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A		GENERAL NOTES			UTILITY NOTES			GRADING AND ESC NOTES					
		<div><div>1. NO CONSTRUCTION SHALL BE STARTED WITHOUT A NOTICE TO PROCEED (NTP) BY THE CITY ENGINEERING DEPARTMENT. THE CITY ENGINEERING DEPARTMENT AND THE ENGINEER OF RECORD (EOR) SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY CONSTRUCTION WORK DONE PRIOR TO NOTICE TO PROCEED BEING ISSUED OR WITHOUT INSPECTION WILL BE REJECTED.</div><div>2. CONTRACTOR SHALL VERIFY ALL CONDITIONS ON THE JOB SITE INCLUDING BUT NOT LIMITED TO, ALL DIMENSIONS, GRADES, ELEVATIONS, EXTENT AND COMPATIBILITY TO THE EXISTING SITE CONDITIONS, AND WITH THE WORK DESCRIBED ON THE ENGINEER'S DRAWINGS. ANY DISCREPANCIES OR UNEXPECTED CONDITIONS THAT AFFECT OR CHANGE THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY. CONTRACTOR SHALL NOT PROCEED WITH ANY OF THE WORK IN THE AREA OF DISCREPANCIES UNTIL ALL SUCH DISCREPANCIES ARE RESOLVED. IF THE CONTRACTOR CHOOSES TO PERFORM WORK, THEN IT IS UNDERSTOOD THAT THE CONTRACTOR IS CHOOSING TO PROCEED AT THE CONTRACTOR'S OWN RISK AND SHALL INCUR ALL COSTS, IF ANY, TO RESOLVE THE ISSUES TO THE SATISFACTION OF THE ENGINEER.</div><div>3. A CITY INSPECTOR ACTING ON BEHALF OF THE CITY MAY REQUIRE REVISIONS TO THE PLANS TO SOLVE UNFORESEEN PROBLEMS THAT MAY ARISE IN THE FIELD.</div><div>4. CHANGES TO THE APPROVED PLANS REQUIRE PLAN SHEET MODIFICATION TO BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO CONSTRUCTION. ANY WORK PERFORMED DIFFERENT FROM THE APPROVED PLANS OR WORK PERFORMED WITHOUT INSPECTION WILL BE REQUIRED BY THE CITY TO BE REMOVED AND RECONSTRUCTED TO CONFORM.</div><div>5. ALL CONSTRUCTION WORK AND INSTALLATIONS SHALL CONFORM TO THE CITY STANDARDS AND SPECIFICATIONS, AND ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.</div><div>6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "UNDERGROUND LOCATE SERVICE" AT 1-800-332-2344 AT LEAST 48 BUSINESS-DAY HOURS PRIOR TO THE START OF CONSTRUCTION FOR THE LOCATION OF ALL UTILITIES, INCLUDING BUT NOT LIMITED TO POWER, WATER, SEWER, STORMWATER, GAS, CABLE TV AND TELEPHONE UNDERGROUND FACILITIES. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE PUBLIC AGENCY FOR THE LOCATION OF UNDERGROUND FACILITIES.</div><div>7. ALL UTILITIES SHOWN ARE ACCURATE TO THE EXTENT OF AVAILABLE RECORDS AND KNOWLEDGE. THE CONTRACTOR HAS THE TOTAL RESPONSIBILITY TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND TO NOTIFY THE UTILITY COMPANIES WHEN WORKING IN THEIR PROXIMITY. CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. OREGON LAW REQUIRES THE CONTRACTOR TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH 952-001-0090. THE CONTRACTOR MAY OBTAIN COPIES OF THE RULES BY CALLING THE OREGON UTILITY NOTIFICATION CENTER AT (503)232-2987.</div><div>8. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CURRENT CITY STANDARDS AND SPECIFICATIONS AND CURRENT GRADING ORDINANCE. ALL SUBGRADE MATERIAL SHALL BE CONSIDERED CLASS A AND COMPACTED TO 95% OF OPTIMUM DENSITY AS REQUIRED BY THE CITY'S STANDARDS AND SPECIFICATIONS.</div><div>9. ALL FINAL CUT AND FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS OTHERWISE APPROVED BY THE CITY. LESSER CUT AND FILL SLOPES ARE REQUIRED ON HIGHER CLASSIFICATION STREETS UNLESS OTHERWISE APPROVED ON THE PLANS.</div><div>10. ALL UNSUITABLE SOILS MATERIALS, RUBBISH AND DEBRIS RESULTING FROM GRADING OPERATIONS SHALL BE REMOVED FROM THE JOB SITE AND DISPOSED OF PROPERLY.</div><div>11. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT DUST AND EROSION IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST AND EROSION RESULTING FROM CONSTRUCTION.</div><div>12. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE INDUSTRIAL SAFETY REGULATIONS. THE CITY AND DESCHUTES COUNTY AND THEIR OFFICIALS, THE EOR, AND THE OWNER ARE NOT BE RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.</div><div>13. MATERIAL QUANTITIES USED, NOTED, OR PROVIDED IN A SEPARATE ITEMIZED QUANTITY TAKE-OFF ARE AN EOR'S OPINION OF PROBABLE MATERIAL REQUIREMENTS, AND IS AN ESTIMATE ONLY. CONTRACTORS HAVE THE SOLE RESPONSIBILITY OF MAKING THEIR OWN QUANTITY TAKE-OFF AND COST ESTIMATE.</div><div>14. ALL WORK IN THE PUBLIC RIGHT OF WAY SHALL BE PERFORMED BY A CITY APPROVED QUALIFIED CONTRACTOR (INCLUDING SUBCONTRACTORS).</div><div>15. RIGHT-OF-WAY PERMITS ARE REQUIRED AND ARE INCLUSIVE OF ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENTS (PUBLIC UTILITY EASEMENTS, PUBLIC ACCESS EASEMENTS, PUBLIC SEWER/WATER/STORMWATER EASEMENTS, ETC). NO WORK WILL BE PERMITTED ON PRIVATE PROPERTY, OUTSIDE RECORDED PUBLIC EASEMENTS OR WHERE REQUIRED BY LAND USE, UNDER THIS APPROVED RIGHT-OF-WAY PERMIT.</div><div>16. CITY ENGINEER'S SIGNATURE DOES NOT CONSTITUTE APPROVAL OF FACILITIES PROPOSED ON PRIVATE PROPERTY. SEPARATE PERMITS ISSUED BY THE BUILDING DEPARTMENT ARE REQUIRED AND SHALL BE OBTAINED BY THE DEVELOPER FOR FACILITIES LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.</div></div>			<div><div>17. ANY WORK WITHIN EXISTING OR FUTURE PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENTS, INCLUDING PUBLIC UTILITY EASEMENTS, CAN BE PERFORMED UNDER THIS PERMIT OR A SEPARATE RIGHT OF WAY PERMIT ISSUED BY THE CITY OF BEND.</div><div>18. ALL WATER MAIN CONNECTIONS TO BE DESIGNED AND CONSTRUCTED WITH CROSS CONNECTION PROTECTION.</div><div>19. CONTRACTOR SHALL OBTAIN HYDRANT METER PERMIT FOR USE OF TESTING WATER MAIN THROUGH THE CITY'S PERMITTING SOFTWARE.</div><div>20. ALL RESTORATION TO BE COMPLETED AS SOON AS POSSIBLE UPON COMPLETION AND APPROVAL FROM THE INSPECTOR FOR ON-SITE WORK AND UNDERGROUND WORK. ALL RESTORATION SHALL COMPLY WITH CITY OF BEND STANDARDS AND SPECIFICATIONS.</div><div>21. THESE PLANS WILL EXPIRE ONE YEAR FROM THE "CITY OF BEND ENGINEER" SIGNATURE DATE ON THE COVER UNLESS AN EXTENSION IS OTHERWISE APPROVED IN WRITING FROM THE CITY ENGINEER.</div><div>22. PRIVATE INSPECTIONS WILL BE REQUIRED PER PART V OF THE CITY OF BEND STANDARDS AND SPECIFICATIONS, UNLESS SPECIFIED OTHERWISE.</div><div>23. ALL PROJECTS MUST ABIDE BY THE PROJECT SCHEDULE REVIEWED AND APPROVED BY THE CITY PRIOR TO COMMENCING WORK.</div><div>24. ALL WORK MUST BE CONDUCTED IN CONFORMANCE WITH THE PROJECT'S CONTRACT DOCUMENTS AND PRE-CONSTRUCTION MEETING MINUTES (FOR PRIVATE DEVELOPMENT, THE PUBLIC FACILITIES IMPROVEMENT AGREEMENT - PFIA).</div><div>25. WORK HOURS ON PERMITS OUTSIDE OF THE ROADWAY SHALL BE LIMITED TO 7:00 AM TO 6:30 PM AND SHALL COMPLY WITH THE NOISE LIMITATIONS PER CITY OF BEND MUNICIPAL CODE 5.50. WORK OUTSIDE OF THESE HOURS SHALL REQUIRE A NOISE AND NIGHT WORK PERMIT SUBJECT TO THE REVIEW AND APPROVAL OF THE ASSISTANT CITY ENGINEER. INSPECTION TIMES WILL BE LIMITED TO 7:30AM TO 2:30PM UNLESS OTHERWISE APPROVED BY THE (ASSISTANT) CITY ENGINEER. WORK HOURS ON OPEN ROADS WILL BE DETAILED IN THE TRAFFIC CONTROL NOTES SECTION OF THIS DOCUMENT.</div><div>26. ANY DAMAGE TO PRIVATE PROPERTY MUST BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS OR BETTER.</div></div>			<div><div>1. UTILITIES CROSSING SHALL BE PERPENDICULAR (90 DEGREES) TO THE CITY WATER, STORMWATER, AND SEWER LINES.</div><div>2. UTILITY CROSSINGS SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION OF 12 INCHES FROM ALL WATER AND SEWER MAIN LINES.</div><div>3. ANY UTILITY THAT IS LOCATED PARALLEL TO A CITY WATER OR SEWER MAIN LINE SHALL MAINTAIN A MINIMUM OF 10-FT OF HORIZONTAL SEPARATION.</div><div>4. THE CITY REQUIRES VISUAL INSPECTION (POTHOLING) OF ALL UTILITY CROSSINGS OF CITY WATER, STORMWATER, AND SEWER LINES. SEWER LINES MAY BE INSPECTED BY CLOSED CIRCUIT CAMERA AT THE APPROVAL OF THE CITY ENGINEER.</div><div>5. EXCAVATION AND DIRECTIONAL DRILLING REQUIRES POTHOLING PRIOR TO ANY WORK BEING CONDUCTED AND DURING DRILLING.</div><div>6. DIRECTIONAL DRILLING REQUIRES ADVANCED PROFILING OF THE CROSSING BEFORE WORK CAN BE PERMITTED.</div><div>7. NO EXCAVATION IS PERMITTED WITHIN 10 FT OF A FORCE MAIN, PRESSURE MAIN, FIRE HYDRANT OR WATER MAIN THRUST BLOCK.</div><div>8. UTILITY CROSSINGS SHALL MAINTAIN 2 FT CLEARANCE HORIZONTALLY FROM CITY UTILITIES SUCH AS MANHOLES, VALVE CANS, INLETS, CATCH BASINS, ETC.</div><div>9. UTILITY LINES SHALL NOT BE PLACED IN THE ROOT PROTECTION ZONE(RPZ) OF TREES OR AS DIRECTED BY THE CITY ENGINEER. WHERE BORING, A MINIMUM 4 FOOT BORING DEPTH MUST BE MAINTAINED UNDER TREES. ANY TREES DAMAGED ARE TO BE REPAIRED.</div><div>10. COMPACTION AND COMPACTION TESTING IS REQUIRED PER SECTION 00405.46 (C) OR AT THE DISCRETION OF THE CITY ENGINEER. ALL LIFTS MUST BE MECHANICALLY COMPACTED WITH ADEQUATE COMPACTION EQUIPMENT, WITH A MINIMUM OF 5 PASSES FOR EACH LIFT OR AS DIRECTED BY THE CITY.</div></div>			<div><div>1. PRIOR TO ANY GRADING/CLEARING OF A PROJECT SITE, BMPS MUST BE INSTALLED, INSPECTED, AND APPROVED BY THE CITY OF BEND.</div><div>2. PRIOR TO ANY GRADING/CLEARING OF THE PROJECT SITE, TREE PROTECTION FENCING MUST BE INSTALLED TO CITY OF BEND STANDARDS, INSPECTED AND APPROVED BY THE CITY OF BEND. ALL TREE PROTECTION FENCING MUST BE MAINTAINED AS APPROVED DURING THE PROGRESSION OF THE PROJECT.</div><div>3. THE ENGINEER OF RECORD (EOR) CAN PROVIDE ADDITIONAL BEST MANAGEMENT PRACTICES (BMPS) FROM SECTION 9.4.3 IN THE CENTRAL OREGON STORMWATER MANUAL (COSM) THAT APPLY TO THE PROJECT.</div><div>4. HOLD A PRE-CONSTRUCTION MEETING THAT INCLUDES THE CITY OF BEND INSPECTOR, EOR AND CONTRACTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. WHERE TREE PROTECTION IS REQUIRED BY LAND USE AND/OR BEND MUNICIPAL CODE, A CITY PLANNER MUST BE NOTIFIED OF THE TREE PROTECTION FENCING INSTALLATION FOR INSPECTION.</div><div>5. ESC PLAN(S) MUST BE KEPT ONSITE AT ALL TIMES WHEN WORK IS OCCURRING.</div><div>6. THE ESC MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THE MEASURES MUST BE UPGRADED AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.</div><div>7. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS:<div><div>A. FENCE OR FLAG AREAS TO BE PROTECTED OR LEFT UNDISTURBED DURING CONSTRUCTION. INSTALL TREE PROTECTION FENCING.</div><div>B. INSTALL GRAVELED OR PAVED CONSTRUCTION ENTRANCES, EXITS, AND PARKING AREAS TO REDUCE THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE ROADS.</div><div>C. CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY ESC BMPS.</div><div>D. INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING.</div><div>E. CLEAR, GRUB AND GRADE INDIVIDUAL LOTS AND ROUGH GRADE FOR ROADS AND UTILITY LOCATIONS.</div><div>F. CLEAR, GRUB AND GRADE INDIVIDUAL LOTS OR GROUPS OF LOTS.</div><div>G. TEMPORARILY STABILIZE A LOT OR GROUPS OF LOTS, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE THE RESULT OF SITE GRADING.</div><div>H. CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (I.E. INLETS, PONDS, UIC FACILITIES, ETC.).</div><div>I. PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS.</div><div>J. REMOVE TEMPORARY ESC CONTROLS WHEN PERMANENT STORMWATER FACILITIES HAVE BEEN INSTALLED. ALL LAND-DISTURBING ACTIVITIES HAVE CEASED, AND VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED ON THE ACCEPTED ESC PLAN(S).</div></div></div><div>8. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT AND DURATION PRACTICAL.</div><div>9. INSPECT ALL ROADWAYS ADJACENT TO THE CONSTRUCTION ACCESS ROUTE AT THE END OF EACH DAY. SIGNIFICANT AMOUNTS OF SEDIMENT THAT LEAVES THE CONSTRUCTION SITE MUST BE CLEANED UP WITHIN 24 HOURS. VACUUMING OR DRY SWEEPING MUST BE USED TO CLEAN UP RELEASED SEDIMENT AND SEDIMENT MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES.</div><div>10. COVER AND SECURE ALL DUMP TRUCK LOADS LEAVING THE CONSTRUCTION SITE TO MINIMIZE SPILLAGE ON ROADS.</div><div>11. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.</div><div>12. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 CALENDAR DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 CALENDAR DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30).</div><div>13. PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.</div><div>14. KEEP ROADS ADJACENT TO INLETS CLEAN BY DRY SWEEPING. WASHING THE ROADWAYS WILL NOT BE PERMITTED.</div><div>15. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING AND AFTER STORM EVENTS. CLEAN OR REMOVE AND REPLACE INLET PROTECTION DEVICES BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.</div><div>16. INSTALL SEDIMENT CONTROLS ALONG THE SITE PERIMETER ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE BEFORE COMMENCING EARTH DISTURBING ACTIVITIES.</div></div> <div>17. WHENEVER POSSIBLE, CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHOULD BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.</div> <div>18. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ONSITE MUST BE KEPT OFF OF ROADWAY AND SIDEWALKS/PATHS/TRAILS.</div> <div>19. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NON-INERT WASTES PRESENT ONSITE FROM VANDALISM. MAINTAIN A SUPPLY OF MATERIALS ON HAND TO ADDRESS AND CONTAIN SPILLS.</div> <div>20. LOCATE DESIGNATED VEHICLE AND EQUIPMENT SERVICE AREAS, FUEL, AND MATERIALS AWAY FROM DRAINAGE INLETS, WATER COURSES, AND CANALS. PROPERLY CONTAIN AREAS USING BERMS, SAND BAGS, OR OTHER BARRIERS.</div> <div>21. REGULARLY INSPECT AND MAINTAIN EQUIPMENT, ESPECIALLY FOR DAMAGED HOSES AND LEAKY GASKETS. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES (I.E. OIL CHANGES, FUEL TANK DRAIN DOWN, ETC) THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT, PERFORM REPAIRS ONSITE USING TEMPORARY PLASTIC OR OIL ABSORBING BLANKETS BENEATH THE VEHICLE.</div> <div>22. DESIGNATE AN AREA FOR CLEANING PAINTING EQUIPMENT AND TOOLS. NEVER CLEAN BRUSHES OR RINSE CONTAINERS INTO THE STREET, GUTTER, DRAINAGE INLET, OR WATERWAY.</div> <div>23. APPLY LANDSCAPING OR AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATIONS RATES, THAT PREVENTS THE RUNOFF OF CHEMICALS INTO STORMWATER FACILITIES.</div> <div>24. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS.</div> <div>25. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.</div> <div>26. KEEP SEDIMENT ON THE PROJECT SITE, TO THE MAXIMUM EXTENT PRACTICAL.</div> <div>27. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY. DUST CONTROL MUST BE CONTINUOUS, PARTICULARLY DURING THE DRY SEASON.</div> <div>28. DESIGNATE THE LOCATION OF A SLURRY PIT WHERE CONCRETE TRUCKS AND EQUIPMENT CAN BE WASHED OUT. SLURRY PITS ARE NOT TO BE LOCATED IN, OR UPSTREAM OF, A SWALE, DRAINAGE AREA, STORMWATER FACILITY, WATER BODY, OR IN AN AREA WHERE A STORMWATER FACILITY EXISTS OR IS PROPOSED.</div> <div>29. THIS PERMIT ALLOWS FOR GRADING IN CONFORMANCE WITH COSM, BEND MANICIPLE CODE TITLE 16 AND CITY OF BEND STANDARDS. BLASTING WILL NOT BE PERMITTED UNLESS COMPLIANT WITH BEND MUNICIPAL CODE 16.10.090, CITY STANDARDS, AND ORES 480.010 THROUGH 480.290. BLASTING PLANS, PRE-BLAST SURVEY AND A DRAFT BLASTING NOTICE (OSS 00335) MUST BE PROVIDED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO BLASTING. ROCK CRUSHING MUST BE ISSUED UNDER A SEPARATE PERMIT AND IS NOT PERMITTED UNDER THIS PERMIT.</div>		

NOTICE TO EXCAVATORS:  
ATTENTION: 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 THE RULES BY CALLING THE CENTER.  
(NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.

Call the Oregon One-Call Center  
1-800-332-2344



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A	<div>[PLAN VIEW (AREA CAN BE RESIZED TO FIT PROJECT)]</div> <div>[NORTH ARROW]</div> <div>[SCALE]</div>						
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C							
D							
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[ENGINEERS  
STAMP]

[PROJECT NAME]  
CITY PROJECT # XXXXX  
[SHEET TITLE]  
DESCHUTES COUNTY, OREGON



CITY OF BEND

REVISIONS:  
XX - XXXX/20XX  
[REV TITLE]

[COMPANY NAME]

[COMPANY ADDRESS]

DESIGNED BY: XX  
DRAWN BY: XX  
SCALE: PER PLANS  
FILE: XXXX  
DATE: XX/XX/20XX

VERIFY SCALES  
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BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

SHEET:  
CX.X

COB # XXXX

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D		D	<div>DESIGNED BY: XX DRAWN BY: XX SCALE: PER PLANS FILE: XXXX DATE: XX/XX/20XX</div>	<div>VERIFY SCALES 0 1" BAR EQUALS ONE INCH ON ORIGINAL DRAWING SHEET: CX.X COB # XXXX</div>				
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A	<div><div>[GENERAL DETAIL BORDERS SHOWN FOR REFERENCE SCALING ONLY]</div><div><table><tr><td>DRAWN</td><td></td><td>CITY OF BEND</td><td>SCALE: NTS</td></tr><tr><td>CHK</td><td></td><td>STANDARD DRAWING</td><td>DATE: XXXXXX</td></tr><tr><td>REV</td><td>DATE</td><td>710 NW WALL ST., BEND, OREGON 97701</td><td>APPRO</td></tr><tr><td></td><td></td><td>[DETAIL NAME]</td><td>STD. DRWG. [DETAIL #]</td></tr></table></div><div><div>[INSERT CITY OF BEND DETAILS AS A TIFF FILE WITH A WIDTH OF 6.5]</div><div><table><tr><td>DRAWN</td><td></td><td>CITY OF BEND</td><td>SCALE: NTS</td></tr><tr><td>CHK</td><td></td><td>STANDARD DRAWING</td><td>DATE: XXXXXX</td></tr><tr><td>REV</td><td>DATE</td><td>710 NW WALL ST., BEND, OREGON 97701</td><td>APPRO</td></tr><tr><td></td><td></td><td>[DETAIL NAME]</td><td>STD. DRWG. [DETAIL #]</td></tr></table></div></div><div>[NO MORE THAN 8 STANDARD DETAILS PER SHEET]</div></div>						DRAWN		CITY OF BEND	SCALE: NTS	CHK		STANDARD DRAWING	DATE: XXXXXX	REV	DATE	710 NW WALL ST., BEND, OREGON 97701	APPRO			[DETAIL NAME]	STD. DRWG. [DETAIL #]	DRAWN		CITY OF BEND	SCALE: NTS	CHK		STANDARD DRAWING	DATE: XXXXXX	REV	DATE	710 NW WALL ST., BEND, OREGON 97701	APPRO			[DETAIL NAME]	STD. DRWG. [DETAIL #]	A
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[ENGINEERS  
STAMP]

[PROJECT NAME]

CITY PROJECT # XXXXX

CITY STANDARD DETAILS

CITY OF BEND

DESCHUTES COUNTY, OREGON

REVISIONS:

XX XX/XX/20XX

[REV TITLE]

[COMPANY NAME]

[COMPANY ADDRESS]

DESIGNED BY: XX

DRAWN BY: XX

SCALE: PER PLANS

FILE: XXXX

DATE: XX/XX/20XX

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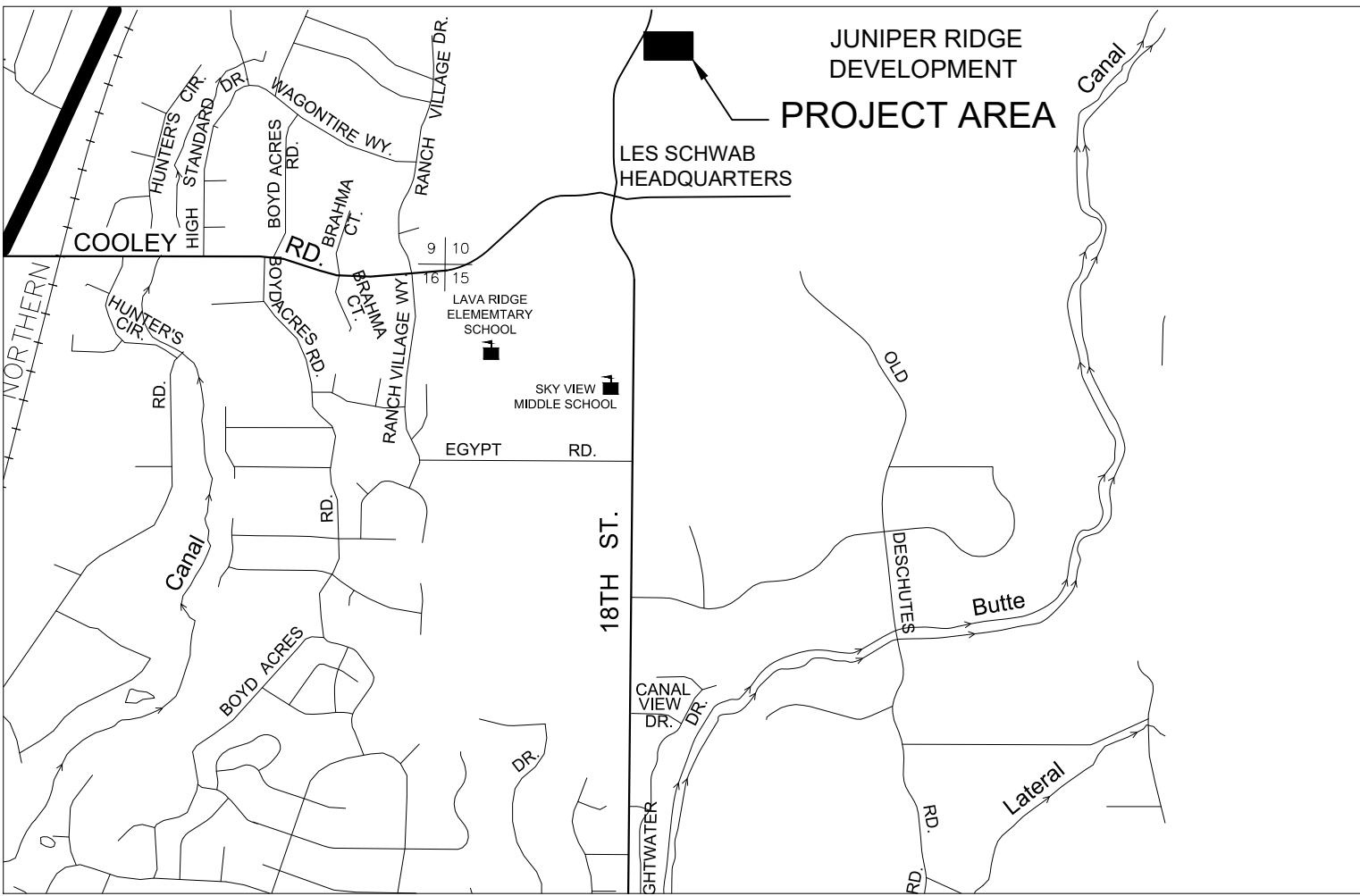
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CX.X

COB # XXXX





VICINITY MAP  
SCALE: N.T.S.



CITY OF BEND

[PROJECT NAME HERE]

[LIFT STATION NAME HERE]

SITE ADDRESS: [ADDRESS HERE]

DATE: [DATE HERE]

CITY PROJECT NUMBER: [IF APPLICABLE]

CITY OF BEND, DESCHUTES COUNTY, OREGON

OWNER:  
**CITY OF BEND**  
UTILITY'S DEPARTMENT  
62975 BOYD ACRES ROAD  
BEND, OR 97701

SCHEDULE OF IMPROVEMENTS:  
CITY OF BEND:

STAMP  
[ENGINEERS]  
  
(PROJECT NAME)  
(LIFT STATION NAME)  
  
COVER  
DESCHUTES COUNTY, OREGON



SITE PLAN  
SCALE: N.T.S.

LEGEND:

	BENCHMARK (FOUND)		BANK (BOTTOM)		CATV
	BENCHMARK (SET)		BANK (TOP)		CATCH BASIN
	CATCH BASIN		CANAL		CENTERLINE
	CLEANOUT		DITCH (CENTER)		EDGE OF CONCRETE
	CONCRETE		EDGE OF GRAVEL		EDGE OF PAVEMENT
	CONIFEROUS TREE		EASEMENT		FENCE (OTHER)
	CONTROL MON		FENCE (SILT)		FENCE (STEEL)
	CULVERT		FENCE (WOOD)		FIBER OPTICS
	DECIDUOUS TREE		FORCE MAIN		GAS
	DITCH INLET		GRADE BREAK		GUARDRAIL
	DRYWELL		IRRIGATION		JERSEY BARRIER
	GAS METER		PAVEMENT REPAIR		PROPERTY BOUNDARY
	GAS VALVE		PROPERTY SETBACKS		POWER
	GRAVEL		POWER (OVERHEAD)		RAILROAD
	GUY WIRE		RIVER		SANITARY SEWER
	HANDICAP		STORM DRAIN		STRIPPING
	MAILBOX		TELEPHONE MANHOLE		TELEPHONE
	MONUMENT (FOUND)		TRAFFIC SIGNAL CONTROL BOX		WATER
	MONUMENT (SET)		UTILITY POLE		
	RAILROAD CROSSING ARM		UTILITY POLE/LIGHT		
	SANITARY MANHOLE		UTILITY VAULT W/ MANHOLE		
	SIDEWALK				
	SIGN				
	STORM MANHOLE				
	TELEPHONE RISER				
	TELEPHONE MANHOLE				
	TRAFFIC SIGNAL CONTROL BOX				
	TRAFFIC SIGNAL W/ MAST ARM				
	UTILITY POLE				
	UTILITY POLE/LIGHT				
	UTILITY VAULT W/ MANHOLE				
	WATER AIR RELEASE VALVE				
	WATER BELL JOINT				
	WATER BLIND FLANGE				
	WATER BLOW OFF VALVE				
	WATER BUTTERFLY VALVE				
	WATER CHECK VALVE				
	WATER COMBINATION AIR RELEASE VALVE				
	WATER DOUBLE DETECTOR CHECK VALVE				
	WATER FIRE DEPT CONNECTION				
	WATER FIRE HYDRANT				
	WATER FLANGED GATE VALVE				
	WATER FLANGED BY MECHANICAL JOINT GATE VALVE				
	WATER GATE VALVE				
	WATER MECHANICAL JOINT				
	WATER METER				
	WATER PRESSURE REDUCING VALVE				
	WATER PRESSURE REGULATOR/SUSTAINING				
	WATER PRESSURE RELIEF VALVE				
	WATER RESTRAINED MECHANICAL JOINT				
	WATER SAMPLE STATION				
	WATER SINGLE DETECTOR CHECK VALVE				
	WATER THRUST BLOCK (STRADDLE)				
	WATER THRUST BLOCK				

FADED BLACK FEATURES ARE EXISTING (EXCEPT FOR FOUND MONUMENTS)

APPROVALS:

CITY OF BEND  
ENGINEER: \_\_\_\_\_

NOTE: SIGNATURE DOES NOT GRANT APPROVAL TO COMMENCE CONSTRUCTION.

[REQUIRED UTILITY: \_\_\_\_\_]

[REQUIRED UTILITY: \_\_\_\_\_]

[REQUIRED UTILITY: \_\_\_\_\_]

[REQUIRED UTILITY: \_\_\_\_\_]

PERMANENT BENCH MARKS USED:

IDENTIFICATION	DESCRIPTION
NOT APPLICABLE	

FOR SAMPLE ONLY

RECORD DRAWINGS

DESIGNED BY: XX DATE: XX/XX/XX  
DRAWN BY: THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.  
SCALE: FILE: DATE:

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS  
AND PHONE NUMBER]

DESIGNED BY:

DRAWN BY:

SCALE:

FILE:

DATE:

VERIFY SCALES

0 1"

BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

SHEET:

G-000

COB # (XXXXXX)



	1	2	3	4	5	6	
A	DRAWING INDEX		SECTION AND DETAIL DESIGNATION		CONSTRUCTION NOTES:  1. NO CONSTRUCTION SHALL BE STARTED WITHOUT A NOTICE TO PROCEED BY THE CITY ENGINEERING DEPARTMENT. THE CITY ENGINEERING DEPARTMENT AND THE DESIGN ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY CONSTRUCTION WORK DONE PRIOR TO NOTICE TO PROCEED BEING ISSUED OR WITHOUT INSPECTION WILL BE REJECTED.  2. CONTRACTOR SHALL VERIFY ALL CONDITIONS ON THE JOB SITE INCLUDING BUT NOT LIMITED TO, ALL DIMENSIONS, GRADES, ELEVATIONS, EXTENT AND COMPATIBILITY TO THE EXISTING SITE CONDITIONS, AND WITH THE WORK DESCRIBED ON THE ENGINEER'S DRAWINGS. ANY DISCREPANCIES OR UNEXPECTED CONDITIONS THAT AFFECT OR CHANGE THE WORK DESCRIBED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY. CONTRACTOR SHALL NOT PROCEED WITH ANY OF THE WORK IN THE AREA OF DISCREPANCIES UNTIL ALL SUCH DISCREPANCIES ARE RESOLVED. IF THE CONTRACTOR CHOOSES TO DO SO, THEN IT IS UNDERSTOOD THAT THE CONTRACTOR IS CHOOSING TO PROCEED AT THE CONTRACTOR'S OWN RISK AND SHALL INCUR ALL COSTS, IF ANY TO RESOLVE THE ISSUES TO THE SATISFACTION OF THE ENGINEER.  3. A CITY INSPECTOR ACTING ON BEHALF OF THE CITY MAY REQUIRE REVISIONS IN PLANS TO SOLVE UNFORESEEN PROBLEMS THAT MAY ARISE IN THE FIELD.  4. ALL CONSTRUCTION WORK AND INSTALLATIONS SHALL CONFORM TO THE CITY STANDARDS AND SPECIFICATIONS, AND ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY.  5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "UNDERGROUND LOCATE SERVICE" AT 1-800-332-2344 AT LEAST 48 BUSINESS-DAY HOURS PRIOR TO THE START OF CONSTRUCTION FOR THE LOCATION OF POWER, GAS, CABLE TV AND TELEPHONE UNDERGROUND FACILITIES. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE PUBLIC AGENCY FOR THE LOCATION OF UNDERGROUND FACILITIES.  6. ALL UTILITIES SHOWN ARE ACCURATE TO THE EXTENT OF AVAILABLE RECORDS AND KNOWLEDGE. NO POTHOLING TO VERIFY LOCATIONS AND ELEVATIONS WAS AUTHORIZED BY THE OWNER. THE CONTRACTOR HAS THE TOTAL RESPONSIBILITY TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND TO NOTIFY THE UTILITY COMPANIES WHEN WORKING IN THEIR PROXIMITY. CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OUR 952-001-0010 THROUGH 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)232-2987.  7. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CURRENT CITY STANDARDS AND SPECIFICATIONS AND CURRENT GRADING ORDINANCE. ALL SUBGRADE MATERIAL SHALL BE CONSIDERED CLASS A AND COMPACTED TO 95% OF OPTIMUM DENSITY, AS SPECIFIED IN THESE PLANS. ALL FILL MATERIAL SHALL BE COMPACTED TO 95% RELATIVE COMPACTION PER THE CITY TESTING REQUIREMENTS.  8. ALL FINAL CUT SLOPES SHALL NOT EXCEED A GRADE OF 2 TO 1 VERTICAL UNLESS OTHERWISE APPROVED. FILL SLOPES SHALL NOT EXCEED A GRADE OF 2 HORIZONTAL TO 1 VERTICAL UNLESS OTHERWISE APPROVED BY THE ENGINEER.  9. ALL UNSUITABLE SOILS MATERIALS, RUBBISH AND DEBRIS RESULTING FROM GRADING OPERATIONS SHALL BE REMOVED FROM THE JOB SITE AND DISPOSED OF PROPERLY.  10. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM CONSTRUCTION.  11. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE INDUSTRIAL SAFETY REGULATIONS. THE CITY AND DESCHUTES COUNTY AND THEIR OFFICIALS, THE ENGINEER, AND THE OWNER SHALL NOT BE RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.  12. MATERIAL QUANTITIES USED, NOTED, OR PROVIDED IN A SEPARATE ITEMIZED QUANTITY TAKE-OFF ARE AN ENGINEER'S OPINION OF PROBABLE MATERIAL REQUIREMENTS, AND IS AN ESTIMATE ONLY. CONTRACTOR'S HAVE THE SOLE RESPONSIBILITY OF MAKING THEIR OWN QUANTITY TAKE-OFF AND COST ESTIMATE.  13. ALL WORK SHALL BE PERFORMED BY A CITY APPROVED CONTRACTOR.  14. UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN, AND OPERATE THEIR EQUIPMENT ABOVE AND BELOW GROUND AND ALL OTHER RELATED FACILITIES WITHIN THE PUBLIC UTILITY EASEMENTS (PUE) IDENTIFIED ON THIS PLAT MAP AS MAY BE NECESSARY OR DESIRABLE IN SERVING THE LOTS IDENTIFIED HEREIN, INCLUDING THE RIGHT OF ACCESS TO SUCH FACILITIES AND THE RIGHT TO REQUIRE THE REMOVAL OF ANY OBSTRUCTIONS INCLUDING TREES AND VEGETATION THAT MAY BE PLACED WITHIN THE PUE AT THE LOT OWNERS EXPENSE. AT NO TIME MAY ANY PERMANENT STRUCTURES BE PLACED WITHIN THE PUE OR ANY OTHER OBSTRUCTION WHICH INTERFERES WITH THE USE OF THE PUE WITHOUT PRIOR WRITTEN APPROVAL OF THE UTILITIES AND FACILITIES IN THE PUE.  15. CITY ENGINEER'S SIGNATURE DOES NOT CONSTITUTE APPROVAL OF FACILITIES PROPOSED ON PRIVATE PROPERTY. SEPARATE PERMITS ISSUED BY THE BUILDING DEPARTMENT ARE REQUIRED AND SHALL BE OBTAINED BY THE DEVELOPER FOR FACILITIES LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.  16. ANY WORK WITHIN EXISTING PUBLIC RIGHT-OF-WAY OR DEDICATED CITY EASEMENTS REQUIRES A SEPARATE RIGHT-OF-WAY EXCAVATION PERMIT OBTAINED FROM THE CITY ENGINEERING DIVISION.		
	1	G-000	COVER	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	2	G-001	INDEX, SIGNATURE BLOCK, AND NOTES	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	3	G-002	GENERAL LEGEND AND PIPING SYMBOLS	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	4	G-003	PROCESS EQUIPMENT LEGEND AND PIPING SYMBOLS	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	5	G-004	INSTRUMENTATION LEGEND AND SYMBOLS	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	6	G-005	ELECTRICAL NOTES AND STANDARD SYMBOLS	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	7	G-006	ELECTRICAL NOTES AND STANDARD SYMBOLS	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	8	G-007	GENERAL STRUCTURAL NOTES	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
	9	G-008	BASIS OF DESIGN	SECTION LETTER DESIGNATION			DRAWING NUMBER WHERE SHOWN
B	1	C-001	DEMOLITION AND EROSION CONTROL PLAN	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	11	C-002	SITE PLAN	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	12	C-003	GRADING AND DRAINAGE	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	13	C-004	GRAVITY SEWER PLAN AND PROFILE	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	14	C-005	FORCE MAIN SEWER PLAN AND PROFILE	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	15	C-006	CIVIL DETAILS	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	16	L-001	LANDSCAPE PLAN AND DETAILS (INCLUDE IF REQUIRED)	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	17	L-002	IRRIGATION PLAN AND DETAILS (INCLUDE IF REQUIRED)	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	18	M-101	LIFT STATION MECHANICAL PLAN	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	19	M-102	LIFT STATION MECHANICAL SECTION	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
C	20	M-103	MECHANICAL DETAILS	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	21	M-104	MECHANICAL DETAILS	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	22	I-001	STANDARD P&ID CONSTANT	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	24	I-002	TEMPLATE (50 I/Os) PANEL LAYOUT	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	25	I-003	(50 I/Os) BILL OF MATERIALS	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	26	I-004	(50 I/Os) PWR WIRING SCHEMATIC	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	27	I-005	(50 I/Os) PWR WIRING SCHEMATIC	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	28	I-006	(50 I/Os) DIGITAL INPUT MODULE 1	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	29	I-007	(50 I/Os) DIGITAL INPUT MODULE 2	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	30	I-008	(50 I/Os) ANALOG INPUT MODULE	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
D	31	I-009	INTRINSIC SAFETY RELAY PANEL (ISRP)	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	32	I-010	COMMUNICATION NETWORK DIAGRAM	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	33	E-001	ELECTRICAL SITE PLAN	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	34	E-002	MAIN CONTROL CABINET LAYOUT	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	35	E-003	ELECTRICAL ONE LINE DIAGRAM	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	36	E-004	CONDUIT AND WIRE SCHEDULE	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	37	E-005	WETWELL ISOLATION PEDESTAL	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	38	E-006	ELECTRICAL DETAILS	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	39	E-007	PUMP 1 WIRING DIAGRAM	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
	40	E-008	PUMP 2 WIRING DIAGRAM	SECTION LETTER DESIGNATION	DRAWING NUMBER WHERE SHOWN		
DRAWING INDEX		DESIGN DETAIL DESIGNATION		SANITARY SEWER SYSTEM  APPROVED FOR CONSTRUCTION  ENGINEERING  DATE  FOR SAMPLE ONLY  RECORD DRAWINGS  REVISIONS DRAWN BY: XX DATE: XX/XX/XX THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.			
41	E-009	PUMP STATION FLOW LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
42	E-010	WETWELL LEVEL LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
43	E-011	STANDBY GENERATOR LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
44	E-012	AUTO-TRANSFER SWITCH LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
45	E-013	WETWELL HIGH HIGH LEVEL LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
46	E-014	HATCH INTRUSION LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
47	E-015	MAIN CONTROL CAB INTRUSION LOOP SHEET	DESIGN DETAIL DESIGNATION			DRAWING NUMBER WHERE SHOWN	
DRAWING INDEX		KEY NOTE DESIGNATION					
DRAWING INDEX		KEY NOTE DESIGNATION					



