

# BENTON IRRIGATION DISTRICT

## IRRIGATION SYSTEM IMPROVEMENTS

### PHASE 2A

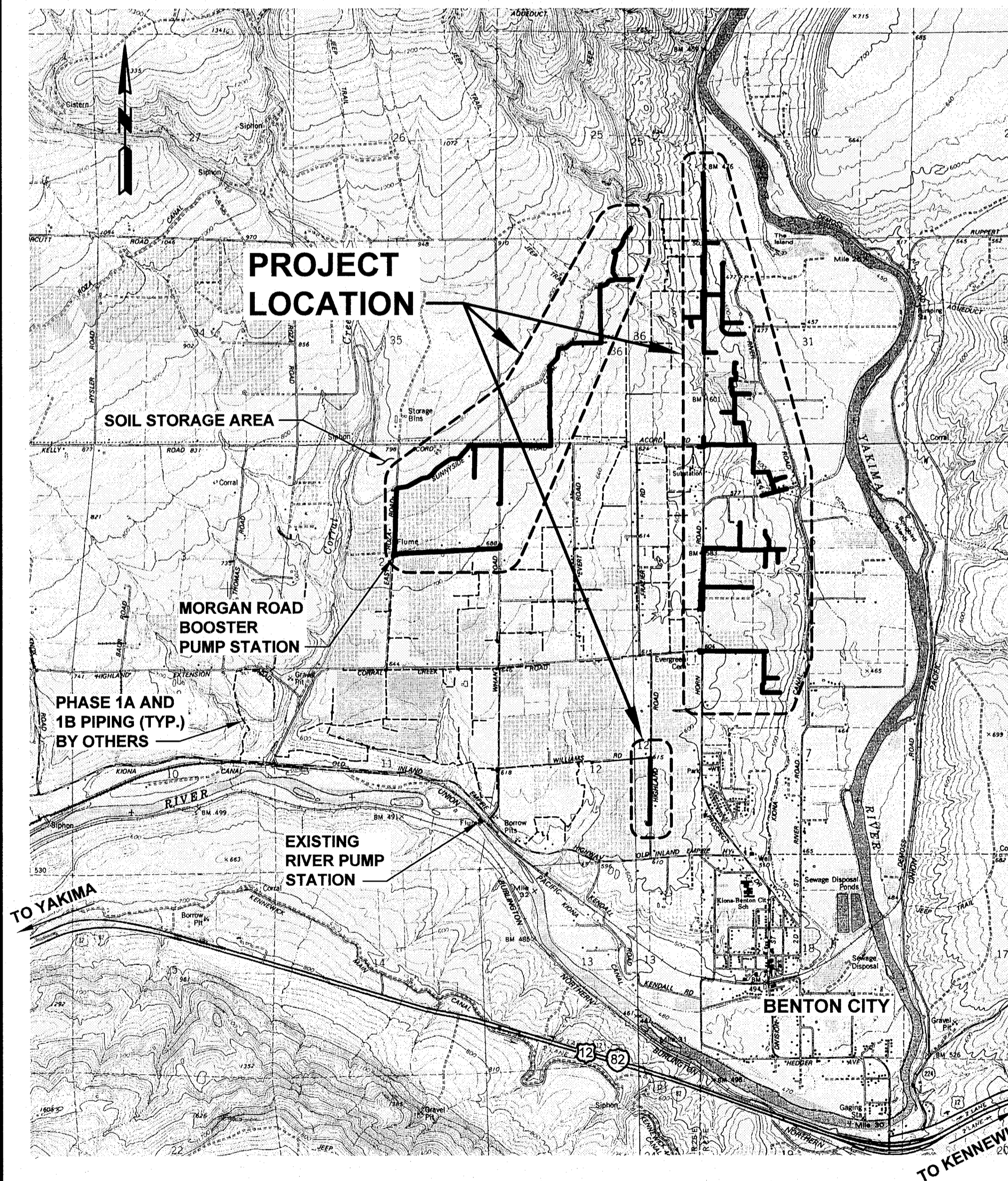
### 2010



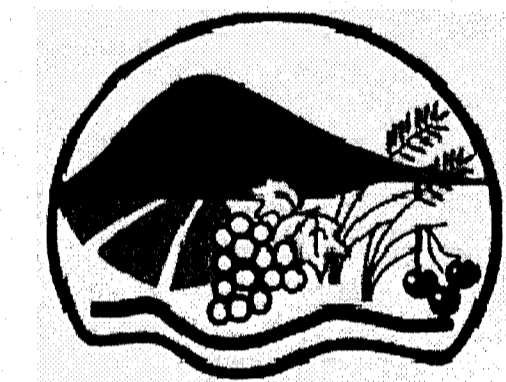
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VICINITY MAP  
NTS

