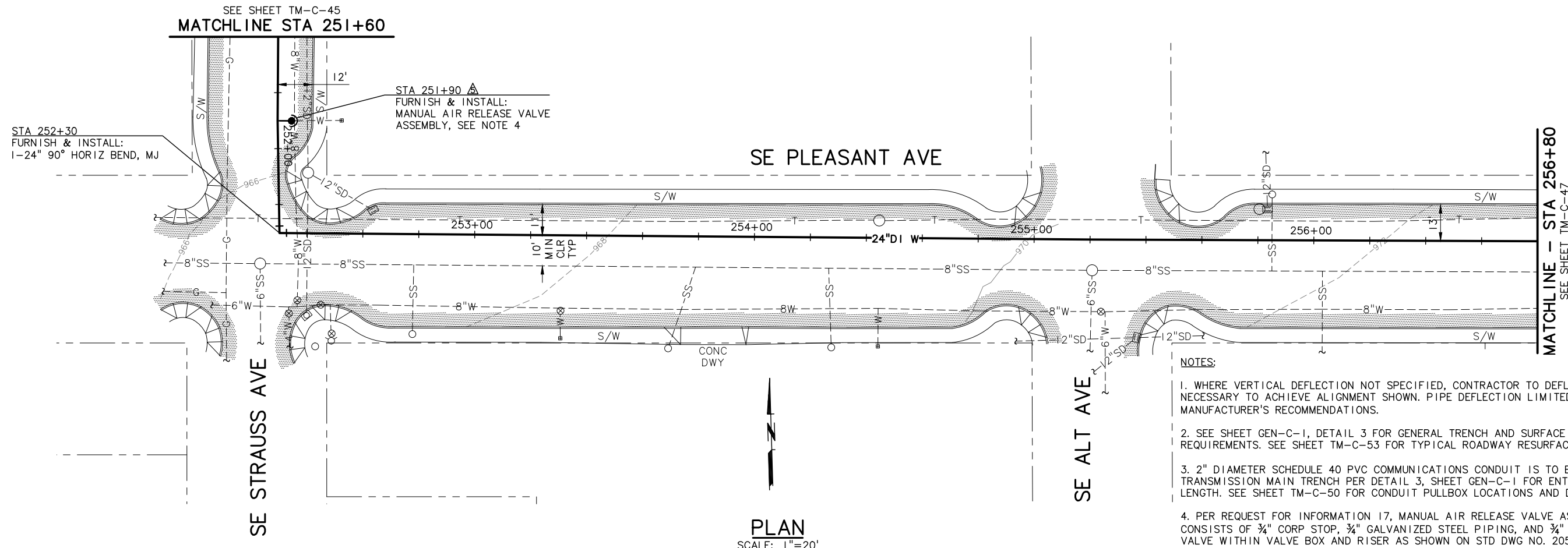
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 246+40 TO STA 251+60

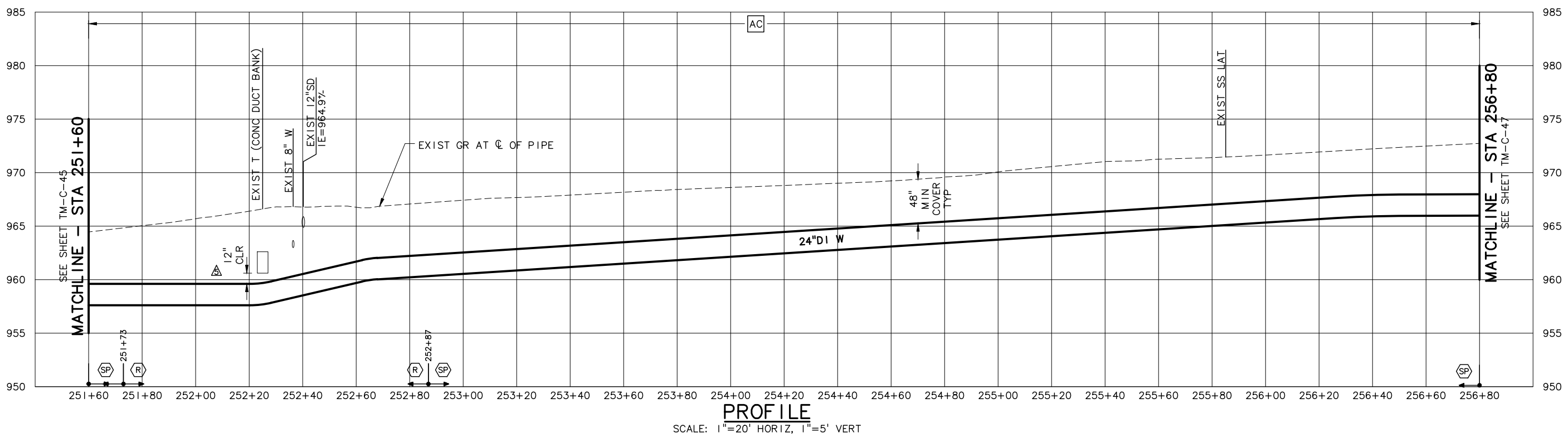
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-45
62 of 123

C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED A\11-1265-OR-C39-C49-R.dwg TM-C-46 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.
 - PER REQUEST FOR INFORMATION 17, MANUAL AIR RELEASE VALVE ASSEMBLY CONSISTS OF 3/4" CORP STOP, 3/4" GALVANIZED STEEL PIPING, AND 3/4" THREAD GATE VALVE WITHIN VALVE BOX AND RISER AS SHOWN ON STD DWG NO. 205, SHEET GEN-C-1.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 251+60 TO STA 256+80

PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-46
63 of 123

NOTES:

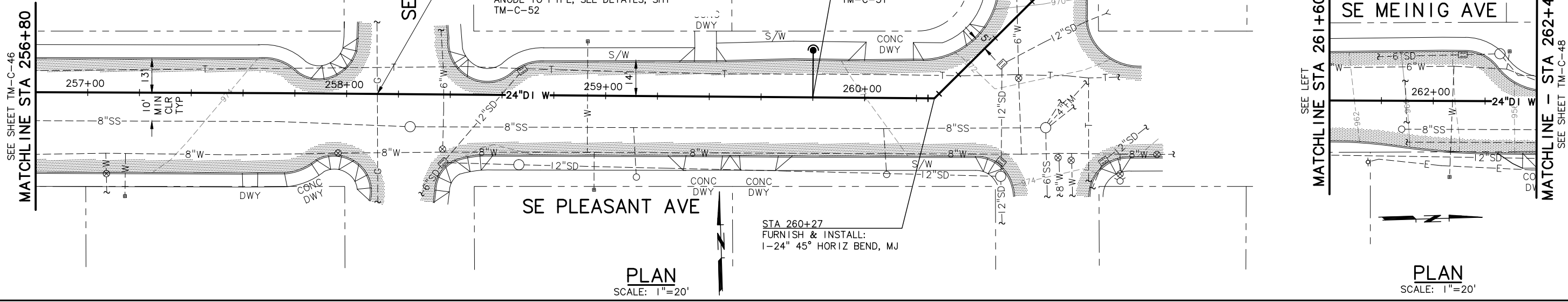
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
- SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
- 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.

FOR DUCTILE IRON TRANSMISSION MAIN, FOR A DISTANCE OF 10' EA SIDE OF STL GAS LINE, ENCASE TRANSMISSION MAIN W/ 8 MIL POLYETHYLENE, INSTALL A 12 MIL HECULINER BARRIER FOR A DISTANCE OF 10' ON EA SIDE OF STL GAS LINE AND INSTALL A RIBBON ANODE BETW THE BARRIER AND THE PIPE, CONNECT ENDS OF ANODE TO PIPE, SEE DETAILS, SHT TM-C-52

STA 259+80
FURNISH & INSTALL:
1-4" CAV ASSY,
SEE STD DET, SHT
TM-C-51

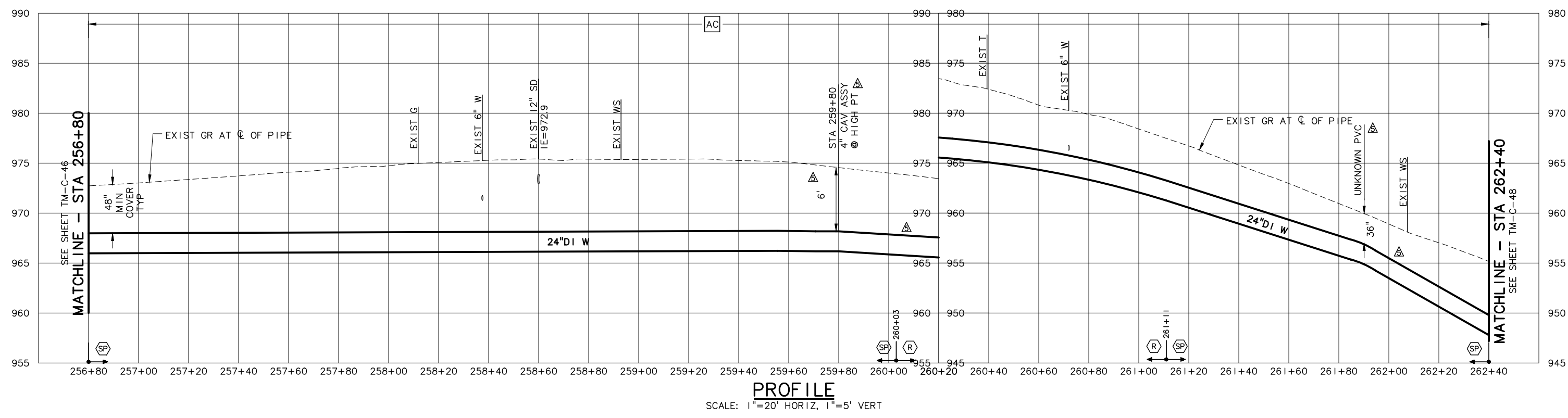
STA 260+87
FURNISH & INSTALL:
1-24" 45° HORIZ BEND, MJ

STA 260+27
FURNISH & INSTALL:
1-24" 45° HORIZ BEND, MJ



PLAN
SCALE: 1"=20'

PLAN
SCALE: 1"=20'



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

G:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED A\11-1265-OR-C39-C49-R.dwg TM-C-47 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

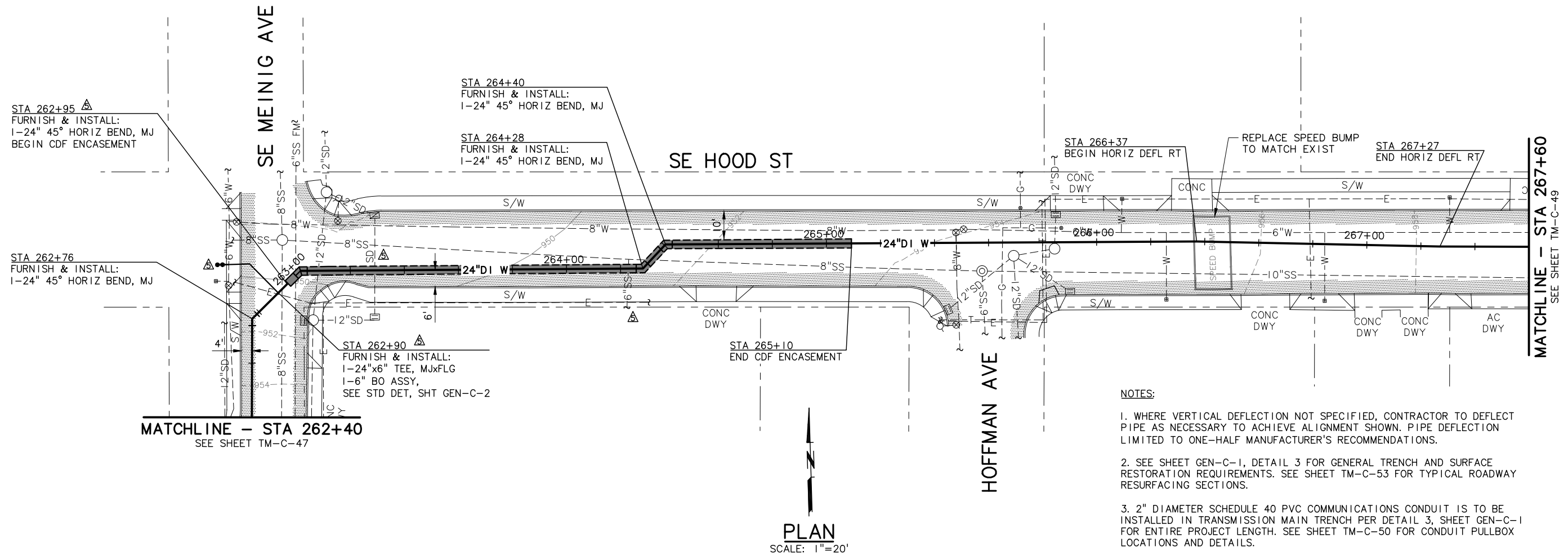
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 256+80 TO STA 262+40

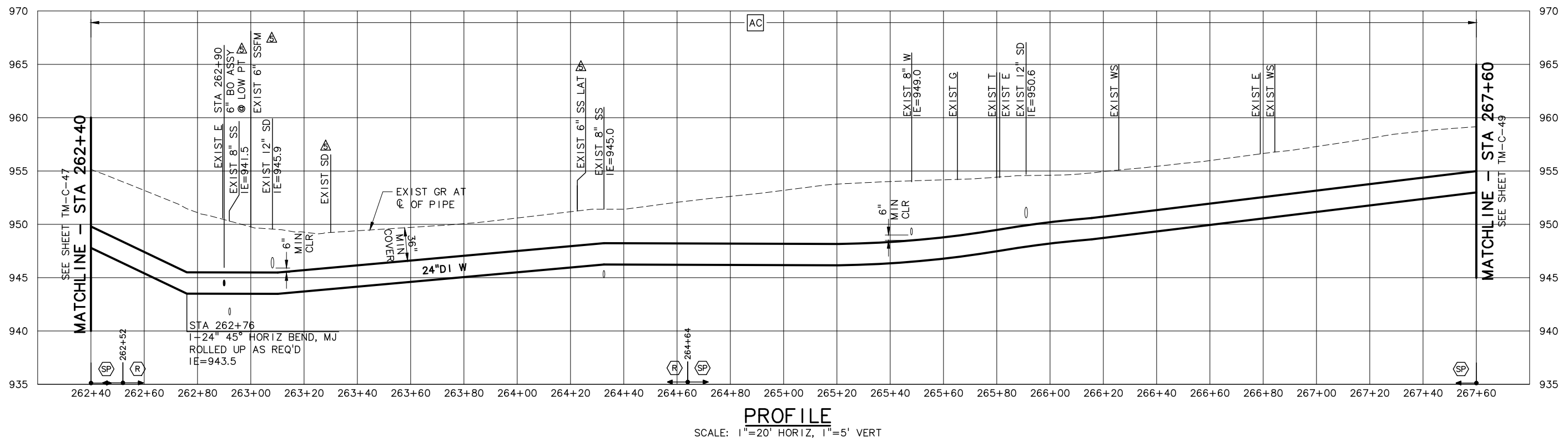
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-47
64 of 123

C:\PDX_Projects\11\1265\OR-C39-C49-R.dwg TM-C-48 11/18/2014 5:18 PM JHF 20.0s (LMS Tech)



- NOTES:**
- WHERE VERTICAL DEFLECTION NOT SPECIFIED, CONTRACTOR TO DEFLECT PIPE AS NECESSARY TO ACHIEVE ALIGNMENT SHOWN. PIPE DEFLECTION LIMITED TO ONE-HALF MANUFACTURER'S RECOMMENDATIONS.
 - SEE SHEET GEN-C-1, DETAIL 3 FOR GENERAL TRENCH AND SURFACE RESTORATION REQUIREMENTS. SEE SHEET TM-C-53 FOR TYPICAL ROADWAY RESURFACING SECTIONS.
 - 2" DIAMETER SCHEDULE 40 PVC COMMUNICATIONS CONDUIT IS TO BE INSTALLED IN TRANSMISSION MAIN TRENCH PER DETAIL 3, SHEET GEN-C-1 FOR ENTIRE PROJECT LENGTH. SEE SHEET TM-C-50 FOR CONDUIT PULLBOX LOCATIONS AND DETAILS.



PROFILE
SCALE: 1"=20' HORIZ, 1"=5' VERT

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

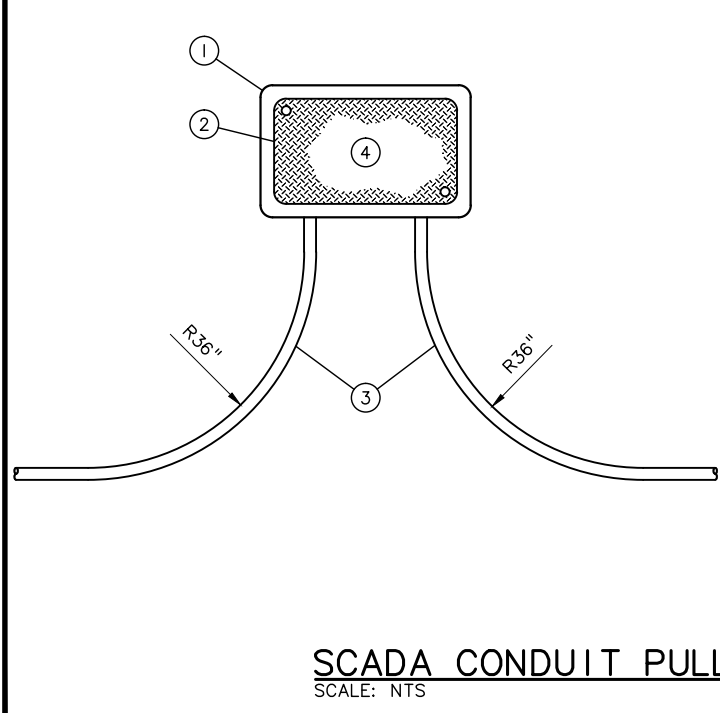
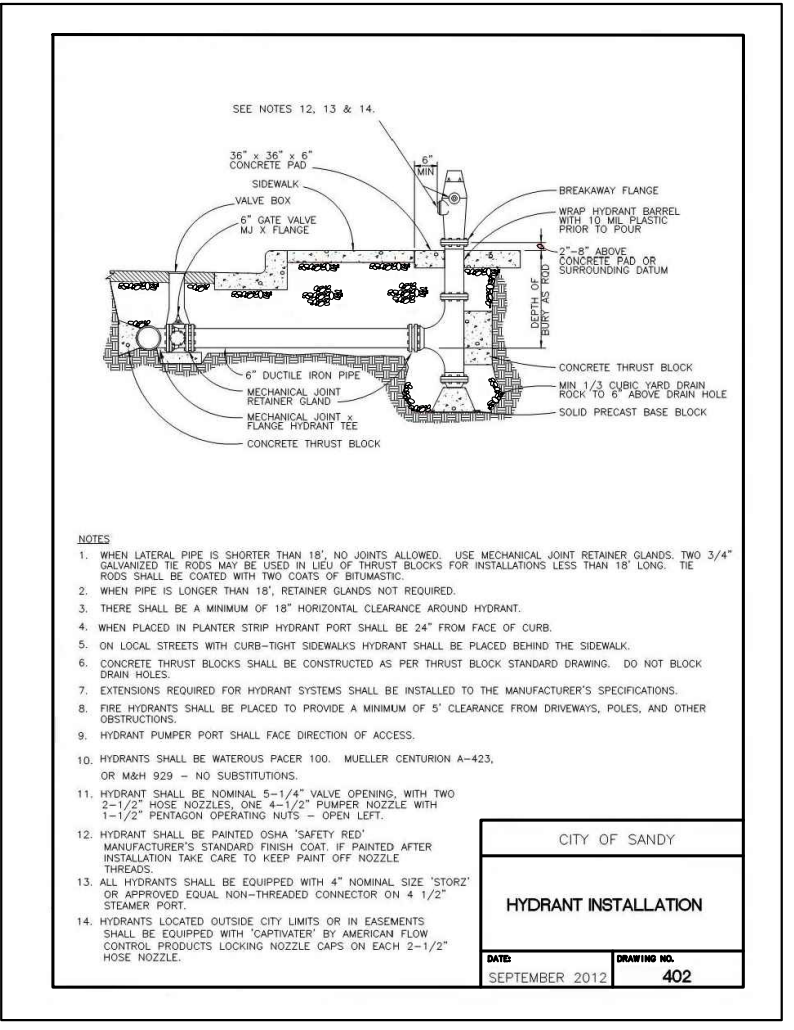
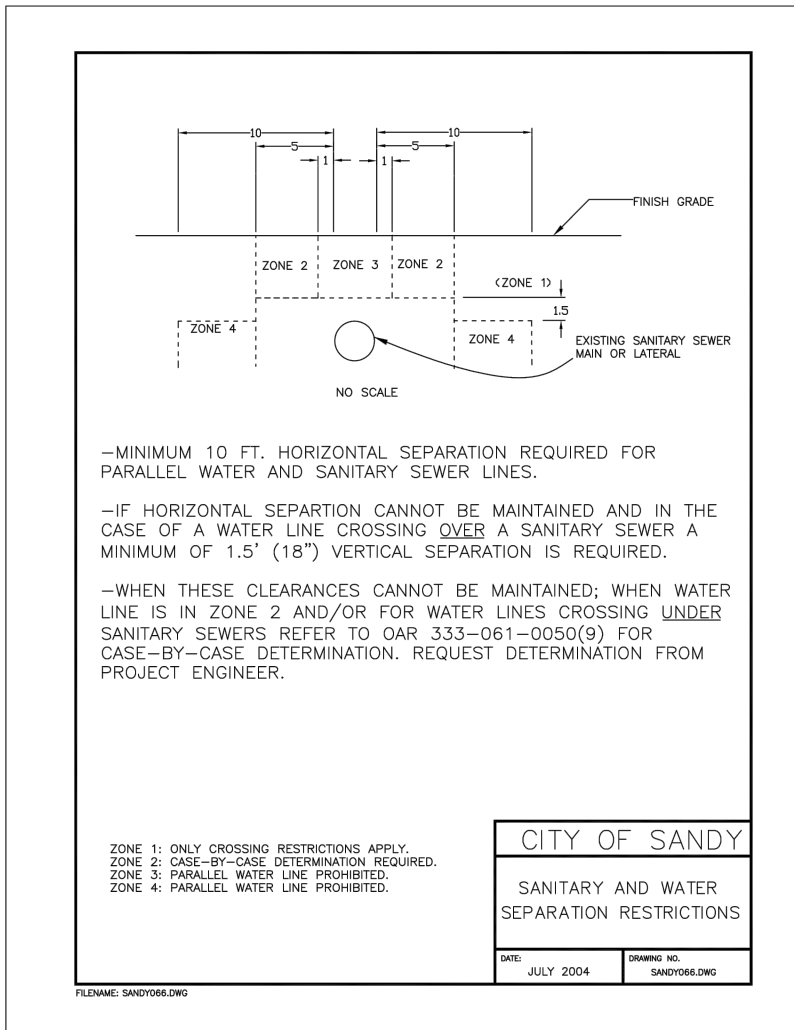
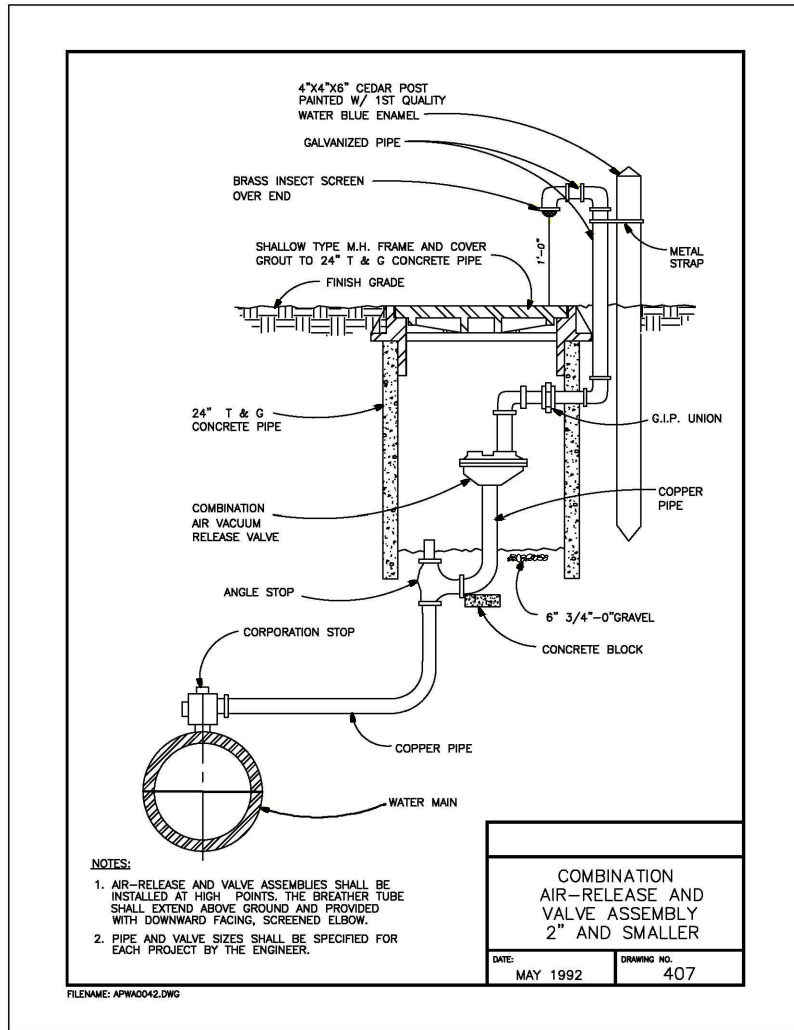
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN
PLAN AND PROFILE
STA 262+40 TO STA 267+60

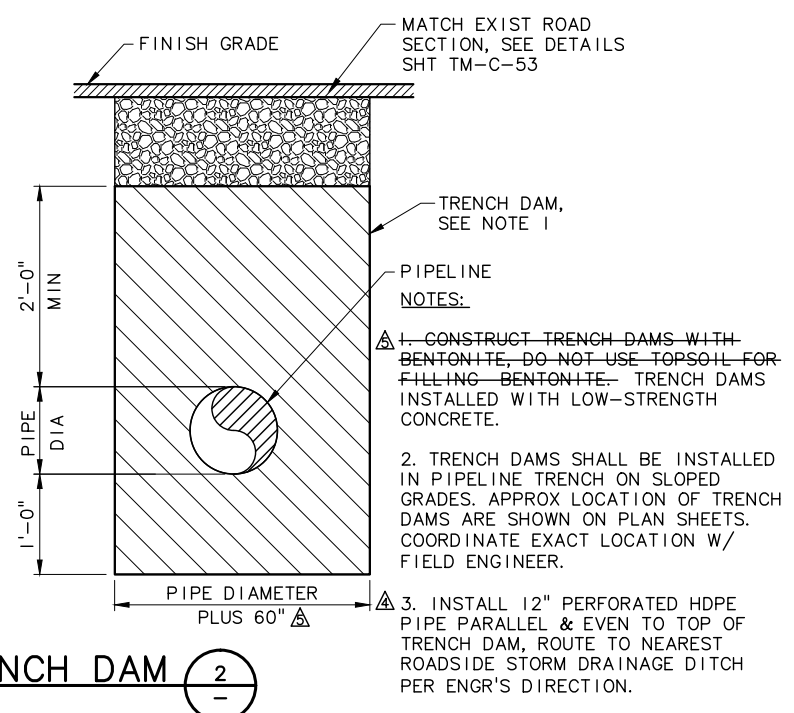
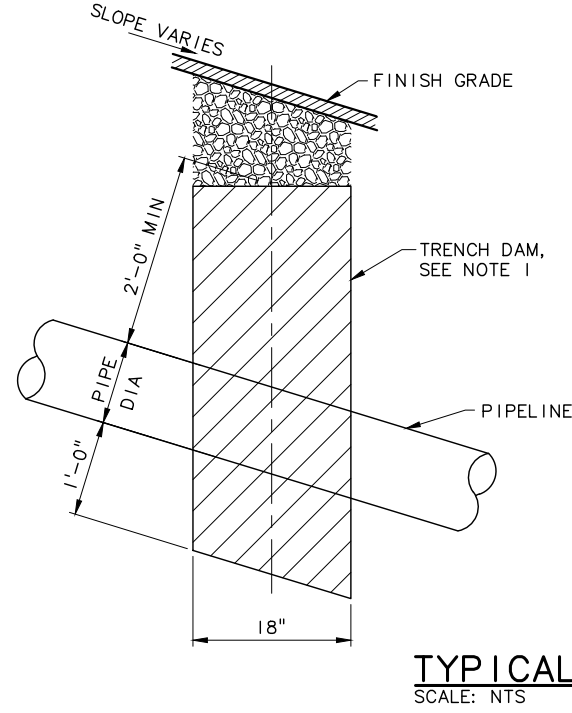
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-48
65 of 123

C:\PDX-Projects\11\1265-OR-TM-C-DETS-R.dwg TM-C-50 11/19/2014 4:33 PM JHF 20.0s (LMS Tech)



- MATERIAL LIST**
- ① 22"Wx35"Lx12"D TELEPHONE BOX, CHRISTY MODEL NO. N36PBOX OR APPVD EQL, PROVIDE EXTENSIONS AS REQ'D
 - ② 17 1/2"x30 1/2" BOLT-DOWN NON-GALV STL COVER, CHRISTY MODEL N36-61J OR APPVD EQL
 - ③ 2" SCHED 40 PVC CND
 - ④ PROVIDE 500 LB PULL STRING TIED OFF IN EACH BOX
- NOTES:**
1. RECOMMENDED SPACING FOR PULLBOXES IS 900 FEET.
 2. IN CLACKAMAS COUNTY, INSTALL PULLBOXES BEHIND ROADSIDE DITCH WITHIN PUBLIC RIGHT-OF-WAY, FINAL FIELD LOCATION TO BE DETERMINED BY ENGINEER.
 3. IN THE CITY OF SANDY INSTALL PULLBOXES AT THE EDGE OF PAVEMENT OR BEHIND GUARDRAIL. WHENEVER POSSIBLE INSTALL PULLBOXES BEHIND ROADSIDE DITCHES, THE REMAINDER SHALL BE INSTALLED BEHIND THE CURB. IN ALL CASES THE FINAL FIELD LOCATION TO BE DETERMINED BY ENGINEER.
 4. THE LOCATIONS OF INSTALLED FIBER OPTIC PULLBOXES ARE SHOWN ON FIGURES 1-7 OF THE AUGUST 2013 FIGURE SET ISSUED BY MSA FOR USE BY CITY OF SANDY TO SOLICIT BIDS FOR INSTALLATION OF FIBER OPTIC CABLES.



NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING
2	12/13/12	LLA	ADDENDUM NO. 4

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

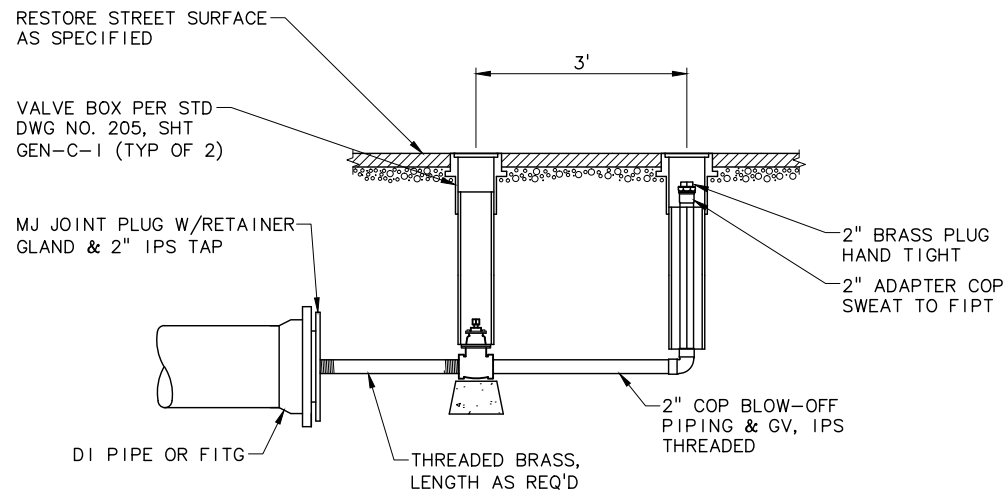
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN CIVIL DETAILS

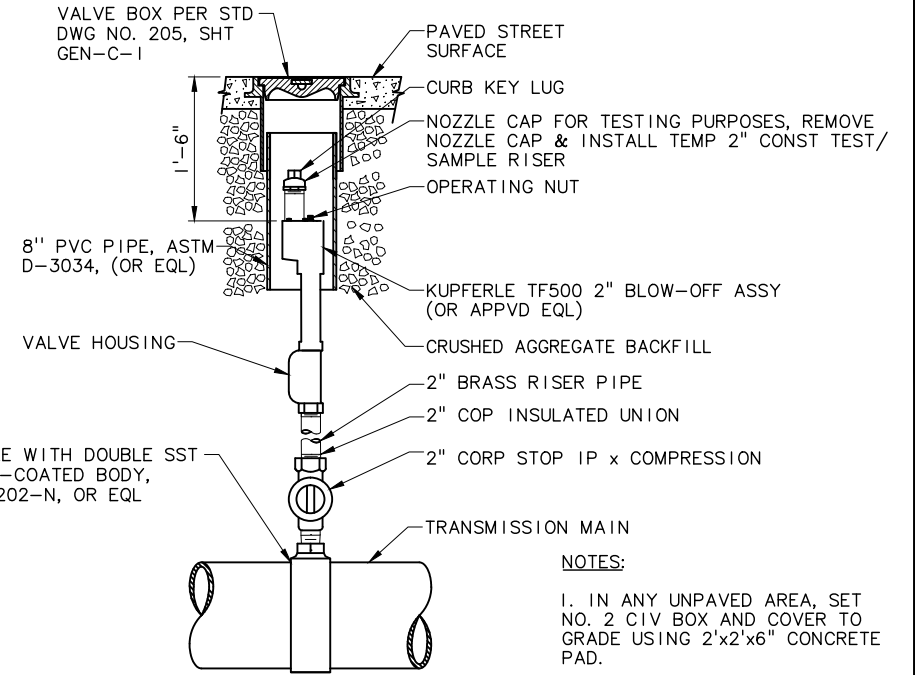
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-50
67 of 123

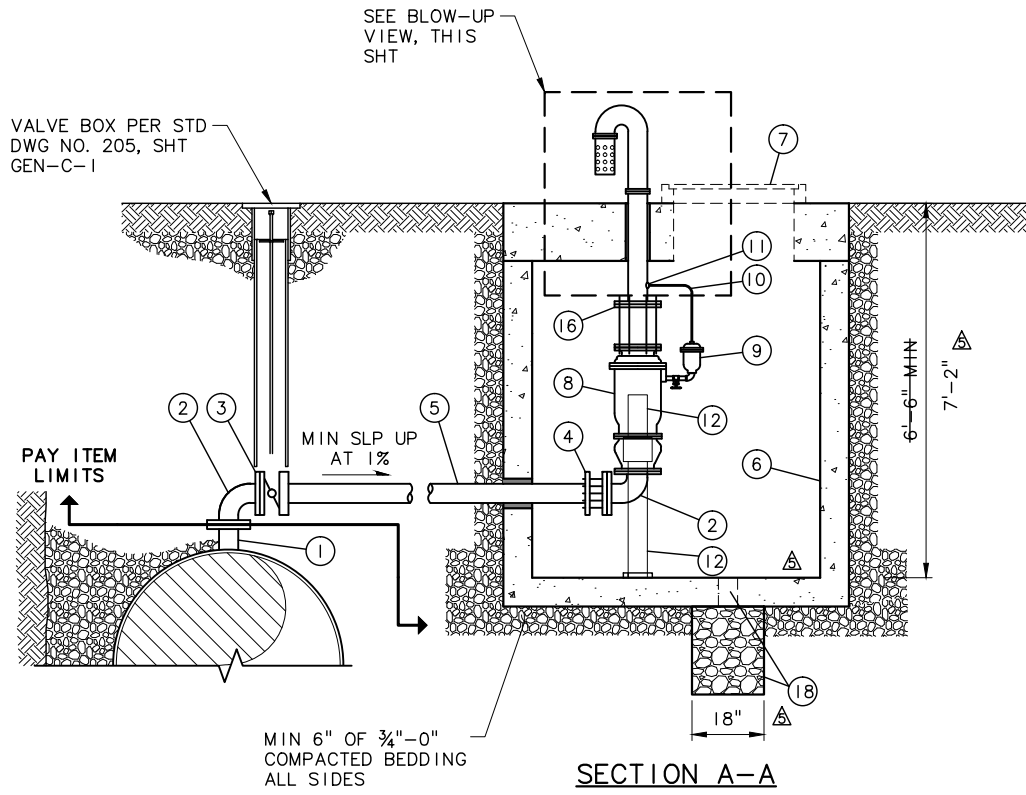
C:\PDX_Projects\111265\OR-TM-C-DETS-R.dwg TM-C-51 11/19/2014 4:33 PM JHF 20.0s (LMS Tech)



2" BLOW-OFF DETAIL
SCALE: NTS

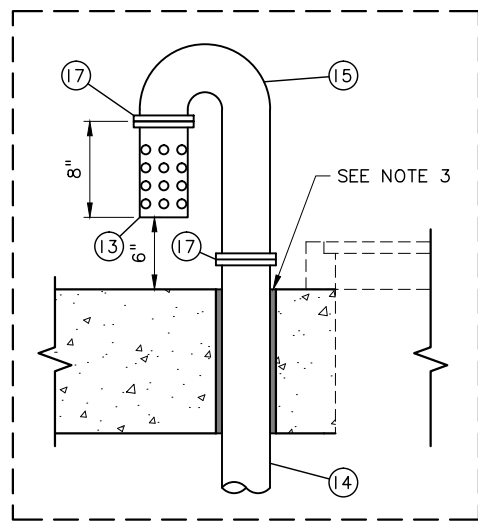
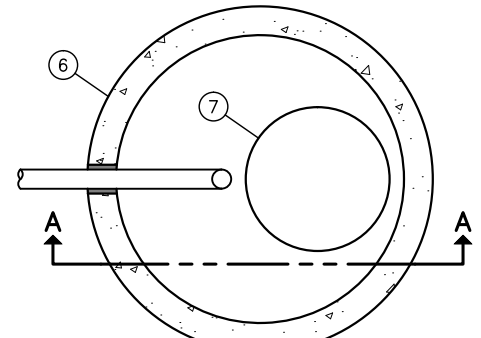


TF500 AIR RELEASE AND BLOW-OFF ASSEMBLY
SCALE: NTS



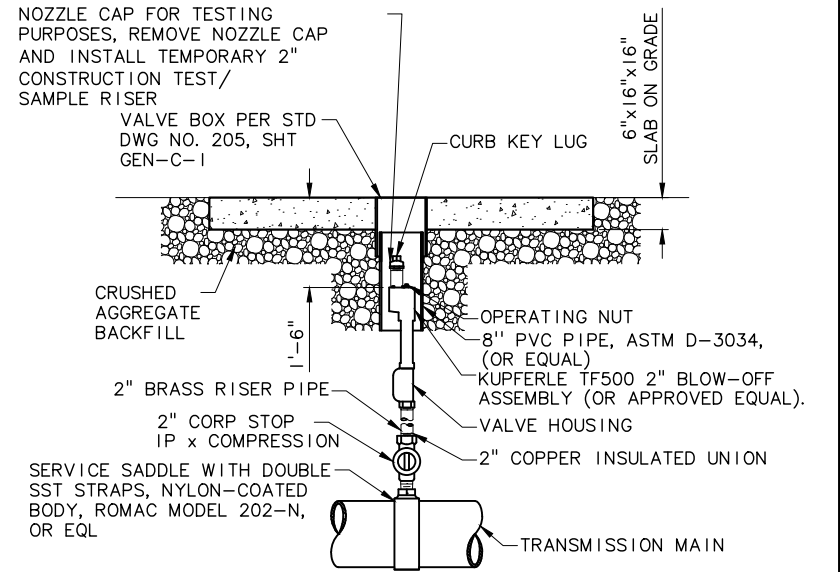
- NOTES:
1. ALL PIPE AND FITTINGS SHALL BE RESTRAINED.
 2. VERIFY LOCATION OF VAULT AND STAND PIPE WITH ENGINEER.
 3. ALL MANHOLE PENETRATIONS SHALL BE SEALED WITH WALL SEALS. USE LINK SEAL IN HOLES AROUND PIPE.
 4. HOT DIP GALVANIZE ALL STEEL PARTS AFTER FABRICATION.

4" COMBINATION AIR VALVE (CAV)
SCALE: NTS



MATERIAL LIST

- 1 24"x4" TAPPING SLV, FLG, SEE SPECS
- 2 4" DI 90° BEND, FLG
- 3 4" GV, FLGxMJ
- 4 4" FLG ADPTR, MEGAFLANGE, OR EQL
- 5 4" DI SPL, PE, LENGTH AS REQ'D
- 6 60" DIA PRECAST MH, BASE POURED MONOLITHICALLY W/ SIDES, AND SEPARATE TOP SECTION
- 7 STD APWA 30" MH COVER & FRAME
- 8 4" AIR/ VACUUM VALVE, APCO 1704, OR EQL
- 9 4" ARV, APCO 200A, OR EQL
- 10 1" COP TUBING
- 11 1" THRED-O-LET
- 12 4" SCHED 40 GI PIPE, CONNECT TO ARV USING MIN 2 SST HOSE CLAMPS. LENGTH AS REQ TO PROVIDE 30" EMBEDMENT IN CONC & EXTEND TO VALVE BOLT INTO FLOOR
- 13 4" SCHED 40 PIPE W/ 1/4" THICK END CAP (WELDED). VENT TO INCLUDE APPROX 28 - 3/4" Ø HOLES AT APPROX 3/4" SPACING ON PIPE SECTION & END CAP. TACK WELD 1/8" 20 GAUGE WIRE MESH INSIDE PERF PIPE
- 14 4" GALV SCHED 40 VENT PIPE
- 15 4" GALV SCHED 40 VENT PIPE W/ 2 SHORT RADIUS 90° BENDS. PAINT BLUE. PRIME W/ 4-6 MILS TNEMEC SERIES 66 & TOP COAT W/ 4-6 MILS TNEMEC SERIES 175 OR APPVD EQ
- 16 4" FLGxMJ ADPTR
- 17 4" FLG W/ GALV FLG BOLTS & RED RUBBER GASKET DRAIN ROCK SUMP UNDER 8" HOLE IN FLOOR



TF500 AIR RELEASE AND BLOW-OFF ASSEMBLY - UNPAVED AREA
SCALE: NTS

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

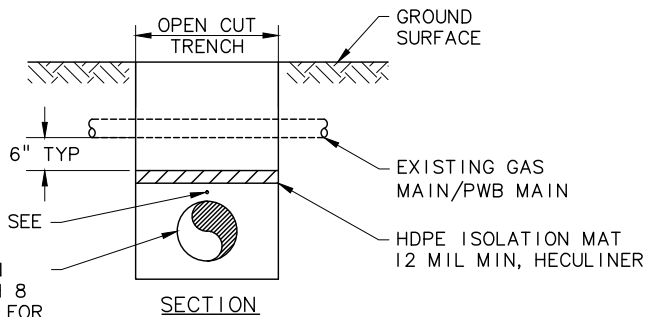
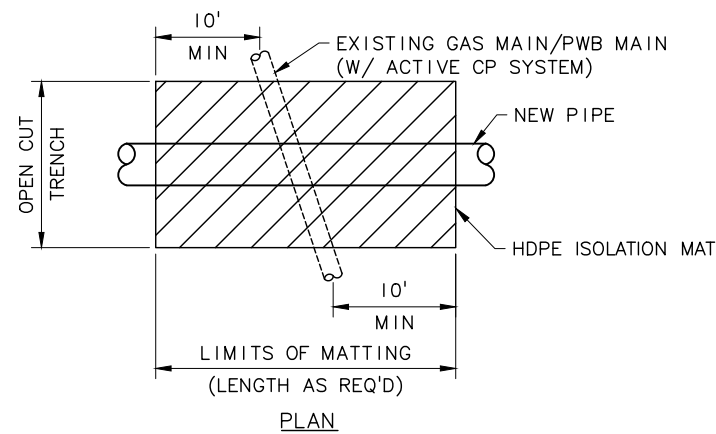
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

TRANSMISSION MAIN CIVIL DETAILS

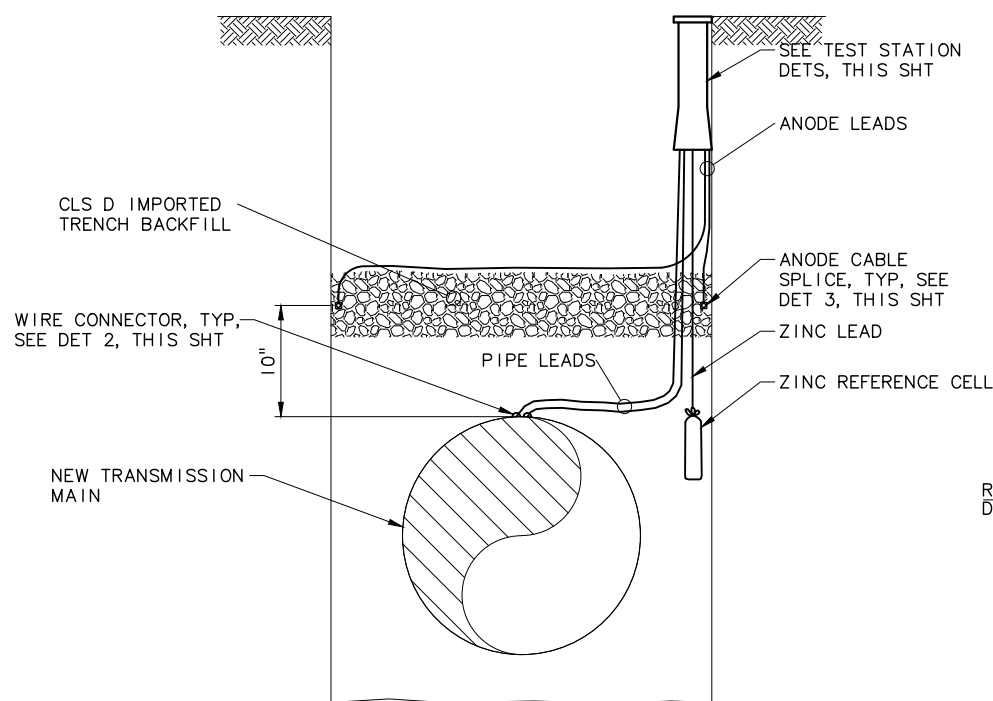
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-51
68 of 123

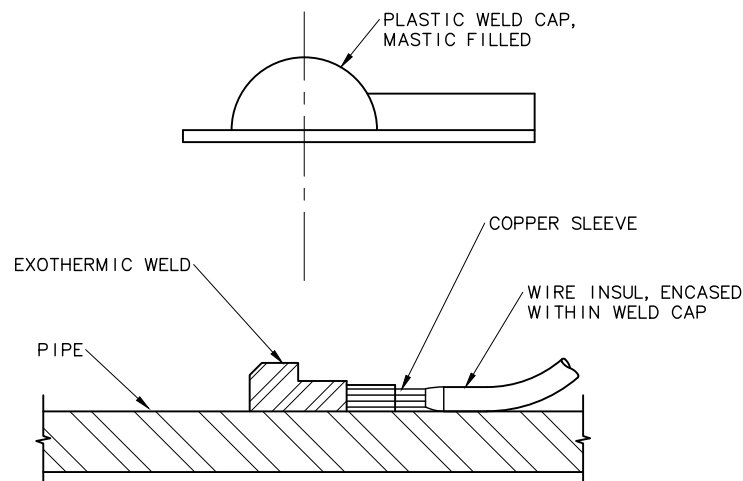


RIBBON ANODE, SEE DET, THIS SHT
NEW TRANSMISSION LINE, ENCASE WITH 8 MIL POLYETHYLENE FOR LIMITS OF MATTING

ISOLATION MAT (1)
SCALE: NTS

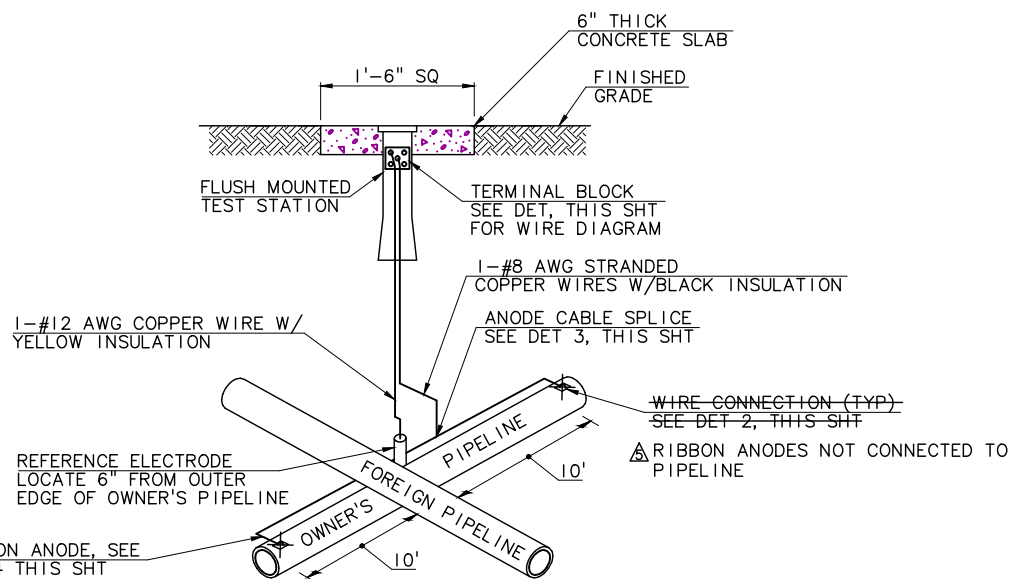


RIBBON ANODE INSTALLATION (4)
SCALE: NTS



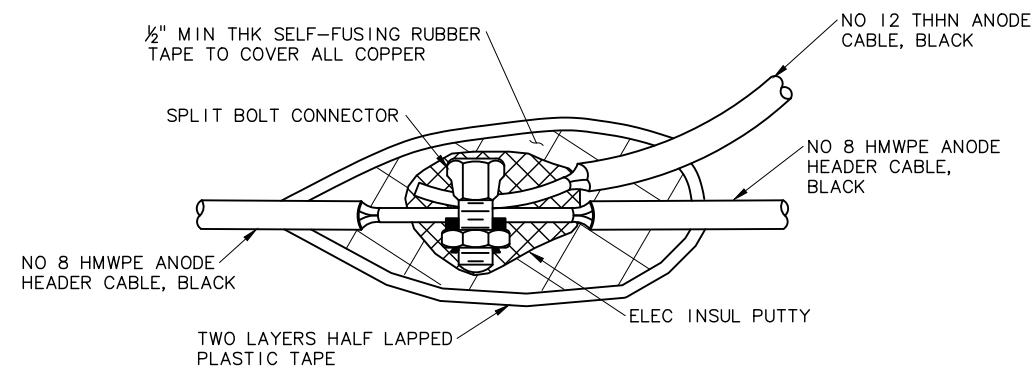
- NOTES:**
1. GRIND PIPE TO BRIGHT METAL BEFORE EXOTHERMIC WELDING.
 2. APPLY WELD CAP DIRECTLY TO PIPE - NOT TO PIPE WRAP. USE PRIMER IF REQUIRED BY THE MANUFACTURER. COMPLETELY ENCIrcLE WIRE WITHIN MASTIC.
 3. ON CONNECTIONS TO UNCOATED PIPE AND CASINGS, USE MASTIC FILLED PLASTIC WELD CAP ONLY; SECURE WITH PIPE TAPE.

PLASTIC WELD CAP (2)
SCALE: NTS

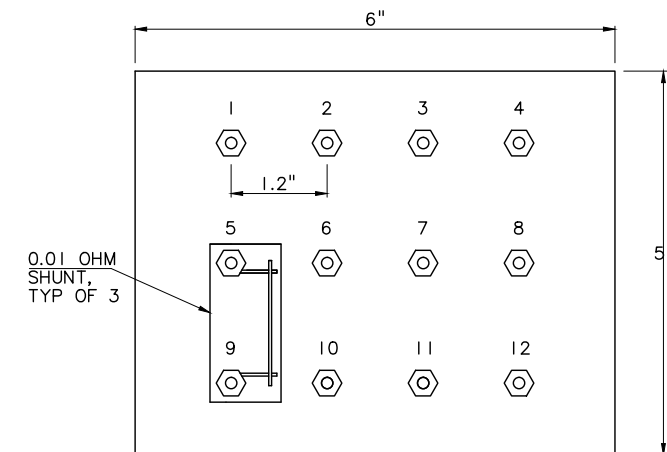


- NOTES:**
1. OBTAIN APPROVAL OF FOREIGN PIPELINE OWNER PRIOR TO EXCAVATION.
 2. PROVIDE SUFFICIENT SLACK IN TEST WIRES TO ALLOW TERMINAL BLOCK TO EXTEND 18" OUT OF TEST STATION. COIL WIRES IN TEST STATION.

FLUSH MOUNTED TEST STATION (5)
SCALE: NTS



ANODE CABLE SPLICE (3)
SCALE: NTS



TEST STATION-TRANSMISSION MAIN (6)
SCALE: NTS

- CATHODIC PROTECTION NOTES:**
1. CATHODIC PROTECTION SYSTEM COMPONENT LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. FINAL LOCATIONS OF TEST STATIONS AND ANODES TO BE FIELD VERIFIED BY OWNER'S REPRESENTATIVE.
 2. SEE SPECIFICATION SECTION 13989 FOR ADDITIONAL INFORMATION.
 3. FOR PVC PIPE WITH DUCTILE IRON FITTINGS, WRAP ALL METALLIC FITTINGS IN LOCATIONS NOTED FOR CATHODIC PROTECTION WITH ONE LAYER OF 12 MIL HECULINER OVER ONE LAYER OF 8 MIL POLYETHYLENE WRAP. NO OTHER CATHODIC PROTECTION MEASURES ARE REQUIRED.
 4. WHERE OWNER'S PIPELINE WAS INSTALLED WITH AT LEAST 3' VERTICAL SEPARATION FROM FOREIGN PIPELINE, RIBBON ANODE WAS NOT INSTALLED.

C:\PDX_Projects\111265-OR-TM-C-DETS-R.dwg TM-C-52 11/19/2014 4:33 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA/JHF
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

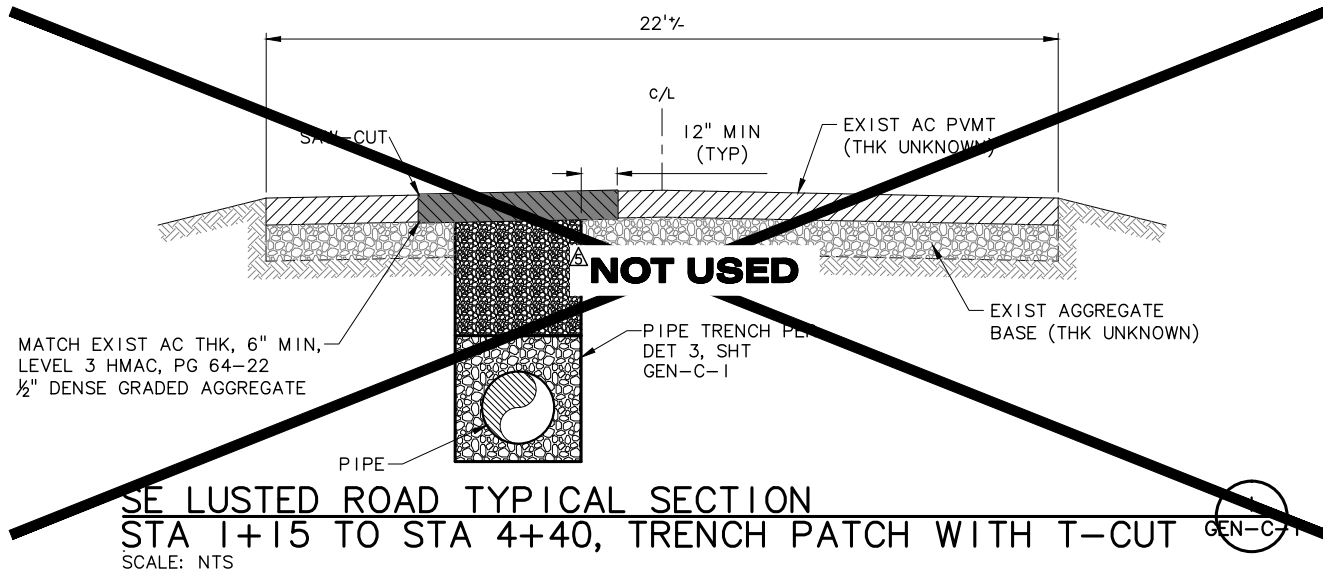
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

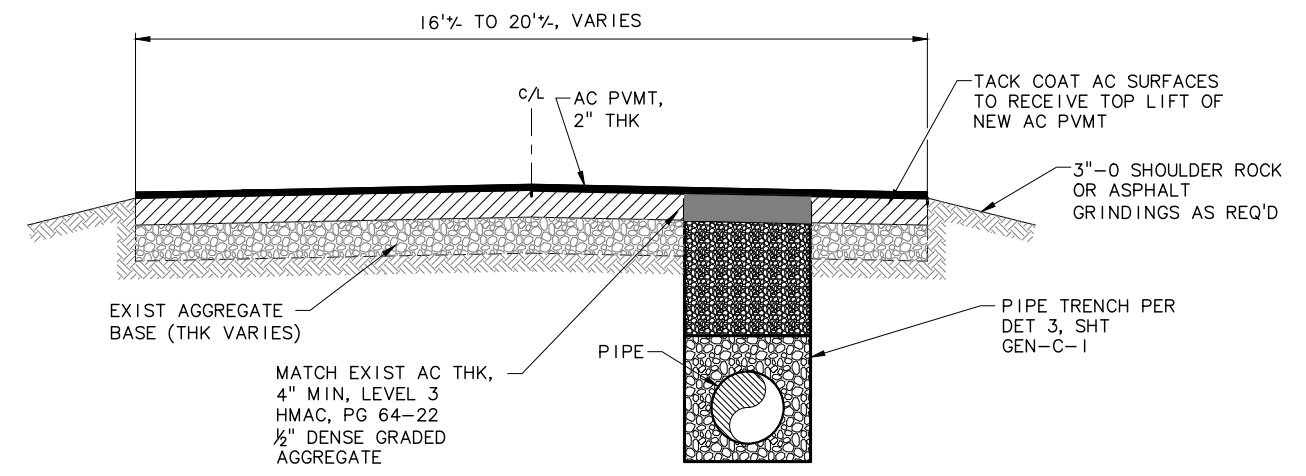
TRANSMISSION MAIN CIVIL DETAILS
CATHODIC PROTECTION
PROJECT NO.: 11-1265 SCALE: AS SHOWN SHOWN DATE: NOVEMBER 2012

SHEET
TM-C-52
69 of 123

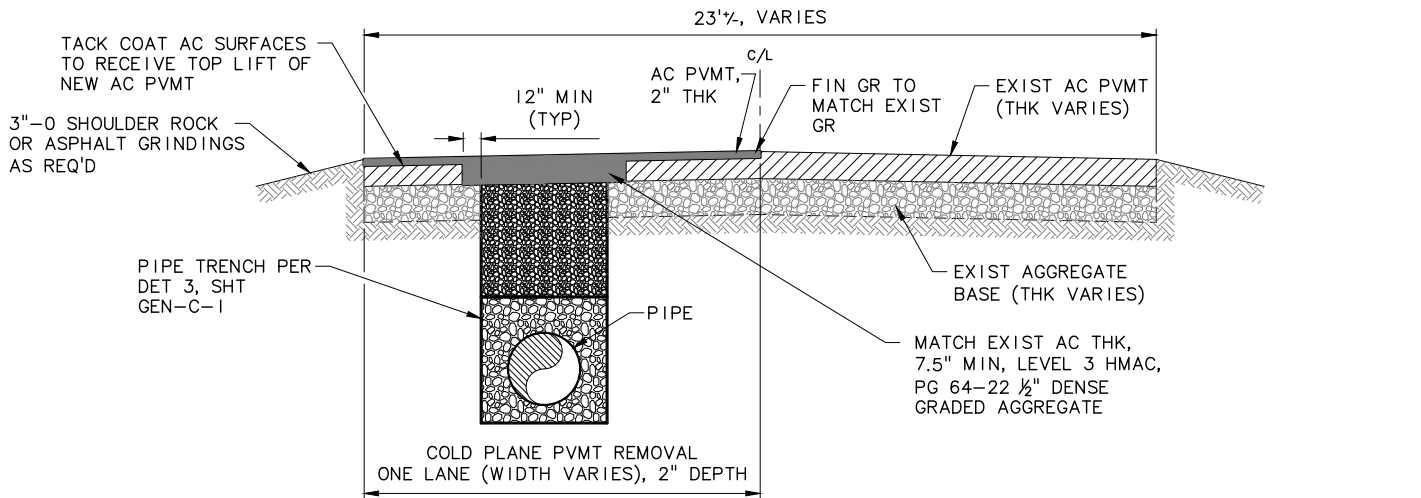
C:\PDX_Projects\111265\CAD\DR\DETAILS\11-1265-OR-TM-C-DETS-R.dwg TM-C-53 11/19/2014 4:33 PM JHF 20.0s (LMS Tech)



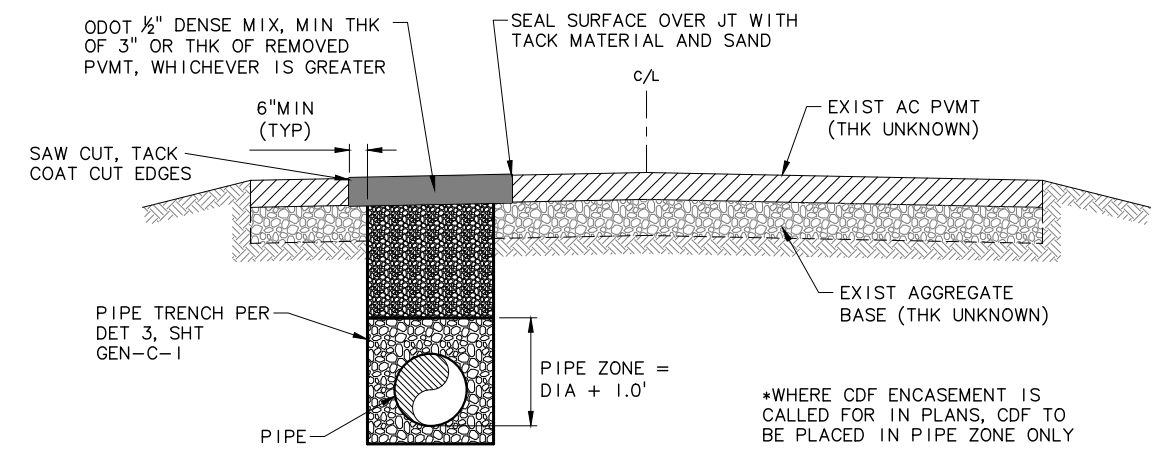
SE LUSTED ROAD TYPICAL SECTION
 STA 1+15 TO STA 4+40, TRENCH PATCH WITH T-CUT GEN-C-1
 SCALE: NTS



SE HUDSON ROAD TYPICAL SECTION
 STA 4+40 STA 63+20, TRENCH PATCH AND 2" FULL WIDTH AC OVERLAY GEN-C-1
 SCALE: NTS

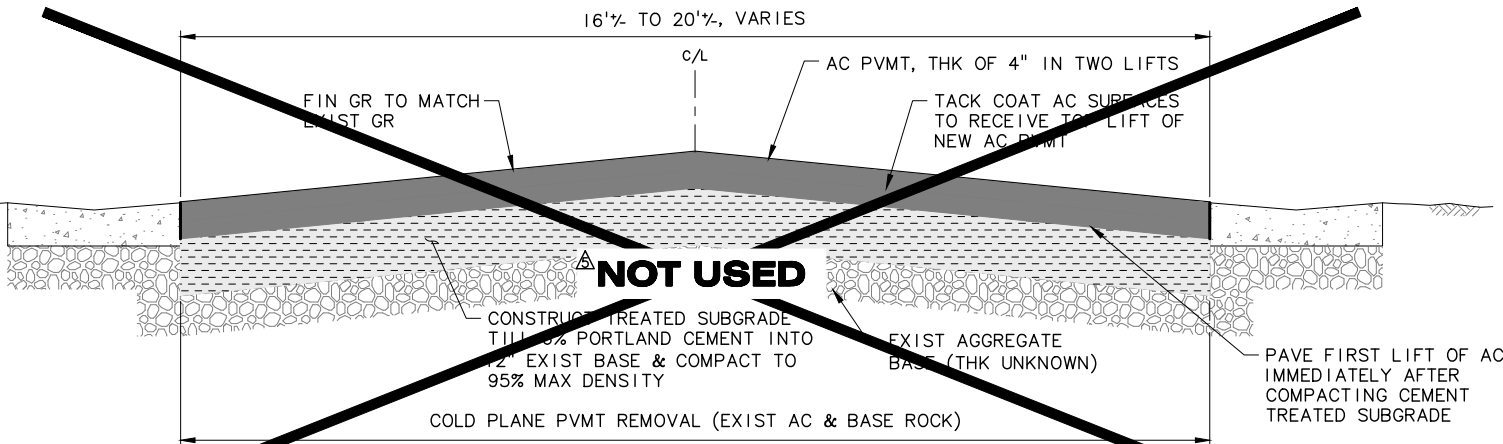


SE BLUFF ROAD TYPICAL SECTION IN CLACKAMAS COUNTY AND CITY LIMITS
 STA 63+20 TO STA 202+60, TRENCH PATCH AND 2" GRIND AND 2" AC INLAY (ONE LANE) GEN-C-1
 SCALE: NTS



TYPICAL ROAD SECTION IN CITY OF SANDY
 STA 230+85 TO STA 269+05, TRENCH PATCH WITH T-CUT GEN-C-1
 SCALE: NTS

- NOTES:**
- BETWEEN STA 202+60 AND STA 230+85, FULL STREET GRIND AND INLAY RESURFACING WAS INSTALLED, SIMILAR TO DETAIL 3 THIS SHT.
 - WHERE PIPELINE CROSSES REVENUE AVE, FULL WIDTH GRIND AND INLAY RESURFACING WAS INSTALLED.