1		2		3		4		5		6													
ABBREVIATIONS												INSTRUMENTATION EQUIPMENT ABBREVIATIONS LIST											
A	@	AT	FA	FIRST AID KIT	OC	ON CENTER	TG	TEMPERD GLASS	ACV	ANALYZER CONTROL VALVE	PCU	PROCESS CONTROL UNIT											
	A/B	AERATION BASIN	FAB	FABRICATION	OD	OUTSIDE DIAMETER, OVERFLOW DRAIN	THK	THICK	AE	ANALYZER ELEMENT	PCV	PRESSURE CONTROL VALVE											
	AB	ANCHOR BOLT	FFE	FINISHED FLOOR ELEVATION	O.F.	OUTSIDE FACE	THRD	THREADED	AI	ANALYZER INDICATOR	PDI	PRESSURE DIFFERENTIAL INDICATOR											
	ABDN	ABANDONED	FACIL	FACILITY	OFE	OWNER-FURNISHED EQUIPMENT	T.O.	TOP OF	AIC	ANALYZER INDICATING CONTROLLER	PDIC	PRESSURE DIFF. INDICATING CONTROLLER											
	ACBD	ACOUSTICAL BOARD	FCA	FLANGED COUPLING ADAPTER	OVHD	OVERHEAD	TOG	TOP OF GROUT	AIT	ANALYZER INDICATING TRANSMITTER	PDIT	PRESSURE DIFF. INDICATING TRANSMITTER											
	ACST	ACOUSTICAL TILE	FCTY	FACTORY	O TO O	OUT TO OUT	TPD	TONS PER DAY	ANT	ANTENNA	PDS	PRESSURE DIFFERENTIAL SWITCH											
	AD	AREA DRAIN	FD	FLOOR DRAIN	OPNG	OPENING	TPI	TURNOUT POINT OF INTERSECTION	AR	ANALYZER RECORDER	PDSH	PRESSURE DIFFERENTIAL SWITCH HIGH											
	ADDL	ADDITIONAL	FDN	FOUNDATION	OPP	OPPOSITE	TRANSV	TRANSVERSE	ARC	ANALYZER RECORDING CONTROLLER	PDSL	PRESSURE DIFFERENTIAL SWITCH LOW											
	ADJ	ADJACENT	FEXT	FIRE EXTINGUISHER			TRD	TREAD	ASH	ANALYZER SWITCH HIGH	PDT	PRESSURE DIFFERENTIAL TRANSMITTER											
	AFF	ABOVE FINISH FLOOR	FFL	FINISHED FLOOR	PC	POINT OF CURVATURE	TSS	TOTAL SUSPENDED SOLIDS	ASHH	ANALYZER SWITCH HIGH HIGH	PE	PRESSURE ELEMENT											
B	AHR	ANCHOR	FLL	FLOW LINE ELEVATION	PCV	PRESSURE CONTROL VALVE	TST	TOP OF STEEL	ASL	ANALYZER SWITCH LOW	PHE	pH ELEMENT											
	AL	ALUMINUM	FLEX	FLEXIBLE	P/C	PRIMARY CLARIFIERS	TTD	TOILET TISSUE DISPENSER	ASLL	ANALYZER SWITCH LOW LOW	PHR	pH RECORDER											
	ALTN	ALTERNATE	FLG	FLANGE	PD	PEAK DAY	TW	TOP OF WALL	ARIC	ANALYTICAL RATIO INDICATING CONTROLLER	PI	PRESSURE INDICATOR											
	APPROX	APPROXIMATE	FL	FLOOR	PHF	PEAK HOUR FLOW	TYP	TYPICAL	AT	ANALYZER TRANSMITTER	PIC	PRESSURE INDICATING CONTROLLER											
	APVD	APPROVED	FNH	FINISH	PI	POINT OF INTERSECTION			CAB	CABINET	PIT	PRESSURE INDICATING TRANSMITTER											
	ARCH.	ARCHITECTURAL	FOT	FLAT ON TOP	P&ID	PROCESS AND INSTRUMENTATION DIAGRAM	UBC	UNIFORM BUILDING CODE	EXI	VOLTS/MILLIVOLTS TO CURRENT TRANSDUCER	PR	PRESSURE RECORDER											
	ASSY	ASSEMBLY			PJF	PREMOLDED JOINT FILLER	UH	UNIT HEATER	EXP	VOLTS TO PRESSURE TRANSDUCER	PRN	PRINTER											
	AVG	AVERAGE	GA	GAUGE, GAGE	PL	PLATE	UON	UNLESS OTHERWISE NOTED			PSH	PRESSURE SWITCH HIGH											
	BD	BOARD	GB	GRAB BAR	PLAM	PLASTIC LAMINATE	UNO	UNLESS NOTED OTHERWISE			PSHH	PRESSURE SWITCH HIGH HIGH											
	BETW	BETWEEN	GAL	GALLON	PLYWD	PLYWOOD	UR	URINAL			PSHL	PRESSURE SWITCH HIGH LOW											
C	BF	BOTTOM FACE	GALV	GALVANIZED	POC	POINT ON CURVE			FCV	FLOW CONTROL VALVE	PSL	PRESSURE SWITCH LOW											
	BLDG	BUILDING	GALVS	GALVANIZED STEEL	POT	POINT ON TANGENT	V	VENT, VOLT	FE	FLOW ELEMENT	PSLL	PRESSURE SWITCH LOW LOW											
	BM	BEAM	GPD	GALLONS PER DAY	PR	PAIR	VAC	VACUUM	FI	FLOW INDICATOR	PT	PRESSURE TRANSMITTER											
	BOD	BOTTOM OF DUCT	GRD	GROUND	PRV	PRESSURE REDUCING VALVE	V.A.T.	VINYL ASBESTOS TILE	FIC	FLOW INDICATING CONTROLLER	PXI	PRESSURE TO CURRENT TRANSDUCER											
	BOT	BOTTOM	GRTG	GRATING	PS	PUMP STATION	VC	VERTICAL	FIR	FLOW INDICATING RECORDER	PXP	PRESSURE TO PRESSURE TRANSDUCER											
	BOT	BOTTOM	GVL	GRAVEL	PSF	POUNDS PER SQUARE FOOT	VERT	VERTICAL	FIT	FLOW INDICATING TRANSMITTER	PY	PRESSURE CONVERTER (SIGNAL BOOST)											
	BRG	BEARING	GWB	GYPSUM WALLBOARD	PSI	POUNDS PER SQUARE INCH	VCP	VITRIFIED CLAY PIPE	FQ	FLOW TOTALIZER/INTEGRATOR	PZ	PRESSURE POSITIONER (ADJUST FOR PRESSURE CONTROL VALVE)											
	BST	BOTTOM OF STEEL	GYP PLAS	GYPSUM PLASTER	PT	POINT OF TANGENCY	VTR	VENT THRU ROOF	FQI	FLOW TOTALIZER INDICATOR	RIO	REMOTE INPUT/OUTPUT PROCESSOR											
					PTD	PAPER TOWEL DISPENSER	VWC	VINYL WALL COVERING	FQIT	FLOW TOTALIZER INDICATING TRANSMITTER													
					PTD/R	PAPER TOWEL DISPENSER/RECPTACLE			FR	FLOW RECORDER	SAMP	SAMPLER											
D	CAB.	CABINET	H.A.S	HEADED ANCHOR STUD	PTRD	PRESSURE TREATED	W	WEST, WIDE FLANGE (BEAM)	FSH	FLOW SWITCH HIGH	SE	SPEED ELEMENT											
	CCP	CONCRETE CYLINDER PIPE	HD	HUB DRAIN	PTRD	PRESSURE TREATED	WI	WITH	FSHH	FLOW SWITCH HIGH HIGH	SI	SPEED INDICATOR (TACHOMETER)											
	C/C	CHLORINE CONTACT	HDNR	HARDNER	PVC	POINT OF VERTICAL CURVATURE	WC	WATER CLOSET	FSHL	FLOW SWITCH HIGH LOW	ST	SPEED TRANSMITTER											
	CEM PLAS	CEMENT PLASTER	HDR	HEADER	PVC	POLYVINYL CHLORIDE	WD	WOOD	FSL	FLOW SWITCH LOW	SV	SOLENOID VALVE											
	CHEM	CHEMICAL	HGT	HEIGHT	PVI	POINT OF VERTICAL INTERSECTION	WG	WIRE GLASS	FSL	FLOW SWITCH LOW LOW	SWR	SWITCHER											
	CHKD PL	CHECKERED PLATE	HM	HOLLOW METAL	PVMT	PAVEMENT	WH	WATER HEATER	FT	FLOW TRANSMITTER	SY	SPEED CONVERTER (TRANSDUCER)											
	CFM	CUBIC FEET PER MINUTE	HORIZ	HORIZONTAL	PVT	POINT OF VERTICAL TANGENCY	WK	WEEK			SZ	SPEED ACTUATOR (ENGINE)											
	CI	CAST IRON	HPT	HIGH POINT	QDRNT	QUADRANT	WP	WORKING POINT	GWY	GATEWAY	TC	TEMPERATURE CONTROLLER											
	CIP	CAST IN PLACE	HR	HANDRAIL	QTY	QUANTITY	WR	WATER RESISTANT GYPSUM	HC	HAND CONTROLLER	TCV	TEMPERATURE CONTROL VALVE											
	CJ	CONSTRUCTION JOINT	HS	HIGH STRENGTH			WR GBW	WALLBOARD	HIC	HAND INDICATING CONTROLLER	TE	TEMPERATURE ELEMENT											
E	Q OR CL	CENTER LINE	HS	HIGH STRENGTH	R	R-VALUE (INSULATION)	WS	WASTE	HOA	HAND-OFF-AUTO SWITCH	TIC	TEMPERATURE INDICATING CONTROL											
	CL 2	CHLORINE			R OR RAD	RADIUS	WTR	WATER	ICI	INFINET TO COMPUTER INTERFACE	TIS	TEMPERATURE INDICATING SWITCH											
	CLG	CEILING	I&C	INSTRUMENTATION AND CONTROL	R	RISER	WS	WASTE RECEPTACLE	KY	TIME RELAY	TIT	TEMPERATURE INDICATING TRANSMITTER											
	CLR	CLEAR	ID	INSIDE DIAMETER	R	RISER	WS	WASTE RECEPTACLE	L/R	LOCAL/REMOTE SWITCH	TQI	TORQUE INDICATOR											
	CMP	CORRUGATED METAL PIPE	IE	INVERT ELEVATION	RC	REINFORCED CONCRETE	WTR	WATER	LC	LEVEL CONTROLLER	TQIC	TORQUE INDICATING CONTROL											
	CHKD PL	CHECKERED PLATE	IF.	INSIDE FACE	RCP	REINFORCED CONCRETE PIPE	WTR	WATER	LCV	LEVEL CONTROL VALVE	TQIT	TORQUE INDICATING TRANSMITTER											
	CFM	CUBIC FEET PER MINUTE	INFL	INFLUENT	RD	ROOF DRAIN	WTR	WATER	LE	LEVEL ELEMENT	TQR	TORQUE RECORDER											
	CI	CAST IRON	INSTL	INSTALL	RDCR	REDUCER	WTR	WATER	LG	LEVEL GAUGE	TQS	TORQUE SWITCH											
	CIP	CAST IN PLACE	INSUL	INSULATION	REHAB	REHABILITATE	WTR	WATER	LI	LEVEL INDICATOR	TQSH	TORQUE SWITCH HIGH											
	CJ	CONSTRUCTION JOINT	INTR	INTERIOR	REINF	REINFORCE, REINFORCED, REINFORCING	XFMR	TRANSFORMER	LIC	LEVEL INDICATING CONTROLLER	TQT	TORQUE TRANSMITTER											
F	Q OR CL	CENTER LINE	INTR	INTERIOR	REQD	REQUIRED	YD	YARD	LCV	LEVEL CONTROL VALVE	TR	TEMPERATURE RECORDER											
	CL 2	CHLORINE	INVT	INVERT	RESIL	RESILIENT	YR	YEAR	LE	LEVEL ELEMENT	TSH	TEMPERATURE SWITCH HIGH											
	CLG	CEILING	ITG	INSULATED TEMPERED GLASS	RM	ROOM			LG	LEVEL GAUGE	TSHH	TEMPERATURE SWITCH HIGH HIGH											
	CLR	CLEAR	ITG	INSULATED TEMPERED GLASS	RO	ROUGH OPENING			LI	LEVEL INDICATOR	TSL	TEMPERATURE SWITCH LOW											
	CMP	CORRUGATED METAL PIPE	ITG	INSULATED TEMPERED GLASS	RST	REINFORCING STEEL			LIC	LEVEL INDICATING CONTROLLER	TSLL	TEMPERATURE SWITCH LOW LOW											
	CHKD PL	CHECKERED PLATE	ITG	INSULATED TEMPERED GLASS	S	SOUTH			LISH	LEVEL SWITCH HIGH	TT	TEMPERATURE TRANSMITTER											
	CFM	CUBIC FEET PER MINUTE	ITG	INSULATED TEMPERED GLASS	S.A.T.	SUSPENDED ACOUSTICAL TILE			LIT	LEVEL INDICATING TRANSMITTER	TW	THERMAL WELL											
	CI	CAST IRON	ITG	INSULATED TEMPERED GLASS	S/C	SECONDARY CLARIFIERS			LR	LEVEL RECORDER	TY	TEMPERATURE SELECT											
	CIP	CAST IN PLACE	ITG	INSULATED TEMPERED GLASS	SCBA	SELF CONTAINED BREATHING APPARATUS			LRC	LEVEL RATIO CONTROLLER	UI	MULTIVARIABLE INDICATOR											
	CJ	CONSTRUCTION JOINT	ITG	INSULATED TEMPERED GLASS	SCHED	SCHEDULE			LSH	LEVEL SWITCH HIGH	UR	MULTIVARIABLE RECORDER											
G	Q OR CL	CENTER LINE	ITG	INSULATED TEMPERED GLASS	SD	SOAP DISPENSER, STORM DRAIN			LSHH	LEVEL SWITCH HIGH HIGH	USH	MULTIVARIABLE SWITCH HIGH											
	CL 2	CHLORINE	ITG	INSULATED TEMPERED GLASS	SECT	SECTION			LSHL	LEVEL SWITCH HIGH LOW													
	CLG	CEILING	ITG	INSULATED TEMPERED GLASS	SG	SAFETY GLASS			LSL	LEVEL SWITCH LOW	VDT	VIDEO DISPLAY											
	CLR	CLEAR	ITG	INSULATED TEMPERED GLASS	SH	SHEET			LSLL	LEVEL SWITCH LOW LOW	WI	WEIGHT INDICATOR											
	CMP	CORRUGATED METAL PIPE	ITG	INSULATED TEMPERED GLASS	SHTG	SHEETING			LSM	LEVEL SWITCH MIDDLE	WIT	WEIGHT INDICATING TRANSMITTER											
	CHKD PL	CHECKERED PLATE	ITG	INSULATED TEMPERED GLASS	SIM	SIMILAR			LT	LEVEL TRANSMITTER													
	CFM	CUBIC FEET PER MINUTE	ITG	INSULATED TEMPERED GLASS	SLV	SHORT LEG VERTICAL			MCD	MOTORIZED CONTROL DAMPER	XV	REMOTELY CONTROLLED ON-OFF VALVE											
	CI	CAST IRON	ITG	INSULATED TEMPERED GLASS	S.O.	SHUTOFF			MPA	MOTION SWITCH													
	CIP	CAST IN PLACE	ITG	INSULATED TEMPERED GLASS	SPEC	SPECIFIED			MPD	DIGITAL MARSHALLING PANEL	ZI	POSITION INDICATOR											
	CJ	CONSTRUCTION JOINT	ITG	INSULATED TEMPERED GLASS	SPECS	SPECIFICATIONS			MSL	MOTION SWITCH	ZIS	POSITION INDICATING SWITCH											
H	Q OR CL	CENTER LINE	ITG	INSULATED TEMPERED GLASS	SPG	SPACING			NE	MOISTURE PROBE	ZIT	POSITION INDICATING TRANSMITTER											
	CL 2	CHLORINE	ITG	INSULATED TEMPERED GLASS	SQ	SQUARE			NI	MOISTURE INDICATOR	ZS	POSITION SWITCH											
	CLG	CEILING	ITG	INSULATED TEMPERED GLASS	SST	STAINLESS STEEL			NSH	MOISTURE SWITCH HIGH	ZSC	POSITION SWITCH CLOSED											
	CLR	CLEAR	ITG	INSULATED TEMPERED GLASS	STA	STATION			OJB	OPTICAL JUNCTION BOX	ZSO	POSITION SWITCH OPEN											
	CMP	CORRUGATED METAL PIPE	ITG	INSULATED TEMPERED GLASS	STD	STANDARD					ZT	POSITION TRANSMITTER											
	CHKD PL	CHECKERED PLATE	ITG	INSULATED TEMPERED GLASS	STIF	STIFFENER																	
	CFM	CUBIC FEET PER MINUTE	ITG	INSULATED TEMPERED GLASS	STOR	STORAGE																	
	CI	CAST IRON	ITG	INSULATED TEMPERED GLASS	STR	STRAIGHT																	
	CIP	CAST IN PLACE	ITG	INSULATED TEMPERED GLASS	STRUCT	STRUCTURAL, STRUCTURE																	
	CJ	CONSTRUCTION JOINT	ITG	INSULATED TEMPERED GLASS	STL	STEEL																	
I	Q OR CL	CENTER LINE	ITG	INSULATED TEMPERED GLASS	SWD	SIDE WATER DEPTH																	
	CL 2	CHLORINE	ITG	INSULATED TEMPERED GLASS	SYMM	SYMMETRICAL																	
	CLG	CEILING	ITG	INSULATED TEMPERED GLASS	T	TINT																	

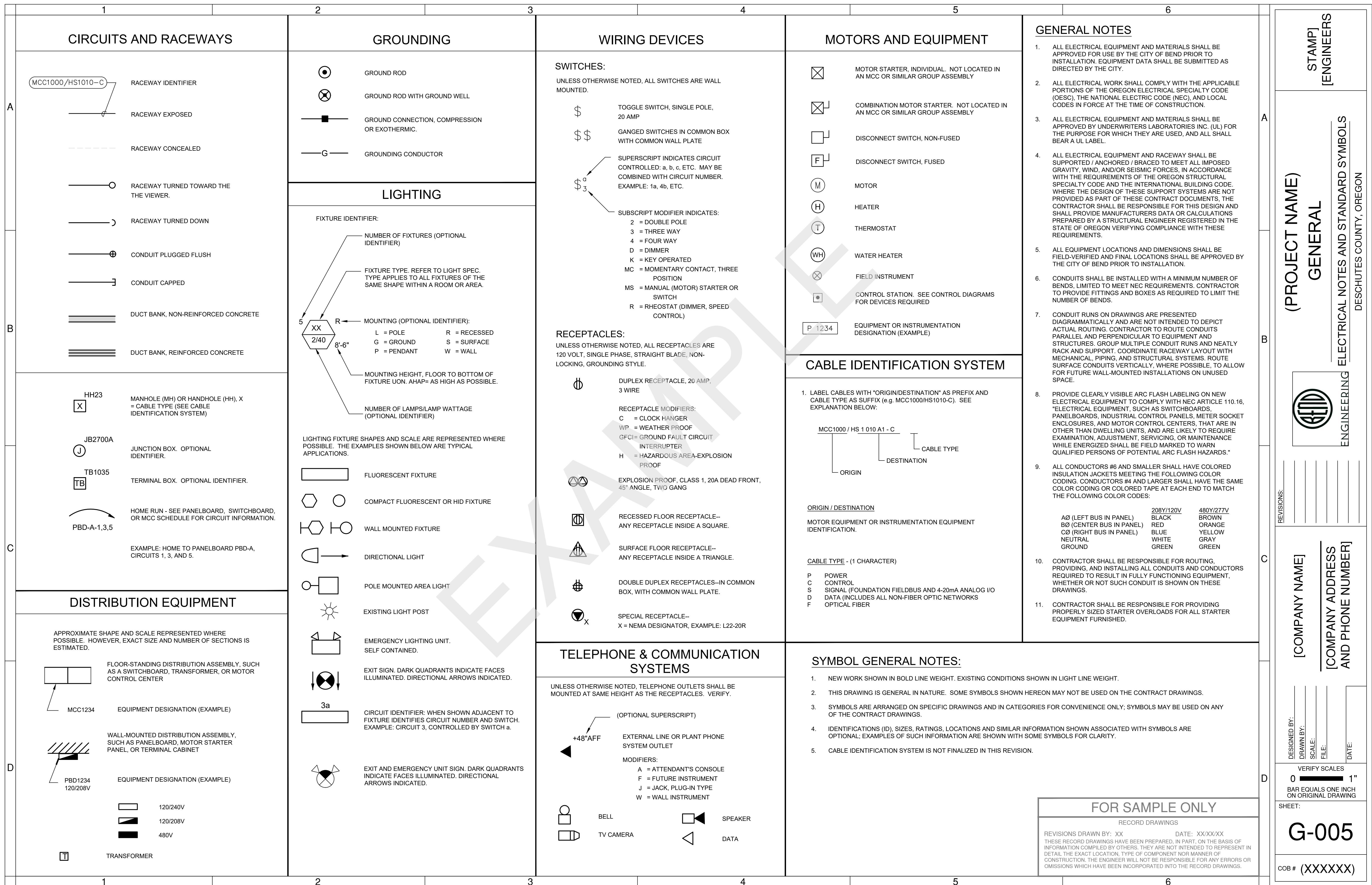


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CHANGE</td></tr> <tr><td colspan="4">TIE POINT</td><td colspan="4">RUPTURE DISC</td><td colspan="4"></td></tr> <tr><td colspan="4">Y-STRAINER W/VALVE</td><td colspan="4">Y-STRAINER W/VALVE</td><td colspan="4">Y-STRAINER PLUGGED</td></tr> <tr><td colspan="4">T-STRAINER</td><td colspan="4">TEMP. STRAINER PLUGGED</td><td colspan="4">CLEAN OUT</td></tr> <tr><td colspan="4">SAMPLE</td><td colspan="4">STEAM OUT</td><td colspan="4">WATER PURGE</td></tr> <tr><td colspan="4">GENERAL NOTES</td><td colspan="4">GENERAL NOTES</td><td colspan="4">GENERAL NOTES</td></tr> <tr><td colspan="4">1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HERE MAY NOT BE USED.</td><td colspan="4">1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HERE MAY NOT BE USED.</td><td colspan="4">1. THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HERE MAY NOT BE USED.</td></tr> <tr><td colspan="4">2. SEE DRAWING G-002 FOR EQUIPMENT AND PIPE COMMODITY DESIGNATION SYSTEMS.</td><td colspan="4">2. 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A	GENERAL	PUSHBUTTONS	CONTROL RELAYS	INDICATING LIGHTS	<div><div><div><div><div></div><div>POTHEAD</div></div><div><div></div><div>STRESS CONE</div></div><div><div></div><div>INCOMING LINE</div></div><div><div></div><div>INDICATES THAT ALL OR PART OF CONDUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND.</div></div><div><div></div><div>SIGNAL</div></div><div><div></div><div>PORTABLE CABLE</div></div><div><div></div><div>BUS CONDUCTOR</div></div><div><div></div><div>CABLE CONDUCTOR</div></div><div><div></div><div>SURGE PROTECTOR</div></div><div><div></div><div>LIGHTNING ARRESTOR AND GROUND</div></div><div><div></div><div>TEST DEVICE</div></div><div><div></div><div>METERING SWITCH</div></div><div><div></div><div>METERS:<div><div>A = AMPERES</div><div>F = FREQUENCY</div><div>KW = KILOWATTS, DEMAND</div><div>PF = POWER FACTOR</div><div>V = VOLTS</div><div>VA = VOLT-AMPERES</div><div>VAR = VOLTAMPERES REACTIVE</div><div>WH = WATTHOURS</div></div></div></div><div><div></div><div>METER SWITCH<div><div>AS = AMMETER SWITCH</div><div>VS = VOLTMETER SWITCH</div></div></div></div><div><div></div><div>RECEPTACLE/PLUG CONNECTION/BUS CONNECTION</div></div><div><div></div><div>MOTOR, HORSEPOWER SHOWN</div></div><div><div></div><div>HEATER, 5KW SIZE SHOWN</div></div><div><div></div><div>DISCONNECT OR ISOLATING SWITCH. 200 AMP SHOWN</div></div></div><div><div><div><div><div>100F</div><div>FUSE. 100 AMP CLASS "F" SHOWN</div></div><div><div><div>100 KVA</div><div>13.2 KV</div><div>5.75% Z</div><div>480/277 V</div></div><div>POWER TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN</div></div><div><div><div>1.5 KVA</div><div>120 V</div><div>2.5% Z</div><div>240/120 V</div></div><div>ISOLATION TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN</div></div><div><div><div>4.16 KV</div><div>120 V</div><div>3</div></div><div>POTENTIAL TRANSFORMER. PT QUANTITY (3), VOLTAGES, WYE-DELTA CONFIGURATION SHOWN</div></div><div><div><div>400:5</div><div>3</div></div><div>CURRENT TRANSFORMER. CT QUANTITY (3) AND 400:5 TURNS RATIO SHOWN. WINDING CONFIGURATIONS:<div><div>DELTA</div><div>WYE (GROUNDED)</div></div></div></div><div><div><div>600KW</div><div>60HZ</div><div>480V</div><div>3Ø, 4W</div><div>PF 0.8</div></div><div>GENERATOR. POWER RATING, FREQUENCY, VOLTAGE, POWER FACTOR, GROUNDED WYE WINDING SHOWN.</div></div><div><div><div>50 AMP/10 SEC</div><div>NEUTRAL GROUNDING RESISTOR. AMPS/TIME RATING SHOWN</div></div><div><div><div>K</div><div>KIRK KEY INTERLOCK</div></div><div><div><div></div><div>CIRCUIT BREAKER</div></div></div></div></div></div></div></div></div></div>		
	DISCONNECTS AND OVERCURRENT DEVICES	<div><div><div><div></div><div>LIQUID LEVEL ACTIVATED SWITCH OPENS ON RISING LEVEL</div></div><div><div></div><div>CLOSES ON RISING LEVEL</div></div><div><div></div><div>PRESSURE OR VACUUM ACTIVATED SWITCH OPENS ON RISING PRESSURE</div></div><div><div></div><div>CLOSES ON RISING PRESSURE</div></div><div><div></div><div>TEMPERATURE ACTIVATED SWITCH OPENS ON RISING TEMPERATURE</div></div><div><div></div><div>CLOSES ON RISING TEMPERATURE</div></div><div><div></div><div>FLOW ACTIVATED SWITCH OPENS ON INCREASE IN FLOW</div></div><div><div></div><div>CLOSES ON INCREASE IN FLOW</div></div><div><div></div><div>LIMIT SWITCH DIRECTLY ACTIVATED, SPRING RETURN NORMALLY OPEN</div></div><div><div></div><div>NORMALLY OPEN - HELD CLOSED</div></div><div><div></div><div>NORMALLY CLOSED</div></div><div><div></div><div>NORMALLY CLOSED - HELD OPEN</div></div><div><div></div><div>FOOT OPERATED SWITCH</div></div><div><div></div><div>OPENS BY FOOT PRESSURE</div></div><div><div></div><div>CLOSES BY FOOT PRESSURE</div></div><div><div></div><div>TIME DELAY SWITCH</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES AFTER TIME DELAY WHEN COIL IS ENERGIZED, OPENS INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS AFTER TIME DELAY WHEN COIL IS ENERGIZED, CLOSSES INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES INSTANTANEOUSLY WHEN COIL IS ENERGIZED, OPENS AFTER TIME DELAY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS INSTANTANEOUSLY WHEN COIL IS ENERGIZED, CLOSSES AFTER TIME DELAY WHEN DE-ENERGIZED</div></div></div></div>	TIMING RELAYS	TRANSFORMERS			MISCELLANEOUS
	<div><div><div><div>MCP</div><div>MOTOR CIRCUIT PROTECTOR</div></div><div><div></div><div>CIRCUIT BREAKER, THERMAL-MAGNETIC, 3 POLE, UON.</div></div><div><div><div>MODIFIERS:</div><div>/M MAGNETIC ONLY</div><div>/2P POLES, IF OTHER THAN 3</div></div></div><div><div><div>FUSE SIZE</div><div>FUSE</div></div><div><div><div>MODIFIERS:</div><div>CLF = CURRENT LIMITING FUSE</div><div>DE = DUAL ELEMENT</div><div>F = CLASS F</div></div></div><div><div><div></div><div>NEON BLOWN FUSE INDICATOR</div></div></div></div></div></div>		<div><div><div><div>TR3</div><div>OR</div><div>TC</div></div><div>(LINE)</div></div><div><div><div>TR3</div><div>OR</div><div>TC</div></div><div>(LINE)</div></div><div>DELAY ON COIL ENERGIZATION (ON DELAY)</div></div> <div><div><div>TR3</div><div>OR</div><div>TC</div></div><div>(LINE)</div></div> <div><div><div>TR3</div><div>OR</div><div>TC</div></div><div>(LINE)</div></div> <div>DELAY ON COIL DE-ENERGIZATION (OFF DELAY)</div>	CONTACTORS			<div><div><div><div></div><div>HORN</div></div><div><div><div>250 OHM</div><div>RES</div></div><div>RESISTOR</div></div><div><div><div>R</div><div>RESISTOR, 250 OHMS, ±0.1%, 1/2 WATT PRECISION</div></div><div><div></div><div>RECTIFIER</div></div><div><div></div><div>SURGE OR ARC SUPPRESSOR</div></div><div><div></div><div>TRIAC</div></div><div><div><div>KVAR</div><div>CAPACITOR</div></div><div><div></div><div>CONNECTOR PLUG</div></div><div><div></div><div>GROUND CONNECTION</div></div><div><div></div><div>POTENTIOMETER</div></div><div><div></div><div>BUS DUCT</div></div><div><div></div><div>BATTERY</div></div><div><div></div><div>SHIELDED CABLE</div></div><div><div><div></div><div>AC TERMINAL BLOCK</div></div><div><div></div><div>DC TERMINAL BLOCK</div></div></div></div></div></div></div>
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B	<div><div><div><div></div><div>ENCLOSURE BOUNDARY, EXISTING</div></div><div><div></div><div>ENCLOSURE BOUNDARY, NEW</div></div><div><div></div><div>CONDUCTORS CONNECTED</div></div><div><div></div><div>CONDUCTORS NOT CONNECTED</div></div><div><div></div><div>TERMINAL POINT FOR EXTERNAL CONNECTIONS</div></div><div><div></div><div>EXISTING EQUIPMENT</div></div></div></div>	<div><div><div><div></div><div>LIQUID LEVEL ACTIVATED SWITCH OPENS ON RISING LEVEL</div></div><div><div></div><div>CLOSES ON RISING LEVEL</div></div><div><div></div><div>PRESSURE OR VACUUM ACTIVATED SWITCH OPENS ON RISING PRESSURE</div></div><div><div></div><div>CLOSES ON RISING PRESSURE</div></div><div><div></div><div>TEMPERATURE ACTIVATED SWITCH OPENS ON RISING TEMPERATURE</div></div><div><div></div><div>CLOSES ON RISING TEMPERATURE</div></div><div><div></div><div>FLOW ACTIVATED SWITCH OPENS ON INCREASE IN FLOW</div></div><div><div></div><div>CLOSES ON INCREASE IN FLOW</div></div><div><div></div><div>LIMIT SWITCH DIRECTLY ACTIVATED, SPRING RETURN NORMALLY OPEN</div></div><div><div></div><div>NORMALLY OPEN - HELD CLOSED</div></div><div><div></div><div>NORMALLY CLOSED</div></div><div><div></div><div>NORMALLY CLOSED - HELD OPEN</div></div><div><div></div><div>FOOT OPERATED SWITCH</div></div><div><div></div><div>OPENS BY FOOT PRESSURE</div></div><div><div></div><div>CLOSES BY FOOT PRESSURE</div></div><div><div></div><div>TIME DELAY SWITCH</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES AFTER TIME DELAY WHEN COIL IS ENERGIZED, OPENS INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS AFTER TIME DELAY WHEN COIL IS ENERGIZED, CLOSSES INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES INSTANTANEOUSLY WHEN COIL IS ENERGIZED, OPENS AFTER TIME DELAY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS INSTANTANEOUSLY WHEN COIL IS ENERGIZED, CLOSSES AFTER TIME DELAY WHEN DE-ENERGIZED</div></div></div></div>	TIMING RELAYS	TRANSFORMERS	MISCELLANEOUS		
DISCONNECTS AND OVERCURRENT DEVICES			INPUT SWITCHES	TIMING RELAYS	TRANSFORMERS	MISCELLANEOUS	
C	<div><div><div><div>1</div><div>2</div></div><div><div></div><div>2 POSITION MAINTAINED CONTACT</div></div><div><div><div></div><div>(XO)</div></div><div>CLOSED IN POSITION 1</div></div><div><div><div></div><div>(OX)</div></div><div>CLOSED IN POSITION 2</div></div></div></div> <div><div><div><div>1</div><div>2</div></div><div><div></div><div>2-POSITION SPRING RETURNED TO RIGHT</div></div><div><div><div></div><div>(XO)</div></div><div>CLOSED IN POSITION 1</div></div><div><div><div></div><div>(OX)</div></div><div>CLOSED IN POSITION 2</div></div></div></div> <div><div><div><div>1</div><div>2</div><div>3</div></div><div><div></div><div>3-POSITION MAINTAINED CONTACT</div></div><div><div><div></div><div>(XOO)</div></div><div>CLOSED IN POSITION 1</div></div><div><div><div></div><div>(OXO)</div></div><div>CLOSED IN POSITION 2</div></div><div><div><div></div><div>(OOX)</div></div><div>CLOSED IN POSITION 3</div></div></div></div>	<div><div><div><div></div><div>LIQUID LEVEL ACTIVATED SWITCH OPENS ON RISING LEVEL</div></div><div><div></div><div>CLOSES ON RISING LEVEL</div></div><div><div></div><div>PRESSURE OR VACUUM ACTIVATED SWITCH OPENS ON RISING PRESSURE</div></div><div><div></div><div>CLOSES ON RISING PRESSURE</div></div><div><div></div><div>TEMPERATURE ACTIVATED SWITCH OPENS ON RISING TEMPERATURE</div></div><div><div></div><div>CLOSES ON RISING TEMPERATURE</div></div><div><div></div><div>FLOW ACTIVATED SWITCH OPENS ON INCREASE IN FLOW</div></div><div><div></div><div>CLOSES ON INCREASE IN FLOW</div></div><div><div></div><div>LIMIT SWITCH DIRECTLY ACTIVATED, SPRING RETURN NORMALLY OPEN</div></div><div><div></div><div>NORMALLY OPEN - HELD CLOSED</div></div><div><div></div><div>NORMALLY CLOSED</div></div><div><div></div><div>NORMALLY CLOSED - HELD OPEN</div></div><div><div></div><div>FOOT OPERATED SWITCH</div></div><div><div></div><div>OPENS BY FOOT PRESSURE</div></div><div><div></div><div>CLOSES BY FOOT PRESSURE</div></div><div><div></div><div>TIME DELAY SWITCH</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES AFTER TIME DELAY WHEN COIL IS ENERGIZED, OPENS INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS AFTER TIME DELAY WHEN COIL IS ENERGIZED, CLOSSES INSTANTANEOUSLY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY OPEN CONTACT CLOSSES INSTANTANEOUSLY WHEN COIL IS ENERGIZED, OPENS AFTER TIME DELAY WHEN DE-ENERGIZED</div></div><div><div></div><div>NORMALLY CLOSED CONTACT OPENS INSTANTANEOUSLY WHEN COIL IS ENERGIZED, CLOSSES AFTER TIME DELAY WHEN DE-ENERGIZED</div></div></div></div>	TIMING RELAYS	TRANSFORMERS	MISCELLANEOUS		
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DISCONNECTS AND OVERCURRENT DEVICES			INPUT SWITCHES	TIMING RELAYS	TRANSFORMERS	MISCELLANEOUS	
	1	2	3	4	5	6	

A	STAMP] [ENGINEERS
	(PROJECT NAME) GENERAL
	ENGINEERING ELECTRICAL NOTES AND STANDARD SYMBOLS DESCHUTES COUNTY, OREGON
	REVISIONS: <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>
B	[COMPANY NAME] [COMPANY ADDRESS AND PHONE NUMBER]
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D	VERIFY SCALES 0 1" BAR EQUALS ONE INCH ON ORIGINAL DRAWING SHEET: G-006 COB # (XXXXXX)

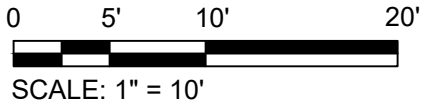
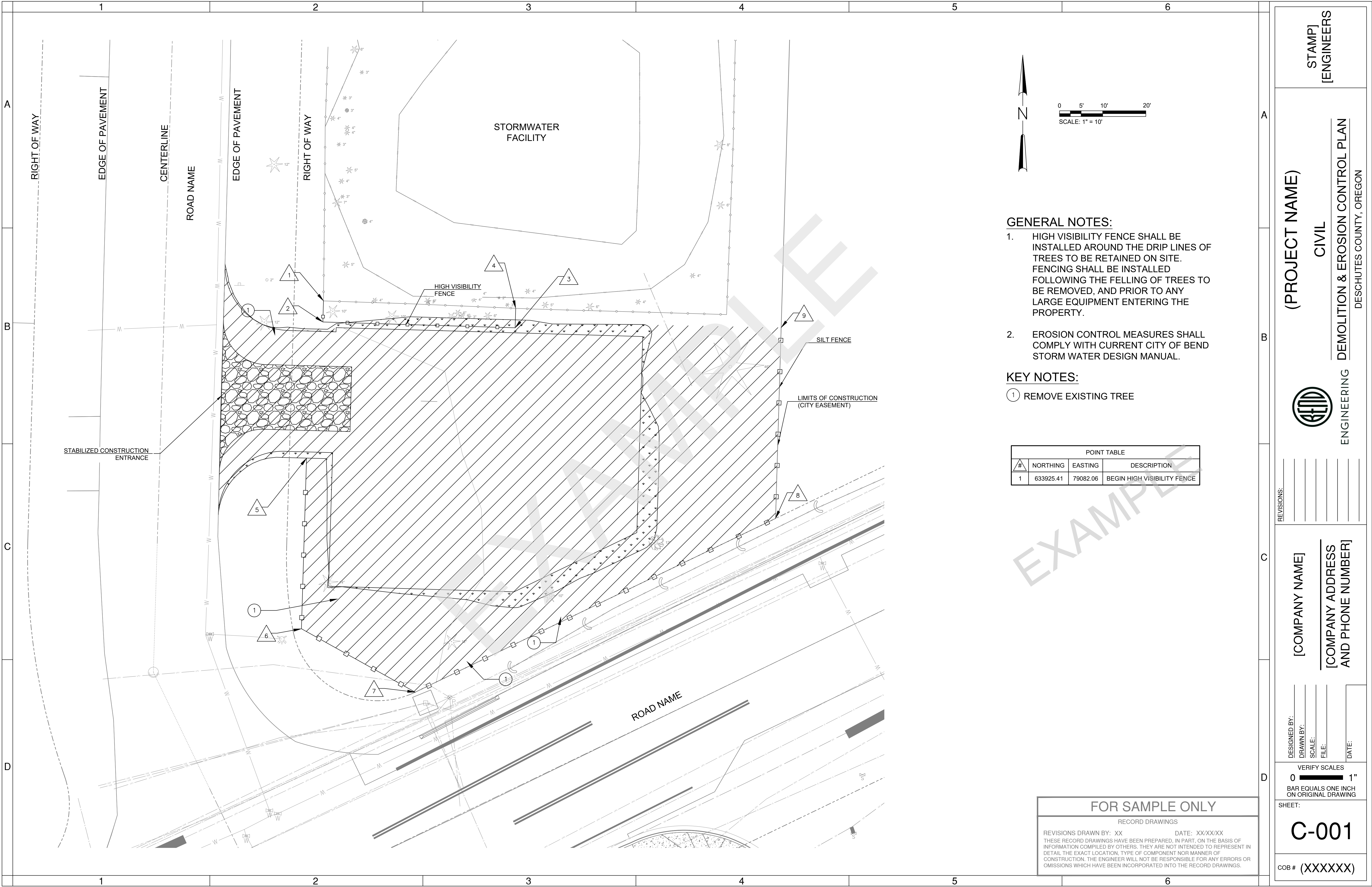












GENERAL NOTES:

- 1. HIGH VISIBILITY FENCE SHALL BE INSTALLED AROUND THE DRIP LINES OF TREES TO BE RETAINED ON SITE. FENCING SHALL BE INSTALLED FOLLOWING THE FELLING OF TREES TO BE REMOVED, AND PRIOR TO ANY LARGE EQUIPMENT ENTERING THE PROPERTY.
- 2. EROSION CONTROL MEASURES SHALL COMPLY WITH CURRENT CITY OF BEND STORM WATER DESIGN MANUAL.

KEY NOTES:

- ① REMOVE EXISTING TREE

POINT TABLE			
#	NORTHING	EASTING	DESCRIPTION
1	633925.41	79082.06	BEGIN HIGH VISIBILITY FENCE

FOR SAMPLE ONLY

RECORD DRAWINGS

REVISIONS DRAWN BY: XX      DATE: XX/XX/XX

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STAMP  
[ENGINEERS]

(PROJECT NAME)

CIVIL

ENGINEERING

DEMOLITION & EROSION CONTROL PLAN

DESCHUTES COUNTY, OREGON

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS AND PHONE NUMBER]

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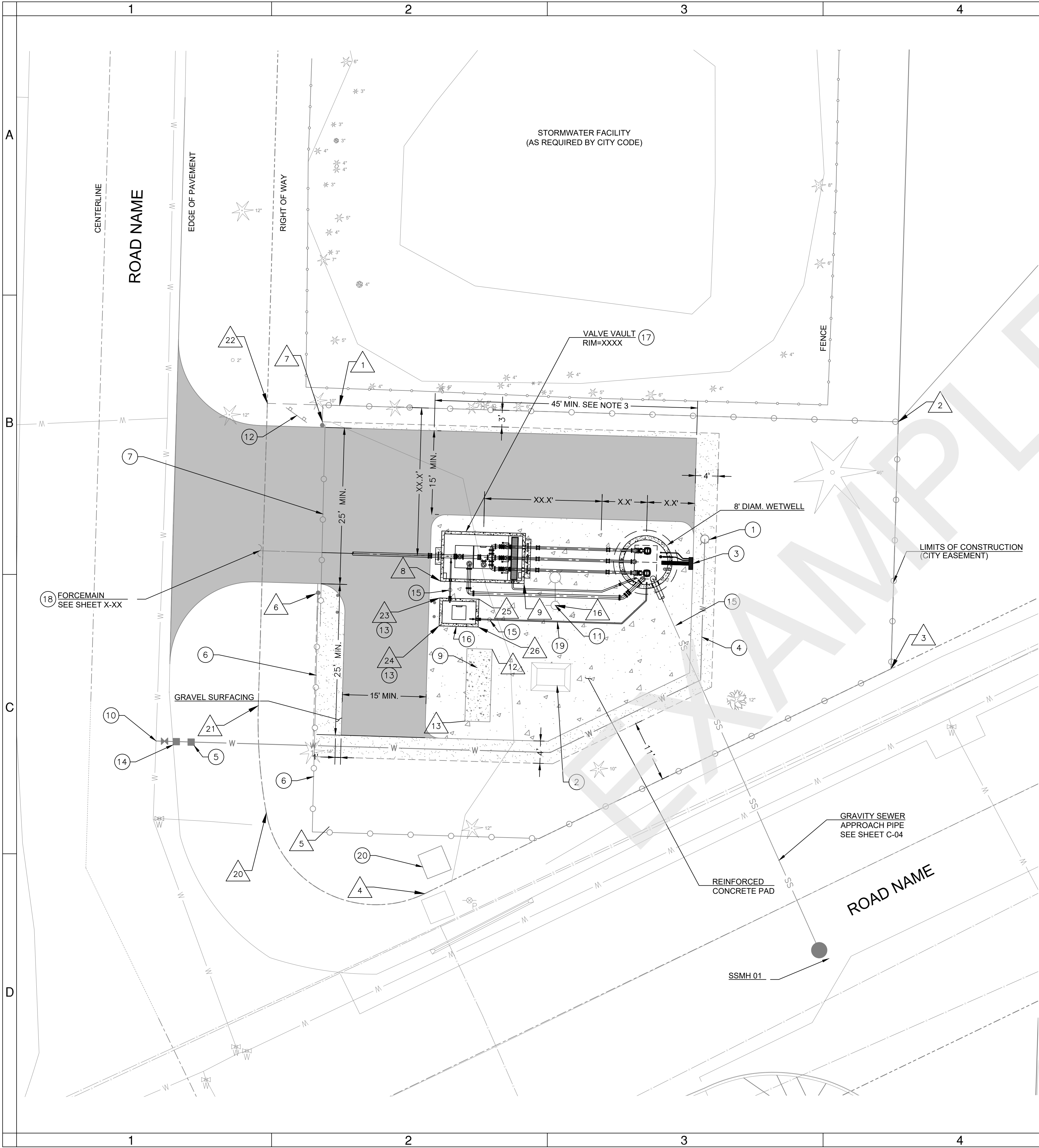
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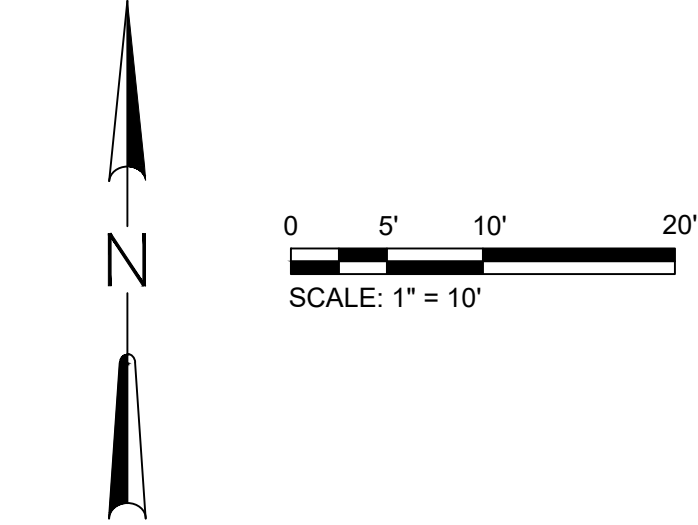
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COB # (XXXXXX)





POINT TABLE			
#	NORTHING	EASTING	DESCRIPTION
1	633922.15	79088.07	FENCE
2	633919.22	79188.12	FENCE / EASEMENT AP
3	633875.01	79186.83	FENCE / EASEMENT AP
4	633834.76	79103.32	FENCE / EASEMENT PC
5	633846.73	79086.21	FENCE
6	633888.55	79087.24	FENCE / SLIDE GATE
7	633918.54	79087.98	FENCE / SLIDE GATE
8	633890.69	79106.11	VALVE VAULT
9	633890.25	79121.10	VALVE VAULT
12	633880.50	79115.45	GENERATOR PAD
13	633867.51	79115.06	GENERATOR PAD
16	633886.36	79126.67	SITE LIGHTING
20	633849.21	79074.96	EASEMENT PCC
21	633868.41	79073.52	EASEMENT PT
22	633922.53	79075.14	EASEMENT AP
23	633867.69	79106.19	BOLLARD
24	633885.19	79106.12	BOLLARD
25	633887.57	79110.19	ODOR CONTROL STATION
26	633885.07	79110.11	ODOR CONTROL STATION



GENERAL NOTES:

- SEE CITY OF BEND STANDARD DETAIL FOR LIFT STATION AIR AND VACUUM RELEASE.
- SEE CITY OF BEND STANDARD DETAIL FOR STANDARD VALVE BOX INSTALLATION.
- DIMENSION SHOWN FOR CITY MAINTENANCE AND TRACTOR TRUCK ACCESS, ANY SITE VARIATION TO ACCESS MUST BE REVIEWED AND APPROVED BY THE CITY UTILITY DEPARTMENT.

KEY NOTES:

- NON-FREEZE TYPE WASH HYDRANT.
- CONTROL PANEL PER NFPA 820.
- ISOLATION PEDESTAL.
- 2" POLYETHYLENE PIPE CLASS 200.
- REDUCED PRESSURE BACK FLOW ASSEMBLY.
- COATED CHAIN LINK FENCE.
- AUTOMATIC 30' SLIDE GATE, VINYL COATED.
- NOTE NOT USED
- GENERATOR ON CONCRETE PAD (PROVIDE STRUCTURAL DESIGN).
- CONNECT TO EXISTING WATER MAIN.
- LIFT STATION SITE LIGHT.
- CITY SIGN, SEE DETAIL (8).
- BOLLARD TYPE 1.
- 2" WATER SERVICE WITH 2" BALL VALVE (NO METER).
- CITY OF BEND VALVE BOX.
- 6'-0" x 4'-0" CONTAINMENT FOR ODOR CONTROL STATION TO BE COORDINATED AS NEEDED BY CITY OF BEND UTILITY DEPARTMENT.
- SEE VALVE VAULT DETAILS SHEET M-101.
- ROUTE TO EXISTING FORCE MAIN.
- 4" SCHEDULE 80 PVC.
- POWER VAULT TO BE INSTALLED BY XXX.

FOR SAMPLE ONLY

RECORD DRAWINGS

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DRAWN BY:      THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.

STAMP  
[ENGINEERS]

(PROJECT NAME)  
CIVIL  
SITE PLAN  
DESCHUTES COUNTY, OREGON

ENGINEERING

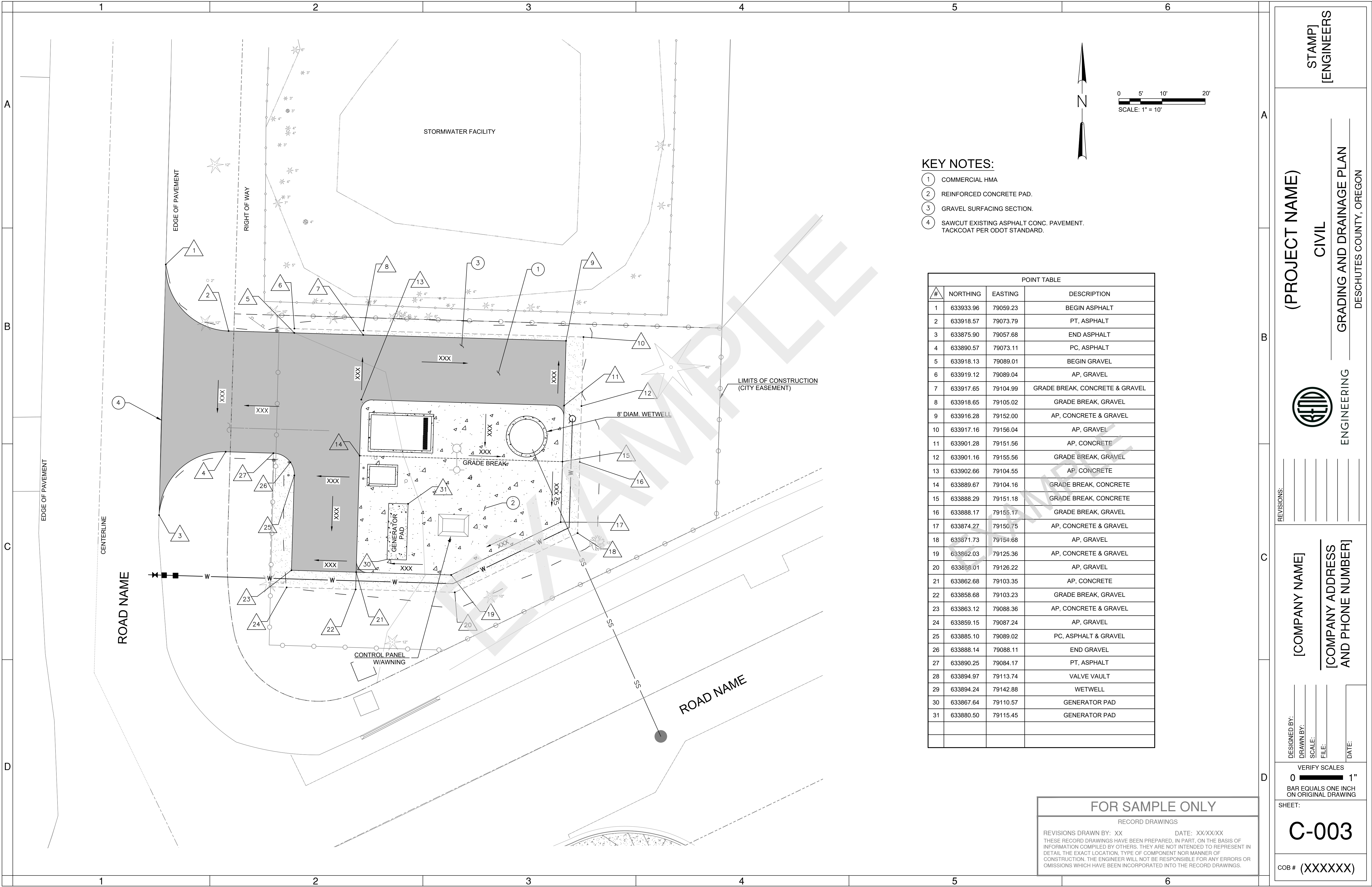
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SHEET:  
C-002

COB # (XXXXXXX)





KEY NOTES:

- 1 COMMERCIAL HMA
- 2 REINFORCED CONCRETE PAD.
- 3 GRAVEL SURFACING SECTION.
- 4 SAWCUT EXISTING ASPHALT CONC. PAVEMENT. TACKCOAT PER ODOT STANDARD.