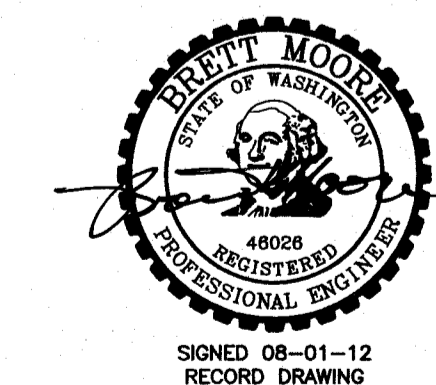


#### DISTRICT BOARD OF DIRECTORS

MELISSA GLODO  
SHAWN GAY  
ROBERT BUOY

#### RECORD DRAWINGS

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**anderson perry**  
& associates, inc.

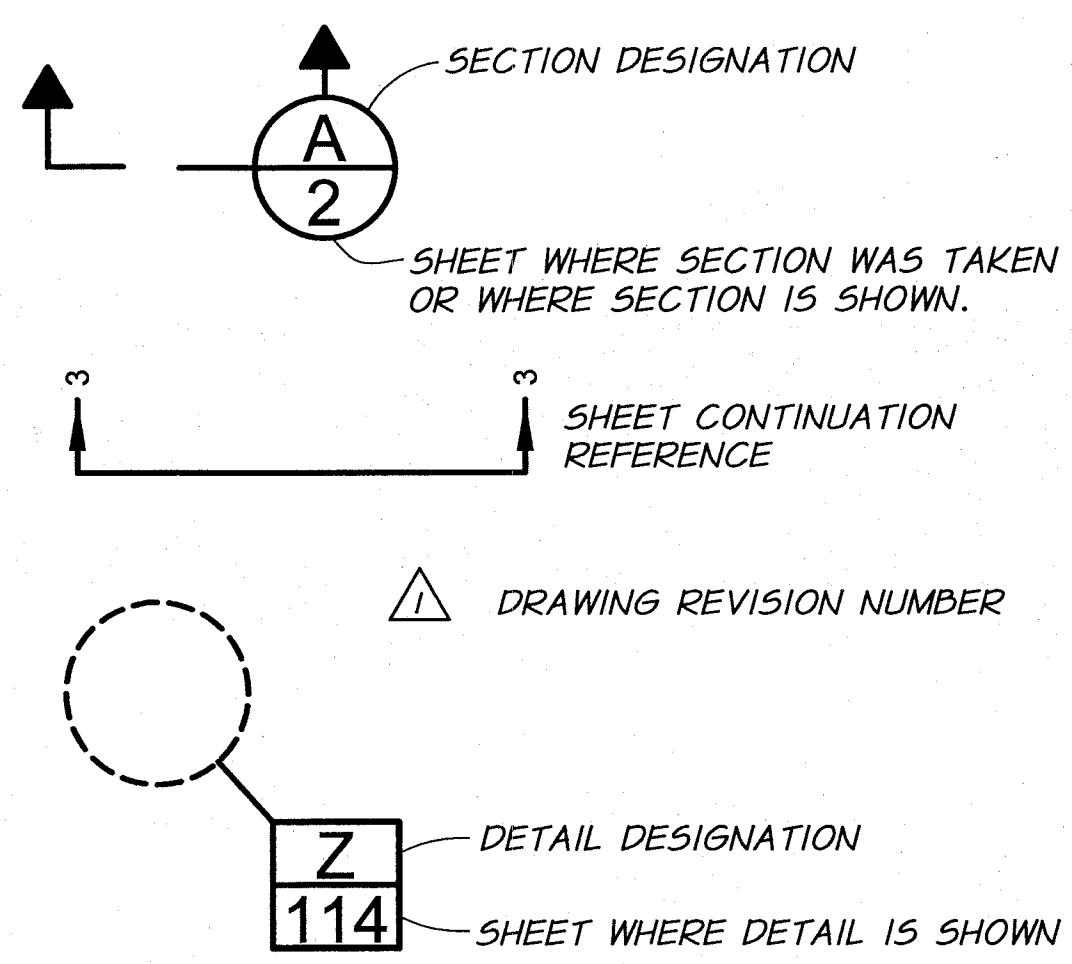
engineering - surveying - natural resources  
1901 N. Fir Street - La Grande, OR 97850 Ph: (541)983-8309 Fax: (541)983-5456  
LA GRANDE, OR. WALLA WALLA, WA.