****OPTIONAL WORK ITEM****
SE HUDSON AND BLUFF ROADS TYPICAL SECTION
 STA 4+20 TO STA 143+45, FULL DEPTH RECLAMATION GEN-C-1
 SCALE: NTS

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA/JHF
 DESIGNED
 JHF
 DRAWN
 MLH
 CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

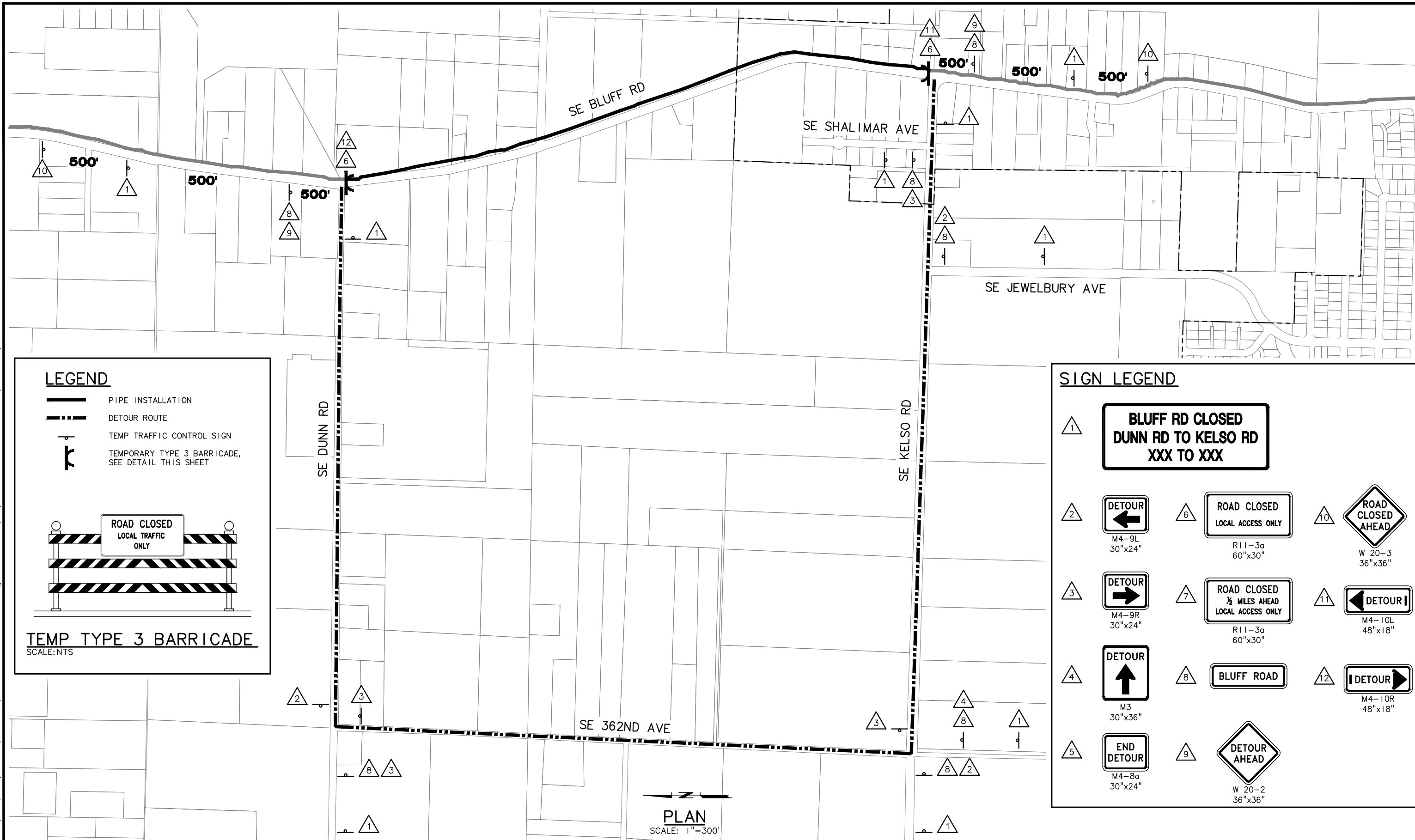
MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
 PWB INTERTIE PROJECT
 SCHEDULE A
 TRANSMISSION MAIN

TRANSMISSION MAIN CIVIL DETAILS
TYPICAL ROADWAY
RESURFACING SECTIONS

PROJECT NO.: 11-1265 SCALE: AS SHOWN NTS DATE: NOVEMBER 2012

C:\PDX_Projects\11265-OR-TM-TC-R.dwg, TM-TC-2, 11/19/2014, 3:46 PM, JHF, 20.0s (LMS Tech)



SIGN LEGEND

1	BLUFF RD CLOSED DUNN RD TO KELSO RD XXX TO XXX	6	ROAD CLOSED LOCAL ACCESS ONLY R11-3a 60"x30"	10	ROAD CLOSED AHEAD W 20-3 36"x36"
2	DETOUR ← M4-9L 30"x24"	7	ROAD CLOSED ½ MILES AHEAD LOCAL ACCESS ONLY R11-3a 60"x30"	11	DETOUR ← M4-10L 48"x18"
3	DETOUR → M4-9R 30"x24"	8	BLUFF ROAD	12	DETOUR → M4-10R 48"x18"
4	DETOUR ↑ M3 30"x36"	9	DETOUR AHEAD W 20-2 36"x36"		
5	END DETOUR M4-8a 30"x24"				

LEGEND

- PIPE INSTALLATION
- - - DETOUR ROUTE
- ⊥ TEMP TRAFFIC CONTROL SIGN
- ⊥ TEMPORARY TYPE 3 BARRICADE, SEE DETAIL THIS SHEET

TEMP TYPE 3 BARRICADE
SCALE: NTS

PLAN
SCALE: 1"=300'

NO.	DATE	BY	REVISION
1	11/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE A
TRANSMISSION MAIN

**TRANSMISSION MAIN
TYPICAL TRAFFIC CONTROL
PLAN AND ROAD CLOSURE**

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
TM-TC-2
72 of 123

ACCESS ROAD CENTERLINE DATA	
POINT #	LOCATION
1	STA RD0+00 N636540.83 E7750779.52 EL=960.59
2	STA RD2+29, 32' L N636566.03 E7751009.19 EL=969.30
3	STA RD2+47, 32' L N636565.49 E7751027.18 EL=970.24

EDGE OF PAVEMENT CURVE DATA					
CURVE	PC LOCATION	PT LOCATION	RADIUS	LENGTH	DELTA
1	STA RD2+18.82, 6.00' L N636540.33 E7750998.42 EL=967.72	STA RD2+28.82, 16.00' L N636550.03 E7751008.71 EL=968.50	10.00'	15.71'	90°00'00"
2	STA RD2+46.82, 16.00' L N636549.50 E7751026.71 EL=969.26	STA RD2+56.82, 6.00' L N636539.21 E7751036.40 EL=968.98	10.00'	15.71'	90°00'00"

NOTES:

- SEE SHEET RES-C-2 FOR SITE GRADING AND SHEET RES-C-3 FOR ACCESS ROAD PROFILE.
- CONTRACTOR TO COORDINATE WITH FRONTIER COMMUNICATIONS TO PROVIDE A 2-WIRE BRANCH OFF THE CITY'S EXISTING LEASED LINE SCADA CIRCUIT INTO THE TRANSFER PUMP STATION TELEMETRY PANEL.

IDLEMAN STREET

REVENUE AVE

RELOCATE EXIST WATER SERVICE & METER

RELOCATE EXIST WATER SERVICE & METER

DWY APPROACH & S/W PER CITY OF SANDY DWG NO. 208, SHT RES-C-9

EXIST GRAVEL DWY

ACCESS DWY HORIZ CONTROL LINE

NEW FENCE INSTALLED ALL THE WAY TO EXIST FENCE

NEW CONDUIT ROUTED TO RELOCATED TRANSFORMER

PROPOSED RES LEVEL INDICATOR, SEE SPECS, COORD FINAL LOCATION W/ OWNER

PROPOSED BLOCK RET WALL

PROPOSED CONC GENERATOR PAD, SEE DET 4, SHT GEN-M-1

PROPOSED PAD MOUNT, TRANSFORMER TO BE PROVIDED BY PGE

EXIST ELEC SERVICE VAULT

12' WIDE AC PAVEMENT ACCESS DWY W/ CONC CURB, SEE DET 1, SHT RES-C-3

PROPOSED SECURITY GATE & FENCE, SEE DET 4, SHT RES-C-9

PROPOSED TELEPHONE LINE, SEE NOTE 2

EXIST FRONTIER COMMUNICATIONS CND BANK

EXIST ELEC TRANSFORMER, TO BE PROTECTED BY CONTRACTOR RELOCATED AS SHOWN, EXIST CND ABAN IN PLACE

PROPOSED BLOCK RET WALL AROUND TRANSFORMER

PROPOSED CONC GENERATOR PAD, SEE DET 4, SHT GEN-M-1

PROPOSED PAD MOUNT, TRANSFORMER TO BE PROVIDED BY PGE

EXIST ELEC SERVICE VAULT

PROPOSED SECURITY GATE & FENCE, SEE DET 4, SHT RES-C-9

EXIST FRONTIER COMMUNICATIONS VAULT

EXIST ACCESS GATE TO FRONTIER COMMUNICATIONS FACILITIES TO NORTH

GRVL PAD

PROPOSED 1.0 MG PRESTRESSED CONC RESERVOIR
DIA=93'
OF EL=995'
FLR EL @ WALL=975'

PROPOSED 15-FT WIDE TEMP CONST ESMT

CONST DISTURBANCE LIMITS/SEDIMENT FENCING

PROPOSED LIMITS OF AGGREGATE PIER INSTALLATION, APPROX 12,971 SF, SEE SHTS RES-C-4 AND RES-M-2 FOR TOP OF PIER ELEVATIONS

CENTER OF RES
N636633.56
E7751119.49

APPROX TOE OF PROPOSED 2:1 FINAL FILL SLOPE

PROPOSED WATER QUALITY DETENTION FACILITY

EXIST PRIVATE FENCING

PROPOSED TRANSFER PS, SEE SHTS RES-M FOR DETS, NE CORNER OF PS: N636579.79 E7751083.51 SW CORNER OF PS: N636558.57 E7751056.87

PROPOSED CHECK VALVE VAULT, NE CORNER OF VAULT: N636551.17 E7751116.60

PLAN
SCALE: 1"=20'

C:\PDX-Projects\11\1265\CAD\DR\SHEETS\SCHED B\11-1265-234-OR-C-R.dwg RES-C-1 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	12/4/12	LLA	ADDENDUM NO. 2

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

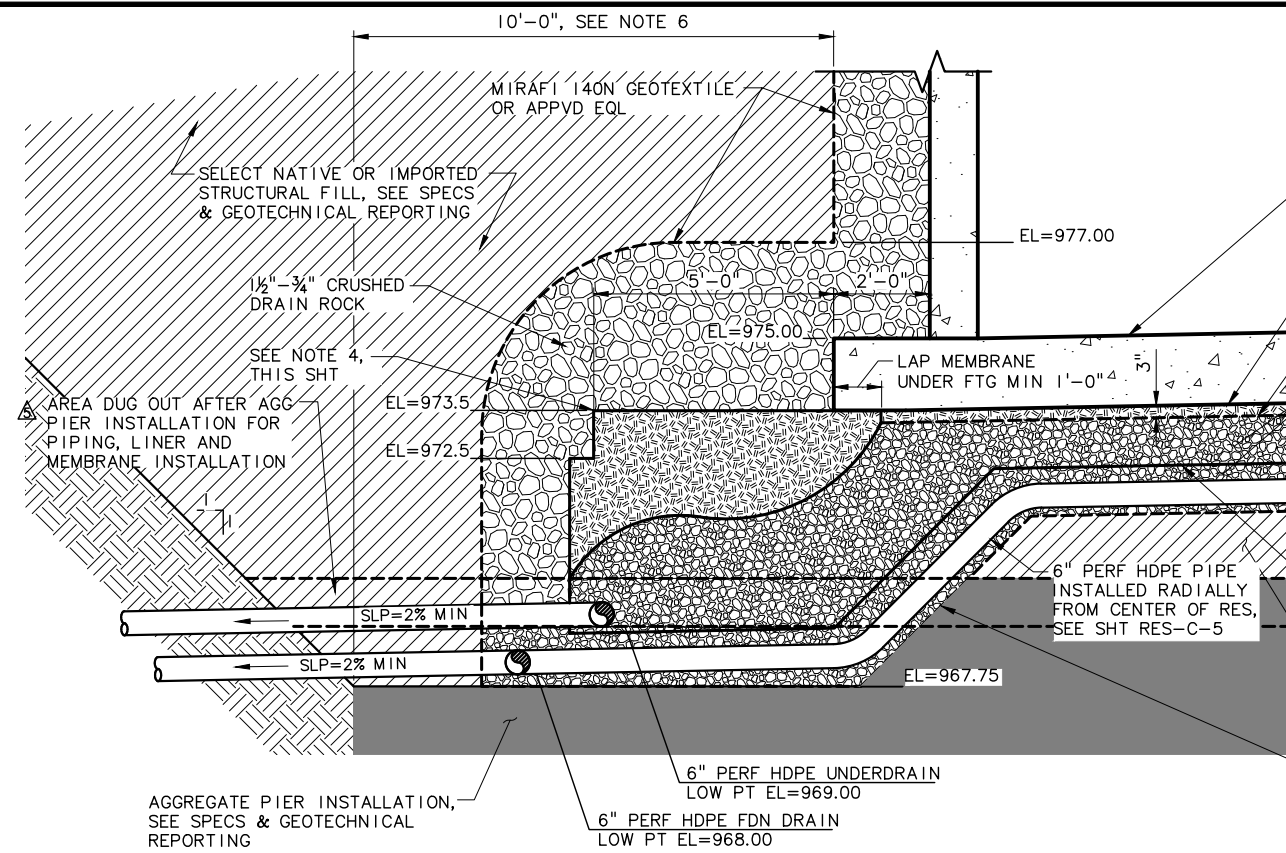
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

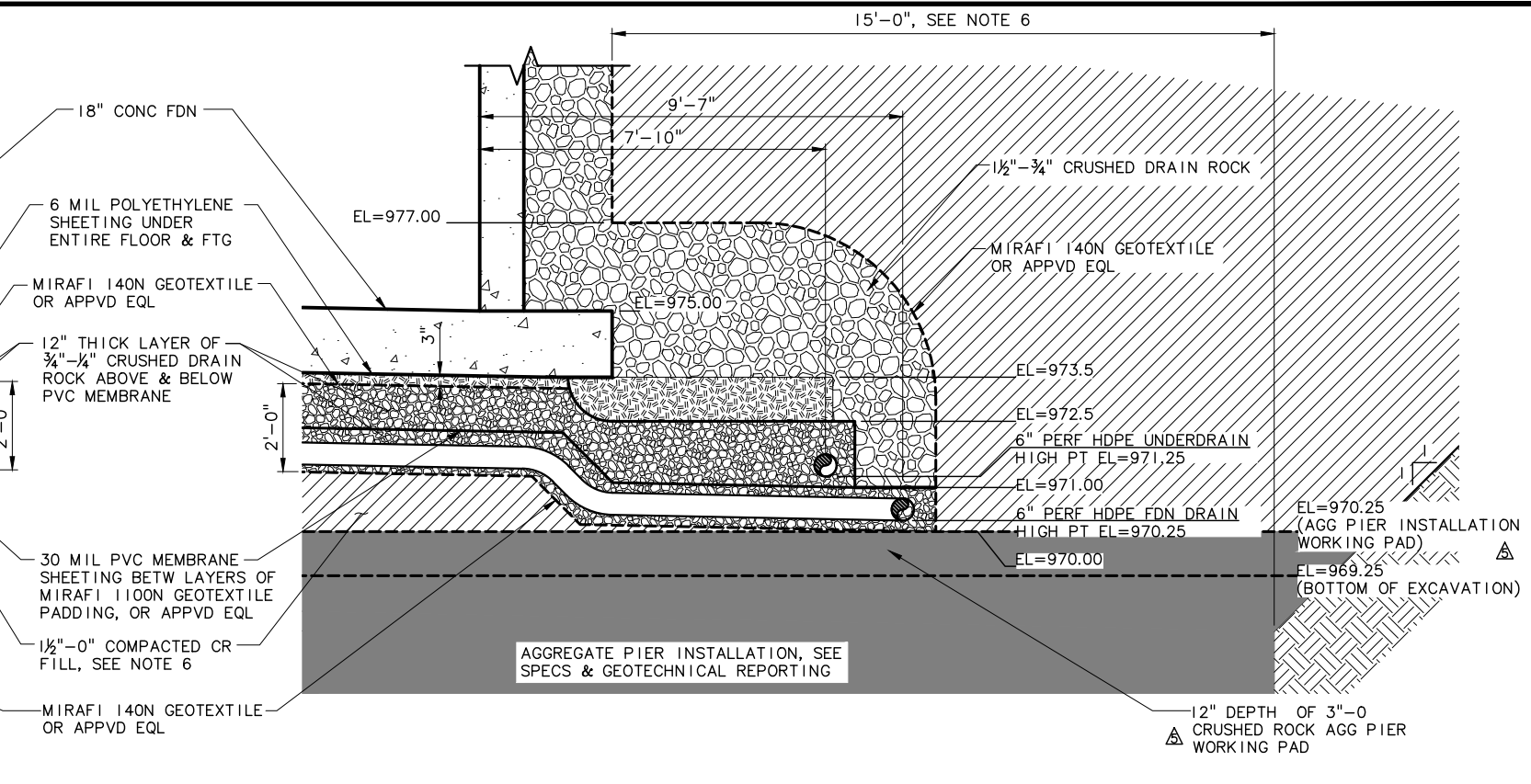
SITE LAYOUT PLAN			
PROJECT NO.:	11-1265	SCALE:	AS SHOWN
DATE:	NOVEMBER 2012		

SHEET
RES-C-1
73 of 123

C:\PDX_Projects\11\1265-234-OR-C-R.dwg RES-C-4 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



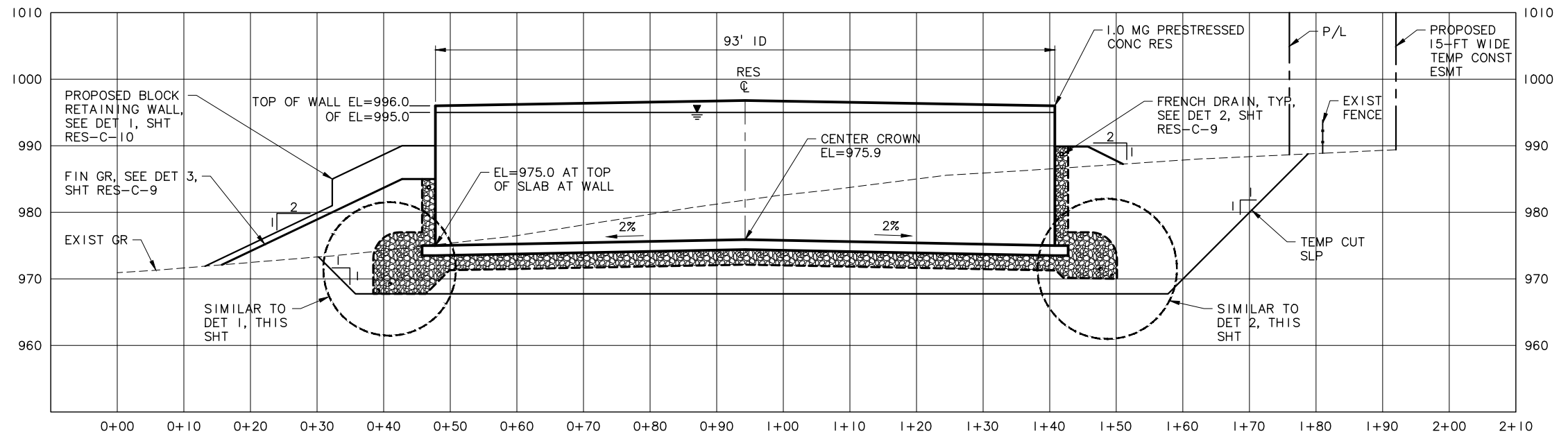
UNDERDRAIN SYSTEM TO MONITORING MANHOLE DETAIL (1)
SCALE: 1/2"=1'-0"



UNDERDRAIN & FOUNDATION DRAIN DETAIL (2)
SCALE: 1/2"=1'-0"

NOTES:

1. CAP RING DRAIN AND FOUNDATION DRAIN AT HIGH POINTS AND SLOPE AT APPROXIMATELY 1% IN EACH DIRECTION AROUND TANK TO MONITORING MANHOLE. SEE MONITORING MANHOLE DETAIL (1), SHEET RES-C-9.
2. OBTAIN OWNER-PROVIDED GEOTECHNICAL ENGINEER'S APPROVAL OF FINAL SUBGRADE PRIOR TO PLACEMENT OF LEVELING COURSE, GEOTEXTILE, DRAIN ROCK AND STRUCTURAL FILL.
3. ALL DRAIN PIPING ENTERING MONITORING MANHOLE TO HAVE RESTRAINED FLAP VALVES ON INLET, SEE SPECIFICATIONS.
4. FIVE-FOOT SPAN OF ONE-FOOT DEPTH 3/4"-0" CRUSHED ROCK TO BE PROVIDED ADJACENT TO FOOTING TO ALLOW FOR SECURING OF FOOTING FORM SUPPORT STAKES. PROVIDE 3-INCH DEPTH OF 3/4"-0" CRUSHED ROCK UNDER ENTIRE CONCRETE FOUNDATION.
5. RESERVOIR COLUMNS NOT SHOWN FOR CLARITY.
6. COMPACTED CRUSHED ROCK FILL AND AGGREGATE PIER INSTALLATION SHALL EXTEND 10 FEET BEYOND THE SOUTHERN EDGE OF RESERVOIR FOOTING AND 15 FEET BEYOND THE NORTHERN EDGE OF THE RESERVOIR FOOTING. SEE SHEET RES-C-1 FOR PROPOSED LIMITS OF FILL AND AGGREGATE PIERS. SEE GEOTECHNICAL REPORTING FOR ADDITIONAL DETAILS.



SECTION A-A
SCALE: 1"=10' HORIZ, 1"=10' VERT
RES-C-1

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

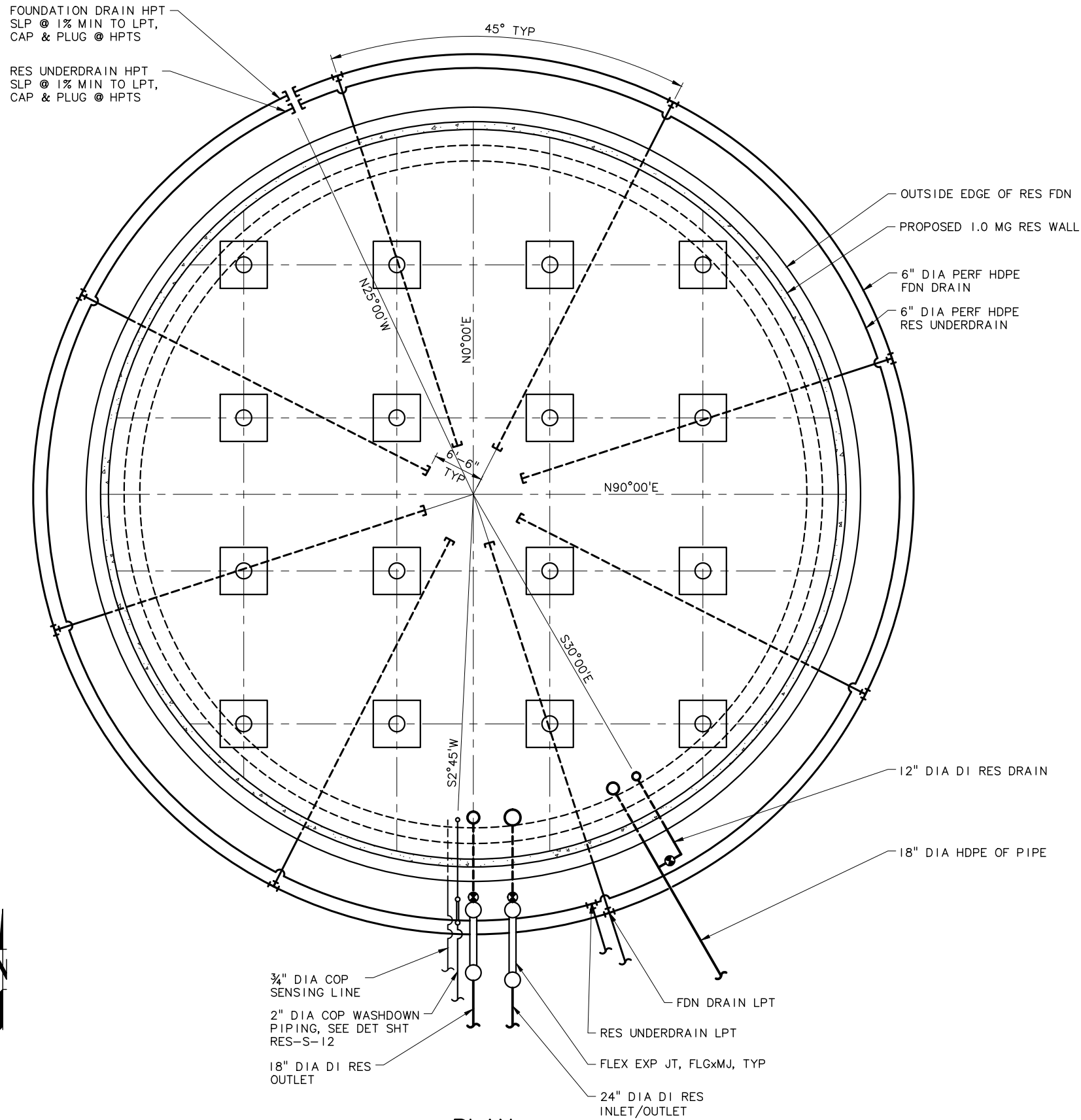
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR SECTION AND UNDERDRAIN DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

C:\PDX_Projects\11\1265\CAD\DR\DR\SHEETS\SCHED B\11-1265-234-OR-C5-R.dwg RES-C-5 10/30/2014 4:14 PM DAK 20.0s (LMS Tech)



PLAN
SCALE: 1/8" = 1'-0"

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR FLOOR PLAN
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

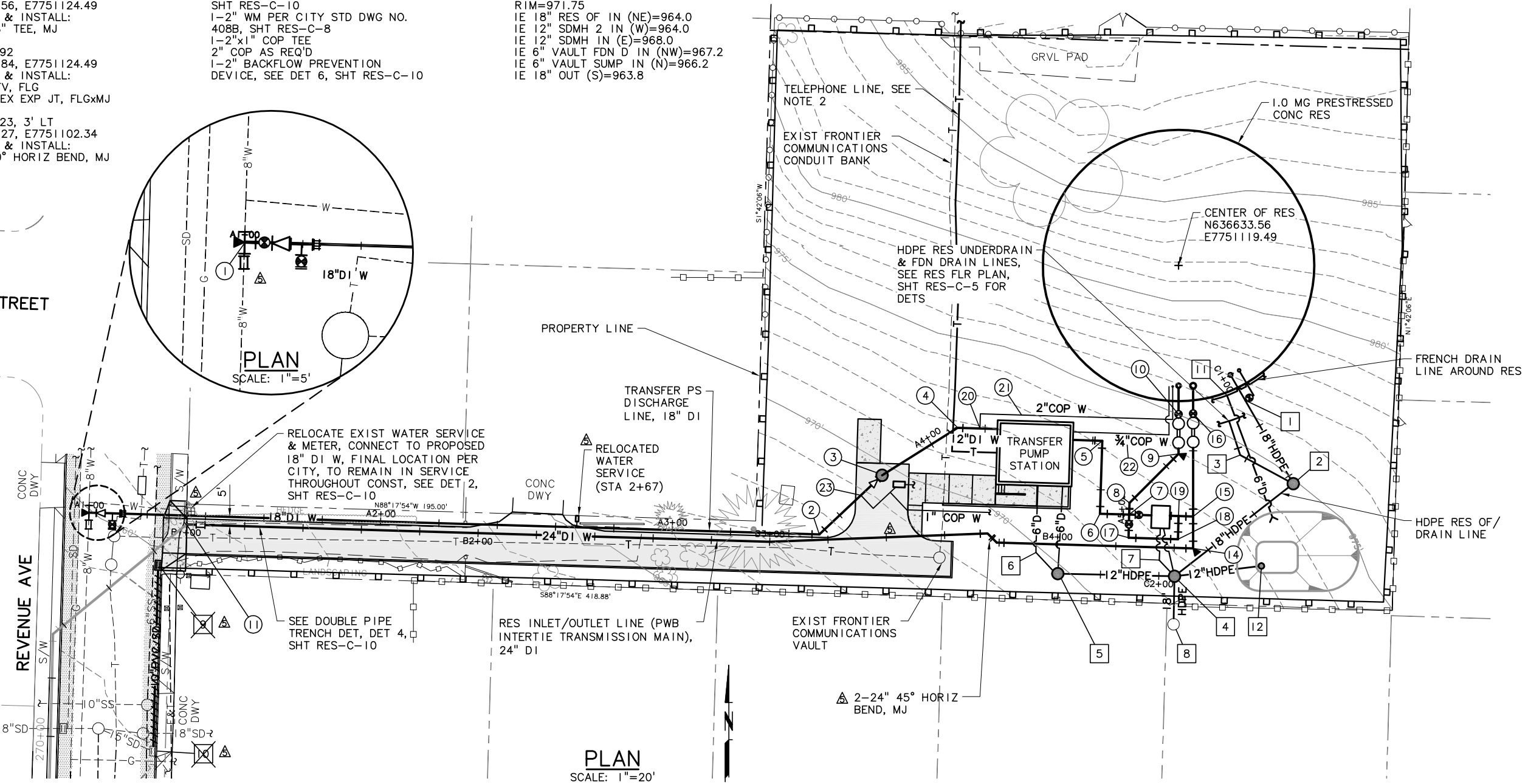
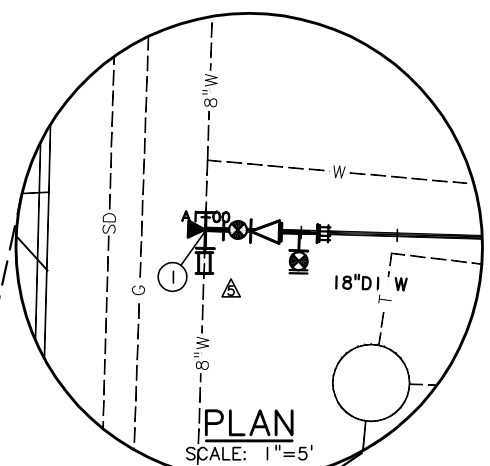
SHEET
RES-C-5
77 of 123

WATER PIPING SCHEDULE

- ① STA A1+00
N636548.83, E7750746.05
CONNECT TO EXIST 8" W,
FURNISH & INSTALL:
1-19.0 SF TB
▲ 1-8" TEE, MJxFLG
▲ 1-8"x8" TAPPING SLV, FLG
1-8" LS, MJ
1-8" GV, FLG
1-18"x8" RDCR, FLG
1-18"x12" TEE, FLG
1-12" BFV, FLG W/ 1-12"
BLIND FLG SOUTH OF TEE
1-18" FLGMJ ADAPTER
EAST OF TEE
- ② STA A3+50
N636541.40, E7750996.36
FURNISH & INSTALL:
1-18" 45° HORIZ BEND, MJ
- ③ STA A3+80
N636561.68, E7751017.89
FURNISH & INSTALL:
1-48" FLOW METER MH,
SEE DET 8, SHT RES-M-3
1-18"x12" RDCR, MJ
- ④ STA A4+04 A4+13
N636578.21, E7751035.44
FURNISH & INSTALL:
1-12" 45° HORIZ BEND, MJ,
ROLLED UP
- ⑤ STA A4+65
N636573.49, E7751093.32
FURNISH & INSTALL:
1-18" 90° HORIZ BEND, MJ
- ⑥ STA A4+90
N636548.50, E7751092.58
FURNISH & INSTALL:
1-18" 90° HORIZ BEND, MJ
- ⑦ STA A5+00
N636548.21, E7751102.58
FURNISH & INSTALL:
1-18" CROSS, MJ
2-18" BFV, MJ
- ⑧ STA A5+04
N636552.21, E7751102.70
FURNISH & INSTALL:
1-18" 45° HORIZ BEND, MJ
- ⑨ STA 5+28
N636569.00, E7751119.49
FURNISH & INSTALL:
1-18" 45° HORIZ BEND, MJ
1-14.6 SF TB
- ⑩ STA A5+42
N636582.59, E7751119.49
FURNISH & INSTALL:
1-18" BFV, FLG
1-18" FLEX EXP JT, FLGxMJ
- ⑪ STA B1+00=270+94
N636544.84, E7750779.46
CONNECT TO PROPOSED 24" DI W
FURNISH & INSTALL:
1-24" LS, MJ
- ⑫ STA B3+48
N636537.48, E7751027.17
FURNISH & INSTALL:
1-24" 22½° HORIZ BEND, MJ
- ⑬ STA B3+53
N636539.35, E7751032.10
FURNISH & INSTALL:
1-24" 22½° HORIZ BEND, MJ
- ⑭ STA B4+46
N636536.61, E7751124.49
FURNISH & INSTALL:
1-24" 90° HORIZ BEND, MJ,
ROLLED DOWN AT 45°
1-48.0 SF TB
- ⑮ STA B4+56
N636547.56, E7751124.49
FURNISH & INSTALL:
1-24"x18" TEE, MJ
- ⑯ STA B4+92
N636582.84, E7751124.49
FURNISH & INSTALL:
1-24" BFV, FLG
1-24" FLEX EXP JT, FLGxMJ
- ⑰ STA B4+23, 3' LT
N636540.27, E7751102.34
FURNISH & INSTALL:
1-18" 90° HORIZ BEND, MJ
- ⑱ STA B4+40, 3' LT
N636539.76, E7751119.26
FURNISH & INSTALL:
1-18" 90° HORIZ BEND, MJ
- ⑲ STA B4+57, 5' LT
N636547.71, E7751119.49
FURNISH & INSTALL:
1-18" TEE, MJ
- ⑳ STA A4+20
N636577.74, E7751051.43
FURNISH & INSTALL:
1-2" SERVICE ASSY, SEE DET 5,
SHT RES-C-10
- ㉑ PROPOSED RES WASHDOWN LINE
- ㉒ PROPOSED RES SENSING LINE
- ㉓ STA A3+70
N636554.82, E7751010.61
FURNISH & INSTALL:
1-2" SERVICE ASSY, SEE DET 5,
SHT RES-C-10
1-2" WM PER CITY STD DWG NO.
408B, SHT RES-C-8
1-2"x1" COP TEE
2" COP AS REQ'D
1-2" BACKFLOW PREVENTION
DEVICE, SEE DET 6, SHT RES-C-10

STORM/DRAIN PIPING SCHEDULE

- ① STA C1+10
N636587.39, E7751142.30
FURNISH & INSTALL:
1-18"x12" TEE, FLG
1-12" BFV, FLG
1-12" 90° HORIZ BEND, FLG
- ② STA C1+43
N636558.80, E7751158.81
FURNISH & INSTALL:
1-RES MONITORING MH
SEE DET 1, SHT RES-C-9
- ③ STA C1+25, 11' RT
N636568.60, E7751140.60
FURNISH & INSTALL:
2-6" 45° HDPE HORIZ BEND
IE=968.25
IE=967.25
- ④ STA C1+95
N636527.08, E7751118.09
FURNISH & INSTALL:
1-48" SDMH 1
RIM=971.75
IE 18" RES OF IN (NE)=964.0
IE 12" SDMH 2 IN (W)=964.0
IE 12" SDMH IN (E)=968.0
IE 6" VAULT FDN D IN (NW)=967.2
IE 6" VAULT SUMP IN (N)=966.2
IE 18" OUT (S)=963.8
- ⑤ STA C2+35
N636527.97, E7751078.10
FURNISH & INSTALL:
1-48" SDMH 2
RIM=971.87
IE 4" PS RET WALL (N)=967.5
IE 6" PS FDN D IN (NW)=966.5
IE 6" PS FLR D IN (N)=965.5
IE 12" OUT (SE)=964.3
- ⑥ N636535.21, E7751070.59
FURNISH & INSTALL:
1-6" 45° HDPE HORIZ BEND
IE=967.4
- ⑦ N636532.58, E7751112.92
FURNISH & INSTALL:
1-6" 45° HDPE HORIZ BEND
IE=967.4
- ⑧ STA C1+95, 16' LT
N636510.62, E7751117.78
CONNECT TO EXIST SDMH
RIM=970.0
IE 18" IN (NW)=963.5
- ⑨ N636530.87, E7750769.80
FURNISH & INSTALL:
1-CB, TYPE C-2 W/ SUMP
PER CITY STD DWG NO. 305C,
SHT RES-C-9
RIM=960.5
IE 10" OUT (S)=958.1
- ⑩ N636467.15, E7750768.06
CONNECT TO EXIST CB
RIM=958.9
IE 10" IN (N)=955.6
- ⑪ N636589.34, E7751102.16
FURNISH & INSTALL:
1-6" HDPE TEE
IE=982.0
50 LF 6" HDPE @ 24% SLP
- ⑫ N636530.60, E7751147.89
FURNISH & INSTALL:
1-24" CB, BEEHIVE GRATE,
SEE DET 2, SHT GEN-C-2
RIM=969.5
IE 12" OUT (W)=968.5 967.0



NOTES:

1. PIPE DEFLECTION LIMITED TO ONE-HALF OF PIPE MANUFACTURER'S RECOMMENDATIONS.
2. FULLY RESTRAIN ALL VALVES UNLESS OTHERWISE NOTED.
3. PROVIDE FLAP VALVES AT MANHOLE ENTRANCE FOR ALL DRAIN LINES AND OVERFLOW FROM RESERVOIR. RESTRAIN FLAP VALVES TO PIPING.

C:\PD\Projects\11\1265\CAD\DR\DR\SCHED B\11-1265-234-OR-C-R.dwg RES-C-6 11/23/2014 7:28 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	12/04/12	LLA	ADDENDUM NO. 2

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
LLA	DESIGNED
JHF	DRAWN
MLH	CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

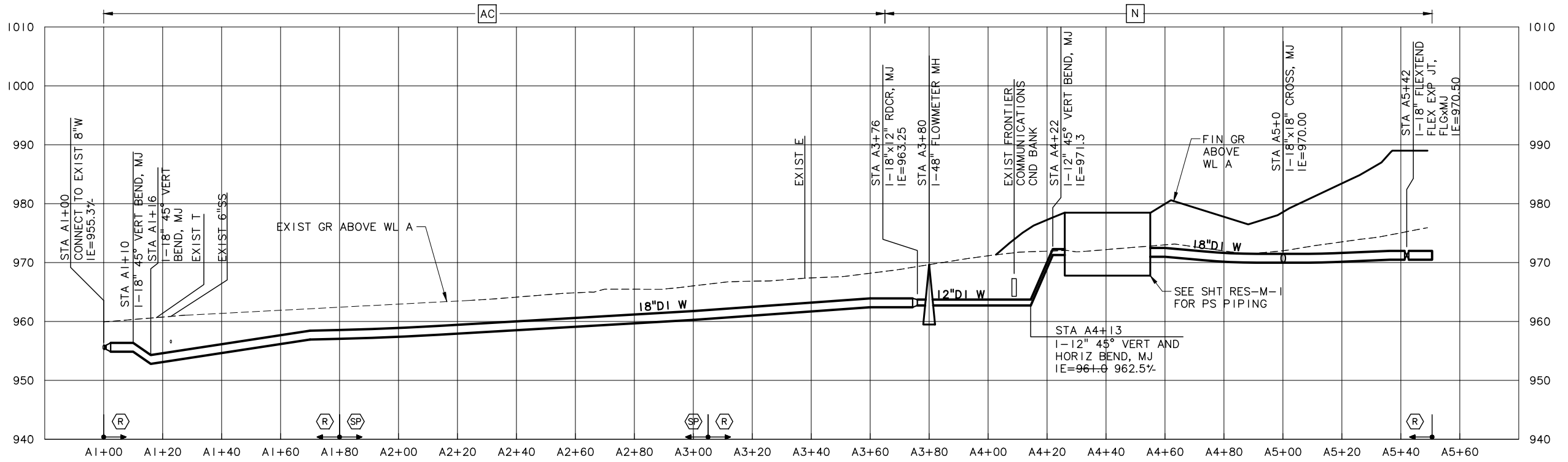
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

SITE PIPING PLAN

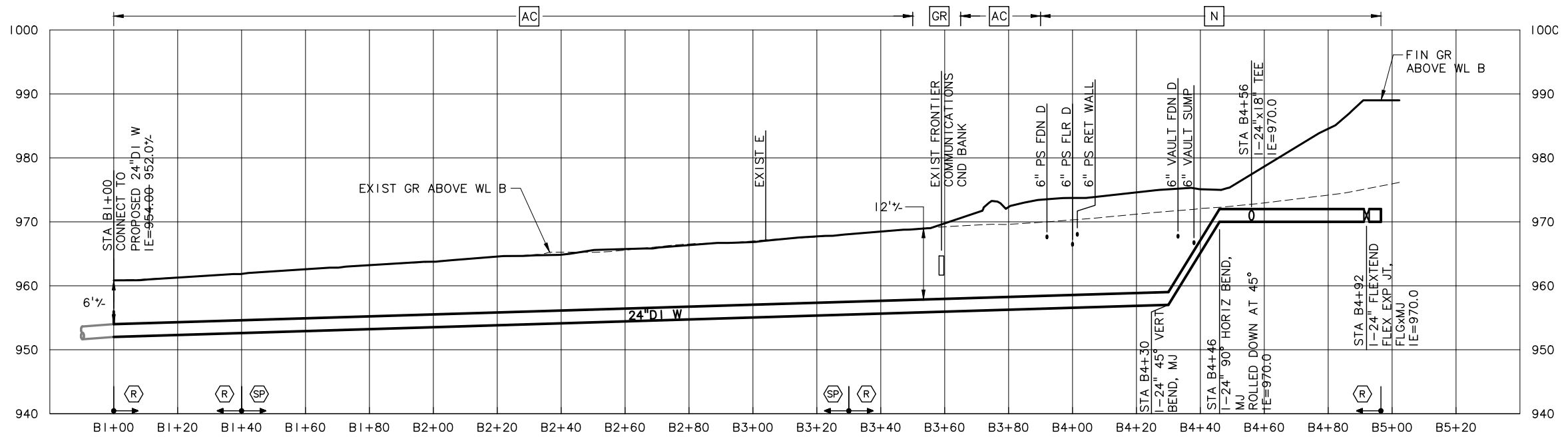
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET **RES-C-6** 78 of 123

C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED B\11-1265-234-OR-C-R.dwg RES-C-7 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



△ PROFILE WL ALIGN A
SCALE: 1"=20' HORIZ, 1"=10' VERT



△ PROFILE WL ALIGN B
SCALE: 1"=20' HORIZ, 1"=10' VERT

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA
DESIGNED
JHF
DRAWN
MLH
CHECKED

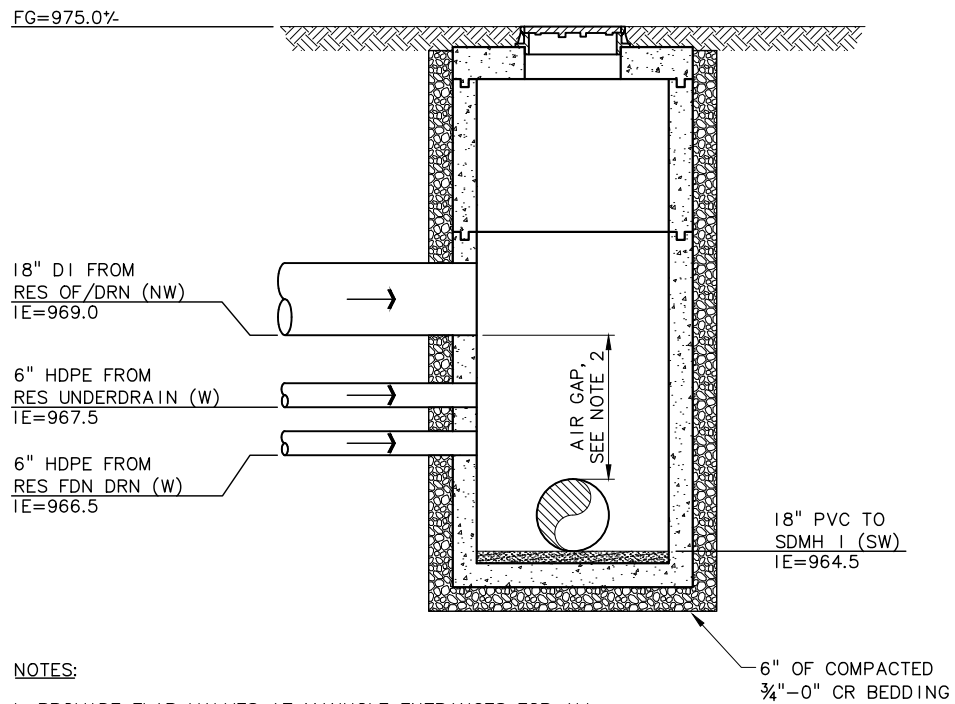
RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

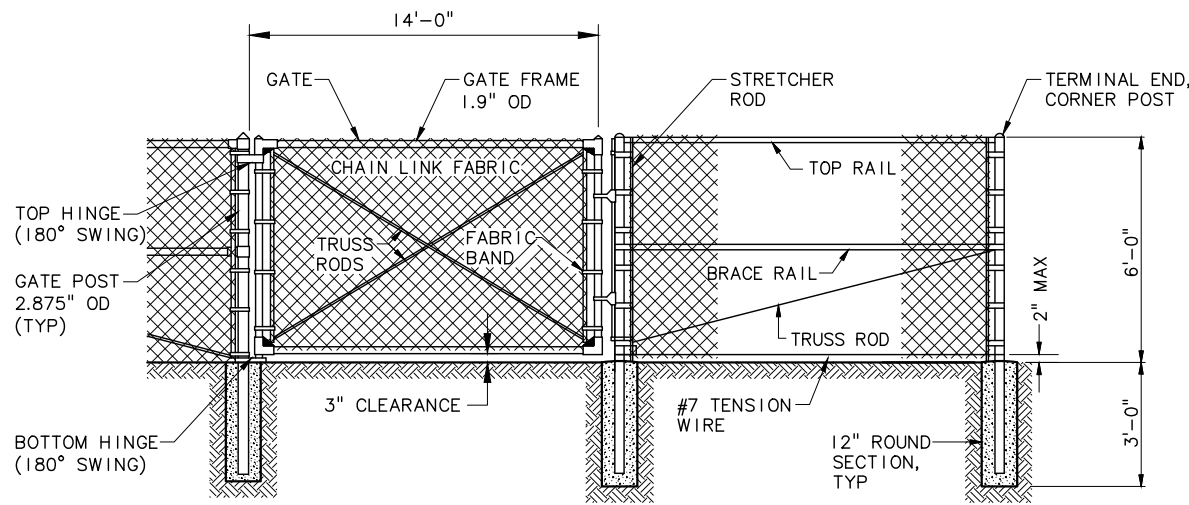
SITE PIPING PROFILES	
PROJECT NO.: 11-1265	SCALE: AS SHOWN
DATE: NOVEMBER 2012	

SHEET
RES-C-7
79 of 123

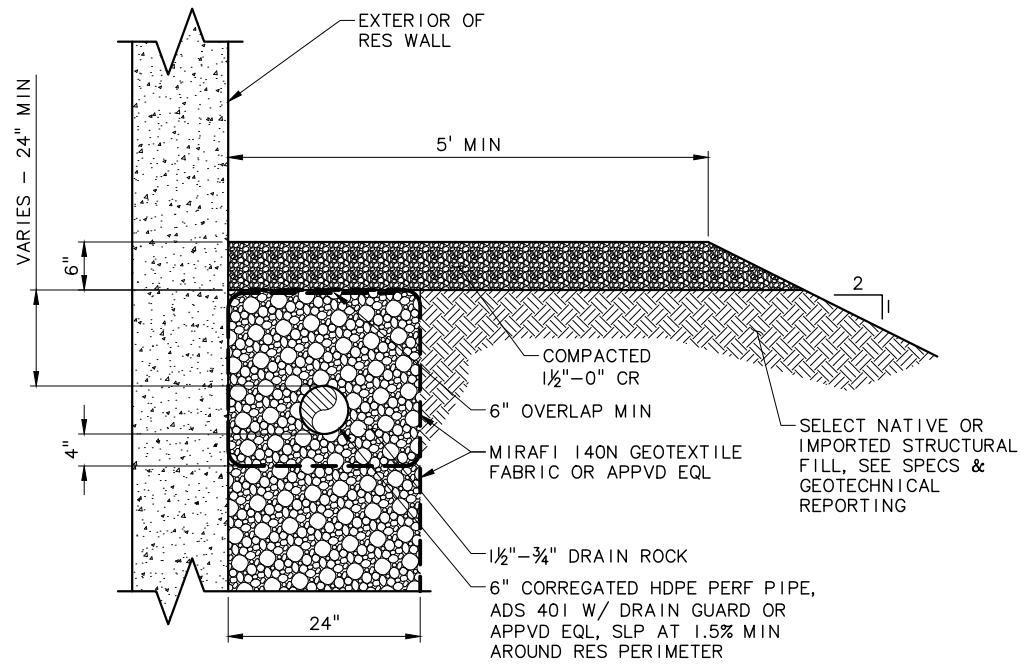


- NOTES:**
1. PROVIDE FLAP VALVES AT MANHOLE ENTRANCES FOR ALL PIPING. RESTRAIN FLAP VALVES TO PIPING. RESTRAINED FLAP VALVE INSTALLED ON 18" DUCTILE IRON FROM COMBINED RESERVOIR OVERFLOW AND DRAIN PIPE ONLY.
 2. AIR GAP SHALL BE AT LEAST TWICE THE DIAMETER OF THE RESERVOIR OVERFLOW/DRAIN INLET LINE TO MAINTAIN MEASURED VERTICALLY ABOVE THE TOP OF MANHOLE OUTLET LINE.

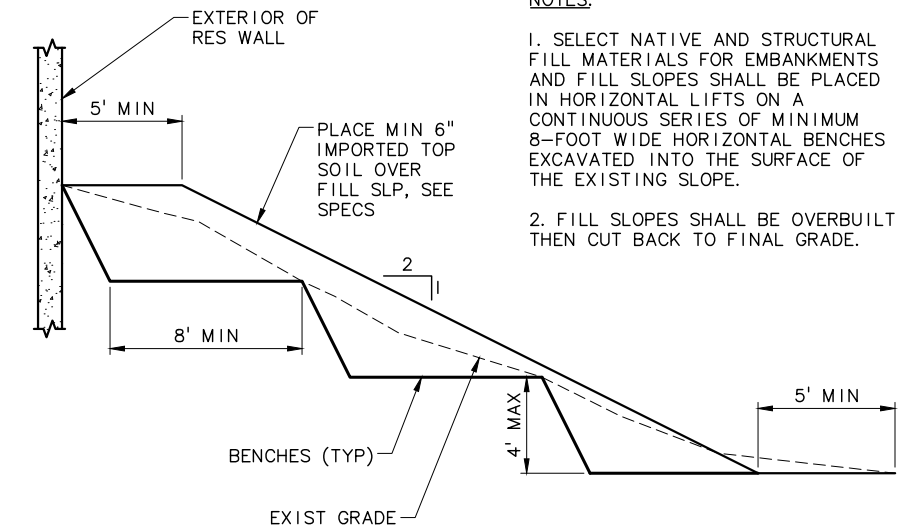
RESERVOIR MONITORING MANHOLE
SCALE: 1/2" = 1'-0"
RES-C-6



CHAIN LINK SECURITY GATE AND FENCE
SCALE: NTS
RES-C-1

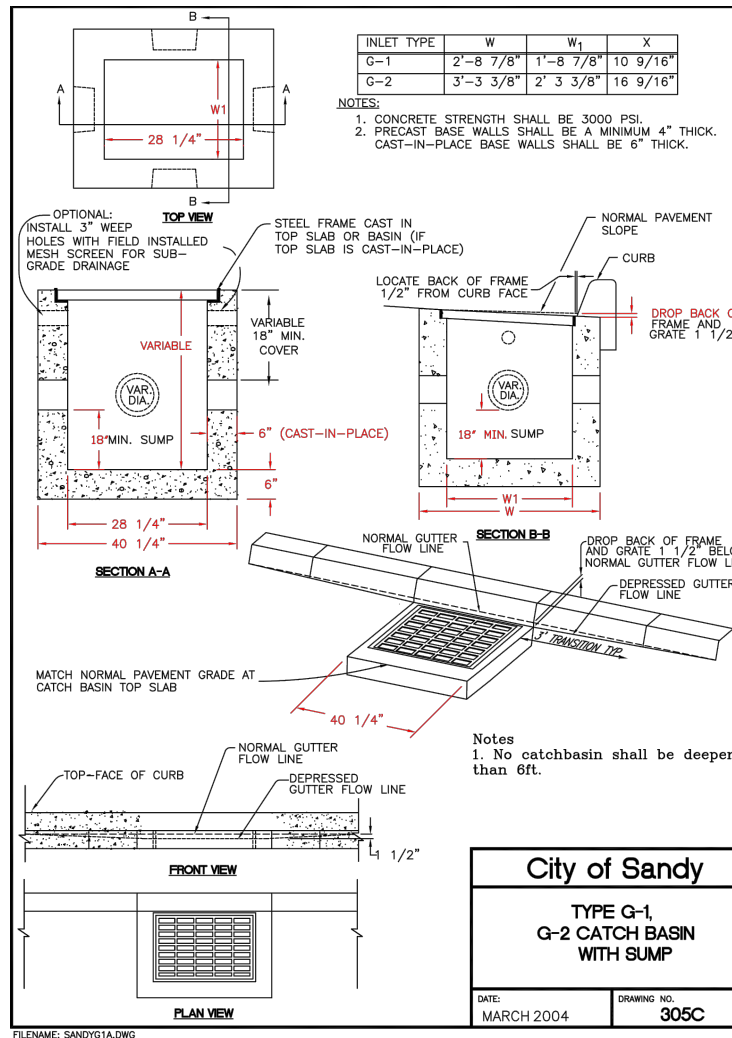


FRENCH DRAIN SECTION
SCALE: 1" = 1'-0"
RES-C-4



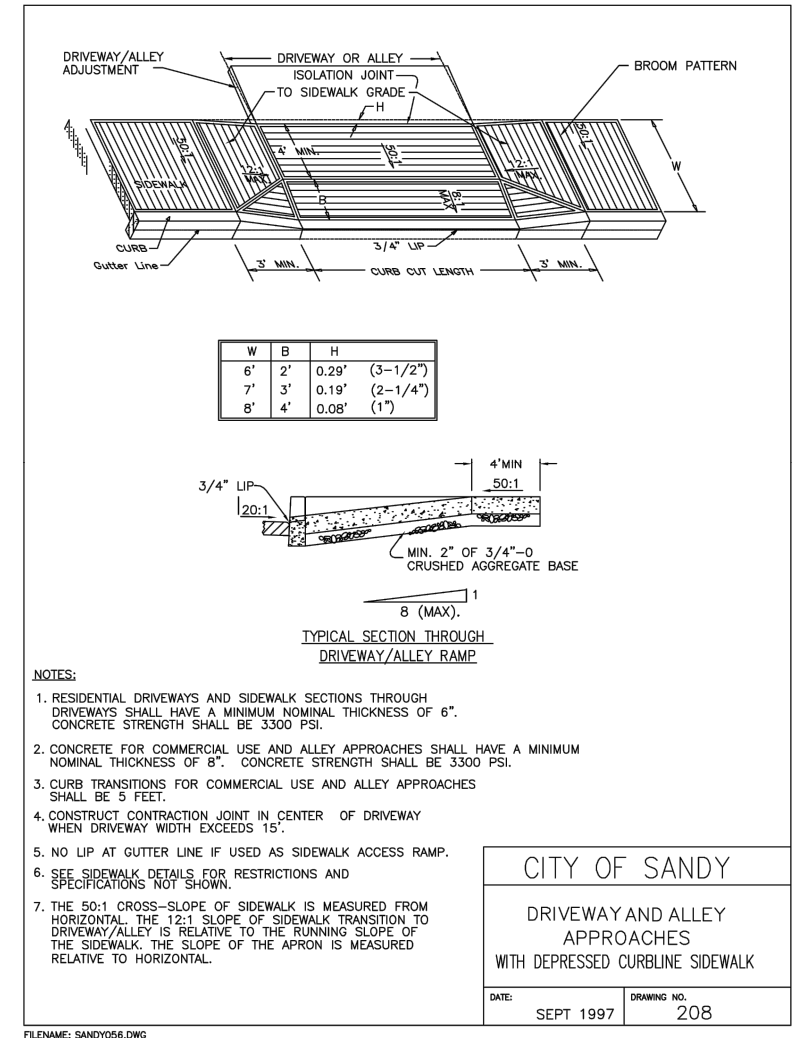
TYPICAL DETAIL FOR FILLING ON SLOPES
SCALE: NTS
RES-C-4

- NOTES:**
1. SELECT NATIVE AND STRUCTURAL FILL MATERIALS FOR EMBANKMENTS AND FILL SLOPES SHALL BE PLACED IN HORIZONTAL LIFTS ON A CONTINUOUS SERIES OF MINIMUM 8-FOOT WIDE HORIZONTAL BENCHES EXCAVATED INTO THE SURFACE OF THE EXISTING SLOPE.
 2. FILL SLOPES SHALL BE OVERBUILT THEN CUT BACK TO FINAL GRADE.



City of Sandy
TYPE G-1,
G-2 CATCH BASIN
WITH SUMP

DATE: MARCH 2004
DRAWING NO. 305C



CITY OF SANDY
DRIVEWAY AND ALLEY
APPROACHES
WITH DEPRESSED CURBLINE SIDEWALK

DATE: SEPT 1997
DRAWING NO. 208

C:\PDX_Projects\111265-234-OR-R.dwg RES-C-9 11/23/2014 7:28 PM JHF 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900
Portland, Oregon 97204

PHONE 503-225-9010
FAX 503-225-9022

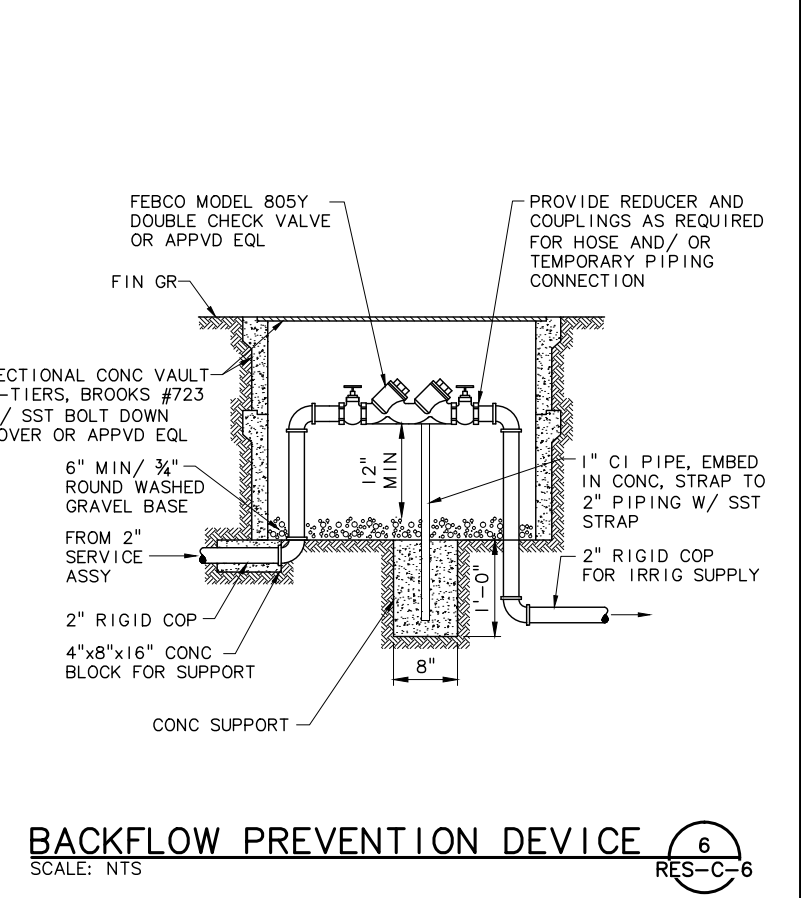
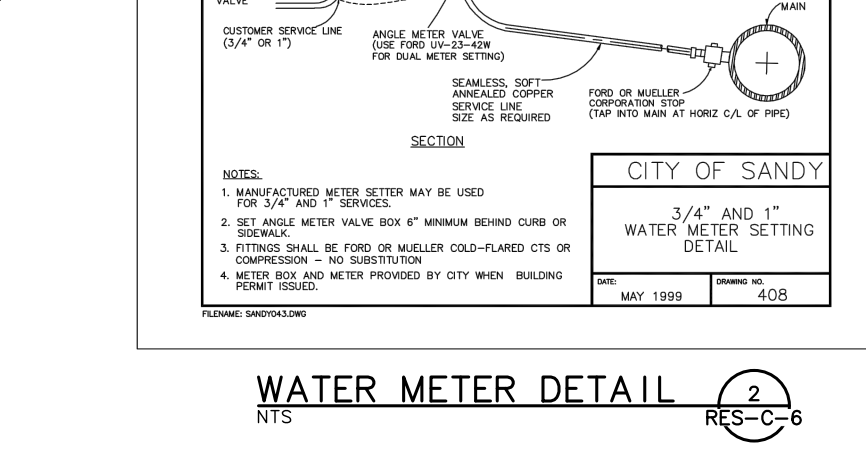
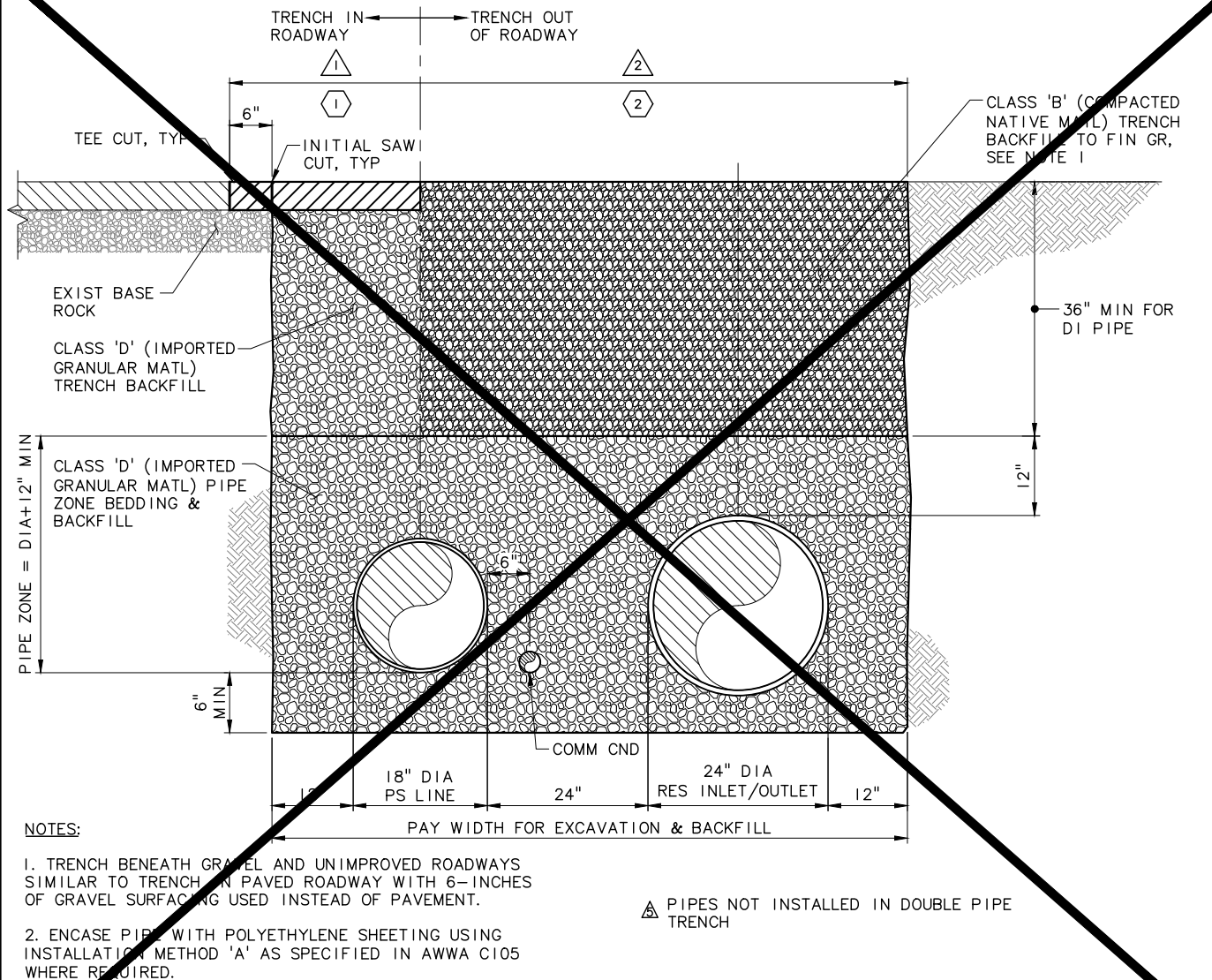
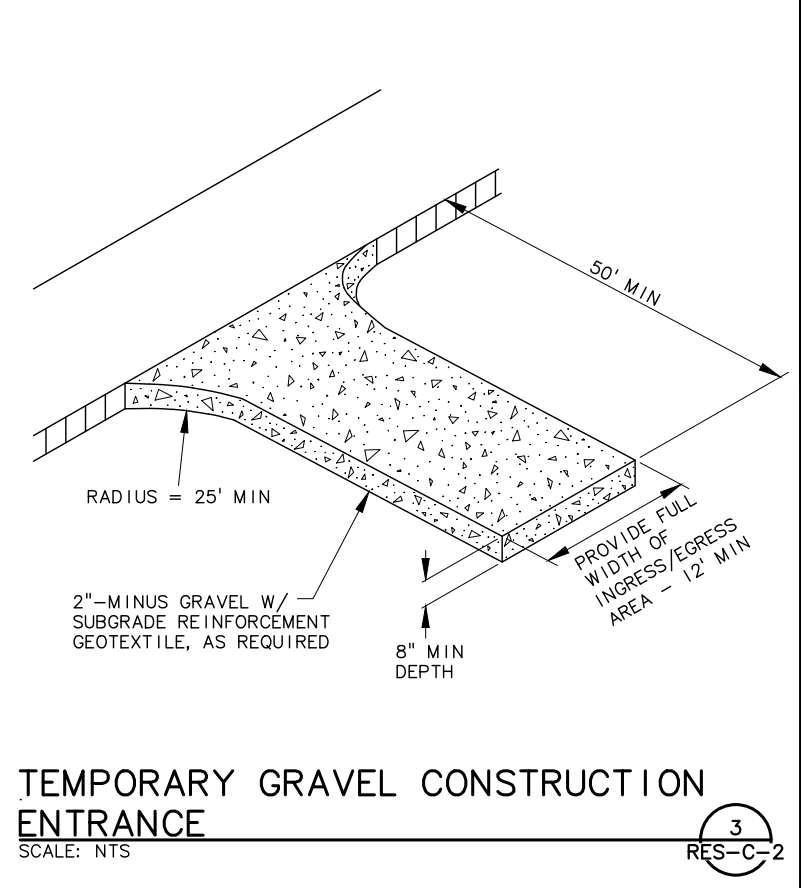
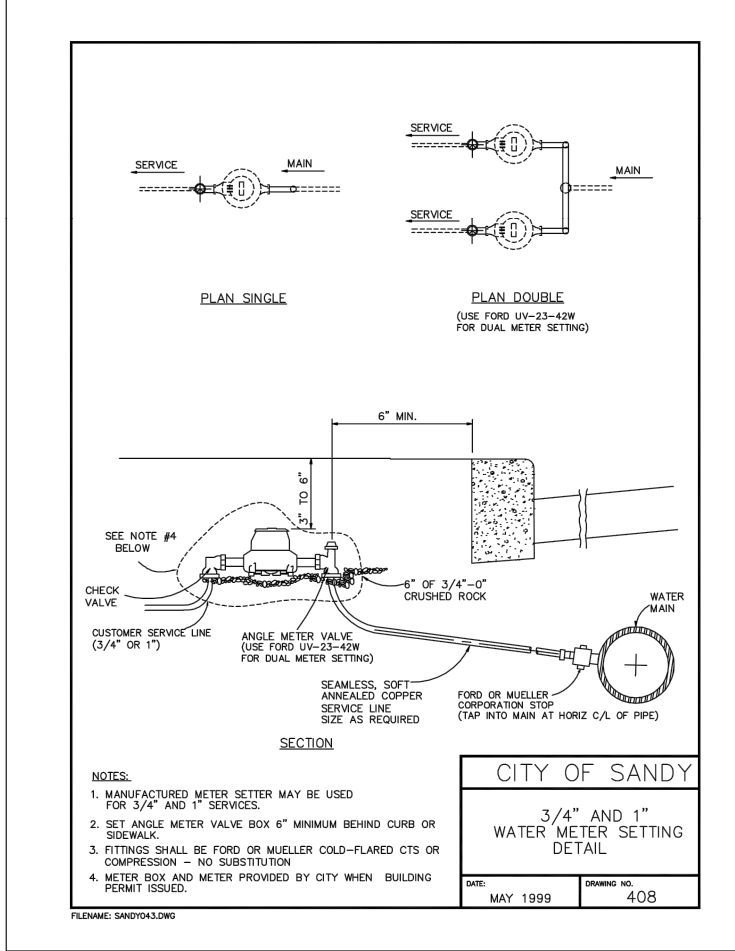
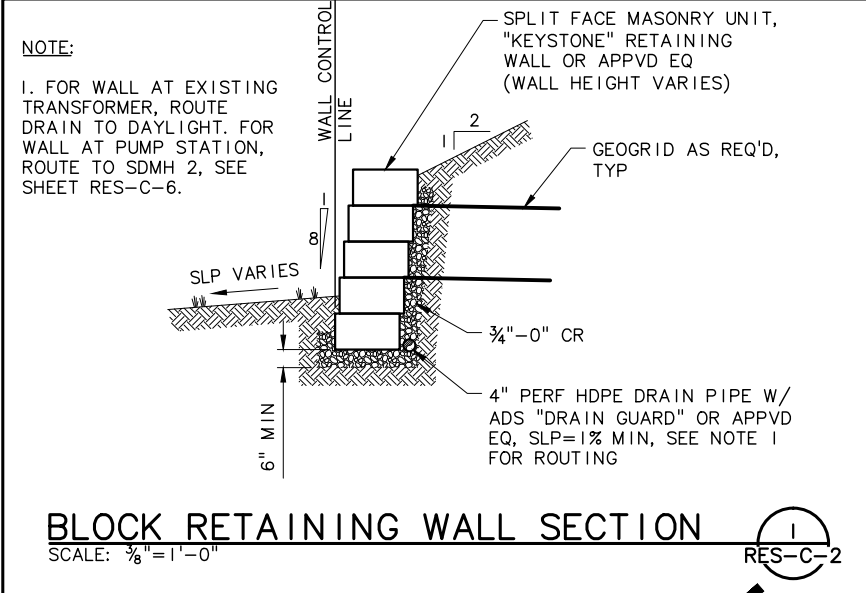
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

**RESERVOIR MONITORING MANHOLE
AND RESERVOIR SITE DETAILS**

PROJECT NO.: 11-1265
SCALE: AS SHOWN SHOWN
DATE: NOVEMBER 2012

SHEET
RES-C-9
81 of 123

- SYMBOL SURFACE RESTORATION REQUIREMENTS**
- 1 REPLACE REMOVED ASPHALT WITH A MINIMUM DEPTH OF 3" LEVEL AC OR MATCH EXIST PAVEMENT DEPTH, WHICHEVER IS GREATER, TO A MAXIMUM DEPTH OF 6". SEE SPECIFICATIONS.
 - 2 REPLACE TOPSOIL AND BACKFILL WITH CLASS 'B' NATIVE MATERIAL. FINISH TRENCH SURFACE TO MATCH ORIGINAL CONTOURS. REPLACE EXISTING LANDSCAPING.
- BACKFILL REQUIREMENTS**
- 1 FURNISH AND INSTALL CLASS 'D' 3/4"-0" IMPORTED GRANULAR BEDDING, PIPE ZONE AND TRENCH BACKFILL MATERIAL TO PAVEMENT BASE. COMPACT MATERIAL IN LIFTS TO ACHIEVE 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH AASHTO T-99.
 - 2 FURNISH AND INSTALL CLASS 'D' 3/4"-0" IMPORTED GRANULAR BEDDING AND PIPE ZONE BACKFILL MATERIAL COMPACTED TO 90% OF MAXIMUM DENSITY PER AASHTO T-99. FURNISH AND INSTALL CLASS 'B' NATIVE TRENCH BACKFILL TO FINISH GRADE COMPACTED TO 90% MAXIMUM DENSITY PER AASHTO T-99.