POINT TABLE			
#	NORTHING	EASTING	DESCRIPTION
1	633933.96	79059.23	BEGIN ASPHALT
2	633918.57	79073.79	PT, ASPHALT
3	633875.90	79057.68	END ASPHALT
4	633890.57	79073.11	PC, ASPHALT
5	633918.13	79089.01	BEGIN GRAVEL
6	633919.12	79089.04	AP, GRAVEL
7	633917.65	79104.99	GRADE BREAK, CONCRETE & GRAVEL
8	633918.65	79105.02	GRADE BREAK, GRAVEL
9	633916.28	79152.00	AP, CONCRETE & GRAVEL
10	633917.16	79156.04	AP, GRAVEL
11	633901.28	79151.56	AP, CONCRETE
12	633901.16	79155.56	GRADE BREAK, GRAVEL
13	633902.66	79104.55	AP, CONCRETE
14	633889.67	79104.16	GRADE BREAK, CONCRETE
15	633888.29	79151.18	GRADE BREAK, CONCRETE
16	633888.17	79155.17	GRADE BREAK, GRAVEL
17	633874.27	79150.75	AP, CONCRETE & GRAVEL
18	633871.73	79154.68	AP, GRAVEL
19	633862.03	79125.36	AP, CONCRETE & GRAVEL
20	633858.01	79126.22	AP, GRAVEL
21	633862.68	79103.35	AP, CONCRETE
22	633858.68	79103.23	GRADE BREAK, GRAVEL
23	633863.12	79088.36	AP, CONCRETE & GRAVEL
24	633859.15	79087.24	AP, GRAVEL
25	633885.10	79089.02	PC, ASPHALT & GRAVEL
26	633888.14	79088.11	END GRAVEL
27	633890.25	79084.17	PT, ASPHALT
28	633894.97	79113.74	VALVE VAULT
29	633894.24	79142.88	WETWELL
30	633867.64	79110.57	GENERATOR PAD
31	633880.50	79115.45	GENERATOR PAD

FOR SAMPLE ONLY

RECORD DRAWINGS

REVISIONS DRAWN BY: XX      DATE: XX/XX/XX

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STAMP  
[ENGINEERS]

(PROJECT NAME)

CIVIL

GRADING AND DRAINAGE PLAN

DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS AND PHONE NUMBER]

DESIGNED BY: \_\_\_\_\_  
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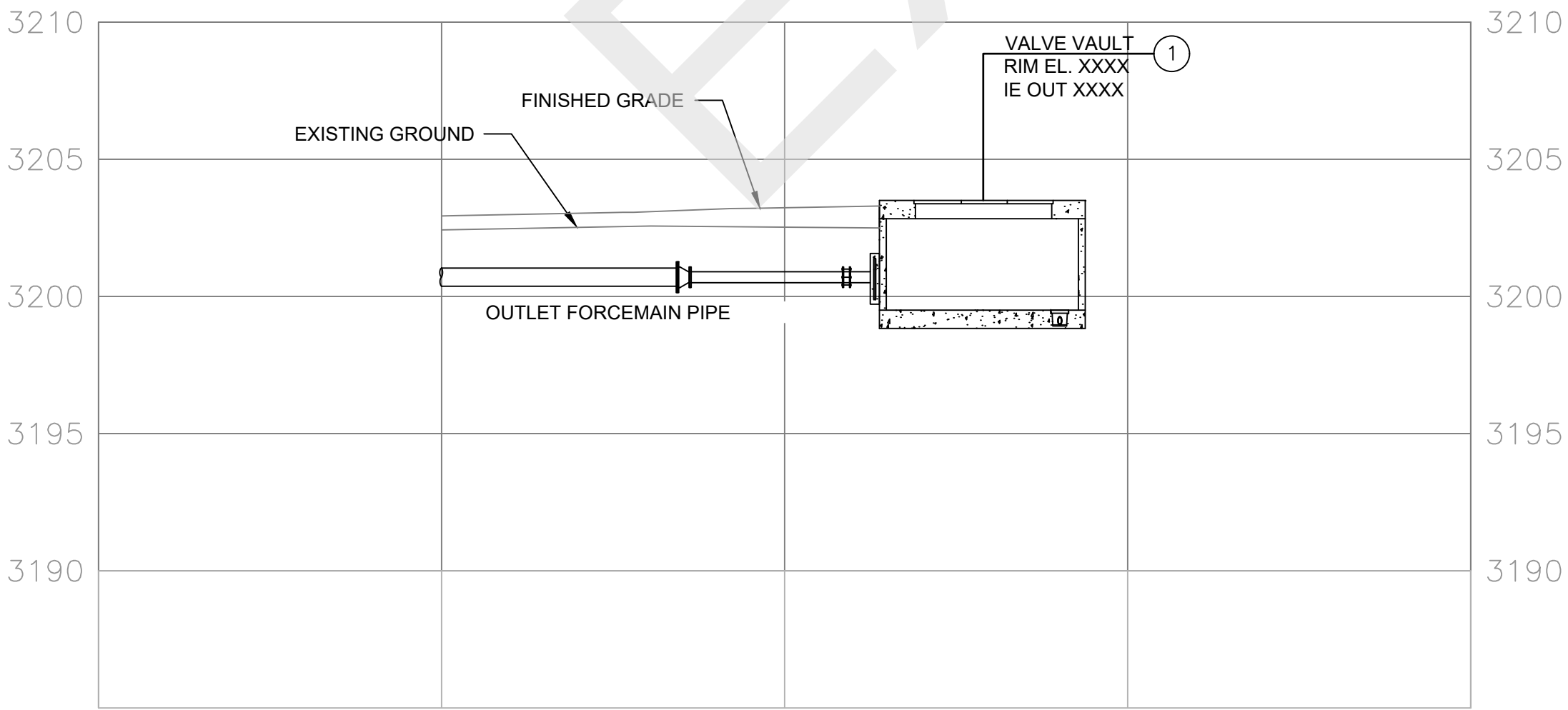
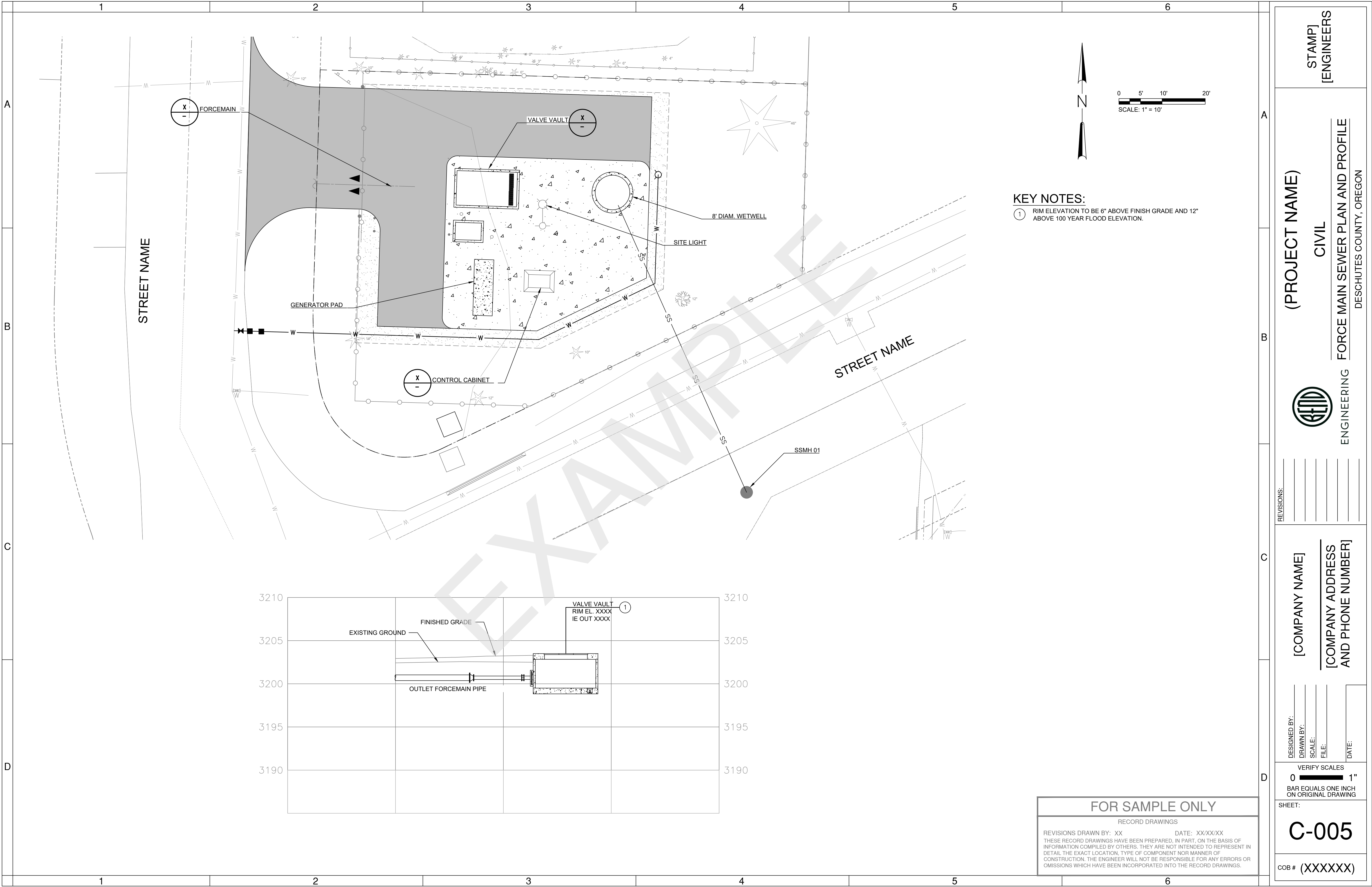
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RECORD DRAWINGS

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STAMP  
[ENGINEERS]

(PROJECT NAME)

CIVIL

FORCE MAIN SEWER PLAN AND PROFILE

DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS AND PHONE NUMBER]

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FILE: [ ]  
DATE: [ ]

VERIFY SCALES

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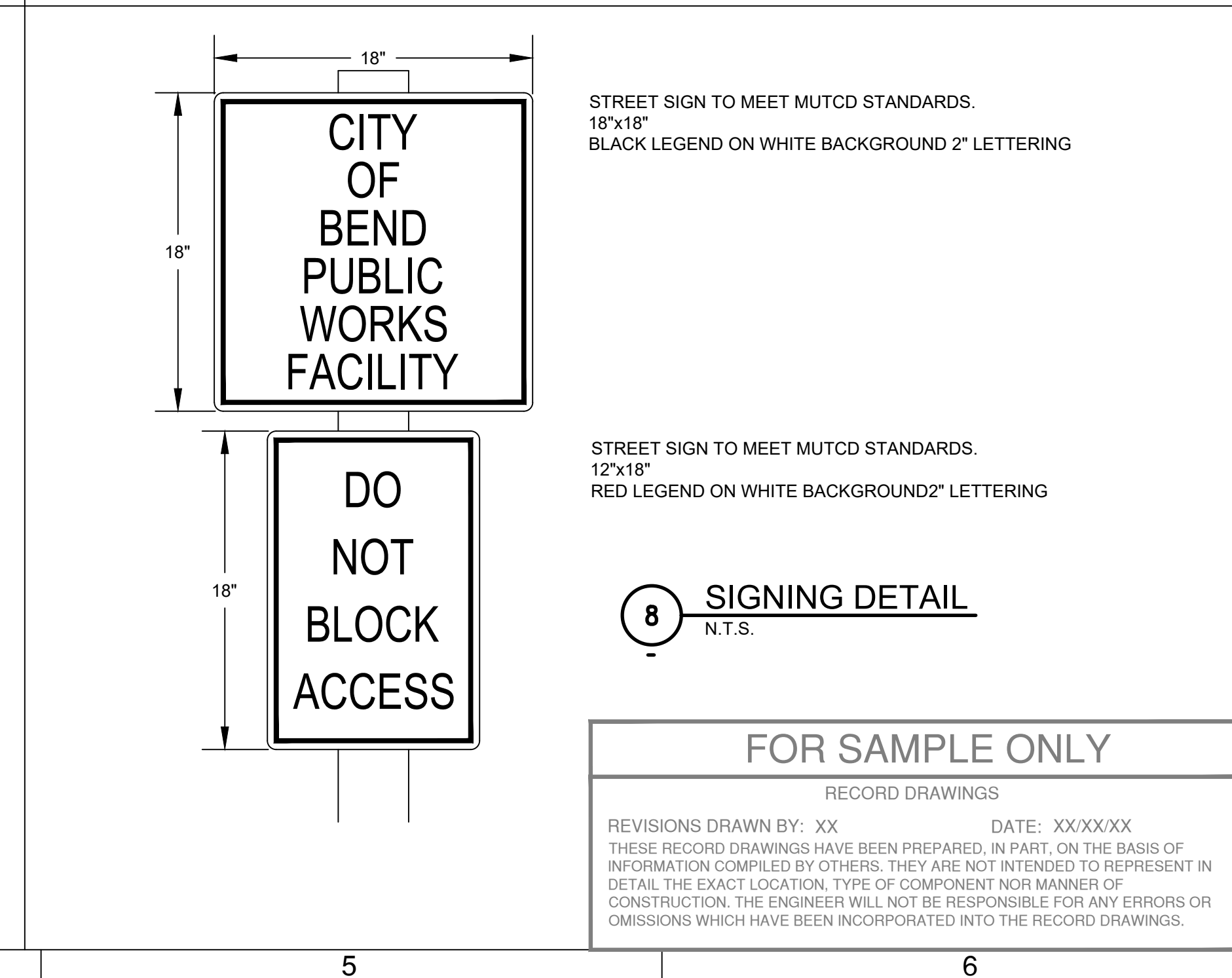
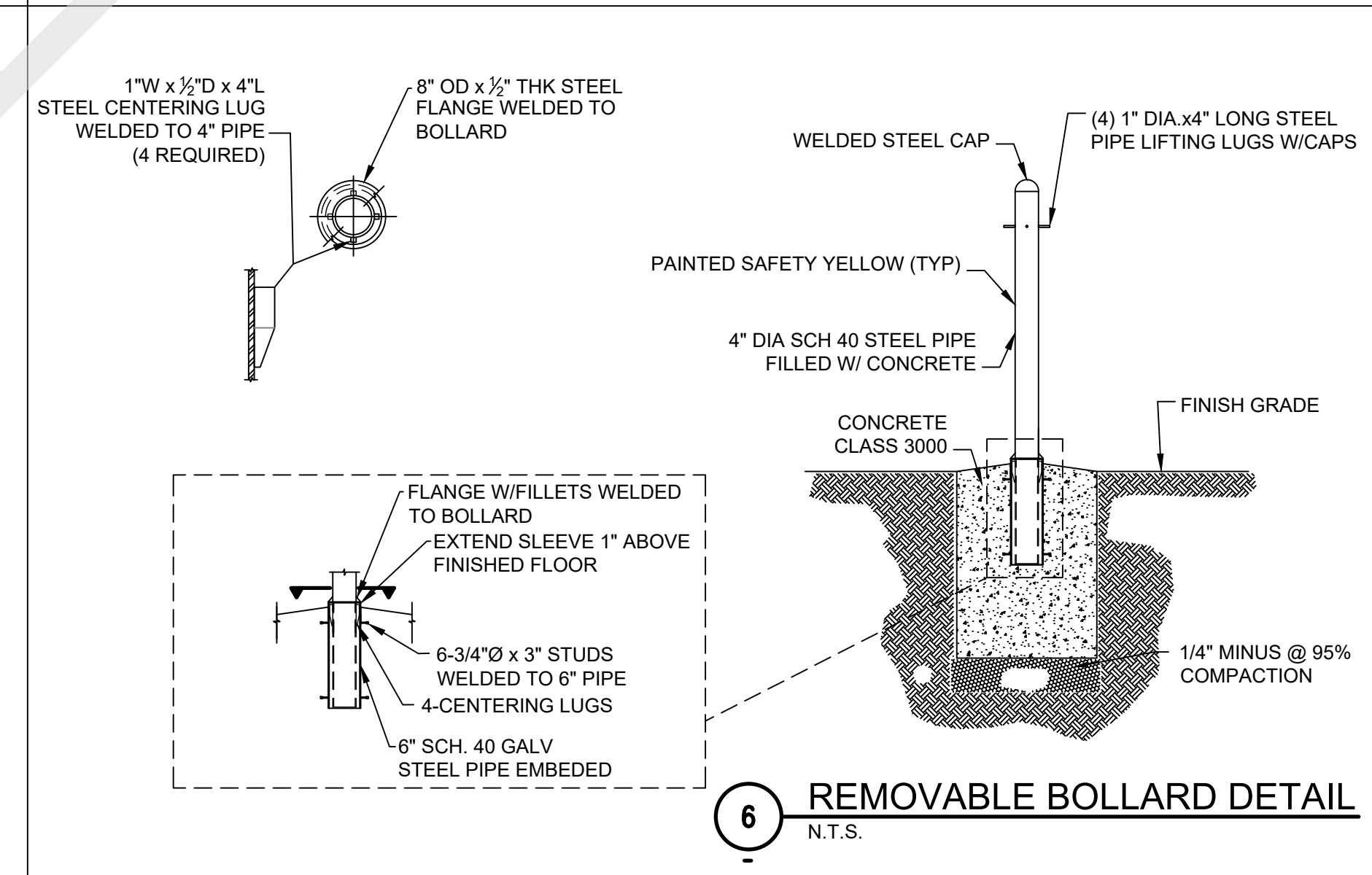
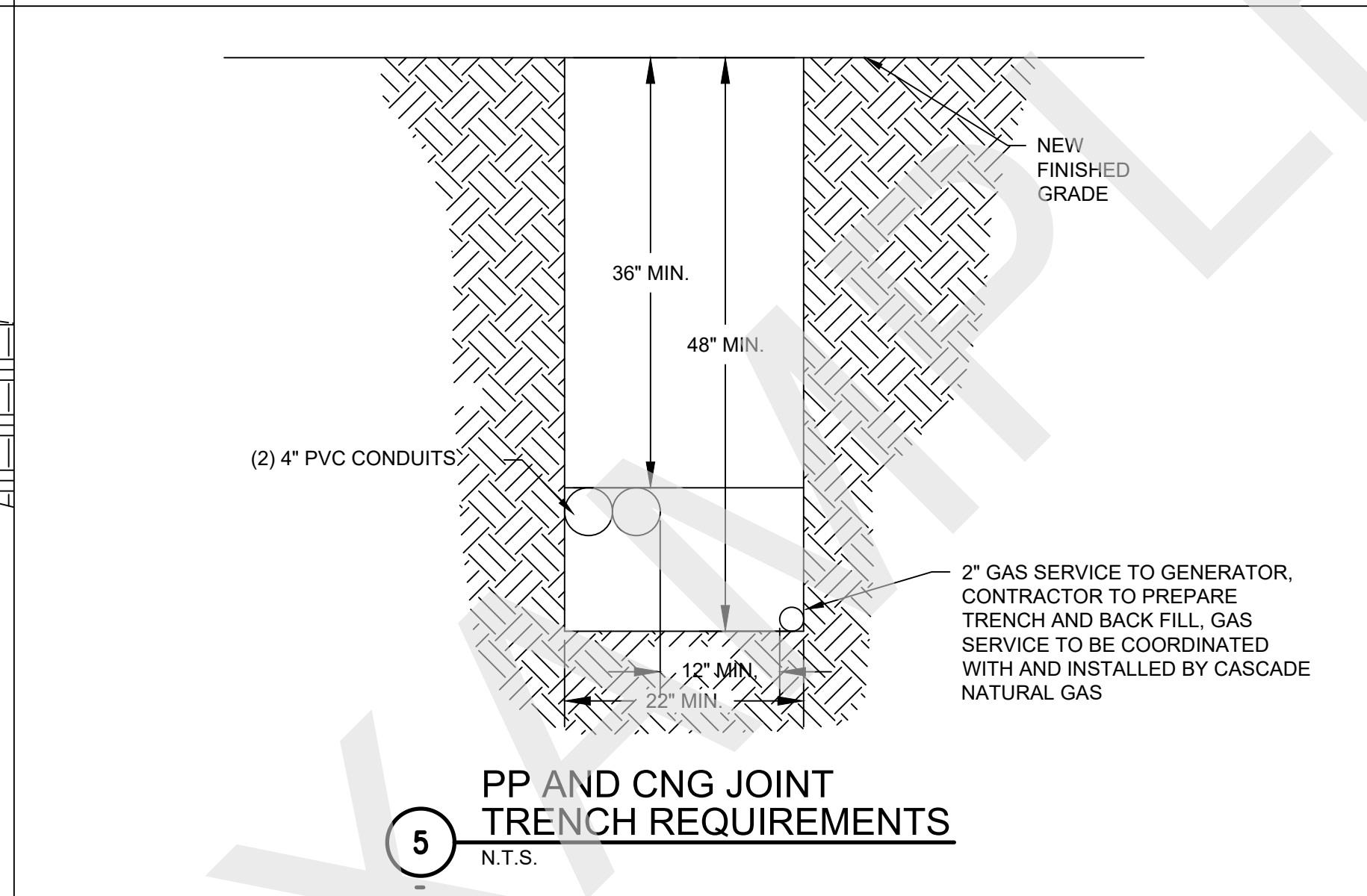
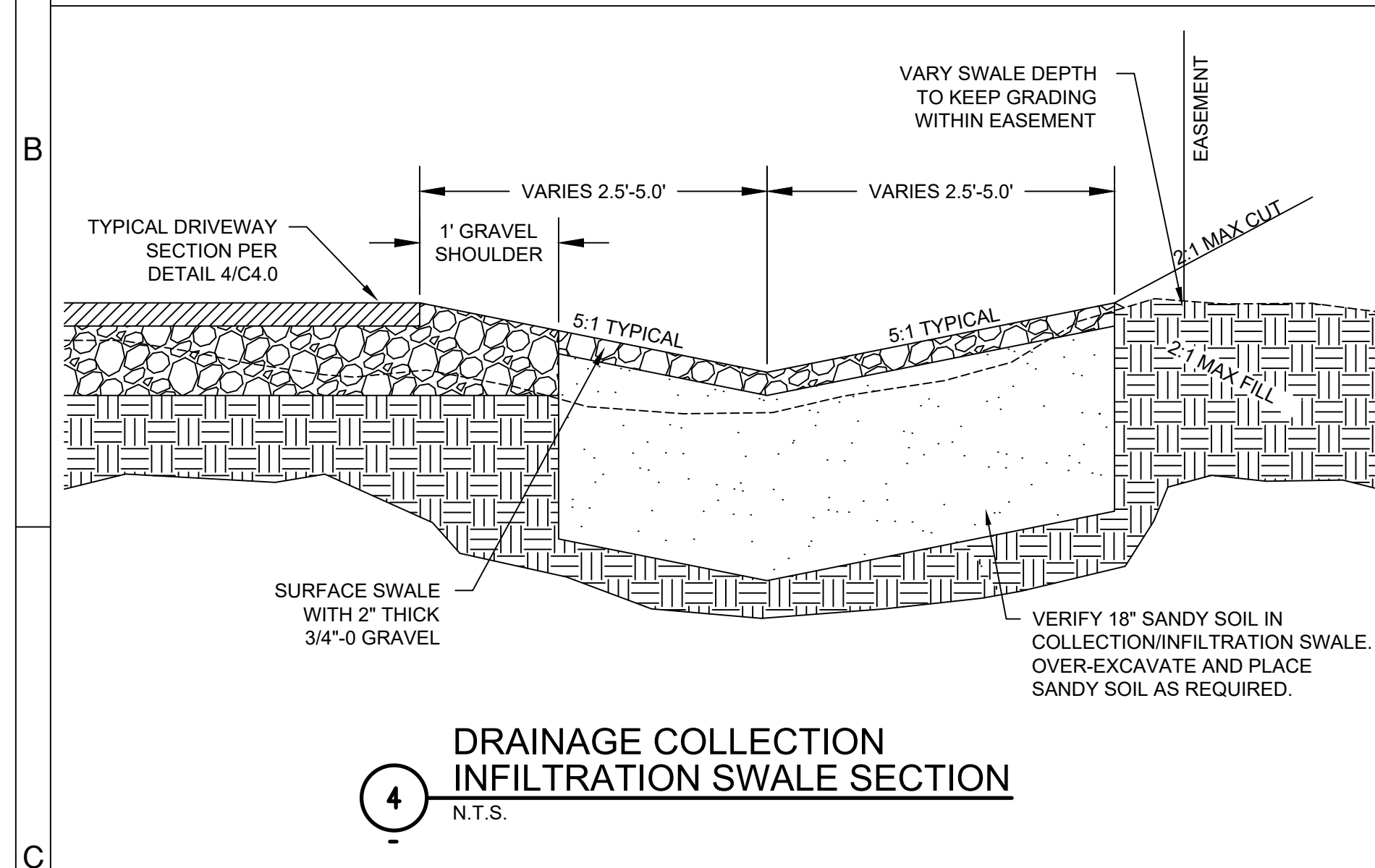
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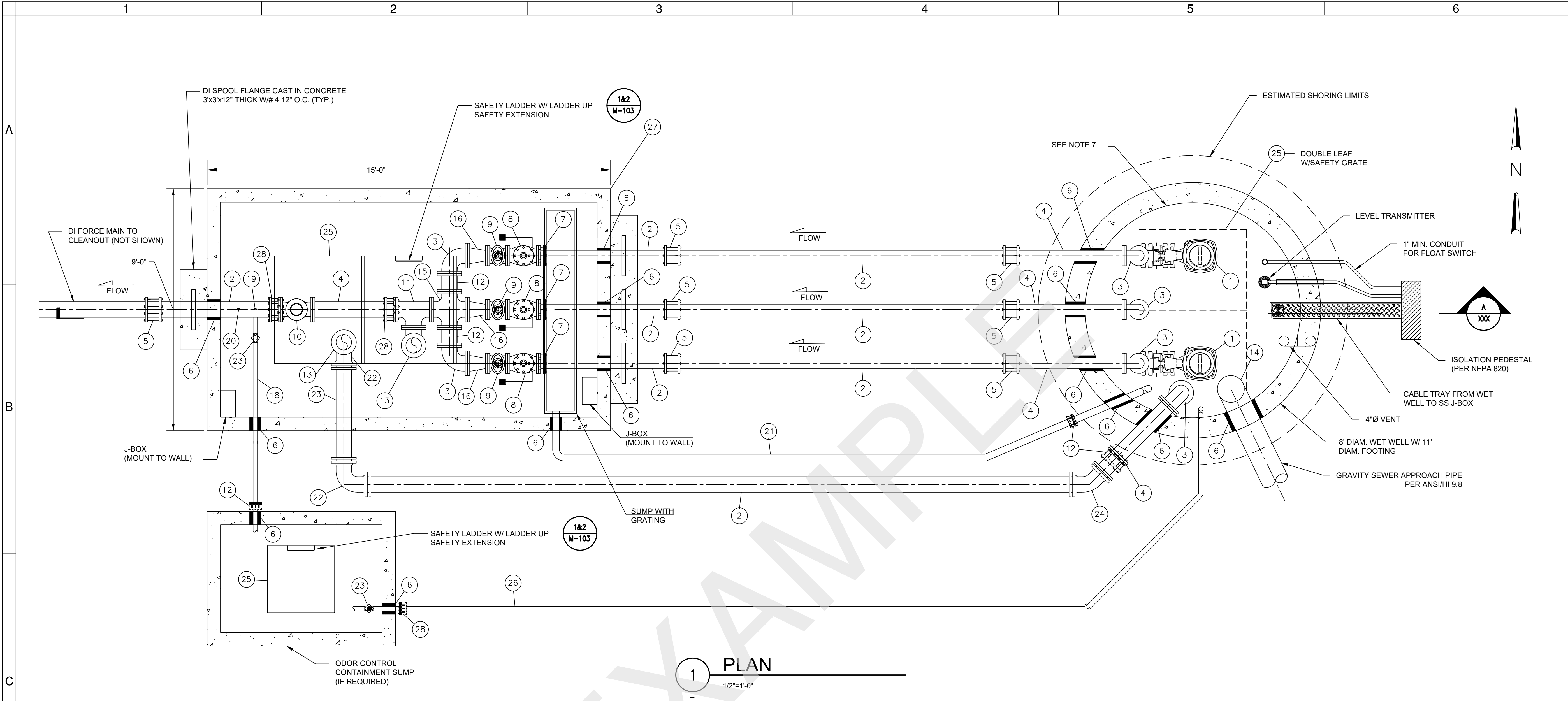
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A	B	C	D	DESIGNED BY: _____	[COMPANY NAME] _____ [COMPANY ADDRESS AND PHONE NUMBER]	REVISIONS: _____ _____ _____ _____ _____ _____ _____	 ENGINEERING	(PROJECT NAME)  CIVIL  CIVIL DETAILS _____ _____ DESCHUTES COUNTY, OREGON	STAMP] [ENGINEERS
				DRAWN BY: _____					
0 <b>VERIFY SCALES</b> 1" BAR EQUALS ONE INCH ON ORIGINAL DRAWING									
SHEET:  C-006									
COB # (XXXXXXX)									





1 PLAN  
1/2"=1'-0"

KEY NOTES:

- |   |  |
|---|--|
| 1 SUBMERSIBLE PUMPS, NOTE 6   | 17 NOT USED THIS SHEET   |
| 2 DUCTILE IRON, PLAIN END   | 18 PIPE FOR FUTURE ODOR CONTROL CHEMICAL FEED PENETRATION WITH CAP, NOTE 5 |
| 3 DUCTILE IRON 90° BEND, FL   | 19 TAPPING SADDLE WITH 1" BALL VALVE                                       |
| 4 DUCTILE IRON PIPE, FLANGE X PLAIN END                             | 20 PRESSURE TRANSMITTER ASSEMBLY WITH SADDLE TAP                           |
| 5 FLEXIBLE COUPLING   | 21 PVC SDR 35 DRAIN LINE   |
| 6 LINK SEAL   | 22 90° BEND, MJ  |
| 7 DISMANTLING JOINT   | 23 ISOLATION BALL VALVE IN VALVE BOX                                       |
| 8 SWING CHECK VALVE W/ SPRING AND LEVER, FLANGED                    | 24 45° BEND, MJ  |
| 9 PLUG VALVE, FLANGED   | 25 ALUMINUM, H20 LOAD RATED ACCESS HATCH                                   |
| 10 FLOW METER, FLANGED  | 26 4" DUCTILE IRON DRAIN LINE  |
| 11 TEE, FLANGED   | 27 PRECAST VALVE VAULT, SEE NOTE 1   |
| 12 PROVIDE FLANGED COUPLING ADAPTER FOR DIFFERENTIAL SETTLEMENT     | 28 FLANGED COUPLING ADAPTER  |
| 13 PUMPER PORT WITH ALUMINUM CAM LOCK FITTINGS (2 TYP.) MALE W/ CAP |  |
| 14 DOWN TURNED TEE  |  |
| 15 CROSS, FLANGED   |  |
| 16 REDUCER, FLANGED   |  |

GENERAL NOTES:

- VALVE VAULT SHALL BE PRECAST. (4' MAX DEPTH RIM TO FLOOR)
- ALL PIPE AND FITTINGS IN WETWELL SHALL BE DUCTILE IRON CLASS 52 WITH FLANGED JOINTS AND EPOXY COATED.
- ALL PENETRATIONS SHALL BE CORE DRILLED AND SECURED/SEALED WITH LINK SEAL.
- ALL HARDWARE AND FASTENERS TO BE 316 STAINLESS STEEL.
- CITY OF BEND RESERVES THE RIGHT TO REQUIRE ODOR CONTROL SECONDARY CONTAINMENT SUMP AND ODOR CONTROL CHEMICAL FEED BASED ON LOCAL SITE REQUIREMENTS.
- SUBMERSIBLE PUMPS TO BE FLYGT WITH WITH N-IMPELLER, OR APPROVED EQUAL. SEE G-008 FOR ADDITIONAL DESIGN DETAIL INFORMATION.
- PROVIDE THERMOPLASTIC LINER SYSTEM PER CITY STANDARDS SPECIFICATION SECTION 44 42 73.01, PREDL SYSTEMS, OR EQUAL.
- CONTRACTOR TO INSTALL SST GUIDE RAILS AND PUMP DISCHARGE PIPING FOR FUTURE THIRD PUMP.
- BYPASS SUCTION END OF PIPE TO BE 2'-0" BELOW GRAVITY APPROACH SEWER INVERT.
- ALL PIPE AND FITTING SIZES TO BE DETERMINED BASED ON SITE SPECIFIC REQUIREMENTS.

FOR SAMPLE ONLY

RECORD DRAWINGS  
DESIGNED BY: XX DATE: XX/XX/XX  
DRAWN BY: XX  
SCALE: XX  
FILE: XX  
DATE: XX  
THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.

STAMP  
[ENGINEERS]

(PROJECT NAME)  
**MECHANICAL**  
LIFT STATION MECHANICAL PLAN  
DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:  
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[COMPANY NAME]

[COMPANY ADDRESS  
AND PHONE NUMBER]

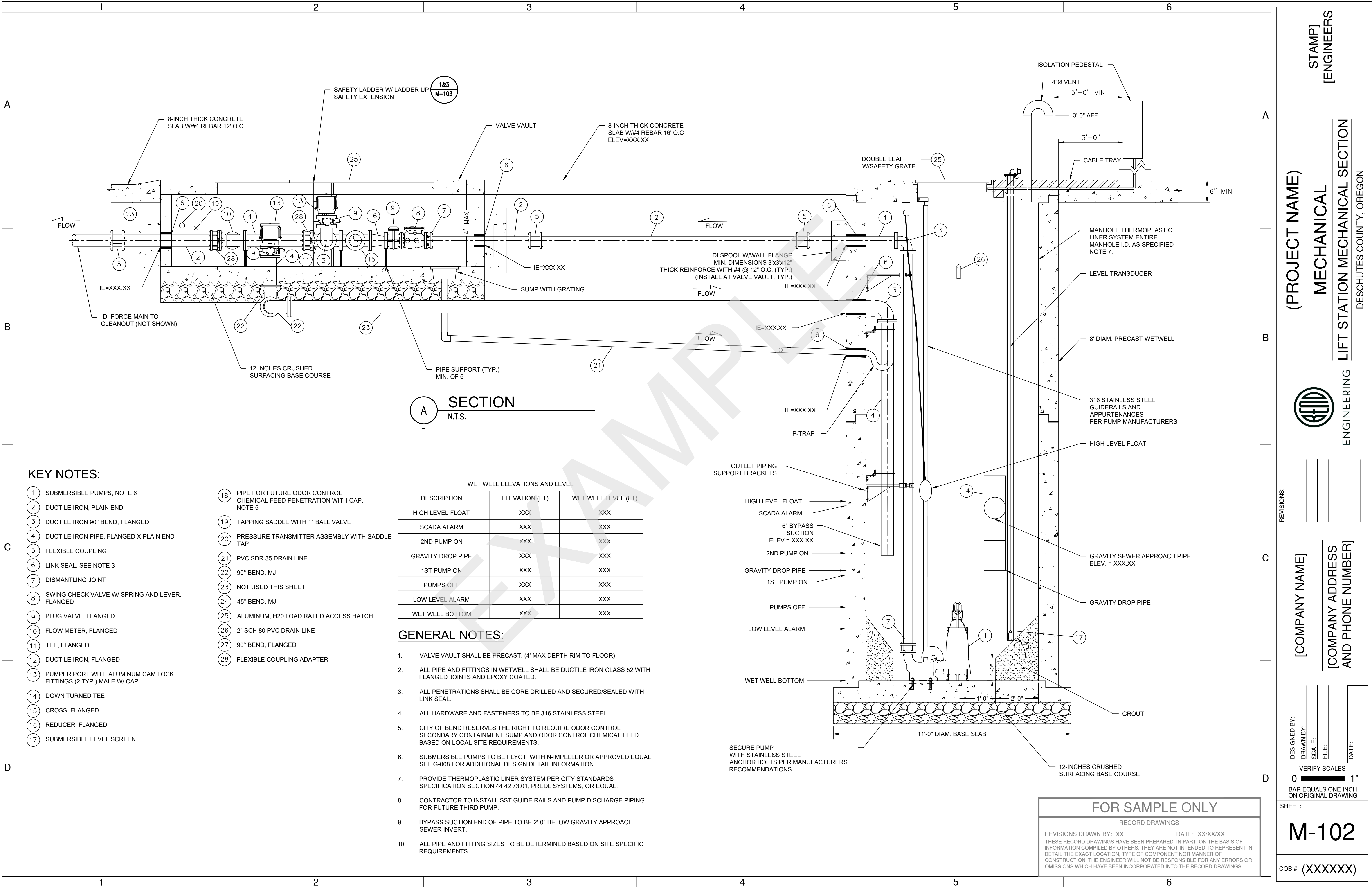
DESIGNED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
SCALE: \_\_\_\_\_  
FILE: \_\_\_\_\_  
DATE: \_\_\_\_\_

VERIFY SCALES  
0 1"  
BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

SHEET:  
**M-101**


COB # (XXXXXX)





STAMP  
[ENGINEERS]

(PROJECT NAME)  
**MECHANICAL**  
LIFT STATION MECHANICAL SECTION  
DESCHUTES COUNTY, OREGON

  
ENGINEERING

REVISIONS:  
| | | | |

[COMPANY NAME]  
[COMPANY ADDRESS  
AND PHONE NUMBER]

DESIGNED BY: |  
DRAWN BY: |  
SCALE: |  
FILE: |  
DATE: |

VERIFY SCALES  
0 1"  
BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

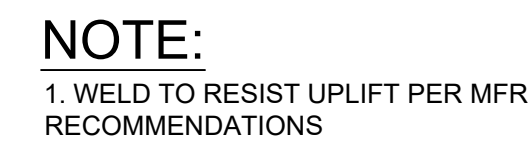
SHEET:  
**M-102**

COB # (XXXXXX)

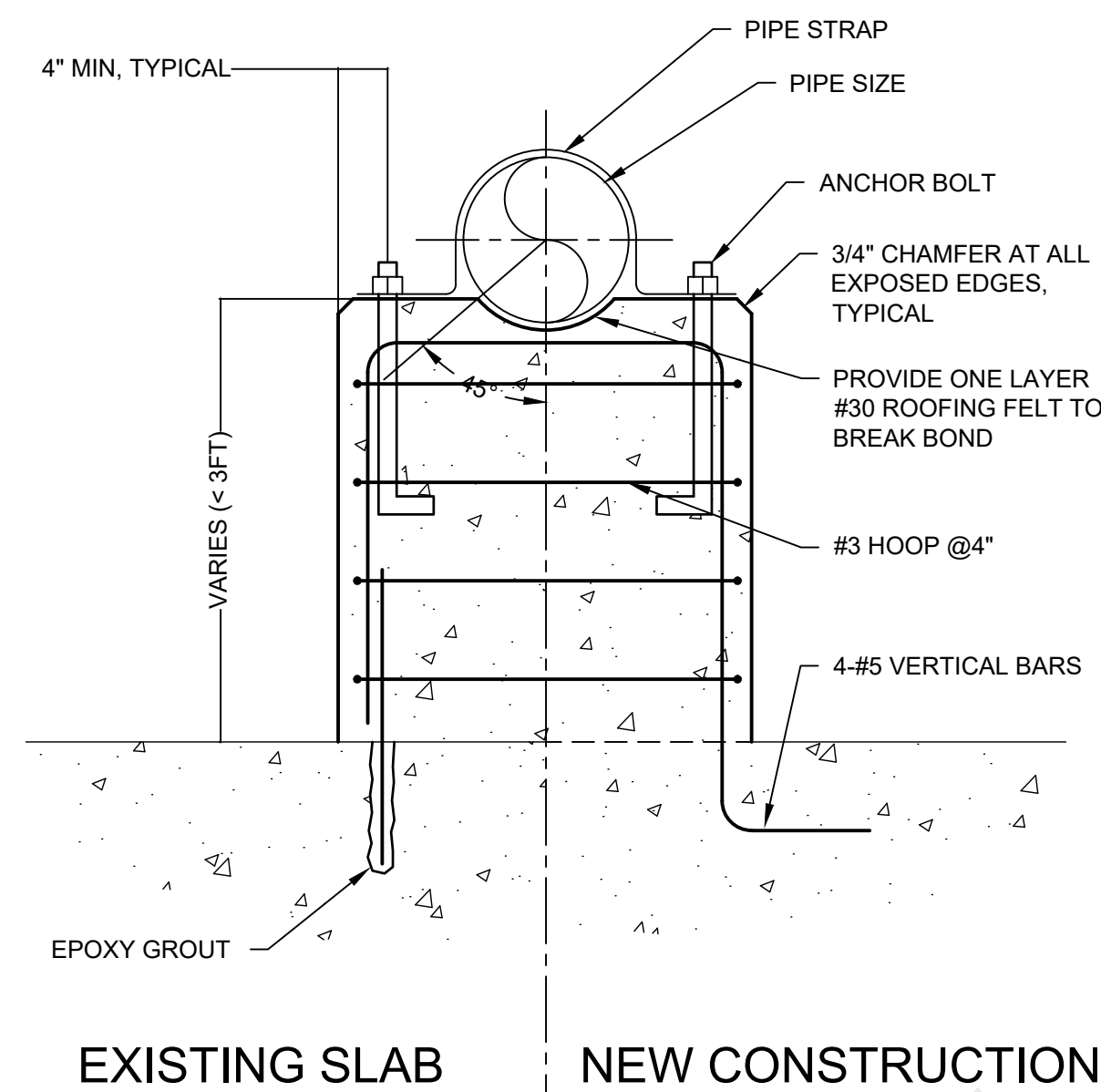








6 CONCRETE PEDESTAL SUPPORT



PIPE SIZE, DIA	PIPE STRAP	ANCHOR BOLTS, DIA	PEDESTAL THICKNESS
6"-12"	1/4"x2"	1/2"	12"

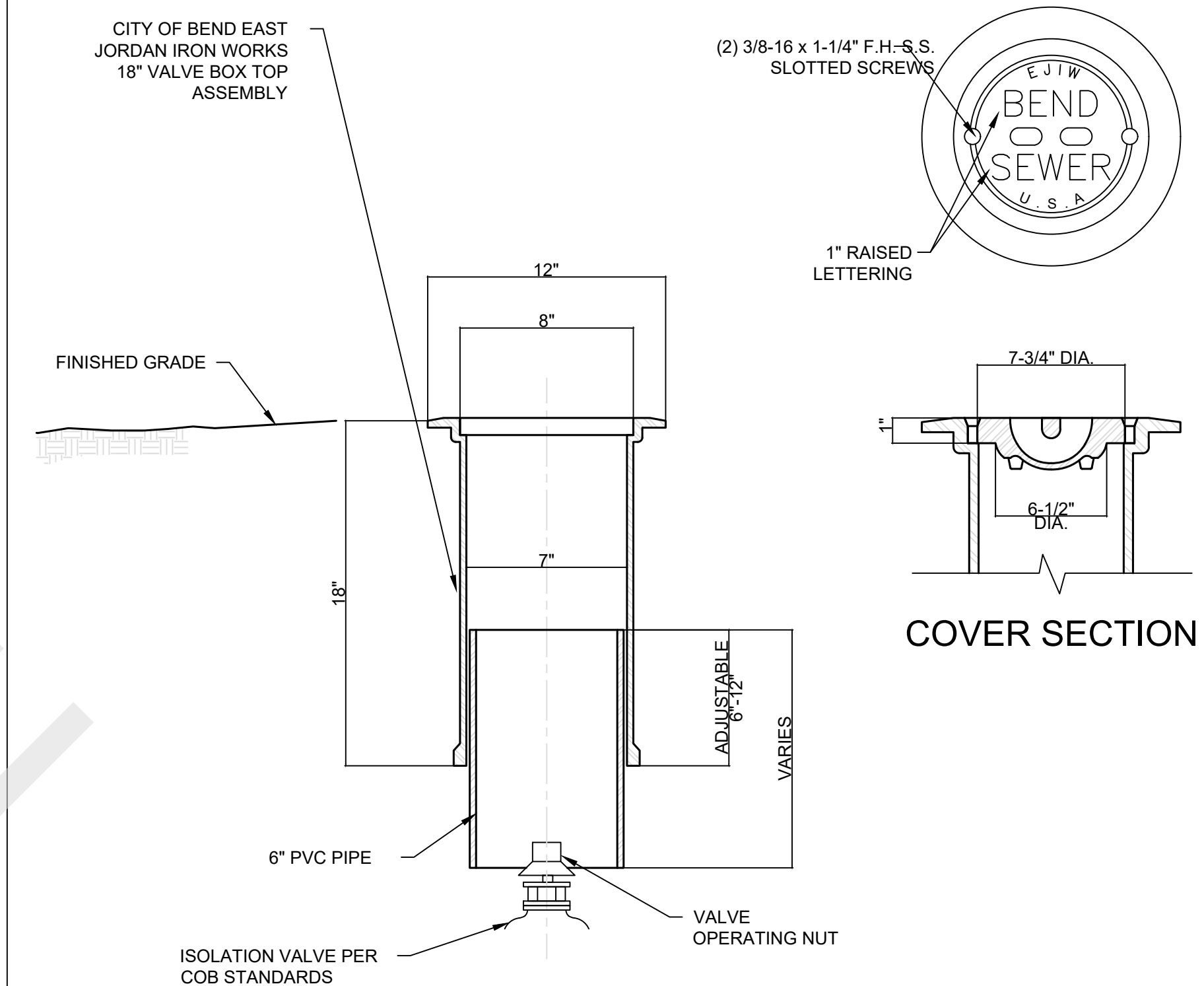


Diagram illustrating the components and dimensions of a pipe saddle assembly:

- PIPE SADDLE**: The top component that supports the pipe.
- PROVIDE CLAMP WITH SUPPORT**: Instruction for the clamping mechanism.
- "D"**: Dimension indicating the height from the base to the top of the saddle.
- "B"**: Dimension indicating the width of the saddle.
- LENGTH AND THREADS TO ALLOW MINIMUM AND MAXIMUM DIMENSIONS SHOWN IN TABLE. USE STRAIGHT THREADS.**: Instruction for the threaded section.
- "A"**: Dimension indicating the length of the threaded section.
- SCHEDULE 40 PIPE**: The main pipe being supported.
- "C"**: Dimension indicating the width of the base flange.
- THREADED 150 LB REDUCING FLANGE**: The base component that connects to the anchors.
- (4) EPOXY ADHESIVE ANCHORS, SEE TABLE**: The anchors used to secure the base flange into the concrete.

Overall height dimension: **36" MAX**

FLOOR PIPE SUPPORT SCHEDULE							
DIMENSIONS IN INCHES							
PIPE SIZE	"A"	"B"	"C"	"D"		ANCHORS	
				MINIMUM	MAXIMUM	DIA	EMBED
≤ 2 1/2	2 1/2	1 1/2	9	8	13	5/8	5
3	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
3 1/2	2 1/2	1 1/2	9	8 1/2	13 1/2	5/8	5
4	3	2 1/2	9	9 1/2	14	5/8	5
6	3	2 1/2	9	10 1/2	15 1/2	5/8	5
8	3	2 1/2	9	11 1/2	16 1/2	5/8	5
10	3	2 1/2	9	13 1/2	18 1/2	5/8	5
12	3	2 1/2	9	15	19 1/2	5/8	5

8 FLOOR PIPE SUPPORT

# FOR SAMPLE ONLY

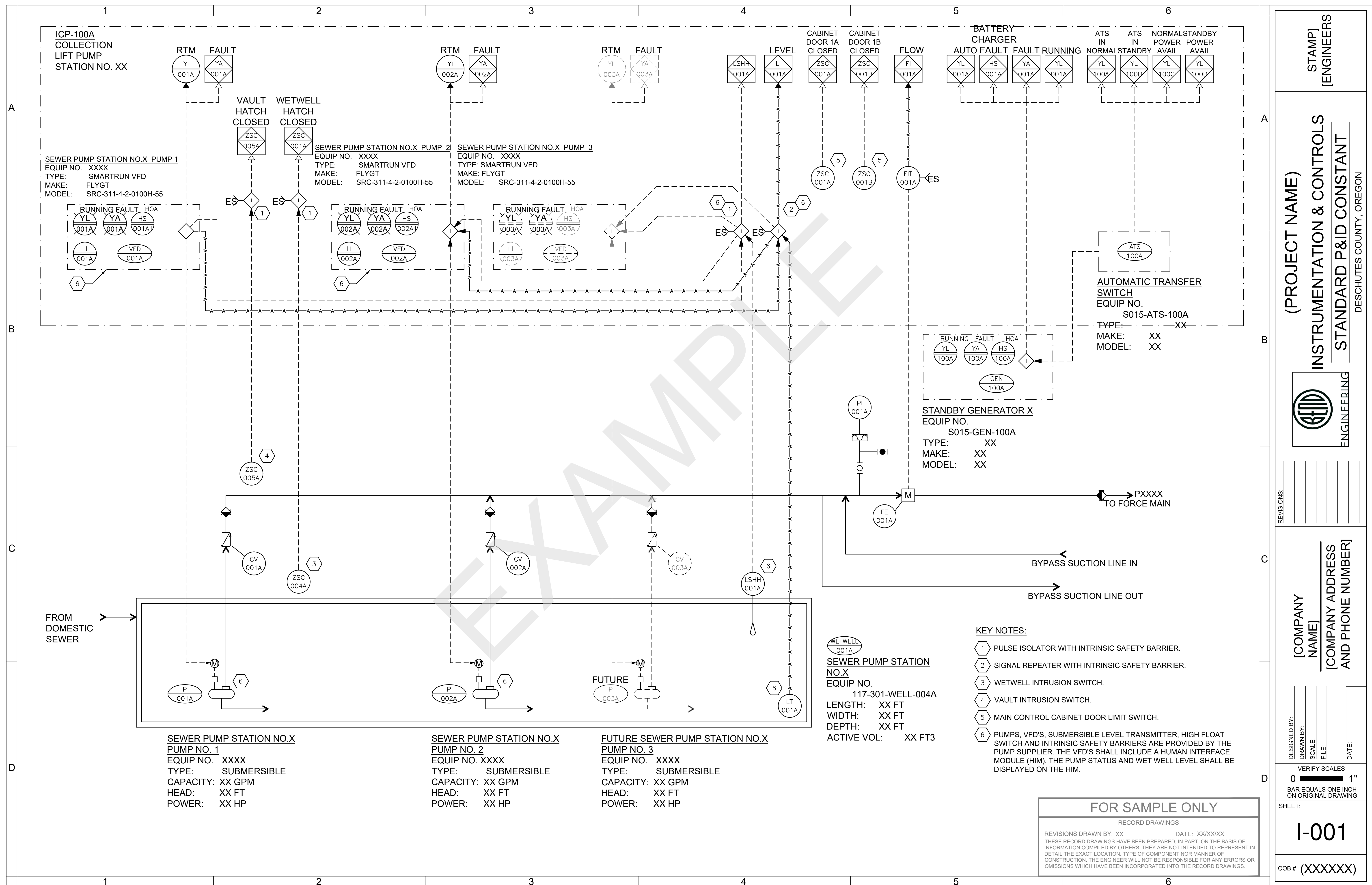
## RECORD DRAWINGS

REVISIONS DRAWN BY: XX                      DATE: XX/XX/XX

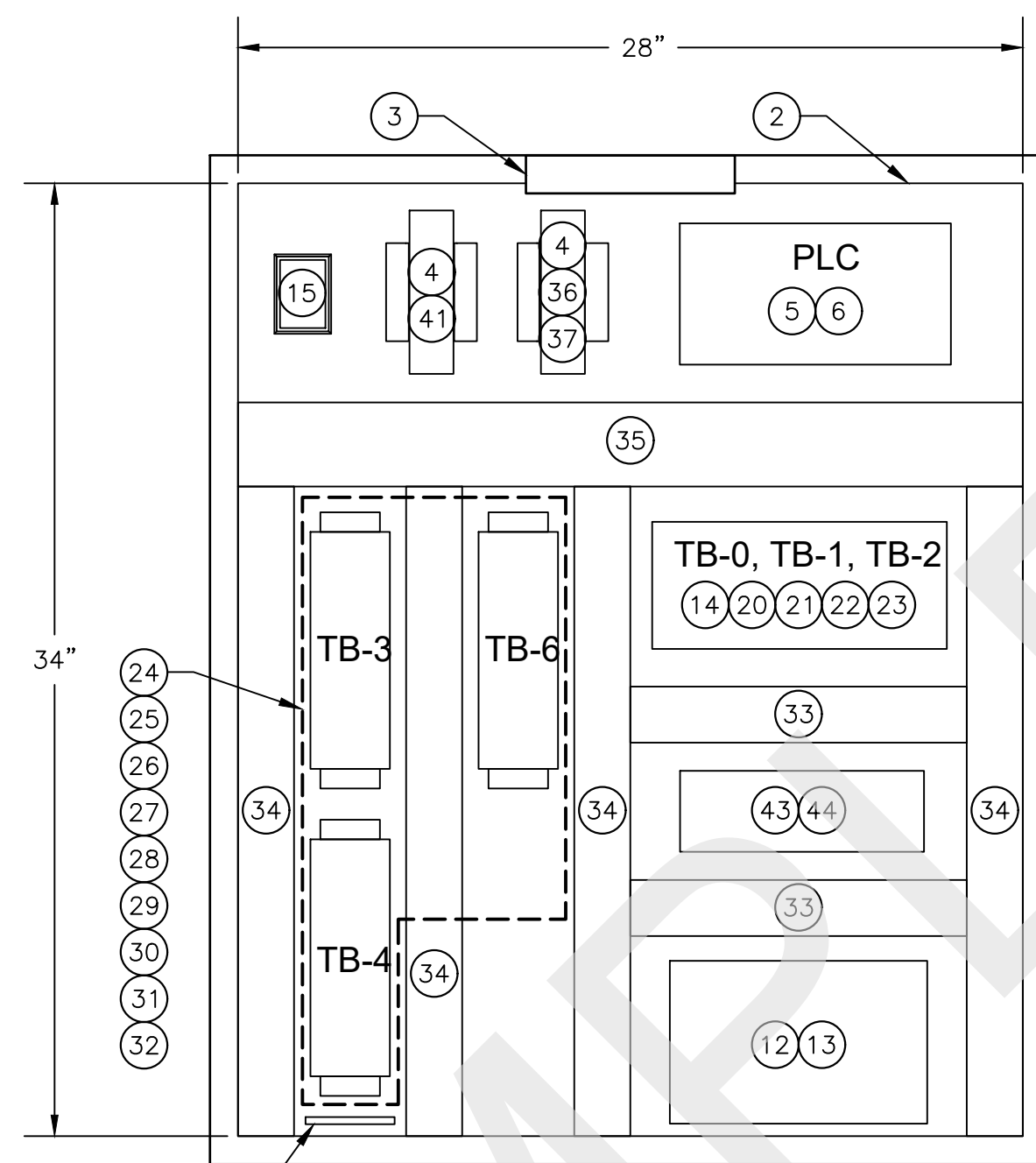
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<div>DESIGNED BY: _____</div> <div>DRAWN BY: _____</div> <div>SCALE: _____</div> <div>FILE: _____</div> <div>DATE: _____</div>		<div>[COMPANY NAME]</div> <div>[COMPANY ADDRESS AND PHONE NUMBER]</div>		<div>REVISIONS:</div> <div>_____</div> <div>_____</div> <div>_____</div> <div>_____</div> <div>_____</div> <div>_____</div>		<div>(PROJECT NAME)</div> <div>MECHANICAL</div> <div>MECHANICAL DETAILS</div> <div>DESCHUTES COUNTY, OREGON</div>		<div>STAMP</div> <div>[ENGINEERS]</div>	
<div>VERIFY SCALES</div> <div>0 <div>_____</div> 1"</div> <div>BAR EQUALS ONE INCH ON ORIGINAL DRAWING</div> <div>SHEET:</div> <div>M-104</div>									
<div>COB # (XXXXXXX)</div>									









## INTERIOR ELEVATION

1 — PA  
N.T.S.