**PLAN LEGEND**

IRRIGATION	
EXISTING	PROPOSED
IRRIGATION LINE — IRR —	6" PVC —
VALVE	⊠
CAP	⌈
COUPLING	⊕
REDUCER	▷
AIR/VAC VALVE	↑
BLOW OFF ASSEMBLY	⊙
SERVICE	⊗
IRRIGATION CONTROL STRUCTURE	— IRR —
SPRINKLER HEAD	☀

SITE SURVEY	
EXISTING	
INDEX CONTOUR	— 750 —
INTERMEDIATE CONTOUR	— 749 —
PROPERTY LINE/RIGHT-OF-WAY	— — — — —
CENTERLINE	— — — — —
EASEMENT	— — — — —
SECTION LINE	— — — — —
CULVERT	— — — — —
BENCH MARK	⊙
MONUMENT	△
CONTROL POINT	⊙
TEST PIT (SEE CONTRACT DOCUMENT APPENDIX FOR LOGS)	⊙ TP-14
SPOT ELEVATION	592.3 X

**DRAFTING**



**CONSTRUCTION NOTES**

- ALL ASPHALT RESTORATION REQUIRED WITHIN AREAS NOT SPECIFIED FOR ASPHALT RESTORATION SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER.
- REMOVE EXISTING DRAINAGE CULVERTS TO CONSTRUCT IRRIGATION LINE. EXISTING CULVERTS TO BE REINSTALLED AFTER PIPELINE INSTALLATION IS COMPLETED. CULVERTS DAMAGED BY CONSTRUCTION TO BE REPLACED WITH NEW SAME TYPE AND SIZE AT CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER UNLESS THE CULVERT AGE AND CONDITION ENSUED THE DAMAGE AS DETERMINED BY THE ENGINEER. THE ENGINEER MAY REQUIRE REPLACEMENT OF CULVERTS DUE TO AGE OF CULVERT AND EXISTING CONDITION. REPLACEMENT REQUIRED BY THE ENGINEER SHALL BE PAID UNDER THE "CULVERT REPLACEMENT" BID ITEM AND MUST HAVE PRIOR APPROVAL BEFORE REPLACEMENT.
- MAILBOXES, SIGNS, ETC., IN CONFLICT WITH WORK SHALL BE TEMPORARILY RELOCATED, AS REQUIRED BY THE ENGINEER, AND REINSTALLED TO THE ORIGINAL LOCATION AFTER THE IRRIGATION LINE IS CONSTRUCTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DAMAGED MAILBOXES, SIGNS, POSTS, ETC., CAUSED BY THE CONSTRUCTION SHALL BE REPLACED WITH NEW LIKE KIND AS REQUIRED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER UNLESS THE AGE AND CONDITION ENSUED THE DAMAGE AS DETERMINED BY THE ENGINEER. THE ENGINEER MAY REQUIRE REPLACEMENT OF POST DUE TO AGE OF POST AND EXISTING CONDITION. REPLACEMENT REQUIRED BY THE ENGINEER SHALL BE PAID UNDER THE "POST REPLACEMENT" BID ITEM.
- REMOVE EXISTING FENCING TO CONSTRUCT IRRIGATION LINES AS REQUIRED. EXISTING FENCING TO BE REINSTALLED TO THE SATISFACTION OF THE PROPERTY OWNERS AFTER PIPELINE INSTALLATION IS COMPLETED. FENCING DAMAGED BY CONSTRUCTION TO BE REPLACED WITH NEW SAME TYPE AND SIZE TO THE SATISFACTION OF THE PROPERTY OWNERS AT CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER.
- LOCATION FOR ALL SERVICES, AIR/VAC VALVES AND BLOW OFF ASSEMBLIES TO BE FIELD VERIFIED WITH THE ENGINEER PRIOR TO CONSTRUCTION.
- FOR IRRIGATION LINE CONSTRUCTION DIRECTLY ADJACENT TO ORCHARDS, THE CONTRACTOR SHALL PROTECT ORCHARD LIMBS FROM DAMAGE AS REQUIRED DURING CONSTRUCTION. COMPENSATION FOR DAMAGED TREES AND/OR LIMBS CAUSED BY THE CONTRACTOR SHALL BE AT THE CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER. SEE TECHNICAL SPECIFICATION FOR DETAIL.
- VERIZON UNDERGROUND FIBER OPTIC LINES ARE LOCATED WITHIN THE PROJECT. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH VERIZON PRIOR TO CONSTRUCTION. FOR NEW IRRIGATION LINES THAT WILL CROSS FIBER OPTIC LINES, THE NEW IRRIGATION LINES SHALL BE INSTALLED UNDERNEATH THE FIBER OPTIC LINES, MAINTAINING A MINIMUM OF 12 INCHES CLEARANCE. ADJUSTMENTS TO THE IRRIGATION LINE VERTICAL GRADE MAY BE REQUIRED, INCLUDING FITTINGS AS REQUIRED. THIS ADJUSTMENT SHALL BE INCIDENTAL TO THE WORK.
- EXISTING GROUND ELEVATIONS SHOWN ON THE PROFILES ARE APPROXIMATE AND MAY VARY FROM ACTUAL EXISTING GROUND ELEVATIONS ENCOUNTERED DURING CONSTRUCTION. THERE SHALL BE NO ADDITIONAL PAYMENT MADE TO THE CONTRACTOR FOR EXCAVATION AND BACKFILL VARIATIONS CAUSED BY ELEVATION OF EXISTING GROUND DIFFERENCES FROM WHAT IS SHOWN ON THE DRAWINGS.
- BOTH HORIZONTAL DEFLECTIONS AND CHANGES OF VERTICAL GRADE ARE SHOWN ON THE DRAWINGS. IN SOME LOCATIONS FITTINGS ARE CALLED FOR ON THE DRAWINGS AT HORIZONTAL DEFLECTIONS AND CHANGES IN VERTICAL GRADE, BUT NOT AT ALL LOCATIONS THAT MAY REQUIRE FITTINGS. IF PIPE JOINT DEFLECTION OR BENDING THE PIPE AS DESCRIBED AND ALLOWED IN THE TECHNICAL SPECIFICATIONS DOES NOT MAINTAIN ALIGNMENT OR GRADE, FITTINGS SHALL BE USED WITH APPROPRIATE THRUST BLOCKING AND SHALL BE INCIDENTAL TO THE PIPELINE WORK. ADDITIONALLY, THE CONTRACTOR SHALL MAINTAIN THE 2.5-FOOT MINIMUM COVER OVER THE TOP OF PIPE DURING CONSTRUCTION FOR ALL AREAS EXCEPT DITCH LINES AND ROAD CROSSINGS. MINIMUM COVER FOR DITCH LINES AND ROAD CROSSINGS SHALL BE 3 FEET, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL PERFORM EXPLORATORY WORK PRIOR TO CONSTRUCTION INCLUDING POTHOLING OF UTILITIES SUCH AS TELEPHONE, FIBER OPTIC, ELECTRICAL, WATER, ETC., AND IRRIGATION MAINS AND SERVICE LINES THAT LAY ADJACENT TO OR CROSS THE IMPROVEMENTS TO BE CONSTRUCTED. THIS WORK SHALL BE PERFORMED IN ORDER TO ACCURATELY LOCATE AND DETERMINE SIZES OF THE LINES AND TO DETERMINE ANY CONFLICTS THAT MAY EXIST THAT WILL REQUIRE ADJUSTMENT OF UTILITIES, COORDINATION WITH UTILITIES, OR ADJUSTMENT OF IMPROVEMENTS. SEE THE TECHNICAL SPECIFICATIONS FOR ADDITIONAL DETAILS. PAYMENT FOR EXPLORATORY WORK SHALL BE PAID UNDER THE BID ITEM "POTHOLING."
- THRUST BLOCKING REQUIRED FOR ALL TEES AND ELBOWS 11-1/4 DEGREES OR GREATER FOR PIPE SIZES 3-INCH OR GREATER.
- THE CONTRACTOR'S WORK SHALL BE LIMITED TO THE WIDTH OF THE IRRIGATION EASEMENT PLUS ANY ADDITIONAL TEMPORARY EASEMENT PROVIDED AND COUNTY ROAD RIGHT-OF-WAY AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS. SEE THE TECHNICAL SPECIFICATIONS FOR DETAILS.
- SLUDGE POTS AND ACCESSORIES ADJACENT TO ORCHARDS SHALL BE MOVED BY PROPERTY OWNER PRIOR TO CONSTRUCTION.