C:\PDX_Projects\111265\CAD\DR\DR\SHEETS\SCHED B\11-1265-234-OR-C10-R.dwg RES-C-10 10/30/2014 4:17 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA	DESIGNED
JHF	DRAWN
MLH	CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

**RESERVOIR AND PUMP STATION
CIVIL DETAILS**

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-C-10
82 of 123

STRUCTURAL SHEETS

- S-1 RESERVOIR GENERAL STRUCTURAL NOTES
- S-2 RESERVOIR QUALITY CONTROL PLAN
- S-3 RESERVOIR ROOF AND FLOOR PLANS
- S-4 RESERVOIR SECTION AND COLUMN DETAILS
- S-5 RESERVOIR ROOF SLAB REINFORCING DETAILS
- S-6 PRESTRESSED RESERVOIR WALL SECTIONS & DETAILS
- S-7 PRESTRESSED RESERVOIR WALL ELEVATION & DETAILS
- S-8 MISCELLANEOUS RESERVOIR DETAILS & PRESTRESSING NOTES
- S-9 RESERVOIR FOUNDATION AND PIPE BLOCK DETAILS
- S-10 RESERVOIR INTERIOR LADDER AND HATCH DETAILS

GENERAL STRUCTURAL NOTES:

1. THESE NOTES ARE GENERAL IN NATURE AND ARE INTENDED TO SET MINIMUM STANDARDS FOR CONSTRUCTION.
2. ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE 2009 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE 2010 OREGON STATE STRUCTURAL SPECIALTY (OSSC) BUILDING CODE AND ALL OTHER APPLICABLE BUILDING CODES.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS BEFORE CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
4. THE CONTRACT STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. METHODS, PROCEDURES, AND SEQUENCE OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
5. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD FOR THE STRUCTURE. PROVIDE SHORING AND/OR BRACING WHERE LOADS EXCEED DESIGN CAPACITY AND WHERE STRUCTURES HAVE NOT ATTAINED DESIGN STRENGTH.
6. THE FOLLOWING DOCUMENTS HAVE BEEN GENERATED FOR THE CONSTRUCTION OF A 1.0 MILLION GALLON PRESTRESSED BASE ISOLATED CONCRETE WATER RESERVOIR.

JOB SITE CONDITIONS AND SAFETY:

1. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER AND IT'S REPRESENTATIVE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

DESIGN LOADS: PER 2009 IBC & AWWA D110-04

1603.1.1 - FLOOR LOADS: NA	
1603.1.2 - ROOF LOADS:	
ROOF - DL	AS CALCULATED
IMPOSED ROOF - DL	10 PSF
ROOF - LL	SEE SNOW LOADS
1603.1.3 - SNOW LOADS:	
GROUND SNOW LOAD, Pn	40 PSF
1603.1.5 - EARTHQUAKE DESIGN CRITERIA (2009 IBC):	
SEISMIC IMPORTANCE FACTOR, Ie.....	1.5, CATEGORY IV
SEISMIC USE GROUP	GROUP IV
SPECTRAL ACCELERATION, Ss	0.73 g
SPECTRAL ACCELERATION, S1	0.26 g
SITE CLASS	SITE CLASS, D
SPECTRAL RESPONSE COEFFICIENT, Sds	0.59 g
SPECTRAL RESPONSE COEFFICIENT, Sd1	0.33 g
SEISMIC DESIGN CATEGORY	CATEGORY D
SEISMIC RESPONSE COEFFICIENT(S), Cs	0.195, SERVICE LOADS
RESPONSE MODIFICATION FACTOR(S), R	3.25
ANALYSIS PROCEDURE	GENERAL PROCEDURE, PER IBC, SECTION 1613
1622.1.1 - EARTHQUAKE DESIGN CRITERIA (AWWA D110-04):	
SEISMIC ZONE FACTOR, Z	0.3, ZONE 3
SEISMIC IMPORTANCE FACTOR, I	1.25, ESSENTIAL FACILITY
IMPULSIVE COEFFICIENT, C	2.75 (MAX.)
STRUCTURE REDUNDANCY FACTOR, R	4.5

CONCRETE:

1. ALL CONCRETE SHALL BE HARD ROCK CONCRETE MEETING REQUIREMENTS OF ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". MIX PROPORTIONS SHALL BE PER ACI-301, METHOD 2 OR THE ALTERNATE PROCEDURE. SUBMIT MIX DESIGN FOR REVIEW BY STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. STRUCTURAL CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

Concrete Mix Class	Class A	Class B	Class C
Minimum Compressive Strength	5,000 psi	4,000 psi	4,000 psi
% Air Entrainment (+/- 1%)	0%	6%	6%
Maximum Water Content (gallon per 94 lb. sack of cement)	4.5 gallons	4.5 gallons	4.5 gallons
Min. Cement Content (94 lb. sack of cement per cubic yard of solid concrete)	7.0 sacks	5.5 sacks	6.0 sacks
Maximum Aggregate Size (** see 1-1/2' grading schedule in specifications)	3/4"	** 1-1/2"	3/4"
Installation Location(s)	Reservoir Corewall	Roof Slab, Floor Slab, Wall Footing	Columns & Col. Footings, Pipe Blocks, Appurtenances

SEE THE TECHNICAL SPECIFICATIONS FOR COMPLETE MIX DESIGN REQUIREMENTS.

3. AIR ENTRAINMENT SHALL BE IN CONFORMANCE WITH ASTM C260 AND C494 EXCEPT FOR WALL CONCRETE WHICH SHALL NOT BE AIR-ENTRAINED.
4. COLD WEATHER PLACEMENT SHALL CONFORM TO ACI-306. HOT WEATHER PLACEMENT SHALL CONFORM TO ACI-305. MECHANICALLY VIBRATE ALL FORMED CONCRETE. DO NOT OVER-VIBRATE. PLACE CONCRETE MONOLITHICALLY BETWEEN CONSTRUCTION OR CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING.
5. CHAMFER ALL EXTERIOR CORNERS 1/2" UNLESS SHOWN OTHERWISE.
6. CONCRETE SLUMP MAY BE INCREASED BY ADDITION OF ADMIXTURES PROVIDED THAT THE WATER/CEMENT RATIO OF THE ORIGINAL MIX DESIGN IS NOT EXCEEDED. WATER REDUCING ADMIXTURE SHALL BE IN CONFORMANCE WITH ASTM494, USED IN CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS. SUBMIT ADMIXTURES TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
7. CEMENT SHALL BE TYPE II IN CONFORMANCE WITH ASTM C150. AGGREGATES SHALL BE IN CONFORMANCE WITH ASTM C33. COARSE AGGREGATES SHALL NOT EXCEED 1 1/2". WATER SHALL BE CLEAN AND POTABLE. CEMENTITIOUS MATERIAL SHALL ONLY BE PORTLAND CEMENT OR ASTM CERTIFIED FLY ASH AS DIRECTED BY THE PROJECT SPECIFICATIONS. BLAST FURNACE SLAG AND OTHER SLAG PRODUCTS ARE NOT ALLOWED.
8. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. DETAIL AND PLACE ACCORDING TO ACI MANUAL SP-66.
9. UNLESS OTHERWISE NOTED, MINIMUM COVER SHALL BE 1 1/2" FOR #5 AND SMALLER BARS, 2" FOR #6 AND LARGER BARS AND 3" WHEN POURED AGAINST EARTH. SUPPORT REINFORCEMENT WITH APPROVED CHAIRS, SPACERS, OR TIES.
10. PROVIDE MINIMUM 48 BAR DIAMETERS AT SPLICES. NO MORE THAN 50% OF REINFORCING SHALL BE SPLICED AT ANY LOCATION, UNLESS SPECIFICALLY DETAILED IN THESE DRAWINGS. UNLESS OTHERWISE NOTED, BEND ALL HORIZONTAL REINFORCING A MINIMUM OF 2'-0" AT CORNERS AND WALL INTERSECTIONS.
11. FORMWORK SHALL BE IN ACCORDANCE WITH ACI-347 "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK". FORMS SHALL BE DESIGNED BY THE CONTRACTOR. BRACING SHALL BE PROVIDED AS REQUIRED OR UNTIL THE CONCRETE HAS REACHED ITS SPECIFIED 28-DAY STRENGTH. ALL SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK, SUPPORTS, AND SHORING SHALL PROVIDE FINISHED CONCRETE SURFACES AT ALL FACES: LEVEL, PLUMB, AND TRUE TO DIMENSIONS AND ELEVATIONS SHOWN IN THE DRAWINGS. FORMS SHALL BE CLEAN AND FREE OF DEBRIS AND ALL WIRE TIES BENT AWAY FROM FINISHED SURFACES PRIOR TO CONCRETE INSTALLATION.
12. CONCRETE CURING PROCEDURES SHALL BE STRICTLY ADHERED TO AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.

FOUNDATIONS:

1. A GEOTECHNICAL REPORT WAS PREPARED BY GEOTECHNICAL RESOURCES, INC. OF BEAVERTON, OR AND DATED 6/28/12. THE CONTRACTOR SHALL BE FAMILIAR WITH THESE DOCUMENTS AND CONFORM TO THE RECOMMENDATIONS CONTAINED THEREIN.
2. ALL FOUNDATIONS TO BEAR ON GRANULAR CRUSHED ROCK FILL COMPACTED TO ASTM D698 MODIFIED PROCTOR PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. EXCAVATIONS FOR FOUNDATIONS SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING OF CONCRETE FOR FOUNDATION.
3. SOIL DESIGN CRITERIA, PER GEOTECHNICAL ENGINEER: SOIL IMPROVEMENTS ARE REQUIRED TO ATTAIN ADEQUATE BEARING REQUIREMENTS. SEE TECHNICAL SPECIFICATIONS FOR SOIL IMPROVEMENT DESIGN REQUIREMENTS.

LADDERS & APPURTENANCES NOTES:

1. WHERE EXTERIOR LADDER, OR OTHER APPURTENANCES REQUIRE ANCHORS TO BE PLACED ON THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE FINAL SHOTCRETING, TAKE EXTREME CARE TO AVOID DAMAGING THE PRESTRESSED STRAND. PLACE A STEEL PIPE AROUND THE DRILL BIT TO KEEP THE DRILL BIT FROM COMING IN CONTACT WITH THE STRAND. INSTALL INSERT BEFORE SHOTCRETING TO MARK HOLE LOCATION. FOR ALL TYPES OF ANCHORING SYSTEMS, INCLUDING DROP-IN AND EXPANSION WEDGE ANCHORS, FILL HOLE IN SHOTCRETE AND WALL WITH EPOXY BEFORE FINAL INSTALLATION OF ANCHORS TO INSURE COMPLETE COVERAGE AND PROTECTION OF THE STRAND.
2. ADHESIVE ANCHORS WITH 1" MAXIMUM EMBEDMENT INTO THE SHOTCRETE MAY ONLY BE USED IN NON-STRUCTURAL APPLICATIONS AND WHEN APPROVED BY THE ENGINEER. WHEN DRILLING HOLES IN THE SHOTCRETE, THE DRILL MUST BE EQUIPPED WITH A POSITIVE STOP TO PREVENT DRILLING MORE THAN 1" IN DEPTH. USE EPOXY TO INSURE COMPLETE COVERAGE AND PROTECTION OF THE PRESTRESSING STRAND. DO NOT USE EXPANSION, DROP-IN OR OTHER TYPES OF MECHANICAL ANCHORS.
3. USE ASTM A316 STAINLESS STEEL BOLTS AND ANCHORS UNLESS OTHERWISE NOTED. WHERE BOLTS OR ANCHORS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND WASHERS.

QUALITY ASSURANCE PLAN:

QUALITY ASSURANCE FOR SEISMIC RESISTANCE:

QUALITY ASSURANCE FOR THE STRUCTURE'S MAIN LATERAL FORCE RESISTING SYSTEM SHALL BE PROVIDED BY SPECIAL INSPECTION AND MATERIAL TESTING OF THE FOLLOWING:

SPECIAL INSPECTIONS:

AN INDEPENDENT TESTING LABORATORY, SELECTED AND ENGAGED BY THE OWNER, SHALL PROVIDE SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE AND OF THE TYPE AND FREQUENCY OUTLINED IN THE QUALITY CONTROL SECTION OF THESE GENERAL NOTES.

EACH SPECIAL INSPECTION AND MATERIAL TESTING REPORT SHALL BE DISTRIBUTED TO THE OWNER, CONTRACTOR, BUILDING OFFICIAL AND ENGINEER OF RECORD IN A TIMELY FASHION.

THE CONTRACTOR SHALL MAKE AVAILABLE ALL MEANS AND METHODS NECESSARY FOR THE SPECIAL INSPECTOR TO PERFORM THE REQUIRED INSPECTIONS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE OWNER AND SPECIAL INSPECTOR A MINIMUM OF 48 HOURS BEFORE THE TIME AT WHICH THE SPECIFIED SPECIAL INSPECTIONS MAY BE PERFORMED.

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF THE SEISMIC RESISTING SYSTEM SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE ENGINEER OF RECORD, OWNER AND BUILDING OFFICIAL IN COMPLIANCE WITH IBC SECTION 1706 PRIOR TO THE COMMENCEMENT OF WORK ON THAT SYSTEM. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

1. ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
2. ACKNOWLEDGMENT THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
3. PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS.
4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

STRUCTURAL OBSERVATION REQUIREMENTS:

THE OWNER SHALL EMPLOY THE ENGINEER OF RECORD OR AN ALTERNATE OREGON LICENSED PROFESSIONAL ENGINEER, APPROVED BY THE ENGINEER OF RECORD, TO PERFORM STRUCTURAL OBSERVATIONS IN ACCORDANCE WITH SECTION 1702 OF THE INTERNATIONAL BUILDING CODE.

STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY A REGISTERED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY OTHER INSPECTION CRITERIA, INCLUDING SPECIAL INSPECTION, AS REQUIRED BY THE BUILDING OFFICIAL OR AS INDICATED WITHIN THE INTERNATIONAL BUILDING CODE.

DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER AND THE BUILDING OFFICIAL (AND THE ENGINEER OF RECORD IF AN ALTERNATE ENGINEER IS USED FOR STRUCTURAL OBSERVATION). AT THE CONCLUSION OF THE STRUCTURAL SYSTEMS, INCLUDED WITHIN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL AND THE OWNER (AND THE ENGINEER OF RECORD IF AN ALTERNATE ENGINEER IS USED FOR STRUCTURAL OBSERVATION) A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

THE CONTRACTOR SHALL MAKE AVAILABLE ALL MEANS AND METHODS NECESSARY FOR THE STRUCTURAL OBSERVER TO PERFORM THE REQUIRED STRUCTURAL OBSERVATIONS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE OWNER AND STRUCTURAL OBSERVER A MINIMUM OF 48 HOURS BEFORE THE TIME AT WHICH THE SPECIFIED STRUCTURAL OBSERVATIONS MAY BE PERFORMED. IN ADDITION THE CONTRACTOR SHALL UPDATE THE STRUCTURAL OBSERVER OF THE CONSTRUCTION PROGRESS.

STRUCTURAL OBSERVATIONS SHALL BE PERFORMED FOR THE FOLLOWING AREAS OF WORK:

1. WALL FOUNDATION & FLOOR SLAB
 - A. AFTER THE FORMING, WATERSTOPS, CABLES, REINFORCING AND ALL OTHER CAST-IN ITEMS HAVE BEEN PUT INTO PLACE, BUT PRIOR TO THE FIRST CONCRETE POUR.
2. FIRST WALL SECTION
 - A. AFTER ONE SIDE OF THE FORMING, WATERSTOPS, CABLES, REINFORCING AND ALL OTHER CAST IN ITEMS HAVE BEEN PUT INTO PLACE, BUT PRIOR TO ENCLOSING THE FORMS.
3. COLUMNS
 - A. AFTER THE FOOTING INSTALLATION WITH ALL REINFORCING AND SPACERS INSTALLED, PRIOR TO CONCRETE INSTALLATION. DISCUSS FORMING METHOD WITH STRUCTURAL ENGINEER OF RECORD TO DETERMINE ANY ADDITIONAL OBSERVATION REQUIREMENTS.
4. VERTICAL POST-TENSIONING
 - A. OBSERVE A SELECT NUMBER OF VERTICAL ASSEMBLY TENSION AND ELONGATION RECORDINGS WITHIN THE FIRST 15 UNITS.
5. ROOF SLAB
 - A. AFTER INSTALLATION OF THE FORMING, REINFORCING, SHEAR CANS AND ALL OTHER CAST-IN ITEMS PRIOR TO THE CONCRETE POUR.
6. WALL PRESTRESSING
 - A. OBSERVE A SELECT NUMBER OF WRAPS AND DATA RECORDINGS STARTING AT THE INITIATION OF THE WRAPPING INSTALLATION.
7. FINAL OBSERVATION AFTER COMPLETION OF ALL STRUCTURAL ELEMENTS CONTAINED WITHIN THE CONSTRUCTION DOCUMENTS AND AFTER INTERIOR WASH DOWN, PRIOR TO BACKFILLING AND RESERVOIR LEAK TEST TO OBSERVE THE INTERIOR AND EXTERIOR OF THE FINISHED RESERVOIR.

EACH STRUCTURAL OBSERVATION REPORT SHALL BE DISTRIBUTED TO THE OWNER, CONTRACTOR AND BUILDING OFFICIAL AND IN A TIMELY FASHION.



Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635

11/5/12

NOTICE



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

- EGH DESIGNED
- EGH DRAWN
- EWBP CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97



Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR GENERAL
STRUCTURAL NOTES

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET

RES-S-1

83 of 123

QUALITY CONTROL:

SHOP DRAWINGS & SUBMITTALS:

SHOP DRAWINGS, SUBMITTALS AND/OR MILL CERTIFICATES FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER OF RECORD FOR REVIEW A MINIMUM OF 21 DAYS PRIOR TO FABRICATION:

1. CONCRETE REINFORCING SHOP DRAWINGS FOR ALL ELEMENTS.
2. SEISMIC CABLES, WATERSTOPS, BEARING PADS, STRAND WRAPPING VERTICAL THREADBAR ASSEMBLIES AND SHEAR CAN ASSEMBLIES, JOINT SEALERS, ALL EPOXIES AND GROUTS TO BE USED ON THE PROJECT AND ANY OTHER MATERIAL OUTLINED IN THE CONSTRUCTION DRAWINGS.
3. CONCRETE MIX DESIGNS
4. GRATING AND FRAMING
5. ACCESS STAIRWAY, LADDERS AND APPURTENANCES.

INSPECTIONS:

SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC 1704 SHALL BE PROVIDED FOR THE FOLLOWING ITEMS:

TABLE 1 REQUIRED GEOTECHNICAL SPECIAL INSPECTIONS					
SYSTEM or MATERIAL	INSPECTION		FREQUENCY		REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	Continuous	Periodic	
SOILS					
GEOTECHNICAL INVESTIGATIONS	1803				GEOTECHNICAL INVESTIGATION SHALL INCLUDE ITEMS OF SPECIAL INSPECTION AND TESTING AS NOTED IN TABLE 5 OF THE GUIDELINES
VERIFY FOOTING BEARING CAPACITY AND SUBGRADE PREPARATION FOR FILLS	TABLE 1704.7	GEOTECHNICAL REPORT		X (a)	BY THE GEOTECHNICAL ENGINEER
FILL MATERIAL VERIFICATION			X		
FILL PLACEMENT & COMPACTION			X		
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	TABLE 1704.7			X (a)	BY THE GEOTECHNICAL ENGINEER
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	TABLE 1704.7			X	
PERFORM CLASSIFICATION OF COMPACTED FILL MATERIALS	TABLE 1704.7 1803.5.1			X	
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	TABLE 1704.7		X		BY THE GEOTECHNICAL ENGINEER
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	TABLE 1704.7			X	
STONE COLUMNS					
INSTALLATION	1704.15	GEOTECHNICAL RESEARCH AND/OR REPORT AND ICC EVALUATION REPORTS	X		BY THE GEOTECHNICAL ENGINEER SPECIAL INSPECTIONS APPLY TO HOLE SIZE AND DEPTH, VERIFICATION OF AGGREGATE MATERIAL, NUMBER AND LIFTS OF AGGREGATE, INSTALLATION RAMMER ENERGY, AND TOP OF PIER ELEVATION

(a) = PERIODIC SPECIAL INSPECTION DEFINED IN CONTRACT SPECIFICATIONS.

TABLE 2 REQUIRED STRUCTURAL SPECIAL INSPECTIONS					
SYSTEM or MATERIAL	INSPECTION		FREQUENCY		REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	Continuous	Periodic	
CONCRETE					
INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE	1912.1	ACI 318: 3.8.6, 8.1.3, 21.1.8		X (a)	
REINFORCING STEEL AND PRESTRESSING TENDON PLACEMENT	1704.4 1907.5 1913.4 1901.4.2	ACI 318: 3.5 ACI 318: 7.1-7.7		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI 7.5. SPACING LIMITS FOR REINFORCING ACI 7.6
PLACEMENT OF BOLTS INSTALLED IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	TABLE 1704.4 1911.5 1912.1	ACI 318: 1.3.2.C ACI 318: 8.1.3 ACI 318: 21.1.8	X		ALL BOLTS VISUALLY INSPECTED
VERIFYING USE OF REQUIRED MIX DESIGN(S)	TABLE 1704.4 1904 1905.2-4 1913.2 1913.3 1901.4.1	ACI 318: CHAPTER 4 ACI 318: 5.2-5.4		X	
CONCRETE PLACEMENT	TABLE 1704.4 1905.9-10	ACI 318: 1.3.2.D ACI 318: 5.9 - 5.10	X		
SHOTCRETE PLACEMENT	TABLE 1704.4 1913.6-8		X		
CONCRETE/SHOTCRETE CURING	TABLE 1704.4 1905.11-13 1913.9	ACI 318: 1.3.2.D ACI 318: 5.11-5.13		X (a)	
VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE	TABLE 1704.4 1901.4.9	ACI 318: 18.13.4.3		X (a)	
STRESSING OF TENDONS IN POST-TENSIONED CONCRETE	TABLE 1704.4 1901.4.10	ACI 318: 1.3.2.F ACI 318: 18.20.1	X		
INSPECTION OF PRESTRESSED CONCRETE:					
a. APPLICATION OF PRESTRESSING FORCES	TABLE 1704.4	ACI 318: 18.20	X		
b. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM	TABLE 1704.4	ACI 318: 18.19.4	X		
VERIFICATION OF FORMWORK	TABLE 1704.4 1906.1	ACI 318: 6.1.1		X (a)	SPECIAL INSPECTIONS APPLY TO SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED
POST INSTALLED CONCRETE ANCHORS					
INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE	1912.1	ICC EVALUATION REPORT ACI 318: 3.8.6, 8.1.3, 21.1.8		X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING

(a) = PERIODIC SPECIAL INSPECTION DEFINED IN CONTRACT SPECIFICATIONS.

TESTING:

MATERIALS TESTING IN ACCORDANCE WITH IBC 1704 SHALL BE PROVIDED FOR THE FOLLOWING ITEMS:

TABLE 5 REQUIRED TESTING FOR SPECIAL INSPECTIONS					
SYSTEM or MATERIAL	TESTING		FREQUENCY		REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	Continuous	Periodic	
GEOTECHNICAL					
GEOTECHNICAL ENGINEER TO PERFORM TESTING OF COMPACTED FILL MATERIALS	1803				TESTING PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY OR PREPARED SUBGRADE DENSITY		VARIABLES: MINIMUM PER IBC APPENDIX J107.5		X (a)	BY THE GEOTECHNICAL ENGINEER
MATERIAL VERIFICATION	1704.7	VARIABLES: CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X (a)	BY THE GEOTECHNICAL ENGINEER
CONCRETE					
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	TABLE 1704.4	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	X		FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED ONCE EACH DAY FOR GIVEN CLASS OF CONCRETE, OR LESS THAN ONCE FOR EACH 150 YDS OF CONCRETE, OR LESS THAN ONCE FOR EACH 5,000 FT ² OF SURFACE AREA FOR SLABS/WALLS, ONCE EACH SHIFT FROM IN-PLACE WORK OR
CONCRETE STRENGTH	TABLE 1704.4 1903 1905	ASTM C39	X		
CONCRETE SLUMP		ASTM C143	X		
CONCRETE AIR CONTENT		ASTM C231	X		
CONCRETE TEMPERATURE		ASTM C1064	X		
SHOTCRETE STRENGTH	1704.4 1913.10	ASTM C39	X		BC 1913.10.1: SPECIMENS SHALL BE TAKEN FROM THE IN-PLACE OR FROM TEST PANELS, AND SHALL BE TAKEN AT LEAST ONCE EACH SHIFT, BUT NOT LESS THAN ONE FOR EACH 50 CUBIC YARDS OF SHOTCRETE

PSE
Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635 11/5/12

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EGH
DESIGNED
EGH
DRAWN
EWBP
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

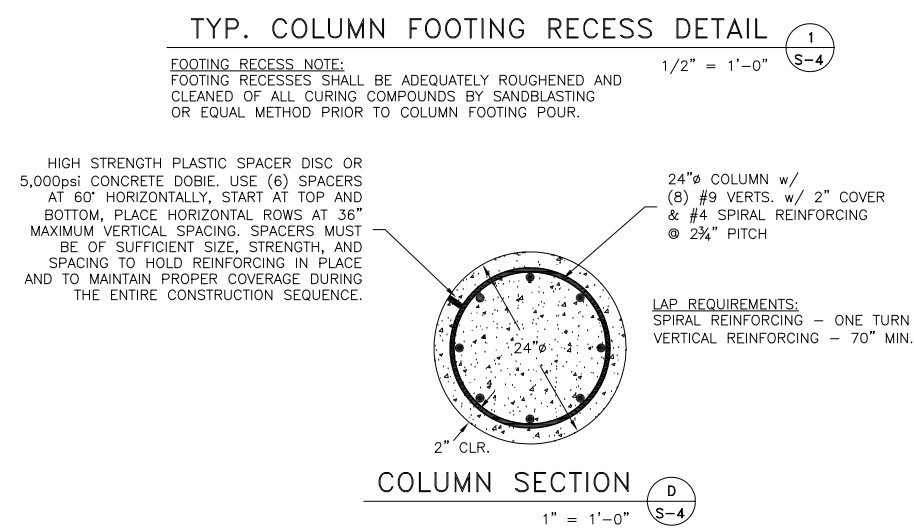
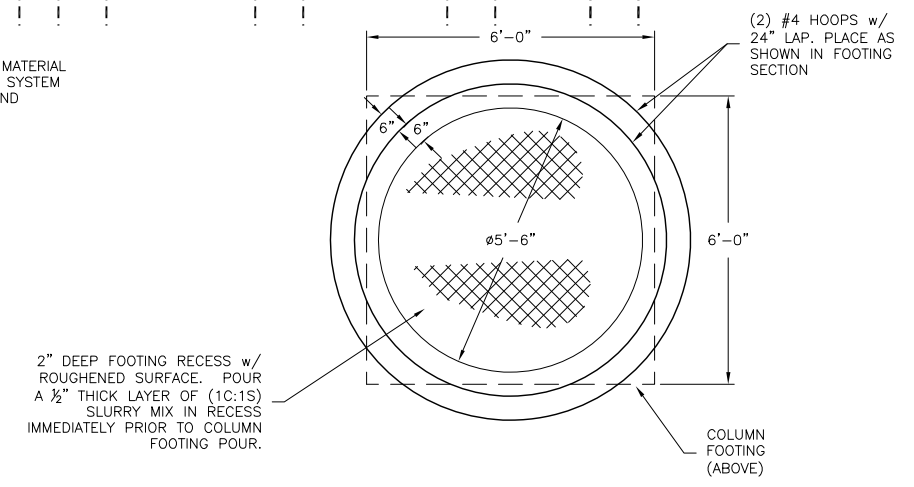
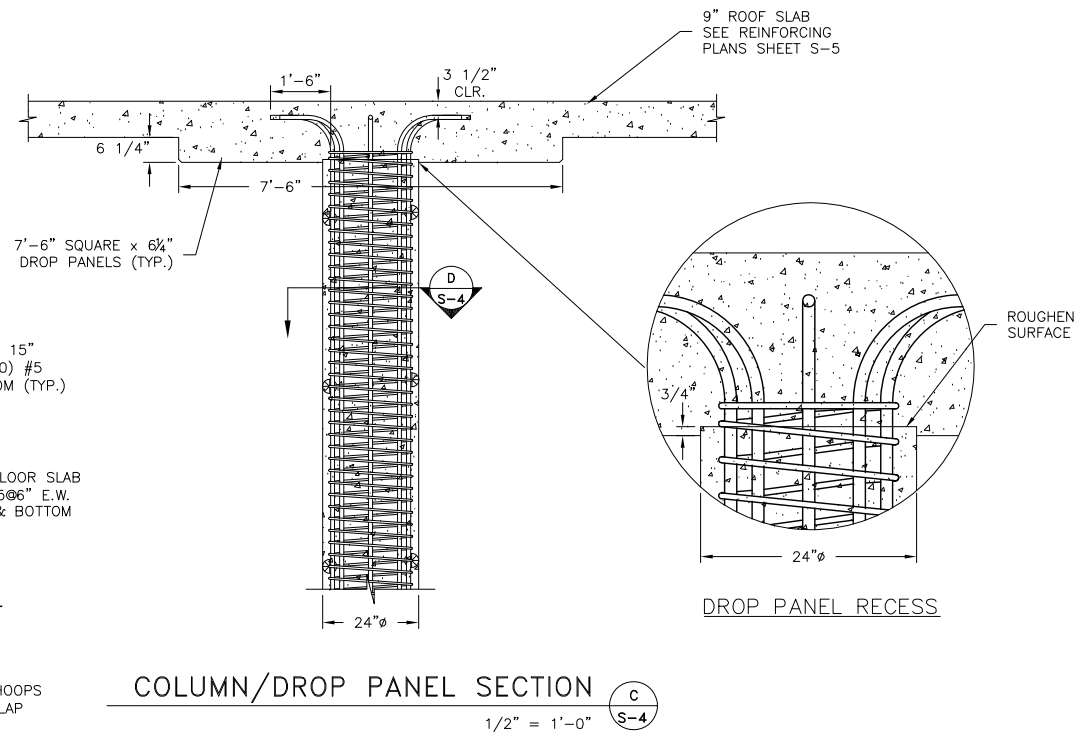
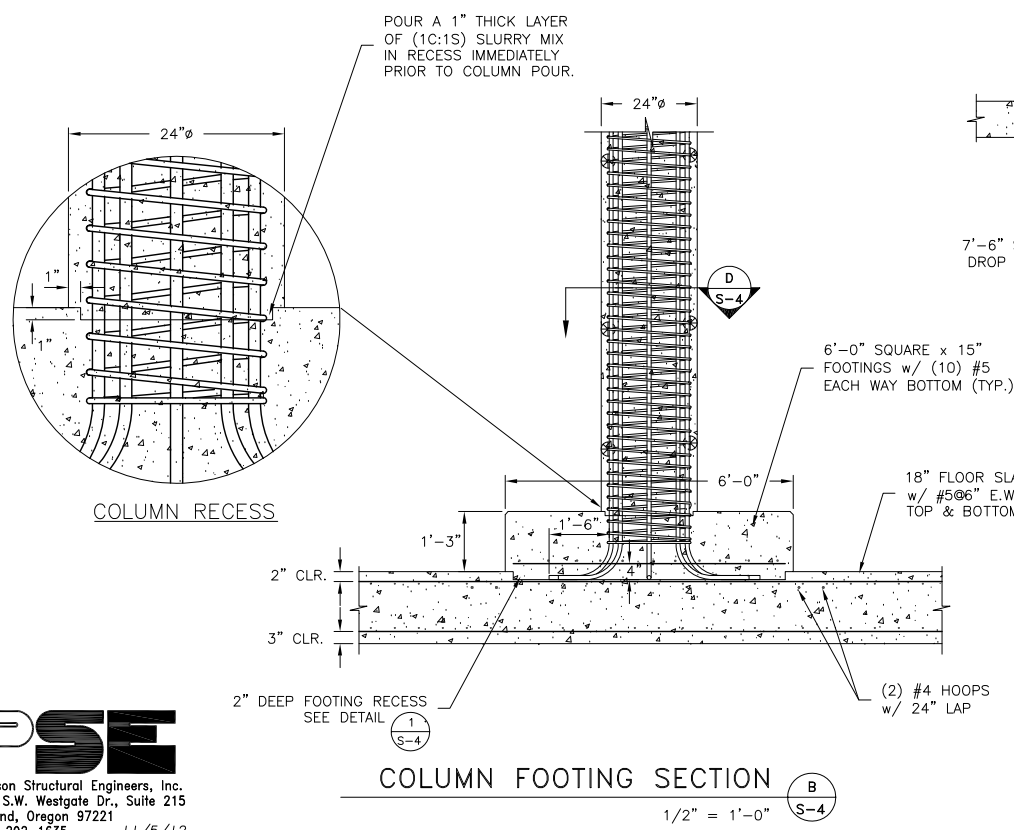
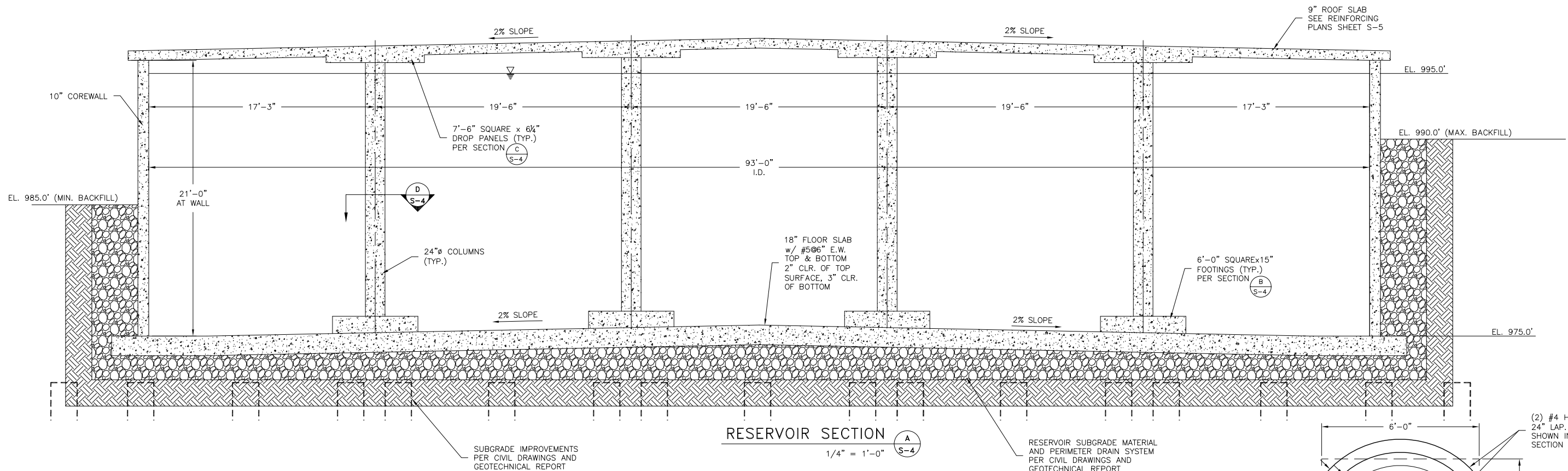
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR QUALITY CONTROL PLAN
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-S-2
84 of 123

NO.	DATE	BY	REVISION
	08/14	JWW	RECORD DRAWING



PSE
 Peterson Structural Engineers, Inc.
 5319 S.W. Westgate Dr., Suite 215
 Portland, Oregon 97221
 (503) 292-1635 11/5/12

NOTICE	
0	1/2
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

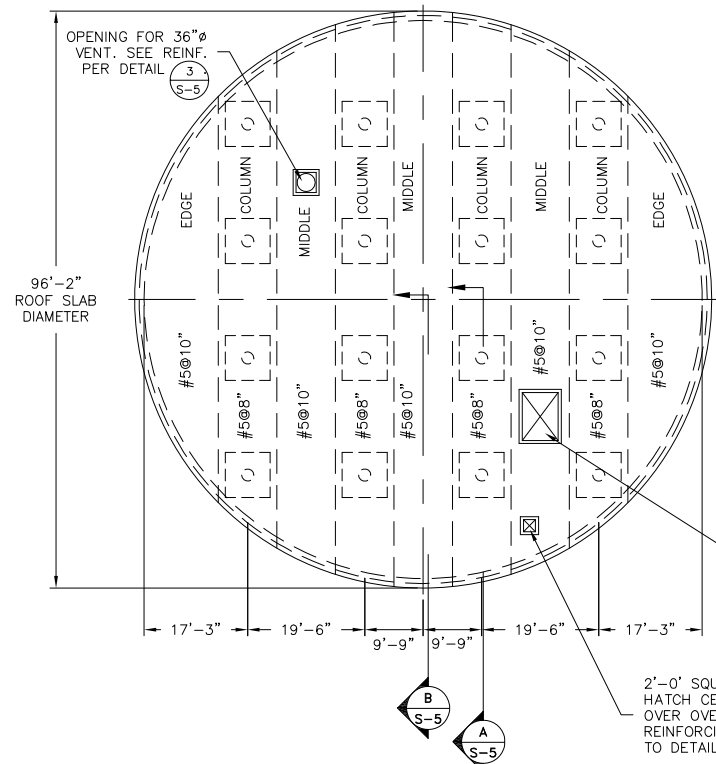
RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

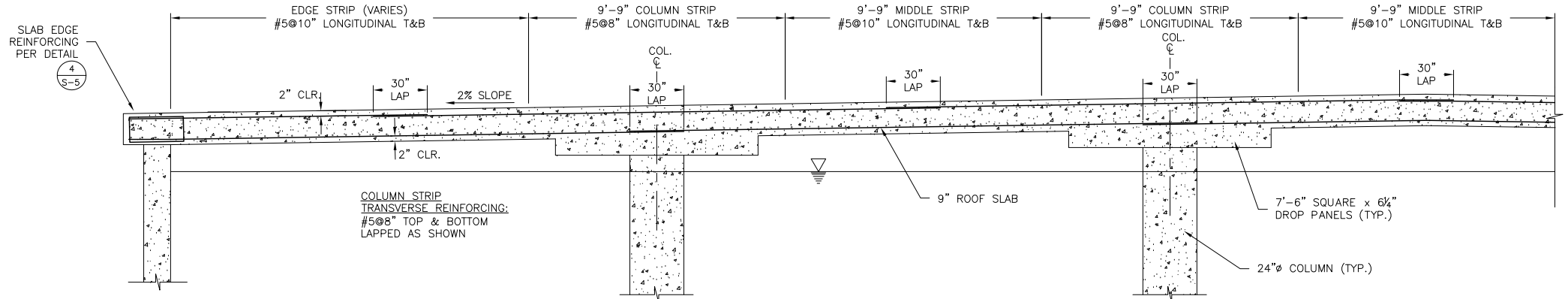
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR SECTION AND
COLUMN DETAILS
 PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

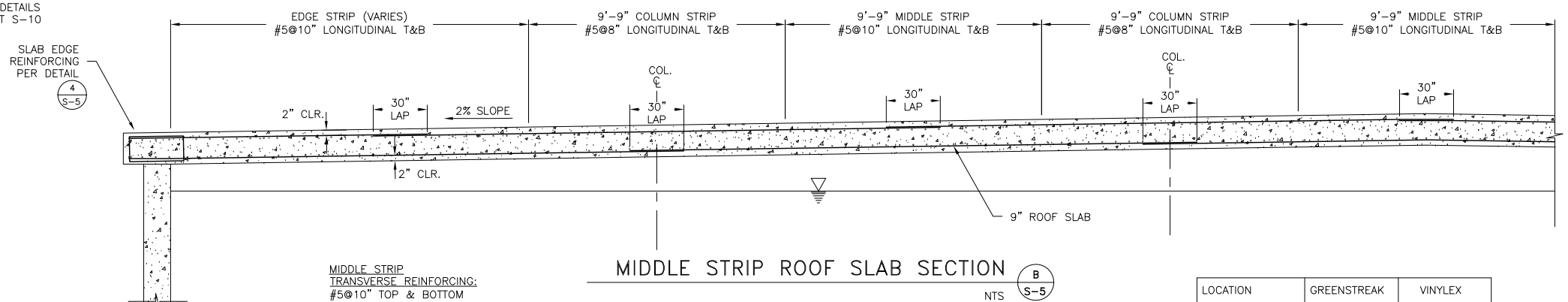
SHEET
 RES-S-4
 86 of 123



(DIMENSIONS & REINFORCING TYP. TOP & BOTTOM, BOTH DIRECTIONS)
ROOF REINFORCING PLAN (1) S-5
 1/16" = 1'-0"



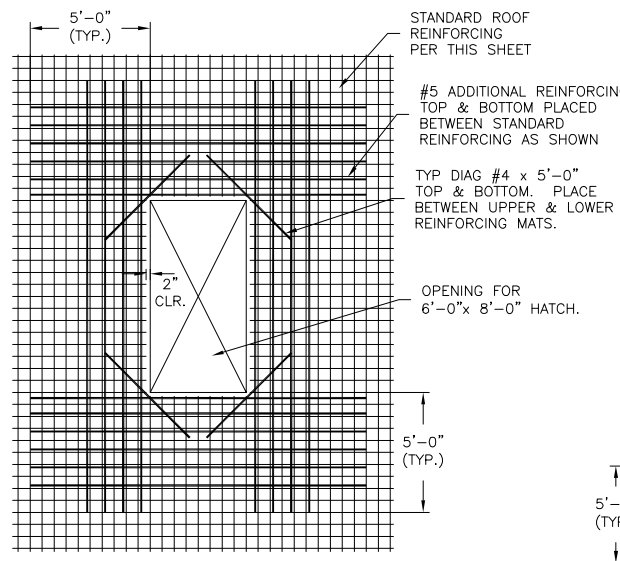
COLUMN STRIP ROOF SLAB SECTION (A) S-5
 NTS



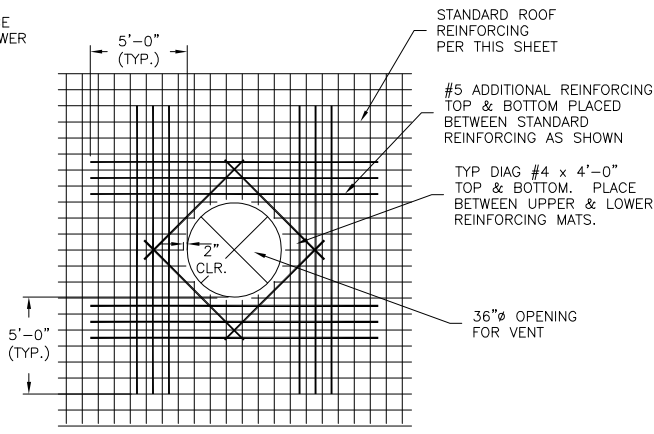
MIDDLE STRIP ROOF SLAB SECTION (B) S-5
 NTS

LOCATION	GREENSTREAK	VINYLEX
WALL TO WALL FOOTING	735	RB9-38H
VERTICAL WALL, ROOF AND FLOOR JOINTS	679	R6-38
FLOOR TO PIPE BLOCKS	732	RB6-38H

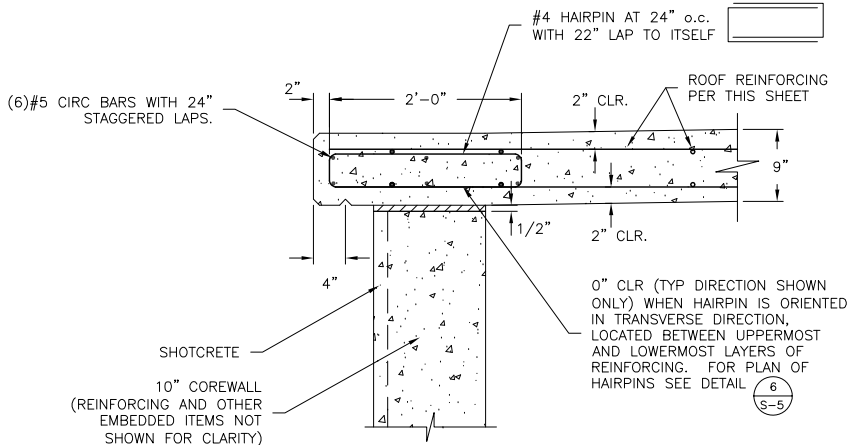
CONSTRUCTION JOINT WATERSTOP SCHEDULE (5) S-5
 NO SCALE



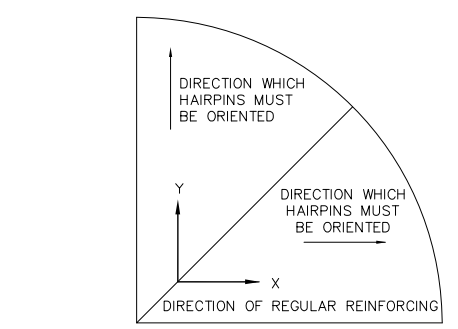
HATCH REINFORCING DETAIL (2) S-5
 1/4" = 1'-0"



VENT REINFORCING DETAIL (3) S-5
 1/4" = 1'-0"



ROOF EDGE DETAIL (4) S-5
 1" = 1'-0"



HAIRPIN ORIENTATION PLAN (6) S-5
 NTS

PSE
 Peterson Structural Engineers, Inc.
 5319 S.W. Westgate Dr., Suite 215
 Portland, Oregon 97221
 (503) 292-1635 11/5/12

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

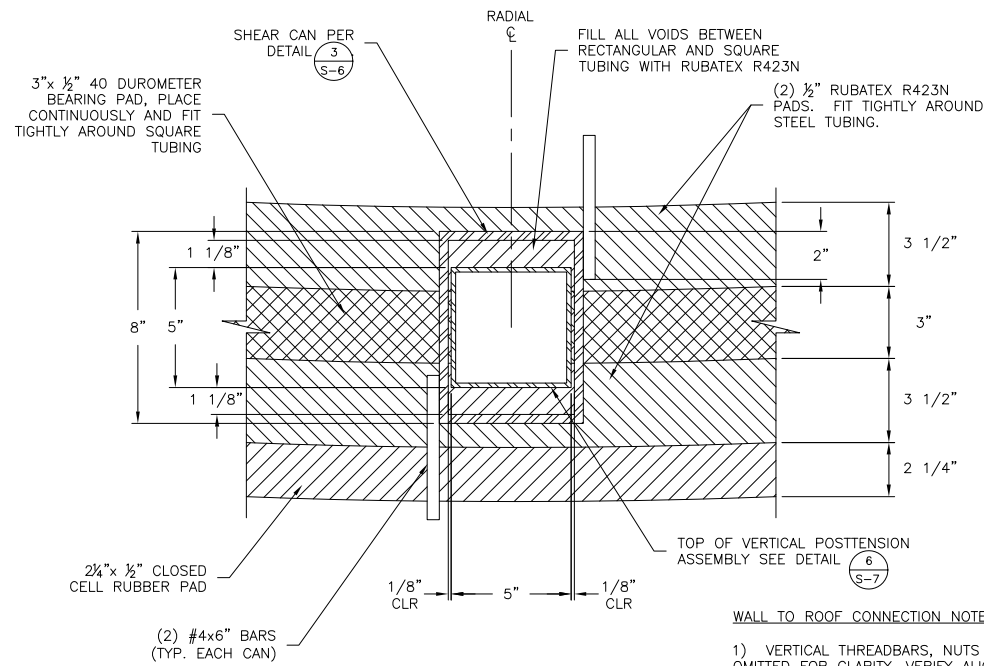
RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

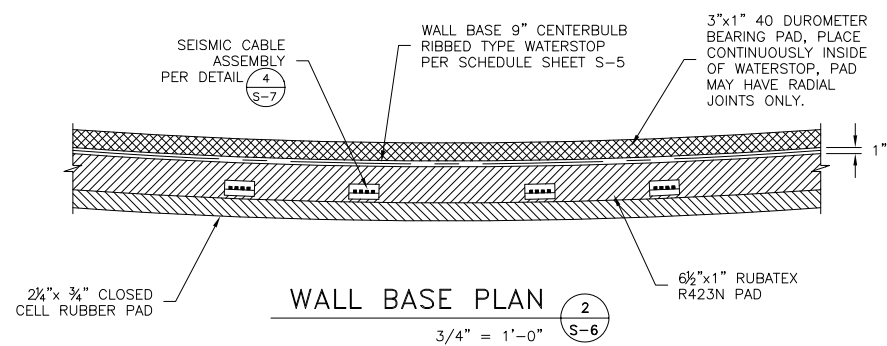
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND TRANSFER PUMP STATION

RESERVOIR ROOF SLAB REINFORCING DETAILS
 PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

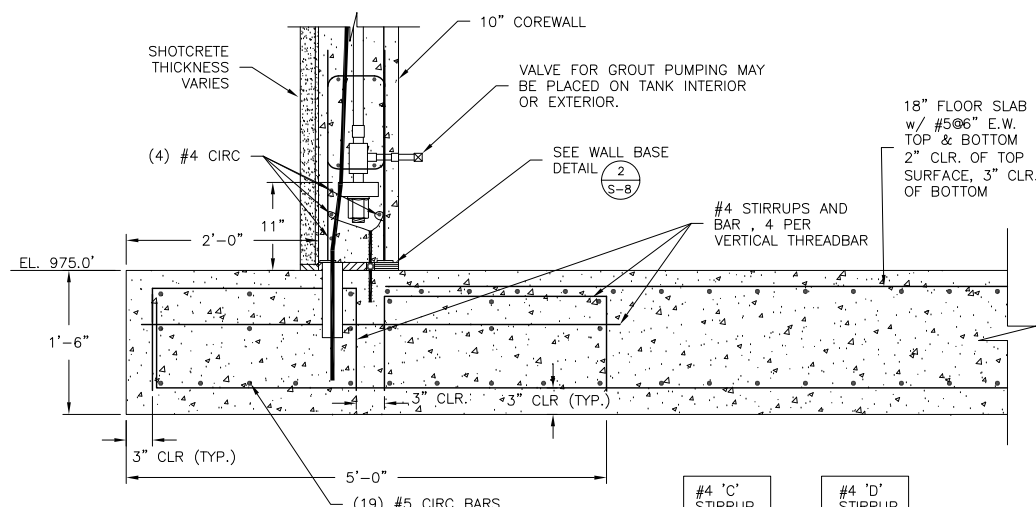
SHEET
 RES-S-5
 87 of 123



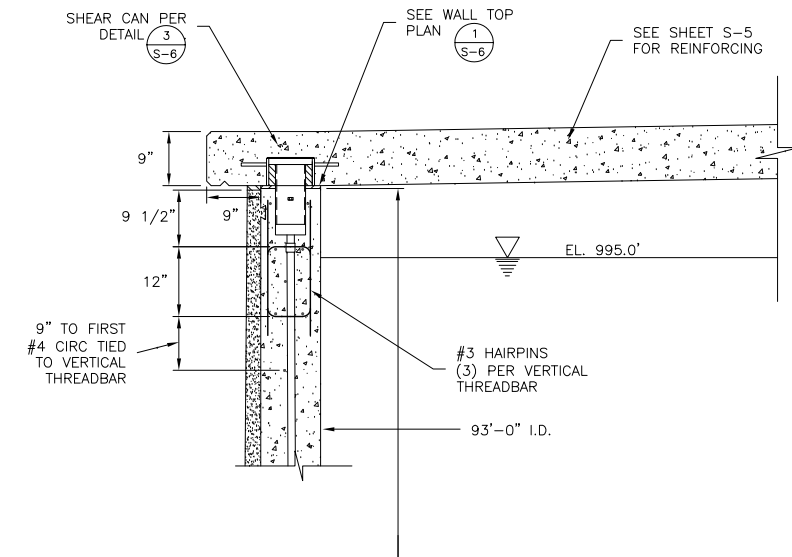
WALL TOP PLAN (1) 3\"/>



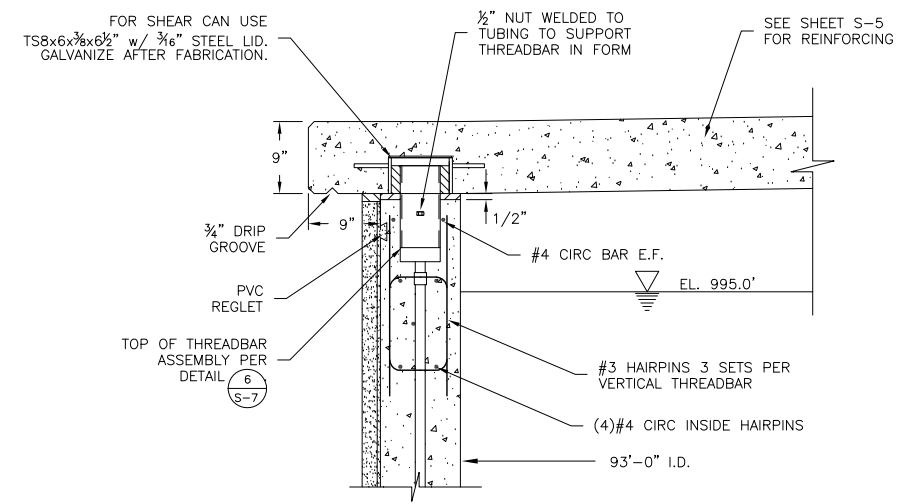
WALL BASE PLAN (2) 3/4\"/>



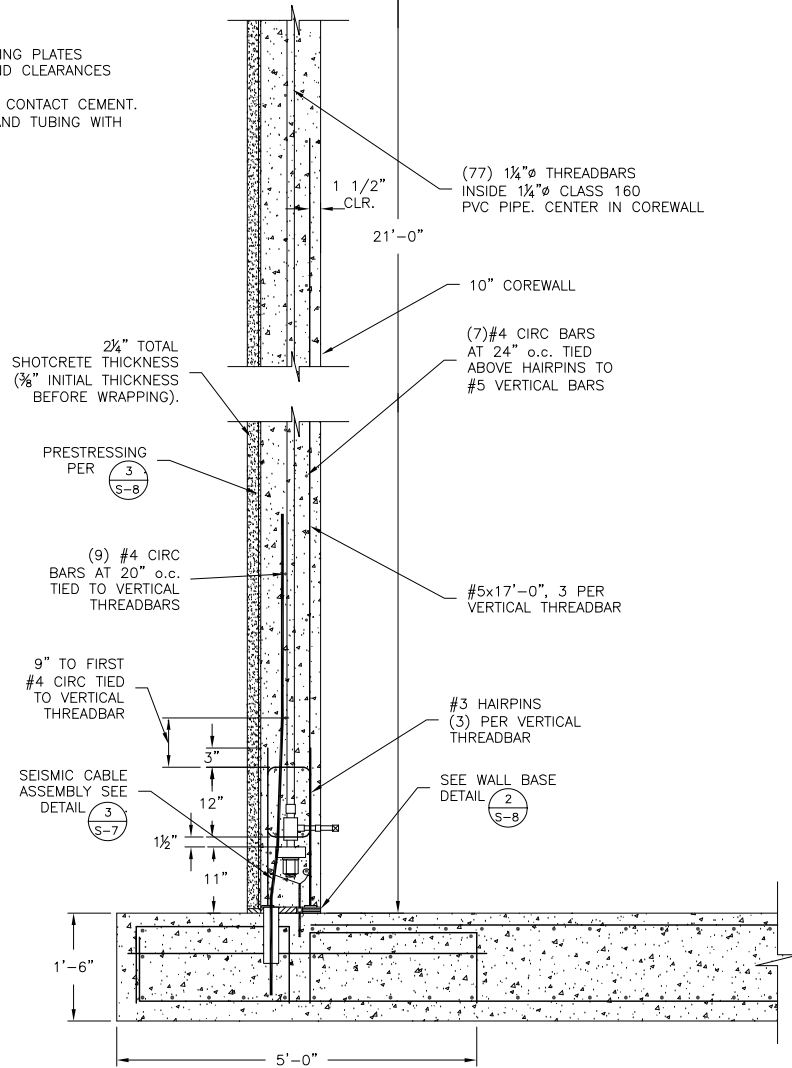
WALL FOOTING DETAIL (4) 1\"/>



PRESTRESSED WALL SECTION (A) 3/4\"/>



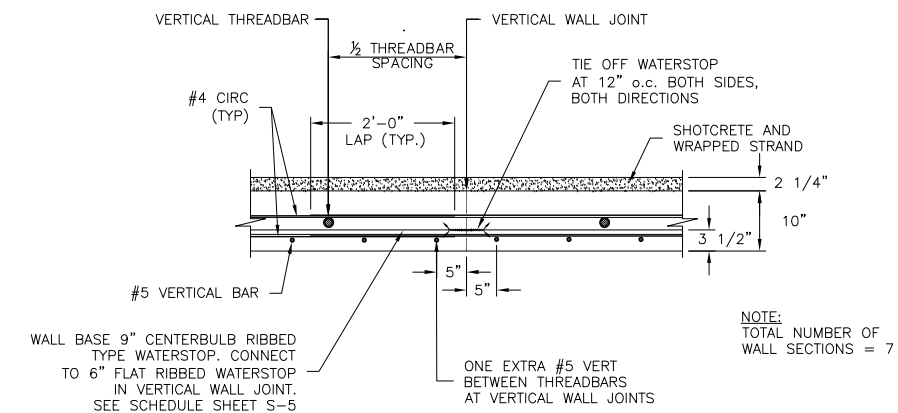
WALL TOP DETAIL (3) 1\"/>



VERTICAL WALL JOINT SECTION (B) 3/4\"/>

CONSTRUCTION NOTES:

- INSTALL ONE EXTRA SET OF VERTS. AND HAIRPINS AT EACH VERTICAL WALL JOINT.
- FORM TIE HOLES TO BE PLUGGED WITH DAYTON "SURE PLUG" IN ROUGHENED HOLE AND DRY-PACKED WITH 1C:2S MIXTURE.
- TIE OFF ALL WATERSTOPS AT 12" OC ON BOTH SIDES AND IN BOTH DIRECTIONS.
- POUR A 1" THICK LAYER OF 1C:1S MIX AT THE BASE OF THE WALL IMMEDIATELY PRIOR TO BEGINNING THE WALL POUR. THE SLURRY IS TO HELP SEAL THE BOTTOM OF THE FORMS AND PREVENT ROCK POCKETS AND VOIDS AT THE BASE OF THE WALL. EXTREME CARE MUST BE EXERCISED TO INSURE EVEN AND COMPLETE COVERAGE AND CARE EXERCISED TO PREVENT PUSHING THE SLURRY ALONG THE WALL BASE TOWARDS THE ENDS OF THE FORMS RESULTING IN A CONCENTRATION OF SLURRY NOT INTEGRATED WITH THE REGULAR WALL CONCRETE. SLURRY PLACED TOO SOON BEFORE THE REGULAR WALL CONCRETE MAY FORM A CRUST OVER THE WATERSTOP REDUCING ITS EFFECTIVENESS. ALTERNATIVES TO USING THE SLURRY MAY BE SUBMITTED FOR CONSIDERATION.
- THE TOP OF THE WALL FOOTING AND FLOOR SHALL RECEIVE A SMOOTH AND HARD STEEL-TROWELLED FINISH.
- MAINTAIN CLEARANCE BETWEEN THE INDIVIDUAL STRANDS IN THE SEISMIC CABLE SETS (DO NOT BUNDLE). SEISMIC CABLES MAY BE BENT PRIOR TO INSTALLATION.
- ALL CIRCUMFERENTIAL REINFORCING MUST EXTEND 2'-6" (±) PAST BOTH ENDS OF THE FIRST WALL SECTION AND ONE END OF ALL INTERMEDIATE WALL SECTIONS IN ORDER TO PROVIDE 2'-0" LAPS. CIRCUMFERENTIAL REINFORCING MAY NOT EXTEND PAST EITHER END OF THE LAST WALL SECTION. CIRCUMFERENTIAL REINFORCEMENT WITHIN THE WALL PANELS TO BE PROVIDED WITH 2'-0" STAGGERED LAPS.
- WALL FOOTING REINFORCING TO INCLUDE (19) #5 CIRC BARS WITH 26" STAGGERED LAPS. AT CONSTRUCTION JOINTS, STOP CIRC REINFORCING 2" CLEAR OF JOINT AND INSTALL (19) #5x5'-0" GALVANIZED SPLICE BARS CENTERED AND PERPENDICULAR TO THE CONSTRUCTION JOINT.



NOTE: TOTAL NUMBER OF WALL SECTIONS = 7

PSE
 Peterson Structural Engineers, Inc.
 5319 S.W. Westgate Dr., Suite 215
 Portland, Oregon 97221
 (503) 292-1635 11/5/12

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

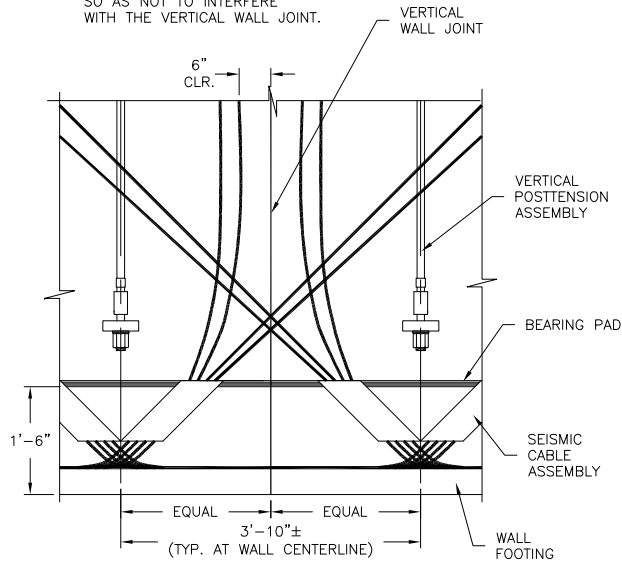
MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

PRESTRESSED RESERVOIR
WALL SECTIONS & DETAILS
 PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

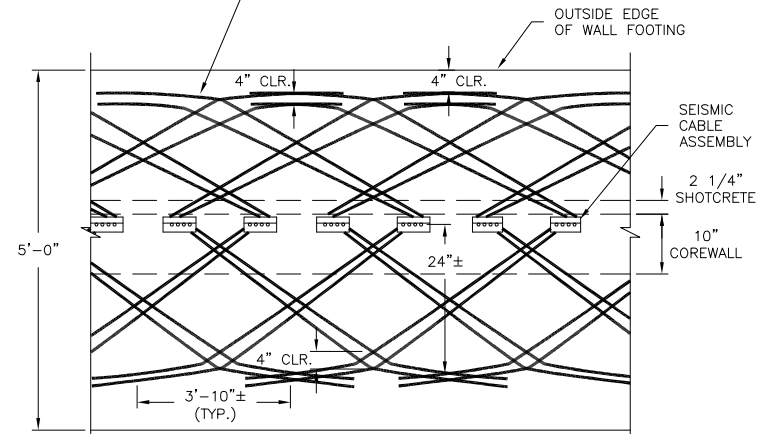
SHEET
 RES-S-6
 88 of 123

NOTE:
AT THE CONTRACTOR'S OPTION
SOME OR ALL OF THE SEISMIC
CABLES MAY BE BENT BACK
SO AS NOT TO INTERFERE
WITH THE VERTICAL WALL JOINT.