- LEGEND:**
- ☒ INDICATES BILL OF MATERIALS (BOM) ITEM;  
REFERENCE SHEET I-003
- ☒ INDICATES NAMEPLATE ITEM; REFERENCE SHEET  
I-003

LEGEND:

☒ INDICATES BILL OF MATERIALS (BOM) ITEM;  
REFERENCE SHEET I-003

(X) INDICATES NAMEPLATE ITEM; REFERENCE SHEET  
I-003

FOR SAMPLE ONLY

RECORD DRAWINGS

REVISIONS DRAWN BY: XX                      DATE: XX/XX/XX

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STAMP]  
[ENGINEERS

(PROJECT NAME)

**CONTROL PANEL TYPE B**  
**TEMPLATE (50 I/Os) PANEL LAYOUT**  
DESCHUTES COUNTY, OREGON

DESCHUTES COUNTY, OREGON



# ENGINEERING

[COMPANY  
NAME]

DRAWN BY: \_\_\_\_\_

SCALE: \_\_\_\_\_

FILE:

FILE:

FILE:

DATE:

VERIFY SCALES	
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EQUALS ONE INCH  
ORIGINAL DRAWING

SHEET:

-002

OB # (XXXXXX)



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A	<div><div>BILL OF MATERIALS</div><table><tr><th>ITEM</th><th>QTY</th><th>DESCRIPTION</th><th>MANUFACTURE</th><th>MODEL/CAT #</th><th>SUPPLIER</th></tr><tr><td>①</td><td>1</td><td>ENCLOSURE</td><td>HOFFMAN</td><td>CSD363010 OR APPROVED EQUAL</td><td>PF</td></tr><tr><td>②</td><td>1</td><td>BACK PANEL</td><td>HOFFMAN</td><td>CP3630</td><td>PF</td></tr><tr><td>③</td><td>1</td><td>LIGHTING KIT</td><td>HOFFMAN</td><td>ALF16D12R</td><td>PF</td></tr><tr><td>④</td><td>AR</td><td>MOUNTING ALUMINUM BRACKETS</td><td>SHOP SUPPLY</td><td>SHOP SUPPLY</td><td>PF</td></tr><tr><td>⑤</td><td>1</td><td>MICROLOGIX 1400 WITH ETHERNET PORT</td><td>ALLEN-BRADLEY</td><td>1766-L32BXB</td><td>PF</td></tr><tr><td>⑥</td><td>1</td><td>1762 AI MODULE</td><td>ALLEN-BRADLEY</td><td>1762-IF4</td><td>PF</td></tr><tr><td>⑦</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑧</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑨</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑩</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑪</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑫</td><td>1</td><td>24VDC POWER SUPPLY</td><td>PULS</td><td>QS10.241</td><td>PF</td></tr><tr><td>⑬</td><td>1</td><td>24VDC UPS WITH INTEGRATED BATTERY</td><td>PULS</td><td>UBC10-241</td><td>PF</td></tr><tr><td>⑭</td><td>2</td><td>15A CIRCUIT BREAKER</td><td>ALLEN-BRADLEY</td><td>1492-SP1C150</td><td>PF</td></tr><tr><td>⑮</td><td>1</td><td>SURGE SUPPRESSOR</td><td>CONTROL CONCEPT</td><td>SLATROL IE-120</td><td>PF</td></tr><tr><td>⑯</td><td>1</td><td>DATA INTERFACE PORT</td><td>HOFFMAN</td><td>HGF5CN</td><td>PF</td></tr><tr><td>⑰</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑱</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>⑲</td><td>3</td><td>ELECTROMECHANICAL HOUR METER</td><td>REDINGTON</td><td>732-0014</td><td>PF</td></tr><tr><td>⑳</td><td>AR</td><td>10A CB4200 SERIES CIRCUIT BREAKER</td><td>WEIDMULLER</td><td>910 190 3500</td><td>PF</td></tr><tr><td>㉑</td><td>AR</td><td>0.5A CB4200 SERIES CIRCUIT BREAKER</td><td>WEIDMULLER</td><td>910 100 3500</td><td>PF</td></tr><tr><td>㉒</td><td>AR</td><td>3A CB4200 SERIES CIRCUIT BREAKER</td><td>WEIDMULLER</td><td>910 170 3500</td><td>PF</td></tr><tr><td>㉓</td><td>AR</td><td>2A CB4200 SERIES CIRCUIT BREAKER</td><td>WEIDMULLER</td><td>910 150 3500</td><td>PF</td></tr><tr><td>㉔</td><td>AR</td><td>0.1A CB4200 SERIES CIRCUIT BREAKER</td><td>WEIDMULLER</td><td>910 417 3500</td><td>PF</td></tr><tr><td>㉕</td><td>AR</td><td>FEED THROUGH TERMINAL WDU 2.5 (BEIGE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉖</td><td>AR</td><td>FEED THROUGH TERMINAL WDU 2.5 BL (BLUE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉗</td><td>AR</td><td>GROUNDING TERMINAL WPE 2.5</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉘</td><td>AR</td><td>END PLATE WAP 2.5-10 (BEIGE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉙</td><td>AR</td><td>END PLATE WAP 2.5-10 BL (BLUE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉚</td><td>AR</td><td>PARTITION WTW EN (DARK BEIGE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉛</td><td>AR</td><td>END BRACKET WEW 35/2 (DARK BEIGE)</td><td>WEIDMULLER</td><td>-</td><td>PF</td></tr><tr><td>㉜</td><td>AR</td><td>ZINC PLATED YELLOW-CHROMATE STEEL T-35 DIN RAIL</td><td>SHOP SUPPLY</td><td>SHOP SUPPLY</td><td>PF</td></tr><tr><td>㉝</td><td>AR</td><td>1.5" W X 3" D WIREWAY W/ COVER</td><td>PANDUIT</td><td>F1.5X3LG6 &amp; C1.5LG6</td><td>PF</td></tr><tr><td>㉞</td><td>AR</td><td>2" W X 3" D WIREWAY W/ COVER</td><td>PANDUIT</td><td>F2X3LG6 &amp; C2LG6</td><td>PF</td></tr><tr><td>㉟</td><td>AR</td><td>3" W X 3" D WIREWAY W/ COVER</td><td>PANDUIT</td><td>F3X3LG6 &amp; C3LG6</td><td>PF</td></tr><tr><td>㊱</td><td>1</td><td>8 PORT NETWORK SWITCH</td><td>SIXNET</td><td>SLX-8MS</td><td>PF</td></tr><tr><td>㊲</td><td>1</td><td>6FT CAT6 PATCH CABLE</td><td>SHOP SUPPLY</td><td>SHOP SUPPLY</td><td>PF</td></tr><tr><td>㊳</td><td>2</td><td>GROUND BUS</td><td>SHOP SUPPLY</td><td>SHOP SUPPLY</td><td>PF</td></tr><tr><td>㊴</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>㊵</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>㊶</td><td>1</td><td>LONG RANGE IP/ETHERNET RADIO</td><td>GE MDS</td><td>TO BE DETERMINED BY CITY STAFF</td><td>PF</td></tr><tr><td>㊷</td><td>4</td><td>LOUVER WITH FILTER</td><td>HOFFMAN</td><td>AVK44 / AFLT44</td><td>PF</td></tr><tr><td>㊸</td><td>1</td><td>4-POLE ICE CUBE RELAY / SOCKET</td><td>ALLEN-BRADLEY</td><td>700-HF34Z24-4 / 700-HN139</td><td>PF</td></tr><tr><td>㊹</td><td>5</td><td>2-POLE ICE CUBE RELAY / SOCKET</td><td>ALLEN-BRADLEY</td><td>700-HF32Z24-4 / 700-HN116</td><td>PF</td></tr></table><div><div>NOTE: ALL MATERIALS SHOWN ARE THE MINIMUM REQUIREMENTS AND SHALL BE REVIEWED AND APPROVED BY THE CITY OF BEND DURING PRELIMINARY DESIGN</div><div><div>PF</div><div>=</div><div>PANEL FABRICATOR</div><div>COB</div><div>=</div><div>CITY OF BEND</div></div></div></div>						ITEM	QTY	DESCRIPTION	MANUFACTURE	MODEL/CAT #	SUPPLIER	①	1	ENCLOSURE	HOFFMAN	CSD363010 OR APPROVED EQUAL	PF	②	1	BACK PANEL	HOFFMAN	CP3630	PF	③	1	LIGHTING KIT	HOFFMAN	ALF16D12R	PF	④	AR	MOUNTING ALUMINUM BRACKETS	SHOP SUPPLY	SHOP SUPPLY	PF	⑤	1	MICROLOGIX 1400 WITH ETHERNET PORT	ALLEN-BRADLEY	1766-L32BXB	PF	⑥	1	1762 AI MODULE	ALLEN-BRADLEY	1762-IF4	PF	⑦	-	-	-	-	-	⑧	-	-	-	-	-	⑨	-	-	-	-	-	⑩	-	-	-	-	-	⑪	-	-	-	-	-	⑫	1	24VDC POWER SUPPLY	PULS	QS10.241	PF	⑬	1	24VDC UPS WITH INTEGRATED BATTERY	PULS	UBC10-241	PF	⑭	2	15A CIRCUIT BREAKER	ALLEN-BRADLEY	1492-SP1C150	PF	⑮	1	SURGE SUPPRESSOR	CONTROL CONCEPT	SLATROL IE-120	PF	⑯	1	DATA INTERFACE PORT	HOFFMAN	HGF5CN	PF	⑰	-	-	-	-	-	⑱	-	-	-	-	-	⑲	3	ELECTROMECHANICAL HOUR METER	REDINGTON	732-0014	PF	⑳	AR	10A CB4200 SERIES CIRCUIT BREAKER	WEIDMULLER	910 190 3500	PF	㉑	AR	0.5A CB4200 SERIES CIRCUIT BREAKER	WEIDMULLER	910 100 3500	PF	㉒	AR	3A CB4200 SERIES CIRCUIT BREAKER	WEIDMULLER	910 170 3500	PF	㉓	AR	2A CB4200 SERIES CIRCUIT BREAKER	WEIDMULLER	910 150 3500	PF	㉔	AR	0.1A CB4200 SERIES CIRCUIT BREAKER	WEIDMULLER	910 417 3500	PF	㉕	AR	FEED THROUGH TERMINAL WDU 2.5 (BEIGE)	WEIDMULLER	-	PF	㉖	AR	FEED THROUGH TERMINAL WDU 2.5 BL (BLUE)	WEIDMULLER	-	PF	㉗	AR	GROUNDING TERMINAL WPE 2.5	WEIDMULLER	-	PF	㉘	AR	END PLATE WAP 2.5-10 (BEIGE)	WEIDMULLER	-	PF	㉙	AR	END PLATE WAP 2.5-10 BL (BLUE)	WEIDMULLER	-	PF	㉚	AR	PARTITION WTW EN (DARK BEIGE)	WEIDMULLER	-	PF	㉛	AR	END BRACKET WEW 35/2 (DARK BEIGE)	WEIDMULLER	-	PF	㉜	AR	ZINC PLATED YELLOW-CHROMATE STEEL T-35 DIN RAIL	SHOP SUPPLY	SHOP SUPPLY	PF	㉝	AR	1.5" W X 3" D WIREWAY W/ COVER	PANDUIT	F1.5X3LG6 & C1.5LG6	PF	㉞	AR	2" W X 3" D WIREWAY W/ COVER	PANDUIT	F2X3LG6 & C2LG6	PF	㉟	AR	3" W X 3" D WIREWAY W/ COVER	PANDUIT	F3X3LG6 & C3LG6	PF	㊱	1	8 PORT NETWORK SWITCH	SIXNET	SLX-8MS	PF	㊲	1	6FT CAT6 PATCH CABLE	SHOP SUPPLY	SHOP SUPPLY	PF	㊳	2	GROUND BUS	SHOP SUPPLY	SHOP SUPPLY	PF	㊴	-	-	-	-	-	㊵	-	-	-	-	-	㊶	1	LONG RANGE IP/ETHERNET RADIO	GE MDS	TO BE DETERMINED BY CITY STAFF	PF	㊷	4	LOUVER WITH FILTER	HOFFMAN	AVK44 / AFLT44	PF	㊸	1	4-POLE ICE CUBE RELAY / SOCKET	ALLEN-BRADLEY	700-HF34Z24-4 / 700-HN139	PF	㊹	5	2-POLE ICE CUBE RELAY / SOCKET	ALLEN-BRADLEY	700-HF32Z24-4 / 700-HN116	PF	
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STAMP  
[ENGINEERS]

(PROJECT NAME)

CNTRL PNL TYPE B TEMPLATE

(50 I/Os) BILL OF MATERIALS

DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:

DESIGNED BY:

DRAWN BY:

SCALE:

FILE:

DATE:

VERIFY SCALES

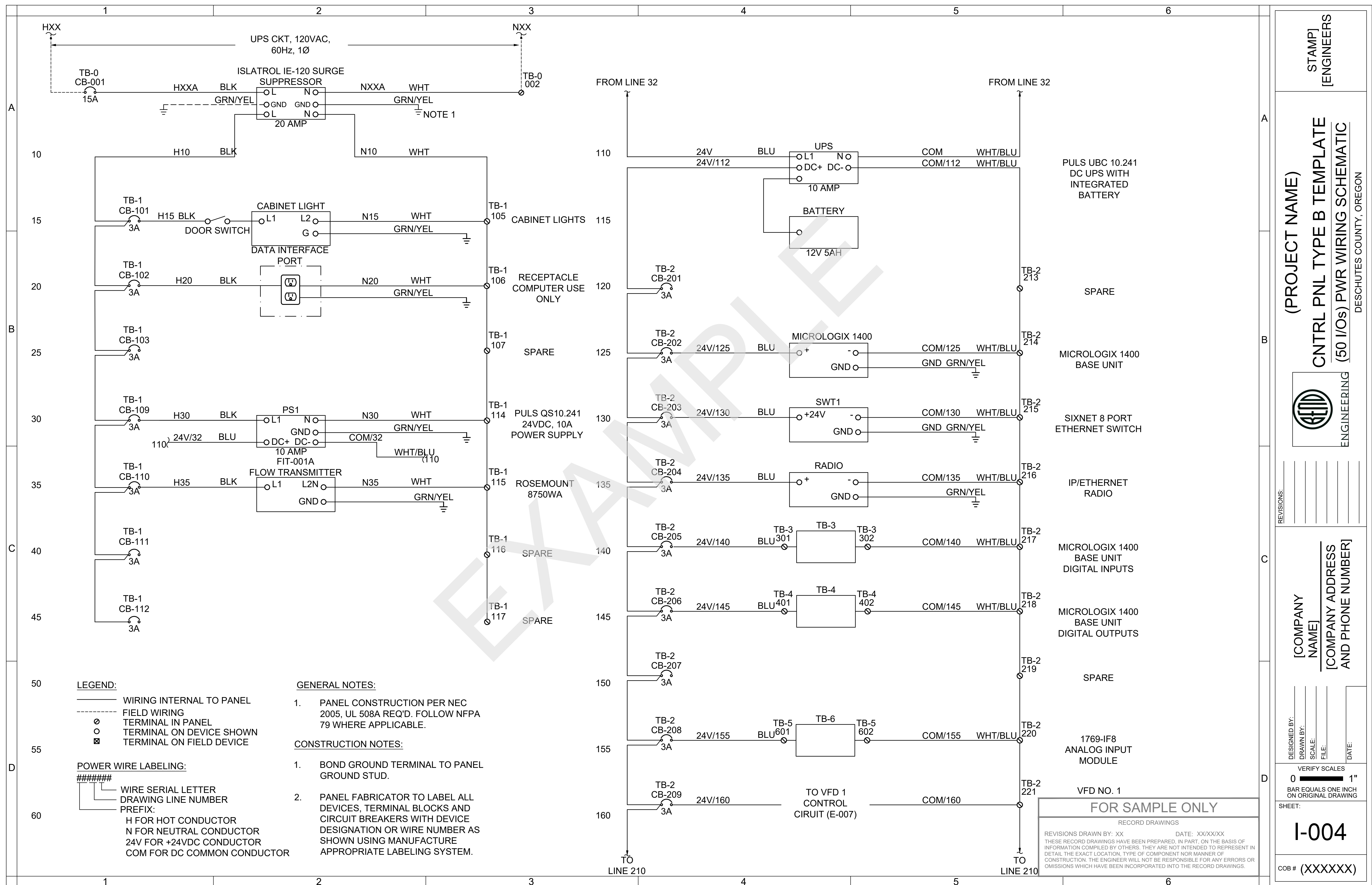
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SHEET:

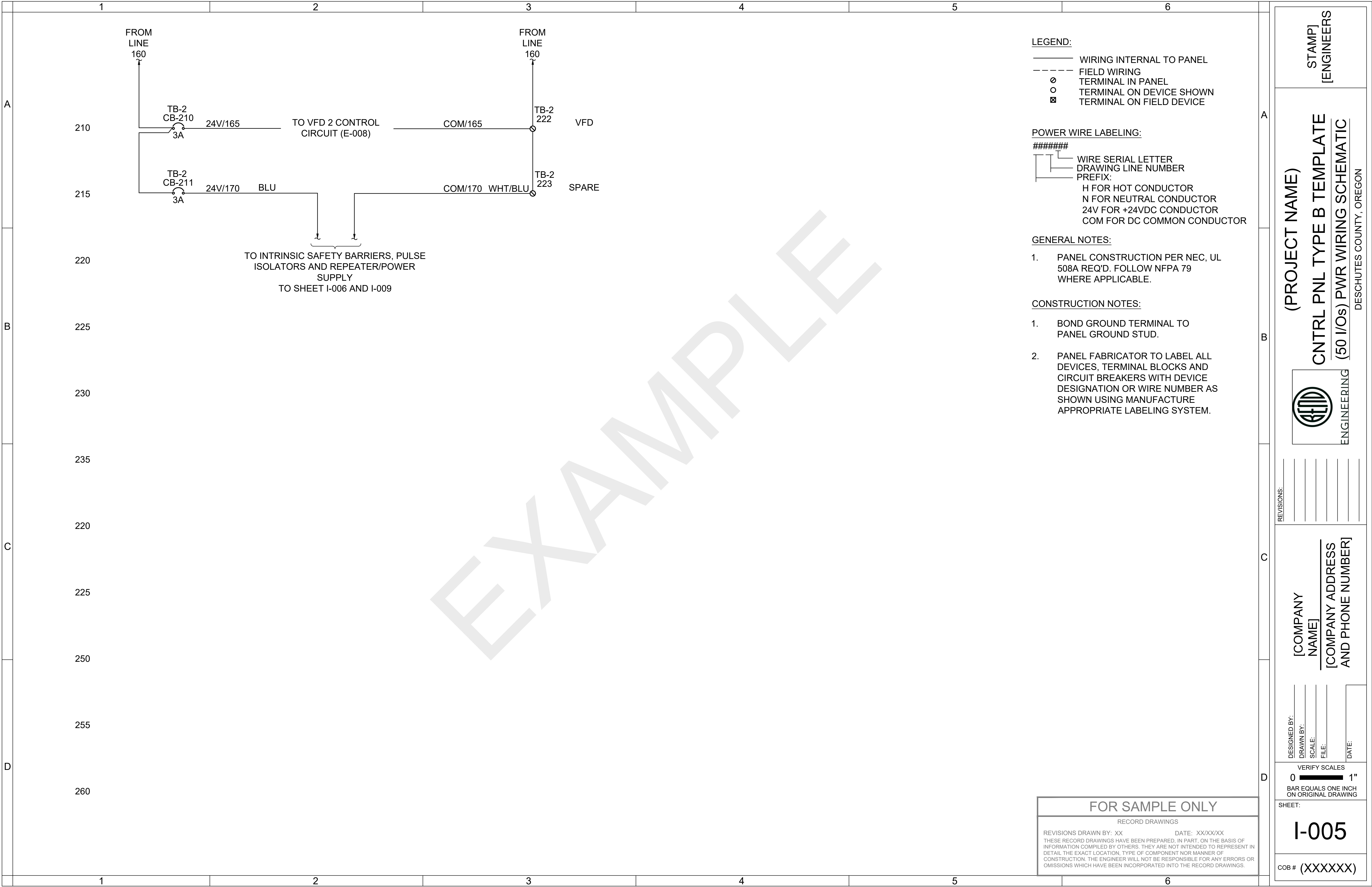
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COB # (XXXXXX)

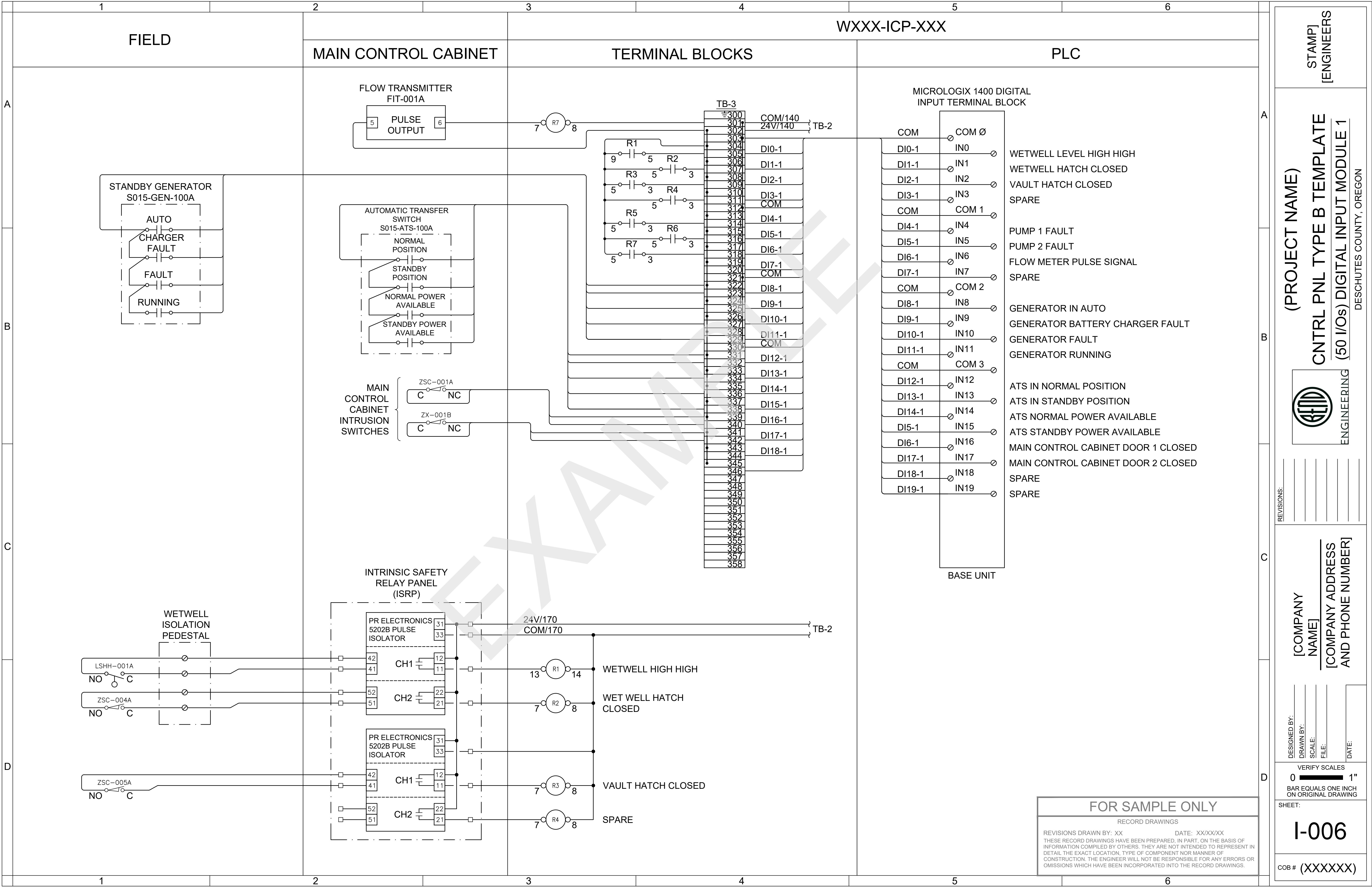








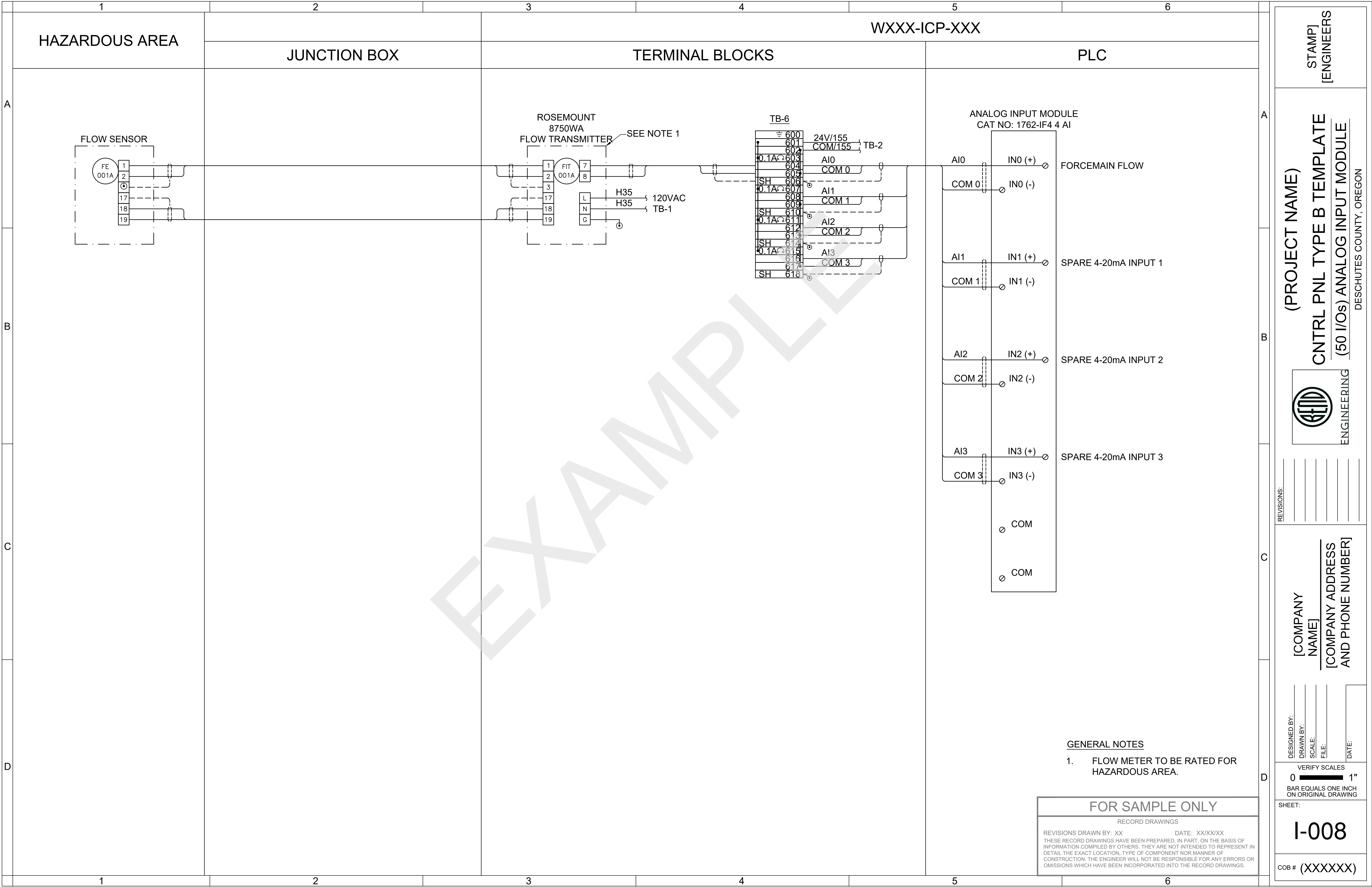












STAMP  
[ENGINEERS]

(PROJECT NAME)  
CNTRL PNL TYPE B TEMPLATE  
(50 I/Os) ANALOG INPUT MODULE  
DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:

[COMPANY NAME]  
[COMPANY ADDRESS AND PHONE NUMBER]

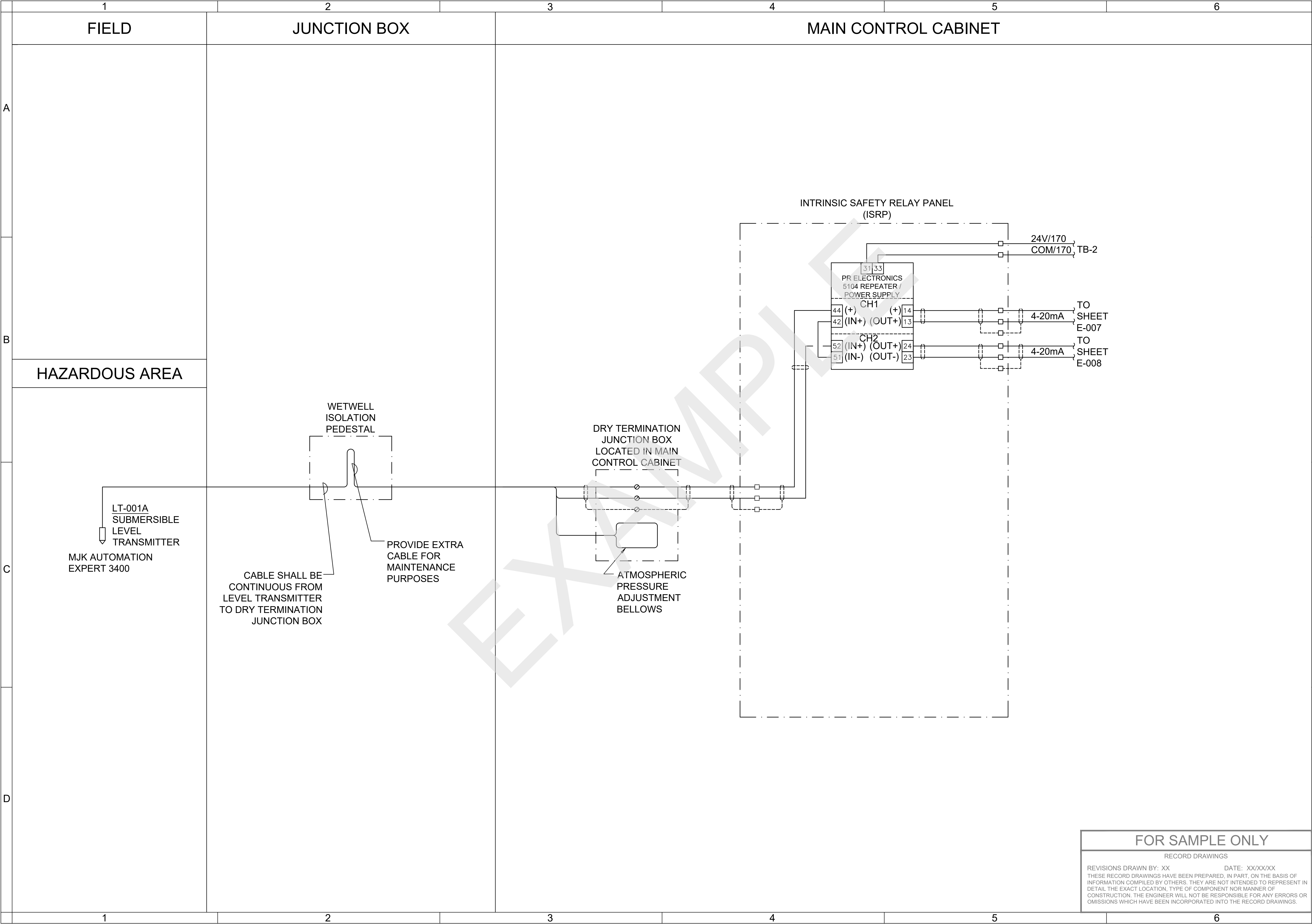
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DATE:

VERIFY SCALES  
0 1"  
BAR EQUALS ONE INCH ON ORIGINAL DRAWING

SHEET:  
I-008

COB # (XXXXXX)





STAMP  
[ENGINEERS]

(PROJECT NAME)

INSTRUMENTATION & CONTROLS

ENGINEERING INTRINSIC SAFETY RELAY PANEL (ISRP)

DESCHUTES COUNTY, OREGON

REVISIONS:

[COMPANY NAME]  
[COMPANY ADDRESS AND PHONE NUMBER]

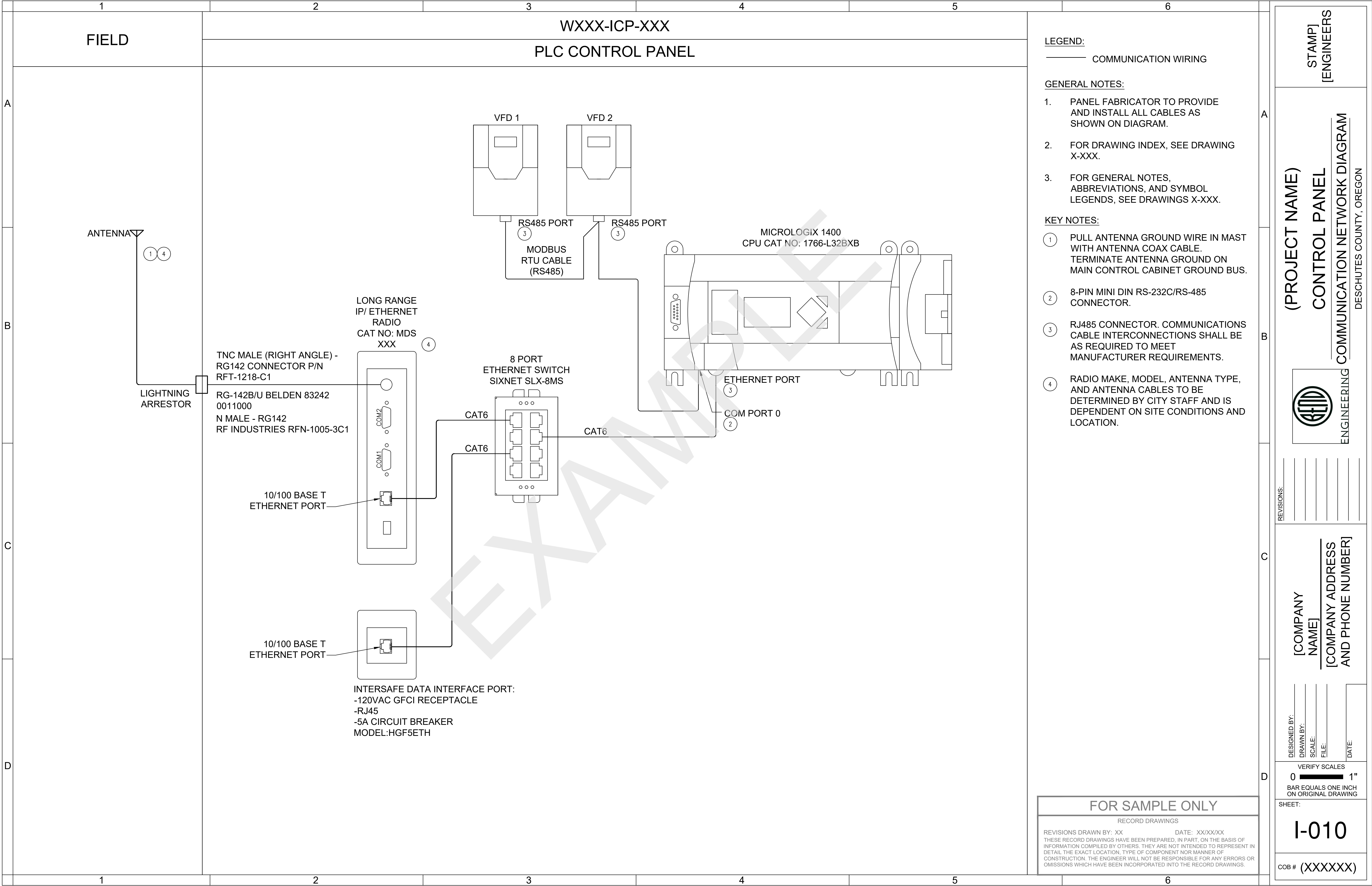
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BAR EQUALS ONE INCH ON ORIGINAL DRAWING

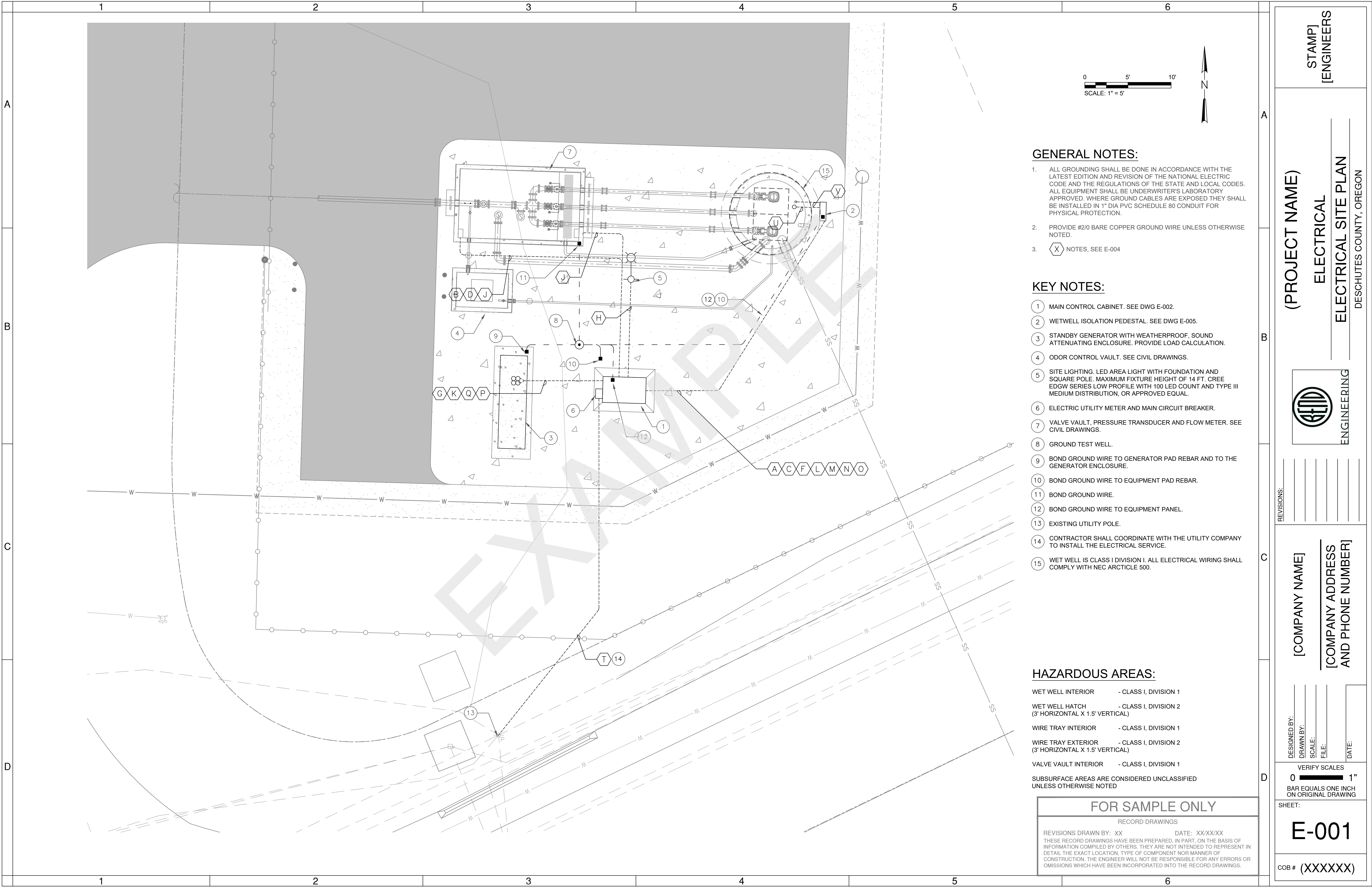
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I-009

COB # (XXXXXX)









GENERAL NOTES:

- ALL GROUNDING SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION AND REVISION OF THE NATIONAL ELECTRIC CODE AND THE REGULATIONS OF THE STATE AND LOCAL CODES. ALL EQUIPMENT SHALL BE UNDERWRITER'S LABORATORY APPROVED. WHERE GROUND CABLES ARE EXPOSED THEY SHALL BE INSTALLED IN 1" DIA PVC SCHEDULE 80 CONDUIT FOR PHYSICAL PROTECTION.
- PROVIDE #2/0 BARE COPPER GROUND WIRE UNLESS OTHERWISE NOTED.
- (X) NOTES, SEE E-004

KEY NOTES:

- MAIN CONTROL CABINET. SEE DWG E-002.
- WETWELL ISOLATION PEDESTAL. SEE DWG E-005.
- STANDBY GENERATOR WITH WEATHERPROOF, SOUND ATTENUATING ENCLOSURE. PROVIDE LOAD CALCULATION.
- ODOR CONTROL VAULT. SEE CIVIL DRAWINGS.
- SITE LIGHTING. LED AREA LIGHT WITH FOUNDATION AND SQUARE POLE. MAXIMUM FIXTURE HEIGHT OF 14 FT. CREE EDGW SERIES LOW PROFILE WITH 100 LED COUNT AND TYPE III MEDIUM DISTRIBUTION, OR APPROVED EQUAL.
- ELECTRIC UTILITY METER AND MAIN CIRCUIT BREAKER.
- VALVE VAULT, PRESSURE TRANSDUCER AND FLOW METER. SEE CIVIL DRAWINGS.
- GROUND TEST WELL.
- BOND GROUND WIRE TO GENERATOR PAD REBAR AND TO THE GENERATOR ENCLOSURE.
- BOND GROUND WIRE TO EQUIPMENT PAD REBAR.
- BOND GROUND WIRE.
- BOND GROUND WIRE TO EQUIPMENT PANEL.
- EXISTING UTILITY POLE.
- CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY TO INSTALL THE ELECTRICAL SERVICE.
- WET WELL IS CLASS I DIVISION I. ALL ELECTRICAL WIRING SHALL COMPLY WITH NEC ARTICLE 500.

HAZARDOUS AREAS:

- |   |                       |
|---|-----------------------|
| WET WELL INTERIOR                                     | - CLASS I, DIVISION 1 |
| WET WELL HATCH<br>(3' HORIZONTAL X 1.5' VERTICAL)     | - CLASS I, DIVISION 2 |
| WIRE TRAY INTERIOR                                    | - CLASS I, DIVISION 1 |
| WIRE TRAY EXTERIOR<br>(3' HORIZONTAL X 1.5' VERTICAL) | - CLASS I, DIVISION 2 |
| VALVE VAULT INTERIOR                                  | - CLASS I, DIVISION 1 |

SUBSURFACE AREAS ARE CONSIDERED UNCLASSIFIED UNLESS OTHERWISE NOTED

FOR SAMPLE ONLY

RECORD DRAWINGS

REVISIONS DRAWN BY: XX DATE: XX/XX/XX  
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STAMP  
[ENGINEERS]

(PROJECT NAME)  
ELECTRICAL  
ELECTRICAL SITE PLAN  
DESCHUTES COUNTY, OREGON



REVISIONS:

[COMPANY NAME]  
[COMPANY ADDRESS  
AND PHONE NUMBER]

DESIGNED BY:  
DRAWN BY:  
SCALE:  
FILE:  
DATE:

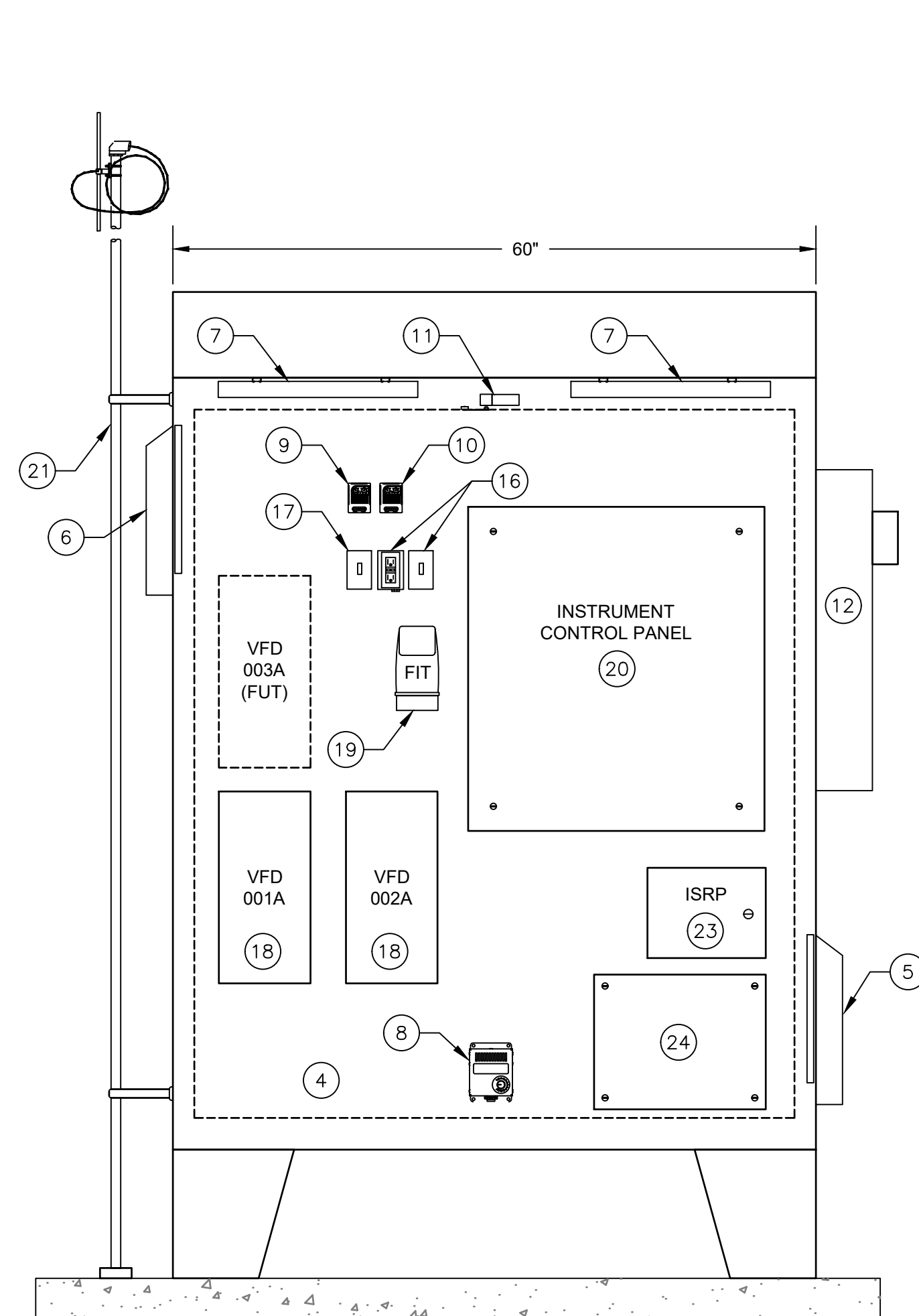
VERIFY SCALES

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BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

SHEET:

E-001

COB # (XXXXXX)



CABINET  
BACK INTERIOR ELEVATION

1. MAIN CONTROL CABINET SHALL BE NEMA 12 RATED, PAINTED STEEL WITH FLOOR STAND. CABINET DOORS SHALL BE FITTED WITH GASKETS, PADLOCKABLE HASPS, AND DOORS THAT LATCH OPEN. RAINHOOD/SUNHOOD SHALL BE CUSTOM FABRICATED FROM 12 GAUGE STEEL PAINTED WITH ANSI #1 LIGHT GREY POLYESTER POWDER FINISH TO MATCH ENCLOSURE.
2. PANEL CONSTRUCTION PER NEC AND UL508A REQUIREMENTS. FOLLOW NFPA 79 WHERE APPLICABLE. THE INTERIOR OF THE MAIN CONTROL CABINET SHALL BE DESIGNED AND FABRICATED TO MEET IP20 "FINGER-SAFE," REQUIREMENTS IN ACCORDANCE WITH IEC 60529; THERE SHALL BE NO EXPOSED LIVE PARTS AS DEFINED BY NFPA 70E. ALL INTERCONNECTIONS BETWEEN PANEL COMPONENTS INSIDE THE LARGER ELECTRICAL ENCLOSURE SHALL BE INSTALLED IN EMT, RGS, METAL WIREWAY, OR LIQUID TIGHT METALLIC FLEXIBLE CONDUIT.
3. NO PENETRATIONS THROUGH THE TOP OF THE ENCLOSURE ARE ALLOWED. ALL PENETRATIONS SHALL BE MADE WITH AN APPROVED FITTING AND GASKET.
4. DO NOT ROUTE 120VAC WIRING WITHIN THE SAME RACEWAY AS DC ANALOG SIGNAL CABLES.
5. THE CITY OF BEND WILL DETERMINE THE RADIO TYPE, ANTENNA TYPE, MOUNTING HEIGHT, AND CABLE TYPE TO BE PROVIDED AND INSTALLED BY THE DEVELOPER. AT THE PRE-DESIGN STAGE, THE DEVELOPER SHALL COORDINATE FOR A TELEMETRY SIGNAL SURVEY TO BE PERFORMED WITH THE CITY OF BEND UTILITY DEPARTMENT AS REQUIRED TO DETERMINE RADIO COMMUNICATION EQUIPMENT REQUIREMENTS.
6. ALL UTILIZATION AND DISTRIBUTION EQUIPMENT, INCLUDING LIGHTING AND HEATING, SHALL BE WIRED FROM OR TO A SOURCE OTHER THAN THE PLC CONTROL PANEL. THIS REQUIRES A LOAD CENTER INSIDE THE MAIN CONTROL CABINET FOR POWER DISTRIBUTION.
7. EXCEPT AS OTHERWISE NOTED, PANEL WIRING SHALL BE AS FOLLOWS:
  - SINGLE WIRES SHALL BE THHN #16 AWG, EXCEPT WHERE INTENDED FOR POWER OR MOTOR CIRCUITS WHICH SHALL BE #14 AWG, MINIMUM.
  - COLOR CODE SHALL FOLLOW UL508A.
  - TWISTED PAIR ANALOG SIGNAL CABLE SHALL BE BELDEN 8760, OR EQUAL.
  - EACH WIRE SHALL BE IDENTIFIED WITH A PERMANENT WIRE LABEL, BRADY LAT-18-361.