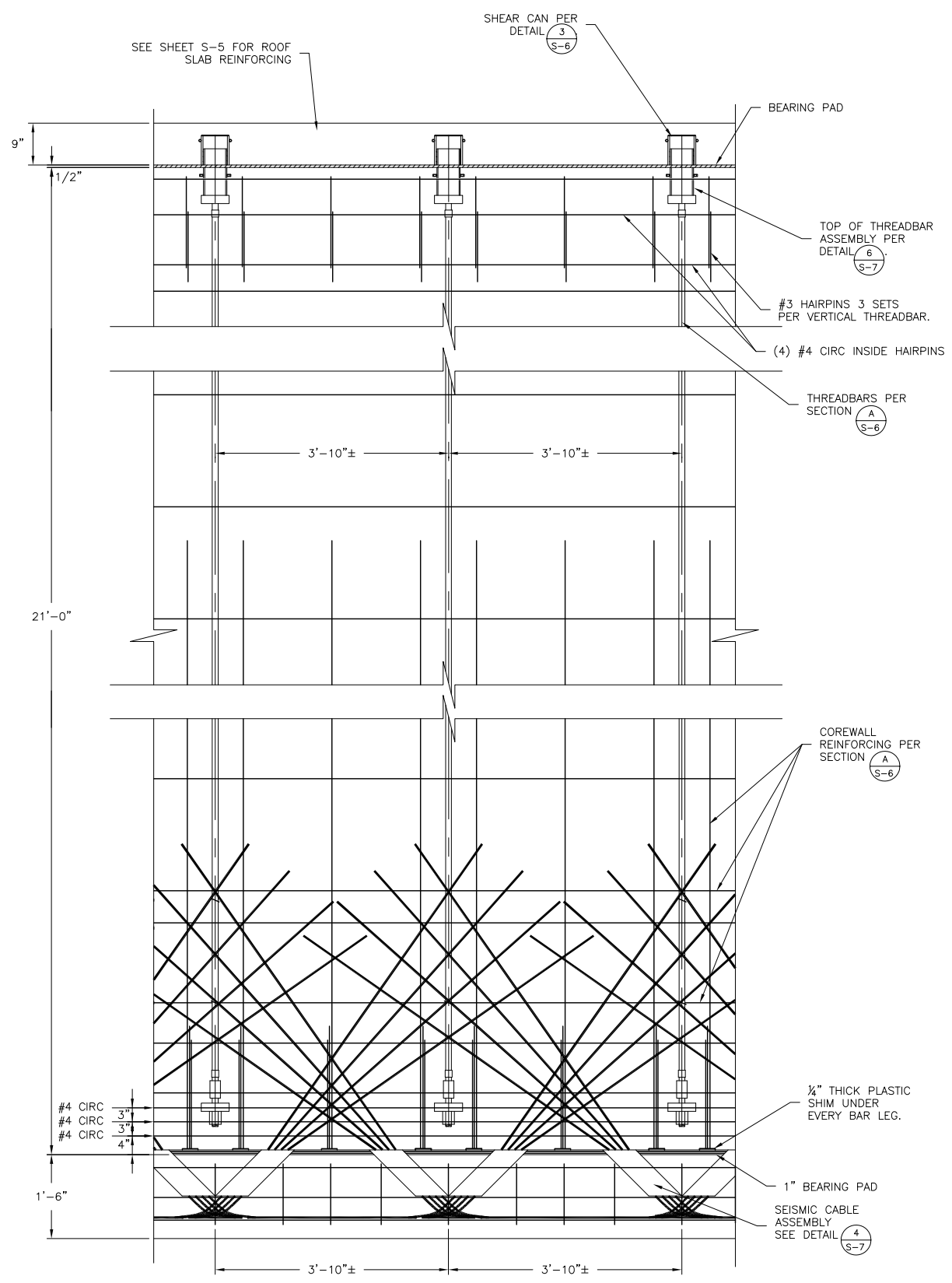


CABLE ELEV. AT WALL JOINT
3/4" = 1'-0" 1 S-7

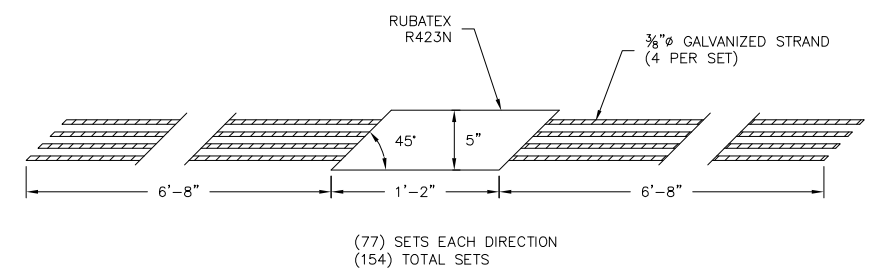
INSTALL CABLES IN PLAN
IN FOOTING AS SHOWN.
INSTALL WITHIN CONFINES
OF FOOTING STIRRUPS.
MIN. 4" CLR. AT STRAND ENDS.



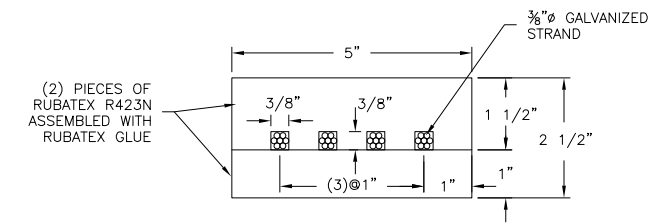
SEISMIC CABLES IN WALL FOOTING
3/4" = 1'-0" 2 S-7



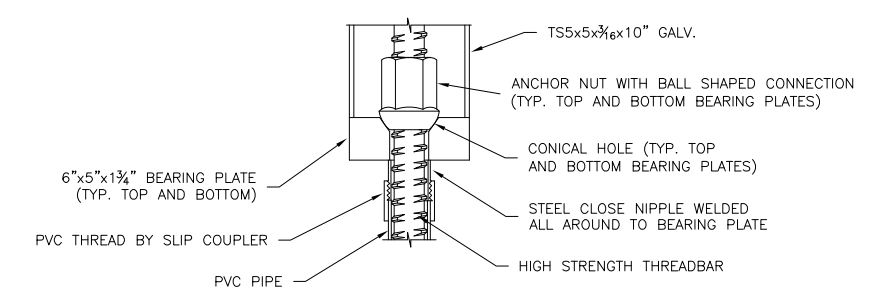
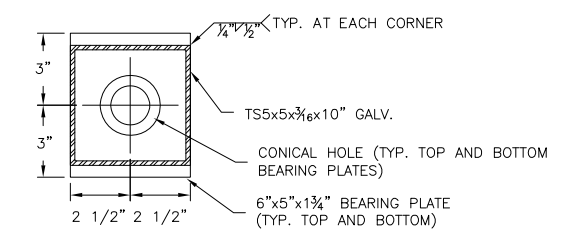
PRESTRESSED WALL ELEVATION
3/4" = 1'-0" 3 S-7



SEISMIC CABLE SET PLAN
1 1/2" = 1'-0" 4 S-7



SEISMIC CABLE SET SECTION
HALF SIZE 5 S-7



THREADBAR, NUT AND BEARING PLATE DETAIL
3" = 1'-0" 6 S-7

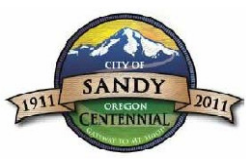
PSE
Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635 11/5/12

NOTICE
0 1/2 1
IF THIS BAR DOES
NOT MEASURE 1"
THEN DRAWING IS
NOT TO SCALE

EGH
DESIGNED
EGH
DRAWN
EWBP
CHECKED

**RECORD
DRAWING**
SEE DISCLAIMER,
SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

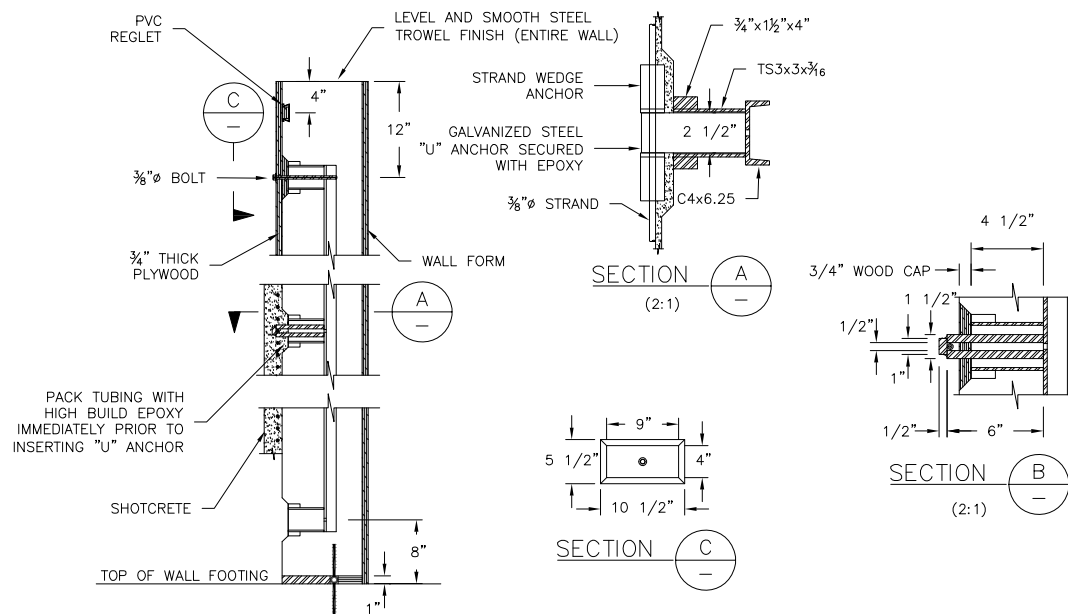


**CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION**

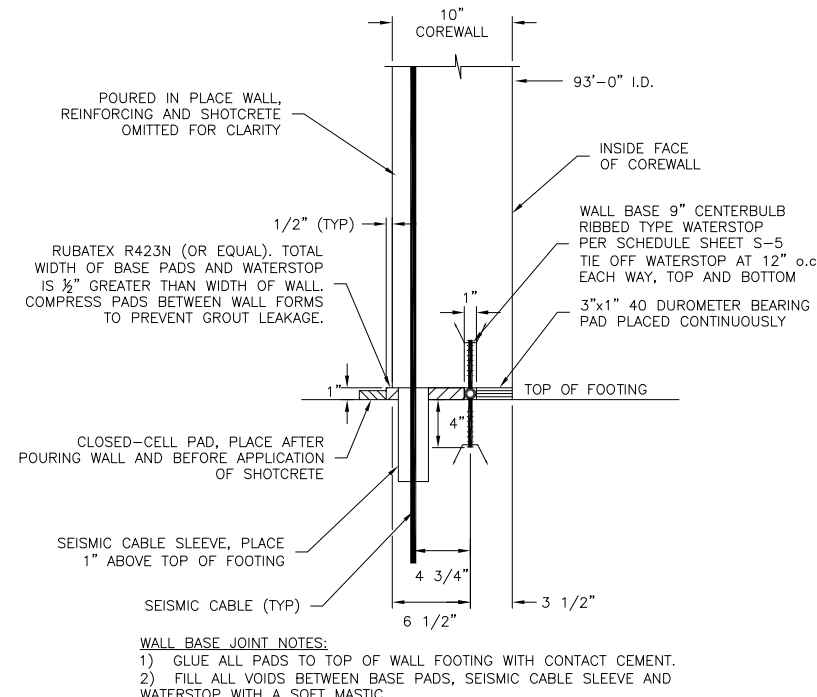
**PRESTRESSED RESERVOIR
WALL ELEVATION & DETAILS**

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-S-7
89 of 123



WALL ANCHOR DETAIL (1)
1" = 1'-0" (S-8)



WALL BASE JOINT DETAIL (2)
1 1/2" = 1'-0" (S-8)

CIRCUMFERENTIAL PRESTRESSING NOTES:

1. THE MAXIMUM STRESS TOLERANCE IN ANY STRAND AT ANY POINT AT ANY ELEVATION ON THE TANK WALL AT ANY TIME DURING THE WRAPPING OPERATION SHALL NOT EXCEED ± 320 POUNDS FROM THE AVERAGE FORCE SETTING OF 14,950 POUNDS.
2. THE CONTRACTOR SHALL PROVIDE A CONTINUOUSLY ELECTRONICALLY RECORDED FORCE APPLICATION GRAPH FOR THE FULL LENGTH OF ALL WRAPPED STRAND AS PERMANENT DOCUMENTED EVIDENCE THAT THE FORCE APPLICATION REQUIREMENTS HAVE BEEN MET. ALL SUCH FORCE READINGS MUST BE BASED ON CONTINUOUS SENSING OF THE STRAND BETWEEN THE TENSIONING DRUM AND THE AND THE WALL AS THE STRAND IS BEING LAID ON THE WALL.
3. MANUAL, INDIVIDUAL, OR INTERMITTENT FORCE READINGS TAKEN WHEN THE STRAND IS IN FULL BODILY CONTACT WITH THE WALL WILL NOT BE ACCEPTED.
4. FORCE READINGS BASED ON ANYTHING OTHER THAN INSTANTANEOUS MONITORING AS THE STRAND IS BEING TENSIONED WILL NOT BE ACCEPTED.
5. INTERNAL TENDONS PLACED CIRCUMFERENTIALLY INSIDE THE COREWALL WILL NOT BE ACCEPTED.
6. THE STRAND SHALL BE 3/8" BEFORE GALVANIZING WITH A MINIMUM GALVANIZING OF 0.85 OUNCES PER SQUARE FOOT AND A MINIMUM BREAKING STRENGTH OF 21,400 POUNDS AFTER GALVANIZING.
7. THE STRAND SHALL BE INSTALLED AS INDICATED BY THE WRAPPING SCHEDULE.
8. PRIOR TO APPLYING THE CIRCUMFERENTIAL PRESTRESSING, APPLY A 3/8" THICK LAYER OF SHOTCRETE OVER THE ENTIRE COREWALL.
9. IF MULTIPLE LAYERS OF STRAND ARE REQUIRED, PROVIDE 3/8" MINIMUM OF SHOTCRETE COVERAGE BETWEEN LAYERS.
10. PROVIDE 1 1/2" MINIMUM OF SHOTCRETE COVERAGE OVER THE OUTER LAYER OF STRAND.
11. ALL SHOTCRETE TO BE APPLIED WITH AN AUTOMATED PROCESS KEEPING THE NOZZLE AT A CONSTANT DISTANCE AND ANGLE AS IT TRAVELS AT A UNIFORM BI-DIRECTIONAL SPEED. FINAL SHOTCRETE COVER TO HAVE A NATURAL GUN FINISH.

VERTICAL PRESTRESSING NOTES:

1. PRESTRESSING STEEL SHALL BE 1 1/4" THREADBARS MEETING THE TENSILE, PHYSICAL AND DEFORMATION REQUIREMENTS FOR ASTM A-722 TYPE II BARS.
2. THREADBARS WITH QUENCHED OR TEMPERED STEELS WILL NOT BE ALLOWED.
3. THREADBARS SHALL BE COATED WITH UNOCAL SOLUBLE OIL 10 RUSTBAN OR EQUAL PRIOR TO INSTALLATION INTO PVC PIPE.
4. THREADBARS SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.55%.
5. DEFORMATIONS SHALL BE UNIFORM AND SUCH THAT ANY LENGTH OF BAR MAY BE CUT AT ANY POINT THE INTERNAL THREADS OF THE PROPER NUT CAN BE FREELY THREADED INTO THE BAR.
6. MINIMUM ULTIMATE STRENGTH OF THE NUT MUST EQUAL AT LEAST 95% OF THE MINIMUM ULTIMATE STRENGTH OF THE BAR.
7. DURING EACH WALL POUR, FLUSH THE VERTICAL THREADBARS WITH CLEAN WATER FROM A HOSE PLACED THROUGH AN OPENING IN THE WOODEN CAP OVER THE SQUARE TUBING.
8. EACH VERTICAL TENDON SHALL BE STRESSED PRIOR TO WRAPPING AS FOLLOWS:

INITIAL FORCE	ELONGATION
137.3 K	0.879"

9. GROUT PUMP EACH VERTICAL THREADBAR FROM THE BOTTOM GROUT CONNECTION WITH A 2-PART WATER INTENSIVE EPOXY UNTIL THE ENTIRE NUT AT THE TOP ANCHOR CONNECTION HAS BEEN COVERED. DRYPACK THE REMAINDER OF THE TUBING WITH A 1C:2S MIX IMMEDIATELY AFTER THE INSIDE OF THE TUBING HAS BEEN COATED WITH GROUT. IN LIEU OF DRYPACKING, THE TUBING MAY BE FILLED WITH PEAGRAVEL PRIOR TO GROUT PUMPING AND THE ENTIRE TUBING MAY BE PUMPED FULL OF GROUT.
10. VERTICAL PRESTRESSING MAY COMMENCE ONCE WALL CONCRETE STRENGTH HAS REACHED A MINIMUM OF 4,000psi.

NUMBER OF WRAPS	HEIGHT ABOVE TOP OF FOOTING
1st LAYER	21'-0"
8	20'-0"
8	18'-0"
8	16'-0"
8	14'-0"
10	12'-0"
14	9'-0"
16	6'-0"
18	3'-0"
16	0'-0"
TOTAL WRAPS = 98	

PRESTRESSING WRAPS SCHEDULE (3)
NTS (S-8)

PSE
Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635 11/5/12

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

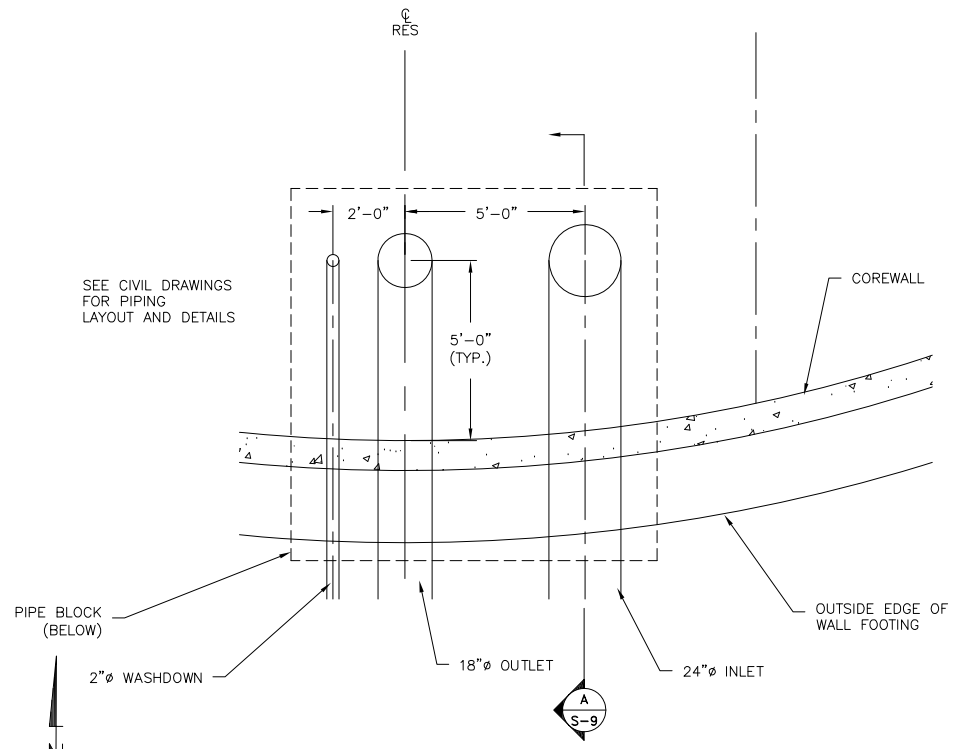
RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHOEN 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

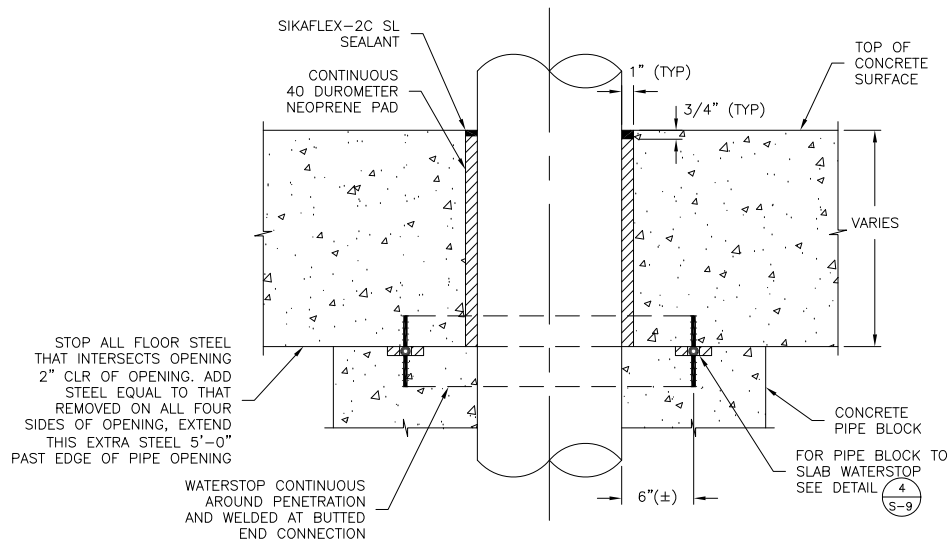
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

**MISCELLANEOUS RESERVOIR
DETAILS AND PRESTRESSING NOTES**
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

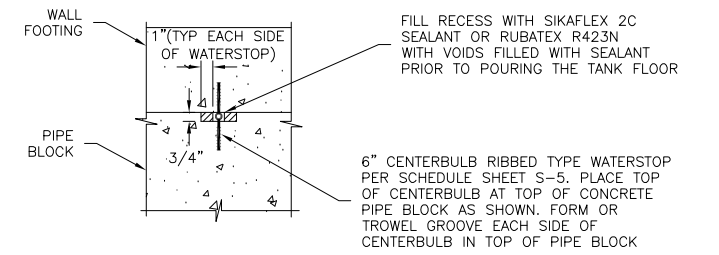
SHEET
RES-S-8
90 of 123



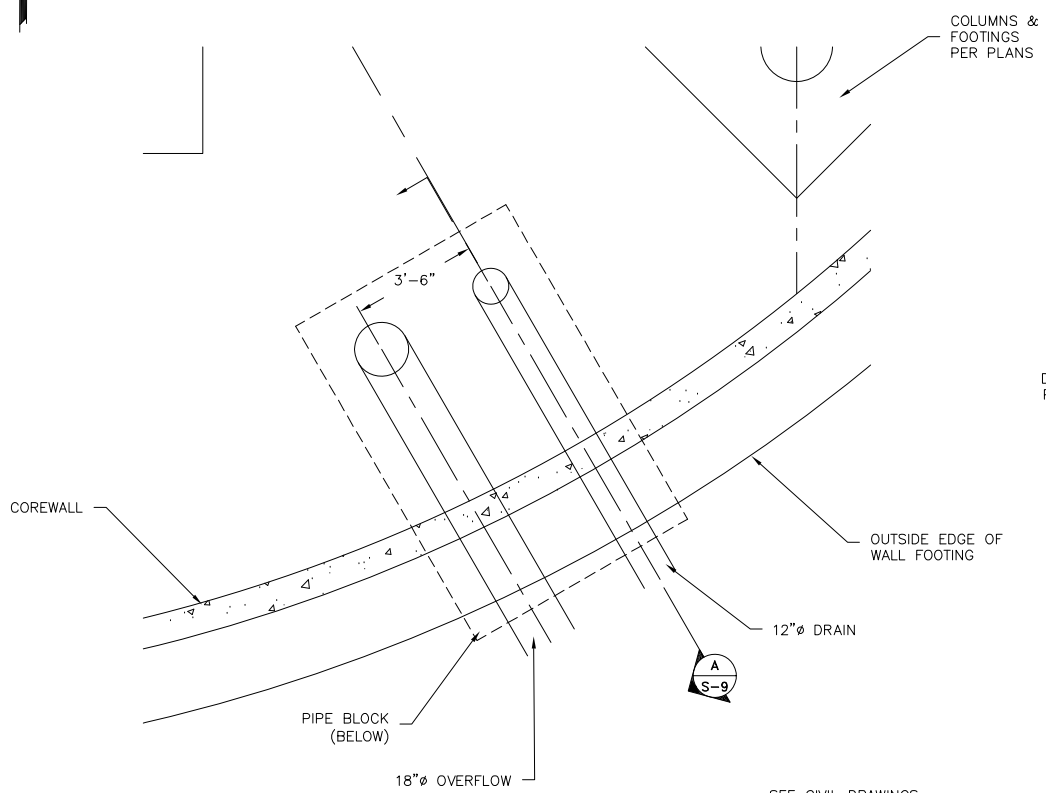
INLET/OUTLET PIPE PLAN (1)
3/8" = 1'-0" S-9



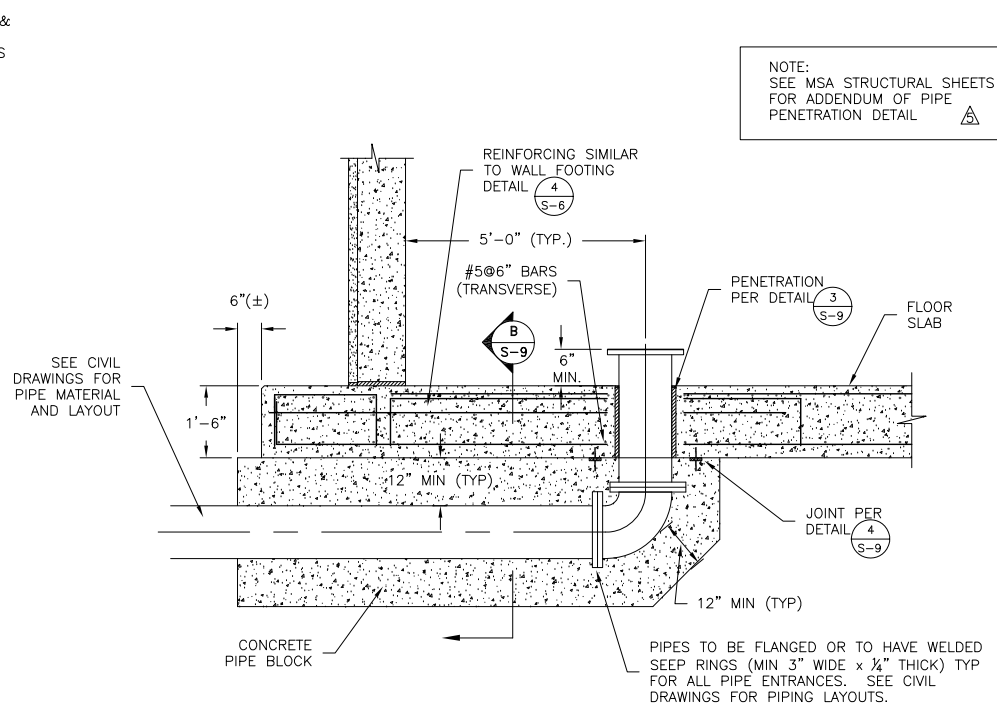
WALL FOOTING PIPE PENETRATION DETAIL (3)
1 1/2" = 1'-0" S-9



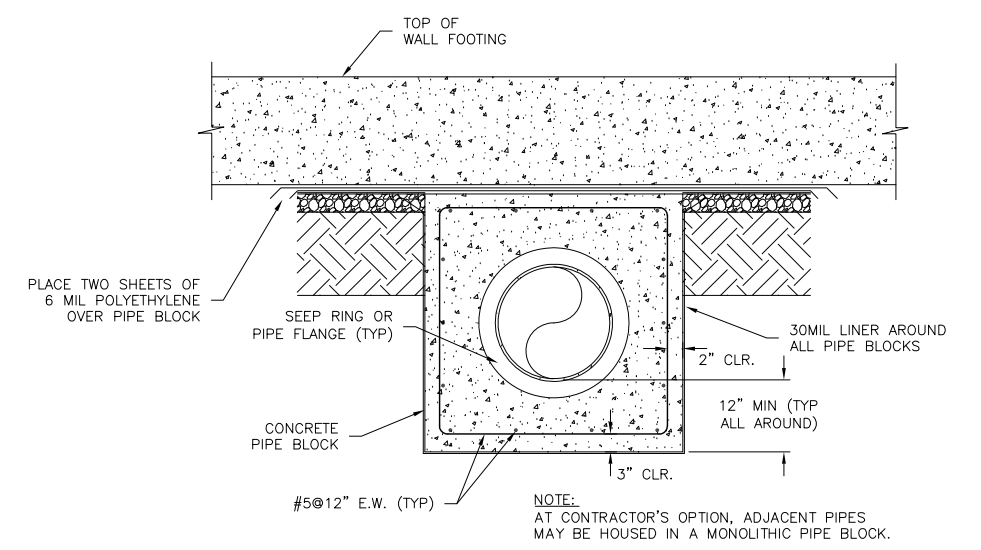
PIPE BLOCK TO SLAB WATER STOP DETAIL (4)
1 1/2" = 1'-0" S-9



DRAIN/OVERFLOW PIPE PLAN (2)
3/8" = 1'-0" S-9



TYP. PIPE BLOCK AND EXTENDED FOOTING SECTION (A)
1/2" = 1'-0" S-9



TYPICAL PIPE BLOCK SECTION (B)
3/4" = 1'-0" S-9

NOTES:
1. DRAIN INLET TO BE SET FLUSH WITH TOP SURFACE OF FLOOR SLAB.
2. INDIVIDUAL PIPE BLOCKS DETAILED ON SHEET S-11.

PSE
Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635 11/5/12

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EGH	DESIGNED
EGH	DRAWN
EWBP	CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

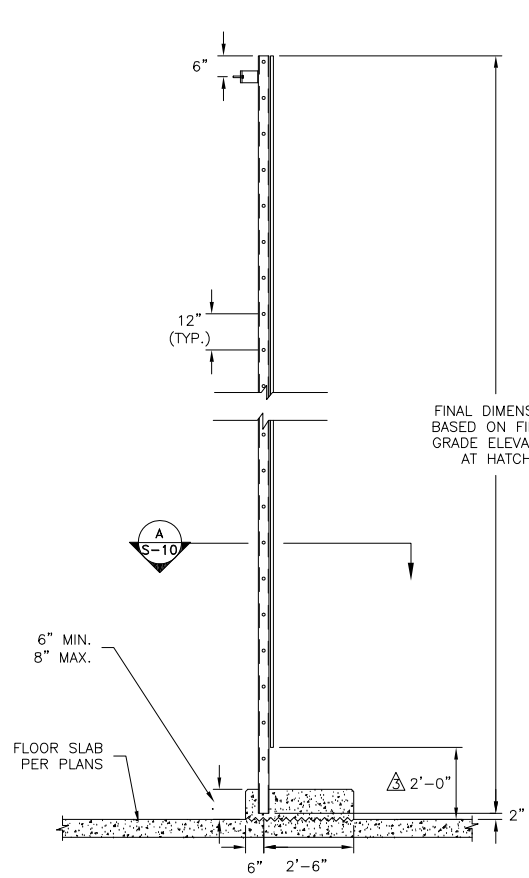
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

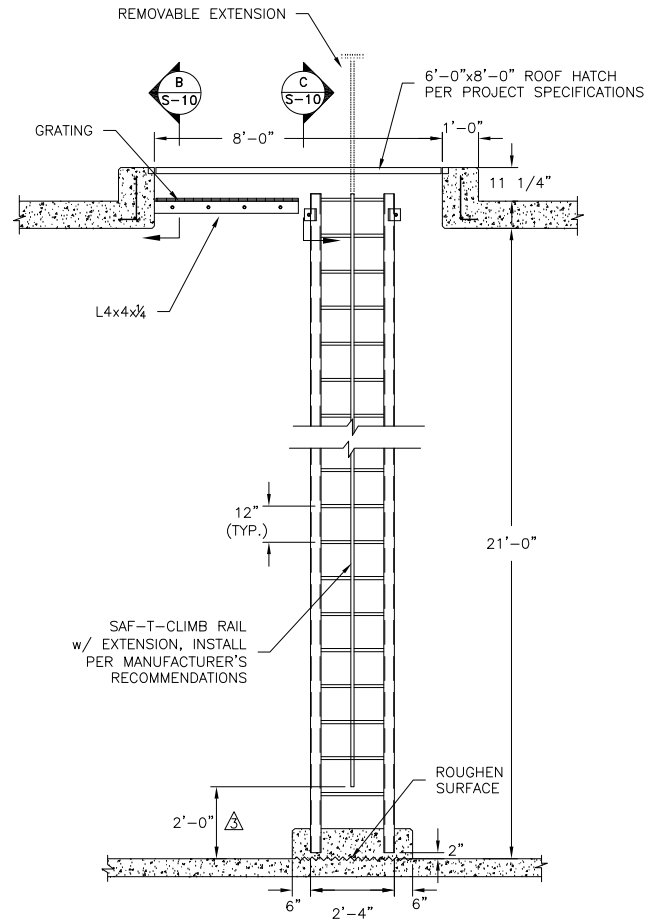
**RESERVOIR FOUNDATION
AND PIPE BLOCK DETAILS**

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

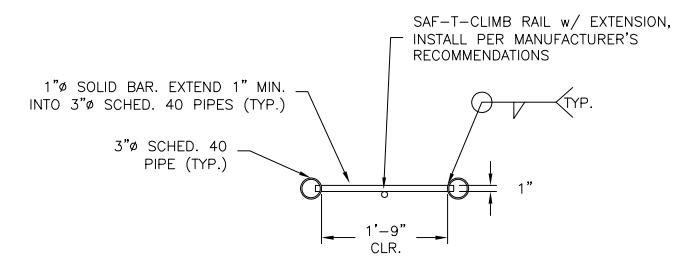
SHEET
RES-S-9
91 of 123



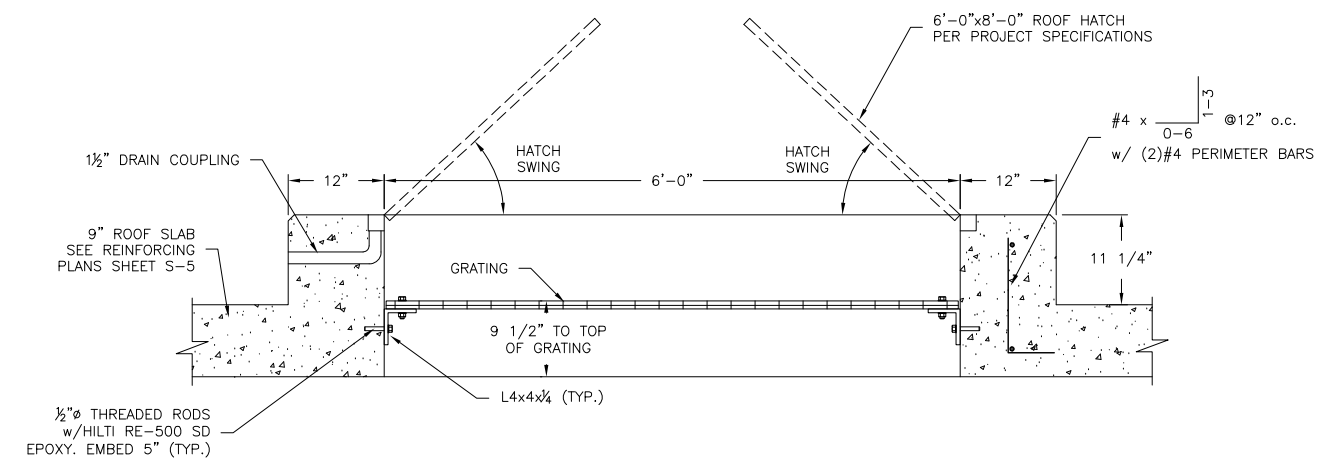
LADDER DETAILS
3/8" = 1'-0" (S-10)



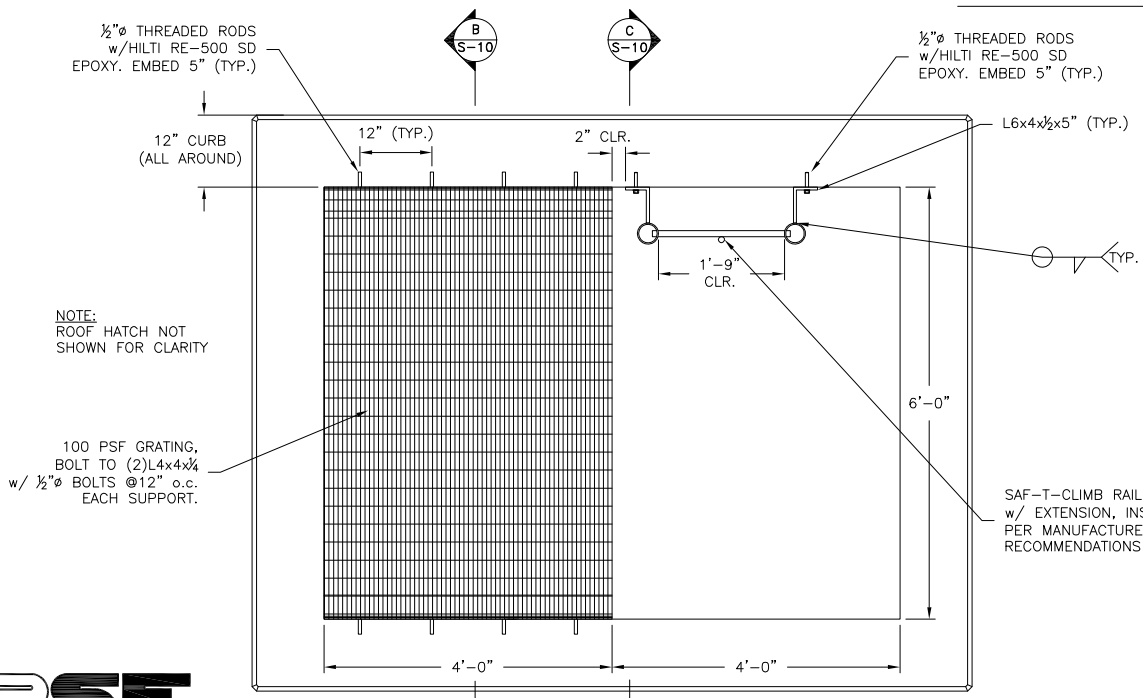
LADDER AND ROOF HATCH ELEVATION
3/8" = 1'-0" (S-10)



LADDER SECTION
3/4" = 1'-0" (S-10)



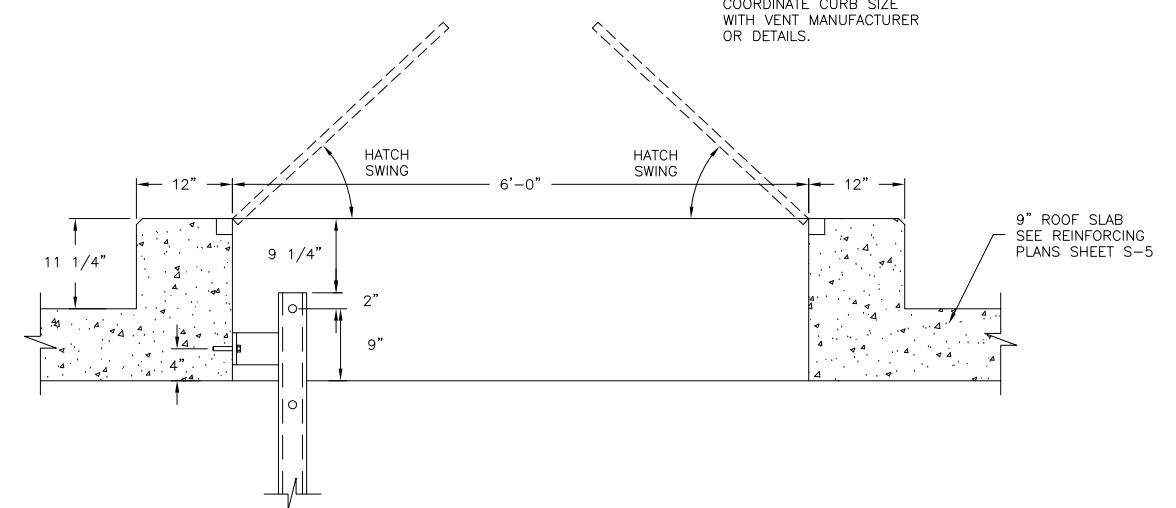
SECTION B
1" = 1'-0" (S-10)



ROOF HATCH PLAN
3/4" = 1'-0" (S-10)

INTERIOR LADDER NOTES:

1. ALL MATERIAL FOR INTERIOR LADDER PIPE SIDERAILS, RUNGS, BRACKETS, AND SAF-T-CLIMB AS WELL AS ROOF HATCH GRATING TO BE A316 STAINLESS STEEL.
2. GRATING SHALL BE A316SS AND ABLE TO WITHSTAND 100 PSF WITH A MAXIMUM DEFLECTION OF L/360.
3. ALL WELDS TO BE 1/4" MINIMUM.
4. ROOF HATCH TO BE MANUFACTURED OF ALUMINUM PER PROJECT SPECIFICATIONS.
5. ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING OR EPOXY PAINT.
6. USE ASTM A316SS FOR ALL BOLTS AND SUPPORT FRAMING UNLESS NOTED OTHERWISE.
7. WHERE STAINLESS STEEL BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
8. WHERE BOLTS ARE PLACED IN THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE SHOTCRETING. TAKE EXTREME CARE TO AVOID DAMAGING PRESTRESSING STRAND. PLACE A STEEL PIPE AROUND THE DRILL BIT TO KEEP BIT FROM COMING IN CONTACT WITH THE STRAND. INSERT BOLTS BEFORE SHOTCRETING TO MARK HOLE LOCATION. PACK HOLE IN SHOTCRETE WITH EPOXY BEFORE FINAL INSTALLATION OF BOLTS TO INSURE COMPLETE COVERAGE OF STRAND.
9. LADDER ACCESS AND GRATING PLATFORM PER ROOF PLAN SHEET S-3.



SECTION C
1" = 1'-0" (S-10)

PSE
Peterson Structural Engineers, Inc.
5319 S.W. Westgate Dr., Suite 215
Portland, Oregon 97221
(503) 292-1635 11/5/12

NOTICE	
0	1/2
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

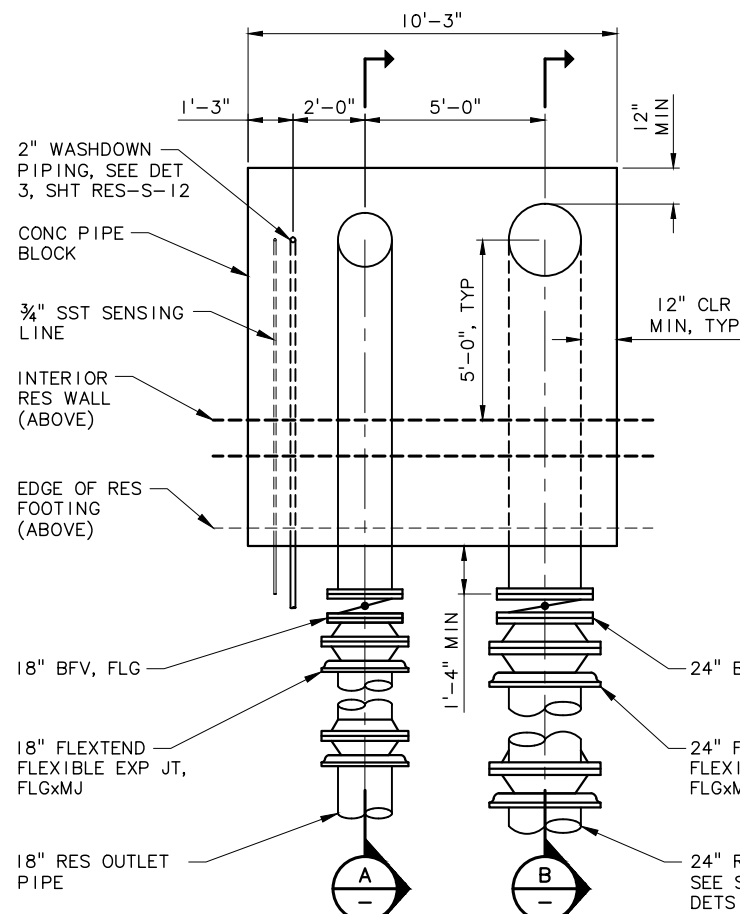
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR INTERIOR LADDER AND HATCH DETAILS
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

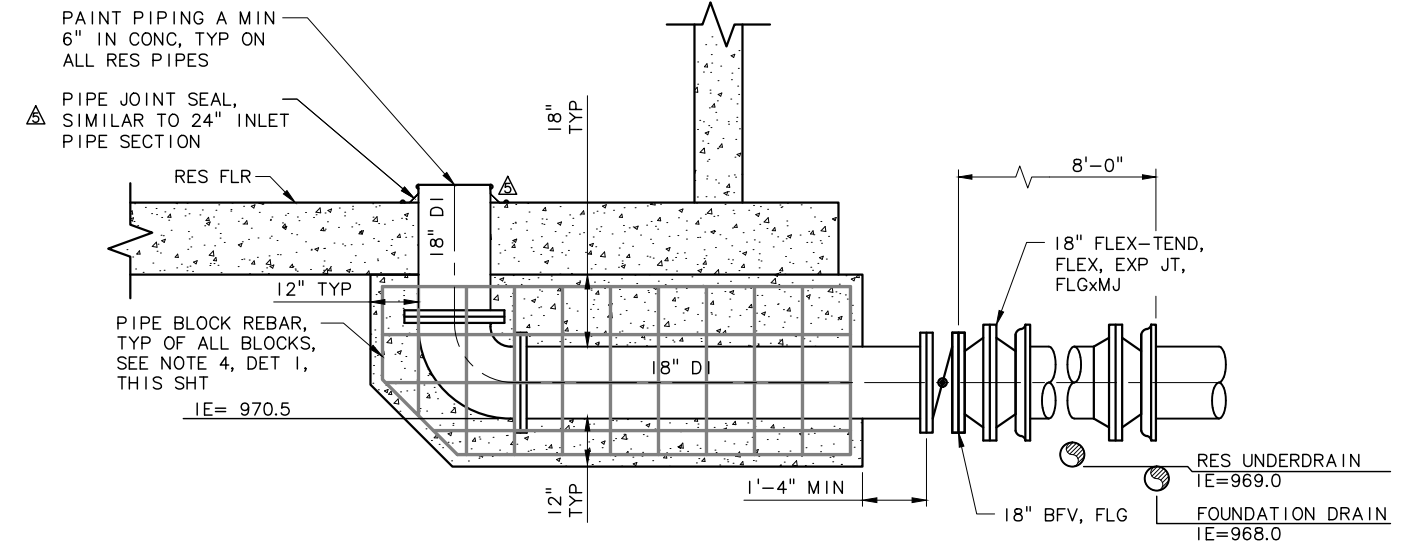
SHEET
RES-S-10
92 of 123

C:\PDX_Projects\11265\CAD\DR\PROJECTS\SCHED B\11-1265-234-OR-S-R.dwg RES-S-11 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)

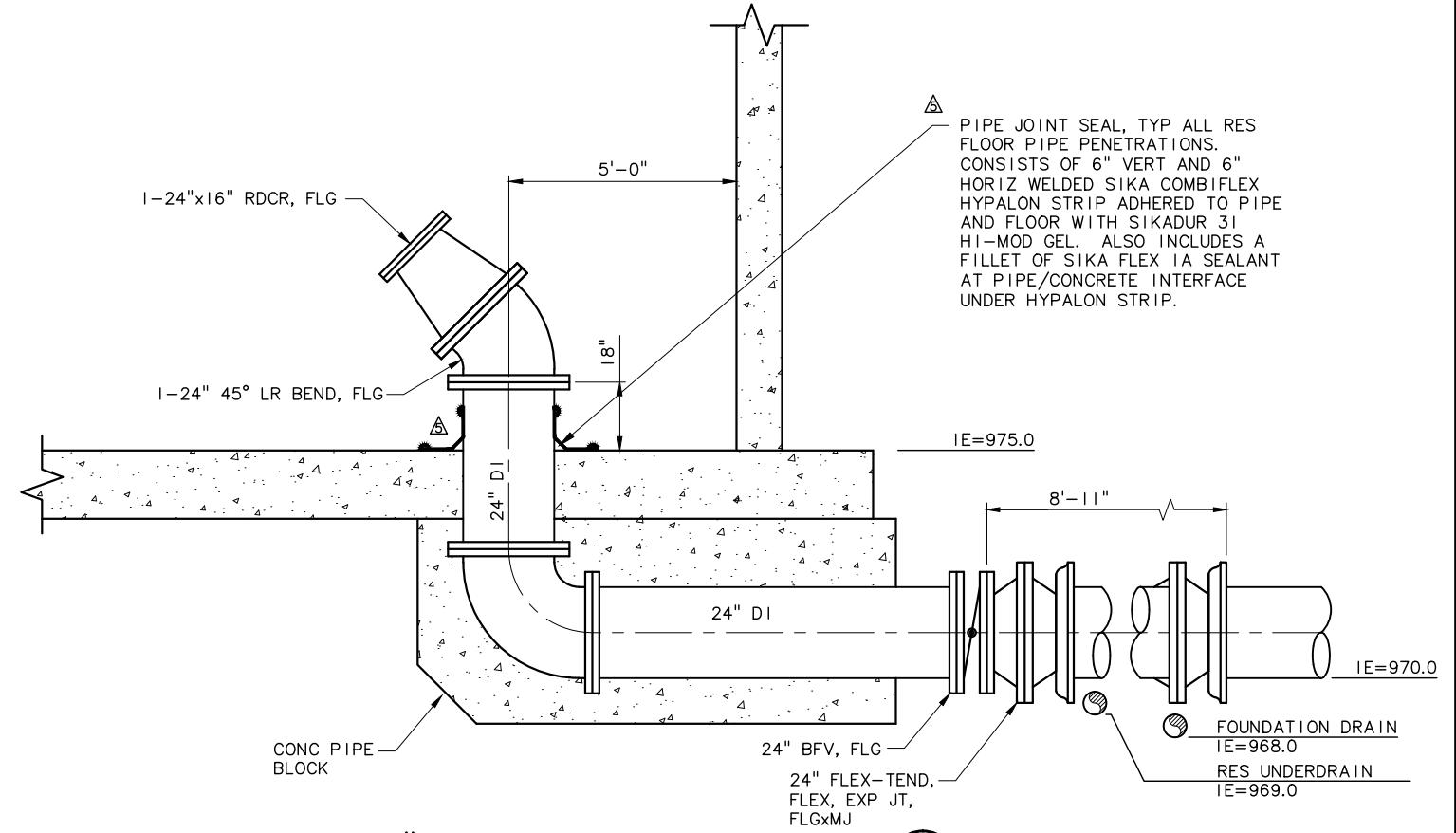


RESERVOIR INLET AND OUTLET PIPING ENTRANCE PLAN
SCALE: 3/8"=1'-0"

- NOTES:**
1. PIPING ENCASED IN CONCRETE TO BE FLANGED DUCTILE IRON PIPE UNLESS OTHERWISE NOTED.
 2. ALL EXPOSED PIPING IN RESERVOIR SHALL BE PAINT-LINED AND COATED UNLESS OTHERWISE NOTED, SEE SPECIFICATIONS. DUCTILE IRON PIPE IN RESERVOIR SHALL BE CEMENT LINED WITH A FACTORY APPLIED EPOXY PAINTED COATING. EXTEND COATING A MINIMUM OF 6" INTO CONCRETE AT FLOOR PIPING PENETRATIONS.
 3. SEAL MEMBRANE AROUND ALL PIPE PENETRATIONS.
 4. INSTALL REBAR IN ALL PIPE BLOCKS. REBAR TO BE #5'S AT 12" ON CENTER EACH WAY EACH FACE WITH 2" MINIMUM CLEARANCE FROM EDGE AND PIPING. POLYWRAP PIPING WITHIN PIPE BLOCKS AND EXTEND TO COMPLETELY COVER FLEXIBLE EXPANSION JOINTS.
 5. PIPE SHALL NOT CONTACT STEEL IN CONCRETE.
 6. SEE SHEET RES-C-5 FOR RESERVOIR PIPING ORIENTATIONS.



18" OUTLET PIPE SECTION
SCALE: 1/2"=1'-0"



24" INLET PIPE SECTION
SCALE: 1/2"=1'-0"

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	12/04/12	LLA	ADDENDUM NO. 2

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

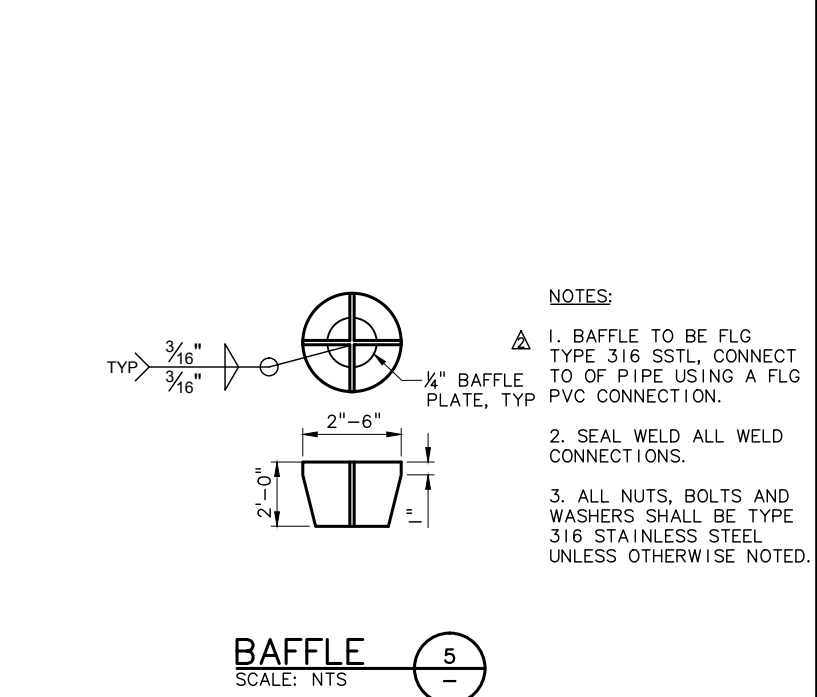
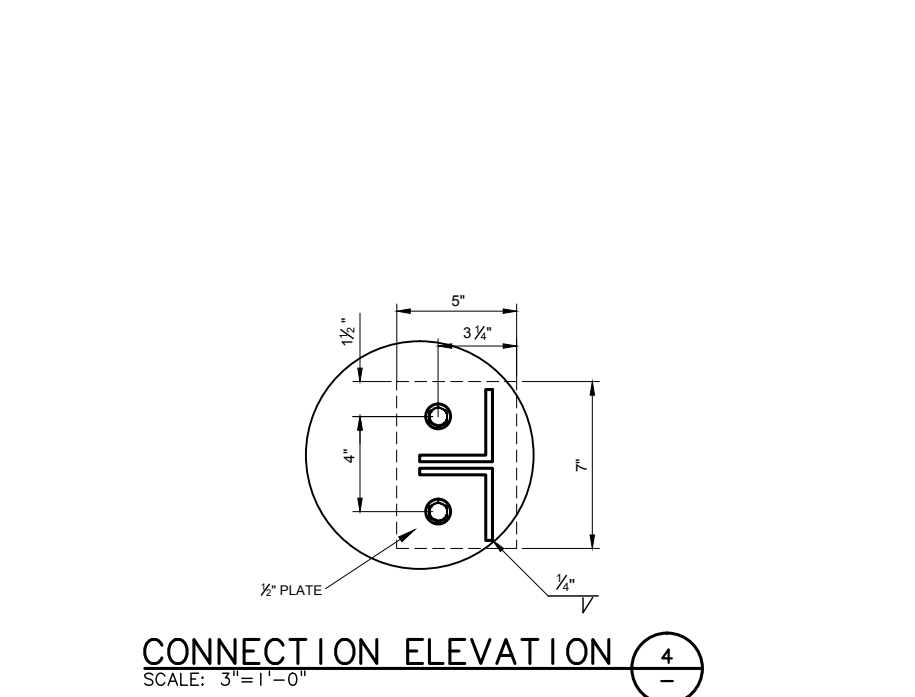
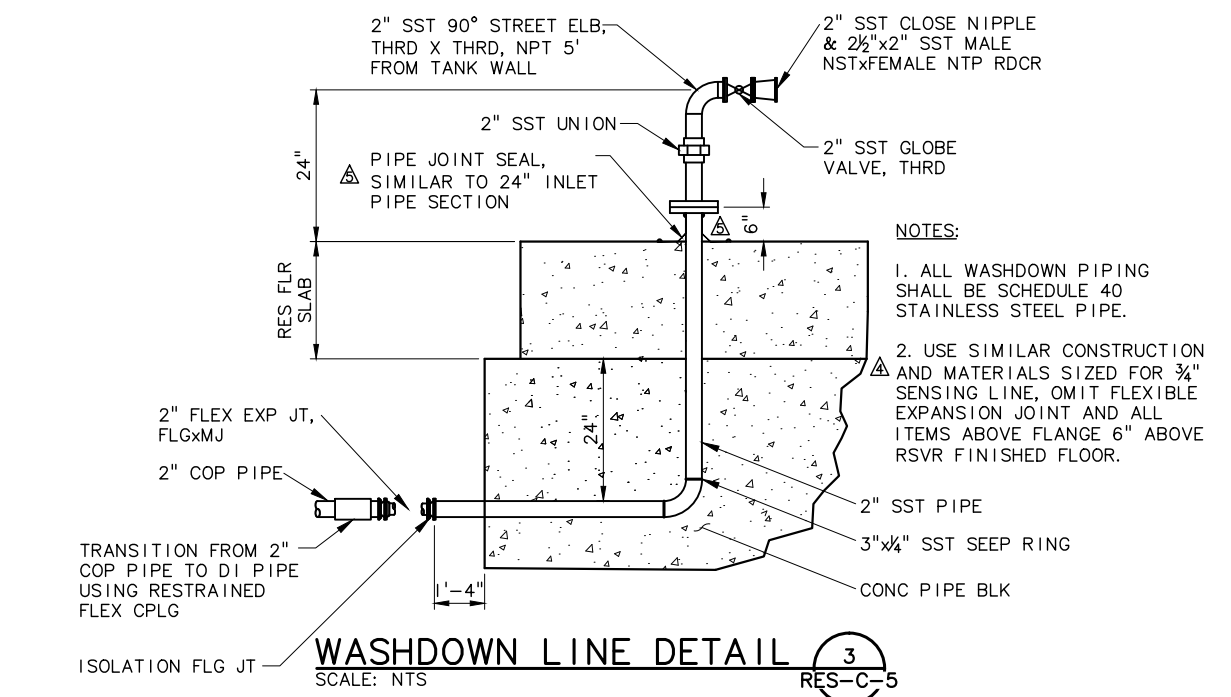
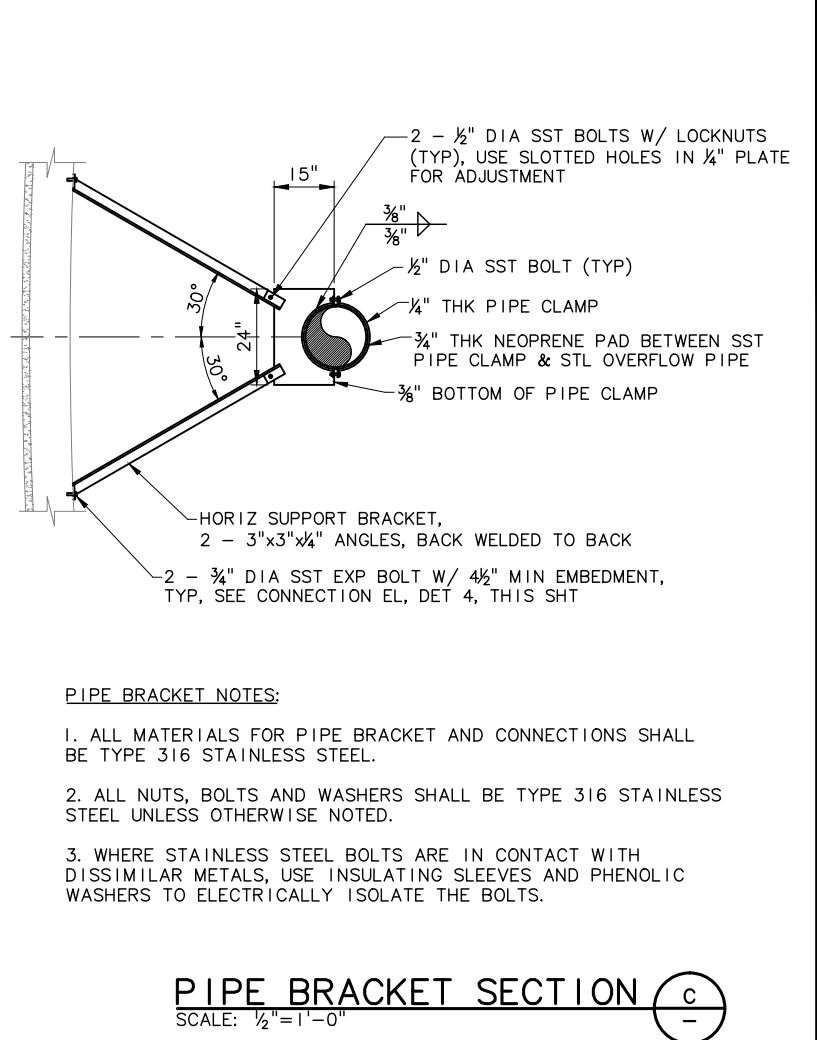
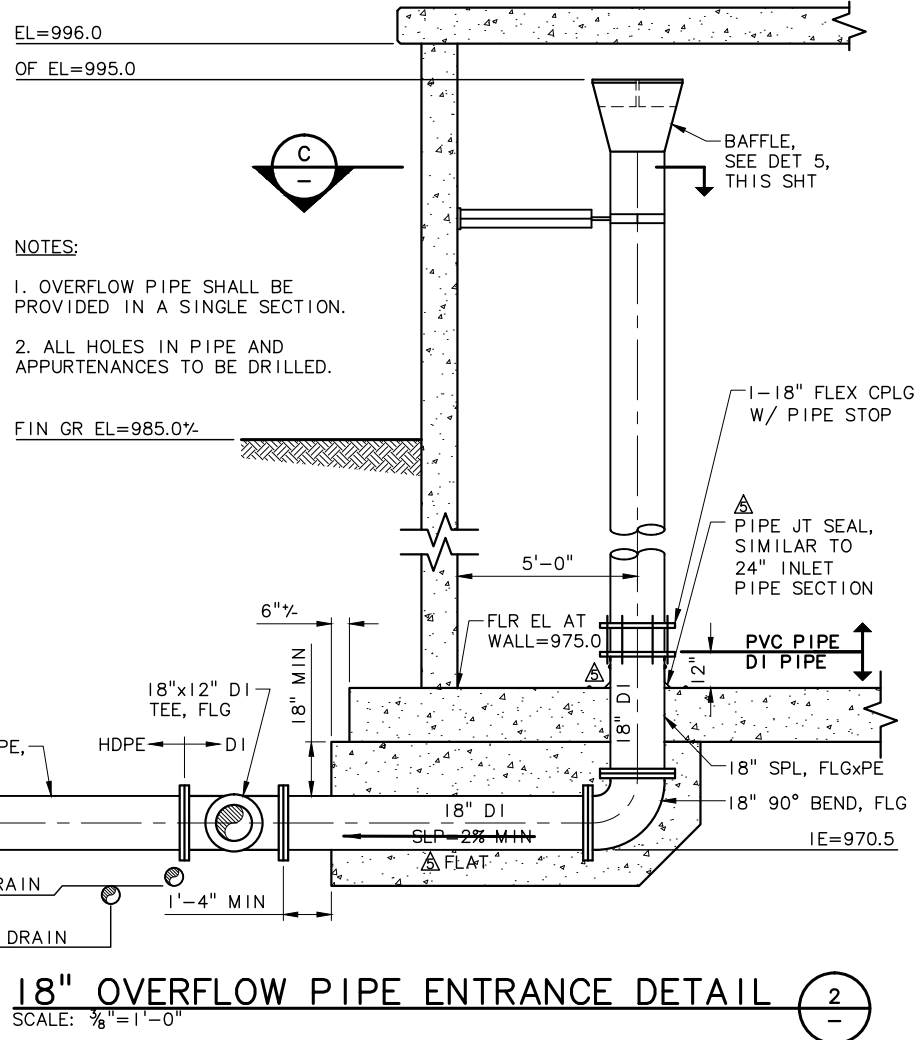
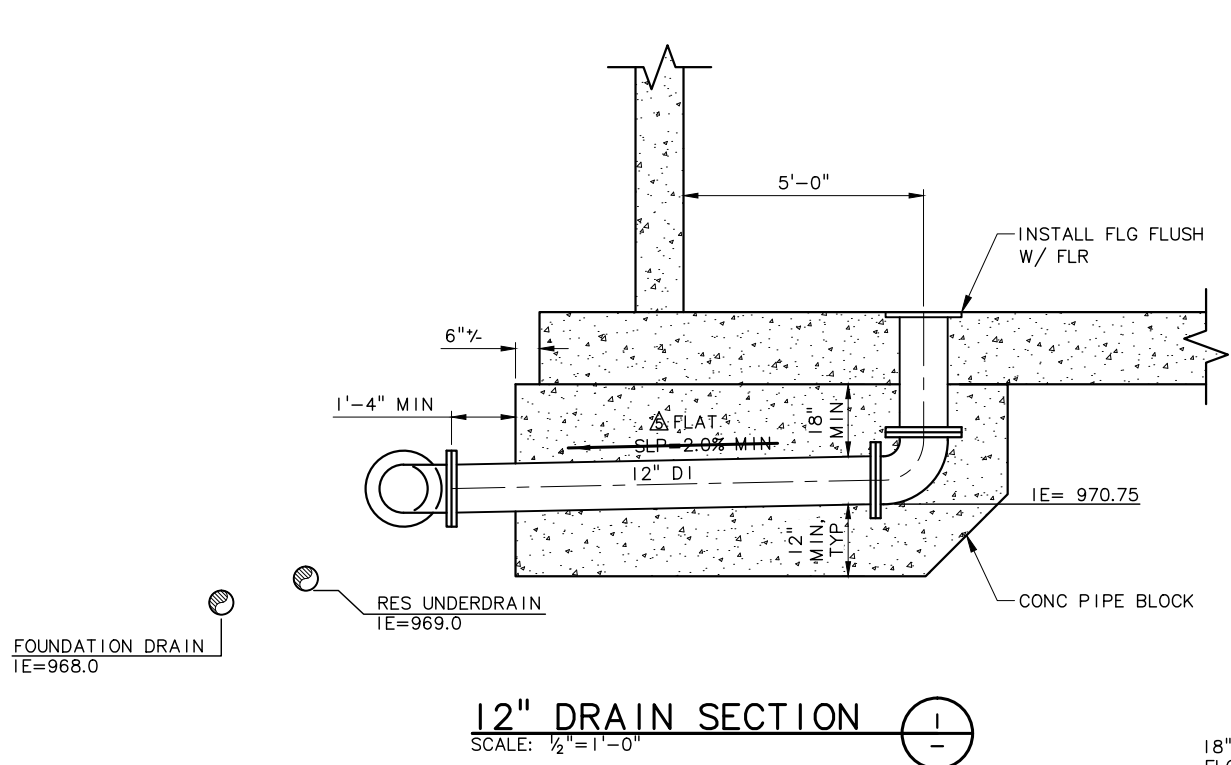
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR PIPING ENTRANCE/EXIT PLAN AND SECTIONS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-S-11
93 of 123

C:\PDX_Projects\11\1265\CAD\DRSHEETS\SCHED B\11-1265-234-OR-S-R.dwg RES-S-12 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	12/13/12	LLA	ADDENDUM NO. 4
3	12/04/12	LLA	ADDENDUM NO. 2

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

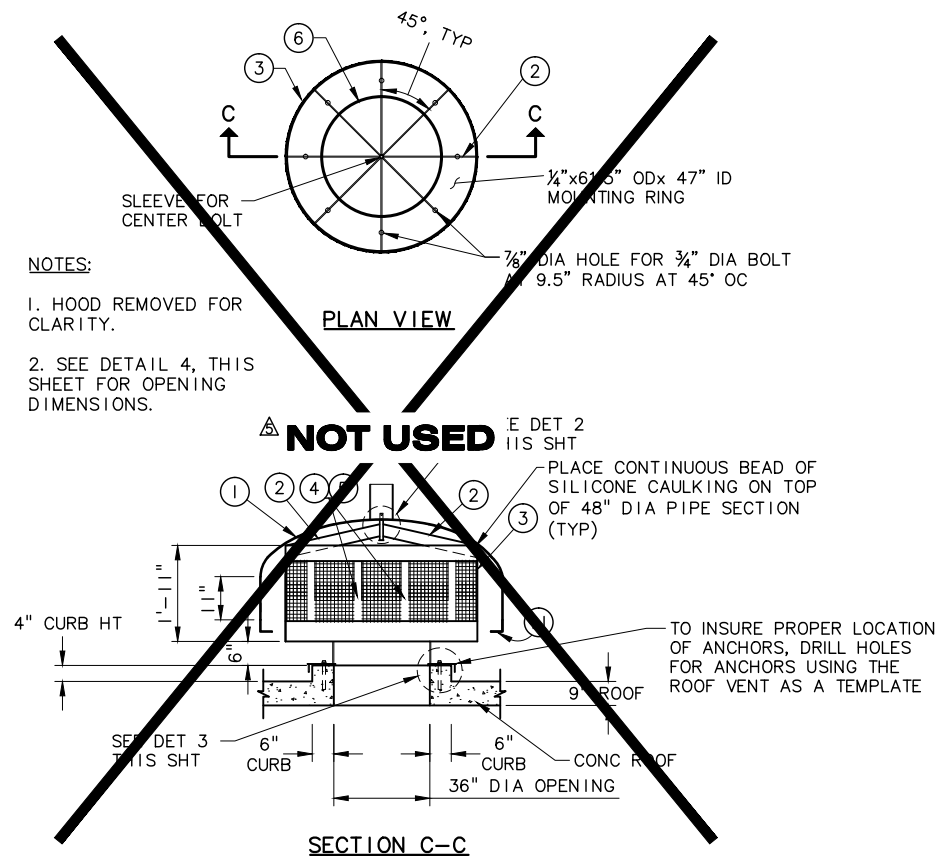
MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

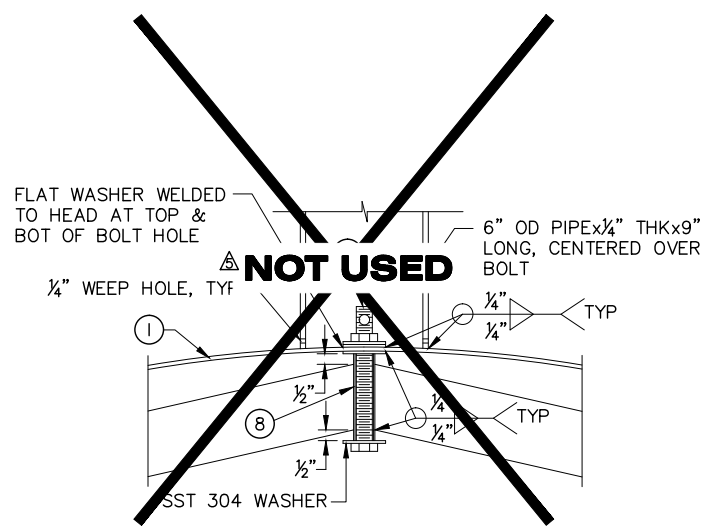
RESERVOIR OVERFLOW PIPING
SECTIONS AND DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

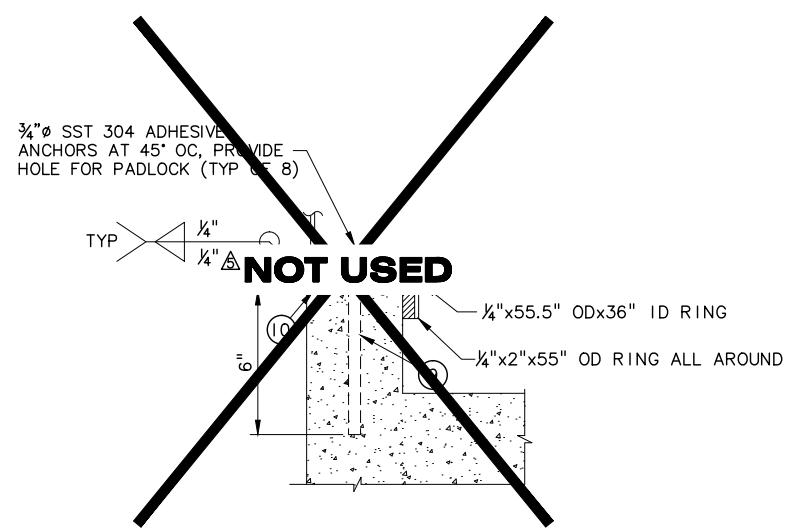
C:\PDX_Projects\11\1265\CAD\DR\PROJECTS\SCHED B\11-1265-234-OR-S-R.dwg RES-S-13 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



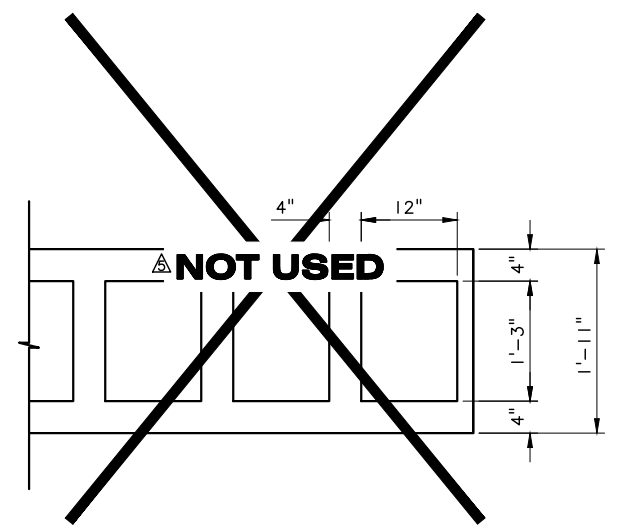
PROPOSED ROOF VENT DETAIL (1)
SCALE: NTS



ROOF VENT-BOLT AT TOP DETAIL (2)
SCALE: NTS



ROOF VENT MOUNTING DETAIL (3)
SCALE: NTS



OPENINGS DETAIL FOR 48\"/>

- ROOF VENT PARTS LIST:**
- (1) 62" DIA x 3/8" AL HEAD W/ 11" SKIRT
 - (2) 2"x4" STIFFENER STRIPS (8 TOTAL)
 - (3) 25" LONG x 1/4" WALL x 48" DIA OD PIPE
 - (4) 6'-6" LONG x 16" SST 304 MESH WIRE CLOTH, 1/4" MESH
 - (5) SST 304 0.025" x 1/2" PERFORATED BAND W/ SST 304 AERO SEAL "BREEZE" STRIPPING STRAP & ADJUSTABLE WORM DRIVE CLAMP (2 TOTAL). INSTALL CLAMPING RINGS AFTER SCREEN IS IN PLACE
 - (6) 36" DIA SCH 40 PIPE **NOT USED**
 - (7) 3/4" DIA x 7" LONG SST 304 BOLT W/ NUT & WASHERS THROUGH VENT HEAD PROVIDE HOLE FOR PADLOCK. ADHERE BOLT TO SLV W/ EPOXY
 - (8) 3/4" DIA SCH 40 PIPE
 - (9) 3/4" DIA SST 304 ANCHOR BOLTS W/ NUT & WASHER (8 TOTAL)
 - (10) 1/2" THK NEOPRENE GASKET
 - (11) EXPANDED METAL SCREEN WELDED TO VENT HOOD

- NOTES:**
1. ALL VENT MATERIAL UNLESS OTHERWISE NOTED, TO BE STAINLESS STEEL OR CARBON STEEL WITH A MINIMUM YIELD OF 30 KSI. CARBON STEEL FABRICATED ROOF VENT SHALL BE HOT-DIPPED GALVANIZED.
 2. FINAL DESIGN TO BE PROVIDED BY ROOF VENT DESIGNER.
 3. PROVIDE GASKETS AGAINST ALL STAINLESS STEEL SURFACES AND INSULATED WASHER AND SLEEVES ON BOLTS.

RESERVOIR ROOF VENT PROVIDED PER SUBMITTAL 32

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

LLA DESIGNED
JHF DRAWN
MLH CHECKED

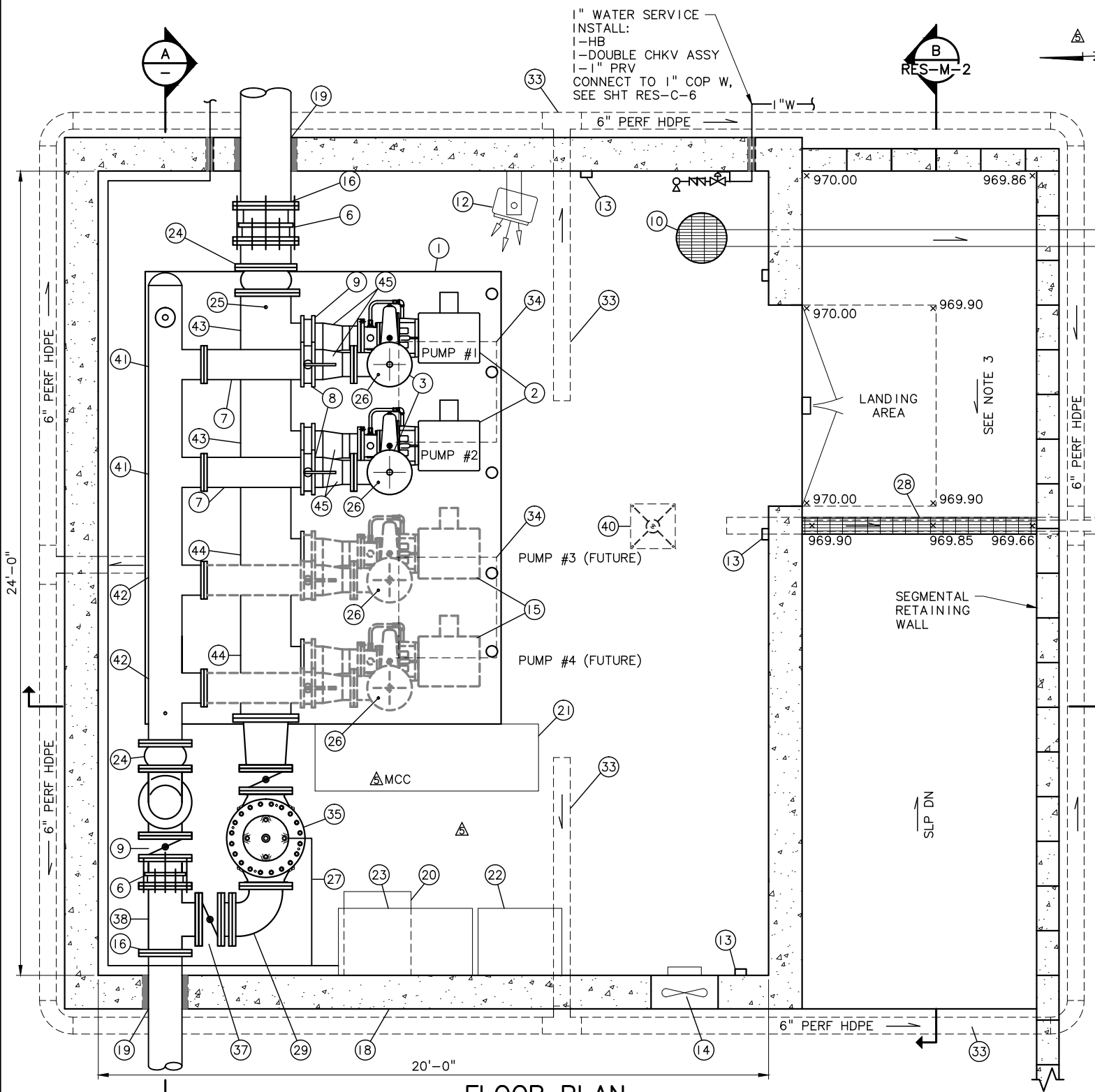
RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR ROOF VENT DETAILS			
PROJECT NO.:	11-1265	SCALE:	AS SHOWN
DATE:	NOVEMBER 2012		

C:\PDX-Projects\11265\234-OR-M-R.dwg RES-M-1 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)

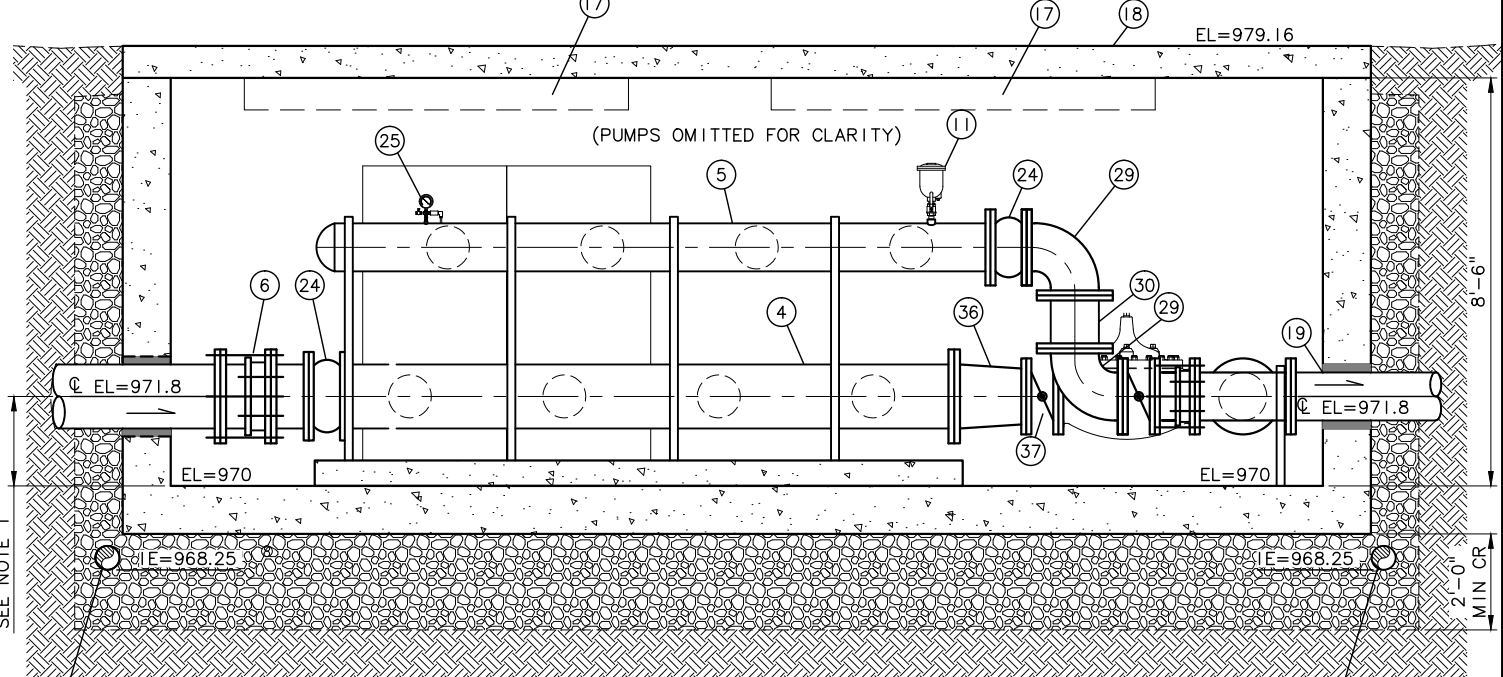


FLOOR PLAN
SCALE: 1/2" = 1'-0"

- NOTES:**
- VERIFY SUCTION AND DISCHARGE PIPING HORIZONTAL AND VERTICAL DIMENSIONS WITH PUMP STATION MANUFACTURER.
 - ROUGH OPENINGS FOR DOORS, FANS, PIPING, SUMP AND HANDRAILS SHALL BE CAST IN VAULT DURING MANUFACTURE. CONTRACTOR TO COORDINATE DIMENSIONS AND LOCATIONS OF ROUGH OPENINGS WITH EQUIPMENT REQUIREMENTS AND INCORPORATE INTO VAULT DESIGN FOR ENGINEER REVIEW PRIOR TO MANUFACTURE.
 - SLOPE SIDEWALK TOWARD TRENCH DRAIN.
 - FOLLOW GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR EARTHWORK ACTIVITIES AND SUBBASE PREPARATION. SEE GEOTECHNICAL ENGINEERING REPORT PREPARED BY GRI, INC. IN THE SPECIFICATIONS.
 - ALTITUDE VALVE TO BE INSTALLED FOR BACKFEED OPERATION WHEN PUMPS ARE NOT OPERATING.

MATERIAL LIST

- SKID MOUNTED PACKAGE PUMP STATION, SEE SPECS
- 60 HP MOTOR AND PUMP, TYP OF 2
- 8" PUMP CV, RUN COP DRAIN LINES TO FD
- 18" STL SUCTION HEADER
- 12" STL DISCHARGE HEADER
- DISMANTLING JT, MATCH PIPE SIZE
- 8" STL SPL, FLGxFLG, LENGTH AS REQ'D
- 8" BFV
- BFV, SIZE TO MATCH PIPE
- FD, DISCHARGE TO SDMH 2
- 1" THREAPOLET & 1" ARV, RUN COP DRAIN LINE TO FD
- HEATER, 5 KW ELEC, EH-TPS-1
- GFI RECEPTACLE, DUPLEX, MOUNT 18" AFF
- SIDEWALL EXHAUST FAN W/ GRAVITY DAMPER, & GREENHECK SE1 OR APPVD EQL, GALV STL FLG MOUNTED EXTERIOR LOUVER, PRECAST HOLE DIMENSIONS AS REQ'D TO ACCOMMODATE FAN
- RESERVE SPACE FOR FUTURE 60 HP PUMP
- INSUL FLG JT, SEE DET 4, SHT GEN-C-1
- INTERIOR LUMINAIRE, 4 TOTAL SEE SPECS
- PRECAST PANEL VAULT, UTILITY VAULT OR APPVD EQL, SEE SPECS
- LINK SEAL, SEE DET 2, SHT GEN-M-1
- TRANSFORMER, XLP-TPS-1
- MOTOR CONTROL CENTER (MCC), MOUNT ON 4" EQUIP PAD, SEE DET 1, SHT M-3
- ELEC PANEL BOARD, LP-TPS-1
- CONTROL PANEL, CP-TPS-1
- ELASTOMERIC PIPE CONNECTOR, SIZE TO MATCH PIPE
- 1/2" THREAPOLET, PRESS GA & PRESS TRANSDUCER, SEE DET 3, SHT RES-M-3
- 3/4" DIA EYEBOLT, MOUNT IN CEILING OVER PCV W/ EPOXY
- 3/4" BRASS SENSING LINE, SEE RES-C-6 FOR CONTINUATION
- TRENCH DRAIN, CONNECT OUTLET TO FOUNDATION DRAIN
- 12" 90° BEND, FLG
- 12" DI SPL, FLGxFLG, LENGTH AS REQ'D
- INSUL FLG JT, SEE DET 4, SHT GEN-C-1
- 12" 90° BEND, MJ, RESTR
- 6" DIA HDPE PERF PIPE LOCATED UNDER VAULT, DISCHARGE TO SDMH 2
- 3'x3' HATCH IN TOP SLAB (ABOVE)
- 12" ALTITUDE VALVE, FLG, SEE NOTE 5
- 18"x12" RDCR, FLG
- 12" BFV, FLG, NORMALLY CLOSED
- 12"x12" TEE, FLG
- HANDRAIL ALONG RAMP & STAIRS, SEE DET 7, SHT RES-M-3
- PEDESTAL BASE FOR DAVIT CRANE ON ROOF, SEE DET 4, SHT RES-C-9
- 12"x8" WELDED STL TEE, FLG
- 12"x8" WELDED STL TEE W/ BLIND FLG
- 18"x10" STL TEE, FLG
- 18"x10" TEE W/ BLIND FLG
- SUCTION & DISCHARGE PIPING, SIZES REQ'D FOR PUMPS
- DISCHARGE FOUNDATION DRAIN TO SDMH 2, SEE SHT RES-C-6
- ELEC CONDUITS UNDER FLR



SECTION
SCALE: 1/2" = 1'-0"

NOTE: PIPING AND SKID CONFIGURATION PER APPROVED SHOP DRAWINGS INCLUDED IN O&M MANUAL FOR TPS.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	12/10/12	LLA	ADDENDUM NO. 3

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900
Portland, Oregon 97204
PHONE 503-225-9010
FAX 503-225-9022

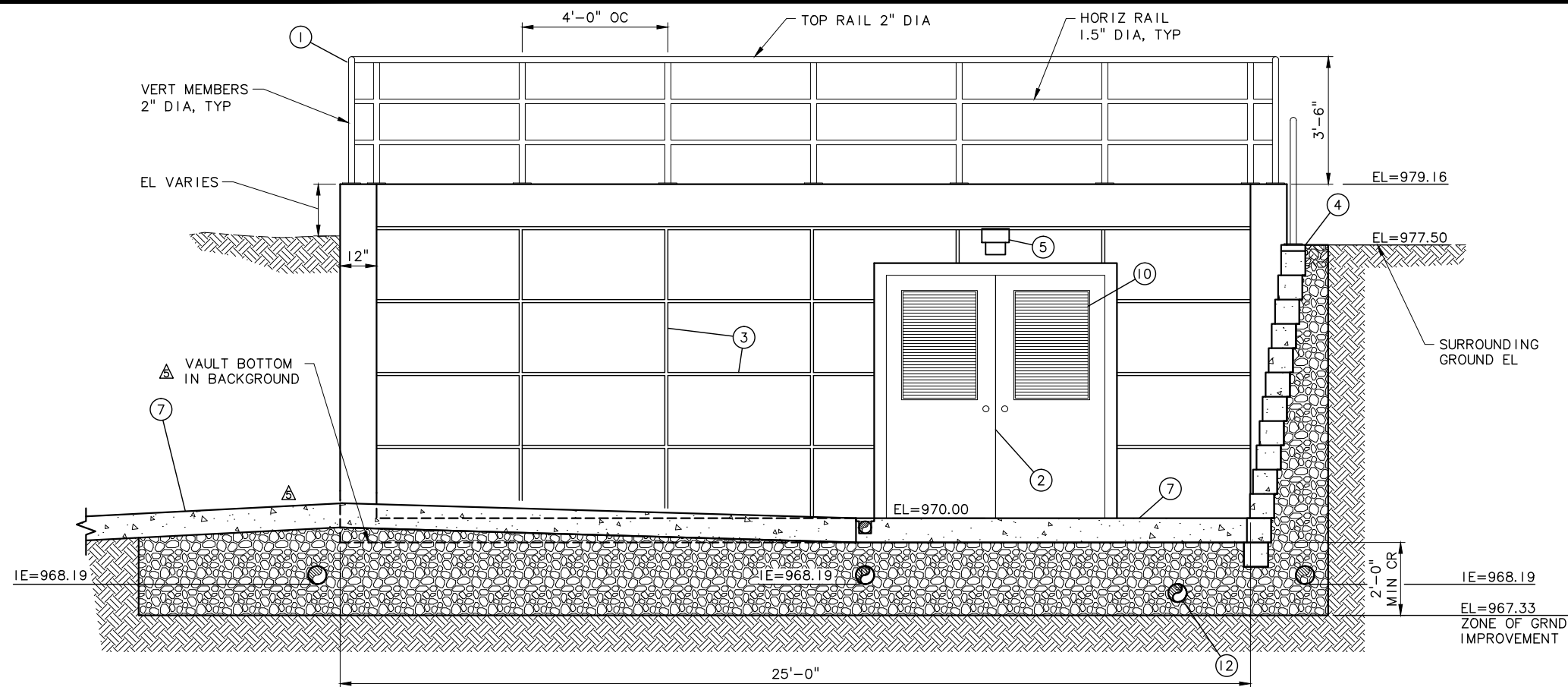
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

TRANSFER PUMP STATION
MECHANICAL FLOOR PLAN
AND SECTION

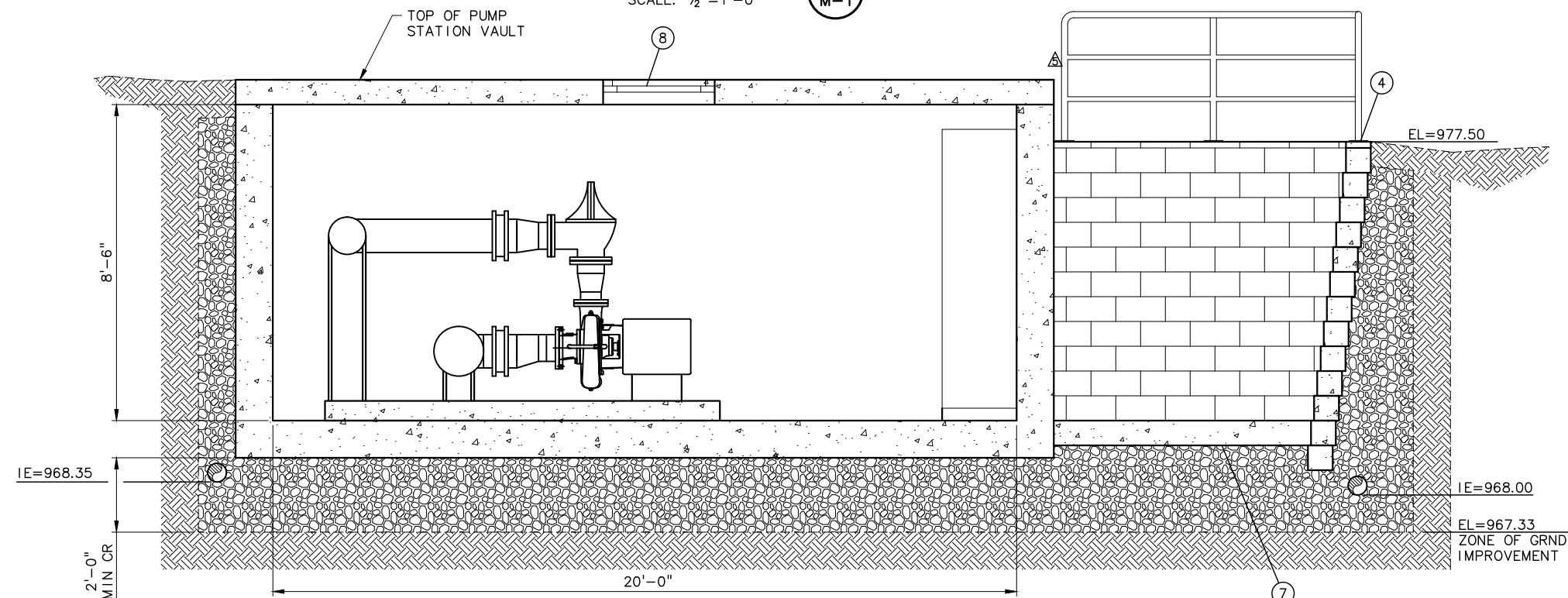
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-M-1
96 of 123

C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED B\11-1265-234-OR-M-R.dwg RES-M-2 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



SECTION B
SCALE: 1/2" = 1'-0"



SECTION C
SCALE: 1/2" = 1'-0"

MATERIAL LIST

- ⚠ (1) WELDED STL RAILING, HOT DIP GALV STL, ATTACH POSTS TO BE EMBEDDED MIN 1' IN CONC OR ATTACH W/ PLATE & ANCHOR BOLTS, SEE DETS 5 & 6, SHT RES-M-3
- (2) 6'x6'-8" INSULATED GALV STL DOUBLE DOORS
- ⚠ (3) 2" WIDE RAISED TRAPEZOIDAL STEEL FACING, 2" WIDE CHAMFERED GROOVE 1" DEEP, FORMED INTO PRECAST PANEL - VAULT EXTERIOR, PAINT VAULT TO MATCH RESERVOIR
- (4) SEGMENTAL PERMANENT RETAINING WALL, SEE DET 1, SHT RES-C-9
- (5) EXTERNAL LUMINAIRE, SEE SPECS
- ⚠ (6) CONC RAMP WITH HANDRAIL, SEE DET 7, SHT RES-M-3
- (7) CONC S/W, SEE DET SHT GEN-C-2
- (8) ROOF HATCH (2), 3'x3'
- ⚠ (9) 6" HIGH, STL REINFORCED CURB AROUND PERIMETER OF TOP SLAB, 3-SIDES. CURB TO BE DOWELED INTO VAULT STRUCTURE
- (10) 2'x3' SQ INTAKE LOUVERS W/ GRAVITY DAMPERS, GALV STL OR AL EXT FINISH
- ⚠ (11) 3' WIDE CONC STAIRS, SEE DET 4 SHT RES-M-3
- (12) 6" HDPE FLOOR DRAIN, DISCHARGE TO SDMH 2

NOTES:

1. VERIFY SUCTION AND DISCHARGE PIPING HORIZONTAL AND VERTICAL DIMENSIONS WITH PUMP STATION MANUFACTURER.
2. ROUGH OPENINGS FOR DOORS, FANS, PIPING, SUMP AND HANDRAILS SHALL BE CAST IN VAULT DURING MANUFACTURE. CONTRACTOR TO COORDINATE DIMENSIONS AND LOCATIONS OF ROUGH OPENINGS WITH EQUIPMENT REQUIREMENTS AND INCORPORATE INTO VAULT DESIGN FOR ENGINEER REVIEW PRIOR TO MANUFACTURE.
3. SLOPE SIDEWALK TOWARD TRENCH DRAIN.
4. FOLLOW GEOTECHNICAL ENGINEER'S RECOMMENDATIONS FOR EARTHWORK ACTIVITIES AND SUBBASE PREPARATION. SEE GEOTECHNICAL ENGINEERING REPORT PREPARED BY GRI, INC. IN THE SPECIFICATIONS.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DAM
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

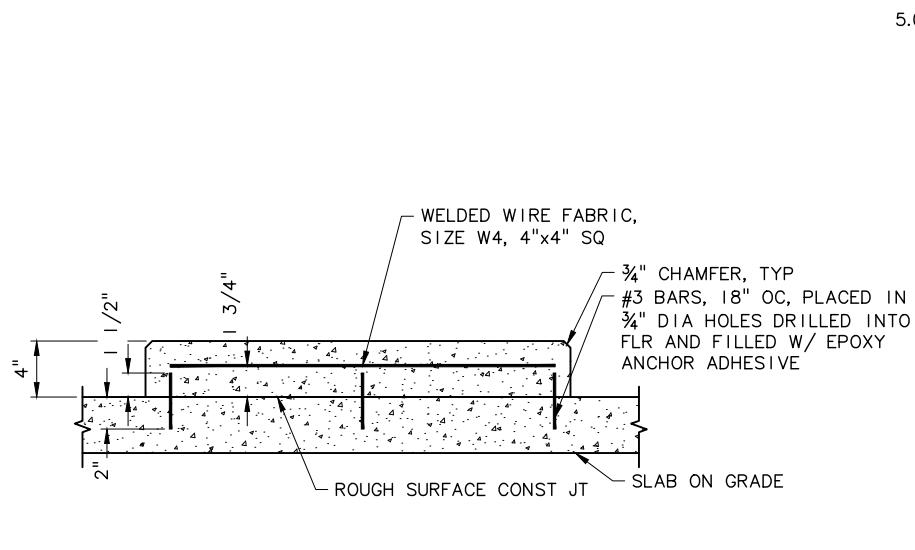
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

TRANSFER PUMP STATION SECTIONS

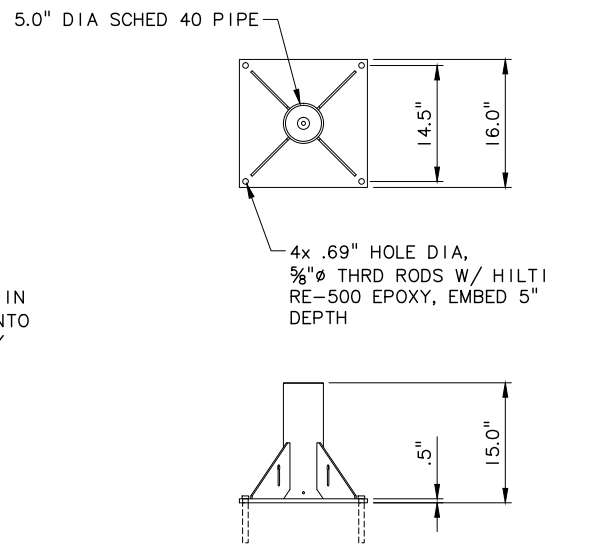
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-M-2
97 of 123

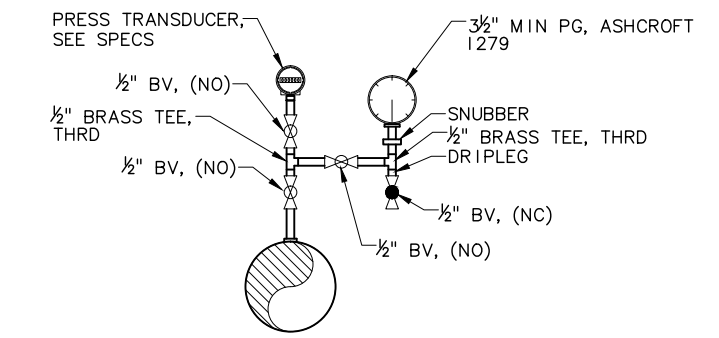
C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED B\11-1265-234-OR-M-R.dwg RES-M-3 10/30/2014 8:34 AM DAK 20.0s (LMS Tech)



EQUIPMENT PAD
 SCALE: NTS

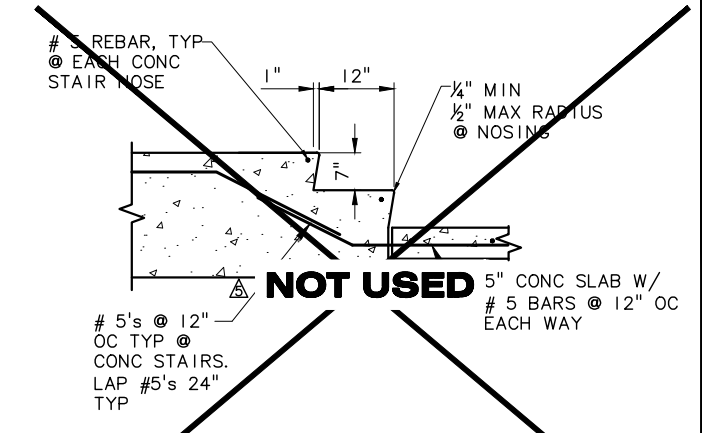


PEDESTAL BASE FOR DAVIT CRANE
 NTS

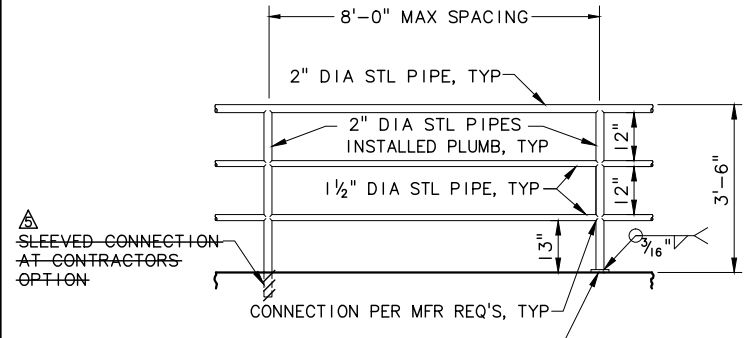


NOTES:
 1. INSTALL PRESSURE TRANSDUCER AND PRESSURE GAUGE ASSEMBLY AS SHOWN ON 2" x 1/2" BRONZE TEE.
 2. ALL 1/2" PIPE SHALL BE COPPER.

PRESSURE TRANSDUCER AND PRESSURE GAUGE ASSEMBLY
 SCALE: NTS

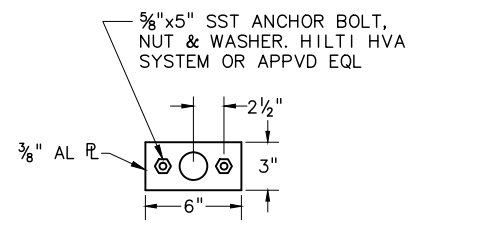


CONCRETE STAIRS
 SCALE: NTS



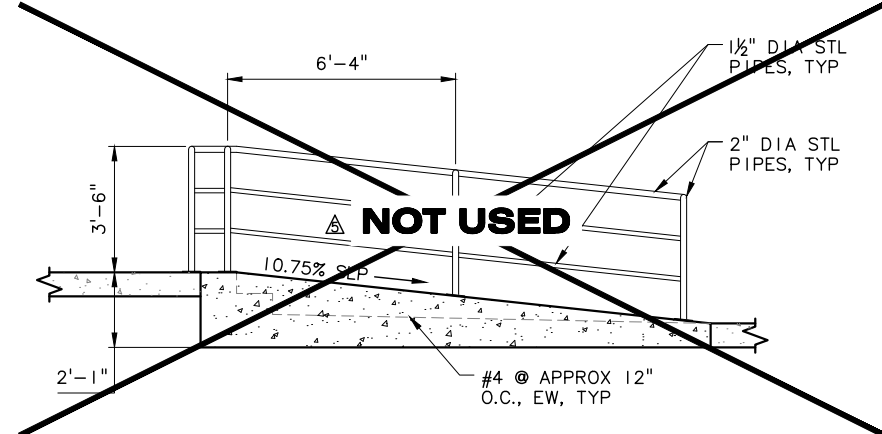
NOTE:
 1. STEEL HANDRAILS TO BE SCHEDULE 40, STEEL POSTS TO BE SCHEDULE 80. PAINT OR POWDER COAT RAILS DARK GREEN

HANDRAIL DETAIL
 SCALE: NTS

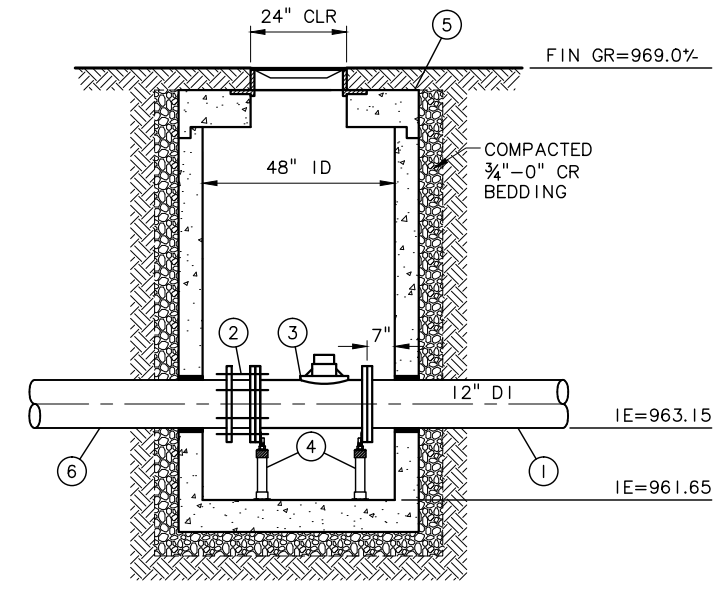


NOTE:
 1. C OF ANCHOR BOLTS TO BE 3" MINIMUM FROM EDGE OF CONCRETE.

PLATE DETAIL
 SCALE: NTS



RAMP HANDRAIL DETAIL
 SCALE: 3/8" = 1'-0"



48-INCH DIA FLOWMETER MANHOLE
 SCALE: 1/2" = 1'-0"

- MATERIAL LIST**
- 12" DIA SPL, PE x FLG, LENGTH AS REQ'D
 - 12" MEGAFLANGE FLG ADPTR, OR APPD EQ
 - 12" MAG FLOWMETER, FLG
 - STANDON MODEL S89 FLANGE ADJUSTABLE PIPE SUPPORT OR APPVD EQ
 - 48" DIA PRECAST CONC MH W/ STD TOP AND LADDER, LADDER STEPS SHALL BE LANE INT'L POLYPROPYLENE OR EQUAL, 12" OC, ALIGN ACCESS OPENING WITH STEPS
 - 12" DIA SPL PE x PE, LENGTH AS REQ'D
- NOTES:
 1. PROVIDE RESTRAINED JOINT ON PIPING, 2' FROM OUTSIDE EDGE OF VAULTS, TYPICAL.
 2. WALL PENETRATIONS FOR PIPING TO BE PRECAST IN VAULTS, PROVIDE NON-SHRINK GROUT SEAL AROUND PIPE.
 3. PAINT PIPING AND SPECIALS IN VAULT. SEE SPECIFICATIONS.
 4. FOR ALL FLANGES NEAR WALL PENETRATIONS FOR WHICH NO DIMENSION IS GIVEN, FLANGE FACE MUST BE 6" MINIMUM FROM WALL.
 5. PIPE SUPPORTS ARE SHOWN IN SOME LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION AND NUMBER OF ALL ADDITIONAL SUPPORTS TO PROPERLY SUPPORT PIPING, VALVES AND EQUIPMENT CONNECTIONS TO PREVENT DEFLECTION AND STRESSES.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DAM DESIGNED
 JHF DRAWN
 MLH CHECKED

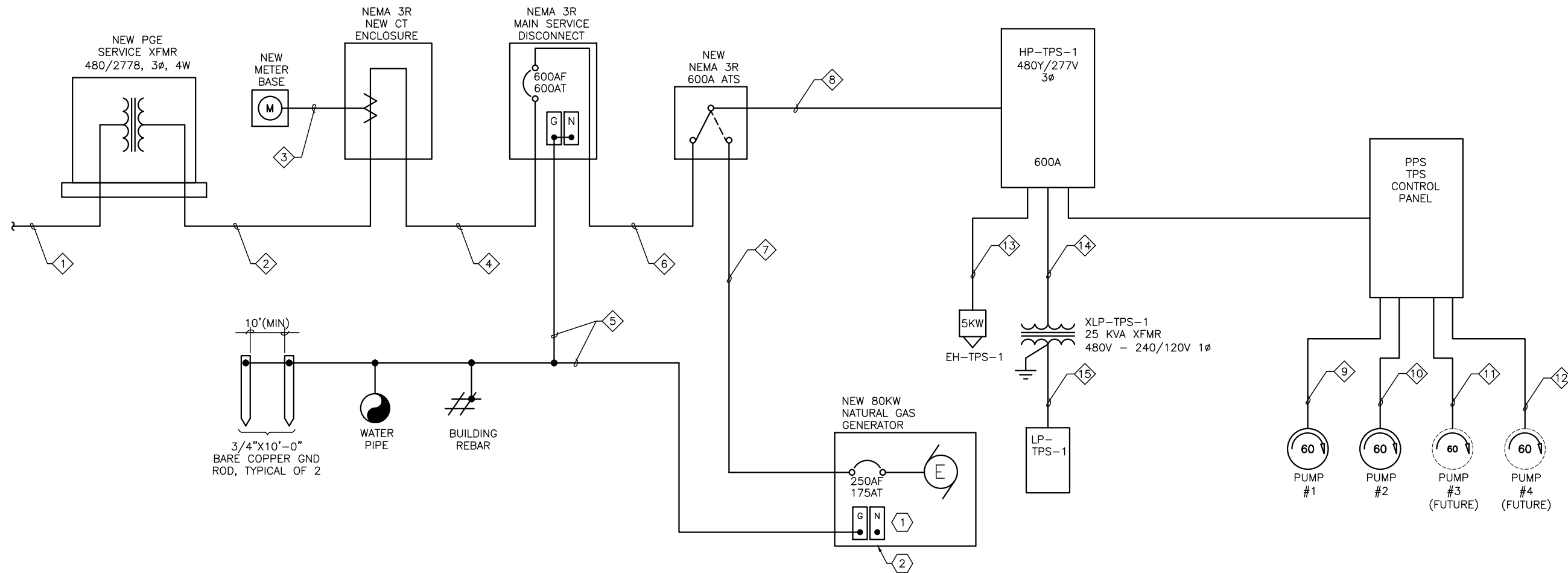
RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

TRANSFER PUMP STATION
MECHANICAL DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012



1 TRANSFER PUMP STATION ONE-LINE DIAGRAM
RES-E-1 NOT TO SCALE

GENERAL NOTES

- A. THE CONTRACTOR SHALL FIELD COORDINATE SERVICE INSTALLATION WITH PGE PRIOR TO INSTALLATION. SERVICE COORDINATOR IS KERI BRYSON, 503-669-5262. EMAIL: KERI.BRYSON@PGN.COM.
- B. THE CONTRACTOR SHALL FIELD COORDINATE ALL EQUIPMENT LOCATIONS AND CODE REQUIRED CLEARANCES PRIOR TO AND THROUGHOUT INSTALLATION.
- C. THE AVAILABLE FAULT CURRENT AT THE CT CABINET IS 13,977 AIC.

NOTES THIS SHEET

- 1 CONTRACTOR SHALL REMOVE GENERATOR GROUND-NEUTRAL BOND STRAP.
- 2 THE GENERATOR SHALL BE HOUSED IN A SOUNDPROOF WEATHER PROTECTIVE ENCLOSURE PER THE SPECIFICATION REQUIREMENTS.

Sandy TPS Service Load		VOLTAGE: 480.0 3-PH			DATE: 08-Nov-12		
ITEM	UNIT NAME	HP	NP AMPS	AMPS (NOTE#1)	KVA	MOTOR STARTER TYPE	SIZE
1	TRANSFER PUMP NO.1	60		77.0	64.0	SOFT	4
2	TRANSFER PUMP NO.2	60		77.0	64.0	SOFT	4
3	TRANSFER PUMP NO.3 (F)	60		77.0	64.0	SOFT	4
4	TRANSFER PUMP NO.4 (F)	60		77.0	64.0	SOFT	4
5							

MISCELLANEOUS EQUIPMENT:			
ITEM	UNIT NAME	KVA	AMPS
1	STEPPDOWN XFMR	25	52.1
2	HEATER EH-TPS-1	6.25	7.5
3			0.0
4			0.0
5			0.0

SUMMARY:		R&W ENGINEERING INC.	
25% OF LARGEST	MOTOR AMPS=	308.0	TOTAL HP: 240.0
	MOTOR =	19.3	TOTAL KVA: 287.2
	MISC AMPS=	59.6	
	25% OF MISC=	14.9	
	TOTAL =	401.8	

NO.	DATE	BY	REVISION
1	08/14	SMR	RECORD DRAWINGS

NOTICE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR DESIGNED
JDR DRAWN
GHS CHECKED

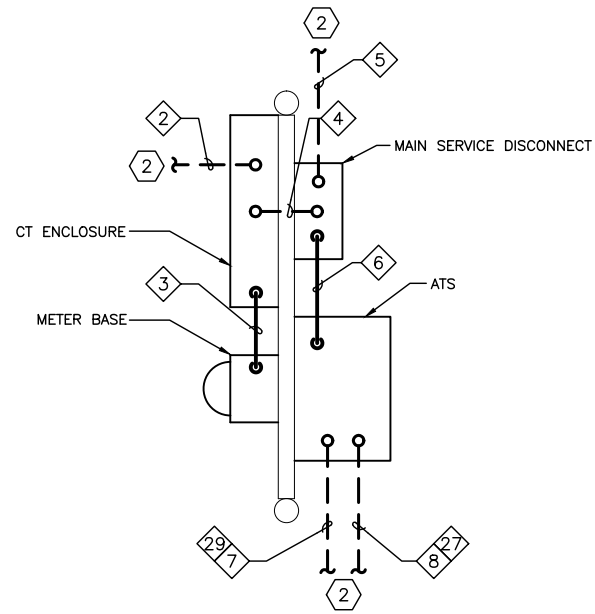
RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

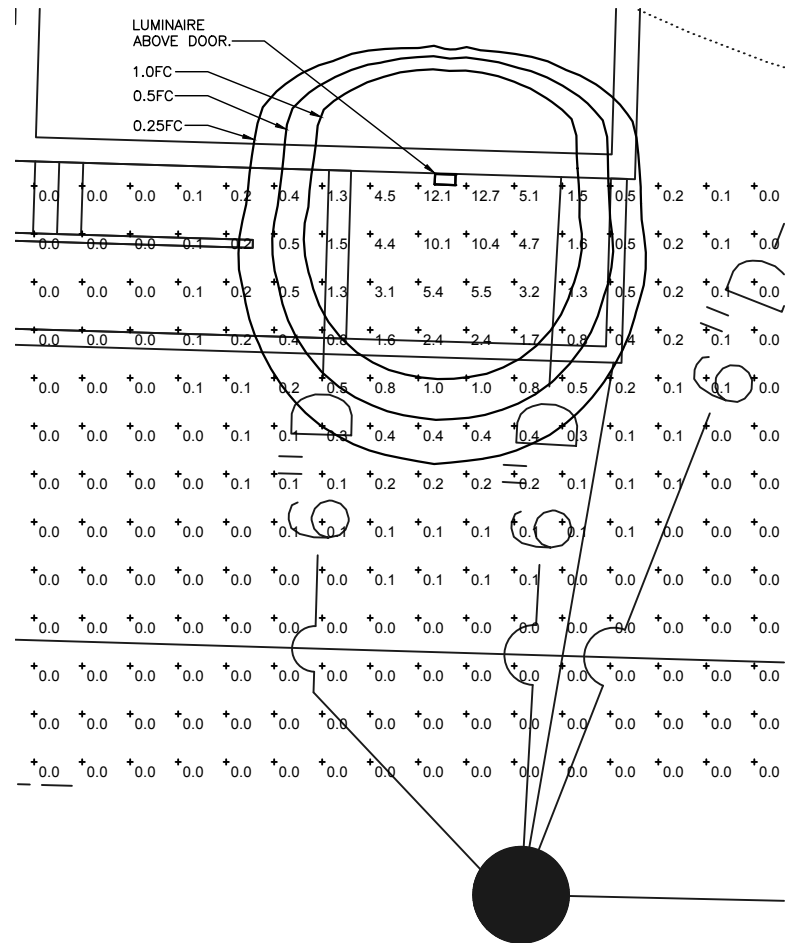
CITY OF SANDY
PWB INTERTIE PROJECT

TRANSFER PUMP STATION ONE-LINE DIAGRAM

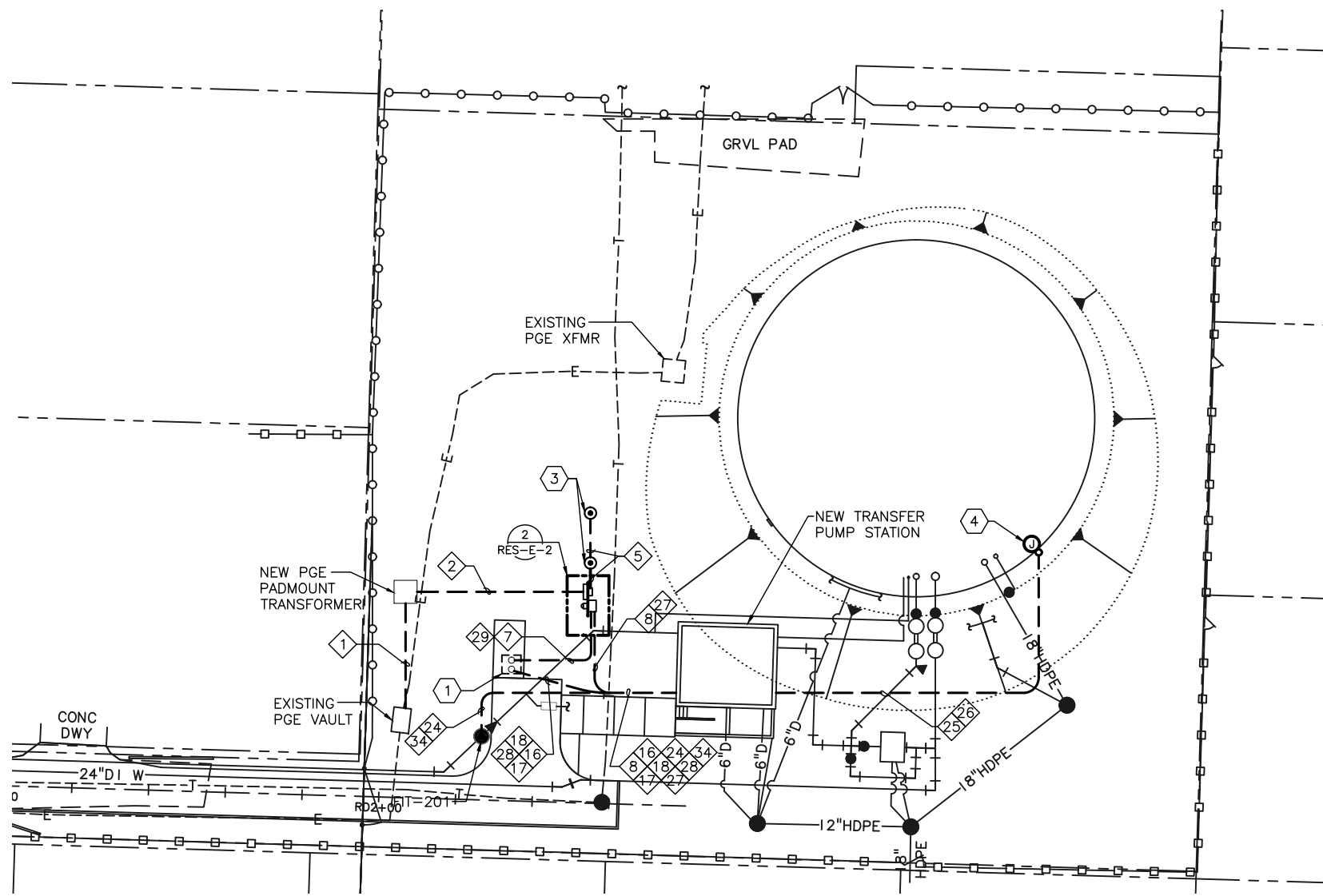
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012



2 H-FRAME DETAIL
RES-E-2 SCALE: 1/2"=1'-0"



3 EXTERIOR DOOR PLAN - PHOTOMETRICS
RES-E-2 SCALE: 1"=10'-0"



1 ELECTRIC SITE PLAN
RES-E-2 SCALE: 1"=20'

GENERAL NOTES

A. THE CONTRACTOR SHALL FIELD COORDINATE ALL PGE REQUIREMENTS WITH PGE PRIOR TO CONSTRUCTION.

KEY NOTES

- 1 GENERATOR CONDUIT STUB-UP AREA. CONTRACTOR SHALL VERIFY SPECIFIC LOCATION OF STUB-UP AREA FOR PROVIDED MANUFACTURERS GENERATOR.
- 2 SEE ELECTRICAL SITE PLAN FOR CIRCUIT CONTINUATION.
- 3 GROUND TEST WELL, TYPICAL OF 2.
- 4 PROVIDE NEMA 3R LOCKABLE J-BOX NEAR RESERVOIR HATCH OPENING. FIELD VERIFY SPECIFIC LOCATION. COMPLETE CONNECTIONS WITH FIELD DEVICES AS NECESSARY TO COMPLETE CIRCUITS. USE 3/4" CONDUIT FOR CONNECTION OF FIELD DEVICES FROM J-BOX.

R&W
ENGINEERING, INC.
"Engineering Integrated Solutions"
9615 S.W. Allen Boulevard
Suite 107
Bismarck, Oregon 97005
Phone: (503) 726-3331
Fax: (503) 726-3326
E-mail: rweg@rweg.com
Project No.: 0483.070.001 Contact: SAM RUSSUM

NO.	DATE	BY	REVISION
△	08/14	SMR	RECORD DRAWINGS

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR DESIGNED
JDR DRAWN
GHS CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

SITE LAYOUT PLAN
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-E-2
100 of 123

CITY OF SANDY WATER SYSTEM INTERTIE - TRANSFER PUMP STATION
ELECTRICAL CIRCUIT SCHEDULE

ALL CIRCUITS ARE IDENTIFIED ON THE PLANS WITH THE DIAMOND SYMBOL. CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS. CONDUIT SIZES ARE SHOWN FOR CASES WHEN CIRCUIT CONDUCTORS ARE RUN WITHOUT OTHER CIRCUITS. MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS. CONDUCTOR CONFIGURATIONS ARE CODED AS FOLLOWS: P- FOR POWER CONDUCTORS, G - FOR GROUND CONDUCTORS, N - FOR NEUTRAL CONDUCTORS, C - FOR CONTROL CONDUCTORS, AND SP - FOR SPARE CONDUCTORS.

CIRCUITS REVISED SINCE LAST ISSUE ARE INDICATED BY AN ASTERISK(*).

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
1	EXISTING PGE VAULT	PGE SERVICE TRANSFORMER	---	(2) 3"	VERIFY PGE REQUIREMENTS WITH FIELD COORDINATOR PRIOR TO CONSTRUCTION.
2	PGE SERVICE TRANSFORMER	CT CABINET	---	(2) 3"	VERIFY PGE REQUIREMENTS WITH FIELD COORDINATOR PRIOR TO CONSTRUCTION.
3	CT CABINET	METERBASE	---	1.25"	VERIFY PGE REQUIREMENTS WITH FIELD COORDINATOR PRIOR TO CONSTRUCTION.
4	CT CABINET	MAIN SERVICE BREAKER	(6) #350 KCMIL, P (2) #350 KCMIL, N (2) #1, G	(2) 3"	
5	MAIN SERVICE BREAKER (GROUND BAR)	SERVICE GROUND	(1) #2/0, G	---	
6	MAIN SERVICE BREAKER	ATS	(6) #350 KCMIL, P (2) #350 KCMIL, N (2) #1, G	(2) 3"	
7	GENERATOR	ATS	(3) #3/0, P (1) #3/0, N (1) #6, G	(2) 3"	PROVIDE SPARE CONDUIT FOR FUTURE UPGRADES TO GENERATOR.
8	ATS	PACKAGE SYSTEM MAIN ENTRANCE/BREAKER	(6) #350 KCMIL, P (2) #350 KCMIL, N (2) #1, G	(2) 3"	
9	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-210	(3) #3, P (1) #8, G	2"	
10	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-220	(3) #3, P (1) #8, G	2"	
11	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-230 (FUTURE)	---	2"	
12	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-240 (FUTURE)	---	2"	
13	PACKAGE SYSTEM DISTRIBUTION PANEL	ELECTRIC HEATER EH-TPS-1	(1) #12, P (1) #12, N (1) #12, G	1"	
14	PACKAGE SYSTEM DISTRIBUTION PANEL	STEP-DOWN TRANSFORMER XLP-TPS-1	(2) #6, P (1) #8, G	1"	
15	STEP-DOWN TRANSFORMER XLP-TPS-1	PANELBOARD LP-TPS-1	(2) #1, P (1) #1, N (1) #6, G	2"	
16	PANELBOARD LP-TPS-1	GENERATOR HEATER	(2) #8, P (1) #10, G	1"	VERIFY GENERATOR BLOCK HEATER LOAD PRIOR TO INSTALLATION. PROVIDE CONDUCTORS SIZED PER NEC REQUIREMENTS.
17	PANELBOARD LP-TPS-1	GENERATOR BATTERY CHARGER	(1) #12, P (1) #12, N (1) #12, G	1"	
18	PANELBOARD LP-TPS-1	GENERATOR CONTROL PANEL	(1) #12, P (1) #12, N (1) #12, G	1"	
19	PANELBOARD LP-TPS-1	PACKAGE SYSTEM CONTROL PANEL	(1) #12, P (1) #12, N (1) #12, G	1"	
20	PANELBOARD LP-TPS-1	PACKAGE SYSTEM CONTROL PANEL	(2) #12, P (2) #12, N (2) #12, G	(2) 1"	PROVIDE DEDICATED POWER CIRCUIT FOR EVERY TWO PUMP CONTROL VALVES. VERIFY REQUIREMENTS WITH PACKAGE SYSTEM MFR.
21	PANELBOARD LP-TPS-1	TELEMETRY PANEL TPS-TCP-1	(1) #12, P (1) #12, N (1) #12, G	1"	
22	PANELBOARD LP-TPS-1	EXHAUST FAN EF-TPS-1	(1) #12, P (1) #12, N (1) #12, G	1"	
23	PANELBOARD LP-TPS-1	LEVEL TRANSDUCER LIT-701	(1) #12, P (1) #12, N (1) #12, G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
24	PANELBOARD LP-TPS-1	FLOW METER FIT-201	(1) #12, P (1) #12, N (1) #12, G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
25	PACKAGE SYSTEM CONTROL PANEL	LEVEL TRANSDUCER LIT-701	(1) #16 TSP (1) #12 G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
26	PACKAGE SYSTEM CONTROL PANEL	FLOAT SWITCH LS-702 & LS-703, INTRUSION SWITCH YS-704	(6) #14 C (1) #12 G	1"	ROUTE CKT. TO J-BOX AT TOP OF RESERVOIR. CONTINUE INDIVIDUAL CKT.'S IN 3/4" CONDUIT FROM J-BOX TO CONNECTION POINTS OF DEVICES.
27	PACKAGE SYSTEM CONTROL PANEL	ATS	(6) #14 C (1) #12 G	1"	
28	PACKAGE SYSTEM CONTROL PANEL	GENERATOR	(12) #14 C (1) #12 G	2"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.

29	ATS	GENERATOR	(6) #14 C (1) #12 G	1"	
30	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-210	(8) #14 C (1) #12 G	1"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
31	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-220	(8) #14 C (1) #12 G	1"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
32	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-230 (FUTURE)	---	1"	
33	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-240 (FUTURE)	---	1"	
34	PACKAGE SYSTEM CONTROL PANEL	FLOW METER FIT-201	(1) #16 TSP (1) #12 G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
35	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCH YS-201 & YS-202	(4) #14 C (1) #12 G	3/4"	
36	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCH YS-203	(2) #14 C (1) #12 G	3/4"	
37	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-210	(2) #14 C (1) #12 G	3/4"	
38	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-220	(2) #14 C (1) #12 G	3/4"	
39	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-230 (FUTURE)	---	3/4"	
40	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-240 (FUTURE)	---	3/4"	
41	PACKAGE SYSTEM CONTROL PANEL	LOW SUCTION SWITCH	(2) #14 C (1) #12 G	3/4"	
42	PACKAGE SYSTEM CONTROL PANEL	DISCHARGE PRESSURE TRANSMITTER	(1) #16 TSP (1) #12 G	1"	
43	PACKAGE SYSTEM CONTROL PANEL	TELEMETRY PANEL TPS-TCP-1	(1) CAT-6 CABLE (1) RS-232 CABLE (1) #12 G	2"	
44	TELEMETRY PANEL TPS-TCP-1	TELEMETRY PANEL BPS-TCP-1	(1) SINGLE MODE FIBER CABLE	2"	
45	PANELBOARD LP-TPS-1	BUILDING RECEPTACLES	(1) #12, P (1) #12, N (1) #12, G	3/4"	
46	PANELBOARD LP-TPS-1	BUILDING INTERIOR LIGHTS	(1) #12, P (1) #12, N (1) #12, G	3/4"	
47	PANELBOARD LP-TPS-1	BUILDING EXTERIOR LIGHTS	(1) #12, P (1) #12, N (1) #12, G	3/4"	

48	PANELBOARD LP-TPS-1	SUCTION PRESSURE TRANSMITTER PIT-701	(1) #12, P (1) #12, N (1) #12, G	3/4"	
49	PANELBOARD LP-TPS-1	DISCHARGE PRESSURE TRANSMITTER PIT-702	(1) #12, P (1) #12, N (1) #12, G	3/4"	
50	PACKAGE SYSTEM CONTROL PANEL	SUCTION PRESSURE TRANSMITTER PIT-701	(1) #16 TSP (1) #12 G	3/4"	
51	PACKAGE SYSTEM CONTROL PANEL	DISCHARGE PRESSURE TRANSMITTER PIT-702	(1) #16 TSP (1) #12 G	3/4"	
52	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-210	(1) #12, P (1) #12, N (1) #12, G	3/4"	
53	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-220	(1) #12, P (1) #12, N (1) #12, G	3/4"	
54	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-230 (FUTURE)	---	3/4"	
55	PACKAGE SYSTEM CONTROL PANEL	PUMP VALVE PCV-240 (FUTURE)	---	3/4"	
56	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-210	(16) #14 C (1) #12 G	1.25"	MOTOR TEMPERATURE RTD WIRING. VERIFY REQUIREMENTS WITH MANUFACTURER.
57	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-220	(16) #14 C (1) #12 G	1.25"	MOTOR TEMPERATURE RTD WIRING. VERIFY REQUIREMENTS WITH MANUFACTURER.
58	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-230 (FUTURE)	---	1.25"	
59	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-240 (FUTURE)	---	1.25"	
60	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-210 MOTOR HEATER	(1) #12, P (1) #12, N (1) #12, G	3/4"	
61	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-220 MOTOR HEATER	(1) #12, P (1) #12, N (1) #12, G	3/4"	
62	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-230	---	3/4"	
63	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-240	---	3/4"	
64	PACKAGE SYSTEM MOTOR CONTROL PANEL(S)	PACKAGE SYSTEM CONTROL PANEL	(8) #16 TSP (56) #14 C (4) #12 G	(4) 2"	VERIFY ALL INTERCONNECTION REQUIREMENTS WITH PACKAGE SYSTEM VENDOR. PROVIDE ALL WIRING FOR A COMPLETE & FUNCTIONAL SYSTEM.

PANEL: LP-TPS-1		BUS: 100A			VOLTAGE: 120/240V, 1PH, 3 WIRE					
FEEDER: SEE POWER RISER		MAIN BRKR: 100A M.C.B			MOUNTING: SURFACE					
CKT NO.	CIRCUIT DESCRIPTION	CKT BREAKER POLES/AMPS	LOAD Type	VoIt-Amps	PHASE	LOAD VoIt-Amps	Type	CKT BREAKER POLES/AMPS	CIRCUIT DESCRIPTION	CKT NO.
1	INTERIOR LIGHTS	1-20	L	372	A	750	H	2-20	GENERATOR HEATER	2
3	EXTERIOR LIGHTS	1-20	L	35	B	750	H	---	---	4
5	RECEPTACLES, GFCI	1-20	R	540	A	200	Z	1-20	GENERATOR BATTERY CHARGER	6
7	EF-TPS-1	1-20	M	360	B	200	Z	1-20	GENERATOR CONTROL PANEL	8
9	LIT-701	1-20	Z	50	A	1500	Z	1-20	TPS-TCP-1	10
11	PCV-210 & PCV-220	1-20	Z	200	B	100	Z	1-20	FIT-201	12
13	PCV-230 & PCV-240 (FUTURE)	1-20	Z	200	A			1-20	SPARE	14
15	PIT-701 & PIT-702	1-20	Z	100	B			1-20	SPARE	16
17	SPARE	1-20	A					1-20	SPARE	18
19	SPARE	1-20	B					1-20	SPARE	20
LOAD PER PHASE (VA)		A=		3612	A=	3880		1.		
		B=		1745	B=	2013		2.		
LOAD PER PHASE (AMPS)		A=		30.10	A=	32.33		3.		
		B=		14.54	B=	16.77		4.		
TOTAL LOAD (KVA)				5.36		5.89		5.		
SPARE CAPACITY				10.00%		0.54				
						DATE 08-Nov-12				



NO.	DATE	BY	REVISION
08/14	SMR	RECORD DRAWINGS	

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR DESIGNED
JDR DRAWN
GHS CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97



CITY OF SANDY
PWB INTERTIE PROJECT

TRANSFER PUMP STATION
SCHEDULES AND DETAILS

SHEET
RES-E-3
101 of 123

PLANT LIST

SYMBOL	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	QUANTITY
EVERGREEN TREES					
FF	ABIES FRASERI	FRASER FIR	6'-8' B&B	10' OC	16
LC	CUPRESSOCYPARIS LEYLANDII "CASTLEWELLAN GOLD"	LEYLAND CYPRESS	6'-8' B&B	10' OC	17
DF	PSUEDOTSUGA MENZIESII	DOUGLAS-FIR	10'-12' B&B	20' OC	17
RC	THUJA PLICATA "EXCELSA"	EXCELSA REDCEDAR	6'-8' B&B	8' OC	19
WC	THUJA PLICATA "WATNONG"	WATNONG CEDAR	6'-8' B&B	8' OC	27
WH	TSUGA MERTENSIANA	WESTERN HEMLOCK	10'-12' B&B	20' OC	11
DECIDUOUS TREES					
⊙	ACER CIRCINATUM	VINE MAPLE (CLUMP)	5 GC	AS SHOWN	14
⊕	ACER MACROPHYLLUM	BIGLEAF MAPLE	5 GC	AS SHOWN	6
HEDGE					
⊗	THUJA OCCIDENTALIS PYRAMIDALIS	GREEN ARBOR VITAE	5'-6' B&B	3' OC	26
⊕	THUJA PLICATA "YELLOW RIBBON"	GOLDEN ARBOR VITAE	5'-6' B&B	5' OC	54
GROUND COVER					
■	RUBUS CALCYNOIDES	CRINKLE-LEAF CREEPER	4" POT	36" OC	1,000
SEED MIX A - ECOLAWN SUNMARK "PDX PLUS" MIX SEED AT A RATE OF 100 LBS/ACRE					
SEED MIX B - EROSION CONTROL "REGREEN - STERILE WINTER WHEAT SEED AT A RATE OF 90 LBS/ACRE					
☁	EXISTING TREES TO REMAIN				
✕	EXISTING TREE TO BE REMOVED				

NOTES

LANDSCAPE SITE WORK:

- PROTECT EXISTING TREES DESIGNATED TO REMAIN FROM ALL CONSTRUCTION OPERATIONS. DO NOT ENCRUCH UPON, FILL, OR OTHERWISE DISTURB THE AREA WITHIN THE DRIPLINE OF TREES TO BE PRESERVED.
- STOCKPILED TOPSOIL IS AVAILABLE FOR USE IN LANDSCAPE WORK. SUBGRADE SOIL NOT ACCEPTABLE FOR USE IN PLANT PITS OR BEDS.
- JUTE MATTING TO BE INSTALLED ON ALL SLOPES 2:1 AND STEEPER.
- SEED ALL MATTED SLOPES WITH STERILE WINTER WHEAT IN ADDITION TO PLANTING GROUND COVER. SEPARATE JUTE MATTING STRANDS TO PLANT GROUND COVER.