REVISIONS DRAWN BY: XX DATE: XX/XX/XX  
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SHEET:
E-002
COB # (XXXXXXX)

COB # (XXXXXX)





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A	<div><div>CONDUIT AND WIRE SCHEDULE</div><table><thead><tr><th>CONDUIT USE</th><th>CONDUIT DESIGNATION</th><th>CONDUIT SIZE</th><th>CONDUIT TYPE</th><th>CONDUCTOR SIZE AND NUMBER OF CONDUCTORS</th><th>CONDUIT FROM</th><th>CONDUIT TO</th></tr></thead><tbody><tr><td>FLOAT SWITCH LSHH WETWELL HATCH LIMIT SWITCH</td><td>A</td><td>1 INCH</td><td>PVC</td><td>6#14</td><td>THE MAIN CONTROL CABINET</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>FLOW SENSOR</td><td>B</td><td>1 INCH</td><td>PVC</td><td>MANUFACTURER CABLE</td><td>THE MAIN CONTROL CABINET</td><td>THE FLOW METER VAULT</td></tr><tr><td>SUBMERSIBLE LEVEL TRANSMITTER</td><td>C</td><td>3/4 INCH</td><td>PVC</td><td>MANUFACTURER CABLE</td><td>THE MAIN CONTROL CABINET</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>VALVE VAULT HATCH LIMIT SWITCH</td><td>D</td><td>1 INCH</td><td>PVC</td><td>3#14</td><td>THE MAIN CONTROL CABINET</td><td>THE FLOW METER VAULT</td></tr><tr><td>SEAL FAIL / OVER TEMP</td><td>E</td><td>1 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CABINET</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>PUMP #2</td><td>L</td><td>1 INCH</td><td>PVC</td><td>3#8, 1#10G</td><td>THE MAIN CONTROL CABINET</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>PUMP #3 (FUTURE)</td><td>M</td><td>1 INCH</td><td>PVC</td><td>3#8, 1#10G</td><td>THE MAIN CONTROL CABINET</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>GENERATOR MONITORING SIGNALS (PLC)</td><td>N</td><td>1 INCH</td><td>PVC</td><td>8#14</td><td>THE MAIN CONTROL CABINET</td><td>THE GENERATOR</td></tr><tr><td>GENERATOR POWER</td><td>O</td><td>2 INCH</td><td>PVC</td><td>3#1/0, 1#6G</td><td>THE MAIN CONTROL CABINET</td><td>THE GENERATOR</td></tr><tr><td>UNDERGROUND SERVICE</td><td>P</td><td>3 INCH</td><td>PVC</td><td>PULL ROPE</td><td>UNDERGROUND SERVICE</td><td>MAIN CONTROL ENCLOSURE PAD</td></tr><tr><td>SUBMERSIBLE LEVEL TRANSMITTER</td><td>Q</td><td>1 INCH</td><td>PGRC</td><td>MANUFACTURER CABLE</td><td>THE WET WELL</td><td>THE ISOLATION PEDESTAL</td></tr><tr><td>FLOAT SWITCH 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REPLACED.</div></div><div><div>7.</div><div>THE COATING TOUCH UP PAINT IS ONLY TO BE USED FOR COSMETIC BLEMISHES.</div></div><div><div>8.</div><div>ALL THREADED CONNECTIONS MUST BE COPPER COATED AND TIGHTENED APPROPRIATELY.</div></div><div><div>9.</div><div>ALL UNDERGROUND CONDUIT RUNS MUST BE INSPECTED PRIOR TO BACKFILL.</div></div></div>						CONDUIT USE	CONDUIT DESIGNATION	CONDUIT SIZE	CONDUIT TYPE	CONDUCTOR SIZE AND NUMBER OF CONDUCTORS	CONDUIT FROM	CONDUIT TO	FLOAT SWITCH LSHH WETWELL HATCH LIMIT SWITCH	A	1 INCH	PVC	6#14	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	FLOW SENSOR	B	1 INCH	PVC	MANUFACTURER CABLE	THE MAIN CONTROL CABINET	THE FLOW METER VAULT	SUBMERSIBLE LEVEL TRANSMITTER	C	3/4 INCH	PVC	MANUFACTURER CABLE	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	VALVE VAULT HATCH LIMIT SWITCH	D	1 INCH	PVC	3#14	THE MAIN CONTROL CABINET	THE FLOW METER VAULT	SEAL FAIL / OVER TEMP	E	1 INCH	PVC	8#14	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	GENERATOR CONTROL SIGNALS (ATS)	F	1 INCH	PVC	8#14	THE MAIN CONTROL CABINET	THE GENERATOR	OUTSIDE AREA LIGHT	G	1 INCH	PVC	2#12, 1#12G	THE MAIN CONTROL CABINET	THE LIGHT POLE	VALVE VAULT SPARE	H	1 INCH	PVC	PULL CORD	THE MAIN CONTROL CABINET	THE VALVE VAULT	GENERATOR BATTERY CHARGER / BLOCK HEATER	I	1 INCH	PVC	4#10, 2#10G	THE MAIN CONTROL CABINET	THE GENERATOR	ISOLATION PEDESTAL HEATER	J	1 INCH	PVC	2#12, 1#12G	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	PUMP #1	K	1 INCH	PVC	3#8, 1#10G	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	PUMP #2	L	1 INCH	PVC	3#8, 1#10G	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	PUMP #3 (FUTURE)	M	1 INCH	PVC	3#8, 1#10G	THE MAIN CONTROL CABINET	THE ISOLATION PEDESTAL	GENERATOR MONITORING SIGNALS (PLC)	N	1 INCH	PVC	8#14	THE MAIN CONTROL CABINET	THE GENERATOR	GENERATOR POWER	O	2 INCH	PVC	3#1/0, 1#6G	THE MAIN CONTROL CABINET	THE GENERATOR	UNDERGROUND SERVICE	P	3 INCH	PVC	PULL ROPE	UNDERGROUND SERVICE	MAIN CONTROL ENCLOSURE PAD	SUBMERSIBLE LEVEL TRANSMITTER	Q	1 INCH	PGRC	MANUFACTURER CABLE	THE WET WELL	THE ISOLATION PEDESTAL	FLOAT SWITCH LSHH	R	3/4 INCH	PGRC	MANUFACTURER CABLE	THE WET WELL	THE ISOLATION PEDESTAL	ANTENNA SUPPORT	W	2 INCH	PGRC	MANUFACTURER CABLE	THE MAIN CONTROL CABINET	WEATHER HEAD
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DESCHUTES COUNTY, OREGON

STAMP]  
[ENGINEERS

(PROJECT NAME)

INSTRUMENTATION & CONTROLS

CONDUIT AND WIRE SCHEDULE

DESCHUTES COUNTY, OREGON

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS  
AND PHONE NUMBER]

DESIGNED BY:

DRAWN BY:

SCALE:

FILE:

DATE:

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BAR EQUALS ONE INCH  
ON ORIGINAL DRAWING

SHEET:

E-004

COB # (XXXXXX)





-  CONDUIT PENETRATIONS.  
SEE CONDUIT SCHEDULE SHEET  
E-004



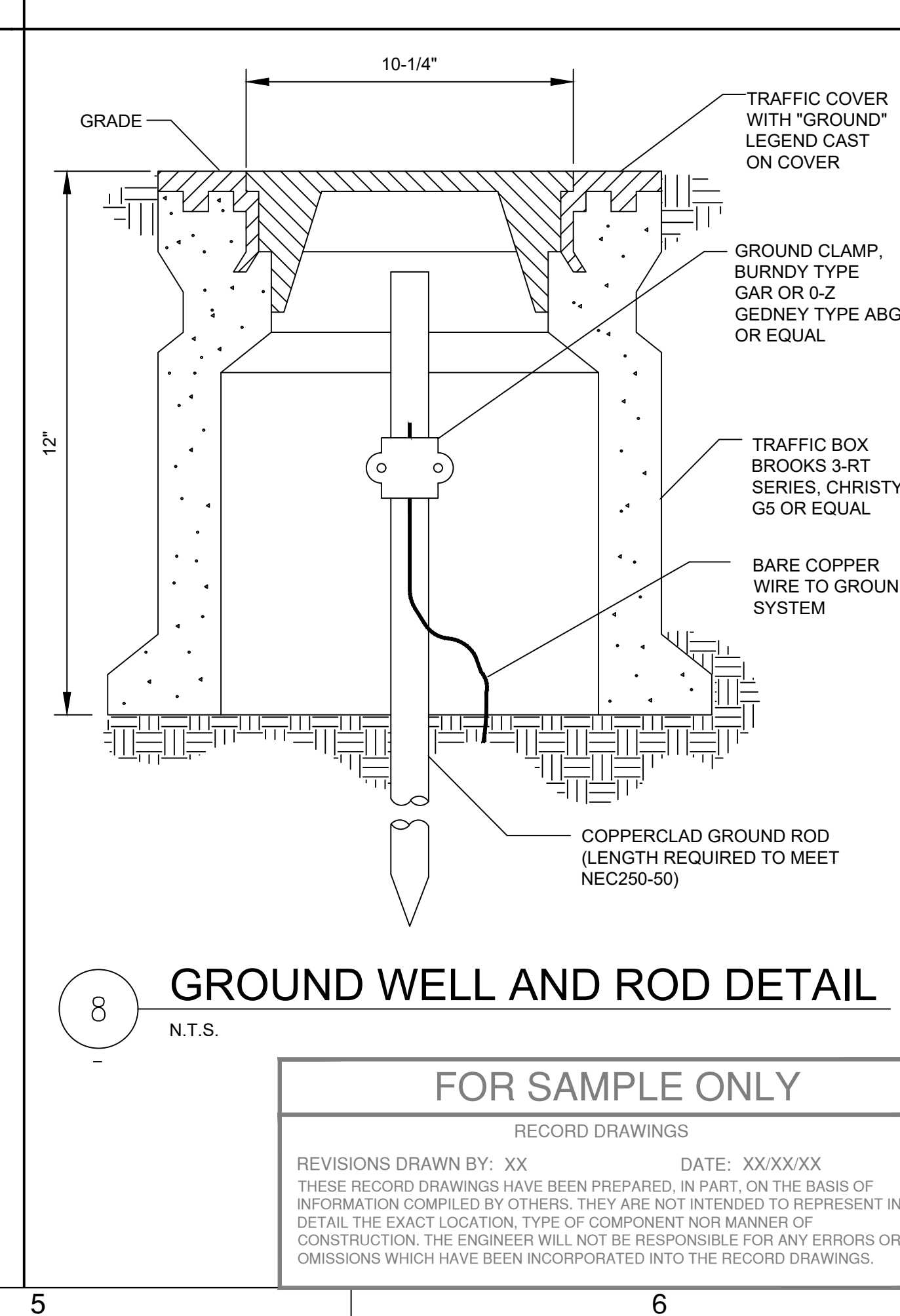
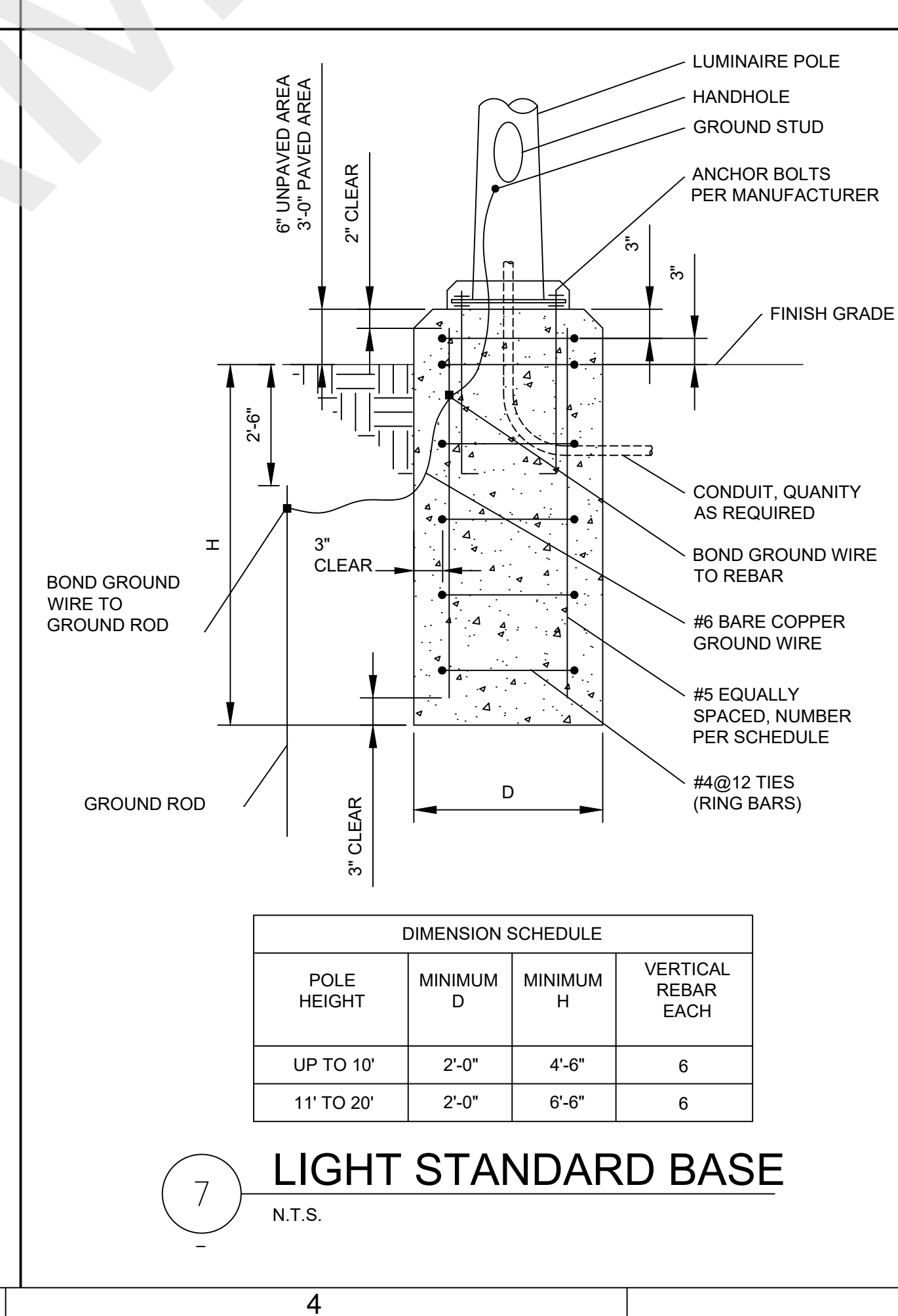
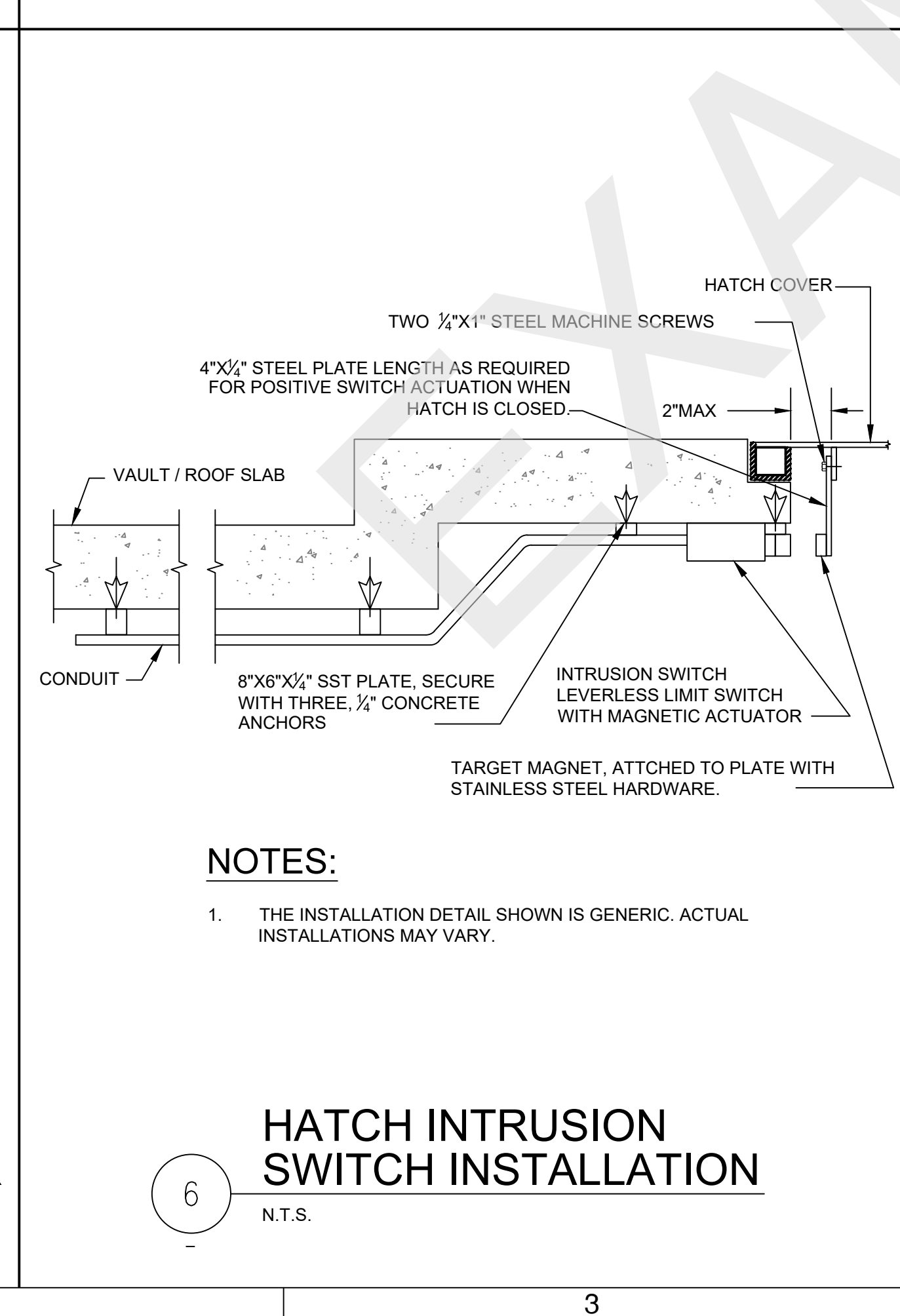
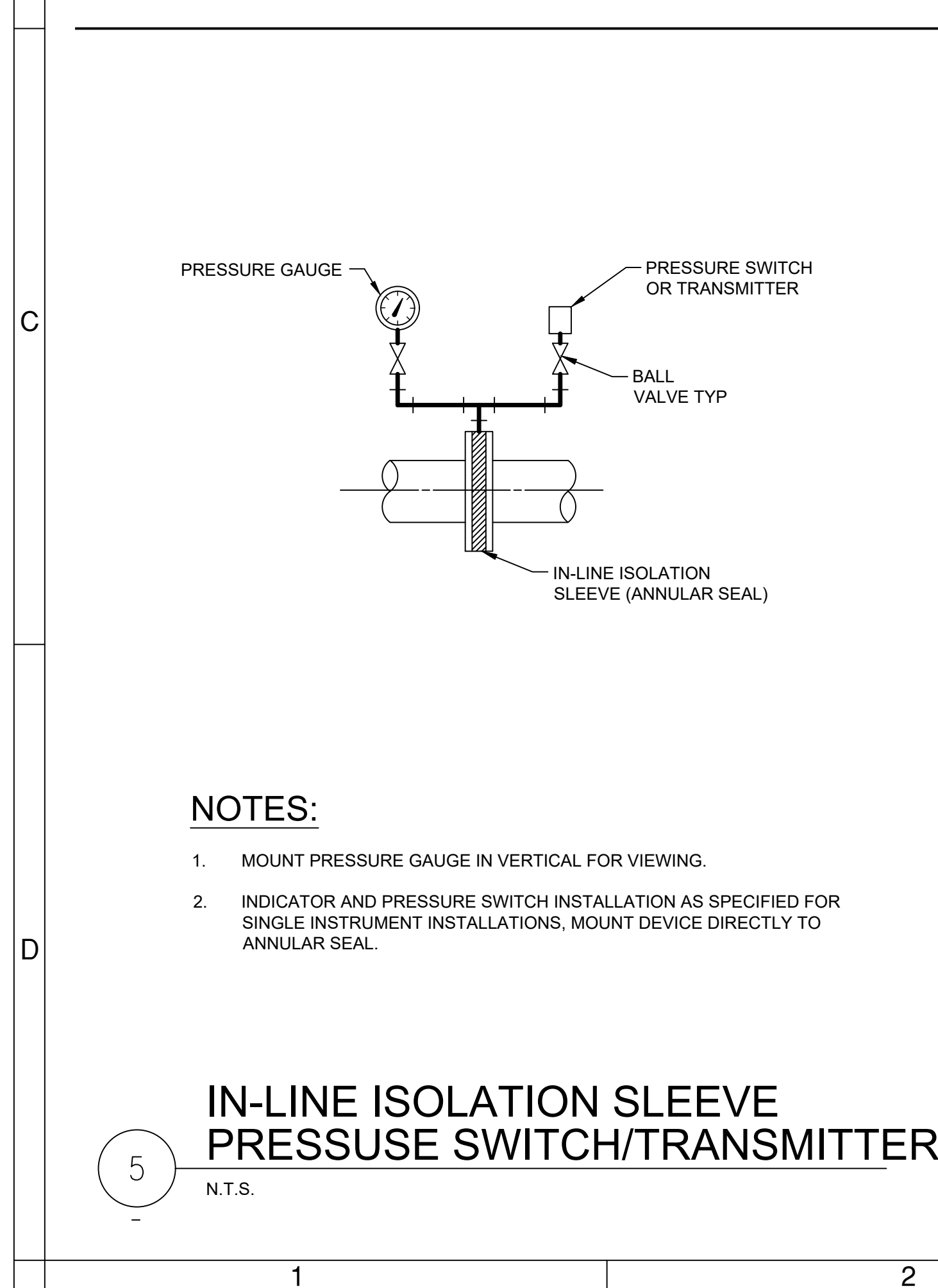
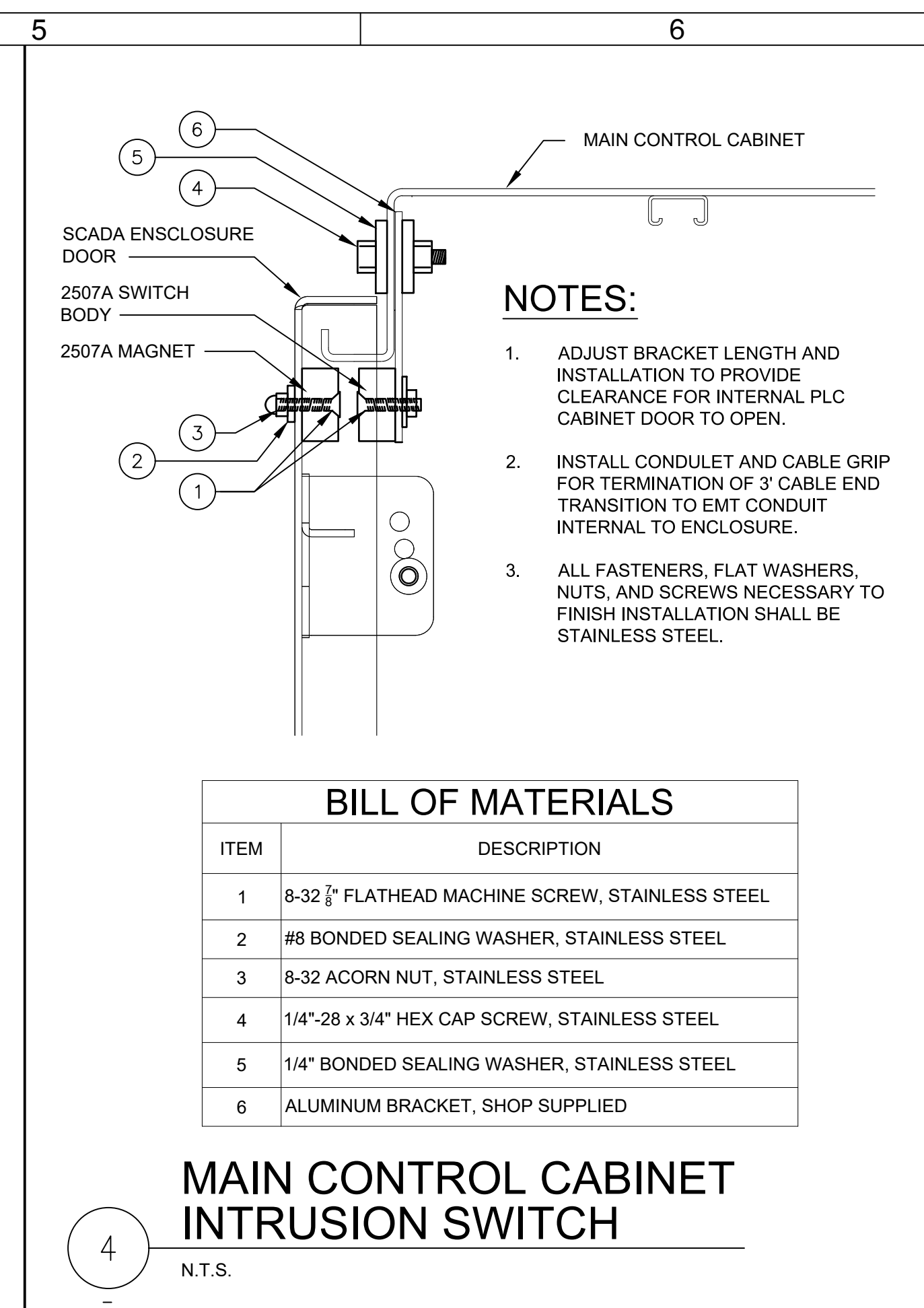
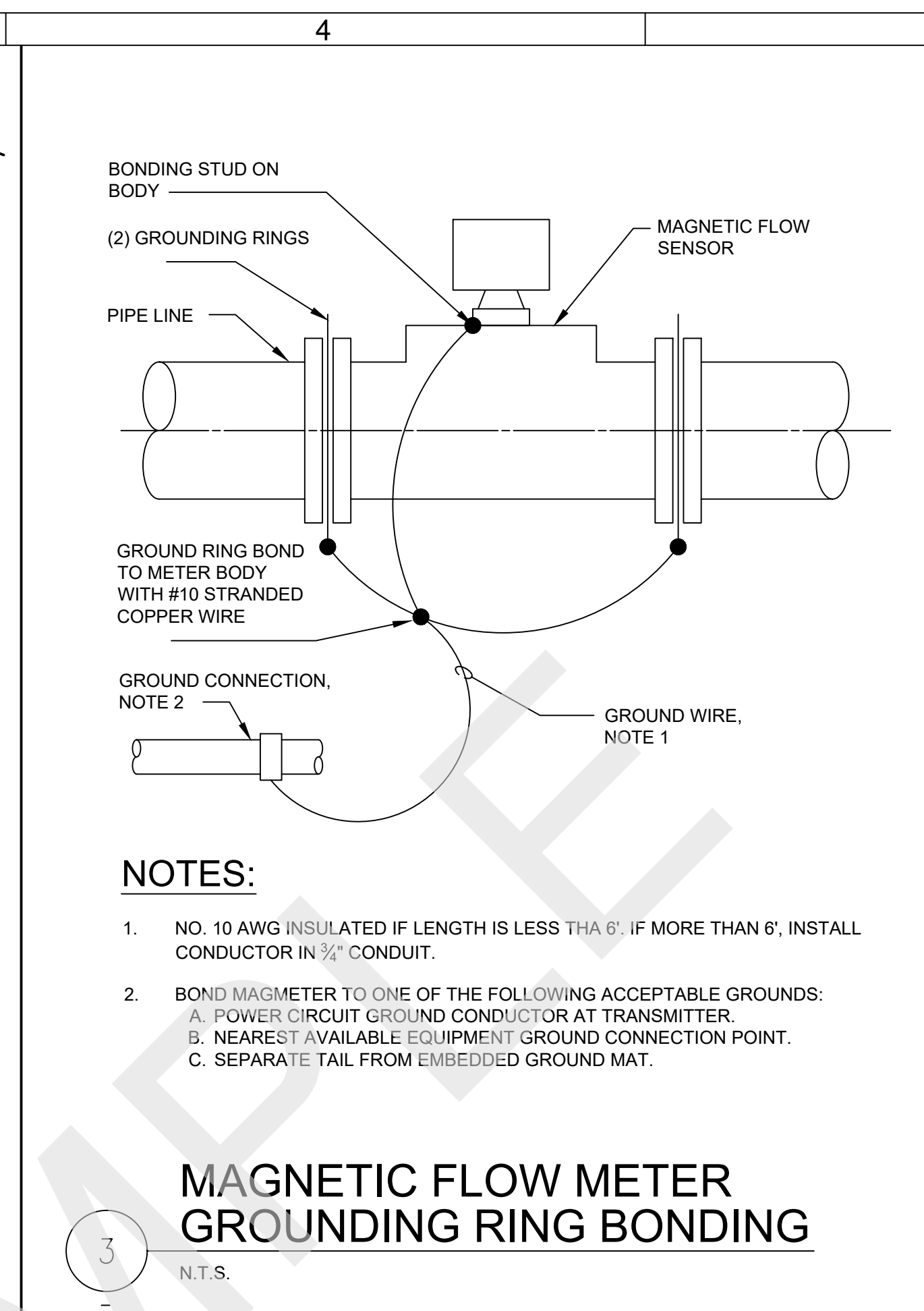
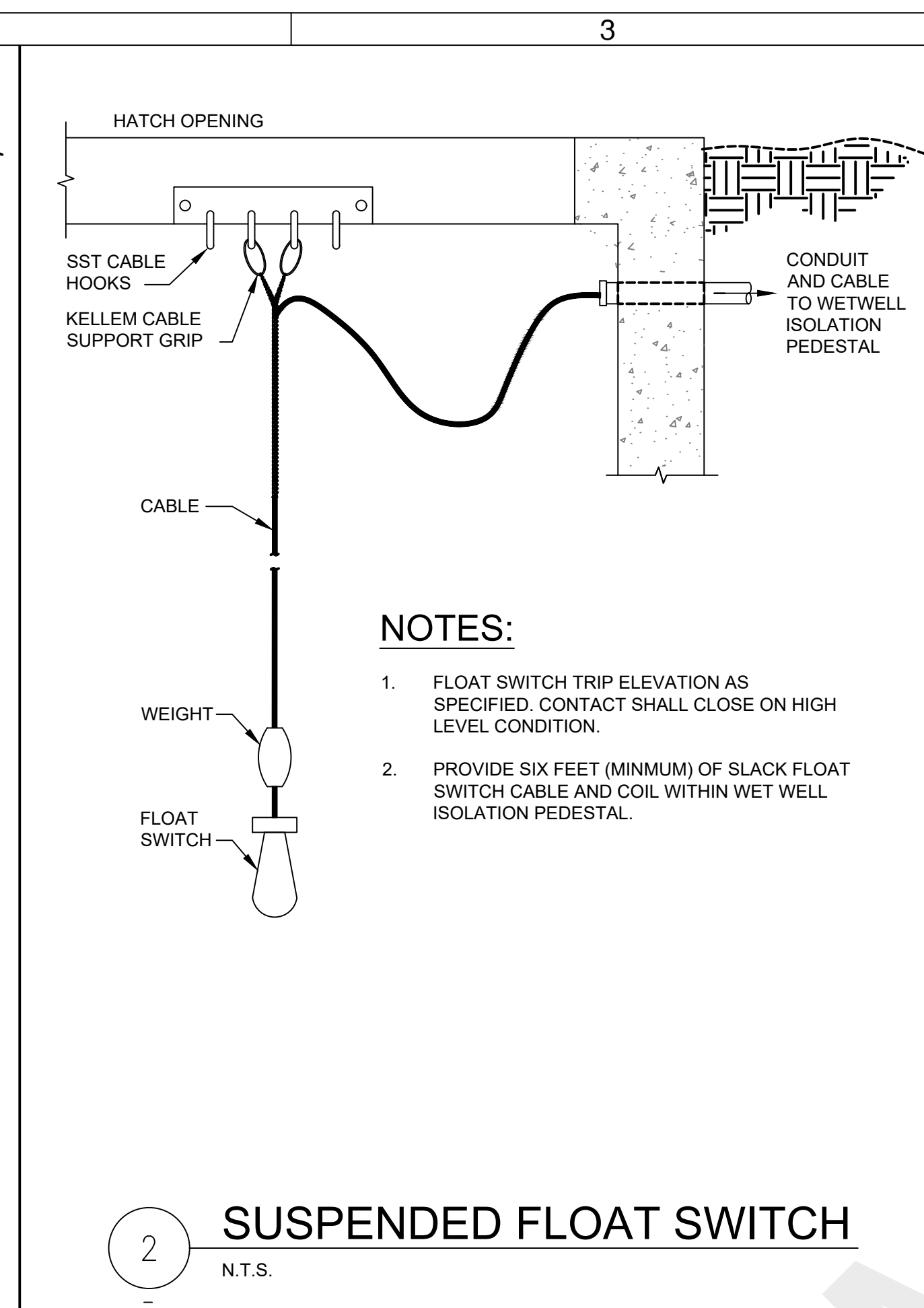
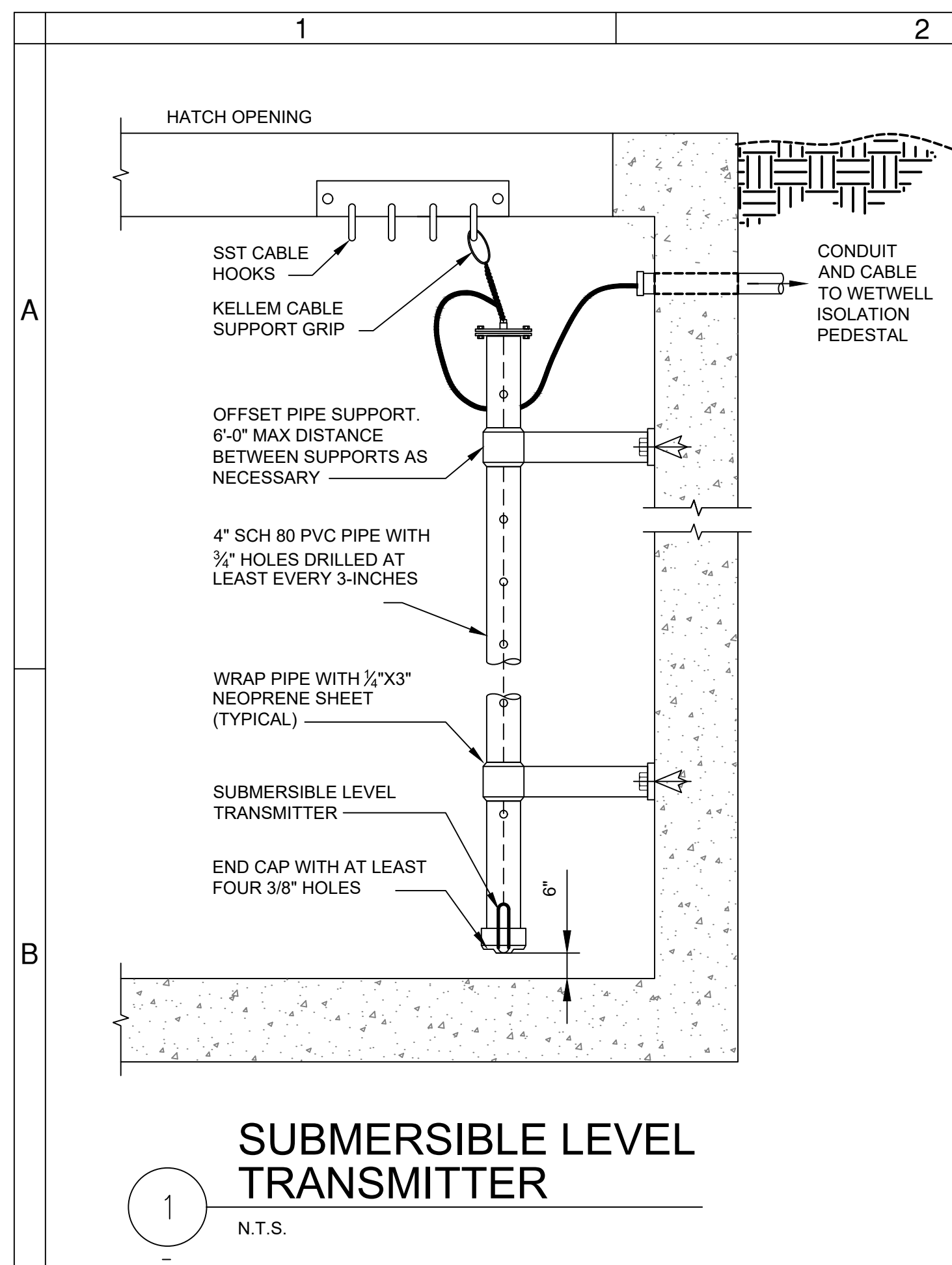
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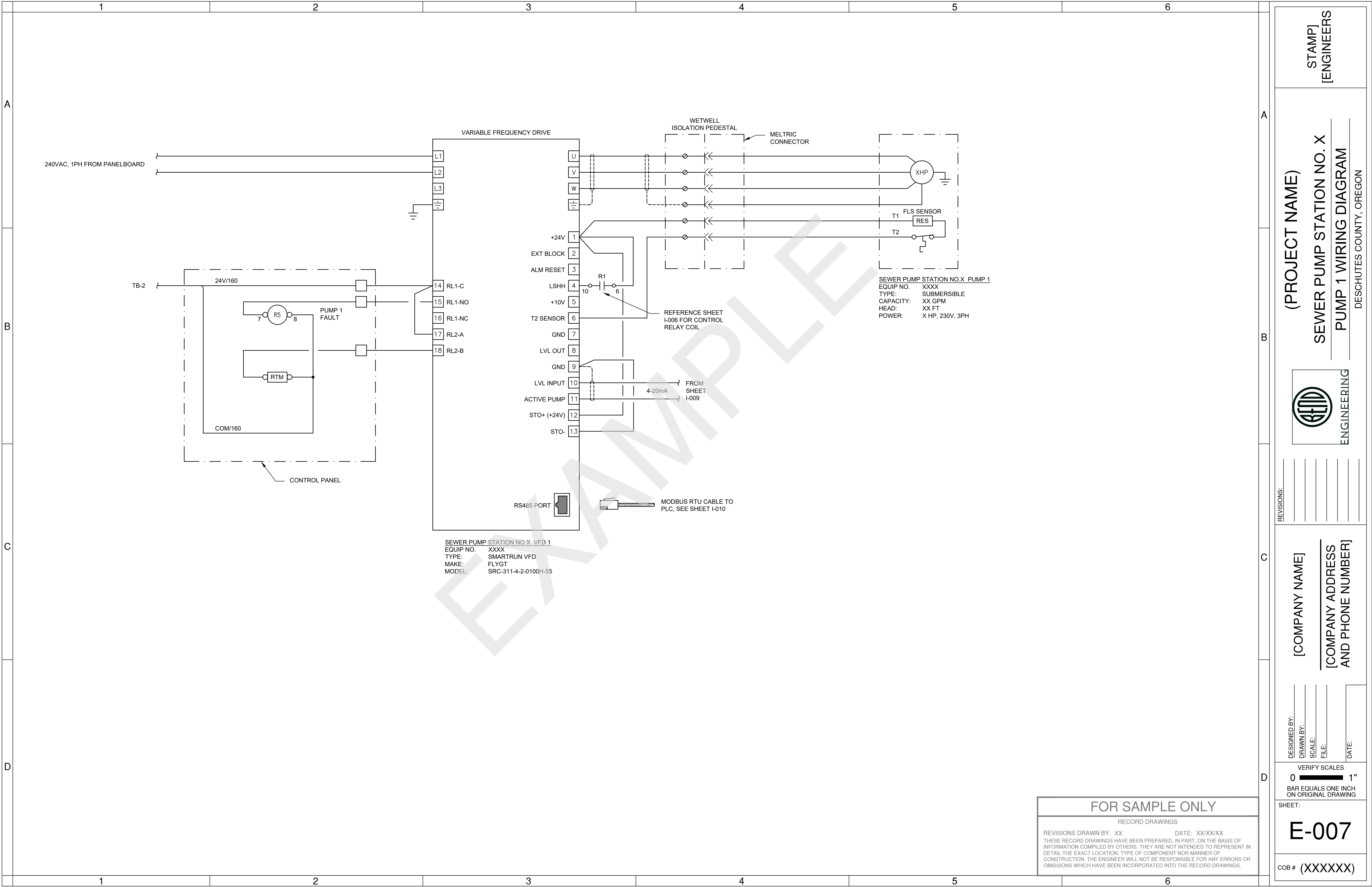
COB # (XXXXXX)





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SHEET: E-006		COB # (XXXXXXX)		STAMP [ENGINEERS INSTRUMENTATION & CONTROLS ELECTRICAL DETAILS DESCHUTES COUNTY, OREGON	





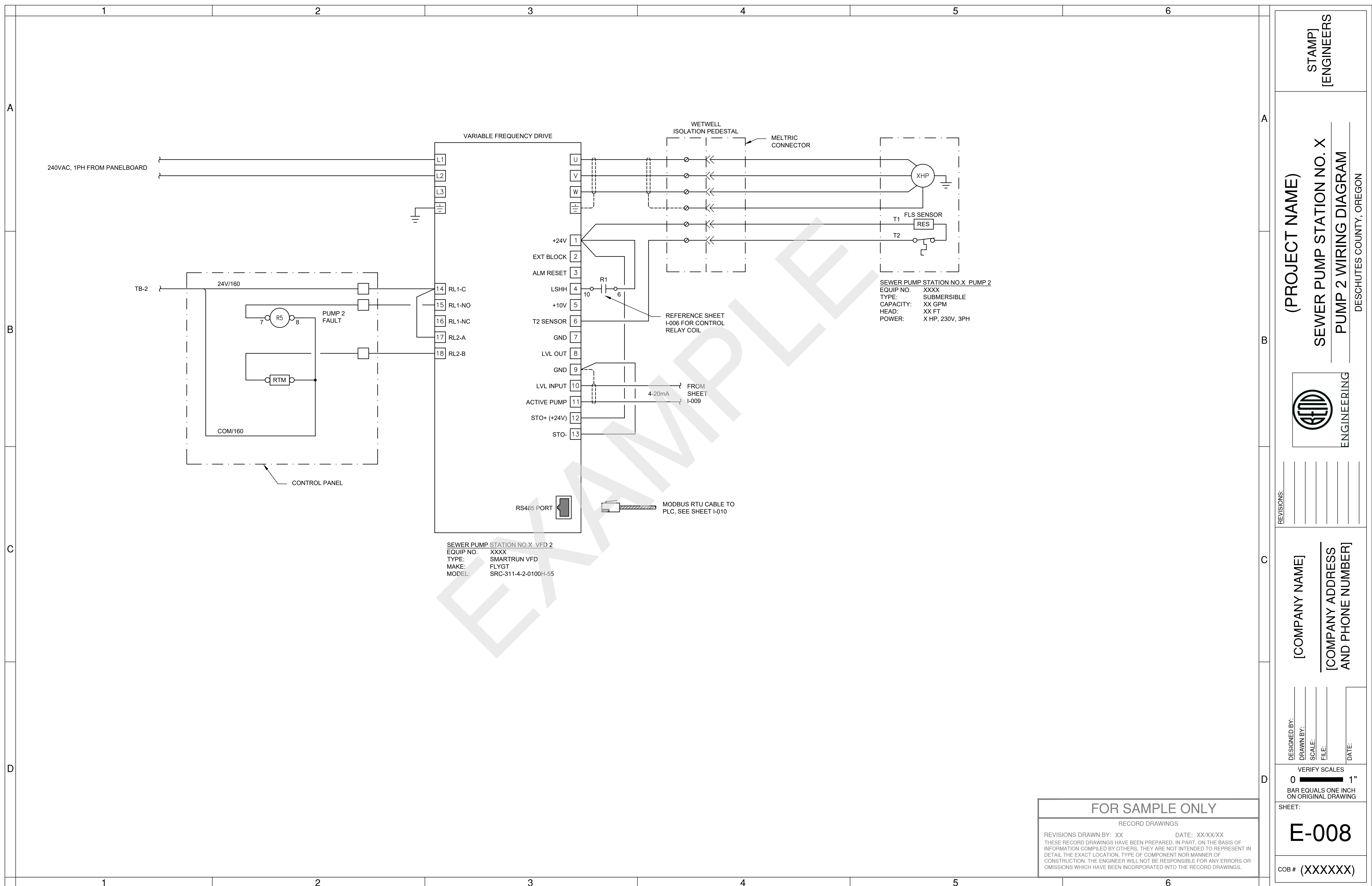
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[ENGINEERS]

(PROJECT NAME)  
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PUMP 1 WIRING DIAGRAM  
DESCHUTES COUNTY, OREGON

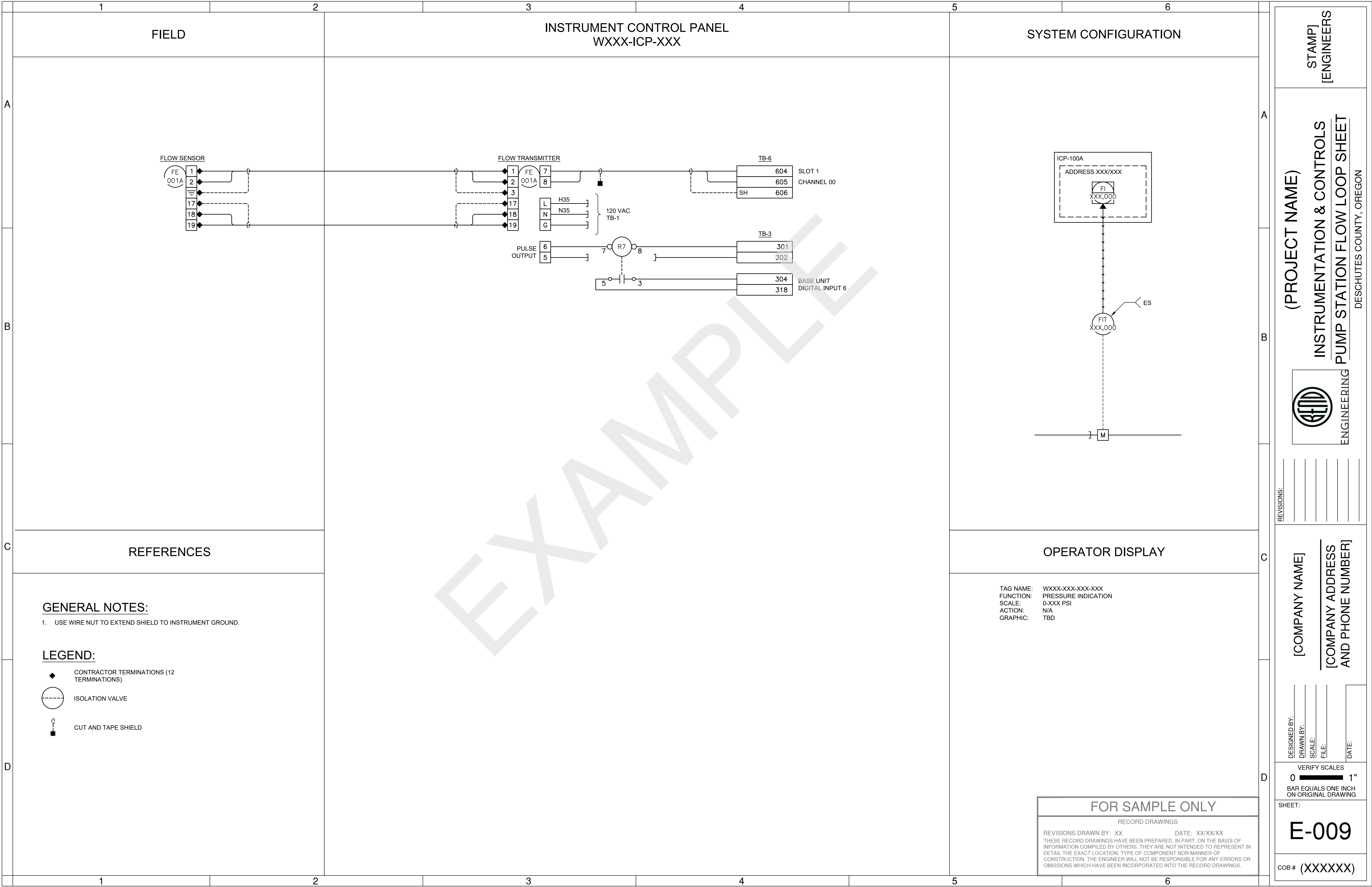
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REVISIONS:

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AND PHONE NUMBER]








STAMP  
[ENGINEERS]

(PROJECT NAME)

INSTRUMENTATION & CONTROLS

PUMP STATION FLOW LOOP SHEET

DESCHUTES COUNTY, OREGON



ENGINEERING

REVISIONS:


[COMPANY NAME]