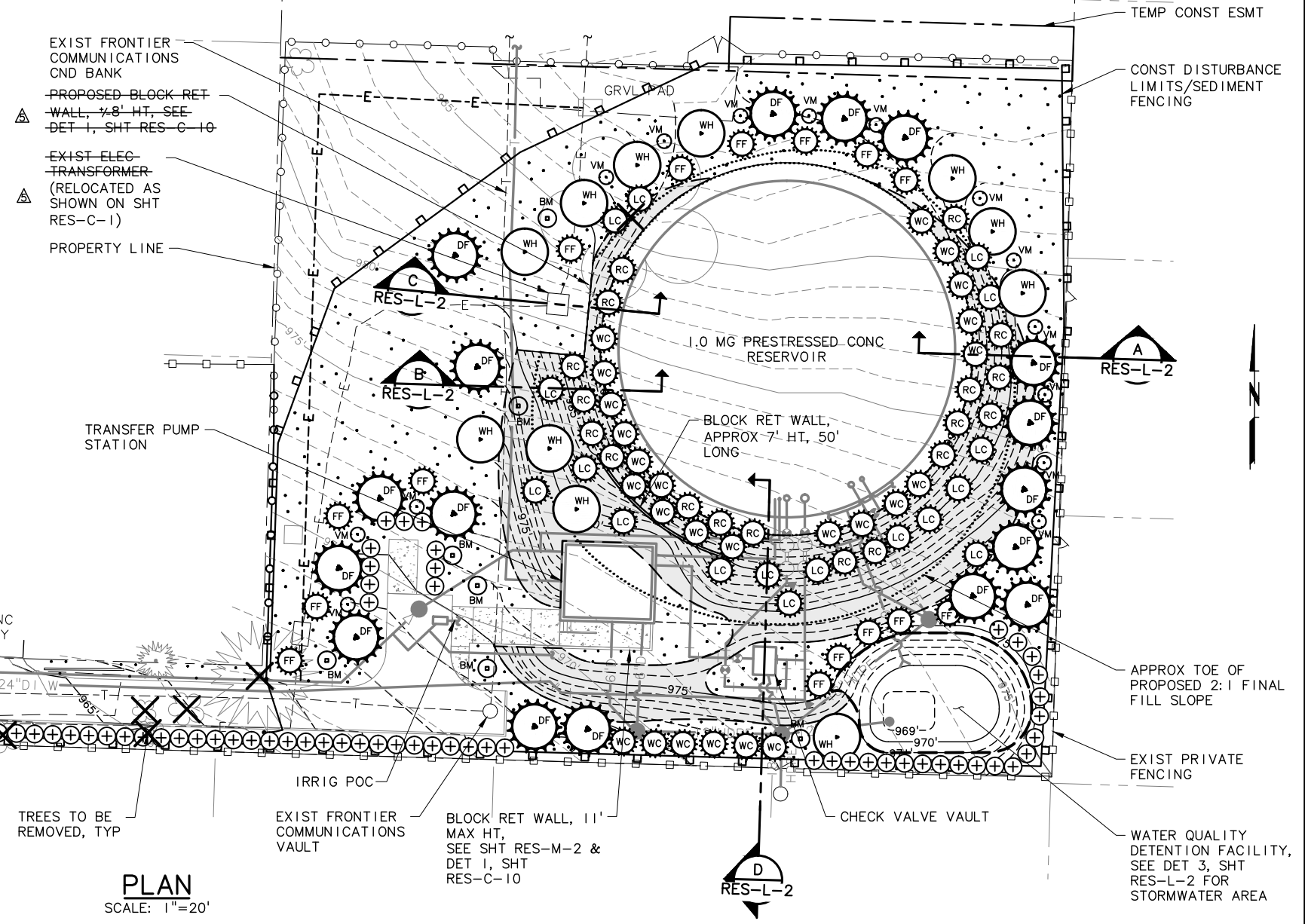
IRRIGATION:

- DESIGN, PROVIDE, AND INSTALL AUTOMATIC IRRIGATION SYSTEM CONFORMING TO CITY OF SANDY STANDARDS AND AS NECESSARY TO MEET INDUSTRY STANDARDS. SUBMIT PROPOSED SYSTEM LAYOUT TO ENGINEER AND OWNER FOR REVIEW.
- VERIFY CONDITIONS AND DIMENSIONS PRIOR TO STARTING WORK. NOTIFY ENGINEER OF CONDITIONS THAT ARE A HINDRANCE TO COMPLETING WORK.
- MAKE NECESSARY ADJUSTMENTS AND PROVISIONS FOR SLOPE CONDITIONS SO SYSTEM PERFORMS OPTIMALLY. ALL NEW TREE PLANTING AND GROUND COVER AREAS ARE TO BE IRRIGATED.

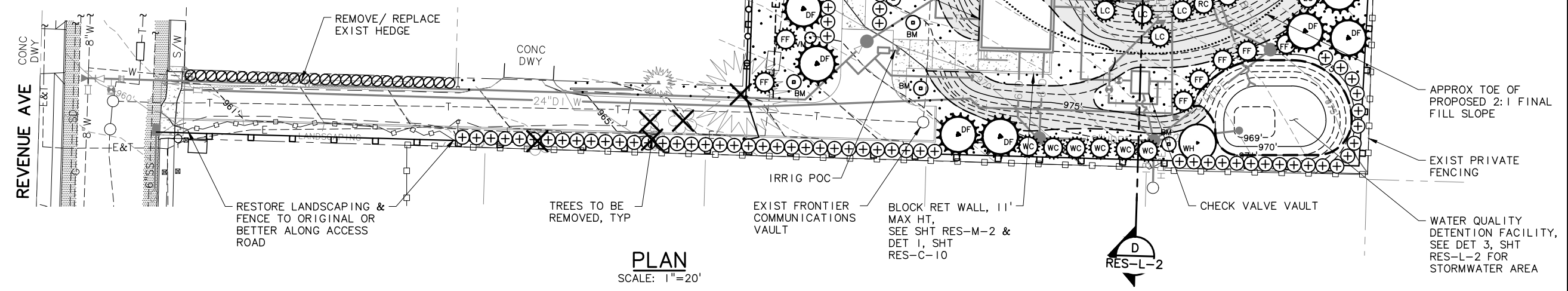
- THE POINT OF CONNECTION (P.O.C.) IS SHOWN ON THE DRAWINGS. FIELD CHECK STATIC PRESSURE AND FLOW BEFORE COMMENCING WORK.
- MAKE FIELD ADJUSTMENTS FOR MINOR EXISTING SITE FEATURES AND CONDITIONS THAT MAY NOT BE SHOWN ON THE DRAWINGS.
- PROTECT EXISTING TREES. NO TRENCHING OR BORING WITHIN 5' RADIUS AROUND TREES TO REMAIN.
- COORDINATE LOCATION OF CONTROLLER WITH ENGINEER AND ELECTRICAL CONTRACTOR.
- COORDINATE ALL TRENCHING, PIPING RUNS, AND SLEEVING ACROSS PAVEMENT AS NEEDED WITH OTHER TRADES AND ENGINEER. ALL PIPELINES AND WIRING UNDER PAVEMENT TO BE INSTALLED IN SLEEVES, MINIMUM SIZE 4-INCH DIAMETER.
- INSTALL DETECTABLE TRACE TAPE OVER ALL UNDERGROUND PIPING AND CONTROL WIRING.
- INSTALL WINTERIZATION ASSEMBLY AND MANUAL DRAIN VALVES AT LOW POINTS OF THE SYSTEM AS NEEDED TO PROVIDE PROPER DRAINAGE.

PLANTING:

- CHECK AND CONFIRM PLANT MATERIAL QUANTITIES. NO SUBSTITUTIONS WILL BE ALLOWED. CONTRACTOR TO SECURE AVAILABILITY OF PLANT MATERIALS SIX MONTHS PRIOR TO COMMENCEMENT OF WORK.
- PLANT TREES AND SHRUBS IN LOCATIONS SHOWN SPACED TO COMPLETELY FILL BEDS WITH THE QUANTITIES INDICATED IN THE PLANT LIST. RETAIN ALL LABELS ON PLANT MATERIAL UNTIL FINAL ACCEPTANCE.
- A MYCORRHIZAE ADDITIVE IS REQUIRED FOR ALL SEEDING AND PLANTING.
- GUY CONIFER TREES PLANTED ON SLOPES AS SHOWN IN DETAIL.
- ALL TREES AND SHRUBS TO BE INSTALLED WITH GUARDS AS DETERRENTS TO ANIMAL BROWSE. PROTECTIVE GUARDS MAY BE FLEXIBLE PLASTIC MESH, SPIRALS, OR WIRE SCREENS WITH STAKE FASTENERS. SUBMIT PROPOSED ANIMAL GUARD METHOD OR PRODUCT FOR REVIEW PRIOR TO PLANT INSTALLATION.
- MULCH ALL NEW PLANTING BEDS AND MINIMUM 24-INCH DIAMETER AROUND EACH TREE WITH 3" DEPTH COMPOSTED GARDEN MULCH PRODUCT BARK CHIPS OR BARK DUST ARE NOT ACCEPTABLE.
- GUARANTEE GERMINATION OF SEED PRIOR TO OCTOBER 1. PREFERRED PLANTING SEASONS ARE MARCH 15 TO JUNE 1 AND SEPTEMBER 15 TO NOVEMBER 1.
- PLANT MATERIAL WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND GUARANTEED AFTER COMPLETION OF THE PROJECT FOR A PERIOD OF 2 YEARS.



NOTE: LANDSCAPING WAS ADJUSTED FOR SIMILAR SPECIES WHERE REQUIRED DUE TO AVAILABILITY.



PLAN
SCALE: 1"=20'

C:\PDX-Projects\11265\CAD\DR\PROJECTS\SCHED B\ADDENDUM 2\11-1265-234-OR-RES-L-1\10/30/2014 4:18 PM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING
2	11/28/12	DAM	ADDENDUM 2

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SO DESIGNED
JHF
DRAWN
SO CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

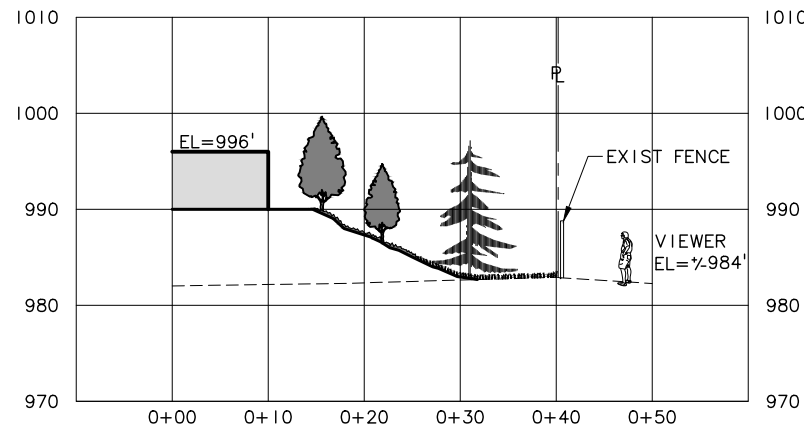
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

**RESERVOIR SITE
PLANTING PLAN**

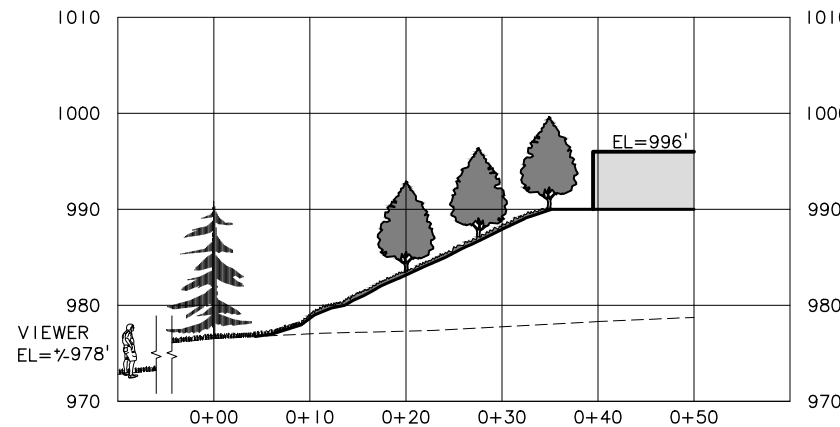
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-L-1
102 of 123

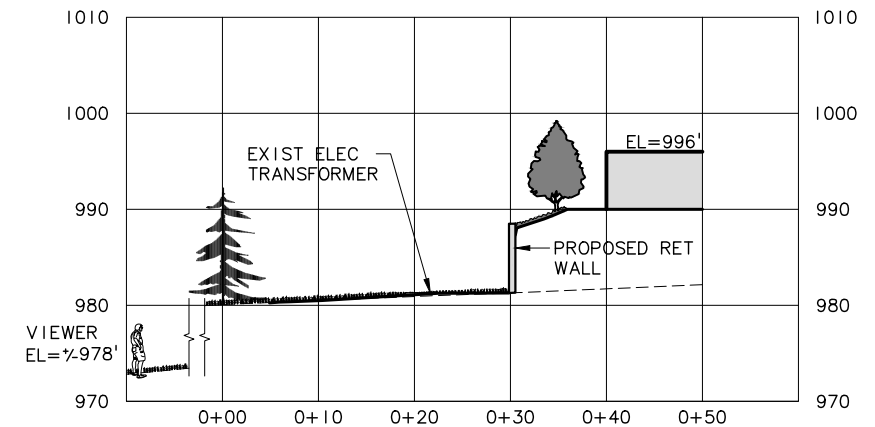
G:\PDX-Projects\11265\CAD\DR\SHEETS\SCHED B\APPENDUM 2\11-1265-234-OR-RES-L-2ADD2-R.dwg RES-L-2 10/30/2014 4:20 PM DAK 20.0s (LMS Tech)



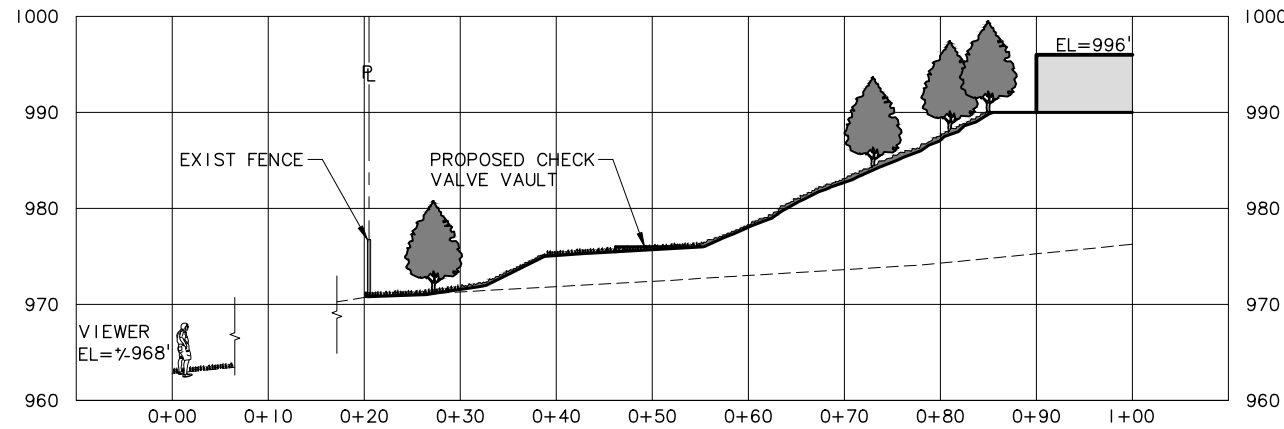
SECTION A
SCALE: 1"=10'-0"
RES-L-1



SECTION B
SCALE: 1"=10'-0"
RES-L-1

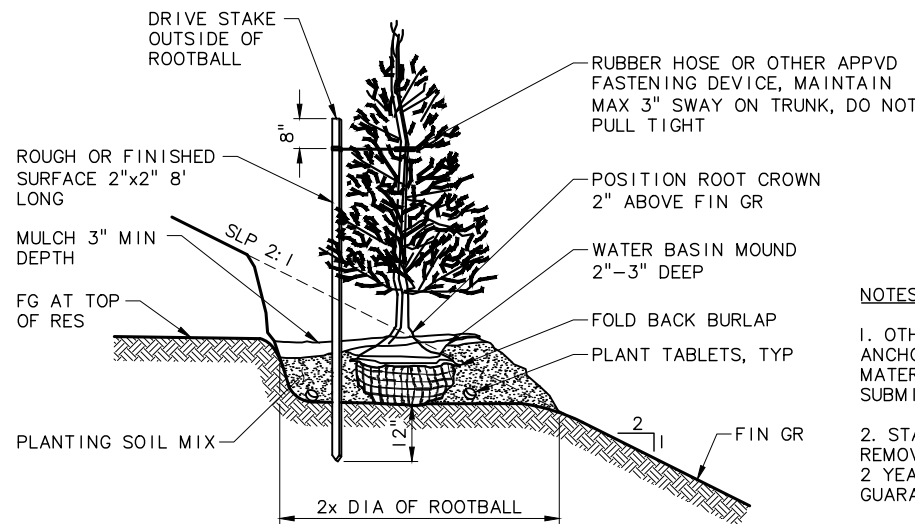


SECTION C
SCALE: 1"=10'-0"
RES-L-1

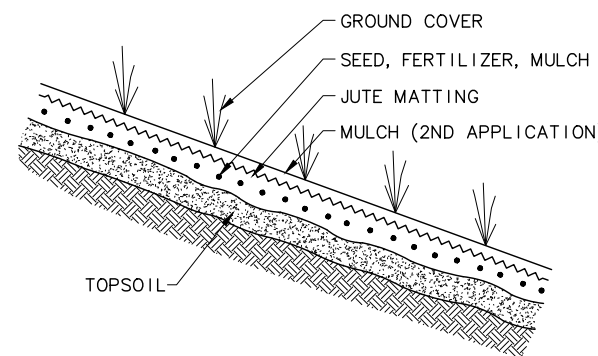


SECTION D
SCALE: 1"=10'-0"
RES-L-1

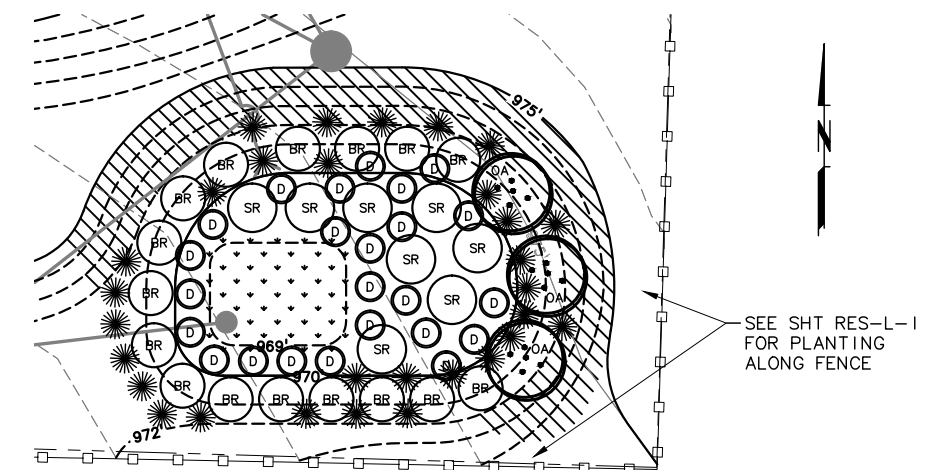
NOTE:
SEE SHEET BPS-L-2 FOR ADDITIONAL PLANTING DETAILS.



EVERGREEN TREE PLANTING ON SLOPES
SCALE: NTS
RES-L-1



EROSION CONTROL MATTING INSTALLATION
SCALE: NTS
RES-L-1



WATER QUALITY BASIN
SCALE: 1"=10'-0"
RES-L-1

WATER QUALITY BASIN

1. PROVIDE 18" DEPTH OF GROWING MEDIUM MEETING SPECIFICATIONS IN CITY OF PORTLAND STORMWATER MANUAL OR EQUAL PARTS SAND/LOAM/3-WAY COMPOST MIX. DO NOT COMPACT.
2. SUBMIT GROWING MEDIUM SAMPLE, SUPPLIER, SOURCE AND ANALYSIS INFORMATION FOR APPROVAL PRIOR TO DELIVERY.
3. GROUP PLANTS IN CLUSTERS. LOCATE PLANTS WITHIN SPECIFIED MOISTURE ZONE.

PLANT LIST

SYMBOL	SCIENTIFIC NAME	COMMON NAME	PLANT TYPE	EVERGREEN/DECIDUOUS	SIZE	APPROX SPACING	QUANTITY
ZONE A - WET TO MOIST BOTTOM							
SR	ROSA PISOCARPA	SWAMP ROSE	SHRUB	E	1 GC	6' OC	8
D	CORNUS SERICEA "KELSEY11"	REDTWIG DOGWOOD	SHRUB	D	1 GC	4' OC	24
•••	DESCHAMPSIA CESPITOSA	TUFTED HAIRGRASS	FORB	E	4" POT	1' OC	77
•••	JUNCUS ENSIFOLIUS	DAGGERLEAF RUSH	RUSH	E	4" POT	1' OC	77
ZONE B - MODERATELY MOIST TO DRY SIDE SLOPES							
OA	FRAXINUS LATIFOLIA	OREGON ASH	TREE	D	1" CAL	AS SHOWN	3
☼	POLYSTICHUM MUNITUM	SWORD FERN	FERN	E	1 GC	4' OC	30
BR	ROSA GYMNOCARPA	BALDHIP ROSE	SMALL SHRUB	E	1 GC	6' OC	16
▨	BERBERIS REPENS	CREeping MAHONIA	GROUND COVER	E	4" POT	24" OC	150

- NOTES:**
1. OTHER GUYING OR ANCHORING METHODS AND MATERIAL MAY BE SUBMITTED FOR REVIEW.
 2. STAKES AND GUYS TO BE REMOVED AT THE END OF THE 2 YEAR MAINTENANCE AND GUARANTEE PERIOD.

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING
2	11/28/12	DAM	ADDENDUM 2

NOTICE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SO DESIGNED
JHF DRAWN
SO CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900
Portland, Oregon 97204
PHONE 503-225-9010
FAX 503-225-9022

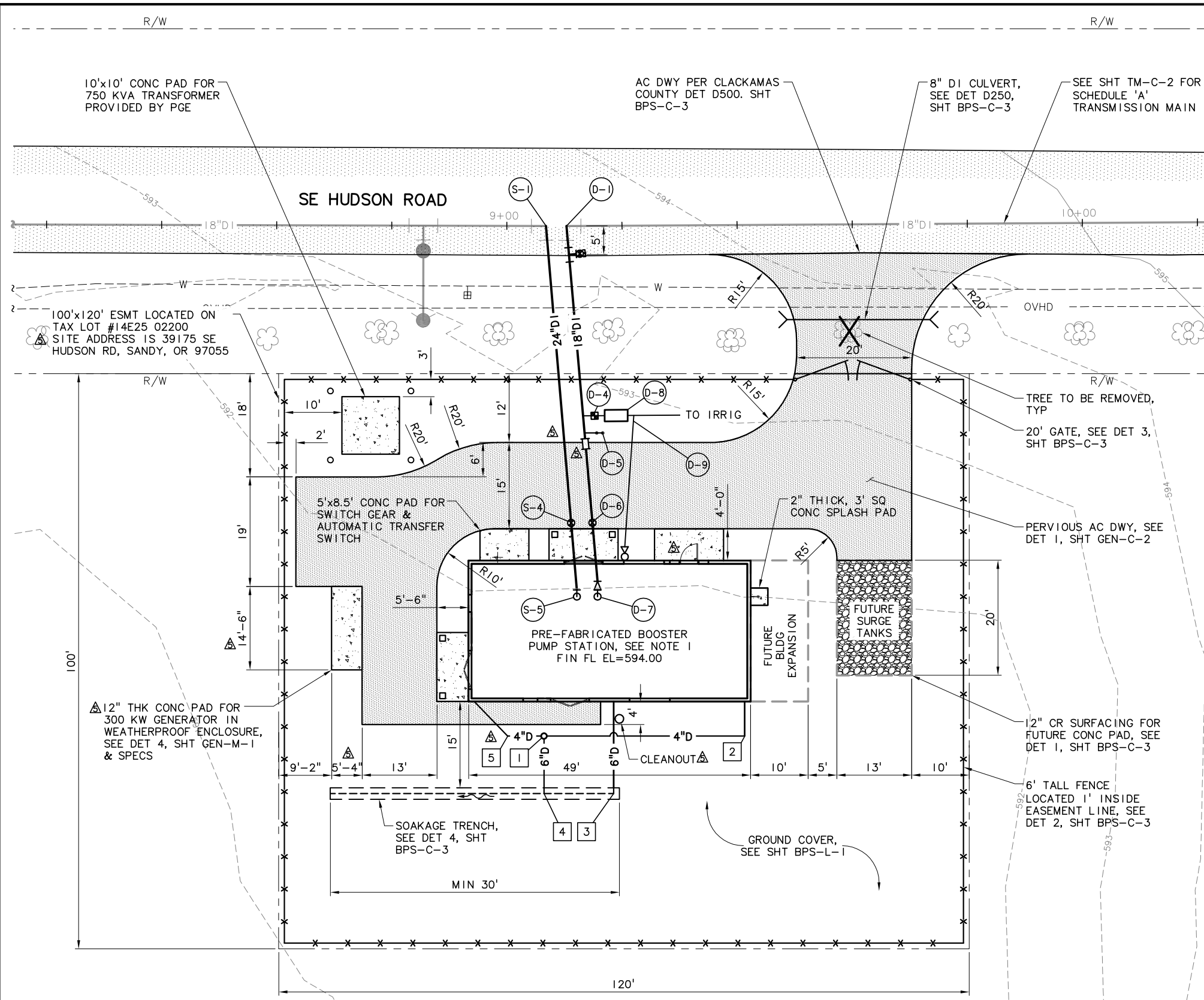
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE B
1.0 MG RESERVOIR AND
TRANSFER PUMP STATION

RESERVOIR SITE
LANDSCAPING SECTIONS AND
DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
RES-L-2
103 of 123

C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED C\11-1265-224-OR-C-R.dwg BPS-C-1 10/30/2014 7:36 AM JHF 20.0s (LMS Tech)



PLAN
SCALE: 1"=10'

PIPING SCHEDULE

ALIGNMENT S

- (S-1) STA S1+00=STA 9+07
CONNECT TO SCHEDULE 'A'
TRANSMISSION MAIN, SEE SHT
TM-C-2 FOR DETS
- (S-2) STA S1+24
FURNISH & INSTALL:
1-45° BEND, MJ, RESTR
- (S-3) STA S1+31
FURNISH & INSTALL:
1-45° BEND, MJ, RESTR
- (S-4) STA S1+54
FURNISH & INSTALL:
1-24" BFV, MJ, RESTR
- (S-5) STA S1+67% SEE NOTE 3, THIS SHT
CONNECT TO PACKAGE PS
SUCTION HEADER PIPING
FURNISH & INSTALL:
1-24" 90° VERT BEND, MJ, RESTR
1-24" SPL, PEXPE, LENGTH AS REQ'D

ALIGNMENT D

- (D-1) STA D1+00=STA 9+10
FURNISH & INSTALL:
1-18" TEE, MJxFLG
1-18" BFV (CLASS 250), FLGxMJ
1-18" CAP, MJ
CONNECT TO SCHEDULE 'A' TRANSMISSION
MAIN, SEE SHT TM-C-2 FOR DETS
- (D-2) STA S1+22
FURNISH & INSTALL:
1-45° BEND, MJ, RESTR
- (D-3) STA S1+29
FURNISH & INSTALL:
1-45° BEND, MJ, RESTR
- (D-4) STA D1+35
FURNISH & INSTALL:
1-2" SERVICE ASSY, SEE DET 5, SHT
RES-C-10
- (D-5) STA D1+38
FURNISH & INSTALL:
1-18" LS, MJ
1-BO ASSY, APWA DWG NO. 405, SHT
GEN-C-2
- (D-6) STA D1+54
FURNISH & INSTALL:
1-18" BFV (CLASS 250), MJ, RESTR
- (D-7) STA D1+67% SEE NOTE 3, THIS SHT
CONNECT TO PACKAGE PS
DISCHARGE HEADER PIPING
FURNISH & INSTALL:
1-20"x18" RDCR, MJ RESTR
1-20" 90° VERT BEND, MJ, RESTR
1-20" SPL, PEXPE, LENGTH AS REQ'D
- (D-8) FURNISH & INSTALL:
1-2" BACKFLOW PREVENTION DEVICE, SEE
DET 6, SHT RES-C-10, CONTRACTOR TO
FIELD LOCATE VAULT
1-2" WATER METER, SEE CITY STD DWG NO.
408B, SHT RES-C-8
- (D-9) FURNISH & INSTALL:
1-2"x1" TEE
1-1" YARD HYDRANT
YARD HYDRANT TO BE NON-FREEZE POST
TYPE, JAY R SMITH MFR CO. SERIES 5910,
OR APPVD EQL, YARD HYDRANT TO BE FIELD
LOCATED

DRAIN PIPING SCHEDULE

- 1 FURNISH & INSTALL:
1-12" DIA ADS DRAIN BASIN
W/ SUMP & OUTLET SCREEN
RIM=593.9
IE IN 4" PVC (N&S)=592.90
IE OUT 6" PVC (W)=592.80
- 2 FURNISH & INSTALL:
1-4" 90° PVC BEND
- 3 FURNISH & INSTALL:
1-6" 90° PVC BEND
- 4 FURNISH & INSTALL:
1-6" 90° PVC TEE
- 5 FURNISH & INSTALL:
1-4" 45° PVC BEND

GENERAL NOTES:

1. CONCRETE SLAB FOR PUMP STATION BUILDING SHALL BE A DEFERRED SUBMITTAL DESIGNED AND STAMPED BY A REGISTERED STRUCTURAL ENGINEER IN OREGON. PACKAGE PUMP STATION CONFIGURATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE FINAL LAYOUT AND DIMENSIONS OF THE PREFABRICATED BUILDING AND PACKAGE PUMP STATION WILL BE COORDINATED BY CONTRACTOR AND REVIEWED BY THE ENGINEER. COORDINATE PIPING WITH FINAL PUMP STATION LAYOUT.
2. ALL PIPING SHALL BE RESTRAINED.
3. CONTRACTOR TO COORDINATE WITH PACKAGE PUMP STATION DESIGNER FOR LOCATION OF CONNECTION OF SITE PIPING TO PUMP STATION PIPING PRIOR TO PLACING CONCRETE SLAB FOR PUMP STATION BUILDING.
4. CONTRACTOR TO INSTALL 4 PUMP CANS IN CONCRETE SLAB. THE FOURTH CAN IS FOR FUTURE INSTALLATION OF A PUMP AND PUMP CAN SHALL BE BLIND FLANGED.
5. SEE GENERAL SHEETS FOR MISCELLANEOUS DETAILS.
6. THE WORK SHOWN ON THIS SHEET DEFINES THE WORK LIMITS OF SCHEDULE C.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING
2	11/28/12	LLA	ADDENDUM NO. 1

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

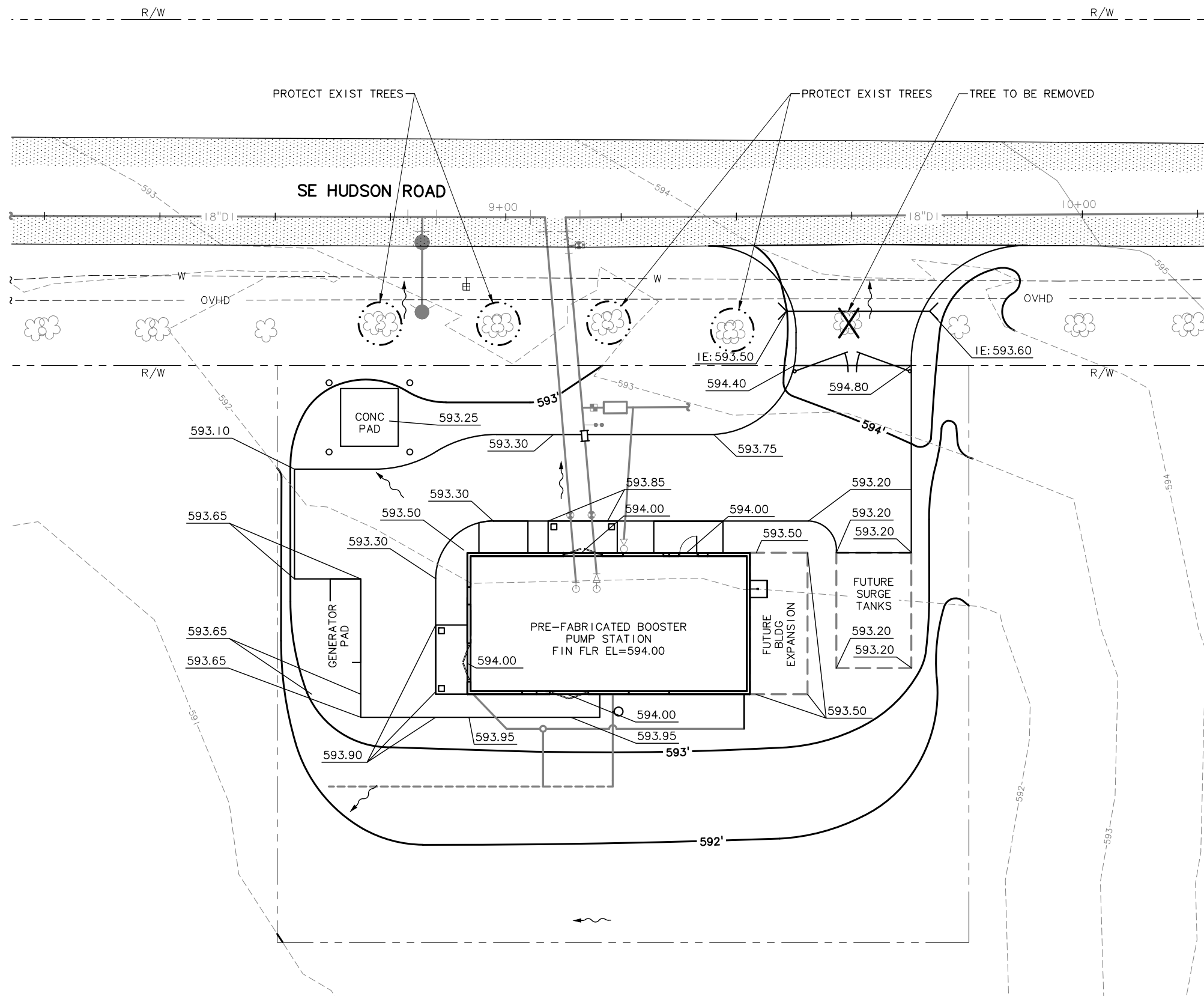
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
SITE PLAN, SITE PIPING PLAN
AND GENERAL NOTES

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-C-1
104 of 123

C:\PDX_Projects\11265\CAD\DOT\SHEETS\SCHED C\11-1265-224-OR-C-R.dwg BPS-C-2 10/30/2014 8:36 AM DAK 20.0s (LMS Tech)



PLAN
SCALE: 1"=10'

GENERAL NOTES:

1. VEGETATION ROOTS AND OTHER DELETERIOUS MATERIALS WITHIN THE FOOTPRINT OF PLANNED STRUCTURES, ROADWAYS, OR OTHER STRUCTURAL ELEMENTS SHALL BE STRIPPED FROM THE GROUND SURFACE. EXISTING SOD SHALL BE REMOVED TO A DEPTH OF ROOT ZONE.
2. CONTRACTOR SHALL PREVENT DISTURBANCE AND SOFTENING OF SUBGRADE SOILS. EXCAVATIONS SHOULD BE ACCOMPLISHED WITH A TRACKHOE EQUIPPED WITH A SMOOTH EDGE BUCKET. TEMPORARY CONSTRUCTION PADS AND WORK PADS SHALL BE PROVIDED DURING CONSTRUCTION TO MINIMIZE SUBGRADE DISTURBANCE. A MINIMUM OF 24 INCHES IN THICKNESS OF RELATIVELY CLEAN, FRAGMENTAL ROCK HAVING A NOMINAL SIZE OF 4 TO 6 INCHES SHALL BE REQUIRED TO SUPPORT HEAVY CONSTRUCTION TRAFFIC AND PROTECT THE SILT SUBGRADE DURING WET GROUND CONDITIONS. PLACE A GEOTEXTILE FABRIC ON THE SUBGRADE AS A SEPARATION MEMBRANE PRIOR TO PLACING AND COMPACTING THE GRANULAR WORK PAD.
3. TEMPORARY CUTS SHALL BE NO STEEPER THAN 1H:1V AND FINAL CUT AND FILL SLOPES SHOULD BE NO STEEPER THAN 2H:1V.
4. SEE GENERAL SHEETS FOR MISCELLANEOUS DETAILS.
5. FOR EARTHWORK ACTIVITIES, FOLLOW RECOMMENDATIONS IN GEOTECHNICAL ENGINEERING REPORT INCLUDED IN THE CONTRACT DOCUMENTS AS A REFERENCE, TITLED "GEOTECHNICAL INVESTIGATION, CITY OF SANDY-PORTLAND WATER BUREAU INTERTIE BOOSTER PUMP STATION, SANDY OREGON" DATED NOVEMBER 6, 2012 AND PREPARED BY GRI, INC.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DAM DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

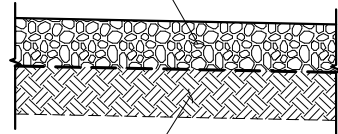
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
SITE GRADING AND
TREE REMOVAL PLAN

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

NOTE:
1. ALL PREPARED SUBGRADE SHALL BE FIRM, UNDISTURBED SUBGRADE APPROVED BY THE GEOTECHNICAL ENGINEER.

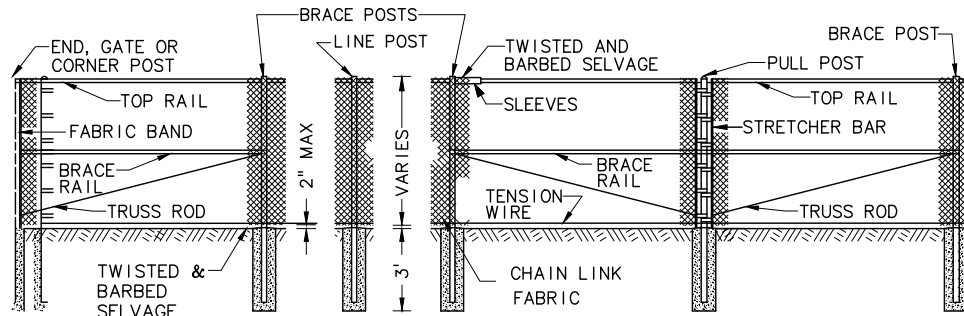
12" OF 1/2"-0" CR BASE COMPACTED TO AT LEAST 95% OF MAX DENSITY PER AASHTO T-99 OVER MIRAFI 140N GEOTEXTILE OR APPVD EQ



SUBGRADE PREP, SEE NOTE 1

CRUSHED ROCK SECTION

SCALE: NTS

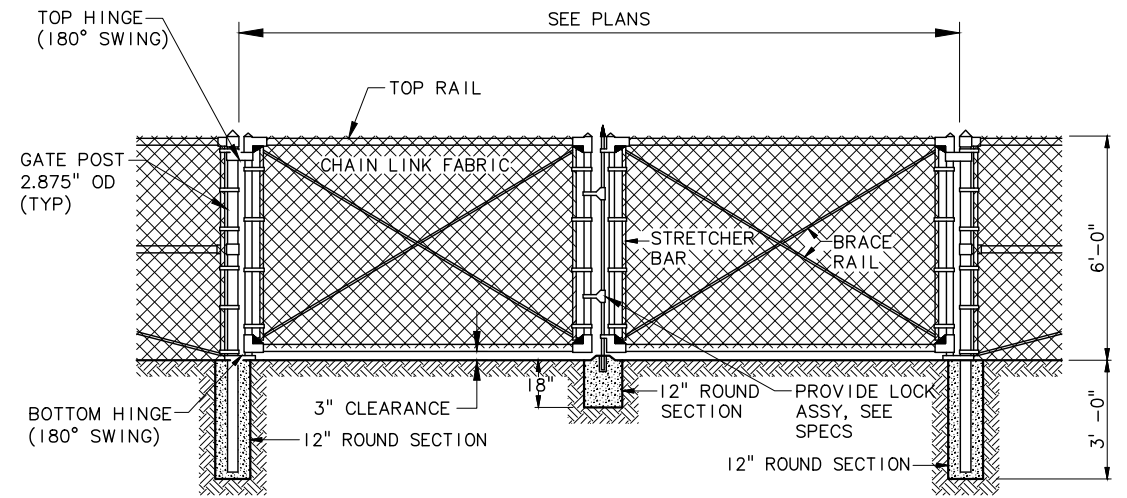


NOTES:

1. LAYOUT AND INSTALL FENCE POSTS TO MAINTAIN MAXIMUM 2" SPACE BETWEEN BOTTOM OF FENCE AND GROUND SURFACE.

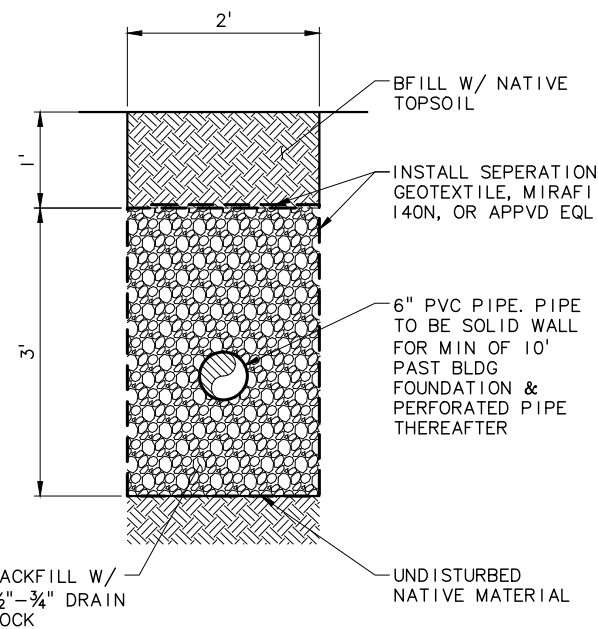
CHAIN LINK FENCE

SCALE: NTS



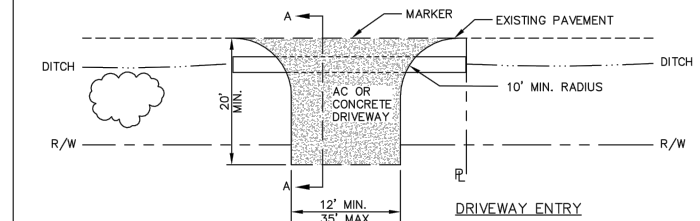
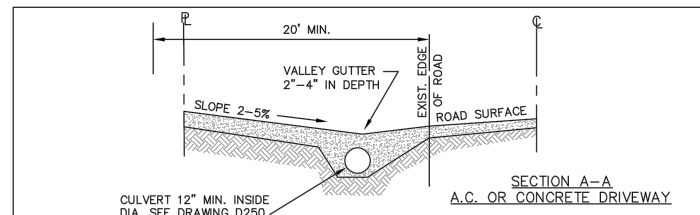
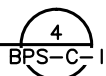
CHAIN LINK GATE

SCALE: NTS



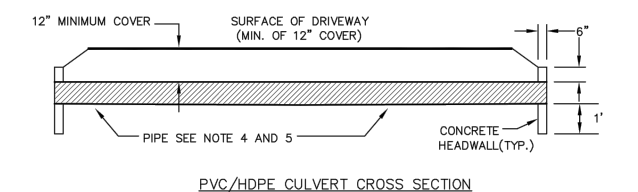
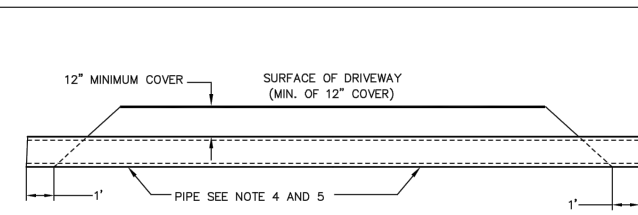
SOAKAGE TRENCH DETAIL

SCALE: NTS



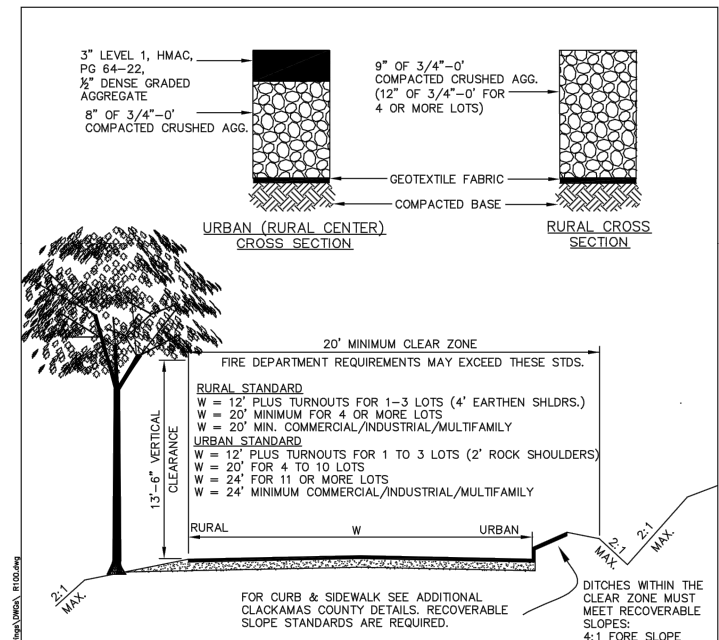
- NOTES:
- LOCATION AND DIMENSIONS TO BE APPROVED BY THE COUNTY ON A SITE SPECIFIC BASIS. PLACE A MARKER, AS INDICATED, AT THE CENTER OF THE PROPOSED DRIVEWAY FOR INITIAL INSPECTION BY THE COUNTY. NO PORTION OF THE DRIVEWAY MAY BE PLACED ON AN ADJOINING FRONTAGE.
 - SPECIFICATIONS FOR MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT ODOT/APWA STANDARD SPECIFICATIONS.
 - AT CORNER LOTS, DRIVEWAY ENTRANCE MUST BE PLACED ON THE SECONDARY ROADWAY.
 - NO PORTION OF A DRIVEWAY SHALL BE PERMITTED WITHIN 2 FEET OF A PROPERTY LINE OR WITHIN 25 FEET OF THE INTERSECTION OF RIGHT-OF-WAY LINES.
 - A MINIMUM OF 50 FEET MUST SEPARATE DRIVEWAY APPROACHES (CENTERLINE TO CENTERLINE) FOR CIRCULAR DRIVEWAYS.
 - INSTALL CULVERT PIPE PER STANDARD DRAWING D250, IF REQUIRED.
 - PROVIDE SIGHT DISTANCE PER STANDARD DRAWING T300 & SECTION 240.
 - A MINIMUM OF 25 FEET MUST SEPARATE DRIVE APPROACHES (CENTERLINE TO CENTERLINE) ON PREMISES UNDER ONE OWNERSHIP. GREATER SEPARATION MAY BE REQUIRED PER SECTION 220.
 - DRIVEWAY SHALL INTERSECT ROAD AT A 80-100 DEGREE ANGLE.
 - A.C. DRIVEWAY: A MINIMUM 6" THICKNESS OF 3/4"-0" COMPACTED CRUSHED ROCK FOR A BASE. SURFACE SHALL HAVE 2" OF CLASS "C" A.C. JOINT AT INTERSECTION OF A.C. DRIVEWAY AND EDGE OF PAVEMENT SHALL BE SEALED WITH LIQUID ASPHALT AND COVERED WITH SAND. GEOTEXTILE FABRIC IS REQUIRED. 3" A.C. OVER 8" ROCK REQUIRED FOR COMMERCIAL DRIVEWAYS AND PAVED PRIVATE ROADS (STD. DWG. R100)
 - CONCRETE DRIVEWAY: A MINIMUM 6" THICKNESS OF CONCRETE OVER COMPACTED GRANULAR BASE. GEOTEXTILE FABRIC OPTIONAL. 6X6 WWF MESH REQUIRED ON COMMERCIAL DRIVEWAYS.

REVISION	DATE	BY	APPROVAL DATE: 1/10/10	SCALE: N.T.S.	STANDARD DRAWING
			DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT		D500
			150 BEAVERCREEK ROAD OREGON CITY, OR 97045		



- NOTES:
- MINIMUM PIPE SIZE SHALL BE 12" INSIDE DIAMETER AND 20 FEET IN LENGTH. PIPE SHALL EXTEND A MINIMUM OF ONE FOOT BEYOND THE TOE OF FILL.
 - CONCRETE HEADWALL (6" THICK) REQUIRED WHEN USING PVC AND/OR HDPE. THE WIDTH OF THE HEADWALL SHALL BE THE FULL WIDTH OF THE DITCH.
 - SPECIFICATIONS FOR MATERIALS USED IN CONSTRUCTION SHALL CONFORM TO CURRENT ODOT/APWA STANDARD SPECIFICATIONS.
 - PIPE SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS TO SUPPORT HL 93 LOADING.
 - REFER TO SECTION 440.1.1 OF THESE ROADWAY STANDARDS FOR ACCEPTABLE PIPE MATERIAL.
 - PROVIDE 5"x5"x12" DEEP CLASS 10 RIP-RAP AT PIPE OUTLET WHEN THE PIPE SLOPE IS GREATER THAN 5%.

REVISION	DATE	BY	APPROVAL DATE: 1/1/10	SCALE: N.T.S.	STANDARD DRAWING
			DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT		D250
			150 BEAVERCREEK ROAD OREGON CITY, OR 97045		



- NOTES:
- ALL WORK AND MATERIAL SHALL CONFORM TO CURRENT ODOT/APWA STANDARD SPECIFICATIONS. LOCAL FIRE MARSHALL APPROVAL OF CONSTRUCTION PLAN REQUIRED PRIOR TO CONSTRUCTION.
 - SEE Z20 1007 FOR EASEMENT WIDTHS.
 - 2:1 MAX SLOPE IS ONLY PERMITTED OUTSIDE THE CLEAR ZONE. WITHIN THE CLEAR ZONE MAXIMUM SLOPES ARE 4:1 FORE SLOPE & 3:1 BACK SLOPE.
 - ALL PAVED ROADS WITHOUT CURBS SHALL HAVE MINIMUM 2 FOOT WIDE COMPACTED ROCK SHOULDERS. SHOULDERS SHALL FOLLOW LINE AND GRADE OF THE ROAD.
 - UNPAVED GRAVEL ROADS ARE ONLY PERMITTED OUTSIDE THE URBAN GROWTH BOUNDARY.
 - PAVED ROADS ARE REQUIRED IN URBAN AND RURAL CENTER AREAS.
 - CURB AND SIDEWALK MAY BE REQUIRED DEPENDING UPON AN EVALUATION BY DTD ENGINEERING.
 - INVERTED CROWN SECTIONS ARE ALLOWED ON PRIVATE ROADS ONLY AND SHALL HAVE APPROPRIATE DRAINAGE AND PAVED SURFACE.
 - INVERTED CROWN MAXIMUM CROSS SLOPE IS 2% IF THE LONGITUDINAL SLOPE IS BETWEEN 0.5% TO 1.0%. THE GUTTER SHALL BE CONCRETE.
 - CROWN CROSS SLOPE SHALL BE BETWEEN 2-4% LONGITUDINAL SLOPE.
 - TO MAINTAIN TRAFFIC SAFETY, 20 FOOT WIDE OR WIDER APPROACHES MAY BE REQUIRED WHEN INTERSECTING ROADWAYS ARE CLASSIFIED AS COLLECTORS OR ARTERIALS.
 - 12' WIDE ROADS SHALL BE CENTERED WITHIN MINIMUM 20' WIDE CLEAR ZONES.

REVISION	DATE	BY	APPROVAL DATE: 1/1/10	SCALE: N.T.S.	STANDARD DRAWING
			DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT		R100
			150 BEAVERCREEK ROAD OREGON CITY, OR 97045		

C:\PDX_Projects\111265\CAD\DR\SHETS\SOHED C\11-1265-224-OR-C-R.dwg BPS-C-3 10/30/2014 8:36 AM DAK 20.0s (LMS Tech)

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc. Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

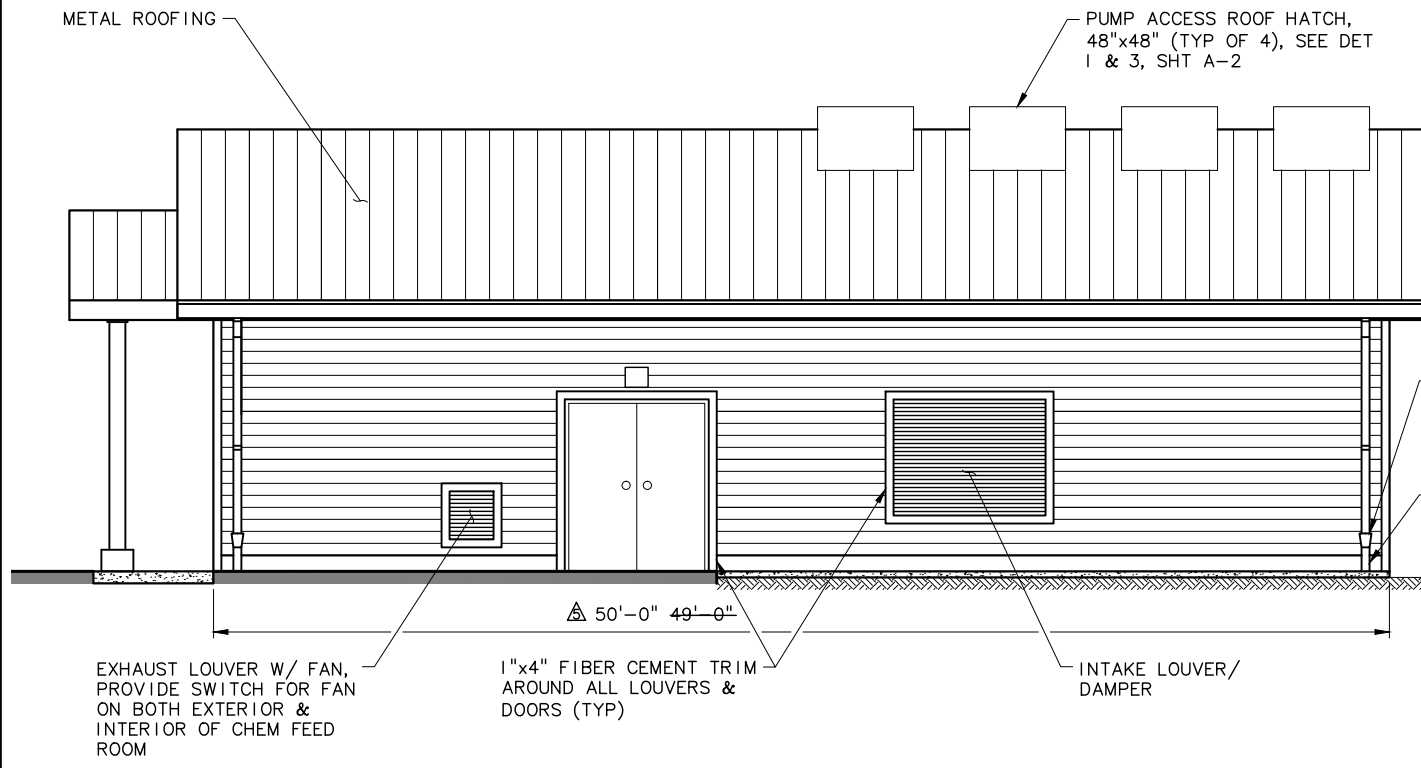
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
CIVIL DETAILS

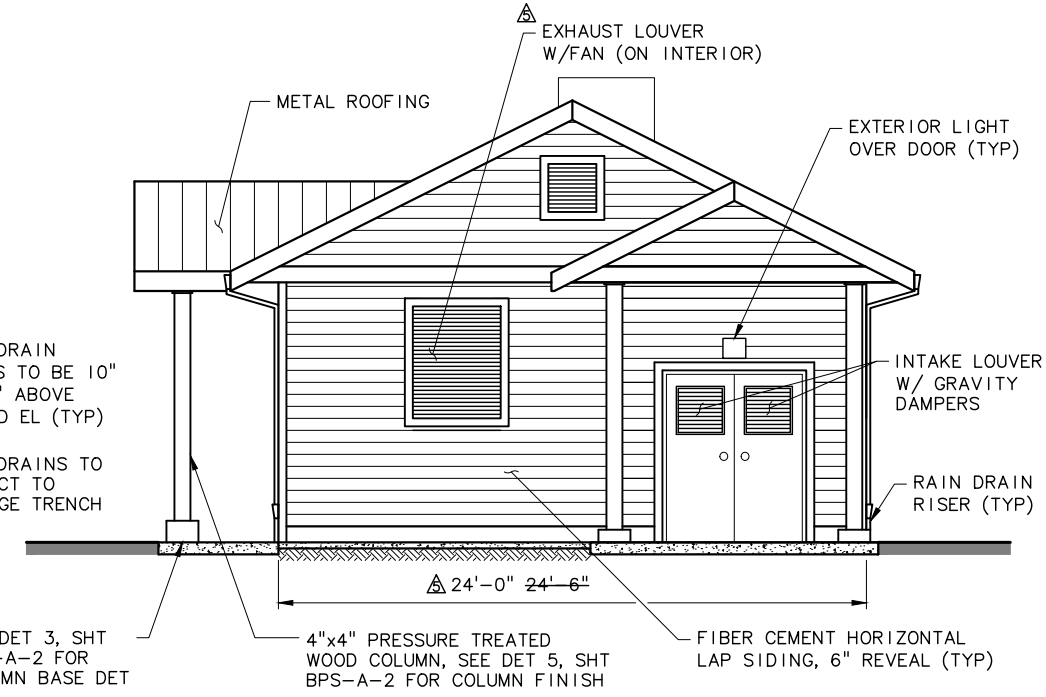
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-C-3
106 of 123

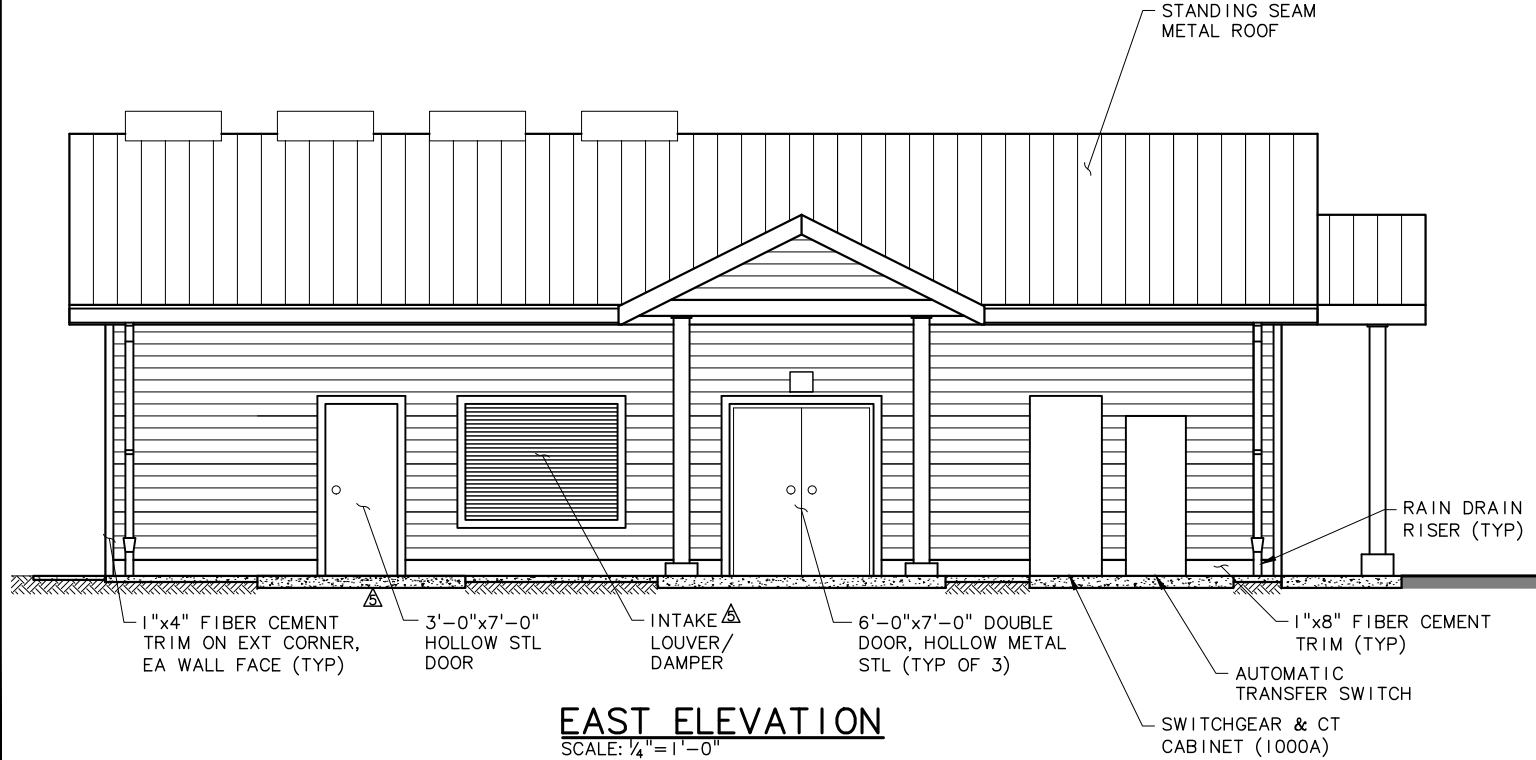
C:\PDX_Projects\11265\CAD\DR\SHEETS\SCHED C\11-1265-224-OR-BPS-A-1-2-R.dwg BPS-A-1 10/30/2014 8:48 AM DAK 20.0s (LMS Tech)



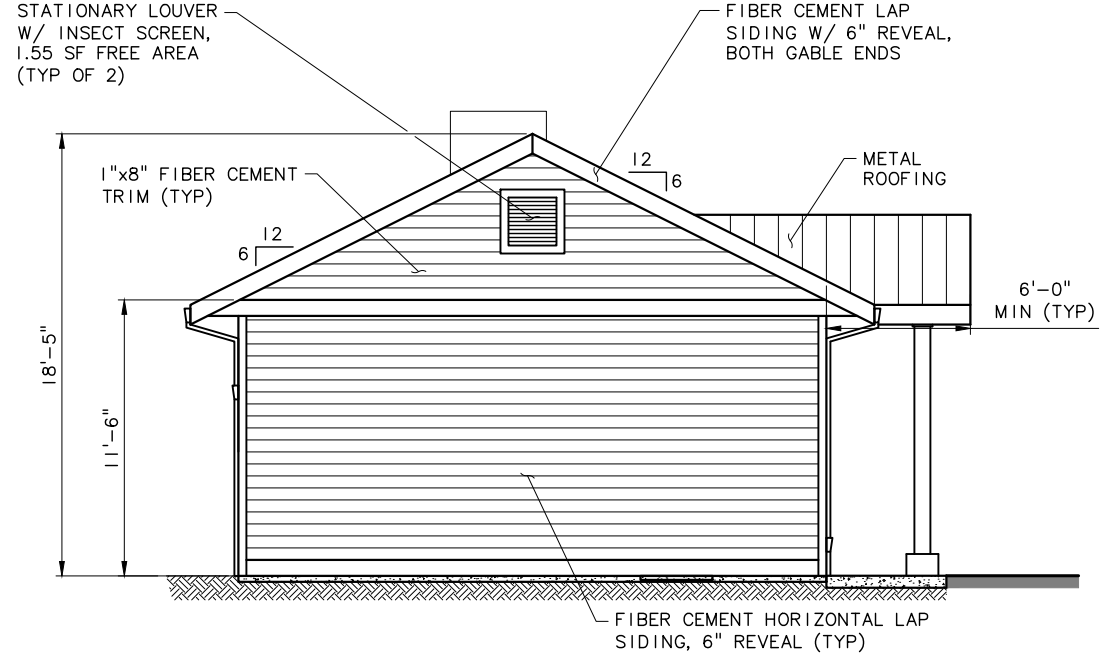
WEST ELEVATION
SCALE: 1/4" = 1'-0"



NORTH ELEVATION
SCALE: 1/4" = 1'-0"



EAST ELEVATION
SCALE: 1/4" = 1'-0"



SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

MATERIAL FINISH SCHEDULE	
ITEM	COLOR
SIDING/TRIM	
LAP SIDING	WILD OATS
TRIM	BLONDE SHELL
ROOFING	
SHEET METAL ROOFING	CHARCOAL
GUTTERS AND DOWNSPOUTS	BLONDE SHELL
LOUVERS/DOORS	
LOUVERS	WILD OATS
DOORS AND FRAMES	WILD OATS

- NOTES:**
1. INSTALL LAP SIDING AND TRIM PER MANUFACTURER'S REQUIREMENTS, PROVIDE FLASHING AROUND DOORS AND LOUVERS PER MANUFACTURERS REQUIREMENTS AND UNIFORM BUILDING CODE.
 2. DESIGN AND INSTALL STICK OR METAL FRAMING FOR PRE-FABRICATED BUILDING PER UNIFORM BUILDING CODE AND PER SPECIFICATIONS.
 3. TRUSS SYSTEM SHALL BE A DEFERRED SUBMITTAL DESIGNED AND DRAWINGS STAMPED BY A REGISTERED STRUCTURAL ENGINEER (S.E.) IN THE STATE OF OREGON.
 4. ALL EXTERIOR MOUNTED HVAC AND ELECTRICAL EQUIPMENT SHALL BE PAINTED TO MATCH THE ADJACENT SIDING.
 5. INTERIOR WALL HEIGHT, SHALL BE APPROXIMATELY 11.5 FEET.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHO 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

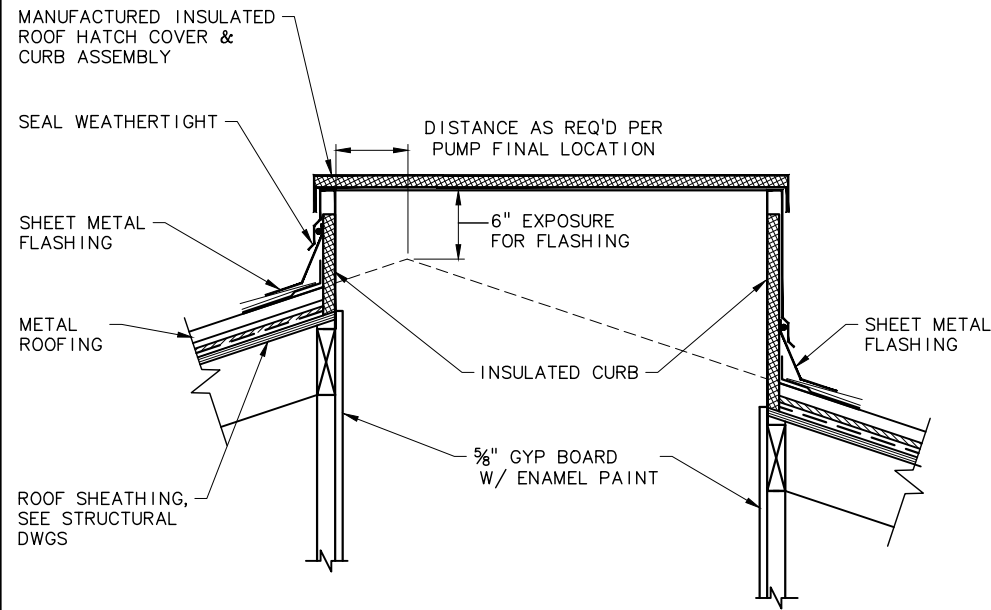
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

**BOOSTER PUMP STATION
BUILDING ELEVATIONS**

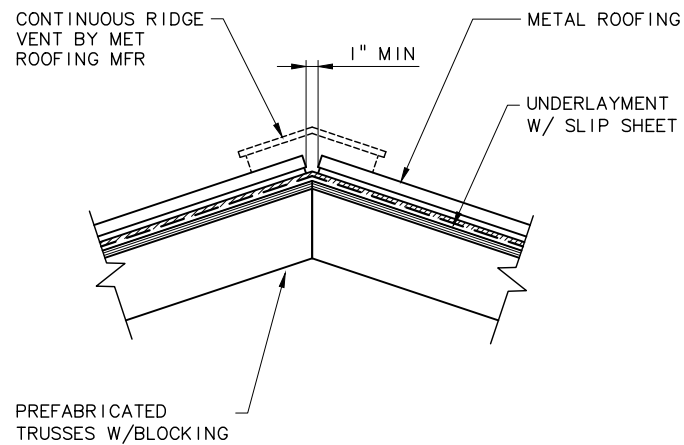
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-A-1
107 of 123

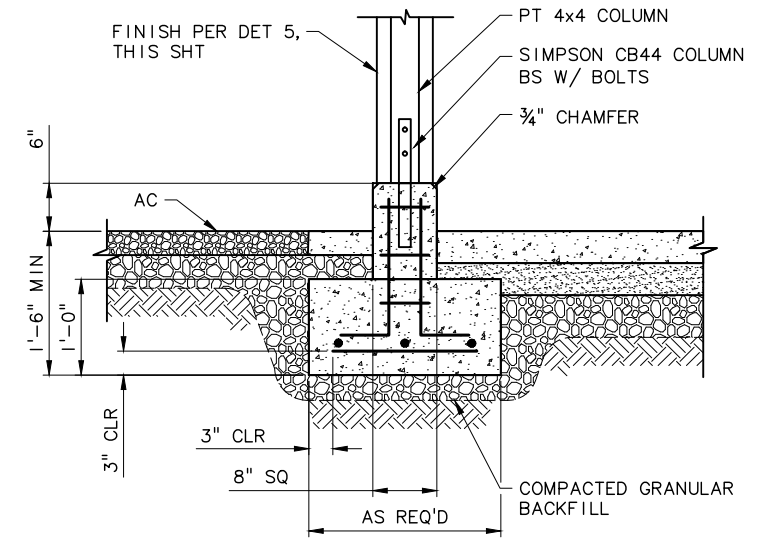
C:\PDX_Projects\111265\CAD\DOR\SHEETS\SCHED C\11-1265-224-OR-BPS-A-1-2-R.dwg BPS-A-2 10/30/2014 8:48 AM DAK 20.0s (LMS Tech)



ROOF HATCH AT RIDGE (1)
SCALE: 1/2"=1'-0"



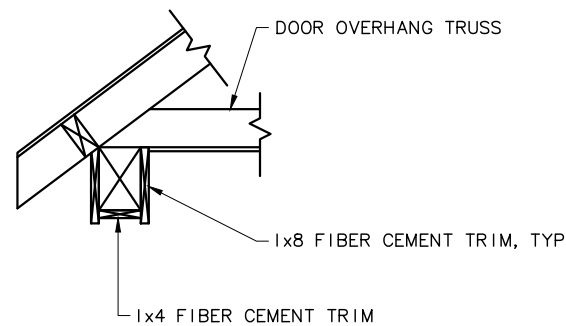
ROOF RIDGE (2)
SCALE: 1/2"=1'-0"



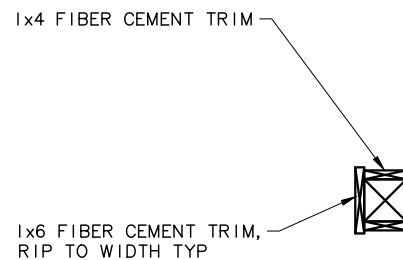
NOTES:

1. REINFORCING SHALL BE DESIGNED BY THE CONTRACTOR WITH DRAWINGS STAMPED BY A REGISTERED STRUCTURAL ENGINEER (S.E.) IN THE STATE OF OREGON.

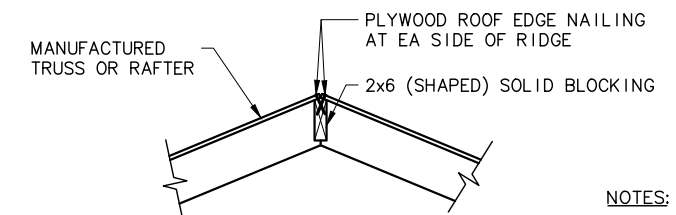
COLUMN BASE DETAIL (3)
SCALE: 1"=1'-0"



BEAM FINISH (4)
SCALE: 1"=1'-0"



COLUMN FINISH (5)
SCALE: 1"=1'-0"



NOTES:

- METAL ROOFING, AND ROOF HATCH SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTION AND AS SPECIFIED.
- ROOF HATCH HINGES SHALL BE LOCATED ON WEST SIDE OF OPENING.
- CENTER HATCHES OVER NEW PUMP LOCATIONS.

RIDGE BLOCKING (6)
SCALE: 1"=1'-0"

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK DESIGNED
JHF DRAWN
MLH CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



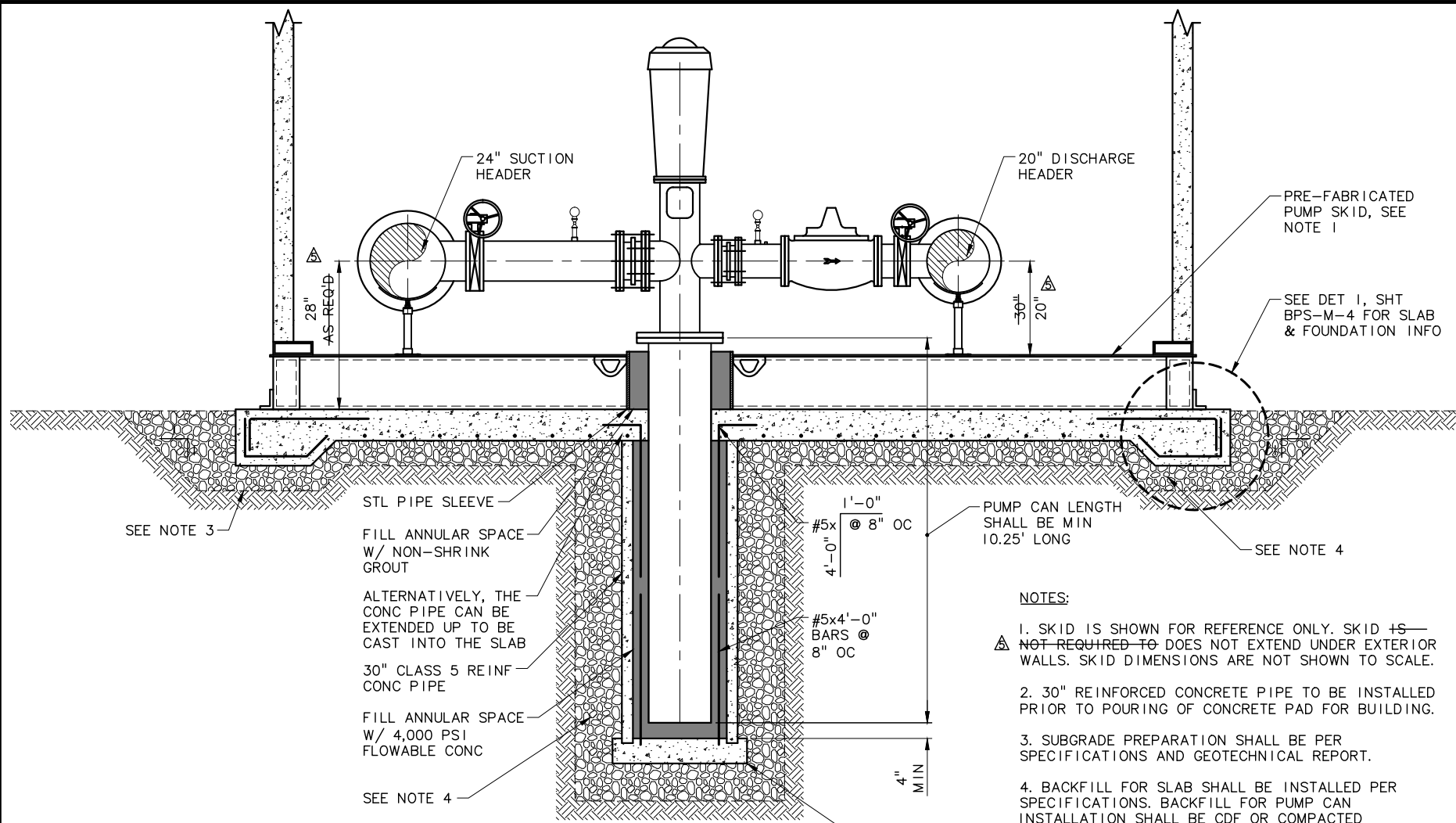
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
ARCHITECTURAL DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-A-2
108 of 123

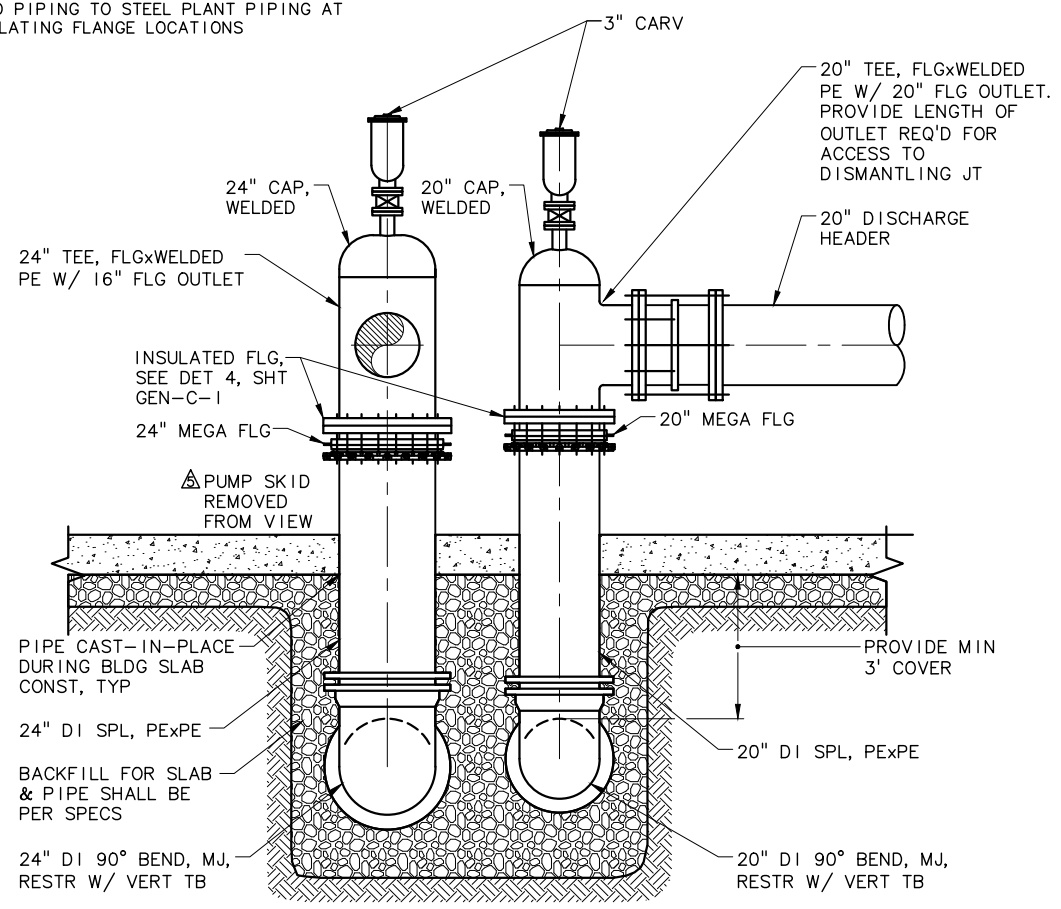
C:\PDX_Projects\11\1265\CAD\DR\SHEETS\SCHED C\11-1265-224-OR-M-R.dwg BPS-M-2 10/30/2014 9:34 AM DAK 20.0s (LMS Tech)



SECTION A
SCALE: 1/2"=1'-0"
BPS-M-1
6" THICK CONC SLAB REINFORCED W/ W4, 4" SQ WWF, KEY 30" PIPE 1/2" INTO SLAB

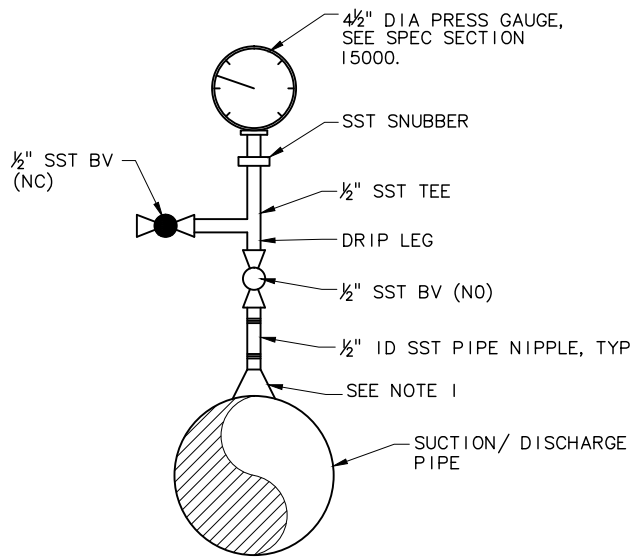
- NOTES:**
1. SKID IS SHOWN FOR REFERENCE ONLY. SKID \pm NOT REQUIRED TO DOES NOT EXTEND UNDER EXTERIOR WALLS. SKID DIMENSIONS ARE NOT SHOWN TO SCALE.
 2. 30" REINFORCED CONCRETE PIPE TO BE INSTALLED PRIOR TO POURING OF CONCRETE PAD FOR BUILDING.
 3. SUBGRADE PREPARATION SHALL BE PER SPECIFICATIONS AND GEOTECHNICAL REPORT.
 4. BACKFILL FOR SLAB SHALL BE INSTALLED PER SPECIFICATIONS. BACKFILL FOR PUMP CAN INSTALLATION SHALL BE CDF OR COMPACTED 3/4"-MINUS AND INSTALLED PER SPECIFICATIONS.

NOTE:
I. PIPING TO TRANSITION FROM DUCILE IRON YARD PIPING TO STEEL PLANT PIPING AT INSULATING FLANGE LOCATIONS



SECTION B
SCALE: 1/2"=1'-0"
BPS-M-1

NOTE:
P IPING AND SKID CONFIGURATION PER APPROVED SHOP DRAWINGS INCLUDED IN O&M MANUAL FOR BOOSTER PUMP STATION.



TYPICAL PRESSURE GAUGE
NTS

- NOTES:**
1. INSTALL GAUGES WITH DRIP LEG AS SHOWN ON 1/2" WELD-O-LET, THREAD-O-LET, OR AS SHOWN ON OTHER DETAILS.
 2. ALL PIPE SHALL BE STAINLESS STEEL SCHEDULE 40 UNLESS OTHERWISE SHOWN.
 3. SUCTION SIDE PRESSURE GAUGE SHALL HAVE A RANGE OF 0 PSI TO 150 PSI
 4. DISCHARGE SIDE PRESSURE GAUGE SHALL HAVE A RANGE OF 0 PSI TO 250 PSI

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

EPK DESIGNED
JHF DRAWN
MLH CHECKED

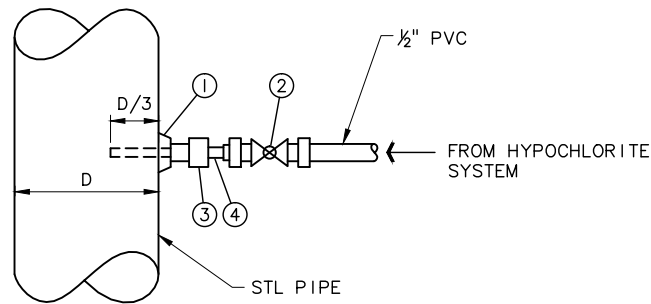
RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
MECHANICAL SECTIONS AND DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

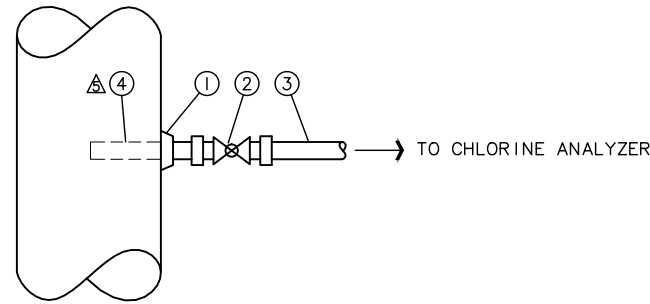


MATERIALS:

- ① 1/2" THREAD-O-LET
- ② 1/2" PVC FULL UNION BV
- ③ CHEMICAL INJECTION QUILL, KOFLO HASTELLOY C-276(STD) OR APPVD EQ
- ④ 1/2" PVC NIPPLE

NOTE:

1. ALL PVC PIPING SHALL BE SCHEDULE 80.

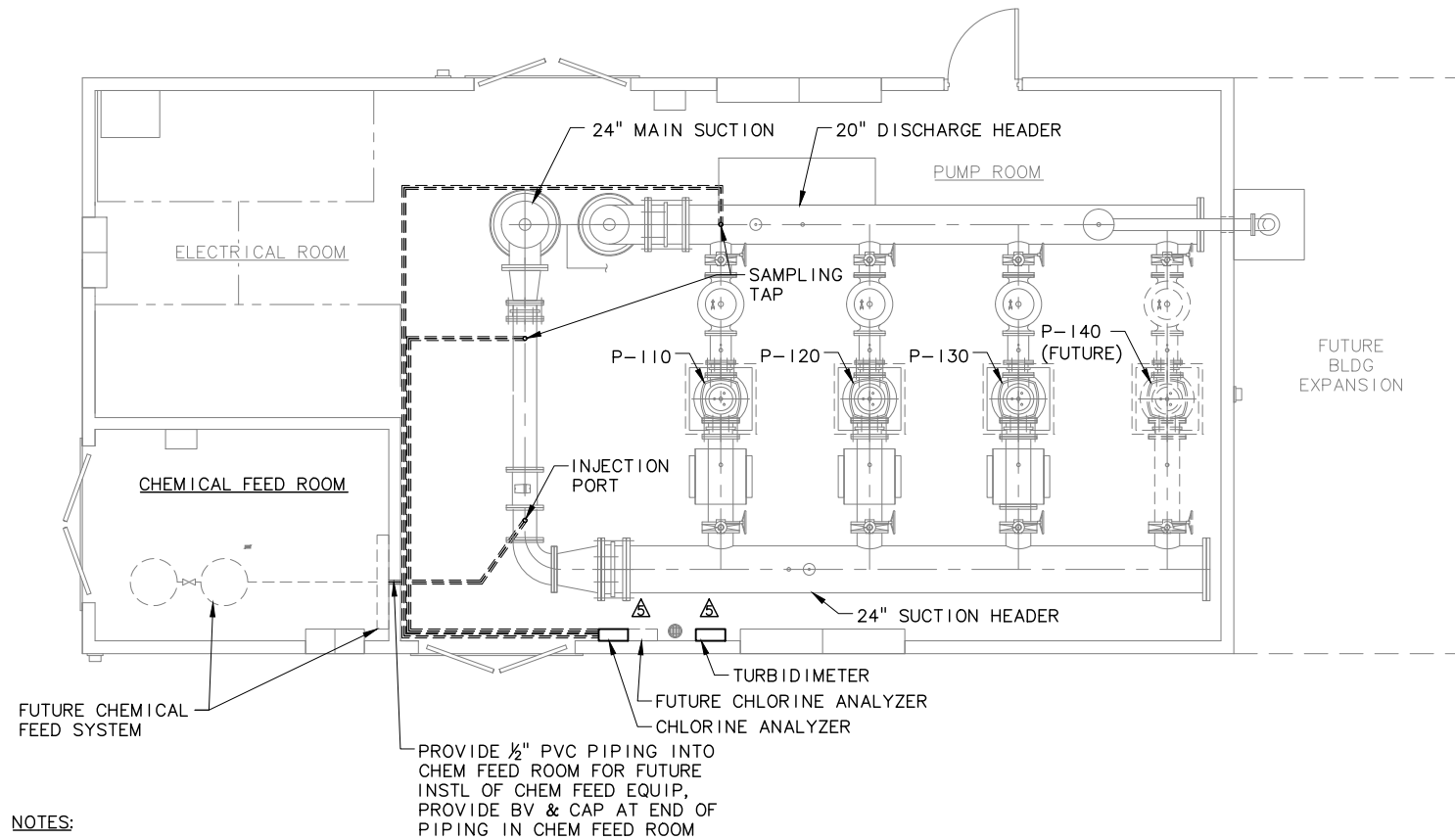


MATERIALS:

- ① 1/2" THREAD-O-LET
- ② 1/2" PVC FULL UNION BV
- ③ 1/2" COP
- ④ NON-RETRACTABLE SAMPLING PROBE PER CONTRACT MODIFICATION NO. 7

CHEMICAL INJECTOR QUILL (1)
SCALE: NTS

SAMPLE TAP (2)
SCALE: NTS



NOTES:

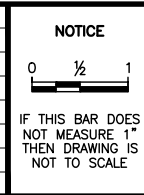
1. ALL CHEMICAL FEED SYSTEM PIPING, FITTINGS AND APPURTENANCES SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE SHOWN.

2. FURNISH AND INSTALL UNISTRUT CHANNELS AND BRACKETS AND GENERAL FITTINGS AS REQUIRED.

CHLORINE FEED SYSTEM PLAN
SCALE: 1/4" = 1'-0"

C:\PDX_Projects\11265\CAD\DR\DR\SHEETS\SCHED C\11-1265-224-OR-M-R.dwg BPS-M-3 10/30/2014 9:34 AM DAK 20.0s (LMS Tech)

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING



EPK
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

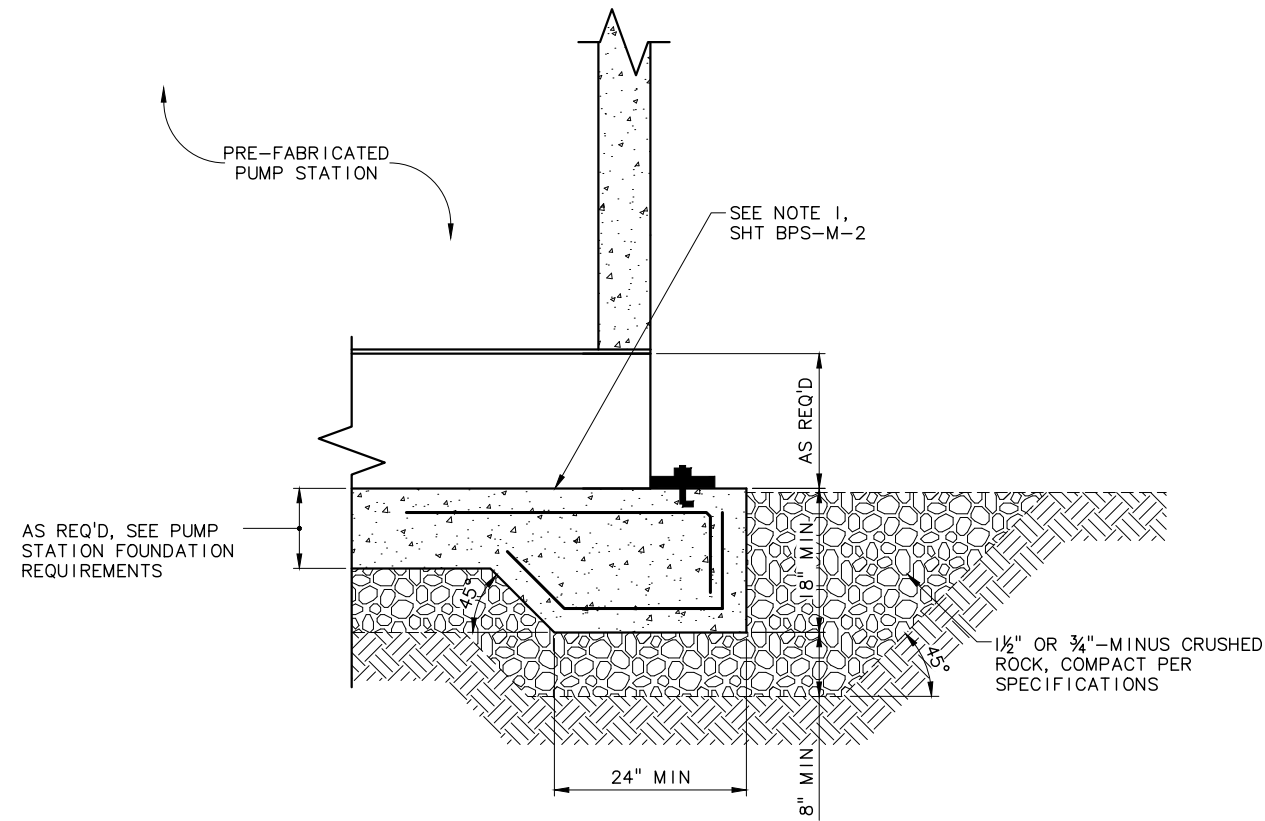
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

**BOOSTER PUMP STATION
CHLORINE FEED SYSTEM PLAN
AND DETAILS**

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-M-3
111 of 123

C:\PDX_Projects\11\1265\CAD\DOT\PROJECTS\SCHED C\11-1265-224-OR-M-R.dwg BPS-M-4 11/23/2014 7:30 PM JHF 20.0s (LMS Tech)



TYPICAL ANCHOR DETAIL
SCALE: NTS



NOTES:

1. MONOLITHIC SLAB FOUNDATION AND ANCHORAGE SHALL BE A DEFERRED SUBMITTAL DESIGNED AND DRAWINGS STAMPED BY A REGISTERED STRUCTURAL ENGINEER IN OREGON. FOUNDATION AND SLAB SHALL BE EITHER SLAB-ON-GRADE OR SLAB-ON-GRADE WITH THICKENED EDGE AND SHALL BE DESIGNED BASED ON THE FOLLOWING:

- a. 800 PSF FOR SLAB-ON-GRADE DESIGN.
- b. 1,500 PSF FOR SLAB-ON-GRADE WITH THICKENED EDGE.

2. CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 28 DAYS. ALL CONCRETE SHALL CONTAIN 5% (±1%) AIR ENTRAINMENT. SLUMP SHALL BE 1" TO 3" FOR FOUNDATIONS.

3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. GRADE 40 MAY BE USED FOR #3 AND SMALLER TIES AND STIRRUPS. DETAIL AND PLACE ACCORDING TO ACI MANUAL SP-66. UNLESS OTHERWISE NOTED, MINIMUM COVER SHALL BE 1 1/2" FOR #5 AND SMALLER BARS, 2" FOR #6 AND LARGER BARS AND 3" WHEN PLACED AGAINST EARTH. UNLESS OTHERWISE NOTED, BEND ALL HORIZONTAL REINFORCING A MINIMUM OF 2'-0" AT CORNERS AND WALL INTERSECTIONS.

4. CONTRACTOR SHALL COORDINATE WITH PRE-FABRICATED BUILDING AND PACKAGED PUMP STATION MANUFACTURER TO DETERMINE ACTUAL PIPE PENETRATION LOCATIONS.

NOTE:

AS-BUILT SLAB FOUNDATION AND ANCHORAGE WAS DESIGNED BY PARKIN ENGINEERING PER SUBMITTAL NO. 50.

NO.	DATE	BY	REVISION
1	10/30/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

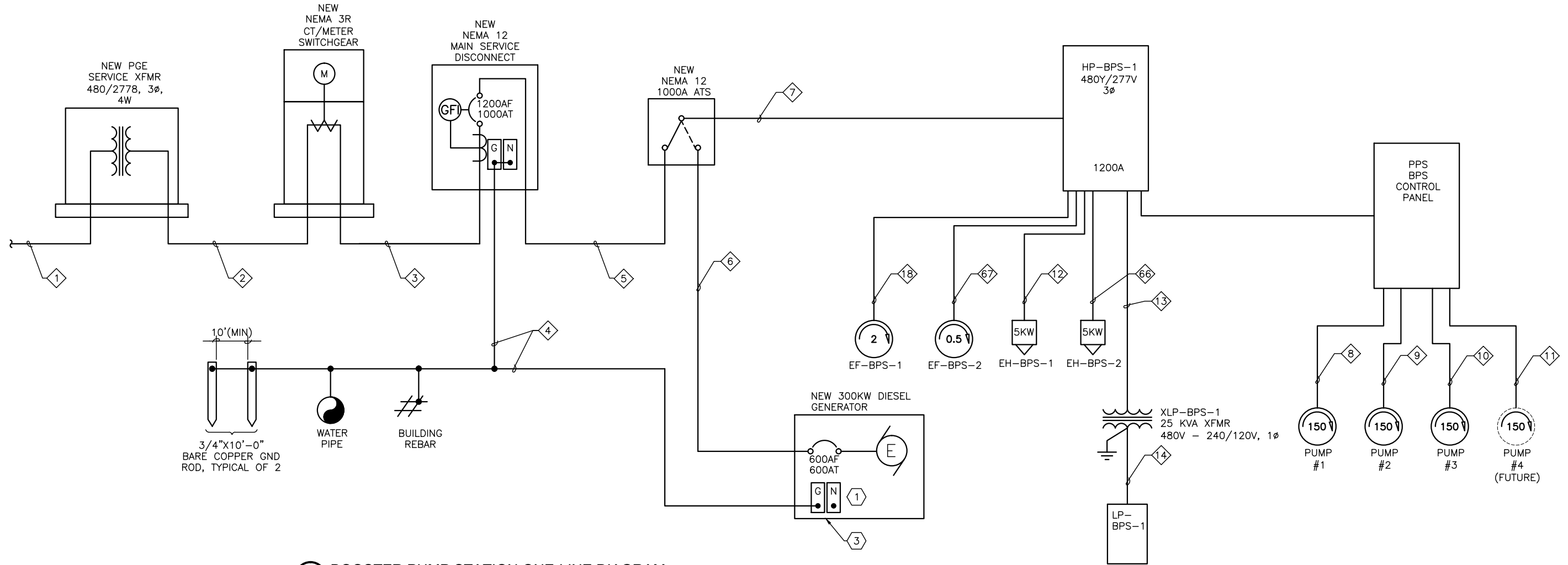
EPK
DESIGNED
JHF
DRAWN
MLH
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION MECHANICAL DETAILS
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012



1 BOOSTER PUMP STATION ONE-LINE DIAGRAM
 BPS-E-1 NOT TO SCALE

GENERAL NOTES

- A. THE CONTRACTOR SHALL FIELD COORDINATE SERVICE INSTALLATION WITH PGE PRIOR TO INSTALLATION. SERVICE COORDINATOR IS KERI BRYSON, 503-669-5262. EMAIL: KERI.BRYSON@PGN.COM.
- B. THE CONTRACTOR SHALL FIELD COORDINATE ALL EQUIPMENT LOCATIONS AND CODE REQUIRED CLEARANCES PRIOR TO AND THROUGHOUT INSTALLATION.
- C. THE AVAILABLE FAULT CURRENT AT THE UTILITY SWITCHGEAR IS 21,078 AIC.

KEY NOTES

- 1 CONTRACTOR SHALL REMOVE GENERATOR GROUND-NEUTRAL BOND STRAP.
- 2 DISTRIBUTION BREAKERS FOR MANUFACTURER'S DISTRIBUTION SYSTEM SHALL BE GFI BREAKERS.
- 3 THE GENERATOR SHALL BE HOUSED IN A SOUNDPROOF WEATHER PROTECTIVE ENCLOSURE PER THE SPECIFICATION REQUIREMENTS.

Sandy BPS Service Load		VOLTAGE: 480.0 3-PH		DATE 08-Nov-12			
ITEM	UNIT NAME	HP	NP AMPS	AMPS (NOTE#1)	KVA	MOTOR STARTER TYPE	SIZE
1	BOOSTER PUMP NO.1	150		180.0	149.6	SOFT	5
2	BOOSTER PUMP NO.2	150		180.0	149.6	SOFT	5
3	BOOSTER PUMP NO.3	150		180.0	149.6	SOFT	5
4	BOOSTER PUMP NO.4 (F)	150		180.0	149.6	SOFT	5
5	EXHAUST FAN EF-BPS-1	2		3.4	2.8	FVNR	1
6	EXHAUST FAN EF-BPS-2	0.5		1.0	0.8	FVNR	1
MISCELLANEOUS EQUIPMENT:							
ITEM	UNIT NAME	KVA	AMPS	NOTE #1: NEC TABLES VALUES USED WHERE NAMEPLATE VALUES NOT AVAILABLE			
1	STEPDOWN XFMR	25	52.1				
2	HEATER EH-BPS-1	6.25	7.5				
3	HEATER EH-BPS-2	6.25	7.5				
4			0.0				
5			0.0				
SUMMARY:		MOTOR AMPS=	724.4	R&W ENGINEERING INC.			
25% OF LARGEST		MOTOR	= 45.0	TOTAL HP:	602.5		
		MISC AMPS=	67.1	TOTAL KVA:	639.6		
		25% OF MISC=	16.8				
		TOTAL =	853.3				



NO.	DATE	BY	REVISION
1	08/14	SMR	RECORD DRAWINGS

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR DESIGNED
 JDR DRAWN
 GHS CHECKED

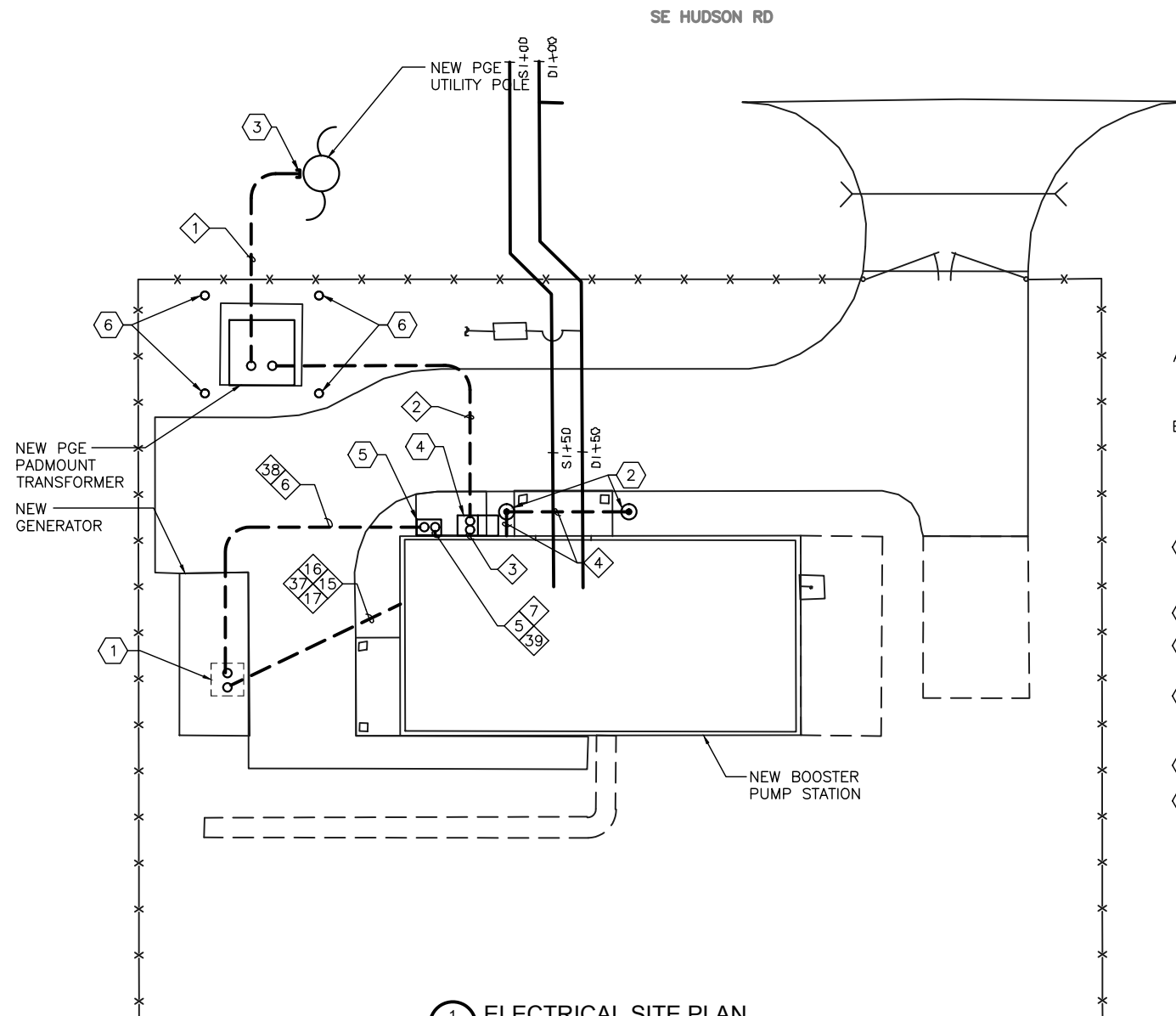
RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT

BOOSTER PUMP STATION ONE-LINE DIAGRAM

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012



1 ELECTRICAL SITE PLAN
BPS-E-2 SCALE: 1"=10'

GENERAL NOTES

- A. THE CONTRACTOR SHALL FIELD COORDINATE ALL PGE REQUIREMENTS WITH PGE PRIOR TO CONSTRUCTION AND FIELD VERIFY SPECIFIC LOCATION OF NEW UTILITY POLE.
- B. PROVIDE 8'X8' TRANSFORMER VAULT PAD #9696-1554-TRANSPAD-PGE, PER PGE REQUIREMENTS FOR INSTALLATION OF NEW SERVICE TRANSFORMER. COORDINATE ALL REQUIREMENTS WITH PGE.

KEY NOTES

- 1 GENERATOR CONDUIT STUB-UP AREA. CONTRACTOR SHALL VERIFY SPECIFIC LOCATION OF STUB-UP AREA FOR PROVIDED MANUFACTURERS GENERATOR.
- 2 GROUND TEST WELL, TYPICAL OF 2.
- 3 STUB CONDUITS UP AT NEW PGE SERVICE POLE. COORDINATE ALL REQUIREMENTS WITH PGE PRIOR TO INSTALLATION.
- 4 NEW METER BASE AND CT SWITCHGEAR, NEMA 3R RATED. PROVIDE REQUIRED PULL SECTION, NEMA 3R RATED. ALL EQUIPMENT SHALL MEET PGE REQUIRED EUSERC RATINGS.
- 5 NEW AUTOMATIC TRANSFER SWITCH (ATS), NEMA 3R RATED.
- 6 PROVIDE 6" DIAMETER STEEL CONCRETE FILLED BARRIER POST, TYPICAL OF 4. INSTALL BARRIER POSTS PER PGE REQUIREMENTS. REFERENCE LATEST VERSION OF PGE ELECTRICAL SERVICE REQUIREMENTS HANDBOOK, BARRIER POST DETAILS FOR PARKING LOTS. COORDINATE REQUIREMENTS WITH PGE PRIOR TO CONSTRUCTION.

R&W
ENGINEERING, INC.
"Engineering Integrated Solutions"
9615 S.W. Allen Boulevard
Suite 107
Blairstown, Oregon 97005
Phone: (503) 726-3331
Fax: (503) 726-3326
E-mail: rweg@rweg.com
Project No.: 0483 070.001 Contact: SAM RUSSUM

NO.	DATE	BY	REVISION
△	08/14	SMR	RECORD DRAWINGS

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR
DESIGNED
JDR
DRAWN
GHS
CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



**CITY OF SANDY
PWB INTERTIE PROJECT**

ELECTRICAL SITE PLAN

PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET

BPS-E-2

114 of 123

CITY OF SANDY WATER SYSTEM INTERTIE - BOOSTER PUMP STATION
ELECTRICAL CIRCUIT SCHEDULE

ALL CIRCUITS ARE IDENTIFIED ON THE PLANS WITH THE DIAMOND SYMBOL. CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS. CONDUIT SIZES ARE SHOWN FOR CASES WHEN CIRCUIT CONDUCTORS ARE RUN WITHOUT OTHER CIRCUITS. MULTIPLE CIRCUITS RUN IN COMMON CONDUITS ARE SHOWN ON PLANS AND SUPERSEDE THE BASIC CONDUIT SIZE SHOWN.

RACEWAY SIZES ARE IN INCHES WITH QUANTITIES IN EXCESS OF (1) SHOWN IN ADJACENT PARENTHESIS. CONDUCTOR CONFIGURATIONS ARE CODED AS FOLLOWS: P - FOR POWER CONDUCTORS, G - FOR GROUND CONDUCTORS, N - FOR NEUTRAL CONDUCTORS, C - FOR CONTROL CONDUCTORS, AND SP - FOR SPARE CONDUCTORS.

CIRCUITS REVISED SINCE LAST ISSUE ARE INDICATED BY AN ASTERISK(*).

CIRCUIT NUMBER	FROM	TO	CONDUCTORS	RACEWAY	NOTES
1	NEW PGE POLE	PGE SERVICE TRANSFORMER	---	(1) 4"	VERIFY PGE REQUIREMENTS WITH FIELD COORDINATOR PRIOR TO CONSTRUCTION.
2	PGE SERVICE TRANSFORMER	CT/METER SWITCHGEAR	---	(5) 3"	VERIFY PGE REQUIREMENTS WITH FIELD COORDINATOR PRIOR TO CONSTRUCTION.
3	CT CABINET	MAIN SERVICE BREAKER	(12) #350 KCMIL, P (4) #350 KCMIL, N (4) #3/0, G	(4) 3"	
4	MAIN SERVICE BREAKER (GROUND BAR)	SERVICE GROUND	(1) #3/0, G	---	
5	MAIN SERVICE BREAKER	ATS	(12) #350 KCMIL, P (4) #350 KCMIL, N (4) #3/0, G	(4) 3"	
6	GENERATOR	ATS	(6) #350 KCMIL, P (2) #350 KCMIL, N (2) #3/0, G	(4) 3"	PROVIDE SPARE CONDUITS FOR FUTURE USE.
7	ATS	PACKAGE SYSTEM ENTRANCE/MAIN BREAKER	(12) #350 KCMIL, P (4) #350 KCMIL, N (4) #3/0, G	(4) 3"	
8	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-110	(3) #4/0, P (1) #4, G	2.5"	
9	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-120	(3) #4/0, P (1) #4, G	2.5"	
10	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-130	(3) #4/0, P (1) #4, G	2.5"	
11	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-140 (FUTURE)	---	2.5"	
12	PACKAGE SYSTEM DISTRIBUTION PANEL	ELECTRIC HEATER EH-BPS-1	(3) #12, P (1) #12, G	3/4"	
13	PACKAGE SYSTEM DISTRIBUTION PANEL	STEP-DOWN TRANSFORMER XLP-BPS-1	(2) #6, P (1) #8, G	1"	
14	STEP-DOWN TRANSFORMER XLP-BPS-1	PANELBOARD LP-BPS-1	(2) #1, P (1) #1, N (1) #6, G	2"	
15	PANELBOARD LP-BPS-1	GENERATOR HEATER	(2) #8, P (1) #10, G	1"	VERIFY GENERATOR BLOCK HEATER LOAD PRIOR TO INSTALLATION. PROVIDE CONDUCTORS SIZED PER NEC REQUIREMENTS.
16	PANELBOARD LP-BPS-1	GENERATOR BATTERY CHARGER	(1) #12, P (1) #12, N	3/4"	
17	PANELBOARD LP-BPS-1	GENERATOR CONTROL PANEL	(1) #12, P (1) #12, N (1) #12, G	3/4"	
18	PACKAGE SYSTEM DISTRIBUTION PANEL	EXHAUST FAN EF-BPS-1	(1) #12, P (1) #12, N (1) #12, G	3/4"	
19	PANELBOARD LP-BPS-1	PACKAGE SYSTEM CONTROL PANEL	(1) #12, P (1) #12, N (1) #12, G	3/4"	
20	PANELBOARD LP-BPS-1	PACKAGE SYSTEM CONTROL PANEL	(2) #12, P (2) #12, N (2) #12, G	(2) 1"	PROVIDE DEDICATED POWER CIRCUIT FOR EVERY TWO PUMP CONTROL VALVES. VERIFY REQUIREMENTS WITH PACKAGE SYSTEM MFR.
21	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-110	(1) #12, P (1) #12, N (1) #12, G	3/4"	ROUTE POWER CIRCUIT THROUGH DEDICATED RELAY CONTACT RATED FOR 120VAC POWER FOR VALVE ACTUATION.
22	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-120	(1) #12, P (1) #12, N (1) #12, G	3/4"	ROUTE POWER CIRCUIT THROUGH DEDICATED RELAY CONTACT RATED FOR 120VAC POWER FOR VALVE ACTUATION.
23	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-130	(1) #12, P (1) #12, N (1) #12, G	3/4"	ROUTE POWER CIRCUIT THROUGH DEDICATED RELAY CONTACT RATED FOR 120VAC POWER FOR VALVE ACTUATION.
24	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-140 (FUTURE)	---	1"	
25	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-110	(16) #14 C (1) #12 G	1.25"	MOTOR TEMPERATURE RTD WIRING. VERIFY REQUIREMENTS WITH MANUFACTURER.
26	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-120	(16) #14 C (1) #12 G	1.25"	MOTOR TEMPERATURE RTD WIRING. VERIFY REQUIREMENTS WITH MANUFACTURER.
27	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-130	(16) #14 C (1) #12 G	1.25"	MOTOR TEMPERATURE RTD WIRING. VERIFY REQUIREMENTS WITH MANUFACTURER.
28	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-140 (FUTURE)	---	1.25"	
29	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-110	(8) #14 C (1) #12 G	3/4"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.

30	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-120	(8) #14 C (1) #12 G	3/4"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
31	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-130	(8) #14 C (1) #12 G	3/4"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
32	PACKAGE SYSTEM CONTROL PANEL	CONTROL VALVE PCV-140 (FUTURE)	---	3/4"	
33	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-110	(2) #14 C (1) #12 G	3/4"	
34	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-120	(2) #14 C (1) #12 G	3/4"	
35	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-130	(2) #14 C (1) #12 G	3/4"	
36	PACKAGE SYSTEM CONTROL PANEL	FLOW CONTROL SWITCH FS-140 (FUTURE)	---	3/4"	
37	PACKAGE SYSTEM CONTROL PANEL	GENERATOR	(12) #14 C (1) #12 G	2"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
38	ATS	GENERATOR	(6) #14 C (1) #12 G	1"	
39	PACKAGE SYSTEM CONTROL PANEL	ATS	(6) #14 C (1) #12 G	1"	
40	PANELBOARD LP-BPS-1	CHEMICAL PUMPS P-160 & P-170 (FUTURE)	---	(2) 1"	
41	PACKAGE SYSTEM CONTROL PANEL	CHEMICAL PUMPS P-160 & P-170 (FUTURE)	---	(2) 1"	
42	PANELBOARD LP-BPS-1	CHLORINE ANALYZER AFC-161	(1) #12, P (1) #12, N (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
43	PACKAGE SYSTEM CONTROL PANEL	CHLORINE ANALYZER AFC-161	(2) #16 TSP (4) #14 C (1) #12 G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
44	PANELBOARD LP-BPS-1	CHLORINE ANALYZER AFC-162 (FUTURE)	---	3/4"	
45	PACKAGE SYSTEM CONTROL PANEL	CHLORINE ANALYZER AFC-162 (FUTURE)	---	1"	
46	PANELBOARD LP-BPS-1	FLOW METER FIT-101	(1) #12, P (1) #12, N (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
47	PACKAGE SYSTEM CONTROL PANEL	FLOW METER FIT-101	(1) #16 TSP (4) #14 C (1) #12 G	1"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
48	PACKAGE SYSTEM CONTROL PANEL	PRESSURE RELIEF VALVE ZSO-163	(8) #14 C (1) #12 G	1"	UNUSED CONDUCTORS SHALL BE LABELED AS SPARE.
49	PACKAGE SYSTEM CONTROL PANEL	SUCTION PRESSURE XMTR	(1) #16 TSP (1) #12 G	1"	
50	PACKAGE SYSTEM CONTROL PANEL	DISCHARGE PRESSURE XMTR	(1) #16 TSP (1) #12 G	1"	
51	PACKAGE SYSTEM CONTROL PANEL	DISCHARGE LOW PRESSURE SWITCH	(2) #14 C (1) #12 G	3/4"	

52	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCHES YS-101 & YS-102	(4) #14 C (1) #12 G	3/4"	
53	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCH YS-103	(2) #14 C (1) #12 G	3/4"	
54	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCHES YS-104 & YS-105	(4) #14 C (1) #12 G	3/4"	
55	PACKAGE SYSTEM CONTROL PANEL	INTRUSION SWITCHES YS-106 & YS-107	(4) #14 C (1) #12 G	3/4"	
56	PANELBOARD LP-BPS-1	TELEMETRY PANEL BPS-TCP-1	(1) #12, P (1) #12, N (1) #12, G	3/4"	
57	PACKAGE SYSTEM CONTROL PANEL	TELEMETRY PANEL BPS-TCP-1	(1) CAT5e CABLE (1) RS-232 CABLE (1) #12 G	2"	
58	TELEMETRY PANEL BPS-TCP-1	TELEMETRY PANEL TPS-TCP-1	(1) SINGLE MODE FIBER CABLE	2"	
59	PANELBOARD LP-BPS-1	BUILDING RECEPTACLES	(1) #12, P (1) #12, N (1) #12, G	3/4"	
60	PANELBOARD LP-BPS-1	BUILDING INTERIOR LIGHTS	(1) #12, P (1) #12, N (1) #12, G	3/4"	
61	PANELBOARD LP-BPS-1	BUILDING EXTERIOR LIGHTS	(1) #12, P (1) #12, N (1) #12, G	3/4"	
62	PANELBOARD LP-BPS-1	SUCTION PRESSURE TRANSMITTER PIT-101	(1) #12, P (1) #12, N (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
63	PANELBOARD LP-BPS-1	DISCHARGE PRESSURE TRANSMITTER PIT-102	(1) #12, P (1) #12, N (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
64	PACKAGE SYSTEM CONTROL PANEL	SUCTION PRESSURE TRANSMITTER PIT-101	(1) #16 TSP (1) #12 G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
65	PACKAGE SYSTEM CONTROL PANEL	DISCHARGE PRESSURE TRANSMITTER PIT-102	(1) #16 TSP (1) #12 G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
66	PACKAGE SYSTEM DISTRIBUTION PANEL	ELECTRIC HEATER EH-BPS-2 (CHEM. RM.)	(3) #12, P (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
67	PACKAGE SYSTEM DISTRIBUTION PANEL	EXHAUST FAN EF-BPS-2 (CHEM. RM.)	(3) #12, P (1) #12, G	3/4"	VERIFY ALL EQUIPMENT REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
68	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.1 P-110 MOTOR HEATER	(1) #12, P (1) #12, N (1) #12, G	3/4"	
69	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.2 P-120 MOTOR HEATER	(1) #12, P (1) #12, N (1) #12, G	3/4"	
70	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.3 P-130 MOTOR HEATER	(1) #12, P (1) #12, N (1) #12, G	3/4"	
71	PACKAGE SYSTEM MOTOR CONTROL PANEL	PUMP NO.4 P-140 MOTOR HEATER (FUTURE)	---	3/4"	
72	PACKAGE SYSTEM MOTOR CONTROL PANEL(S)	PACKAGE SYSTEM CONTROL PANEL	(8) #16 TSP (56) #14 C (4) #12 G	(4) 2"	VERIFY ALL INTERCONNECTION REQUIREMENTS WITH PACKAGE SYSTEM VENDOR. PROVIDE ALL WIRING FOR A COMPLETE & FUNCTIONAL SYSTEM.

PANEL: LP-BPS-1		BUS: 100A		VOLTAGE: 120/240V, 1PH, 3 WIRE				
FEEDER: SEE POWER RISER		MAIN BRKR: 100A M.C.B		MOUNTING: SURFACE				
CKT NO.	CIRCUIT DESCRIPTION	CKT BREAKER POLES/AMPS	LOAD Type	Volt-Amps PHASE	LOAD Type	CKT BREAKER POLES/AMPS	CIRCUIT DESCRIPTION	CKT NO.
1	INTERIOR LIGHTS	1-20	L	372 A	1500 H	2-30	GENERATOR HEATER	2
3	EXTERIOR LIGHTS	1-20	L	105 B	1500 H	---	---	4
5	RECEPTACLES, GCFI	1-20	R	540 A	200 Z	1-20	GENERATOR BATTERY CHARGER	6
7	PCV-110 & PCV-120	1-20	Z	200 B	200 Z	1-20	GENERATOR CONTROL PANEL	8
9	PCV-130 (& PCV-140 FUTURE)	1-20	Z	200 A	1500 Z	1-20	BPS-TCP-1	10
11	CHEM. PUMP P-160 (FUTURE)	1-20	R	180 B	100 Z	1-20	FIT-101	12
13	CHEM. PUMP P-170 (FUTURE)	1-20	R	180 A	100	1-20	PIT-101 & PIT-102	14
15	CL2 ANALYZER AFC-161	1-20	R	180 B		1-20	SPARE	16
17	CL2 ANALYZER AFC-162 (FUTURE)	1-20	R	180 A		1-20	SPARE	18
19	SPARE	1-20				1-20	SPARE	20
21	SPARE	1-20				1-20	SPARE	22
23	SPARE	1-20					SPACE	24
25	SPARE						SPACE	26
27	SPARE						SPACE	28
29	SPARE						SPACE	30
CONNECTED LOAD		TOTAL LOAD	NOTES.....				
LOAD PER PHASE (VA)		A=	4772	A=	5134	1.		
		B=	2465	B=	2827	2.		
LOAD PER PHASE (AMPS)		A=	39.77	A=	42.78	3.		
		B=	20.54	B=	23.56	4.		
TOTAL LOAD (KVA)		7.24		7.96		5.		
SPARE CAPACITY		10.00%	0.72	DATE 08-Nov-12				



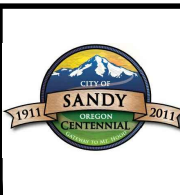
NO.	DATE	BY	REVISION
08/14	SMR	RECORD DRAWINGS	

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

SMR DESIGNED
JDR DRAWN
GHS CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc. Engineers/Planners
121 S.W. Salmon, Suite 900 PHOENIX 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

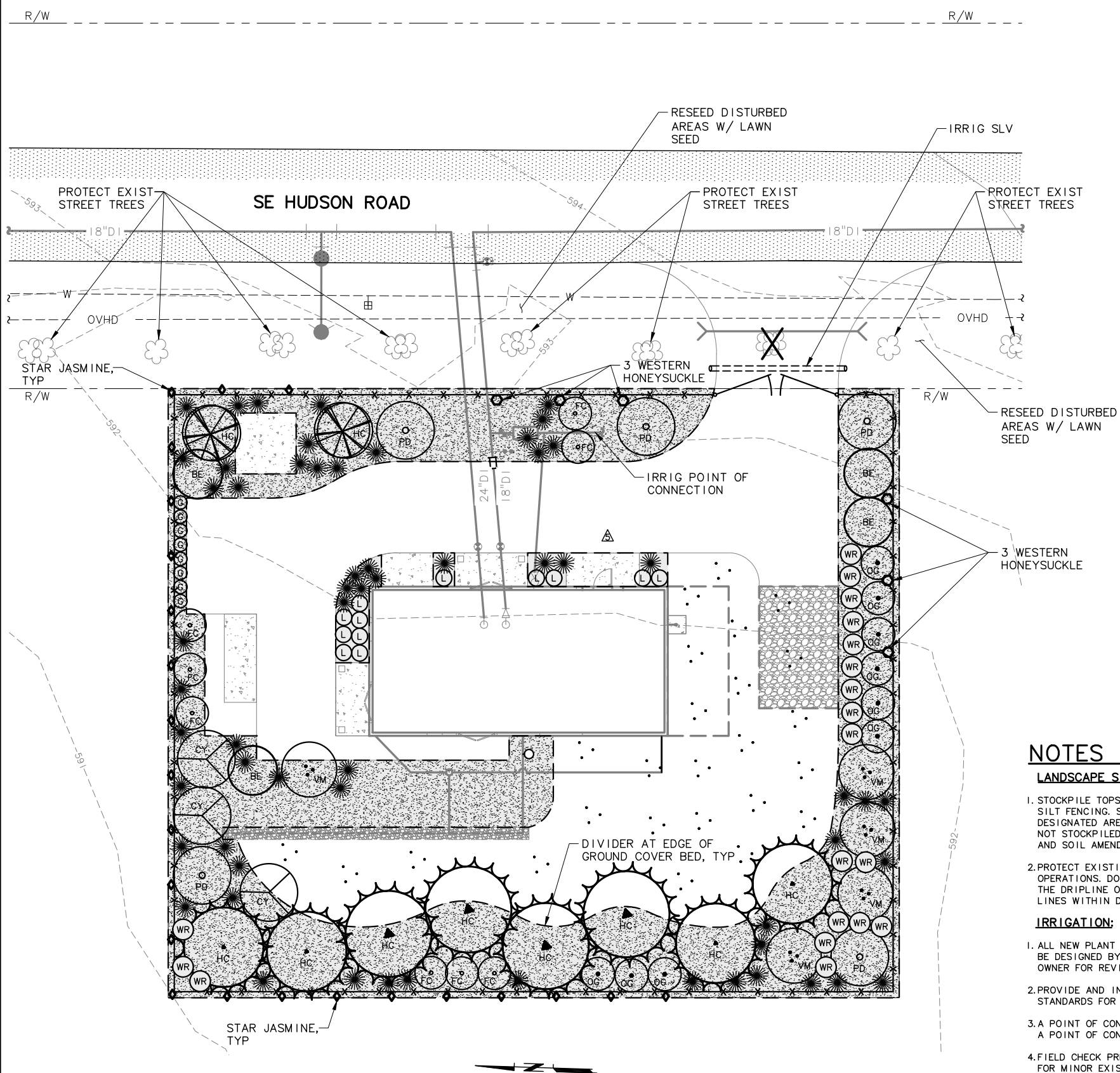


CITY OF SANDY PWB INTERTIE PROJECT

BOOSTER PUMP STATION SCHEDULES AND DETAILS
PROJECT NO.: 11-1265.105 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-E-3
115 of 123

C:\PDX_Projects\111265\CAD\DR\PROJECTS\SCHED_C\ADDENDUM_2\11-1265-224-OR-BPS-L-1\10/30/2014 4:32 PM DAK 20.0s (LMS Tech)



NOTE: LANDSCAPING WAS ADJUSTED FOR SIMILAR SPECIES WHERE REQUIRED DUE TO AVAILABILITY.

PLAN
SCALE: 1"=10'

PLANT LIST

SYMBOL	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	QUANTITY
TREES					
HC	ABIES NORDMANNIANA	NORDMAN FIR	6-8' B&B	15' OC	4
HC	THUJA PLICATA "HOGAN"	HOGAN CEDAR	5-6' B&B	15' OC	4
VM	ACER CIRCINATUM	VINE MAPLE (CLUMP)	5 GC	12' OC	5
CY	CHAMAECYPARIS OBTUSA "GRACILIS"	HINOKI CYPRESS	6'-8' B&B	10' OC	3
PD	CORNUS "EDDIE'S WHITE WONDER"	WHITE WONDER DOGWOOD	2" CAL	AS SHOWN	5
HC	PSUEDOTSUGA MENZIESII	DOUGLAS FIR	4-5' B&B	15' OC	4
HC	THUJA PLICATA "HOGAN"	HOGAN CEDAR	5-6' B&B	15' OC	4
HC	THUJA PLICATA "HOGAN"	HOGAN CEDAR	6-8' B&B	12' OC	2
LARGE SHRUBS					
OG	BERBERIS AQUIFOLIUM	OREGON GRAPE	2 GC	6' OC	9
FC	RIBIES SANGUINEUM	FLOWERING CURRANT	5 GC	6' OC	8
BE	SAMBUCUS NIGRA "BLACK BEAUTY"	BLACK ELDERBERRY	3 GC	8' OC	4
G	THUJA OCCIDENTALIS "YELLOW RIBBON"	YELLOW RIBBON ARBORVITAE	2 GC	3' OC	8
SMALL SHRUBS					
L	BERBERIS NERVOSA	LONGLEAF MAHONIA	1 GC	3' OC	16
☼	POLYSTICHUM MUNITUM	SWORD FERN	1 GC	AS SHOWN	64
WR	ROSA WOODSII	WOODS ROSE	1 GC	3' OC	19
VINES					
○	LONICERA CILIOSA	WESTERN HONEYSUCKLE	1 GC	AS SHOWN	6
◇	TRACHELOSPERMUM JASMINOIDES	STAR JASMINE	1 GC	AS SHOWN	23
GROUND COVER					
■	WALDSTEINIA FRAGROIDES	BARREN STRAWBERRY	4" POT	30" OC	800
SEED MIX					
HOBBS AND HOPKINS LTD. PRO-TIME 706 FRAGRANT HERBAL MIX SEED AT A RATE OF 1# PER 1,000 SF					
☼	EXISTING TREES TO REMAIN				
✕	EXISTING TREE TO BE REMOVED				

NOTES

LANDSCAPE SITE WORK:

- STOCKPILE TOPSOIL FOR USE IN THE LANDSCAPE PLANTING WORK AND INSTALL TEMPORARY SILT FENCING. SUBGRADE SOILS ARE NOT TO BE USED IN PLANTING PITS. STOCKPILE IN DESIGNATED AREA(S) AT THE DISCRETION OF THE ENGINEER. IF SUFFICIENT TOPSOIL IS NOT STOCKPILED IMPORTED TOPSOIL MAY BE REQUIRED. SEE SPECIFICATIONS FOR TOPSOIL AND SOIL AMENDMENT REQUIREMENTS.
- PROTECT EXISTING STREET TREES DESIGNATED TO REMAIN FROM ALL CONSTRUCTION OPERATIONS. DO NOT ENCR OACH UPON, FILL, OR OTHERWISE DISTURB THE AREA WITHIN THE DRIPLINE OF TREES TO BE PRESERVED. NO TRENCHING OR BORING OF IRRIGATION LINES WITHIN DRIPLINE OF TREES TO REMAIN.

IRRIGATION:

- ALL NEW PLANT MATERIAL TO BE IRRIGATED WITH AN AUTOMATIC SPRINKLER SYSTEM, TO BE DESIGNED BY THE CONTRACTOR. SUBMIT PROPOSED SYSTEM LAYOUT TO ENGINEER AND OWNER FOR REVIEW.
- PROVIDE AND INSTALL SYSTEM COMPONENTS AS NECESSARY CONFORMING TO ACCEPTABLE STANDARDS FOR THE INDUSTRY.
- A POINT OF CONNECTION FOR THE WATER METER AND BACKFLOW PREVENTER ARE PROVIDED. A POINT OF CONNECTION IS SHOWN FOR THE SUPPLY LINE AND ELECTRICAL SERVICE.
- FIELD CHECK PRESSURE AND FLOW BEFORE COMMENCING WORK. MAKE FIELD ADJUSTMENTS FOR MINOR EXISTING SITE FEATURES AND CONDITIONS THAT MAY NOT BE SHOWN ON THE DRAWINGS.
- COORDINATE SLEEVING ACROSS PAVEMENT AS NEEDED. ALL PIPELINES AND WIRES UNDER PAVEMENT SHALL BE SLEEVED, MINIMUM SIZE = 4" DIAMETER SLEEVE.
- INSTALL DETECTABLE TRACE TAPE OVER ALL UNDERGROUND PIPING AND CONTROL WIRING.

- INSTALL WINTERIZATION ASSEMBLY AND MANUAL DRAIN VALVES AT LOW POINTS OF THE SYSTEM AS NEEDED TO PROVIDE PROPER DRAINAGE.

PLANTING:

- CHECK AND CONFIRM PLANT MATERIAL QUANTITIES. NO SUBSTITUTIONS WILL BE ALLOWED. CONTRACTOR TO SECURE AVAILABILITY OF PLANT MATERIAL 3 MONTHS PRIOR TO COMMENCEMENT OF WORK.
- PLANT VINES ON FENCE - CENTERED BETWEEN FENCE POSTS/SECTIONS.
- A MYCORRHIZAL ADDITIVE IS REQUIRED FOR ALL SEEDING AND PLANTING OPERATIONS.
- GUY ALL CONIFER TREES AS SHOWN IN DETAILS.
- MULCH ALL NEW PLANTING PITS AND BEDS WITH 3" DEPTH OF COMPOSTED GARDEN MULCH PRODUCT (MINIMUM 24-INCH DIAMETER AROUND EACH TREE). BARK CHIPS OR BARK DUST ARE NOT ACCEPTABLE.
- GUARANTEE GERMINATION OF SEED PRIOR TO OCTOBER 1. PREFERRED PLANTING SEASONS ARE MARCH 15 TO JUNE 1 AND SEPTEMBER 15 TO NOVEMBER 1.
- PLANT MATERIAL WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND GUARANTEED AFTER COMPLETION OF THE PROJECT FOR A PERIOD OF 2 YEARS.
- ALL TREES AND SHRUBS TO BE INSTALLED WITH GUARDS AS DETERRENENTS TO ANIMAL BROWSE. PROTECTIVE GUARDS MAY BE FLEXIBLE PLASTIC MESH, SPIRALS, OR WIRE SCREENS AND STAKE FASTENERS. SUBMIT PROPOSED ANIMAL GUARD METHOD OR PRODUCT FOR REVIEW PRIOR TO PLANT INSTALLATION.