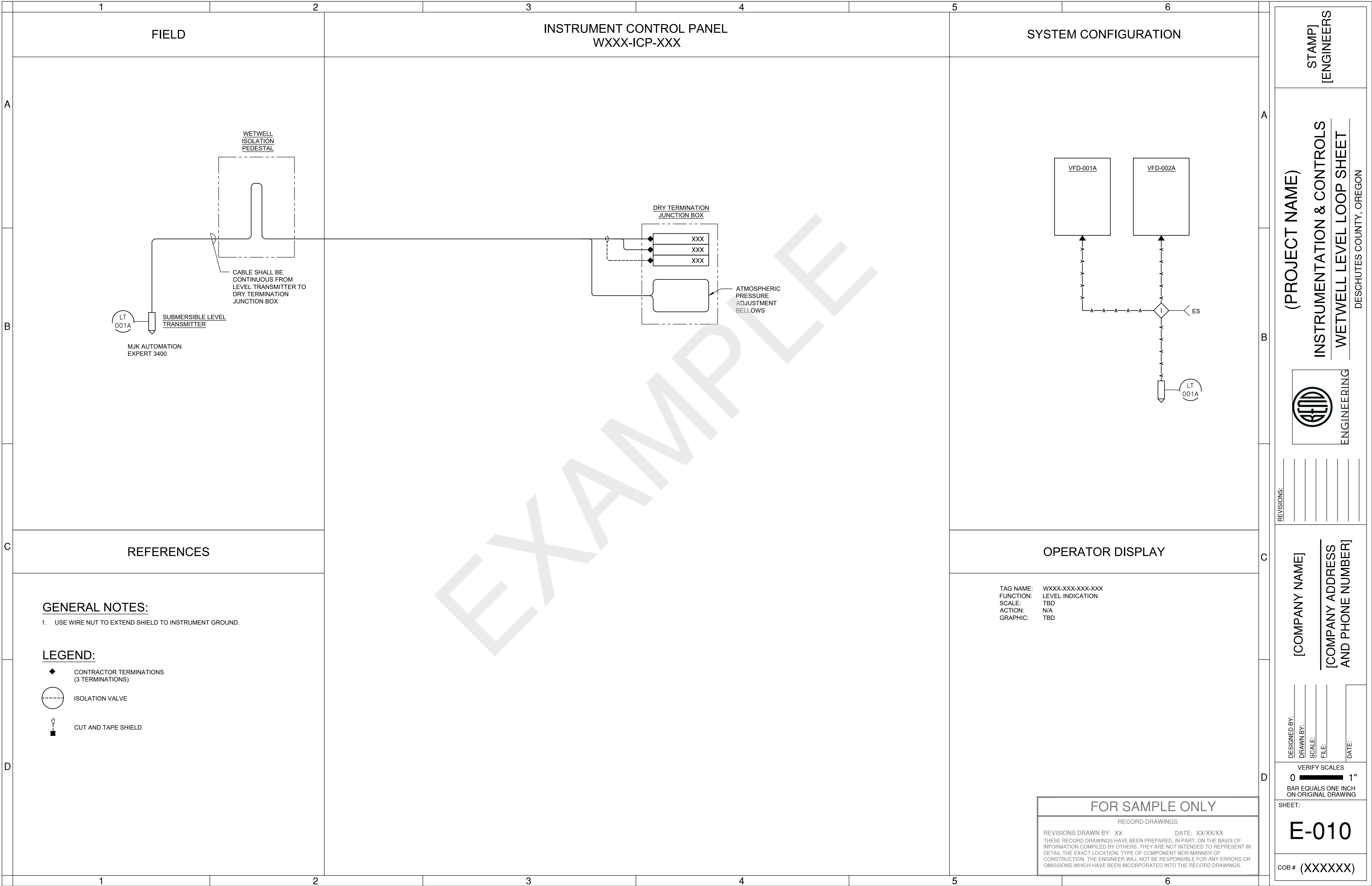
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SHEET:  
**E-009**

COB # (XXXXXX)



STAMP  
[ENGINEERS]

(PROJECT NAME)  
INSTRUMENTATION & CONTROLS  
WETWELL LEVEL LOOP SHEET  
DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:  


[COMPANY NAME]	[COMPANY ADDRESS AND PHONE NUMBER]
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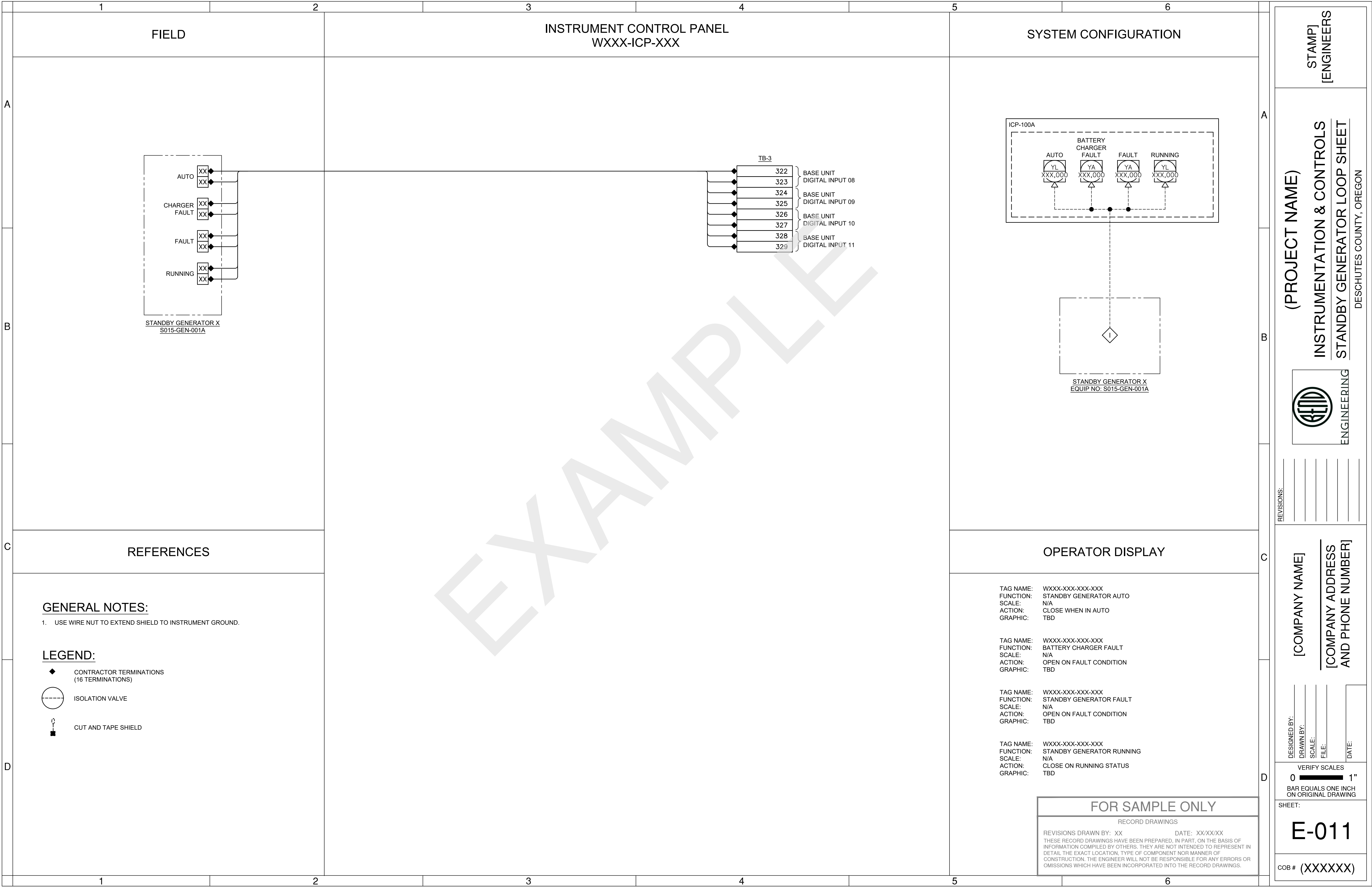
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SHEET:  
E-010

COB # (XXXXXXX)





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	FIELD		INSTRUMENT CONTROL PANEL WXXX-ICP-XXX			SYSTEM CONFIGURATION	
A							
B			<div><div><div><div>NORMAL POSITION</div><div>XX</div><div>XX</div></div><div>STANDBY POSITION</div><div>XX</div><div>XX</div></div><div><div>NORMAL POWER AVAILABLE</div><div>XX</div><div>XX</div></div><div>STANDBY POWER AVAILABLE</div><div>XX</div><div>XX</div></div>				

AUTO-TRANSFER SWITCH

EQUIP NO: S015-ATS-100A

TB-3

331

332

333

334

335

336

337

338

BASE UNIT DIGITAL INPUT 12

BASE UNIT DIGITAL INPUT 13

BASE UNIT DIGITAL INPUT 14

BASE UNIT DIGITAL INPUT 15

ICP-100A

NORMAL POSITION

YL

XXX,000

STANDBY POSITION

YL

XXX,000

NORMAL POWER AVAIL

YL

XXX,000

STANDBY POWER AVAIL

YL

XXX,000

AUTO-TRANSFER SWITCH

EQUIP NO: S015-ATS-100A

STAMP

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(PROJECT NAME)

INSTRUMENTATION & CONTROLS

ENGINEERING

AUTO-TRANSFER SWITCH LOOP SHEET

DESCHUTES COUNTY, OREGON

REVISIONS:

[COMPANY NAME]

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AND PHONE NUMBER]

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FILE:

DATE:

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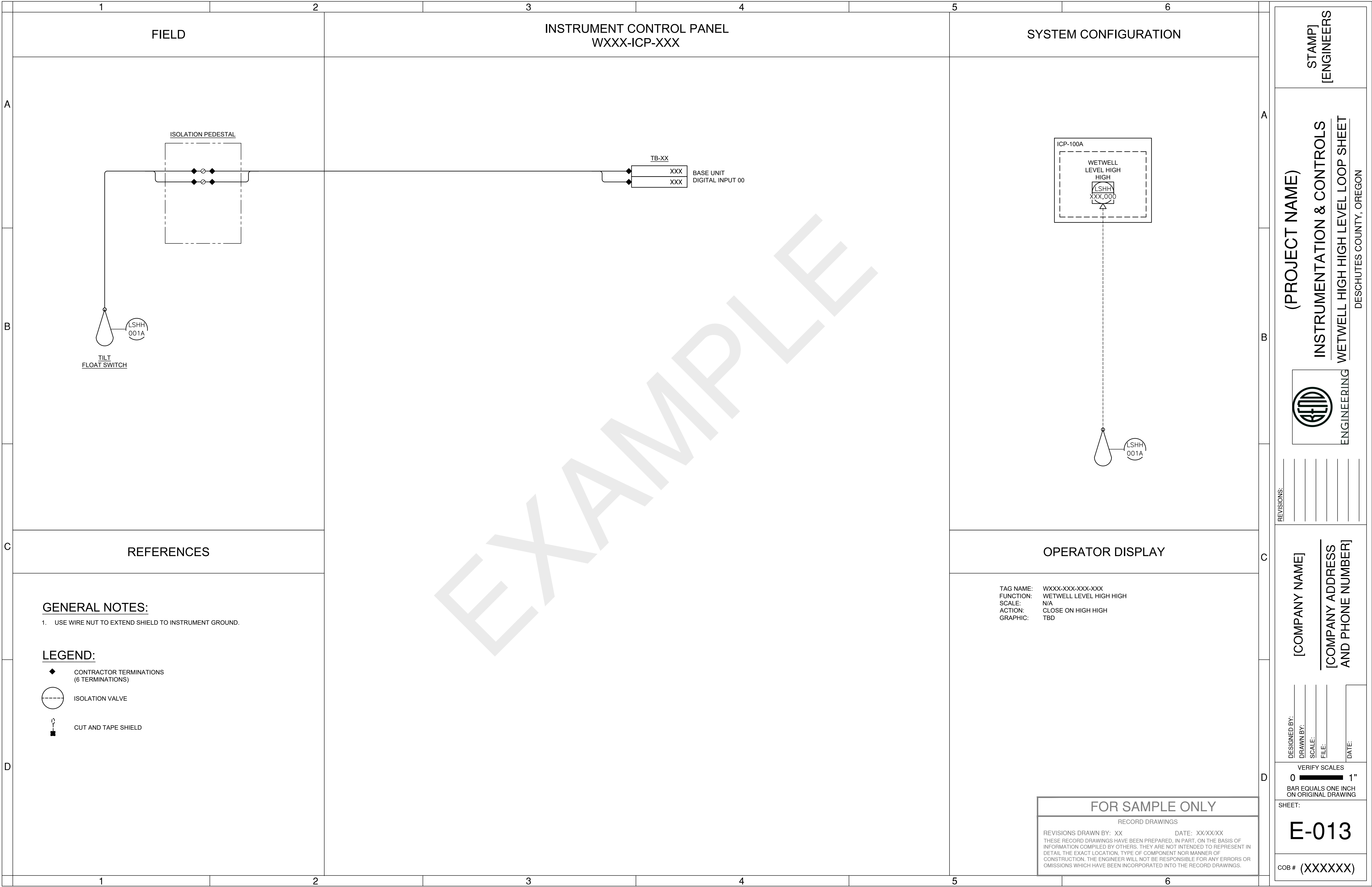
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SHEET:

E-012

COB # (XXXXXX)





STAMP  
[ENGINEERS]

(PROJECT NAME)

INSTRUMENTATION & CONTROLS

WETWELL HIGH HIGH LEVEL LOOP SHEET

DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:


[COMPANY NAME]

[COMPANY ADDRESS AND PHONE NUMBER]

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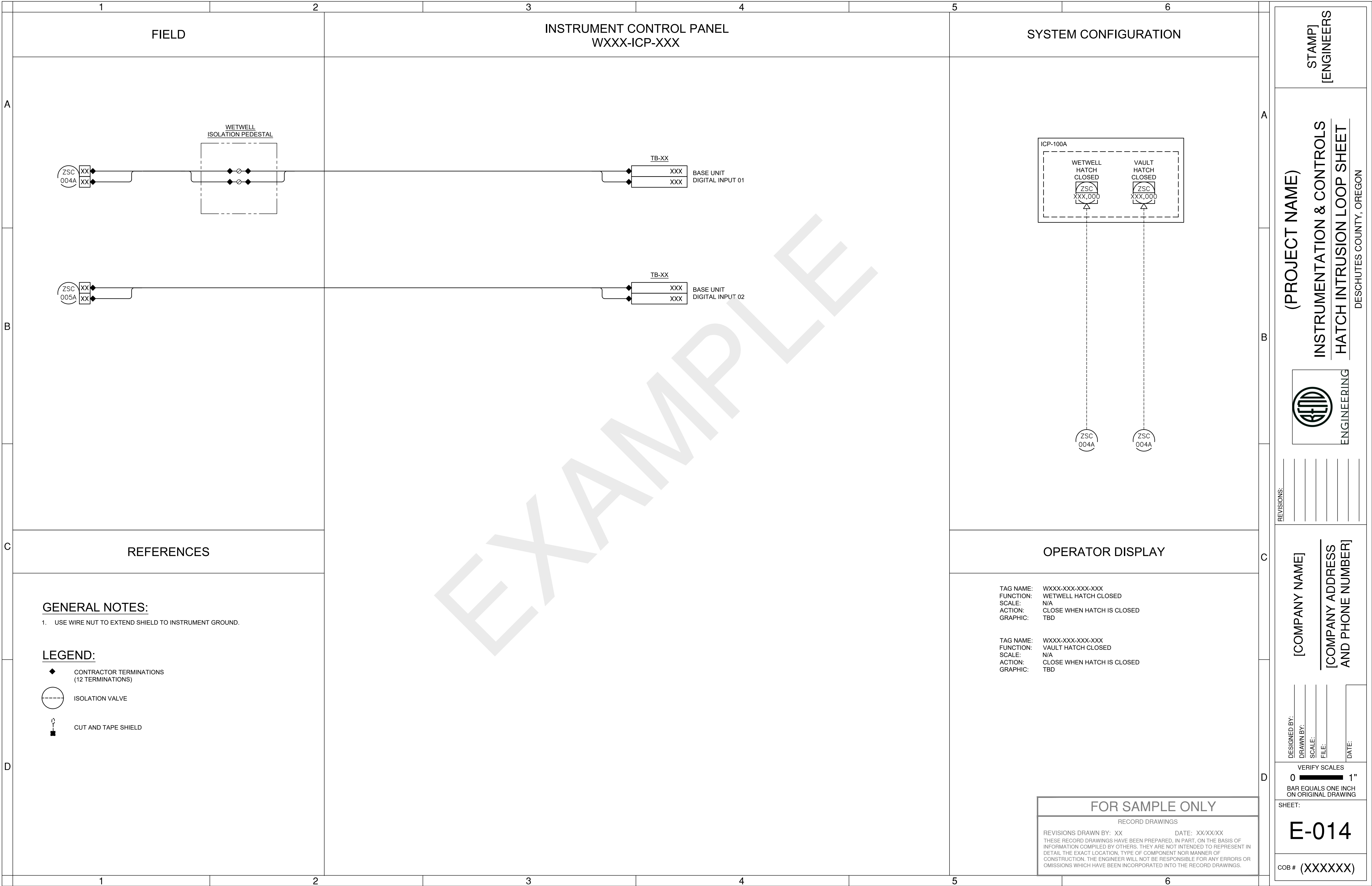
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SHEET:


E-013

COB # (XXXXXXX)



STAMP  
[ENGINEERS]

(PROJECT NAME)  
INSTRUMENTATION & CONTROLS  
HATCH INTRUSION LOOP SHEET  
DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:


[COMPANY NAME]

[COMPANY ADDRESS  
AND PHONE NUMBER]

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ON ORIGINAL DRAWING

SHEET:  
E-014

COB # (XXXXXXX)



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	FIELD		INSTRUMENT CONTROL PANEL WXXX-ICP-XXX			SYSTEM CONFIGURATION		
A			<div><div><div><div><div><div></div><div>ZSC 001A</div></div><div><div>XX</div><div>XX</div></div></div><div></div><div><div>TB-3</div><div><div>339</div><div>340</div></div></div><div>BASE UNIT DIGITAL INPUT 16</div></div></div><div><div><div><div><div></div><div>ZSC 001B</div></div><div><div>XX</div><div>XX</div></div></div><div></div><div><div>TB-3</div><div><div>341</div><div>342</div></div></div><div>BASE UNIT DIGITAL INPUT 17</div></div></div></div> <div>MAIN CONTROL CABINET INTRUSION SWITCHES</div>			<div><div>ICP-100A</div><div><div><div><div><div></div><div>ZSC XXX,000</div></div><div>CABINET DOOR 1A CLOSED</div></div><div><div><div><div></div><div>ZSC XXX,000</div></div><div>CABINET DOOR 1B CLOSED</div></div></div></div><div><div>ZSC 001A</div><div>ZSC 001B</div></div></div></div>		A
B								
B								
C	REFERENCES					OPERATOR DISPLAY		
D	<div><div>GENERAL NOTES:</div><div>1. USE WIRE NUT TO EXTEND SHIELD TO INSTRUMENT GROUND.</div><div>LEGEND:</div><div><div><div>◆</div>CONTRACTOR TERMINATIONS (0 TERMINATIONS)</div><div><div><div></div></div>ISOLATION VALVE</div><div><div><div>C</div><div>■</div></div>CUT AND TAPE SHIELD</div></div></div>					<div><div><div>TAG NAME: WXXX-XXX-XXX-XXX FUNCTION: MAIN CONTROL CABINET DOOR 1A CLOSED SCALE: N/A ACTION: CLOSE WHEN DOOR IS CLOSED GRAPHIC: TBD</div><div>TAG NAME: WXXX-XXX-XXX-XXX FUNCTION: MAIN CONTROL CABINET DOOR 1B CLOSED SCALE: N/A ACTION: CLOSE WHEN DOOR IS CLOSED GRAPHIC: TBD</div></div><div><div>FOR SAMPLE ONLY</div><div>RECORD DRAWINGS</div><div>REVISIONS DRAWN BY: XX DATE: XX/XX/XX THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.</div></div></div>		C
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[ENGINEERS]

(PROJECT NAME)

INSTRUMENTATION & CONTROLS

MAIN CONTROL CAB INTRUSION LOOP SHEET

DESCHUTES COUNTY, OREGON

ENGINEERING

REVISIONS:

[COMPANY NAME]

[COMPANY ADDRESS  
AND PHONE NUMBER]

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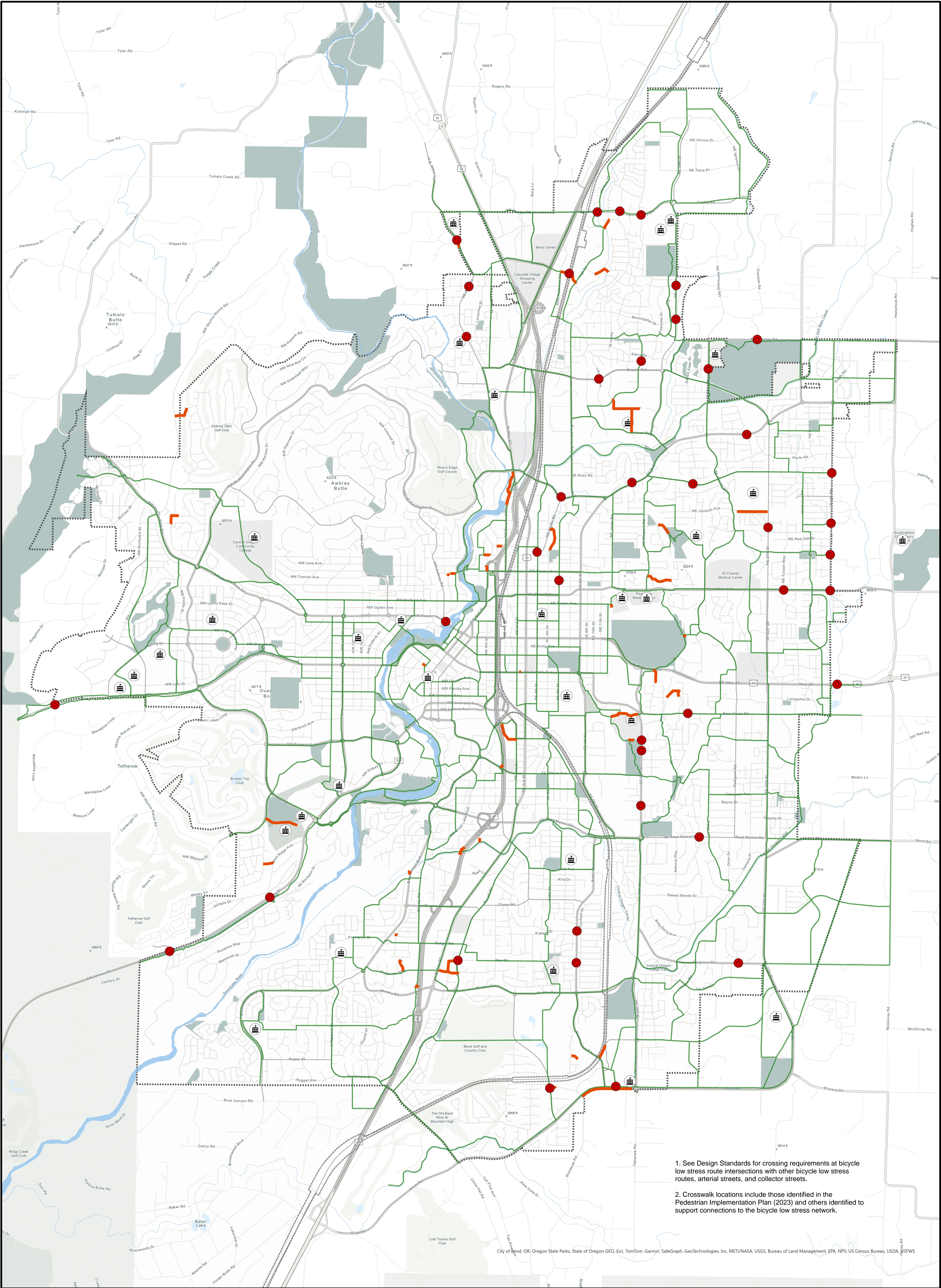
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ON ORIGINAL DRAWING

SHEET:

E-015

COB # (XXXXXX)





1. See Design Standards for crossing requirements at bicycle low stress route intersections with other bicycle low stress routes, arterial streets, and collector streets.
2. Crosswalk locations include those identified in the Pedestrian Implementation Plan (2023) and others identified to support connections to the bicycle low stress network.

City of Bend, OR; Oregon State Parks; State of Oregon GEO; Esri; TomTom; Garmin; SafeGraph; GeoTechnologies, Inc.; METI/NASA; USGS; Bureau of Land Management; EPA; NPS; US Census Bureau; USDA; @SFWS

APPENDIX C CONNECTOR ROUTES AND CROSSINGS

Major Streets

Local Streets

Schools

Parks

City Limits

Low Stress Network

Marked/Enhanced Crosswalk

Connector Route

N

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Map prepared by S. Layne, City of Bend  
Print Date: Jun 25, 2024  
Sources: City of Bend, Deschutes County



CITY OF BEND

This map is for reference purposes only. Care was taken in the creation of this map, but it is provided "AS IS." Please contact the City of Bend to verify map information or to report any errors.





## City of Bend Approved Street Trees

Informational Links by Common Name	Genus	Species	Subspecies Variety/ Cultivar	Height	Spread
<b>Class 1</b>	<b>FOR USE BENEATH POWERLINES - 4ft minimum Planter Strip width - 20 ft spacing</b>				
<a href="#">Paper bark Maple</a>	Acer	<i>griseum</i>		25'	20'
<a href="#">Crimson Sentry Norway Maple</a>	Acer	<i>platanoides</i>	Crimson sentry	25'	15'
<a href="#">Apple Serviceberry</a>	Amelanchier	<i>grandiflora</i>		25'	25'
<a href="#">Autumn Brilliance Serviceberry * Single trunk form only</a>	Amelanchier	<i>grandiflora</i>	Autumn Brilliance	25'	25'
<a href="#">Smooth Juneberry</a>	Amelanchier	<i>laevis</i>		25'	25'
<a href="#">Ginko</a>	Biloba	Goldspire		16'	6'
<a href="#">Ruby Vase Parrotia</a>	Parrotia	<i>persica</i>	Ruby Vase	25'	20'
<a href="#">Vanessa Persian Parrotia</a>	Parrotia	<i>persica</i>	Vanessa	25'	20'
<a href="#">Amur Chokecherry</a>	Prunus	<i>maackii</i>		25'	20'
<a href="#">Flowering Cherry Plum</a>	<u>Prunus</u>	<i>cerasifera</i>		20'	20'
<a href="#">Summer Sprite Linden</a>	Tilia	<i>cordata</i>	Halka	25'	20'
<a href="#">City Sprite Zelkova</a>	Zelkova	<i>serrata</i>	JFS-KW1	25'	20'
<a href="#">Amur Maple * single trunk form only</a>	Acer	<i>tatarucum</i>	ginnala	20'	20'
<b>CLASS 2</b>	<b>4' Minimum Planter Strip width - 20 ft spacing</b>				
<a href="#">Tatarian maple * single trunk form only</a>	Acer	Tartaricum		30'	18'
<a href="#">Common Chokecherry</a>	Prunus	<i>virginiana</i>	virginiana	30'	20'
<a href="#">Spring Flurry Serviceberry * Single trunk form only</a>	Amelanchier	<i>laevis</i>	Spring flurry	28'	20'
<a href="#">Thornless Cockspur Hawthorne * Thornless only</a>	Crataegus	<i>crus-galli</i>	Inermis	30'	25'
<a href="#">Western Serviceberry</a>	Amelanchier	<i>alnifolia</i>		30'	20'
<a href="#">Hedge Maple</a>	Acer	<i>campestre</i>		40'	20'
<a href="#">Rocky Mountain Maple</a>	Acer	<i>glabrum</i>		30'	20'
<a href="#">Bigtooth Maple</a>	Acer	<i>grandidentatum</i>		35'	25'
<a href="#">Sensation Box Elder</a>	Acer	<i>negundo</i>	Sensation	45'	30'
<a href="#">Autumn Blaze Red Maple</a>	Acer	<i>rubrum</i>	Freemanii	50'	35'
<a href="#">Red Sunset Maple</a>	<u>Acer</u>	<i>rubrum</i>	<u>Franksred</u>	45'	45'
<a href="#">Rising Fire American Hornbeam</a>	Carpinus	<i>caroliniana</i>	Rising Fire	30'	15'
<a href="#">Amur Maackia</a>	Maackia	<i>amurensis</i>	Maacnificent	35'	25'
<a href="#">Columnar Sargent Cherry</a>	Prunus	<i>sargentii</i>	Columnaris	35'	15'
<a href="#">Upright English Oak</a>	Quercus	<i>robur</i>	Fastigiata	50'	25'

Informational Links by Common Name	Genus	Species	Subspecies Variety/ Cultivar	Height	Spread
<a href="#">Skymaster English Oak</a>	Quercus	<i>robur</i>	Skymaster	50'	25'
<a href="#">Ware's Oak</a>	Quercus	<i>warei</i>	Nadler	35'	25'
McNair Red Horse Chestnut	<u>Sesculus</u>	x carnea		35'	25'
CLASS 3	5' Minimum Planter Strip Width -25ft spacing				
<a href="#">European Hornbeam</a>	Carpinus	<i>betulus</i>		50'	35'
<a href="#">Prairie Sentinel Hackberry</a>	Celtis	<i>occidentalis</i>	prairie sentinel	45'	15'
<a href="#">Western Hackberry</a>	Celtis	<i>reticulata</i>		30'	30'
<a href="#">Thornless Honey Locust * Thornless variety only</a>	Gleditsia	<i>triacanthos</i>	Inermis	40'	40'
<a href="#">Persian Parrotia *Single trunk variety only</a>	Parrotia	<i>persica</i>		50'	30'
<a href="#">Boulevard Linden</a>	Tilia	<i>americana</i>	boulevard	50'	25'
<a href="#">Sterling Linden</a>	Tillia	<i>tomentosa</i>	Sterling	45'	35'
Box Elder *Single trunk variety only	<u>Acer</u>			70'	70'
CLASS 4	6' minimum Planter Strip Width - 30 foot spacing				
<a href="#">Crimson King Norway Maple</a>	Acer	<i>platanoides</i>	Crimson King	40'	35'
<a href="#">Emerald Avenue Hornbeam</a>	Carpinus	<i>betulus</i>	JFS-KW1CB	40'	35'
<a href="#">Northern Catalpa</a>	Catalpa	<i>speciosa</i>		60'	40'
<a href="#">Heartland Catalpa</a>	Catalpa	<i>speciosa</i>	Heartland	50'	25'
<a href="#">Magnifica Hackberry</a>	Celtis	<i>occidentalis</i>	magnifica	50'	40'
<a href="#">London Planetree</a>	Platanus	<i>acerifolia</i>		80'	40'
<a href="#">English Oak</a>	Quercus	<i>robur</i>		65'	45'
CLASS 5	For Planter Strips 7' and above - 35ft spacing				
<a href="#">American Linden</a>	Tilia	<i>americana</i>		60'	30'
<a href="#">Silver Linden</a>	Tilia	<i>tomentosa</i>		50'	35'
<a href="#">Sugar Maple</a>	Acer	<i>saccharum</i>		80'	50'
<a href="#">Espresso Kentucky Coffee Tree</a>	Gymnocladus	<i>dioicus</i>	Espresso	50'	40'
<a href="#">Scarlet Oak</a>	Quercus	<i>coccinea</i>		75'	40'
<a href="#">Northern Red Oak</a>	Quercus	<i>rubra</i>		75'	40'
CLASS 6	For Planter Strips 10' and above - 35ft spacing				
<a href="#">Norway Maple</a>	Acer	<i>platanoides</i>		45'	40'
Ponderosa Pine/Pinus Ponderosa	Pinus			70'	26'
Pinus contorta, Larix occidentalis, Calocedrus decurrens					



Informational Links by Common Name	Genus	Species	Subspecies Variety/ Cultivar	Height	Spread
<a href="#">Greenspire Littleleaf Linden</a>	Tilia	<i>cordata</i>	Greenspire	50'	30'
Bristlecone pine/Pinus artistata				40'	20'
Crimson Spire Oak	Crimschmidt			45'	15'
Bosnian pine	Pinus	heldreichii		40'	10'
Engelmann spruce/picea engalmanni	Picea	engelmannii		90'	3'



## City of Bend Approved Plant List

Name	Latin name	Description	Height	Spread	Attributes	Sun or shade?	Water Need	Category	Native?	Flower:
<b>Shrubs</b>										
Coralberry, Hancock	<i>Symphoricarpos x chenaultii</i> 'Hancock'	A low-growing shrub which works well on slopes for erosion control. Provides a shelter for wildlife. Produces white flowers followed by sparse pink berries. Green leaves change to yellow in fall. Indian currant coralberry ( <i>Symphoricarpos orbiculatus</i> ) is similar but larger in size.	1 1/2-2'	6-8'	Attracts birds, Deer resistant	Full sun to part shade	Moderate	Small shrubs		
Cotoneaster, cranberry	<i>Cotoneaster apiculatus</i>	A semi-broadleaf evergreen. Dark, shiny, green leaves change to burgundy in the fall. Interesting mounding type of growth habit. Produces tiny pink flowers followed by a red cranberry-like fruit that persists into winter. East-facing exposure is best. Not invasive in Central Oregon.	3'	3-6'	Fire resistant, Deer resistant	Full sun to part shade	Moderate	Small shrubs		
Currant, alpine	<i>Ribes alpinum</i>	Small shrub. Good in mass plantings to create a shrub border. Dense with bright green foliage and bland, yellow fall color.	3-5'	4-5'	Deer resistant	Full sun to part shade	Low	Small shrubs		
Fernbush or desert sweet	<i>Chamaebatiaria millefolium</i>	Semi-evergreen shrub with fuzzy, scented, fern-like green leaves. Produces white flowers in summer. Irregular, unkempt-looking growth habit.	3-6'	3-6'	Attracts butterflies, Attracts pollinators, Deer resistant	Full sun	Very Low	Small shrubs	yes	
Kelsey dogwood	<i>Cornus stolonifera</i> 'Kelseyi'	Plant has a compact rounded growth habit with white flowers in spring. Red stems provide winter interest.	2-3'	2-3'	Rain gardens, Deer resistant, Fire resistant	Full sun to part shade	Moderate	Small shrubs		



Potentilla or cinquefoil	<i>Potentilla fruticosa</i>	Hardy, bushy shrub with small grayish-green leaves. Produces flowers all summer long in shades of yellow, gold, white, pink, red, and orange. Cultivars include 'Abbottswood', 'Gold Drop', 'Goldfinger', 'Tangerine', and many others. Works well as a shrub border.	2-4'	2-4'	Deer resistant	Full sun	Low	Small shrubs		
Rabbitbrush, gray	<i>Chrysothamnus nauseosus</i>	Late-blooming, irregular-shaped shrub. Produces yellow flowers. Bluish-green, needle-like foliage. Can be pruned each season in spring. Reseeds easily. Green Rabbitbrush ( <i>Chrysothamnus viscidiflorus lanceolatus</i> ) is another native that is similar but more compact with green leaves.	2-6'	2-4'	Attracts butterflies, Attracts pollinators, Deer resistant	Full sun	Very Low	Small shrubs	yes	
Sage, Russian	<i>Perovskia atriplicifolia</i>	Fine, feathery textured shrub that performs more like a perennial. Silvery-gray, finely dissected leaves with a sage-like aroma. May die back in winter and can be cut back in late fall or early spring. Produces beautiful lavender-blue flowers in late summer. Do not overwater. Will reseed or spread by rhizomes. Better cultivars include 'Blue Spires' (sterile, so will not reseed), 'Lacey Blue' (dwarf ), and 'Little Spires' (dwarf ).	3-5'	3-4'	Deer resistant	Full sun	Low	Small shrubs		
Spirea	<i>Spiraea species</i>	Popular, clump-forming shrub which produces white or pink bowl-shaped flowers. Leaves are generally green but can be tinted in shades of red or yellow. Many cultivars available, including 'Anthony Waterer', 'Gold Mound', 'Goldflame', 'Little Princess', and 'Neon Flash'. Plant is very easy to care for. Native spirea ( <i>S. douglasii</i> ) has attractive pink blooms and can be used in a rain garden.	2-4'	2-4'	Rain gardens, Deer resistant, Fire resistant	Full sun to part shade	Moderate	Small shrubs	yes	

Spirea, blue mist or bluebeard	<i>Caryopteris x clandonensis</i>	Dense, rounded shrub with grayish-green leaves. Produces lavender-blue flowers in late summer. Foliage has a sage-like scent. Nice color for late season. Attracts bees. Can dieback in winter and be cut back like a perennial in early spring. Will reseed. Cultivars include 'Blue Mist' and 'Dark Knight'.	3-5'	3-5'	Attracts butterflies, Attracts pollinators, Deer resistant	Full sun to part shade	Low	Small shrubs		
Sumac, Gro-Low	<i>Rhus aromatica</i>	Mounding shrub with dark green leaves. Fall color is orange to red to purple. Tiny yellow flowers change to fuzzy red fruit. Prefers additional moisture.	1-3'	5-7'	Rain gardens, Deer resistant	Full sun to part shade	Low	Small shrubs		
Abelia, fragrant	<i>Abelia mosanensis</i>	An interesting shrub with loose, upright arching stems. Very fragrant pink flowers open in spring. Orange to red fall color. No serious pests. This species of abelia is more cold hardy than others. Varieties include 'Sweet Emotion®'.	4-6'	4-6'	Attracts butterflies, Attracts pollinators, Deer resistant, Fire resistant	Full sun to part shade	Moderate	Medium shrubs		
Barberry	<i>Berberis species</i>	Commonly used small- or medium-sized shrub with a dense, rounded growth habit. Branches have spines and small leaves in various foliage colors, ranging from purplish red to gold. Produces small yellow flowers followed by ornamental red fruit that persists into winter. Not invasive in Central Oregon. Varieties include 'Crimson Pygmy' (dwarf ), 'Rose Glow', 'Aurea' (gold leaf and sterile).	4-6'	4-6'	Deer resistant, Fire resistant	Full sun to part shade	Low	Medium shrubs		
Bitterbrush	<i>Purshia tridentata</i>	A native semi-evergreen shrub with grayish-green leaves. Produces creamy-yellow flowers in spring followed by reddish berries. Very drought tolerant. Important forage for deer and elk.	5-8'	4-8'		Full sun to part shade	Very Low	Medium shrubs	yes	



Burning bush, dwarf	<i>Euonymus alatus 'Compactus'</i>	Rounded shrub with green leaves and “winged” bark. Excellent scarlet fall color. Creates a nice shrub border. Does best with east-facing exposure.	4-6'	4-6'	Fire resistant	Full sun to part shade	Moderate	Medium shrubs		
Chokeberry, black	<i>Aronia melanocarpa</i>	An upright, multi-stem shrub with glossy, green leaves and white flowers in spring. Blackish fruit is edible and can be used to make juices, jellies, and jams. Plant has high wildlife value and red-dish-purple fall color. Varieties include 'Autumn Magic' and 'Viking'.	3-6'	3-6'	Rain gardens, Attracts birds	Full sun to part shade	Low	Medium shrubs		
Currant, golden	<i>Ribes aureum</i>	Produces yellow flowers followed by edible purple fruit. Fall color can be red to yellow. Prefers additional moisture.	4-6'	4-6'	Rain gardens, Attracts birds, fire resistant	Full sun to part shade	Low	Medium shrubs	yes	
Fothergilla	<i>Fothergilla major</i>	An attractive shrub with seasonal interest from the white, scented, brush-like blooms in spring to the spectacular fall color. Nice rounded growth habit. Will perform best in a north- or east-facing location. Varieties include 'Blue Shadow' and 'Mt. Airy'. The 'Mt. Airy' variety has performed great in the OSU Demonstration Garden in Redmond.	5-6'	5-6'	Deer resistant, Fire resistant	Full sun to part shade	Moderate	Medium shrubs		
Hydrangea	<i>Hydrangea arborescens</i> or <i>Hydrangea paniculata</i>	Smooth hydrangea (H. arborescens) and Panicle hydrangea (H. paniculata) varieties do best in Central Oregon. These shrubs produce nice, medium-green foliage and very showy flowers that range from white to pink. Varieties that have performed well include 'Annabelle', 'Grandiflora', 'Limelight', 'Little Lime', 'Little Lamb', and 'Quickfire'.	3-5'	4-6'	Fire resistant	Full sun to part shade	Moderate	Medium shrubs		

Meyer Lilac	<i>Syringa meyeri</i>	A compact, spreading lilac with very fragrant blooms. Tolerates tough growing conditions. Showy purple flowers, typically in May. Cultivars include 'Palibin' at 4-5' tall.	4-8'	6-8'	Deer resistant, Fire resistant	Full sun to part shade	Low	Medium shrubs		
Plum, cistena or purpleleaf sandcherry	<i>Prunus x cistena</i>	Fast-growing, medium-sized shrub with purple foliage during the summer. Produces pinkish- white flowers in spring. Will send up suckers.	4-6'	4-6'	Attracts pollinators, Fire resistant	Full sun	Low	Medium shrubs		
Rose	<i>Rosa species</i>	Hardy shrub roses and regular rose bushes are known for their blossoms, which are beautiful in color and scent. Most have green foliage, masses of flowers, and an arching or climbing type of growth habit. May bloom continuously or once during the season. Some display excellent fall color and ornamental rose hips in late fall/winter. Spiny branches make them less desirable for deer. Wood's Rose (R. woodsia), a native wild rose in Central Oregon, has a spreading growth habit. Produces single pink flowers in summer. There are too many rose varieties to mention; however, some of the more adaptable hardy shrub roses include those in the Meidiland series and Morden (Parkland) series.	2-6'	2-6'	Fire resistant	Full sun to part shade	Low	Medium shrubs	yes	
Sagebrush, big	<i>Artemesia tridentata sub. tridentata</i>	Woody-based shrub with soft, aromatic, silvery-gray foliage. White to yellowish feathery flowers in spring. Can be pruned to be kept tidy. This plant is an important winter browse plant for native wildlife. There are other species of Artemesia that are native to Central Oregon.	3-6'	3-6'		Full sun	Very Low	Medium shrubs	yes	



Sandcherry, western	<i>Prunus besseyi</i>	Open, irregular growth habit. Produces fragrant white flowers in spring followed by an edible black fruit. Leaves are a grayish-green that change to coppery-red in fall. Can sucker if overwatered.	4-6'	4-6'	Attracts birds, Attracts pollinators, Fire resistant	Full sun to part shade	Low	Medium shrubs	yes	
Snowberry	<i>Symphoricarpos albus</i>	Upright, arching shrub with bluish-green leaves. Pink flowers in summer change to white, rounded fruit that persists through the winter.	4-6'	4-6'	Rain gardens, Attracts birds, Deer resistant, Fire resistant	Full sun to part shade	Low	Medium shrubs	yes	
Viburnum, compact American cranberry	<i>Viburnum trilobum 'Compactum'</i>	An excellent compact, rounded shrub. Green, maple-like foliage in summer changes to orange-red in fall. Produces white flowers followed by minimal red fruit in fall. East-facing exposure is best. Compact European Cranberry ( <i>Viburnum opulus 'Compactum'</i> ) is very similar.	4-6'	4-6'	Rain gardens, Attracts birds, Deer resistant, Fire resistant	Full sun to part shade	Moderate	Medium shrubs		
Oregon grape	<i>Mahonia aquifolium</i>		6'	3'		Full sun to part shade	Low, Moderate	Medium shrubs	yes	
Oak leaf sumac	<i>Rhus trilobata</i>		8'	4'		Full sun to part shade		Medium shrubs	yes	
			6'	4'		shade		Medium shrubs	yes	
Golden currant	<i>Ribes aureum</i>		10'	8'		Full sun to part shade	Moderate, w	Medium shrubs	yes	
Wax currant	<i>Ribes cereum</i>		8'	5'		Full sun to part shade	Very Low, Low	Medium shrubs	yes	
Green leaf manzanita	<i>Arctostaphylos patula</i>		4'	4'		Full sun to part shade	Low Moderate, W	Medium shrubs	yes	
Narrowleaf yucca	<i>Yucca angustissima</i>		2'	2'		Full sun to part shade	Very Low, Low Moderate, W	Medium shrubs	yes	
Douglas spirea	<i>Spirea douglasii</i>					Full sun to part shade		Medium shrubs	yes	
Mockorange	<i>Philadelphus lewisii</i>		6'	6'		Full sun to part shade	Low, Moderate	Medium shrubs	yes	
Woods' rose	<i>Rosa woodsii</i>		6'	4'		Full sun to part shade	Low, Moderate Moderate, W	Medium shrubs	yes	
Oceanspray	<i>Holodiscus discolor</i>					Full sun to part shade		Medium shrubs	yes	
			8'	5'		shade	Low	Medium shrubs	yes	
Rock spirea	<i>Holodiscus microphyllus</i>		4'	3'		Full sun to part shade		Medium shrubs	yes	
Birchleaf spirea	<i>Spirea betulifolia</i>		3'	3'		Full sun to part shade	Moderate	Medium shrubs	yes	
			3'	3'		shade		Medium shrubs	yes	
Desert sage	<i>Salvia dorrii</i>		2'	2'		Full sun to part shade	Very Low, Low	Medium shrubs	yes	

Desert sweet	<i>Chamaebatiaria millifolium</i>		8'	6'		Full sun to part	Very Low, Low	Medium shrubs	yes	
		Shrubby-type plant with dense, green, purple, or golden foliage. Produces white flowers in summer. Distinct peeling bark. Can be used as a hedge. Easy to grow. Varieties include Diablo® (purple foliage), 'Dart's Gold', Summer Wine™ (smaller), and Little Devil™ (smaller). Pacific								
Ninebark	<i>Physocarpus species</i>	ninebark (P. capitatus) is a native with green leaves in summer.	6-8'	6-8'	Rain gardens, Deer resistant	Full sun to part shade	Low	Large shrubs	yes	
		This native shrub has arching to upright branches and an irregular growth habit. Best known for its fragrant, attractive cream-colored flowers that hang in clusters from the branches in summer. H.								
Oceanspray or desert Oceanspray	<i>Holodiscus discolor</i> or <i>H. dumosus</i>	dumosus (Desert Oceanspray) is smaller (6 to 8 feet) and more adaptable to Very Low.	10-15'	15-20'	Attracts butterflies, Attracts birds, Fire resistant, Rain gardens	Full sun to part shade	Low	Large shrubs	yes	
		A rounded, broad-spreading, multi-stemmed shrub with dark green leaves in summer that turn reddish-purple in fall. Notorious for its bright red, shiny stems in winter. Produces white flowers May to June. Cultivars include 'Bailey', 'Flaviramea' (yellow twigs), and 'Isanti'. Can tolerate dry conditions but prefers more moisture.								
Red osier or redtwig Dogwood	<i>Cornus stolonifera</i>		7-9'	10'+	Rain gardens, Fire resistant	Full sun to part shade	Moderate	Large shrubs		
		This late-blooming shrub can work well in a shrub border. Large blooms in a variety of colors in late summer. Has an upright, vase-like growth habit. Select more cold-hardy varieties.								
Rose of Sharon	<i>Hibiscus syriacus</i>		8-12'	6-10'	Fire resistant, Deer resistant	Full sun to part shade	Moderate	Large shrubs		



Serviceberry or juneberry	<i>Amelanchier species</i>	An upright, less dense, native shrub with green leaves. White flowers in spring followed by edible, bluish-purple berries that are good for jams or jellies. Excellent yellow, orange, and red fall colors. Several varieties available including 'Regent' (more compact). Related species include <i>A. canadensis</i> (Shadblow serviceberry).	6-10'	5-12'	Rain gardens, attracts butterflies, attracts birds, fire resistant, deer resistant	Full sun to part shade	Low	Large shrubs	yes	
Smokebush or smoketree	<i>Cotinus coggygia</i>	A large ornamental shrub with unique foliage and showy parts of the flower that result in smoke-like plumes. Foliage is green or purplish, depending on variety. Varieties include 'Grace' and 'Royal Purple'.	10-15'	10-15'	Deer resistant	Full sun to part shade	Moderate	Large shrubs		
Sumac, smooth or staghorn sumac	<i>Rhus glabra</i> or <i>Rhus typhina</i>	A bushy, tropical-like shrub with dark green leaves in summer that change to beautiful red, orange, and yellow colors in fall. Not suitable for small planting areas as it will sucker to produce groves. Female plants produce a red, hairy fruit, which persists into winter. <i>R. typhina</i> (Staghorn sumac) is similar to smooth sumac but branches are covered in fine hairs to produce a velvety touch. Varieties include Laceleaf Staghorn Sumac ( <i>R. typhina</i> 'Laciniata'), which has lacy, finely dissected leaves.	8-15'	10-15'	Rain gardens, Deer resistant	Full sun to part shade	Low	Large shrubs		
Viburnum, nannyberry	<i>Viburnum lentago</i>	Large ornamental shrub with glossy, green leaves. Produces large clusters of white flowers in late spring followed by fruit that emerges green and changes from red to purple to black. Will sucker some. Also available in tree form. Excellent red to purple fall color.	15-18'	6-10'	Rain gardens, Attracts birds, Deer resistant, Fire resistant	Full sun to part shade	Low	Large shrubs		

Viburnum, wayfaring tree	<i>Viburnum lantana</i>	Large ornamental shrub with fuzzy, leathery, green leaves. Produces large clusters of white flowers in late spring followed by black fruit when ripe. Excellent purplish-red fall color. Pest free. Varieties include: 'Mohican' (compact at 6- to 8-inch height and 6- to 9-inch spread). Easy to grow. Use as a hedge or specimen plant.	10-15'	10-15'	Attracts birds, Deer resistant, Fire resistant	Full sun to part shade	Low	Large shrubs		
Willow	<i>Salix species</i>	Fast-growing shrubs with narrow leaves and dense branching. Several native and cultivated varieties available. Can be susceptible to insect and disease. Popular cultivated varieties include Dapple willow ( <i>S. integra</i> 'Hakuro-nishiki') and Arctic Blue willow ( <i>S. purpurea</i> ).	6-30'	5-20'	Rain gardens, Fire resistant	Full sun	Moderate	Large shrubs	yes	
Oregon grape	<i>Mahonia aquifolium</i>	Native upright evergreen with shiny, dark green leaves in summer changing to purplish-red in the fall. Oregon state flower. Yellow flowers in the spring followed by bluish-black berries.	5-6'	5-6'	Rain gardens, Attracts pollinators, Attracts birds, Attracts butterflies, Fire resistant, Deer resistant	Full sun to part shade	Very Low	Shrubs/ Evergreen	yes	
Holly, creeping	<i>Mahonia repens</i>	Similar to Oregon grape holly but smaller in size. Spreading green leaves turning purplish-red in fall. Yellow flowers followed by bluish-black berries.	12-18"	2'	Rain gardens, Attracts butterflies, Attracts pollinators, Deer resistant, Fire resistant	Full sun to part shade	Very Low	Shrubs/ Evergreen	yes	
Kinnickinnick	<i>Arctostaphylos uva-ursi</i>	A native, mat-forming shrub with glossy, green leaves. A pinkish-white flower in spring followed by a red berry in the fall. A reddish fall color. Varieties are available.	4-8"	10-15'	Attracts butterflies, Attracts pollinators, Fire resistant	Full sun	Very Low	Shrubs/ Evergreen	yes	
Mountain mahogany, curl-leaf	<i>Cercocarpus ledifolius</i>	Upright, course-textured shrub with small dark green leaves emerging from slender gray stems. Seeds have an interesting, silky, corkscrew-shaped tail.	10-15'	10-15'		Full sun, Full sun to part shade	Very Low	Shrubs/ Evergreen	yes	



P.J.M. rhododendron and azaleas	<i>Rhododendron x P.J.M. and Rhododendron species</i>	The P.J.M. Rhododendron is an attractive broadleaf evergreen with dark green foliage and is resistant to root weevil damage. Gets covered with lavender- pink blooms. One of the more cold-hardy varieties for this area. Other cold-tolerant azaleas for this area include varieties found in the Northern Lights and Exbury series. Both rhododendron and azaleas should be planted with north- or east-facing exposure.	3-5'	3-7'	Attracts butterflies, Fire resistant	Prefers shade	Moderate	Shrubs/ Evergreen		
Yucca	<i>Yucca species</i>	Recognized by their sword-like leaves in various shade of green, gray-green, or variegated green and yellow. Pro-duces stalks of white flowers during the growing season. Several varieties available.	2-4'	2-4'	Attracts butterflies, Deer resistant, Fire resistant	Full sun	Low	Shrubs/ Evergreen		
Greenleaf Manzanita	<i>Arctostaphylos patula</i>	Oval, somewhat spreading shrub with flattened, shiny, bright green leaves. Very distinct, smooth, reddish brown bark, which provides intersting winter texture. Pinkish-white flowers in spring.	4-6'	4-6'	Attracts butterflies, Attracts pollinators	Full sun to part shade	Very Low	Shrubs/ Evergreen	yes	
Ornamental Grass/Bunch Grass										
Avena, blue or blue oat grass	<i>Helictotrichon sempervirens</i>	Dense, rounded clump grass. Bluish-green blades that become graceful and arching with maturity. Produces brown oat-like seed heads. Overwatering affects leaf color.	2-4'	2-3'	Rain gardens,Deer resistant	Full sun	Moderate	Ornamental grasses		
Black mondo grass	<i>Ophiopogon planiscapus 'Nigrescens'</i>	Interesting leaf color for any landscape. Foliage is dark, purplish-black. Flowers are purple followed by purple berries. Can be used in mass plantings.	5-6"	5-6"	Rain gardens, Deer resistant	Full sun to part shade	Moderate	Ornamental grasses		

Bluestem, little	<i>Schizachyrium scoparium</i>	Densely tufted clump grass with grayish-green leaves that change to red in fall. Produces spike-like flowers in summer. Cultivars include 'Prairie Blues', 'The Blues', 'Prairie Munchkin' and 'Little Heaven'.	2-3'	1-2'	Deer resistant	Full sun	Low	Ornamental grasses		
Feather reed grass, Karl Foerster	<i>Calamagrostis x acutiflora</i>	Beautiful, upright, narrow-growing ornamental grass. Used as a single specimen or in stands. Green blades with a feathery, purplish plume that blooms in summer. Prefers additional moisture. The flower changes to a tan seed head in late summer. Provides excellent winter texture. Can be cut back to the ground in early spring. Sterile and will not reseed. Other varieties include 'Overdam' and 'Avalanche'.	3-6'	1-2'	Rain gardens, Deer resistant		Low	Ornamental grasses		
Fescue, blue	<i>Festuca ovina glauca</i>	Attractive clump-forming grass. Silvery-blue blades are a nice contrast in the landscape. Produces a light tan flower in summer. Can provide winter texture. Prefers additional moisture. Cultivars include 'Elijah's Blue' (compact) and 'Boulder Blue'. Idaho Fescue (F. idahoensis) is a native fescue that heavily reseeds, so it is best used in restoration sites.	10-12"	10-12"	Deer resistant	Full sun	Low	Ornamental grasses	yes	
Fountain grass	<i>Pennisetum alopecuroides</i>	An arching, rounded ornamental grass. Attractive bronze "foxtail" flowers are produced in summer. Also available in some annual varieties. Cultivars include 'Hameln' (dwarf) and 'Little Bunny' (dwarf).	2-3'	2-+3'	Deer resistant	Full sun	Low	Ornamental grasses		
Indian ricegrass	<i>Oryzopsis hymenoides</i>	Upright, clump-forming grass with interesting, airy seed heads. Great for a dry, rocky location.	1-2'	2-3'	Rain gardens	Full sun	Very Low	Ornamental grasses	yes	



Miscanthus grass or maiden hair grass	<i>Miscanthus sinensis</i>	One of the most beautiful ornamental grasses. Graceful, arching type of growth habit. Green or variegated foliage. Produces airy, white to russet plumes in late summer, depending on variety. Not invasive in Central Oregon because seeds likely do not have time to mature (ripen). Cultivars include 'Gracillimus' (very drought tolerant) and 'Morning Light'.	5-8'	3-5'	Deer resistant	Full sun to part shade	Moderate	Ornamental grasses		
Switch grass	<i>Panicum virgatum</i>	Narrow, upright, clump-forming grass. Metallic blue blades of grass that change to yellow in fall. Produces airy, purple flowers. Prefers additional moisture. Heights vary with different cultivars including 'Cheyenne', 'Heavy Metal', 'Hot Rod', and 'Shenandoah'.	3-4'	3-4'	Rain gardens, Attracts birds, Deer resistant	Full sun to part shade	Low	Ornamental grasses		
Tufted hair grass	<i>Deschampsia caespitosa</i>	Arching, mounding clump of green grass with unique, showy blooms and seed heads. Good container garden plant.	2-3'	1-3'	Rain gardens, Deer resistant	Full sun to part shade	Moderate	Ornamental grasses		
Indian ricegrass	<i>Oryzopsis hymenoides</i>		2'	1.5'		Full sun to part shade	Low	Native Grasses		
Idaho fescue	<i>Festuca idahoensis</i>		2'	1'		Full sun to part shade	Low, Moderate	Native Grasses		
			2'	1'		shade		Native Grasses		
Great Basin Wildrye	<i>Elymus cinereus</i>		6'	2'		Full sun to part shade	Low, Moderate	Native Grasses		
Sandberg bluegrass	<i>Poa secunda</i>		1'	1'		Full sun to part	Very Low, Low	Native Grasses		
Groundcovers										
Dianthus, garden carnation, or pinks	<i>Dianthus species</i>	Green or grayish-green foliage covered with blooms. Clump-forming growth habit. Some varieties are fragrant. Cultivars include 'Firewitch'. Good for use in rock gardens.	2-12"	6-16"	Attracts butterflies, Deer resistant, Fire resistant	Full sun to part shade	Low	Groundcovers		Pink, white, red
False rock cress	<i>Aubrieta deltoidea</i>	Mat-forming, spreading perennial with grayish-green foliage. Attractive masses of flowers in spring. Good for use in rock gardens.	3-8"	10-15"	Attracts butterflies, Fire resistant	Full sun to part shade	Low	Groundcovers		Purple, pink

Hardy cactus	<i>Cactaceae family</i>	A large group of succulent plants in many shapes and sizes, often covered with spines. Winter-hardy cactus. Good for use in rock gardens.	3-48"	3-48"	Attracts butterflies, Deer resistant, Fire resistant	Full sun to part shade	Very Low	Groundcovers		Purple, pink, red, yellow, white
Hens and chicks	<i>Sempervivum species</i>	A unique groundcover with green, succulent, rosette-shaped foliage. The parent plant produces flowers and smaller plants or “chicks.” Excellent in rock walls.	2-6"	6-10"	Deer resistant, Fire resistant	Full sun to part shade	Very Low	Groundcovers		Pink, star-shaped rise up on a stalk from the “hen”
Ice plant	<i>Delosperma species</i>	Very low-growing groundcover with succulent, green foliage that changes to reddish-bronze in winter. Not suitable for areas with long-term snow cover. Yellow ice plant is one of the most cold-hardy ice plants. Cultivars and varieties include D. cooperi (Purple Iceplant), Lavender Ice and Mesa Verde®. This is not the same plant as the invasive species Carpobrotus edulis found in California. Great for use in rock gardens.	1-3"	24-30"	Attracts pollinators, Fire resistant	Full sun to part shade	Very Low	Groundcovers		Multiple colors, daisy-like
Mount Atlas daisy or mat daisy	<i>Anacyclus depressus</i>	Feathery, silvery-green foliage. Can slowly self-seed in an area. Good for use in rock gardens.	1-2"	10-12"		Full sun	Very Low	Groundcovers		Small white, daisy-like with crimson on the underside of the petals
Partridge feather	<i>Tanacetum densum ssp. Amani</i>	Gray, feather-like foliage and yellow, button-shaped flowers.	4-6"	18-24"	Deer resistant	Full sun to part shade	Low	Groundcovers		Yellow
Phlox, creeping or moss	<i>Phlox subulata</i>	A very popular spring bloomer. Linear, green leaves form a low-growing mat. Lots of cultivars are available. P. diffusa is one of the native, creeping phlox with pink blooms. Good for use in rock gardens.	4-6"	18-24"	Fire resistant	Full sun	Low	Groundcovers	yes	White, blue, pink, striped
Poppy mallow or prairie winecup	<i>Callirhoe involucrata</i>	Fine, green-leaved foliage with trailing stems; blooms for several months. Unique, cup-like blossoms.	6-8"	24-36"	Fire resistant, Attracts butterflies	Full sun to part shade	Low	Groundcovers		Magenta



Potentilla, creeping	<i>Potentilla verna-nana</i>	A mat-forming groundcover with green or silver leaves and bright yellow, saucer-shaped blooms. Can be used between pavers; tolerates light foot traffic. Native potentilla available.	2-3"	4-6"	Rain gardens,Deer resistant	Full sun to part shade	Low	Groundcovers	yes	Yellow
Pussytoes or cat's ears	<i>Antennaria species</i>	A mat-forming perennial with silvery-white, hairy foliage. Works well in rock walls and between pavers. Native and cultivated varieties available. Good for use in rock gardens.	2-12"	8-10"	Fire resistant	Full sun	Very Low	Groundcovers	yes	Pink, white
Sea thrift	<i>Armeria maritima</i>	Clump- forming perennial with grass-like foliage. Flowers rise up above the mound with pink or white pom-pom-type flowers. Good for use in rock gardens.	6-10"	8-12"	Fire resistant,Deer resistant	Full sun to part shade	Low	Groundcovers		Bright pink, white
Snow-in-summer	<i>Cerastium tomentosum</i>	Fast-growing; covers a large area quickly. Provides a nice contrast with silvery-gray, woolly foliage. Good for use in rock gardens.	6-12"	24-36"	Deer resistant,Fire resistant	Full sun to part shade	Low	Groundcovers		White
Soapwort	<i>Saponaria ocymoides</i>	An attractive groundcover with bright pink flowers in late spring. Good for use in rock gardens.	4-5"	15-18"	Attracts pollinators,Fire resistant,Deer resistant	Full sun to part shade	Low	Groundcovers		Pink
Speedwell	<i>Veronica species</i>	Low-growing ground-cover with glossy or fuzzy, green leaves. Very showy in full bloom. Good for use in rock gardens.	1-6"	12-18"	Fire resistant,Deer resistant	Full sun to part shade	Low	Groundcovers		Blue, pink, white
Stonecrop	<i>Sedum species</i>	Groundcover with succulent foliage in shades of green to blue. Many drought-resistant varieties. Great for use in rock gardens.	2-12"	6-24"	Fire resistant	Full sun to part shade	Very Low	Groundcovers		White, yellow, pinkish-red
Sulfur buckwheat	<i>Eriogonum umbellatum</i>	Mat-forming perennial with green leaves. Both native and cultivated varieties available.	6-10"	24-36"	Rain gardens, Attracts butterflies,Deer resistant	Full sun	Very Low	Groundcovers	yes	Yellow
Thyme	<i>Thymus species</i>	Low-growing groundcover with fragrant leaves in shades of light to dark green, yellow, or variegated. Attractive in mass plantings when blooming. Works well between pavers and in rock walls.	1-4"	6-18"	Fire resistant,Deer resistant	Full sun to part shade	Low	Groundcovers		Pink, white, purple

Thyme, woolly	<i>Thymus pseudolanuginosus</i>	Very low-growing, mat-forming ground-cover. Sage-green, woolly leaves change to a purplish color in winter. Tolerates light foot traffic. Works well between flagstones, pavers, and in rock walls.	1/2-1"	12-18"	Fire resistant,Deer resistant	Full sun	Very Low	Groundcovers	yes	Pinkish purple
Kinnikinnick	<i>Arctostaphylos uva-ursi</i>		1	8		Full sun to part shade	Low, Moderate	Groundcovers	yes	
Spiny phlox	<i>Phlox hoodii</i>		0.5	1		Full sun to part shade	Low	Groundcovers	yes	
Wild strawberry	<i>Fragaria virginiana</i>		0.5	1		Full sun to part shade	Low,Moderate	Groundcovers	yes	
Longleaf phlox	<i>Phlox longifolia</i>		0.5	1		Full sun to part shade	Low	Groundcovers	yes	
Rosy pussytoes	<i>Antennaria rosea</i>		0.5	1		Full sun to part shade	Low, Moderate	Groundcovers	yes	
Sedum	<i>Sedum (all species)</i>		0.5	1.5		Full sun to part shade	Low,Moderate	Groundcovers	yes	
White rock cress	<i>Arabis species</i>	Low-growing perennial with dark green or variegated foliage. Produces masses of tiny flowers in spring. Native and cultivated varieties available. Good for use in rock gardens.	6-12"	12-20"	Fire resistant,Deer resistant	Full sun to part shade	Low	Groundcovers		White, pink
Perennials										
Agastache or hummingbird mint	<i>Agastache species</i>	A tall border perennial with grayish-green, mint-scented leaves. Produces beautiful fragrant tubular flowers. Blooms later in summer. Several varieties available, some are more cold hardy than others. Attracts hummingbirds.	24-30"	15-18"	Attracts butterflies,Attracts birds,Deer resistant	Full sun	Low	Perennials		Organge, pink, rose, blue
Basket-of-gold	<i>Aurinia saxatilis</i>	Gray-green foliage. Provides spring color with blooms in shades of gold to light yellow. Pruning is suggested after flowering to maintain shape. Excellent in rock gardens or in mass plantings.	8-18"	6-12"	Fire resistant,Deer resistant	Full sun	Low	Perennials		Gold to yellow, tiny flowers in clusters
Bellflower	<i>Campanula carpatica</i>	This species of bellflower has a more compact growth habit. Flowers are typically bell-shaped. Good for use in rock gardens. Cultivars include 'Deep Blue Clips', 'Rapido Blue', 'Rapido White', and 'White Clips'.	6-10"	8-12"	Fire resistant	Full sun to part shade	Moderate	Perennials		Blue, purple, white



Black-eyed Susan	<i>Rudbeckia species</i>	Late-blooming perennial that looks excellent in mass plantings. Bright, golden, daisy-like flowers with black-yellow centers. Good as a cut or dried flower.	1-4'	1-2'	Attracts butterflies, Deer resistant	Full sun to part shade	Very Low	Perennials		Golden yellow, orange with a black, brown, green or yellow center
Blanket flower	<i>Gaillardia varieties</i>	Grayish-green foliage and daisy-like flowers in various colors. Very drought tolerant. May be short lived. Fuzzy, round seed head follows flowering; keep deadheaded for continuous bloom. Long-blooming perennial. Native and cultivated varieties available.	8-36"	12-24"	Attracts butterflies, Deer resistant, Fire resistant, Rain gardens	Full sun	Low	Perennials	yes	Red petals tipped in gold, all gold, or burgundy with reddish-brown centers
Bleeding heart	<i>Dicentra species</i>	A great shade-loving perennial that produces very showy heart-shaped flowers. Western Bleeding Heart (D. formosa) has pink blooms. Several cultivated varieties available. Easy to care for plant. Can be cut back when spent. Attracts hummingbirds.	3'	3'	Rain gardens, Attracts birds, Deer resistant	Prefers shade	Low	Perennials	yes	Pink, white, red
Catmint	<i>Nepeta species</i>	A long-blooming perennial with trumpet-shaped flowers and grayish-green, fragrant foliage. Cut back plant for repeat blooming. Attractive to cats. It is best to avoid seed- grown varieties as they have a tendency to spread. Instead, select cultivated varieties such as 'Walkers Low' and 'Select Blue'.	12-28"	18-26"	Attracts butterflies, Attracts pollinators, Deer resistant	Full sun to part shade	Low	Perennials		Blue to lavender trumpet shaped
Columbine	<i>Aquilegia species</i>	A dainty perennial with a spurred, trumpet-shaped flower in multi-colored blooms. Foliage is grayish-green with shamrock-like foliage. Deadhead to encourage prolonged blooming. Partial shade for improved drought tolerance. Short lived but will reseed. Western Columbine (A. formosa) has a red and yellow bloom. Many cultivated varieties available. Attracts hummingbirds.	10-36"	10-12"	Rain gardens, Attracts birds, Deer resistant, Fire resistant	Full sun to part shade	Moderate	Perennials	yes	Pink, white, yellow, red, blue, orange, purple

Coneflower	<i>Echinacea species</i>	A perennial herb with large daisy-like flowers that are both single- and double-blooming in various colors. Late-season bloomer. Makes a good cut or dried flower. Dried seed heads can provide food for birds. Several cultivated varieties available; some more adaptable than others.	2-3'	1 1/2-2'	Rain gardens, Attracts butterflies, Attracts pollinators, Fire resistant, Deer resistant	Full sun	Low	Perennials	Purple, pinkish, white, green, yellow, orange
Coral bells	<i>Heuchera sanguinea</i>	Attractive foliage that is dark green or other various colors; foliage has scalloped edges. Flower stalks rise up above the foliage and produce delicate blooms. Performs best in light shade. Native and cultivated varieties available. Best with east-facing exposure. Attracts hummingbirds.	12-20"	12-15"	Attracts birds, Fire resistant	Full sun to part shade	Moderate	Perennials	Red, white, pink, yellow
Coreopsis or tickseed	<i>Coreopsis species</i>	Either a short- or long-lived perennial, depending on variety. Produces single and double daisy-like flowers in various colors. Green foliage and wiry stems. Cultivars include 'Moonbeam', 'Sunburst', and 'Zagreb'.	10-24"	12-18"	Rain gardens, Attracts butterflies, Deer resistant, Fire resistant	Full sun to part shade	Low	Perennials	Golden yellow, light yellow, pink, red
Cranesbill	<i>Geranium varieties</i>	This plant is known as the perennial geranium. Mounding-type growth habit with green foliage and various colored, saucer-shaped blooms. Varieties such as 'Rozanne' are very showy and everblooming. Some may be deer resistant.	1-2'	1-2'	Fire resistant, Deer resistant	Full sun to part shade	Low	Perennials	Pinks, white, blues
Crocasmia	<i>Crocasmia species</i>	Green sword-like foliage and showy flowers in summer. Attracts hummingbirds. Good for cut flowers.	2-3'	1-2'	Attracts butterflies, Attracts birds, Deer resistant	Full sun to part shade	Low	Perennials	Scarlet-red, orange, yellow



Daylily	<i>Hemerocallis species</i>	A very popular perennial that works well in a border or in mass plantings. Long, wide, grass-like green foliage with a mounding type of growth habit. Large lily-shaped flowers bloom for only one day then die and are replaced by new blooms. Better flower presentation with additional moisture. Many cultivars available.	1-4'	1-3'	Attracts butterflies, Fire resistant	Full sun to part shade	Low	Perennials		Multiple colors
Delphinium	<i>Delphinium varieties</i>	Extremely popular for their tall upright growth habit and beautiful spike flowers in various colors. For use in a border and for cutting flowers.	1-7'	1-3'	Deer resistant, Fire resistant	Full sun to part shade	Low	Perennials		Blues, purples, whites, pinks
Flax, Blue	<i>Linum perenne</i>	A native, self-sowing wildflower with delicate leaves and stems. Excellent in mass plantings or meadows. Deadhead to promote longer Gayfeather or Blazing Star <i>Liatris</i> species A tall border perennial with spike-like blooms atop leafy, grass-like foliage. Cultivars include 'Kobold'. Height: 12-36" Spread: 8-15" Flower: Pinkish-purple Bloom time: July-September Globe Thistle <i>Echinops ritro</i> A unique, tall perennial that works well in a border. Gray to green, prickly foliage and Perennials—blooming, prevent reseeding, and keep tidy.	12-20"	12-14"	Attracts pollinators, fire resistant, deer resistant	Full sun to part shade	Very Low	Perennials	yes	Light blue, white
Gayfeather or blazing star	<i>Liatris species</i>	A tall border perennial with spike-like blooms atop leafy, grass-like foliage. Cultivars include 'Kobold'.	12-36"	8-15"	Rain gardens, Attracts butterflies, Attracts birds, Attracts pollinators, Deer resistant	Full sun	Low	Perennials		Pinkish-purple
Globe thistle	<i>Echinops ritro</i>	A unique, tall perennial that works well in a border. Gray to green, prickly foliage and attractive globe-shaped flower heads.	2-3'	2-3'	Attracts butterflies, attracts pollinators, deer resistant	Full sun	Low	Perennials		Pale purplish-blue

Heartleaf bergenia	<i>Bergenia cordifolia</i>	Large, glossy, green leaves in summer that change to burgundy in fall. Bell-shaped flowers rise up on a spike.	12-14"	12-18"	Fire resistant, Deer resistant	Prefers shade	Moderate	Perennials		Pink, white
Hosta lily	<i>Hosta species</i>	A shade perennial with attractive foliage in various shades of green to blue. A flower stalk rises up from the leaves with a fragrant, bell-shaped flower. Many cultivars available.	6-36"	20-24"	Fire resistant	Prefers shade	Moderate	Perennials		Purple, lavender, or white flowers hang from a spike
Iris, tall bearded	<i>Iris hybrids</i>	Bluish-green, sword-like leaves. Large, sophisticated flowers in every shade and often bicolor and fragrant. Lift and divide clumps every few (3 to 4) years to keep maintained. Makes a nice cut flower. Requires less water after blooming.	16-30"	14-24"	Rain gardens, Fire resistant, Deer resistant	Full sun	Moderate	Perennials		Multiple colors
Lavender	<i>Lavandula angustifolia</i>	English lavenders are very adaptable to the high desert. Gray-green foliage with showy, fragrant lavender-blue spikes. French Lavender ( <i>Lavandula intermedia</i> ) varieties are often used by large scale growers. Spanish lavender ( <i>Lavandula stoechas</i> ) is not as hardy. Many cultivars available in different sizes.	12-24"	24-48"	Attracts butterflies, Attracts pollinators, Fire resistant, Deer resistant	Full sun	Low	Perennials		Lavender-blue, white, pink
Ligularia	<i>Ligularia dentata 'Othello'</i>	Large, robust, dark green leaves emerge in spring followed by tall flower stems with yellow blooms. Good option for shady sites. Several other Ligularia varieties available.	35-45"	29-35"	Deer resistant	Prefers shade	Moderate	Perennials		Golden-yellow
Orange globe mallow	<i>Sphaeralcea munroana</i>	An attractive native plant for Central Oregon. Gray-greenish leaves and showy orange blossoms.	36-42"	24"	Deer resistant	Full sun	Very Low	Perennials	yes	Orange
Oregon sunshine	<i>Eriophyllum lanatum</i>	Gray to green leaves covered by soft white hairs make this native plant very drought tolerant. Easy to grow. Daisy-like flowers. Attracts hummingbirds.	4-24"	20-24"	Attracts butterflies, Attracts birds, Attracts pollinators	Full sun	Very Low	Perennials	yes	Yellow



Pasque flower	<i>Pulsatilla species</i>	A mounded, compact growth habit with feathery leaves, a cup-shaped flower, and silky seed head. Will reseed. Good for use in rock gardens. Can provide early season nectar for honeybees.	4-8"	8"	Attracts pollinators, Deer resistant	Full sun	Low	Perennials		Purple, pink, white
Penstemon or beardtongue	<i>Penstemon species</i>	Excellent perennial for a dry garden. Available in several varieties and flower colors. Great specimen plant. There are large numbers of native and cultivated species. Attracts humming-birds. Some are deer-resistant, but not all.	4-48"	6-36"	Attracts butterflies, Attracts birds, Fire resistant	Full sun to part shade	Low	Perennials	yes	Pink, purple, blue, red, white
Penstemon, pineleaf	<i>Penstemon pinifolius</i>	Bright green, needle-like foliage and tubular-shaped flowers. Long-blooming (6 to 8 weeks) perennial. Many cultivated varieties available. Attracts hummingbirds.	6-12"	15-24"	Attracts birds, Fire resistant	Full sun	Very Low	Perennials		Yellow, orange, peach
Phlox, tall garden	<i>Phlox paniculata varieties</i>	Tall, upright-blooming perennial in various flower colors. Dark green foliage. Flowers are very fragrant; good for cut flowers. Look for powdery mildew resistant varieties such as 'David' (white).	24-36"	12-24"	Rain gardens, Attracts butterflies, Attracts pollinators, Fire resistant	Full sun	Low	Perennials		Multiple colors
Salvia or sage	<i>Salvia sylvestris</i>	Perennial herb with a shrub-like growth habit and grayish-green or multi-colored foliage. Formal, spike-like flowers in various colors. Attracts bees. Deadhead to encourage a second bloom. Some, such as 'East Friesland', will reseed heavily. Cultivars that should not reseed include 'May Night', 'Marcus', 'Blue Hill', and 'Caradonna'. Native Purple Sage ( <i>S. dorrii</i> ) has a more shrub-like form.	18-28"	24-34"	Attracts butterflies, Attracts pollinators, Deer resistant	Full sun	Low	Perennials	yes	Purple, rose, blue spikes

Sea holly	<i>Eryngium species</i>	This long-lived perennial has unique flowers and a silver, spiny leaf that makes it a showstopper when in bloom. Adds unique architecture to the garden. Will send down a deep tap root, becoming more drought tolerant over time. Great for cut and dried flowers. Cultivars include 'Big Blue'.	24-36"	24-36"	Attracts butterflies, attracts pollinators, deer resistant	Full sun	Low	Perennials		Iridescent blue
Sedum, tall	<i>Sedum species</i>	Succulent, green foliage that changes to purplish-red fall color. Late-blooming perennial. Small, star-shaped flowers form a large cluster atop stems. Good for cut or dried flowers. Cultivars include 'Autumn Fire' (an improved form of 'Autumn Joy' with sturdier stems).	18-24"	18-24"	Attracts butterflies, Fire resistant	Full sun	Low	Perennials		Rosy-red, white
Siberian bugloss	<i>Brunnera macrophylla</i>	Attractive, silver-and-green, heart-shaped foliage and dainty blue flowers brighten up a shady spot in the garden. Cultivars include 'Jack Frost'. Can also be used as a groundcover.	12-18"	18-30"	Fire resistant, Deer resistant	Prefers shade	Moderate	Perennials		Blue
Torch lily or Red-hot poker	<i>Kniphofia uvaria</i>	Stiff, bluish-green, tufted grass-like foliage. Unique flower clusters arise on spikes above the foliage. Several sizes and varieties available. Attracts hummingbirds.	12-48"	24-36"	Deer resistant, Fire resistant		Very Low	Perennials		Orange, yellow, white, green, often multicolored



Yarrow	<i>Achillea species</i>	Fern-like foliage in shades of green to gray. Long blooming and very drought tolerant. Makes nice cut or dried flowers. Native variety is common yarrow (A. millefolium), which blooms white and will spread. Yarrows are fast growing and can spread significantly or reseed, so be sure to plant according-ly. Can be used in mass plantings. Some varieties are used as a turfgrass alternative. Seed-propagated varieties will reseed easily. Cultivars that will not reseed include 'Coro-nation Gold', 'Moonshine', and 'Red Velvet'.	6-48"	12-48"	Rain gardens, Attracts butterflies, Deer resistant, Fire resistant	Full sun	Low	Perennials		White, red, yellow, pink
	<i>Erysimum capitatum</i>		3'	1'		Full sun to part	Low, Moderate		yes	
Pacific lupine	<i>Lupinus lepidus</i>		1'	1.5'		Full sun to part shade	Low, Moderate		yes	
Velvet lupine						Full sun to part			yes	
Blue-eyed grass	<i>Sisyrinchium idahoense</i>		1'	0.5'		Full sun to part shade	Moderate, W		yes	
Orange globemallow	<i>Sphaeralcea munroana</i>		3'	2		Full sun to part shade	Very Low, Low Very Low, Low, Moderate		yes	
	<i>Linum lewisii</i>		3'	1.5		Full sun to part shade	Very Low, Low Very Low, Low, Moderate		yes	
Blue flax Palmer's penstemon	<i>Penstemon palmeri</i>		5'	2		Full sun to part shade	Very Low, Low		yes	
Showy Townsend daisy	<i>Townsendia florifer</i>		1'	0.5'		Full sun to part shade	Low, Moderate Very Low, Low, Moderate		yes	
Western blue flag iris	<i>Iris missouriensis</i>		2'	1'		Full sun to part shade	Moderate, W		yes	
Sickle-keeled lupine	<i>Lupinus albicaulis</i>		3'	3'		Full sun to part shade	Low, Moderate		yes	
California poppy	<i>Eschscholzia californica</i>		1.5'	1'		Full sun to part shade	Very Low, Low		yes	
	<i>Penstemon humilis</i>		1.5	1'		Full sun to part	Very Low, Low		yes	
Oregon Sunshine	<i>Eriophyllum lanatum</i>		2'	1.5'		Full sun to part shade	Low, Moderate		yes	
Davidson's penstemon	<i>Penstemon davidsonii</i> var. <i>praeteritus</i>		1'	2'		Full sun to part shade	Low, Moderate		yes	
Shrubby penstemon	<i>Penstemon fruticosus</i>		1'	1'		Full sun to part shade	Low		yes	
Firecracker penstemon	<i>Penstemon eatonii</i>		3'	1.5'		Full sun to part shade	Very Low, Low		yes	

Rocky Mtn penstemon	Penstemon strictus		3'	2'		Full sun to part shade	Low, Moderate		yes	
Blue Mtn penstemon	Penstemon venustus		2'	1'		Full sun to part shade	Low,Moderate		yes	
Sulphur buckwheat	Eriogonum umbellatum		1'	2'		Full sun to part shade	Very Low, Low		yes	
Creamy buckwheat	Eriogonum heracleoides		2'	2'		Full sun to part shade	Very Low, Low, Moderate		yes	
Arrowleaf buckwheat	Eriogonum compositum		2'	2'		Full sun to part shade	Very Low,Low,Moderate		yes	
Round-headed buckwheat	Eriogonum sphaerocephalum		1'	1'		Full sun to part shade	Very Low, Low		yes	
Cutleaf daisy	Erigeron compositus		0.5'	0.5'		Full sun to part shade	Low, Moderate Low, Moderate		yes	
Linear-leaf fleabane	Erigeron linearis		<1'	1'		Full sun to part shade	Very Low, Low		yes	
Sticky geranium	Geranium viscosissimum		2'	2'		Full sun to part shade	Low, Moderate		yes	
Tapertip hawksbeard	Crepis acuminata		2'	1'		Full sun to part shade	Low		yes	
Cushion buckwheat	Eriogonum ovalifolium		1'	1		Full sun to part shade	Very Low, Low		yes	
Tufted evening primrose	Oenothera cespitosa		1'	1'		Full sun to part shade	Very Low, Low, Moderate		yes	
Coyote mint	Monardella odoratissima		2'	2'		Full sun to part shade	Very Low,Low		yes	
Orange sneezeweed	Hymenoxys hoopesii		3'	1.5'		Full sun to part shade	Moderate, W		yes	
Snow buckwheat	Eriogonum niveum		2'	2'		Full sun to part shade	Low, Moderate		yes	
Showy fleabane	Erigeron speciosus		1'	1'		Full sun to part shade	Low, Moderate		yes	
Pineleaf penstemon	Penstemon pinifolius		1'	1.5'		Full sun to part shade	Low, Moderate		yes	
Narrowleaf milkweed	Asclepias fascicularis		2.5'	2'		Full sun to part shade	Moderate, W		yes	
Showy milkweed	Asclepius speciosa		3'	2'		Full sun to part shade	Moderate, W		yes	
Western yarrow	Achillea millefolium		3'	1.5'		Full sun to part shade	Low, Moderate		yes	
False goldenaster	Heterotheca villosa		2'	2'		Full sun to part shade	Low, Moderate		yes	
Giant hyssop	Agastache rupestris		3'	2'		Full sun to part shade	Low,Moderate		yes	



Nettleleaf giant hyssop	Agastache urticifolia		3'	3'		Full sun to part shade	Low, Moderate		yes	
Scarlet gilia	Ipomopsis aggregata		3'	1'		Full sun to part shade	Low, Moderate		yes	
Fivenerve sunflower	Helianthella quinquenervis		4'	2'		Full sun to part shade	Moderate		yes	
Blanketflower	Gaillardia aristata		2'	1'		Full sun to part shade	Very Low, Low, Moderate		yes	
Rocky Mtn bee plant	Cleome serrulata		4'	2'		Full sun to part shade	Low, Moderate		yes	
Bearded penstemon	Penstemon barbatus		3'	1.5'		Full sun to part shade	Low,Moderate		yes	
Glaucus penstemon	Penstemon euglaucus		2'	1.5'		Full sun to part shade	Low, Moderate		yes	
Richardson's penstemon	Penstemon richardsonii		1'	2'		Full sun to part shade	Very Low,Low,Moderate		yes	
Pearly everlasting	Anaphalis margaritacea		1.5'	1'		Full sun to part shade	Low, Moderate		yes	
Fringed sage	Artemisia frigida		1'	2'		Full sun to part shade	Low		yes	
Goldenrod	Solidago canadensis		4'	2'		Full sun to part shade	Moderate,w		yes	
Fireweed	Chamerion angustifolium		4'	1'		Full sun to part shade	Moderate		yes	
Douglas aster	Symphiotrichum subspicatum		3'	2'		Full sun to part shade	Moderate		yes	
Plants listed as moderate to very low water need plants in the publication titled "Water-wise Gardening in Central Oregon" by the Oregon State University Extension Service may also be used.										



# Water Efficient Landscape Permit

## Design Templates for Right-of-Ways

March 07, 2024

Prepared for:

City of Bend

Prepared by:

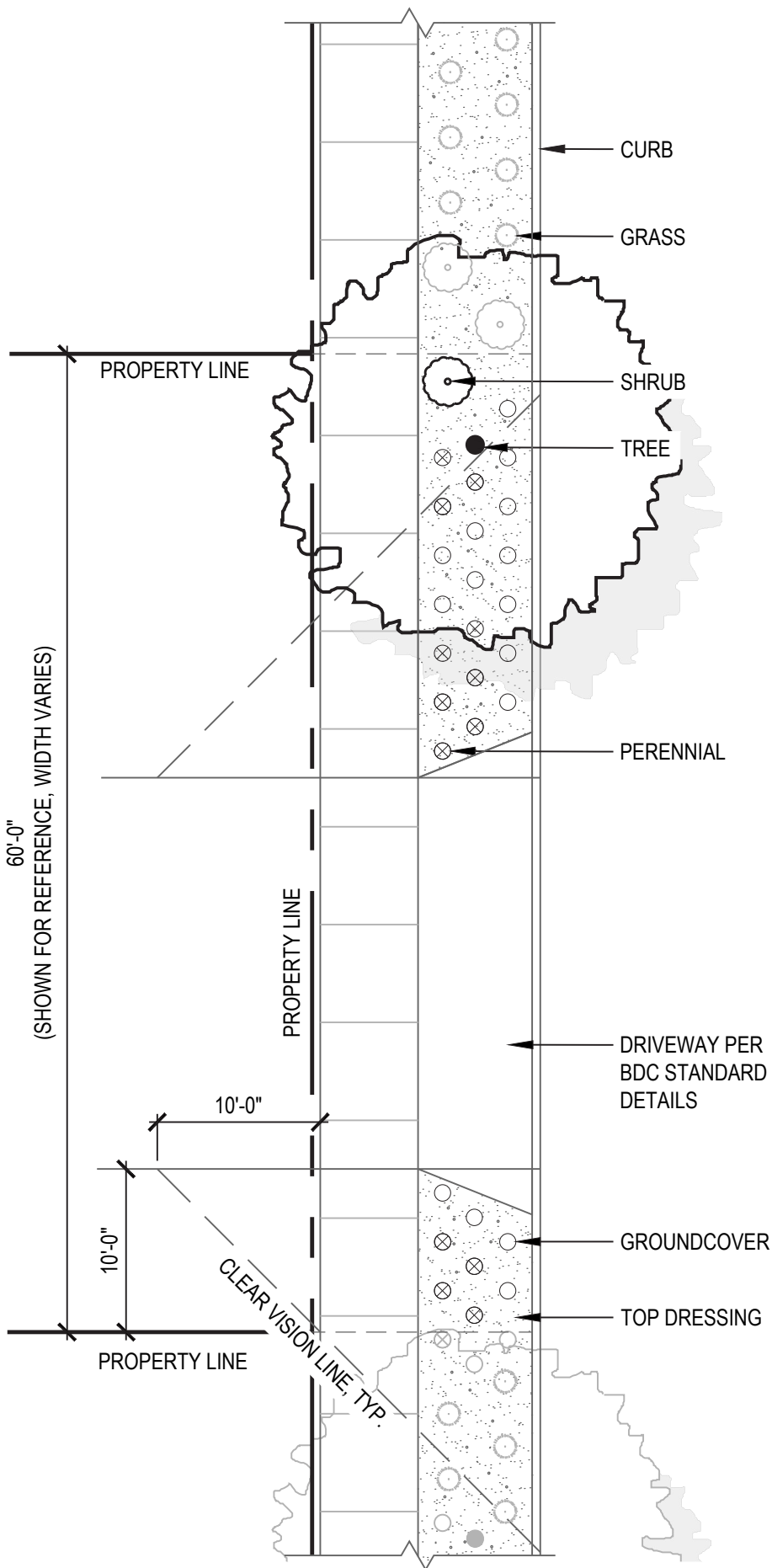
**SZABO** LANDSCAPE  
ARCHITECTURE  
1000 NW Wall St., Suite 205 | Bend, OR 97703 | [www.szabo-la.com](http://www.szabo-la.com)





# Narrow Planting Strip Templates

Right-of-Way Planting Strips  
8' or Less in Width



#### NOTES:

1. ALL PLANT MATERIAL IN CLEAR VISION AREA MUST STAY UNDER 24" HEIGHT
2. SOIL SHALL BE AMENDED PER C.O.B. STANDARD SPECIFICATIONS PART II, CHAPTER 12.2.4.2
3. TREE SPACING VARIES, REFER TO STANDARDS AND SPECIFICATIONS CHAPTER 12.2.3.5
4. ALL PLANTING & IRRIGATION SHALL BE INSTALLED PER C.O.B. STANDARDS & SPECIFICATIONS PART II, CHAPTER 12
5. PLANT QUANTITY DEPENDENT ON PARKWAY WIDTH AND DESIGN VARIATIONS. MINIMUM 50% COVERAGE AT MATURITY. APPROX. 10 PLANTS/ 100 SQFT.
6. ANY PLANT SUBSTITUTIONS SHALL BE SUBMITTED TO THE CITY OF BEND FOR APPROVAL. APPROVED PLANTS ARE AVAILABLE ON THE CITY OF BEND APPROVED PLANT LIST.
7. PLANT SPECIES MAY NOT EXCEED MORE THAN 25% ORNAMENTAL / BUNCH GRASS.
8. LAWN IS PROHIBITED WITHIN THE PUBLIC RIGHT-OF-WAY
9. PLANTING AREA SHALL BE TOP-DRESSED WITH MINIMUM 2" THICK LAYER OF SHREDDED BARK OR ROCK MULCH

#### TYPICAL PLANT LAYOUT FOR NARROW STRIPS

SCALE: 1" = 10'-0"

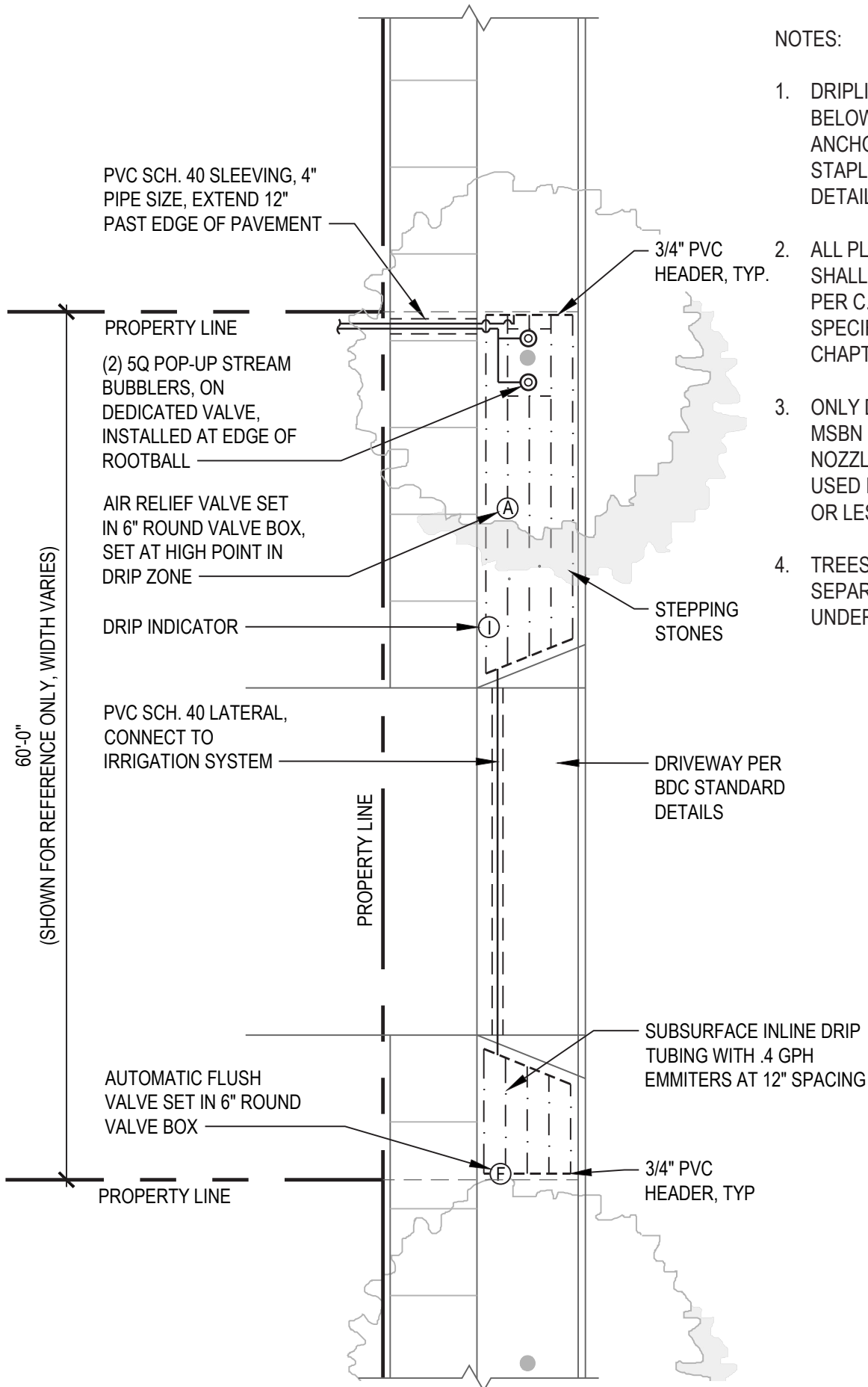


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NOTES:

1. DRIPLINE SHALL BE BURIED 2" BELOW FINISH SOILGRADE AND ANCHORED WITH LANDSCAPE STAPLES 5' ON CENTER, SEE DETAIL
2. ALL PLANTING AND IRRIGATION SHALL BE INSTALLED PER C.O.B. STANDARDS & SPECIFICATIONS, PART II CHAPTER 12
3. ONLY DRIP IRRIGATION OR PC MSBN MULTI STREAM BUBBLER NOZZLE ON A POP UP MAY BE USED IN RIGHT OF WAYS OF 8FT OR LESS
4. TREES SHALL BE IRRIGATED ON SEPARATE VALVE/ZONE FROM UNDERSTORY PLANTING



TYPICAL DRIP IRRIGATION LAYOUT FOR NARROW STRIPS

SCALE: 1" = 10'-0"

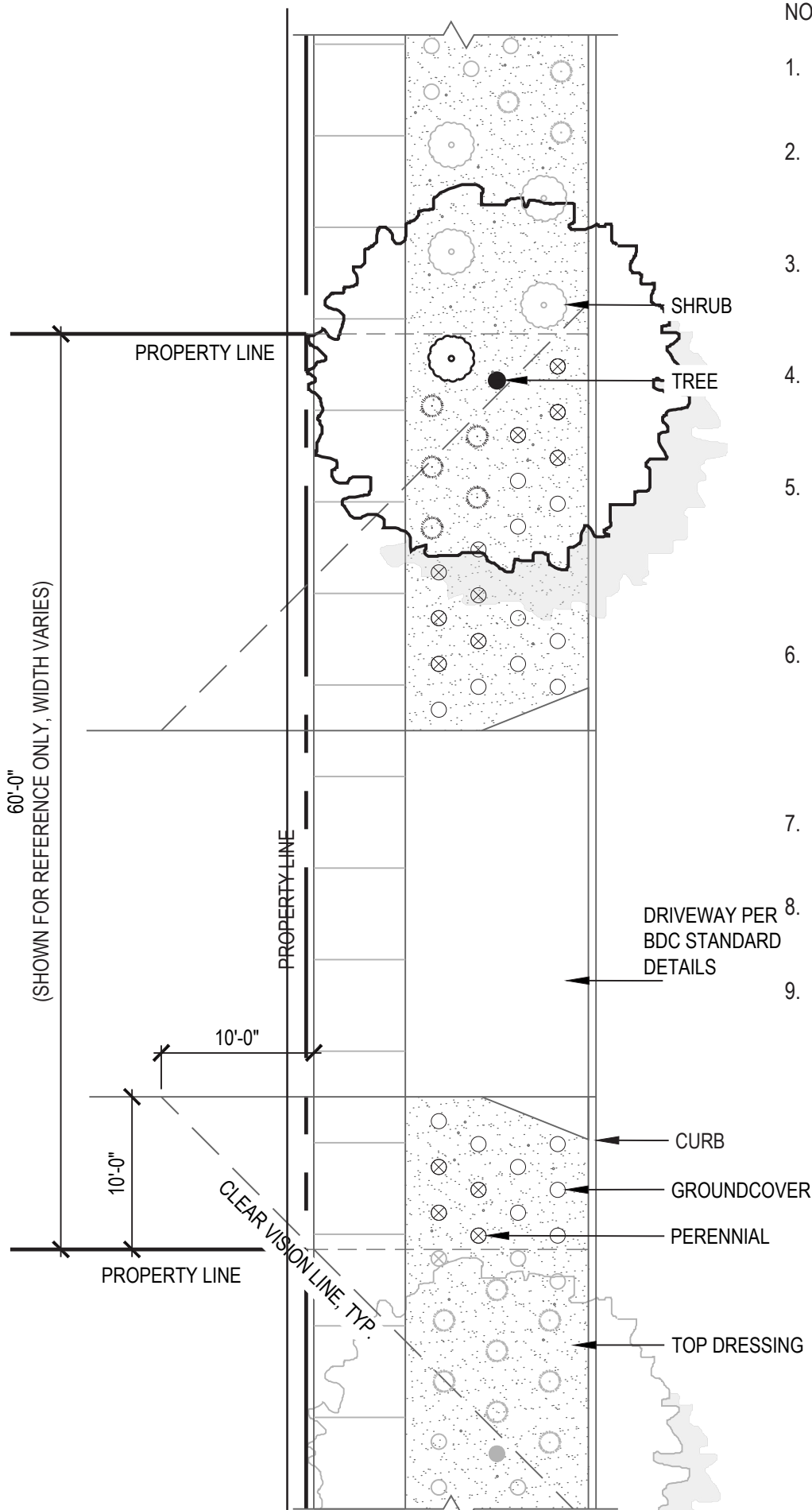


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## Wide Planting Strip Templates

Right-of-Way Planting Strips  
Greater than 8' in Width



# NOTES:

1. ALL PLANT MATERIAL IN CLEAR VISION AREA MUST STAY UNDER 24" HEIGHT
2. SOIL SHALL BE AMENDED PER C.O.B. STANDARD SPECIFICATIONS PART II CHAPTER 12.2.4.2
3. TREE SPACING VARIES, REFER TO STANDARDS AND SPECIFICATIONS CHAPTER 12.2.3.5
4. ALL PLANTING & IRRIGATION SHALL BE INSTALLED PER C.O.B. STANDARDS & SPECIFICATIONS PART II CHAPTER 12
5. PLANT QUANTITY DEPENDENT ON PARKWAY WIDTH AND DESIGN VARIATIONS. MINIMUM 50% PLANT COVERAGE AT MATURITY. APPROX. 10 PLANTS/100 SQ. FT
6. ANY PLAN SUBSTITUTIONS SHALL BE SUBMITTED TO THE CITY OF BEND FOR APPROVAL. APPROVED PLANTS ARE AVAILABLE ON THE CITY OF BEND APPROVED PLANT LIST.
7. PLANT SPECIES MAY NOT EXCEED MORE THAN 25% ORNAMENTAL / BUNCH GRASS.
8. LAWN IS PROHIBITED WITHIN THE PUBLIC RIGHT-OF-WAY
9. PLANTING AREA SHALL BE TOP-DRESSED WITH MINIMUM 2" THICK LAYER OF SHREDDED BARK OR ROCK MULCH

TYPICAL PLANT LAYOUT FOR WIDE STRIPS

SCALE: 1" = 10'-0"



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1. HIGH EFFICIENCY NOZZLES USED IN AREAS GREATER THAN 8FT IN SMALLEST DIMENSION
2. SPRAY HEADS SHALL BE OFFSET 12" FROM EDGE OF PAVEMENT
3. ALL PLANTING AND IRRIGATION SHALL BE INSTALLED PER C.O.B. STANDARDS & SPECIFICATIONS PART II CHAPTER 12
4. IRRIGATION MAY NOT RESULT IN ANY OVERSPRAY OUTSIDE OF PLANTER AREA
5. SPRAY HEADS SHALL BE LOCATED NO CLOSER THAN 1'-0" FROM ADJACENT HARDSCAPE OR CURB
6. TREES SHALL BE IRRIGATED ON SEPARATE VALVE/ZONE FROM UNDERSTORY PLANTING



SCALE: 1" = 10'-0"

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Plant Palettes



# PRE-APPROVED VERY LOW WATER-USE PALETTE

## WOODY SHRUBS



**ARCTOSTAPHYLOS C. 'PANCHITO'**  
(PANCHITO MANZANITA)  
HT: 1'-2' / W: 5'-6'



**CHAMAEBATIARIA MILLEFOLIUM**  
(FERNBUSH)  
HT: 3'-6' / W: 3'-6'



**RIBES CEREUM**  
(WAX CURRENT)  
HT: 4'-6' / W: 4'-6'



**SALVIA DORII**  
(PURPLE SAGE)  
HT: 2'-3' / W: 2'-3'

## ORNAMENTAL GRASSES



**ACHNATHERUM HYMENOIDES**  
(INDIAN RICEGRASS)  
HT: 1'-2' / W: 1'-2'



**PSEUDOROEGNERIA SPICATA**  
(BLUEBUNCH WHEATGRASS)  
HT: 1'-2' / W: 1'-2'



**FESTUCA IDAHOENSIS**  
(IDAHO FESCUE)  
HT: 2'-3' / W: 2'



**KOELERIA MACRANTHA**  
(PRAIRIE JUNEGRASS)  
HT: 1'-3' / W: 1'-3'

## PERENNIALS



**ACHILLEA MILLEFOLIUM**  
(YARROW)  
HT: 2'-3' / W: 1'-2'



**LINUM LEWISII**  
(BLUE FLAX)  
HT: 1'-3' / W: 2'-3'



**ARTEMISIA 'POWIS CASTLE'**  
(POWIS CASTLE SILVER SAGE)  
HT: 2' / W: 1'-2'



**PENSTEMON PINIFOLIUS**  
(PINELEAF PENSTEMON)  
HT: 1' / W: 2'

## GROUNDCOVERS



**ANTENNARIA ROSEA**  
(ROSY PUSSYTOES)  
HT: 1' / W: 1'



**ERIOGONUM UMBELLATUM**  
(SULPHUR BUCKWHEAT)  
HT: 1' / W: 1'



**ERIOPHYLLUM LANATUM**  
(OREGON SUNSHINE)  
HT: 1'-2' / W: 1'-2'



**PENSTEMON DAVIDSONII**  
(DAVIDSON'S PENSTEMON)  
HT: 1' / W: 1'-2'

### NOTES:

1. DEVIATION FROM APPROVED PLANT LIST REQUIRES APPROVAL FROM THE CITY OF BEND CONSERVATION DEPARTMENT
2. TREES SHALL BE SELECTED FROM THE CITY OF BEND PRE-APPROVED STREET TREE LIST PER BEND DESIGN STANDARDS AND SPECIFICATIONS PART II, CHAPTER 12



**CITY OF BEND**  
WATER CONSERVATION



# VERY LOW WATER-USE RENDERINGS



## NOTES:

1. TOP IMAGE DEPICTS A 7' WIDE PLANTING STRIP, BOTTOM IMAGES DEPICTS A 12' WIDE PLANTING STRIP.
2. RENDERINGS ARE SHOWN FOR REFERENCE ONLY TO CONVEY DESIGN AESTHETIC FOR DIFFERENT PLANT PALETTES.