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING
2	11/28/12	DAM	ADDENDUM 2

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

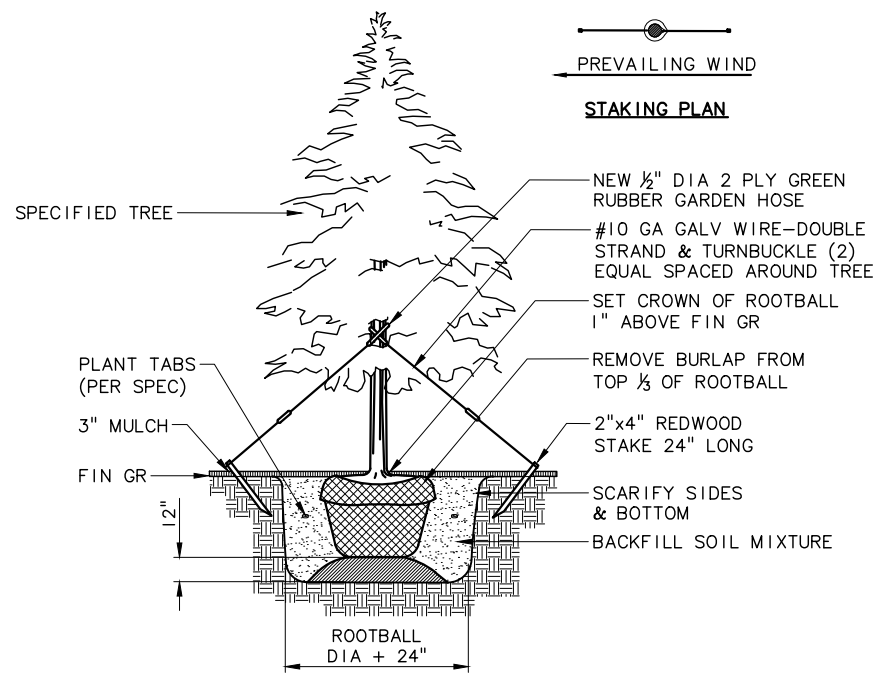
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
PLANTING PLAN

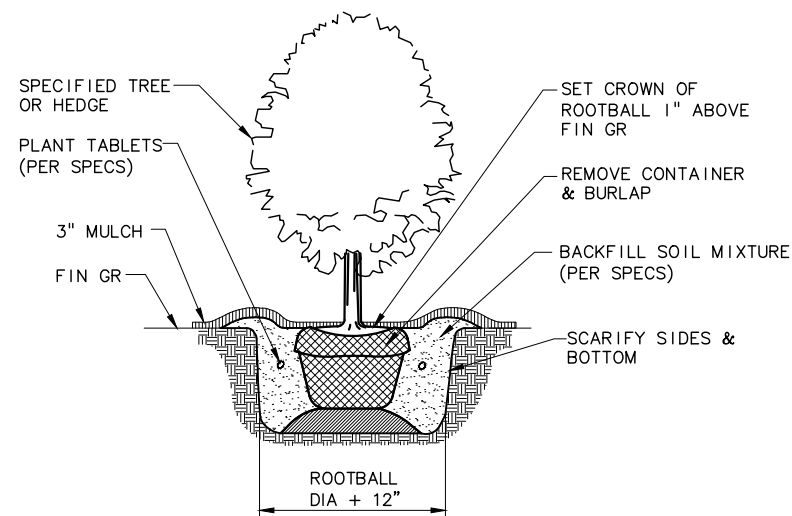
PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

SHEET
BPS-L-1
116 of 123

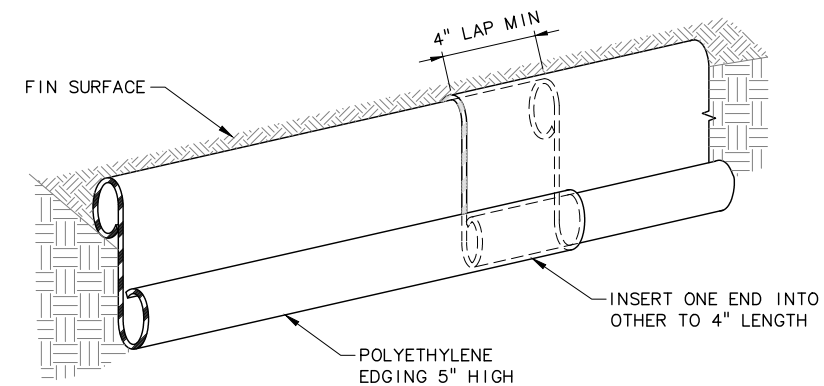
G:\PDX_Projects\11\1265\CAD\DR\SHETS\SCHED C\ADDENDUM 2\11-1265-224-OR-BPS-L-2ADD2-R.dwg BPS-L-2 10/30/2014 4:35 PM DAK 20.0s (LMS Tech)



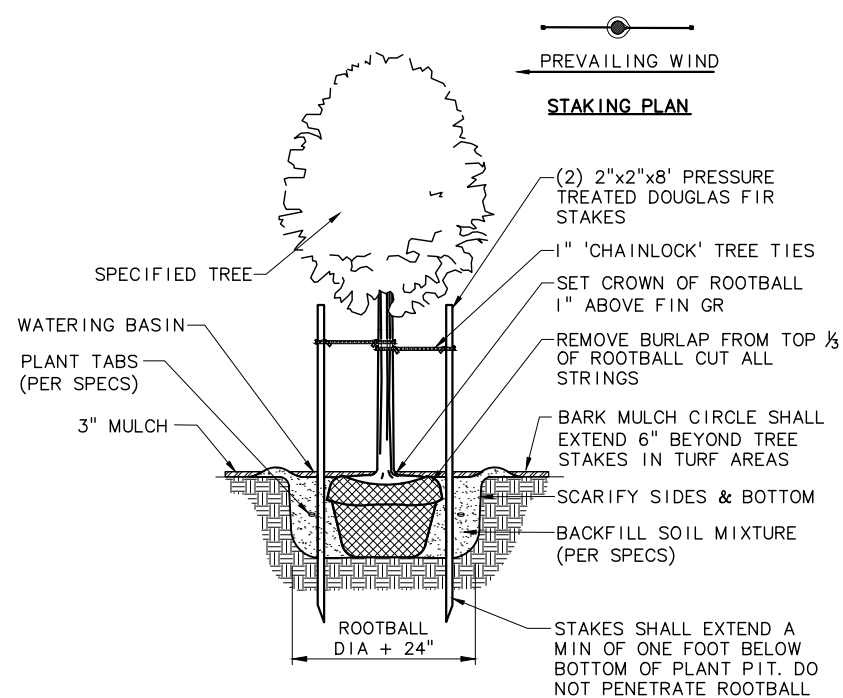
CONIFER PLANTING DETAIL ①
SCALE: NTS



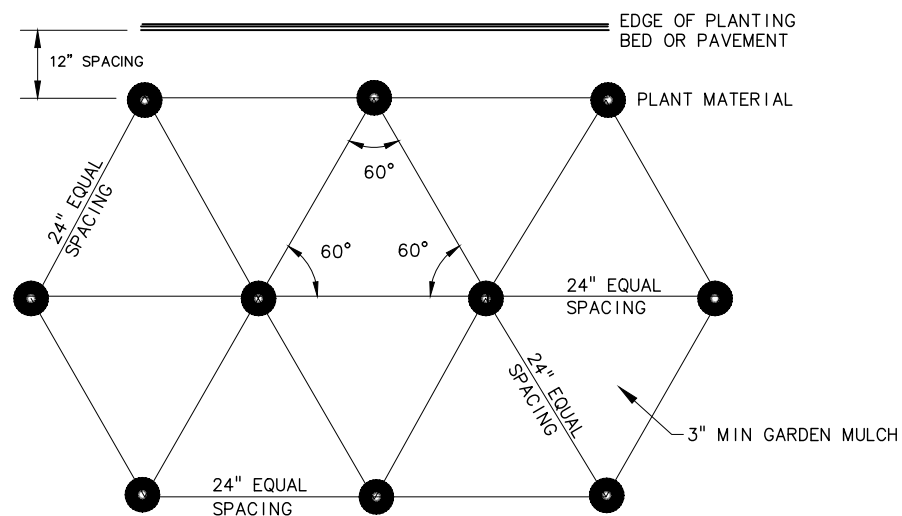
LARGE SHRUB AND HEDGE PLANTING DETAIL ②
SCALE: NTS



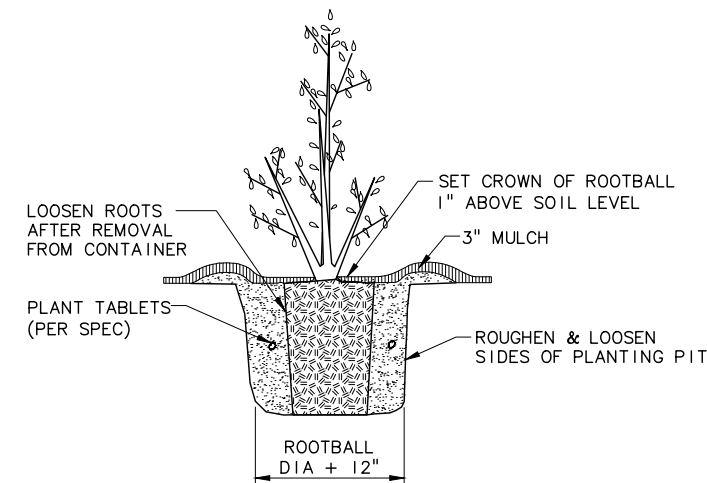
DIVIDER DETAIL ③
SCALE: NTS



TREE PLANTING DETAIL ④
SCALE: NTS



GROUNDCOVER SPACING DETAIL ⑤
SCALE: NTS



CONTAINER PLANTING (VINE OR SHRUB) ⑥
SCALE: NTS

NO.	DATE	BY	REVISION
1	08/14	JHF	RECORD DRAWING
2	11/28/12	DAM	ADDENDUM 2

NOTICE	
0	1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	
SO DESIGNED	JHF
SO DRAWN	JHF
SO CHECKED	JHF

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

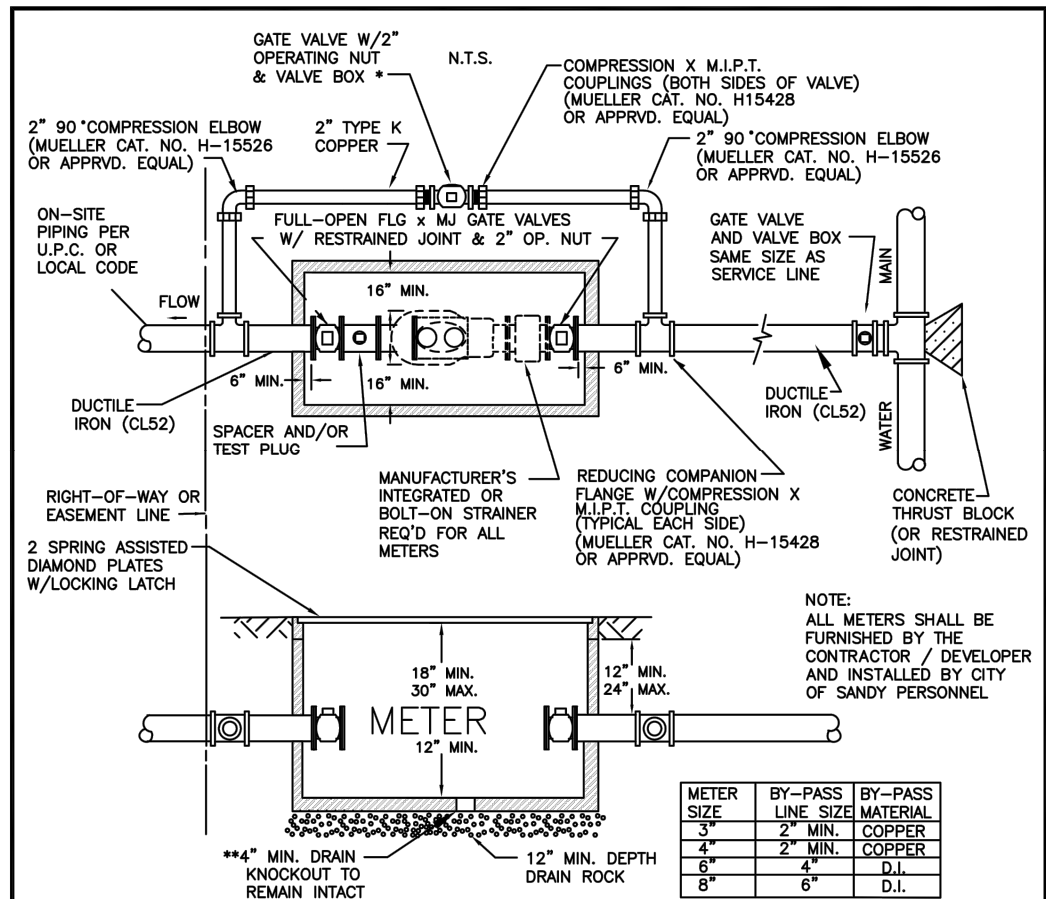
MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE C
BOOSTER PUMP STATION

BOOSTER PUMP STATION
LANDSCAPING DETAILS

PROJECT NO.: 11-1265 SCALE: AS SHOWN DATE: NOVEMBER 2012

C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg SVA-C-1 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)



Vault shall be sized to allow for min. clearances.
 Traffic rated vault req'd. in areas subject to vehicle traffic.

NOTE:
 FIVE PIPE DIAMETERS OF STRAIGHT PIPE REQUIRED UPSTREAM & DOWNSTREAM OF METER.
 (EXAMPLE: IF USING 4" PIPE, NO BENDS, REDUCERS, ETC. ALLOWED WITHIN 20" OF METER IN EITHER DIRECTION)
 METER SHALL REGISTER IN CUBIC FEET. METER SHALL HAVE FLANGED ENDS AND BE EQUIPPED WITH TEST PLUG AND INTEGRAL STRAINER.

** DRAIN KNOCKOUT TO REMAIN FOR FUTURE USE IF VAULT IS PRONE TO FLOODING.
 * METERED BYPASS REQUIRED WHEN SPECIFIED - SEE SANDY042.DWG FOR CONSTRUCTION DETAILS.

METER SIZE	BY-PASS LINE SIZE	BY-PASS MATERIAL
3"	2" MIN.	COPPER
4"	2" MIN.	COPPER
6"	4"	D.I.
8"	6"	D.I.

APPROVED VAULTS:
 UTILITY VAULT CO.
 #575-LA-3660P
 #676-WA-3660P

NOMINAL SIZE	MODEL & VENDOR	MODEL & VENDOR
3"	BADGER RECORDALL COMPOUND	SENSUS OMNI C2 UNITED PIPE 503-288-6271
	GENPAC WATER 503-257-0327	
4"	BADGER RECORDALL COMPOUND	SENSUS OMNI C2 UNITED PIPE 503-288-6271
	GENPAC WATER 503-257-0327	

CITY OF SANDY

STANDARD 3" AND 4" NOMINAL SIZE METER INSTALLATION

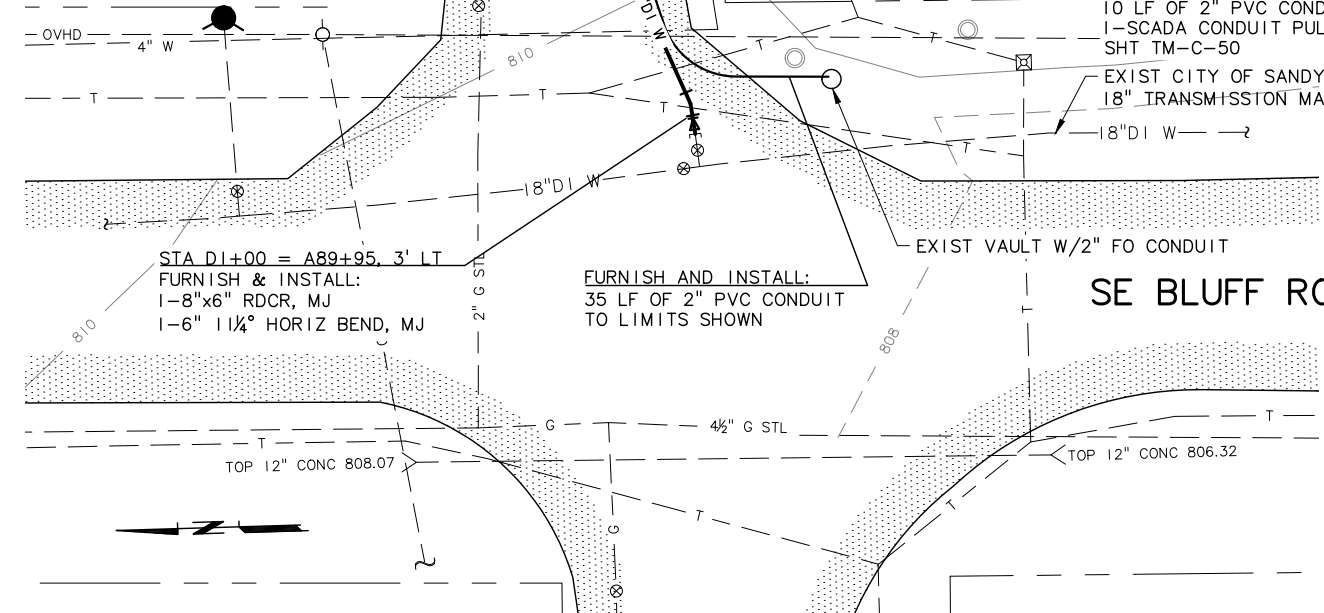
DATE: DEC 2003	DRAWING NO. 408C
----------------	------------------

FILENAME: SANDY043C.DWG

STA D1+58
 FURNISH AND INSTALL:
 1-6" TEE, MJ
 1-6" PLUG, MJ, TAPPED FOR 2" MIPT CONN

FURNISH & INSTALL:
 2" COP, TYPE K
 LENGTH AND FITTINGS AS REQ'D

STA D1+25
 FURNISH & INSTALL:
 1-6" TEE, MJ
 1-6" 22 1/2° HORIZ BEND, MJ
 1-6" GV, MJ
 1-6" PLUG, MJ, TAPPED FOR 2" MIPT CONN
 1-6"x4" RDCR, MJ



PLAN
 SCALE: 1"=10'

NOTES:

- ALL NEW PIPE SHALL BE RESTRAINED DUCTILE IRON, CLASS 52 MINIMUM.
- POLYWRAP ALL DI FITTINGS AND METAL PIPING WITHIN 10 FEET FROM STEEL GAS MAIN.
- CONTRACTOR TO POTHOLE EXISTING 4" WATER MAIN AND CONFIRM DEPTHS AND CONDITION PRIOR TO ORDERING MATERIALS.
- CITY OF SANDY STANDARD DRAWING NO. 408C IS PROVIDED FOR REFERENCE REGARDING GENERAL INSTALLATION OF FLOW METER AND BYPASS LINE. REFER TO DETAILS ON SHEET SVA-C-2 FOR SPECIFIC MATERIALS AND INSTALLATION REQUIREMENTS.
- VAULTS ARE TO BE SET SUCH THAT CENTER OF MANHOLE LIDS ARE LOCATED OUTSIDE OF THE WHEEL PATH (5.5 FEET FROM EDGE OF PAVEMENT).
- AT CONTRACTOR'S OPTION AND SUBJECT TO THE CURRENT CONDITION OF THE EXISTING PVC PIPE IN THE FIELD, TRANSITION COUPLINGS AT CONNECTION POINTS MAY BE REPLACED WITH DI LONG SLEEVES AND PVC MECHANICAL JOINT FOLLOWER GLANDS, MODEL 2004PV BY EBAA IRON OR APPROVED EQUAL.

RECORD DRAWINGS

THIS DRAWING IS FOR RECORD PURPOSES ONLY, AND HAS BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS RELATIVE TO REPORTED CONSTRUCTED CONDITIONS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, MURRAY, SMITH & ASSOCIATES, INC. MAKES NO ASSURANCES, STATED OR IMPLIED, AS TO THE ACCURACY OF THIS DRAWING. THOSE RELYING ON THIS RECORD DRAWING FOR ANY PURPOSE ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY. CONTRACT MODIFICATION INFORMATION, FABRICATOR'S SHOP DRAWINGS AND OTHER PROJECT SUBMITTAL INFORMATION PROVIDED BY THE CONTRACTOR WHICH FURTHER CLARIFY DETAILS OF CONSTRUCTION MAY BE ON FILE. SEE ORIGINAL CONTRACT DRAWINGS FOR ENGINEER'S SEAL AND SIGNATURES.

VERSION 4.1 12-9-97

NO.	DATE	BY	REVISION
10/14	JHF	RECORD DRAWING	

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF DESIGNED
 JHF DRAWN
 LLA CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1 12-9-97

MSA Murray Smith & Associates, Inc.
 Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY

PWB INTERTIE PROJECT

SCHEDULE D

SKYVIEW ACRES

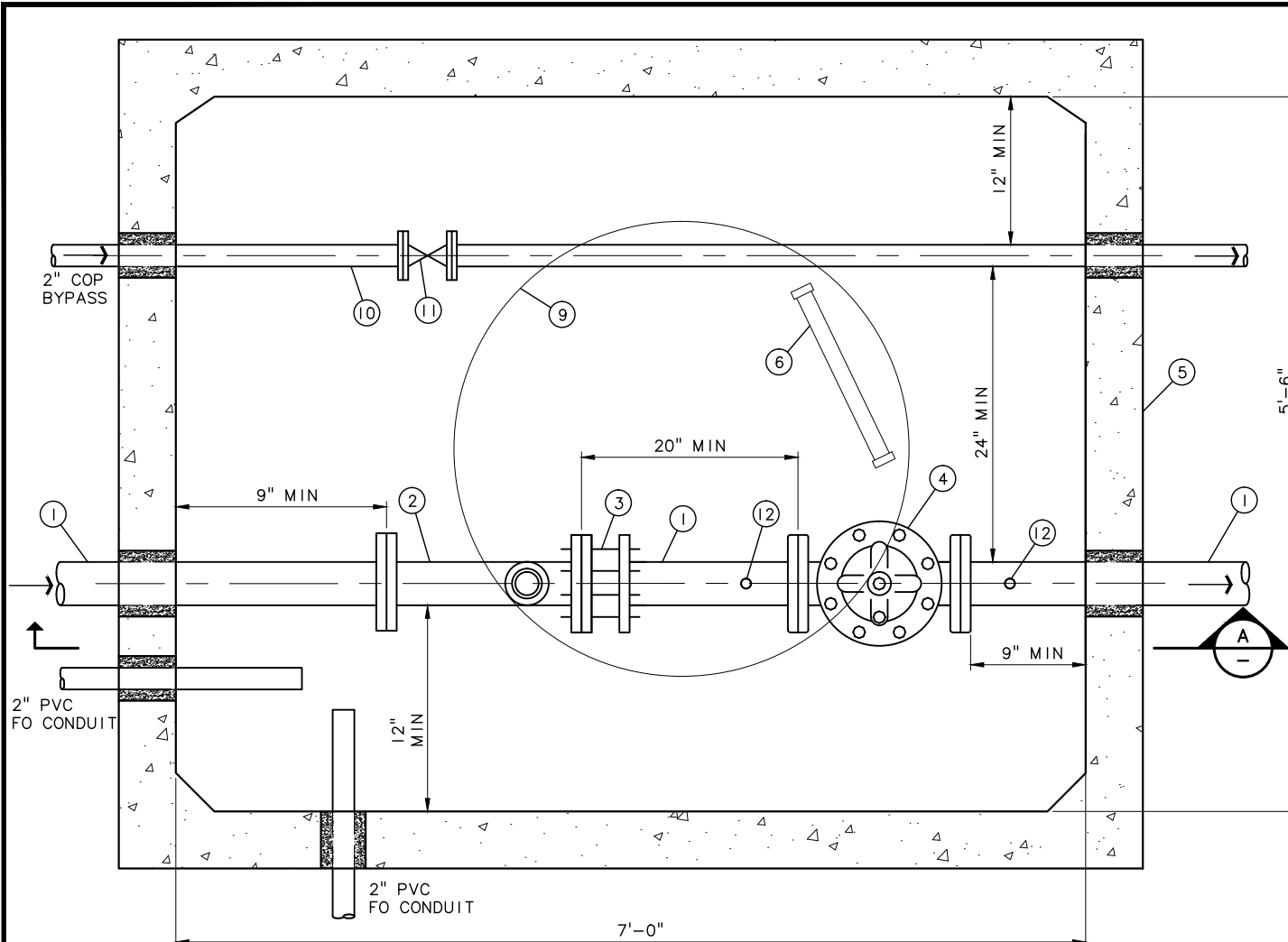
SUPPLY INTERTIE

SE HAUGLUM RD CONNECTION

SITE PLAN

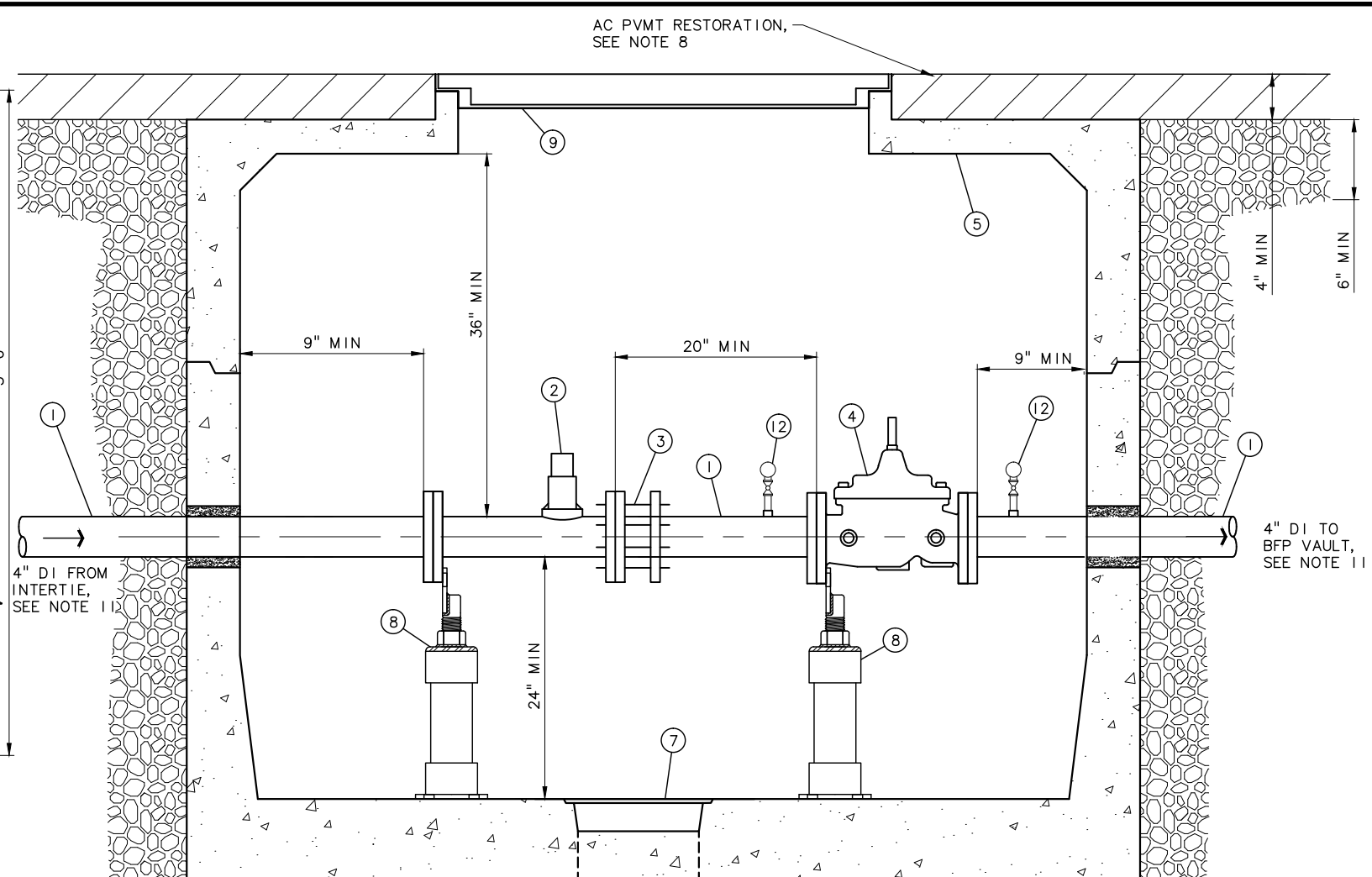
PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014

C:\PDX_Projects\111265\CAD\DR\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg SVA-C-2 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)



FLOW METER AND PRESSURE REDUCING VALVE VAULT PLAN

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



SECTION A-A
SCALE: 1 1/2" = 1' - 0"

MATERIAL LIST:

- ① 4" DI SPL, FLGxPE, LENGTH AS REQ'D
- ② 4" FLOW METER, SENSUS MODEL OMNI C2, WITHOUT EXCEPTION
- ③ 4" FLG ADAPTER MEGAFLANGE BY EBAA IRON OR APPVD EQL
- ④ 4" PRV, FLG, CLA-VAL MODEL 90-48 OR APPVD EQL
- ⑤ PRECAST CONC VAULT, OLDCASTLE PRECAST MODEL 676-LA W/ NO. 676-T-42C TOP, OR APPVD EQL
- ⑥ ACCESS LADDER
- ⑦ 12" DIA FLOOR DRAIN KNOCKOUT
- ⑧ STANDON MODEL S89 FLG ADJUSTABLE PIPE SUPPORT OR APPVD EQL
- ⑨ 42" DIA MH ACCESS LID, PROVIDE CONG RISERS AS REQD
- ⑩ 2" COP BYPASS PIPING, SEE NOTES 2 AND 3, PIPING TO BE WRAPPED IN PE TAPE PRIOR TO SEALING PENETRATIONS
- ⑪ 2" GV W/ COMPRESSION BY MIPT CPLGS EACH SIDE OF VALVE
- ⑫ PRESSURE GAUGE ASSEMBLY, SEE DETAIL 1, SHEET BPS-M-2

- NOTES:**
1. WALL PENETRATIONS FOR PIPING TO BE PRECAST IN VAULTS, PROVIDE LINK SEAL OR NON-SHRINK GROUT AROUND PIPE PENETRATIONS.
 2. ANCHORS FOR SMALL PIPING SUPPORTS IN VAULT TO BE EXPANSION BOLTS AND SIZED APPROPRIATELY FOR THE SPECIFIED SUPPORT (1/4" MINIMUM DIAMETER).
 3. SUPPORT SMALL PIPING WITH UNISTRUT SUPPORTS OR APPROVED EQUAL. CHANNELS TO BE P1000 H3 MOUNTED TO CONCRETE WITH P2072 POSTBASE AND STRAP TO PIPE WITH P2038 CLAMP. CONNECT MEMBERS AS PER MANUFACTURER'S REQUIREMENTS.
 4. ALL VALVES, METERS AND SPECIAL FITTINGS INSIDE VAULT TO RECEIVE SHOP-APPLIED FUSION-BONDED EPOXY COATING, SEE SPECIFICATIONS.
 5. FOR ALL FLANGES NEAR WALL PENETRATIONS FOR WHICH NO DIMENSION IS GIVEN, FLANGE FACE MUST BE 9" MINIMUM FROM WALL.
 6. SPECIAL HANGERS AND SUPPORTS ARE SHOWN IN SOME LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION AND NUMBER OF ALL ADDITIONAL SUPPORTS TO PROPERLY SUPPORT PIPING, VALVES AND EQUIPMENT CONNECTIONS TO PREVENT DEFLECTION AND STRESSES.
 7. PROVIDE MINIMUM 6" THICKNESS OF COMPACTED CRUSH ROCK ON ALL SIDES OF VAULT AND UNDER PAVED ROADWAY.
 8. MATCH EXISTING AC THICKNESS WITH LEVEL 3 HMAC, PG 64-22 1/2" DENSE GRADED AGGREGATE. 4" MINIMUM (TWO 2-INCH LIFTS).
 9. INSTALL 1 CUBIC YARD DRAIN ROCK SUMP UNDER VAULT FLOOR DRAIN KNOCKOUT.
 10. PRECAST VAULT SHALL MEET STANDARDS SET FORTH IN ASTM C857 AND C858. MANHOLE FRAME AND COVER SHALL MEET AASHTO M306 STANDARDS.
 11. MAXIMUM 2 FOOT HORIZONTAL DISTANCE FROM EXTERIOR EDGE OF VAULT TO NEAREST MECHANICAL JOINT FITTING.

NO.	DATE	BY	REVISION
10/14	JHF	RECORD DRAWING	

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF DESIGNED
JHF DRAWN
LLA CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

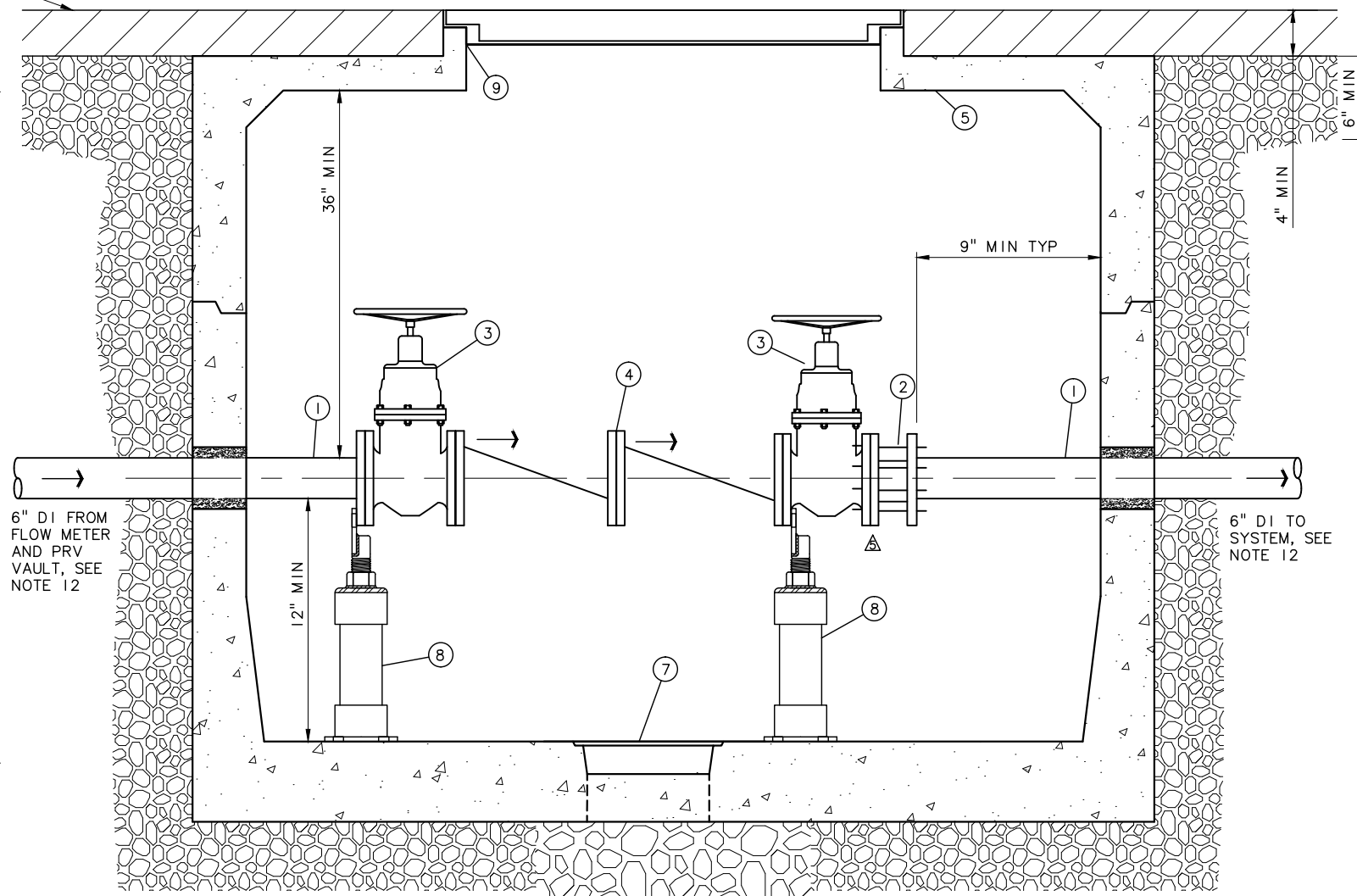
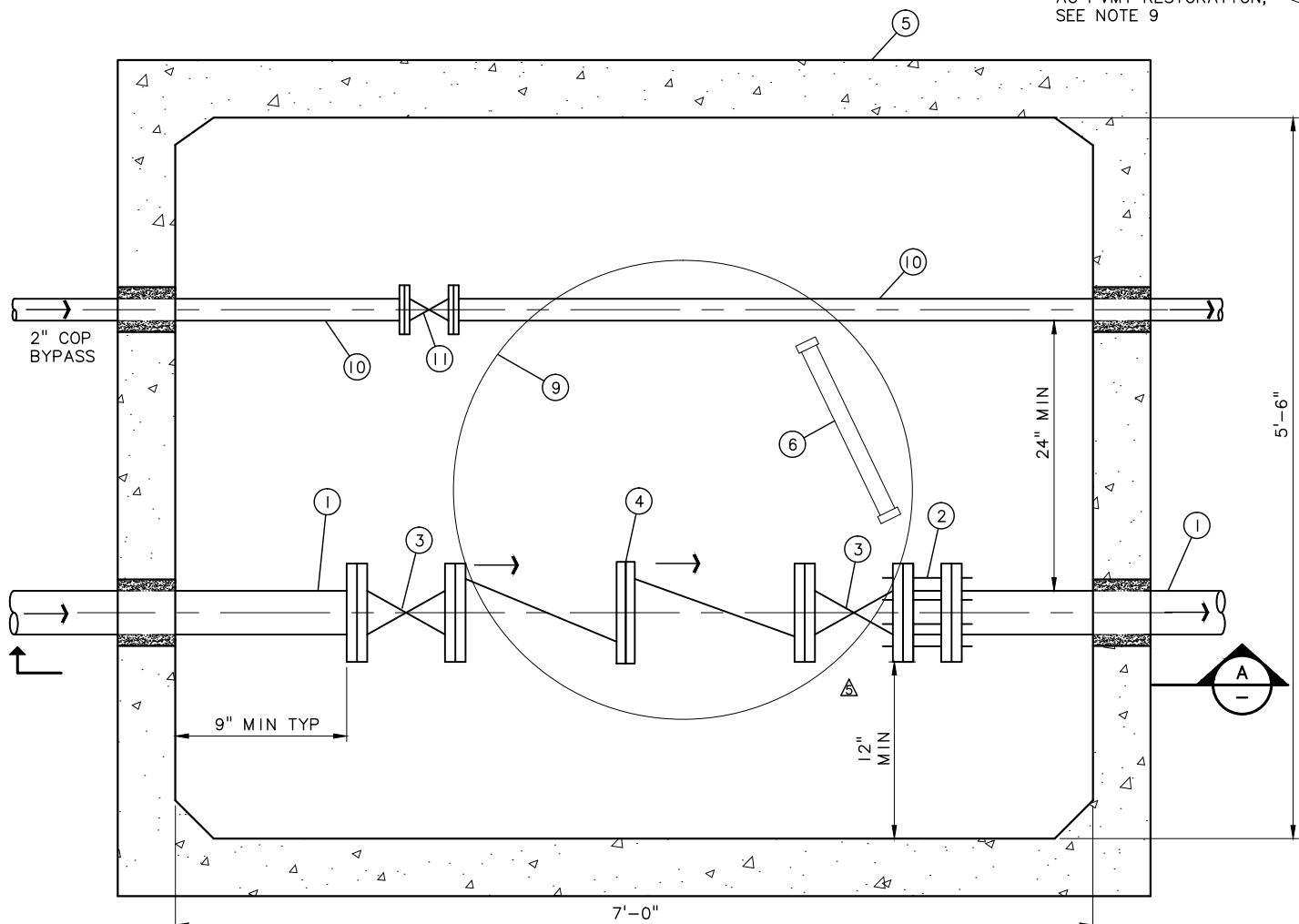
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE D
SKYVIEW ACRES
SUPPLY INTERTIE

FLOW METERING AND PRESSURE REDUCING VALVE VAULT

PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014

C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg SVA-C-3 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)

AC PVMT RESTORATION,
SEE NOTE 9



DOUBLE CHECK BACKFLOW PREVENTER VALVE VAULT

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

NOTES:

1. WALL PENETRATIONS FOR PIPING TO BE PRECAST IN VAULTS, PROVIDE LINK SEAL OR NON-SHRINK GROUT AROUND ALL PIPE PENETRATIONS.
2. ANCHORS FOR SMALL PIPING SUPPORTS IN VAULT TO BE EXPANSION BOLTS AND SIZED APPROPRIATELY FOR THE SPECIFIED SUPPORT (1/4" MINIMUM DIAMETER).
3. SUPPORT SMALL PIPING WITH UNISTRUT SUPPORTS OR APPROVED EQUAL. CHANNELS TO BE P1000 H3 MOUNTED TO CONCRETE WITH P2072 POSTBASE AND STRAP TO PIPE WITH P2038 CLAMP. CONNECT MEMBERS AS PER MANUFACTURER'S REQUIREMENTS.
4. ALL VALVES, METERS AND SPECIAL FITTINGS INSIDE VAULT TO RECEIVE SHOP-APPLIED FUSION-BONDED EPOXY COATING, SEE SPECIFICATIONS.
5. FOR ALL FLANGES NEAR WALL PENETRATIONS FOR WHICH NO DIMENSION IS GIVEN, FLANGE FACE MUST BE 9" MINIMUM FROM WALL.
6. SPECIAL HANGERS AND SUPPORTS ARE SHOWN IN SOME LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION AND NUMBER OF ALL ADDITIONAL SUPPORTS TO PROPERLY SUPPORT PIPING, VALVES AND EQUIPMENT CONNECTIONS TO PREVENT DEFLECTION AND STRESSES.
7. FOLLOW ALL BACKFLOW PREVENTION ASSEMBLY INSTALLATION STANDARDS STIPULATED IN ORS 333-061-0071.
8. PROVIDE MINIMUM 6" THICKNESS OF COMPACTED CRUSH ROCK ON ALL SIDES OF VAULT AND UNDER PAVED ROADWAY.
9. MATCH EXISTING AC THICKNESS, OR 4" MINIMUM, WITH LEVEL 3 HMAC, PG 64-22 1/2" DENSE GRADED AGGREGATE.
10. INSTALL 1 CUBIC YARD DRAIN ROCK SUMP UNDER VAULT FLOOR DRAIN KNOCKOUT.
11. PRECAST VAULT SHALL MEET STANDARDS SET FORTH IN ASTM C857 AND C858. MANHOLE FRAME AND COVER SHALL MEET AASHTO M306 STANDARDS.
12. MAXIMUM 2 FOOT HORIZONTAL DISTANCE FROM EXTERIOR EDGE OF VAULT TO NEAREST MECHANICAL JOINT FITTING.

MATERIAL LIST:

- ① 6" DI SPL, FLGxPE, LENGTH AS REQ'D
- ② 6" FLG ADAPTER MEGAFLANGE BY EBAA IRON OR APPVD EQL
- ③ 6" GV, FLG
- ④ 6" DOUBLE CHECK VALVE ASSY, FLG, SERIES LF 709 757 BY WATTS OR APPVD EQL
- ⑤ PRECAST CONC VAULT, OLDCASTLE PRECAST MODEL 676-LA W/ NO. 676-T-42C TOP, OR APPVD EQL
- ⑥ ACCESS LADDER
- ⑦ 12" DIA FLOOR DRAIN KNOCKOUT
- ⑧ STANDON MODEL S89 FLG ADJUSTABLE PIPE SUPPORT OR APPVD EQL
- ⑨ 42" DIA MH ACCESS LID, PROVIDE CONC RISERS AS REQD
- ⑩ 2" COP BYPASS PIPING, SEE NOTES 2 AND 3, PIPING TO BE WRAPPED IN PE TAPE PRIOR TO SEALING PENETRATIONS
- ⑪ 2" GV W/ COMPRESSION BY MIPT CPLGS EACH SIDE OF VALVE

SECTION

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

NO.	DATE	BY	REVISION
1	10/14	JHF	RECORD DRAWING

NOTICE

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF DESIGNED
JHF DRAWN
LLA CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

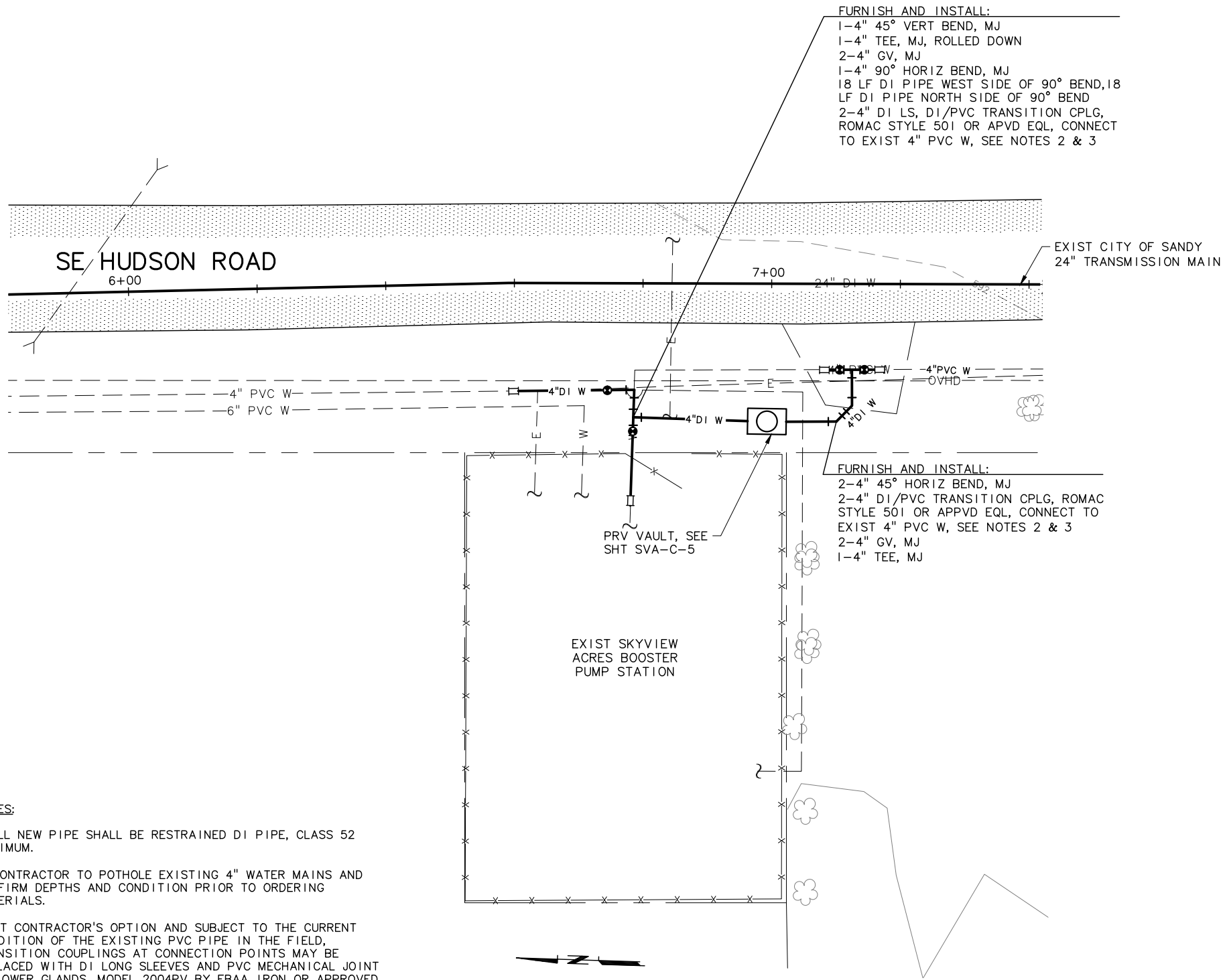
CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE D
SKYVIEW ACRES
SUPPLY INTERTIE

DOUBLE CHECK BACKFLOW PREVENTER VALVE VAULT

PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014

SHEET
SVA-C-3
120 of 123

C:\PDX_Projects\11\1265\CAD\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg SVA-C-4 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)



NOTES:

1. ALL NEW PIPE SHALL BE RESTRAINED DI PIPE, CLASS 52 MINIMUM.
2. CONTRACTOR TO POTHOLE EXISTING 4" WATER MAINS AND CONFIRM DEPTHS AND CONDITION PRIOR TO ORDERING MATERIALS.
3. AT CONTRACTOR'S OPTION AND SUBJECT TO THE CURRENT CONDITION OF THE EXISTING PVC PIPE IN THE FIELD, TRANSITION COUPLINGS AT CONNECTION POINTS MAY BE REPLACED WITH DI LONG SLEEVES AND PVC MECHANICAL JOINT FOLLOWER GLANDS, MODEL 2004PV BY EBAA IRON OR APPROVED EQUAL.

PLAN
 SCALE: 1"=10'

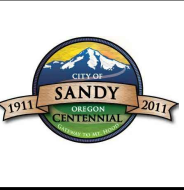
NO.	DATE	BY	REVISION
1	10/14	JHF	RECORD DRAWING

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF
 DESIGNED
 JHF
 DRAWN
 LLA
 CHECKED

RECORD DRAWING
 SEE DISCLAIMER, SHEET 1.
 VERSION 4.1
 12-9-97

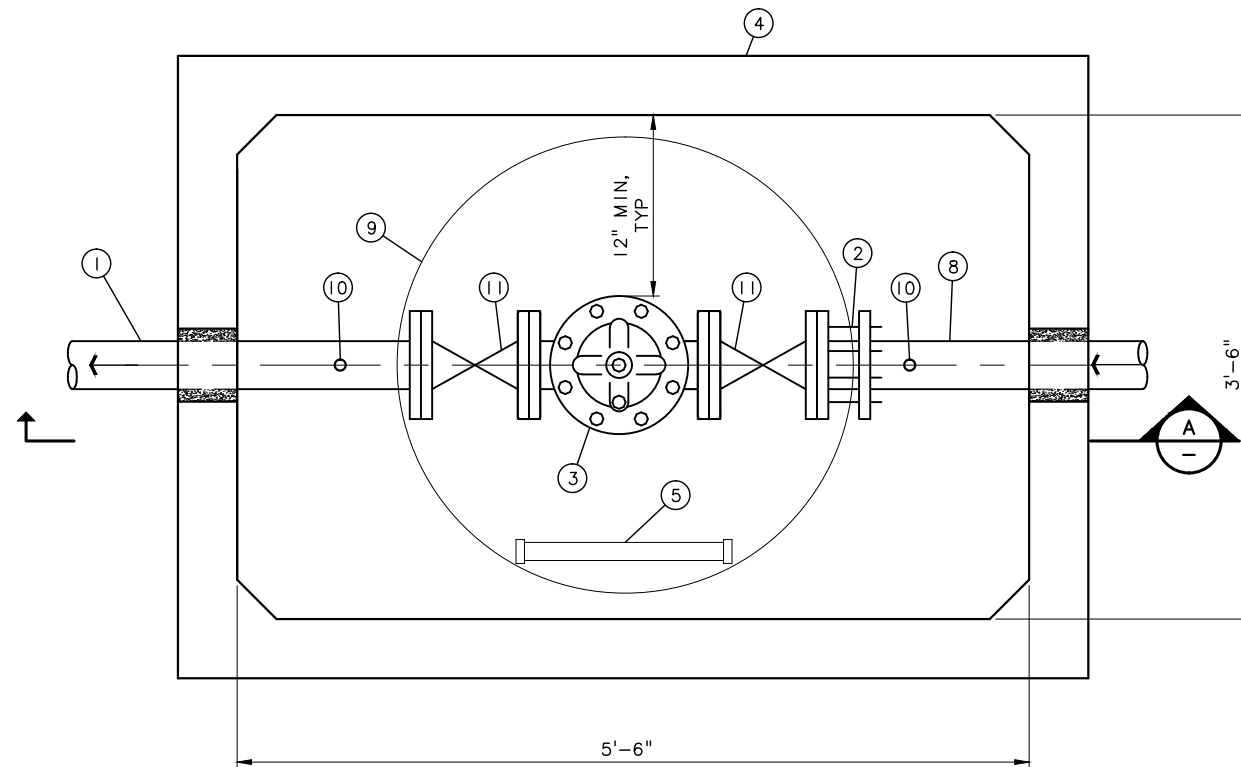
MSA Murray Smith & Associates, Inc.
Engineers/Planners
 121 S.W. Salmon, Suite 900 PHONE 503-225-9010
 Portland, Oregon 97204 FAX 503-225-9022



CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE D
SKYVIEW ACRES
SUPPLY INTERTIE

EXISTING BOOSTER PUMP STATION SITE
 PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014

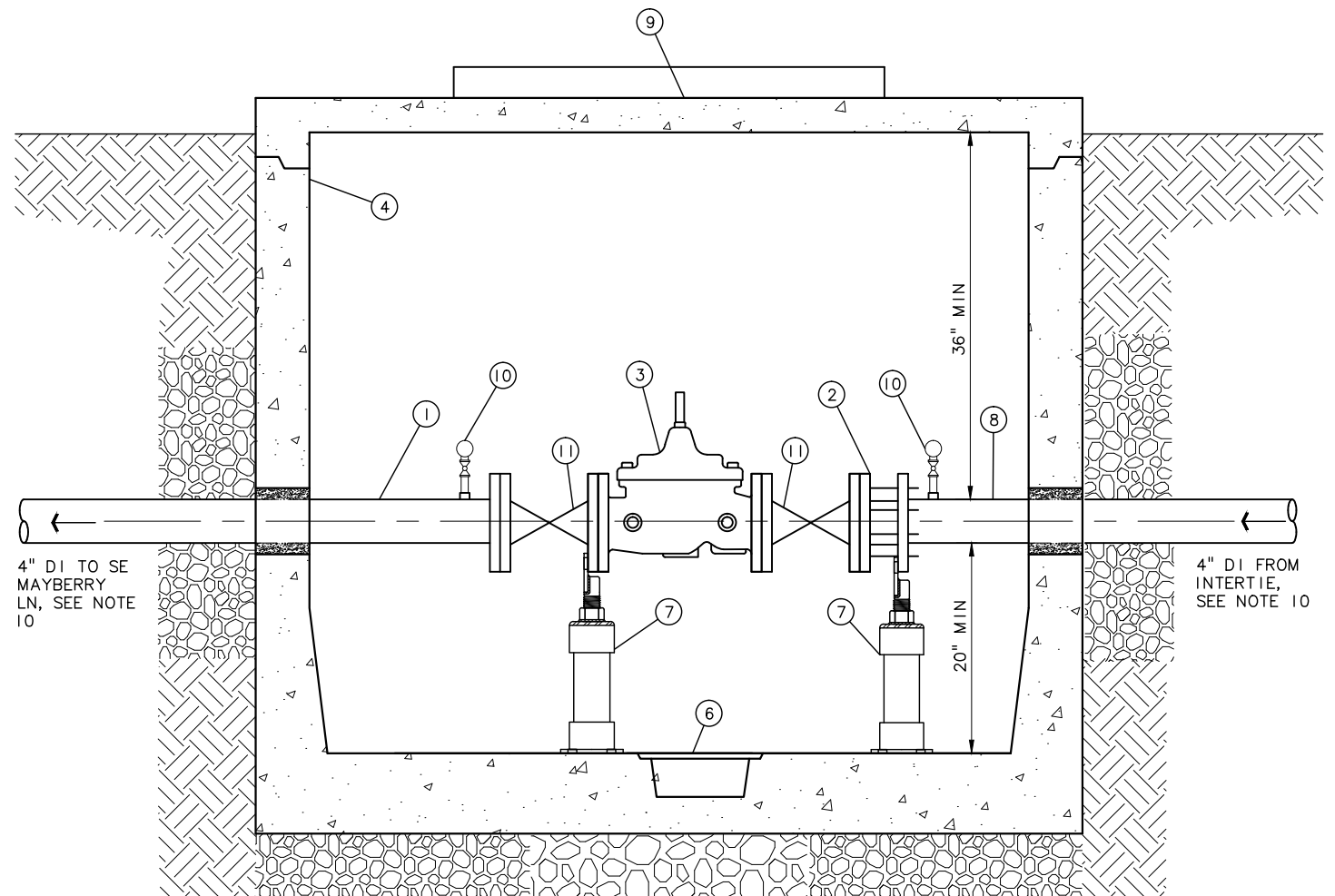
C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg SVA-C-5 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)



▲ PRESSURE REDUCING VALVE VAULT PLAN
SCALE: 1 1/2"=1'-0"

NOTES:

1. WALL PENETRATIONS FOR PIPING TO BE PRECAST IN VAULTS, ~~PROVIDE LINK SEAL~~ OR NON-SHRINK GROUT AROUND PIPE PENETRATIONS.
2. ANCHORS FOR SMALL PIPING SUPPORTS IN VAULT TO BE EXPANSION BOLTS AND SIZED APPROPRIATELY FOR THE SPECIFIED SUPPORT (1/4" MINIMUM DIAMETER).
3. SUPPORT SMALL PIPING WITH UNISTRUT SUPPORTS OR APPROVED EQUAL. CHANNELS TO BE P1000 H3 MOUNTED TO CONCRETE WITH P2072 POSTBASE AND STRAP TO PIPE WITH P2038 CLAMP. CONNECT MEMBERS AS PER MANUFACTURER'S REQUIREMENTS.
4. ALL VALVES, METERS AND SPECIAL FITTINGS INSIDE VAULT TO RECEIVE SHOP-APPLIED FUSION-BONDED EPOXY COATING.
5. FOR ALL FLANGES NEAR WALL PENETRATIONS FOR WHICH NO DIMENSION IS GIVEN, FLANGE FACE MUST BE 6" MINIMUM FROM WALL.
6. SPECIAL HANGERS AND SUPPORTS ARE SHOWN IN SOME LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION AND NUMBER OF ALL ADDITIONAL SUPPORTS TO PROPERLY SUPPORT PIPING, VALVES AND EQUIPMENT CONNECTIONS TO PREVENT DEFLECTION AND STRESSES.
7. PROVIDE MINIMUM 6" THICKNESS OF COMPACTED CRUSH ROCK UNDERNEATH VAULT.
- ~~8. INSTALL 1 CUBIC YARD DRAIN ROCK SUMP UNDER VAULT FLOOR DRAIN KNOCKOUT.~~
9. PRECAST VAULT SHALL MEET STANDARDS SET FORTH IN ASTM C857 AND C858. MANHOLE FRAME AND COVER SHALL MEET AASHTO M306 STANDARDS.
10. MAXIMUM 2 FOOT HORIZONTAL DISTANCE FROM EXTERIOR EDGE OF VAULT TO NEAREST MECHANICAL JOINT FITTING.



DRAIN ROCK SUMP, SEE NOTE 8

▲ SECTION
SCALE: 1 1/2"=1'-0"

MATERIAL LIST:

- ① 4" DI SPL, FLGxPE, LENGTH AS REQ'D
- ② 4" FLG ADAPTER MEGAFLANGE BY EBAA IRON OR APPVD EQL
- ③ 4" REDUCED PORT PRV, FLG, CLAVAL MODEL 690-48 OR APPVD EQL
- ④ PRECAST CONCRETE VAULT, OLDCASTLE PRECAST MODEL 660-LA W/ NO. 64-38C TOP, OR APPVD EQL
- ⑤ ACCESS LADDER
- ⑥ 8" DIA FLOOR DRAIN KNOCKOUT
- ⑦ STANDON MODEL S89 FLG ADJUSTABLE PIPE SUPPORT OR APPVD EQL
- ⑧ 4" DI SPL, PE, LENGTH AS REQ'D
- ⑨ 38" DIA MH ACCESS LID
- ▲ ⑩ PRESSURE GAUGE ASSEMBLY, SEE DETAIL 1, SHEET BPS-M-2
- ▲ ⑪ 4" GV, FLG

NO.	DATE	BY	REVISION
▲ 10/14	JHF	RECORD DRAWING	

NOTICE

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF DESIGNED
JHF DRAWN
LLA CHECKED

RECORD DRAWING

SEE DISCLAIMER, SHEET 1.

VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners

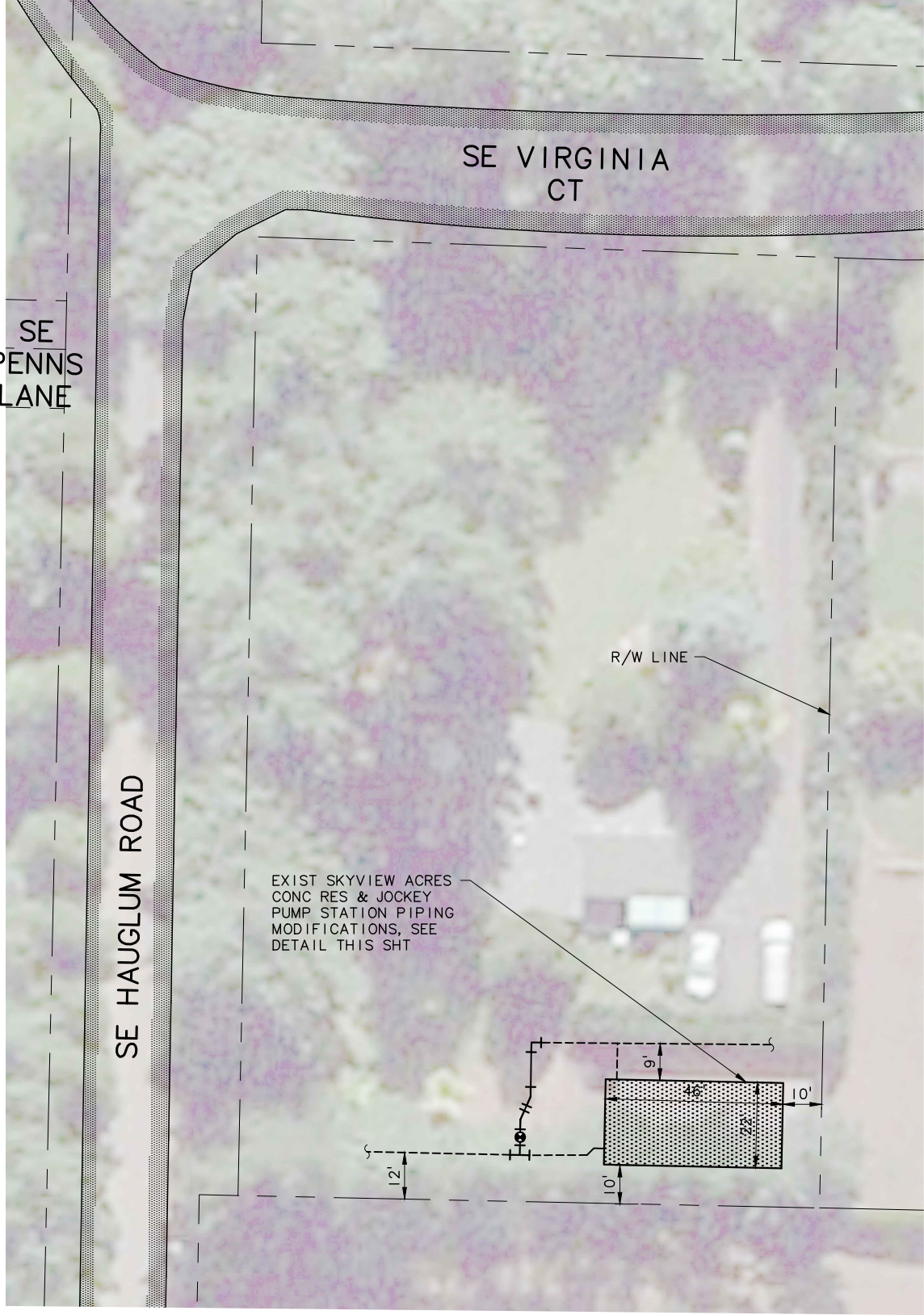
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE D
SKYVIEW ACRES
SUPPLY INTERTIE

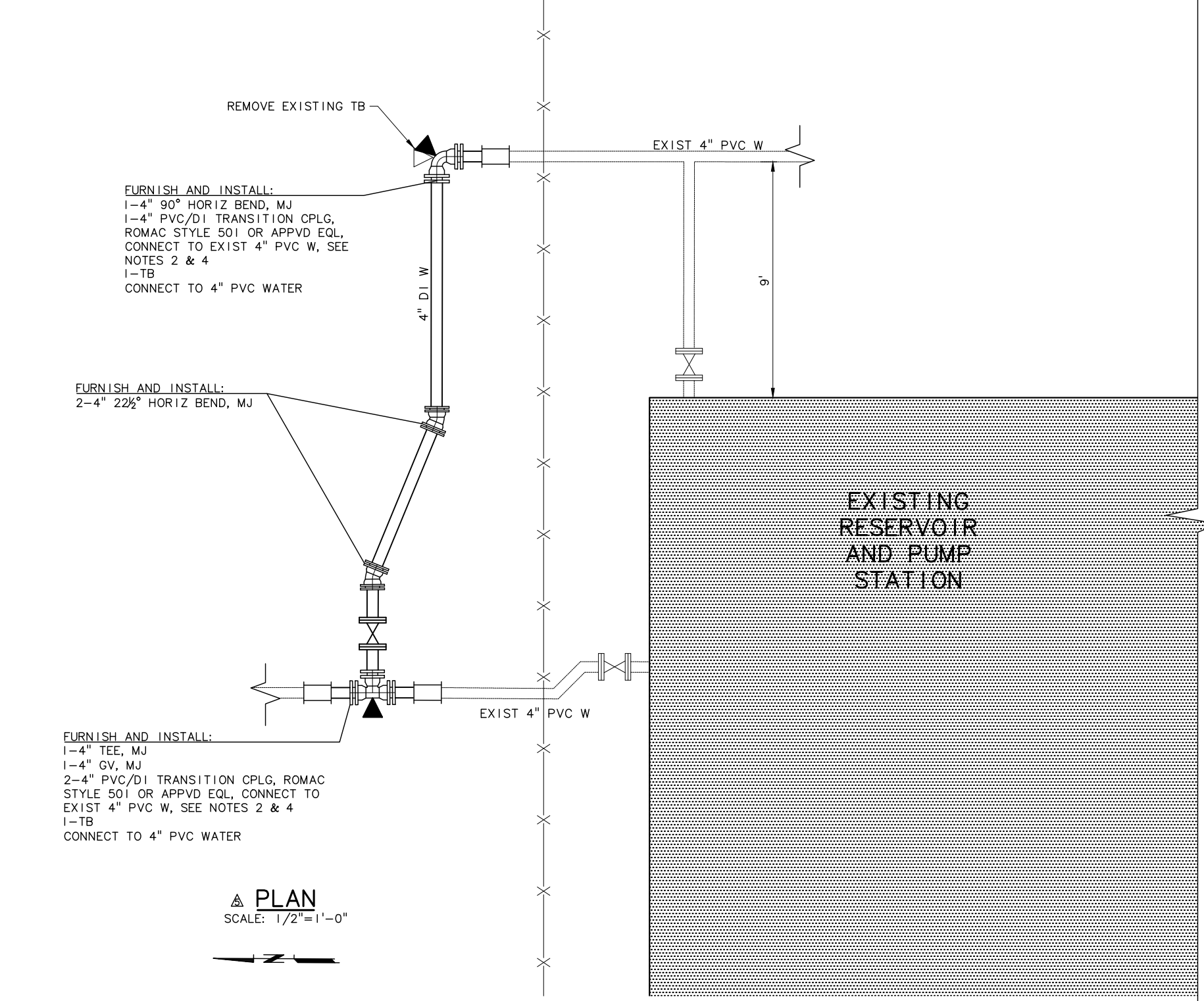
PRESSURE REDUCING VALVE VAULT AT EXISTING BOOSTER PUMP STATION SITE

PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014

C:\PDX_Projects\111265\CAD\DR\SHEETS\SCHED D\13-1429-OR-SVA-C1-C6-R.dwg, SVA-C-6, 11/5/2014 11:13 AM DAK 20.0s (LMS Tech)



PLAN
SCALE: 1"=20'



FURNISH AND INSTALL:
1-4" 90° HORIZ BEND, MJ
1-4" PVC/DI TRANSITION CPLG,
ROMAC STYLE 501 OR APPVD EQL,
CONNECT TO EXIST 4" PVC W, SEE
NOTES 2 & 4
1-TB
CONNECT TO 4" PVC WATER

FURNISH AND INSTALL:
2-4" 22½° HORIZ BEND, MJ

FURNISH AND INSTALL:
1-4" TEE, MJ
1-4" GV, MJ
2-4" PVC/DI TRANSITION CPLG, ROMAC
STYLE 501 OR APPVD EQL, CONNECT TO
EXIST 4" PVC W, SEE NOTES 2 & 4
1-TB
CONNECT TO 4" PVC WATER

PLAN
SCALE: 1/2"=1'-0"

NOTES:

1. THIS DRAWING IS FOR REFERENCE ONLY AND DOES NOT CONVEY EXACT PIPING CONFIGURATION IN THE FIELD.
2. CONTRACTOR TO POTHOLE EXISTING 4" WATER MAINS AND CONFIRM DEPTHS AND CONDITION OF PIPES TO BE CONNECTED TO PRIOR TO ORDERING MATERIALS.
3. ALL NEW PIPE SHALL BE RESTRAINED DI PIPE, CLASS 52 MINIMUM.
4. AT CONTRACTOR'S OPTION AND SUBJECT TO THE CURRENT CONDITION OF THE EXISTING PVC PIPE IN THE FIELD, TRANSITION COUPLINGS AT CONNECTION POINTS MAY BE REPLACED WITH DI LONG SLEEVES AND PVC MECHANICAL JOINT FOLLOWER GLANDS, MODEL 2004PV BY EBAA IRON OR APPROVED EQUAL.

NO.	DATE	BY	REVISION
1	10/14	JHF	RECORD DRAWING

NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JHF DESIGNED
JHF DRAWN
LLA CHECKED

RECORD DRAWING
SEE DISCLAIMER, SHEET 1.
VERSION 4.1
12-9-97

MSA Murray Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022

CITY OF SANDY
PWB INTERTIE PROJECT
SCHEDULE D
SKYVIEW ACRES
SUPPLY INTERTIE

BYPASS CONNECTION AT EXISTING RESERVOIR

PROJECT NO.: 13-1429.202 SCALE: AS SHOWN DATE: MARCH 2014