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# PRE-APPROVED LOW WATER-USE PALETTE

## WOODY SHRUBS



**CARYOPTERIS X CLANODENSIS**  
(BLUEBEARD)  
HT: 2'-3' / W: 2'-3'



**PEROVSKIA ATRIPLICIFOLIA**  
(RUSSIAN SAGE)  
HT: 2'-3' / W: 2'-3'



**POTENTILLA FRUTICOSA**  
(CINQUEFOIL)  
HT: 2'-4' / W: 3'-5'



**RHUS AROMATICA 'GRO-LOW'**  
(GRO-LOW SUMAC)  
HT: 2'-3' / W: 6'-8'

## ORNAMENTAL GRASSES



**CALAMAGROSTIS A. 'K. FOERSTER'**  
(K.F. FEATHER REED GRASS)  
HT: 2'-3' / W: 3'-5'



**PANICUM VIRGATUM**  
(SWITCHGRASS)  
HT: 3'-6' / W: 3'-6'



**FESTUCA OVINA GLAUCA**  
(BLUE FESCUE)  
HT: 1'-2' / W: 1'-2'



**SCHIZACHYRIUM SCOPARIUM**  
(LITTLE BLUESTEM)  
HT: 1'-3' / W: 1'-2'

## PERENNIALS



**HEMEROCALIS SPP.**  
(DAYLILY)  
HT: 1'-2' / W: 1'-2'



**LAVANDULA ANGUSTIFOLIA**  
(ENGLISH LAVANDER)  
HT: 2'-3' / W: 2'-4'



**NEPETA RACEMOSA**  
(CATMINT)  
HT: 1'-2' / W: 1'-3'



**PENSTEMON STRICTUS**  
(ROCKY MOUNTAIN PENSTEMON)  
HT: 1'-2' / W: 1'-2'

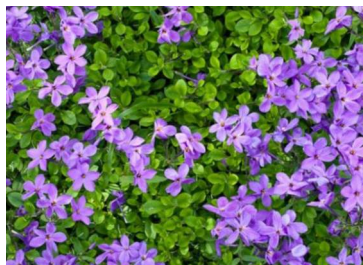
## GROUNDCOVERS



**ARCTOSTAPHYLOS UVA-URSI**  
(KINNIKINNICK)  
HT: 1' W: 2'-4'



**ARMERIA MARITIMA**  
(SEA THRIFT)  
HT: 1' W: 1'



**PHLOX STOLONIFERA**  
(CREEPING PHLOX)  
HT: 1' W: 1'-2'



**THYMUS SERPYLLUM**  
(CREEPING THYME)  
HT: 6" W: 1'

### NOTES:

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WATER CONSERVATION



# LOW WATER-USE RENDERINGS



## NOTES:

1. TOP IMAGE DEPICTS A 7' WIDE PLANTING STRIP, BOTTOM IMAGES DEPICTS A 12' WIDE PLANTING STRIP.
2. RENDERINGS ARE SHOWN FOR REFERENCE ONLY TO CONVEY DESIGN AESTHETIC FOR DIFFERENT PLANT PALETTES.



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# PRE-APPROVED MODERATE WATER-USE PALETTE

## WOODY SHRUBS



**BUDDLEJA x 'BLUE CHIP'**  
(BLUE CHIP BUTTERFLY BUSH)  
HT: 2'-3' / W: 3'-4'



**EUONYMUS ALATUS 'COMPACTUS'**  
(COMPACT BURNING BUSH)  
HT: 5'-6' / W: 5'-6'



**SPIREA JAPONICA VARIETIES**  
(SPIREA)  
HT: 4'-6' / W: 4'-6'



**VIBURNUM T. 'COMPACTUM'**  
(COMPACT CRANBERRY BUSH)  
HT: 3'-6' / W: 3'-6'

## ORNAMENTAL GRASSES



**DESCHAMPSIA CESPITOSA**  
(TUFTED HAIR GRASS)  
HT: 2'-3' / W: 2'-3'



**PENSTEMON ALOPECUR. 'HADELN'**  
(HADELN FOUNTAIN GRASS)  
HT: 2'-3' / W: 2'-3'



**HELICOTRITON SEMPERVIRENS**  
(BLUE OAT GRASS)  
HT: 2'-3' / W: 2'-3'



**SESLERIA AUTUMNALIS**  
(AUTUMN MOORE GRASS)  
HT: 1'-2' / W: 1'-2'

## PERENNIALS



**AGASTACHE 'BLUE FORTUNE'**  
(BLUE FORTUNE HYSSOP)  
HT: 2'-3' / W: 2'-3'



**IRIS SPP.**  
(BEARDED IRIS)  
HT: 18" / W: 18"

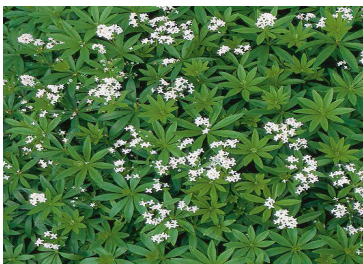


**LEUCANTHEMUM**  
(SHASTA DAISY)  
HT: 1'-3' / W: 1'-2'



**ECHINACEA SPP.**  
(CONEFLOWER)  
HT: 2'-3' / W: 1'-2'

## GROUNDCOVERS



**GALIUM ODORATUM**  
(SWEET WOODRUFF)  
HT: 1' / W: 1'-2'



**GERANIUM 'TINY MONSTER'**  
(HARDY GERANIUM)  
HT: 1' / W: 1'-2'



**IBIRIS SEMPERVIRENS**  
(EVERGREEN CANDYTUFT)  
HT: 6"-1' / W: 1'-2'



**SYMPHYOTRICHUM 'WOOD'S BLUE'**  
(WOODS BLUE ASTER)  
HT: 1' / W: 1'-2'

### NOTES:

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WATER CONSERVATION



## MODERATE WATER-USE RENDERINGS



### NOTES:

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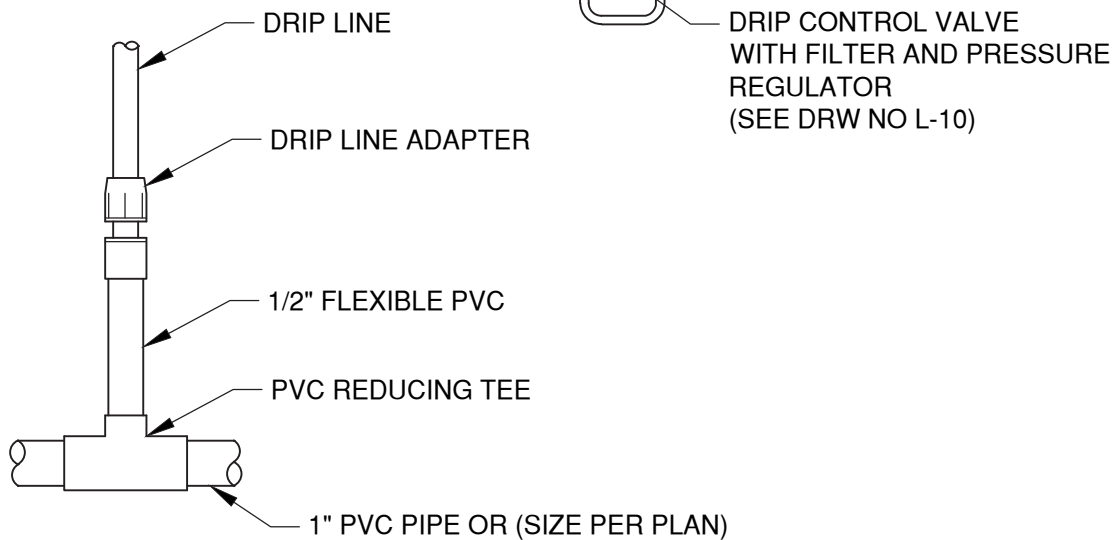
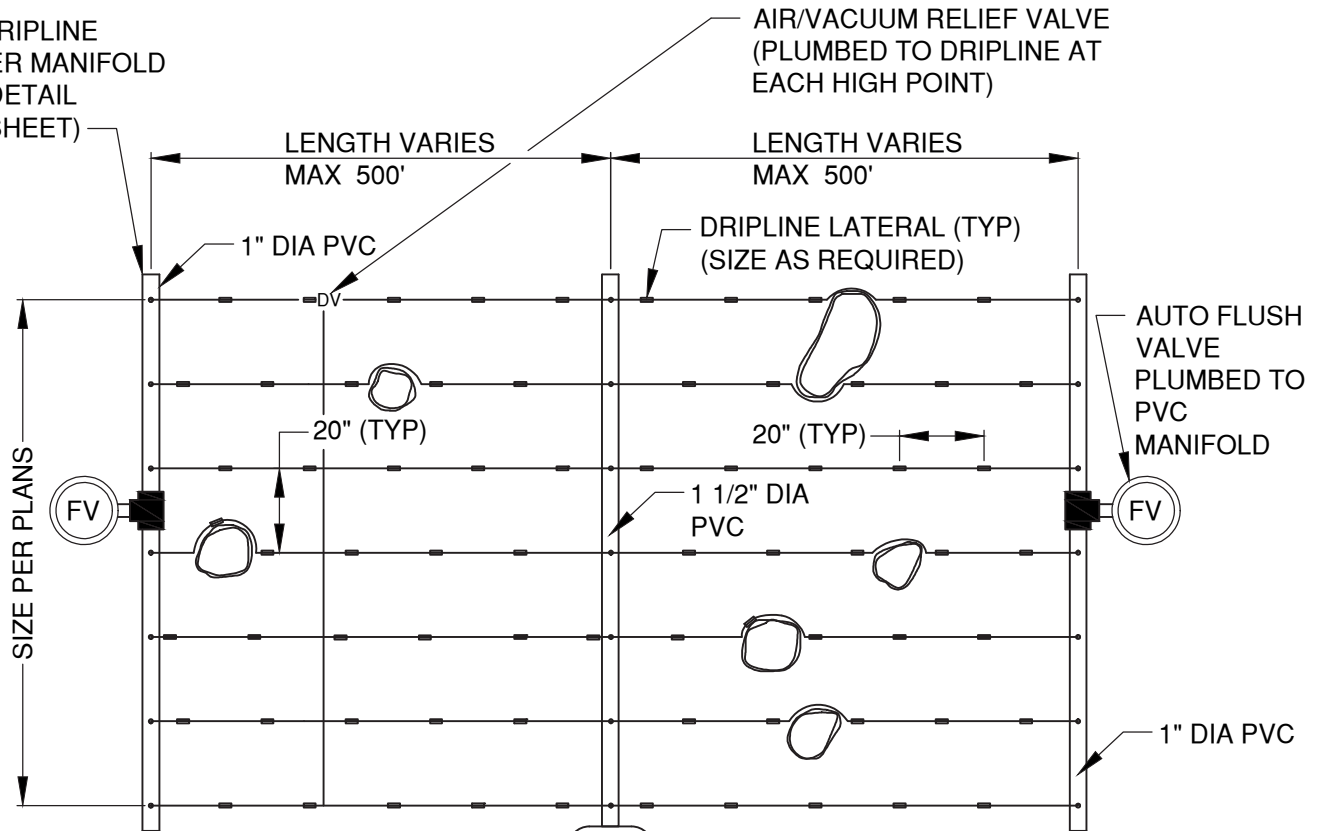
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# STANDARD DETAILS

PVC DRIPLINE  
FEEDER MANIFOLD  
(SEE DETAIL  
THIS SHEET)



## TYPICAL PVC DRIPLINE MANIFOLD CONNECTION

### NOTES:

1. RELOCATE DRIP LINES AROUND OBSTACLES AS NEEDED

DRAWN LJC  
DIV LNDSCP  
REV DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

PLANTING OR TURF BED DRIP LAYOUT

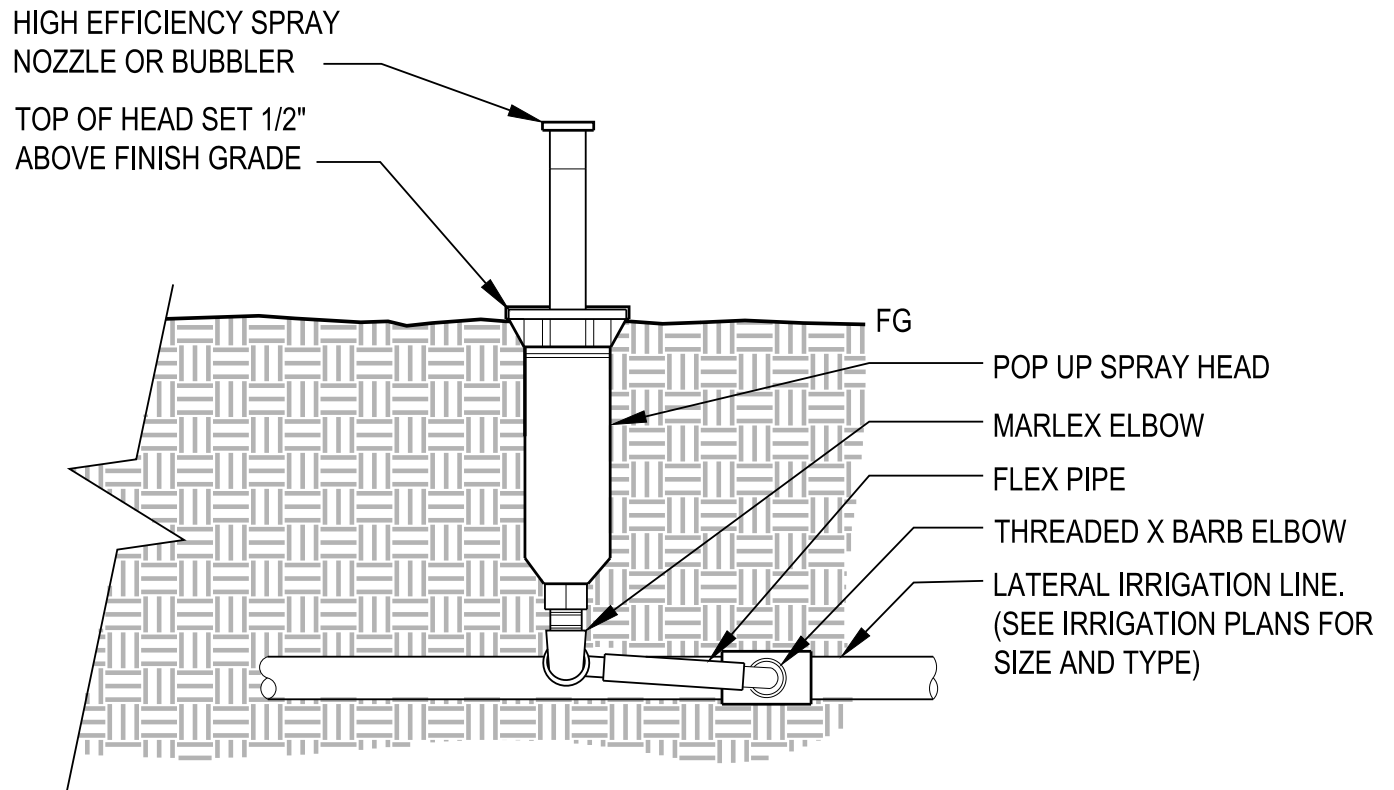
SCALE NTS

DATE 12/1/17

APPR

STD DWG L-1





NOTES:

1. CONTRACTOR SHALL SETTLE SOIL AROUND SPRAY HEAD AFTER INSTALLATION.
2. ALL SPRAY HEADS SHALL HAVE CHECK VALVES.
3. ALL SCH. 40 TO SCH. 80 PVC CONNECTIONS SHALL BE MADE USING TEFLON TAPE.

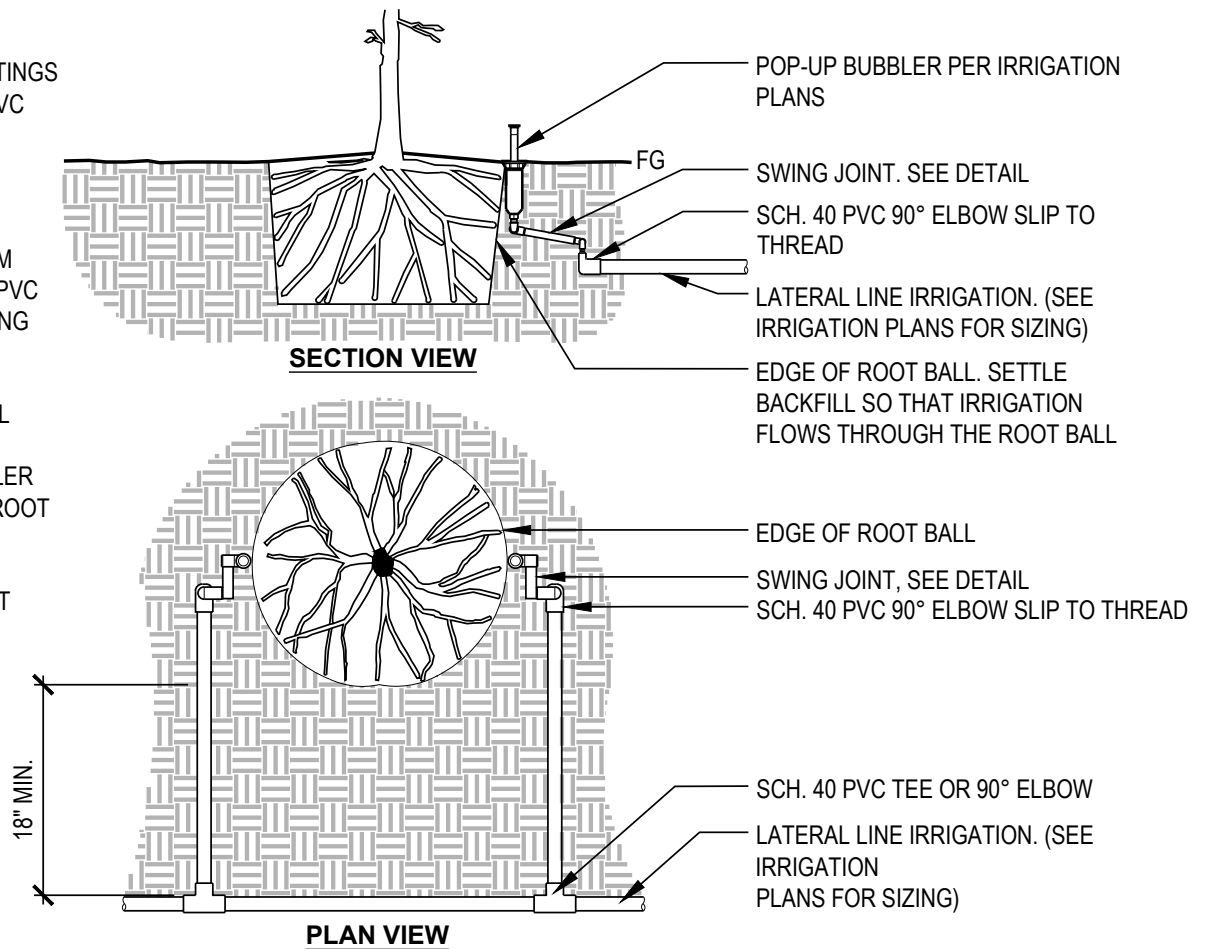
POP UP SPRAY HEAD

NOT TO SCALE

DETAIL COURTESY OF SZABO LANDSCAPE  
ARCHITECTURE, ALL RIGHTS RESERVED

Notes:

1. ALL IRRIGATION FITTINGS SHALL BE SCH. 40 PVC UNLESS SPECIFIED OTHERWISE.
2. ALL THREADED CONNECTIONS FROM SCH. 40 TO SCH. 80 PVC SHALL BE MADE USING TEFLON TAPE.
3. CONTRACTOR SHALL SETTLE THE AREA AROUND THE BUBBLER AND EDGE OF THE ROOT BALL SO THAT ALL IRRIGATION FLOWS THROUGH THE ROOT BALL.

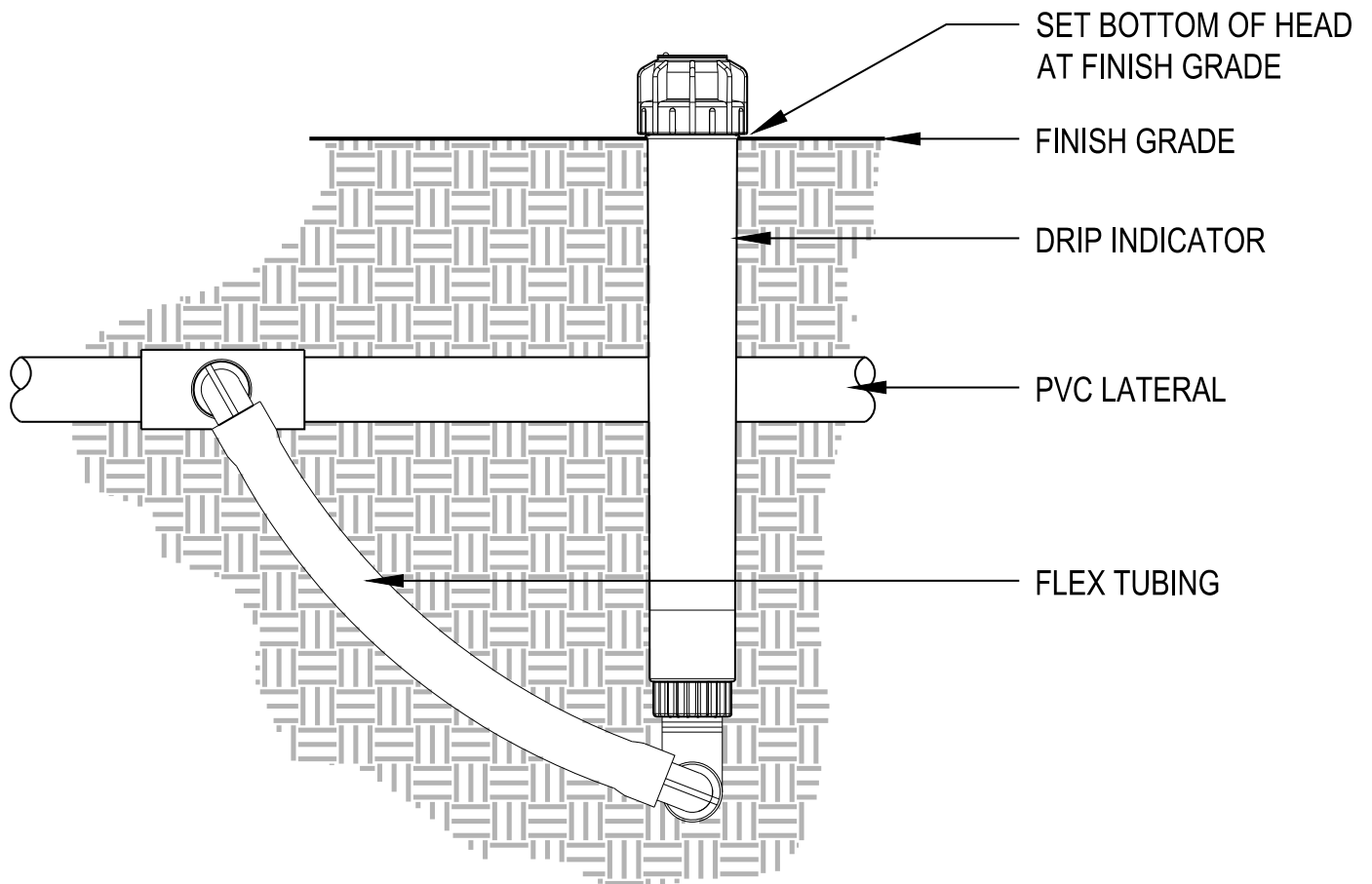


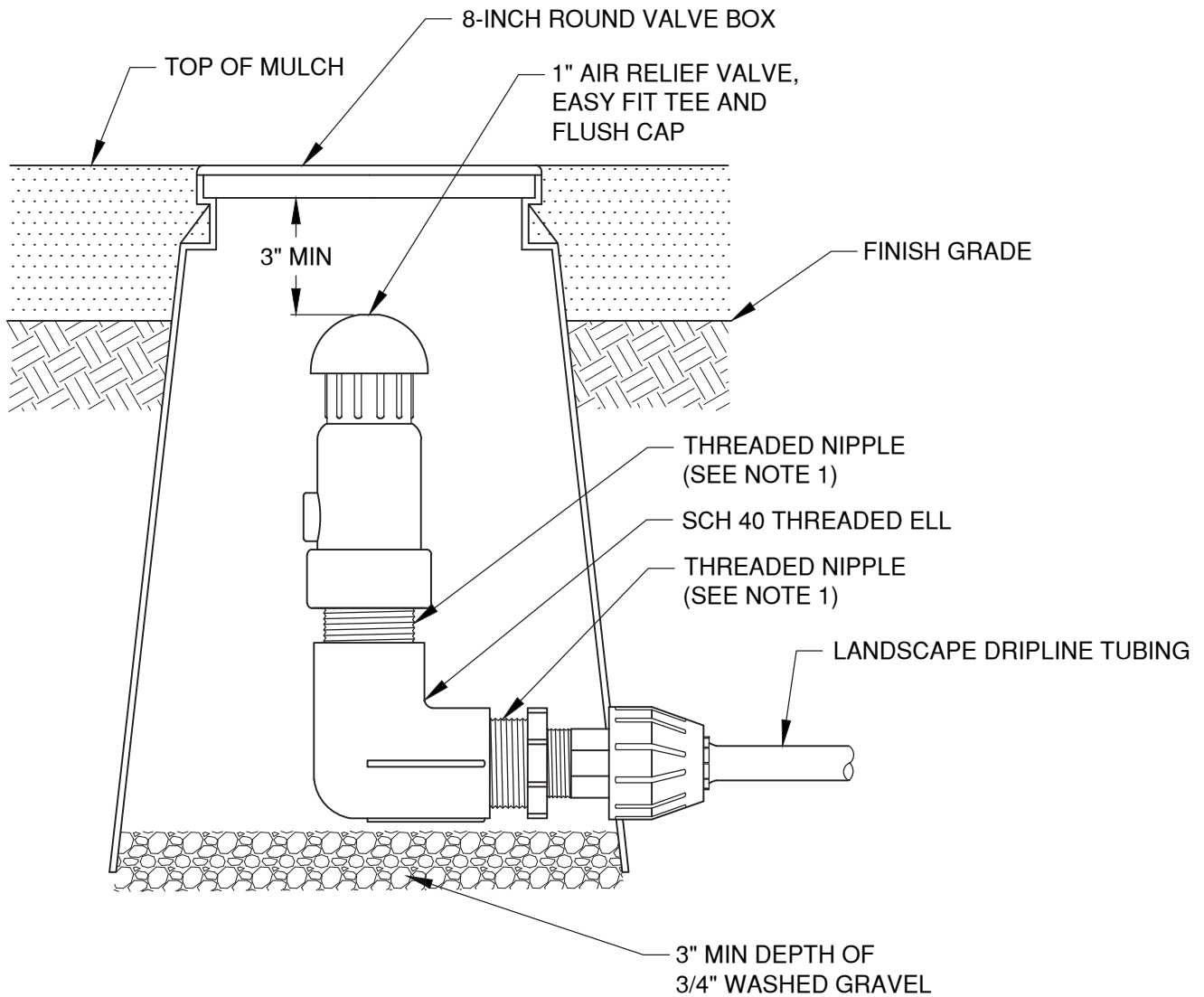
## TREE BUBBLERS

NOT TO SCALE

DETAIL COURTESY OF SZABO LANDSCAPE  
ARCHITECTURE, ALL RIGHTS RESERVED







NOTES:

1. PROVIDE ALL THREADED CONNECTIONS WITH A NON-HARDENING, JOINT COMPOUND, COMPATIBLE WITH MANUFACTURERS RECOMMENDATIONS

DRAWN	LJC
DIV	LNDSKP
REV	DATE



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STANDARD DRAWING

710 NW WALL ST., BEND, OREGON 97701

AIR RELIEF VALVE IN KIT - AR VALVE KIT

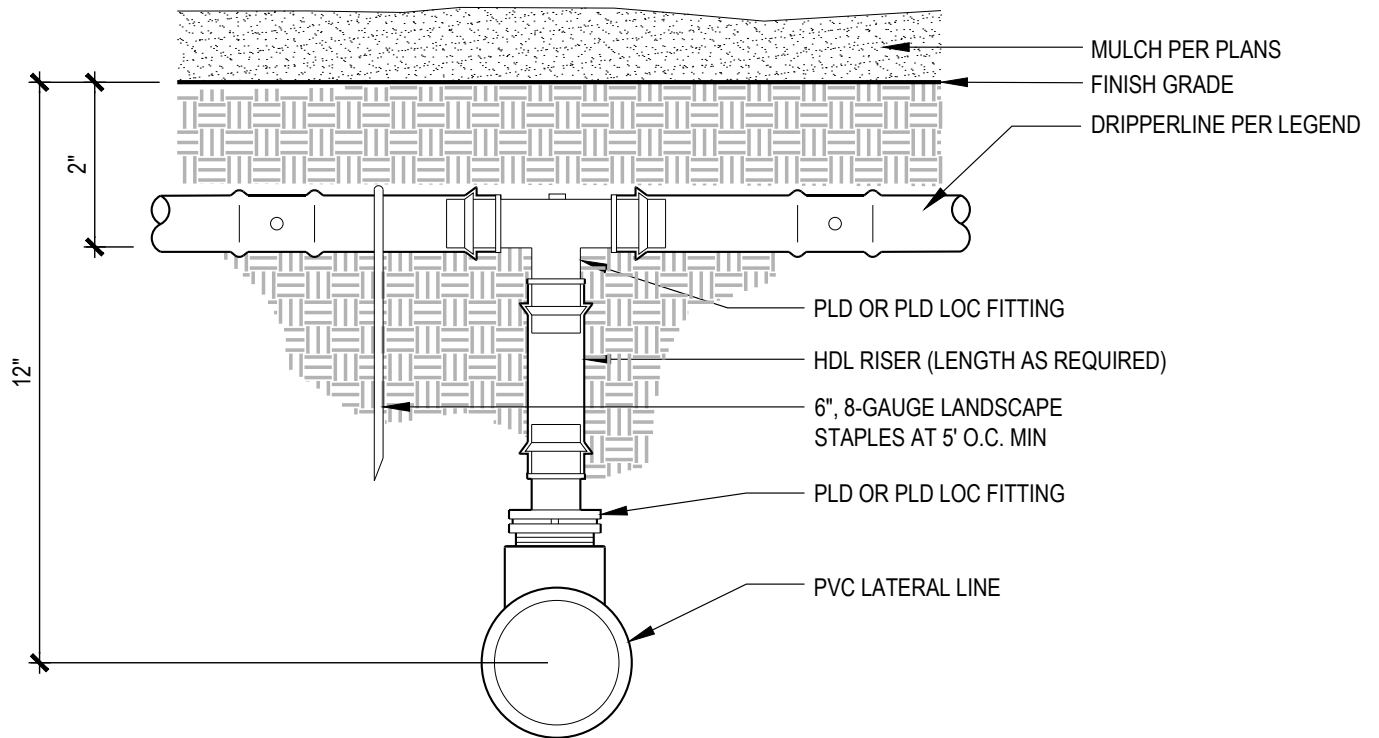
SCALE NTS

DATE 12/1/17

APPR

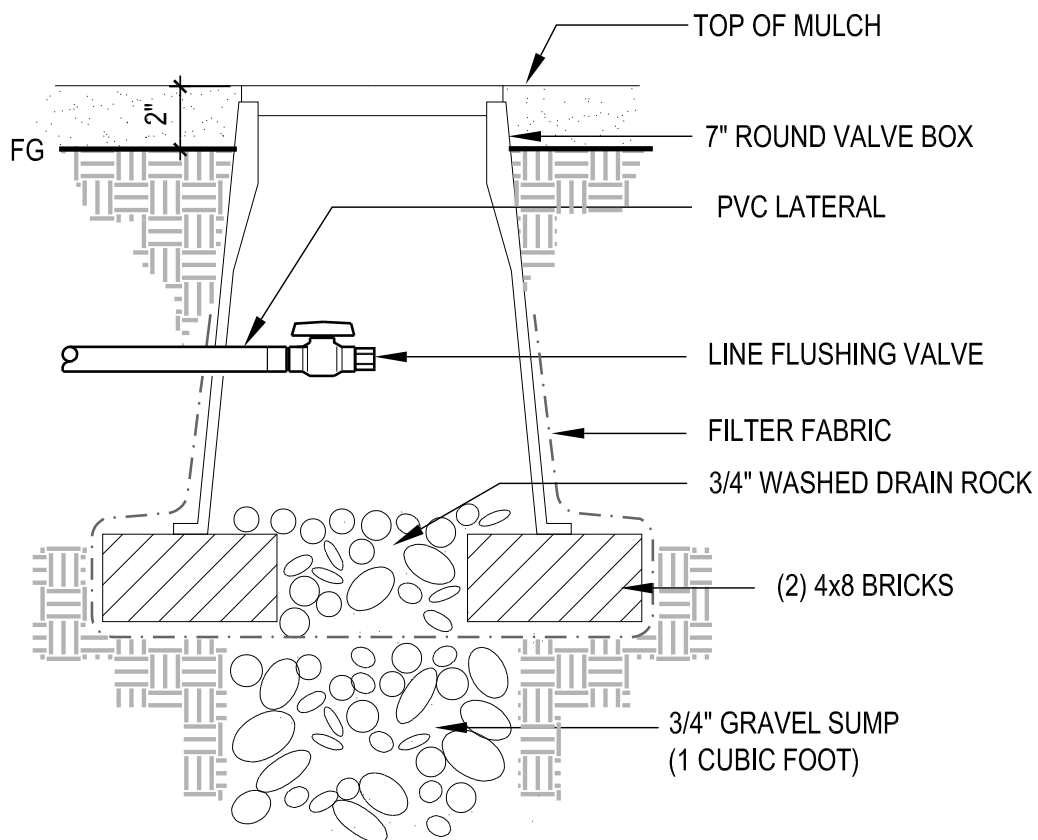
STD DWG L-13





## DRIP LINE INSTALLATION

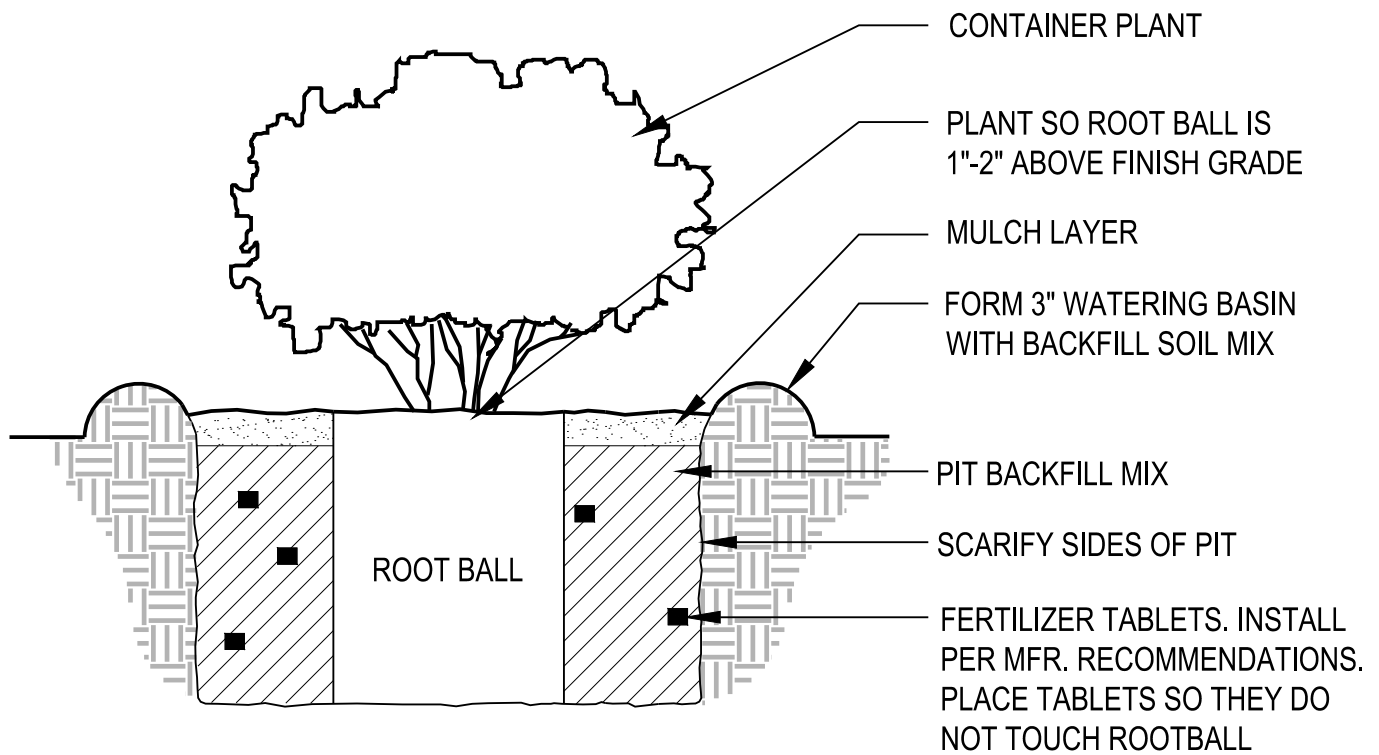
NOT TO SCALE



## LINE FLUSHING VALVE

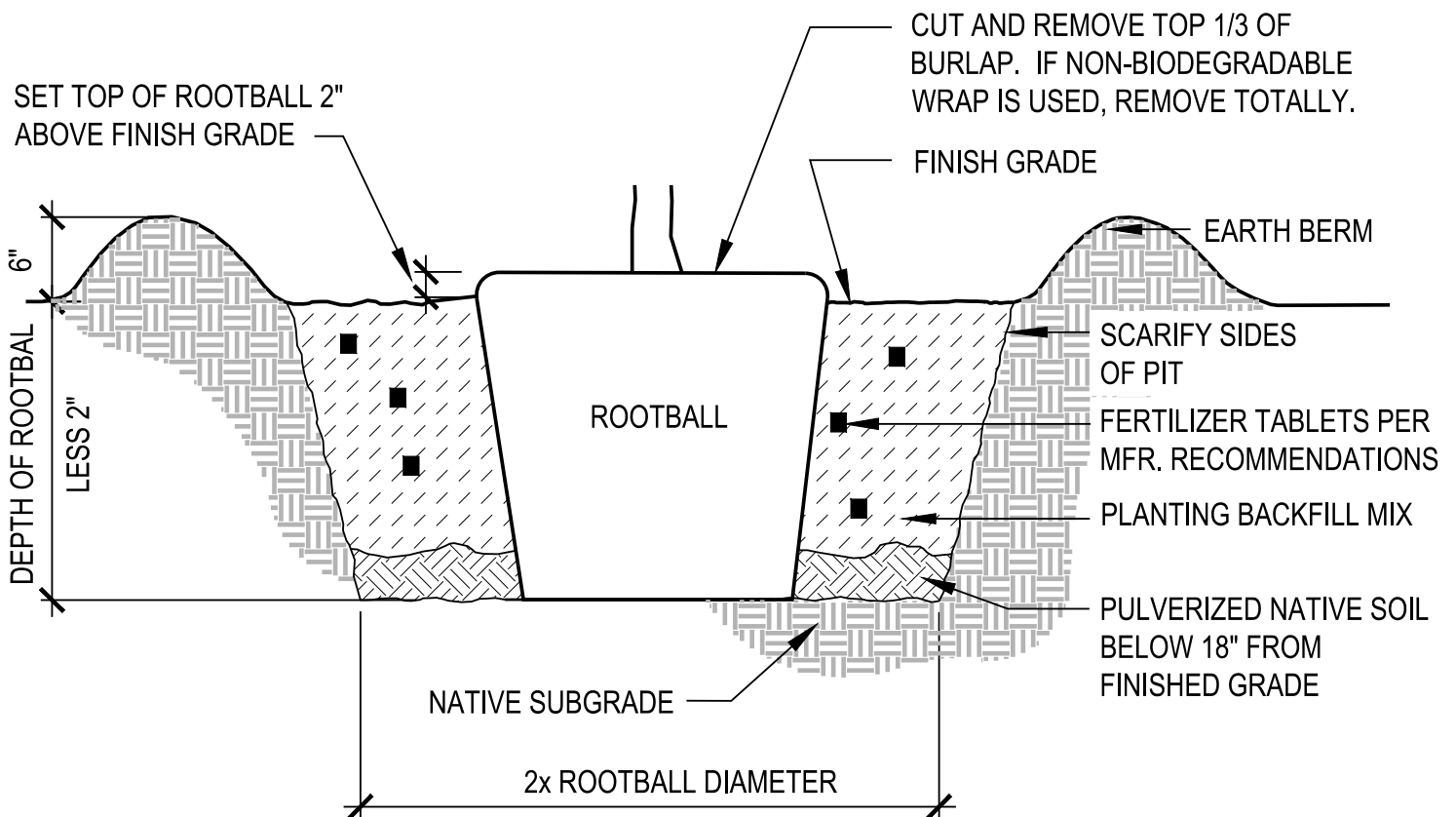
NOT TO SCALE

DETAILS COURTESY OF SZABO LANDSCAPE ARCHITECTURE, ALL RIGHTS RESERVED



## TYPICAL SHRUB PLANTING

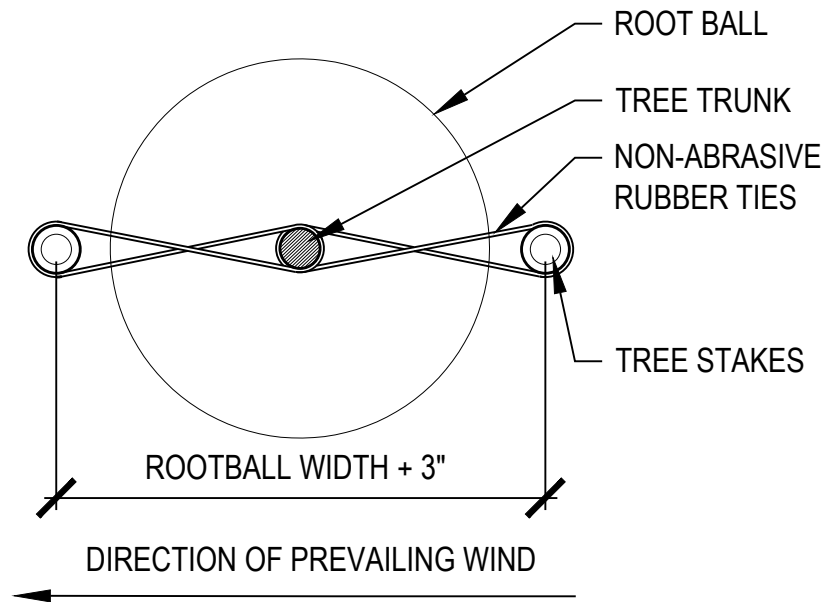
NOT TO SCALE



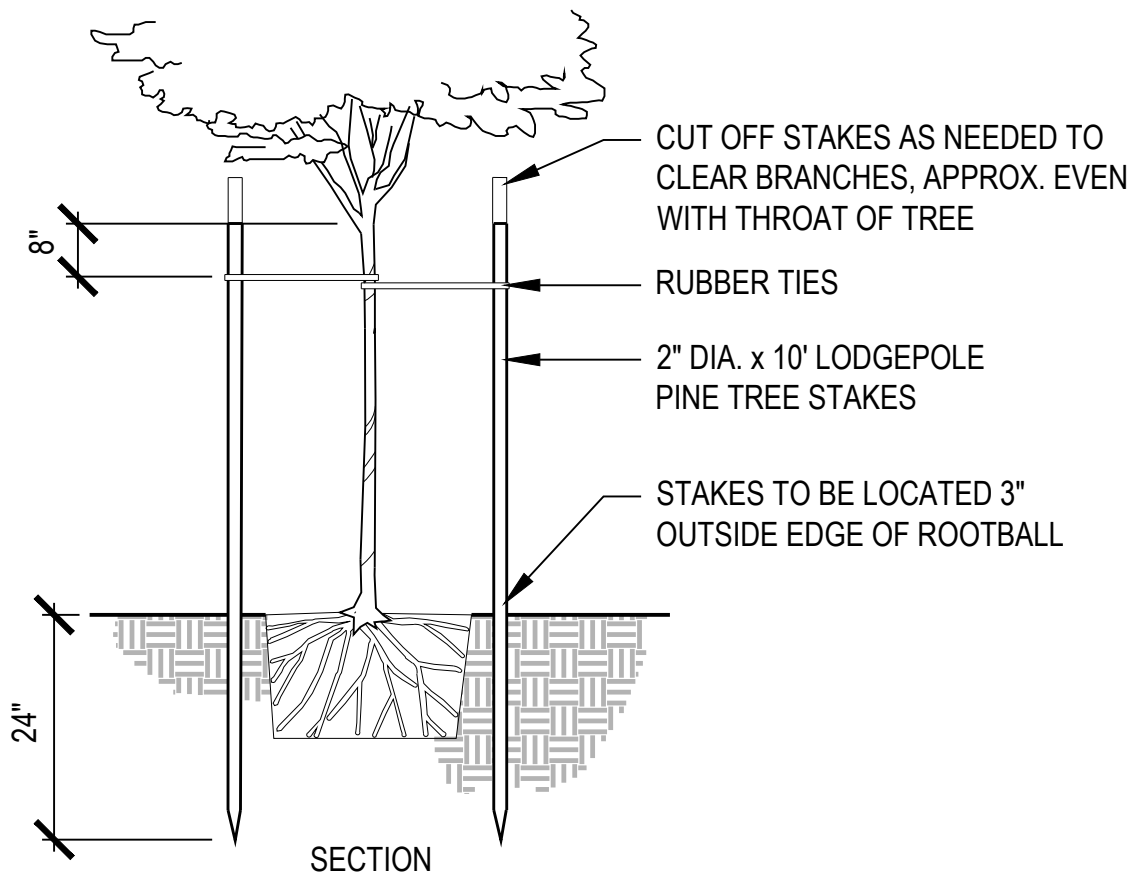
## TYPICAL TREE PLANTING

NOT TO SCALE

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PLAN



SECTION

## TYPICAL TREE STAKING

NOT TO SCALE

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