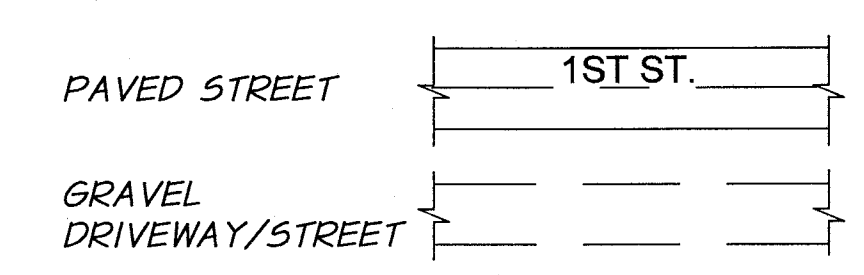
**MISCELLANEOUS UTILITIES**

EXISTING	
WATER LINE	— W — — — — W —
BURIED POWER	— P — — — — P — — — — P —
OVERHEAD POWER	— OHP — — — — OHP — — — —
BURIED TELEPHONE	— UT — — — —
FIBER OPTIC	— FO — — — —
GAS SERVICE	— G — — — — G — — — —
SIGNAL CABLE IN CONDUIT	— SC — — — —
UTILITY POLE	⊙
GUY WIRE	⌒
TELEPHONE RISER	◇
STREET LIGHT	☀

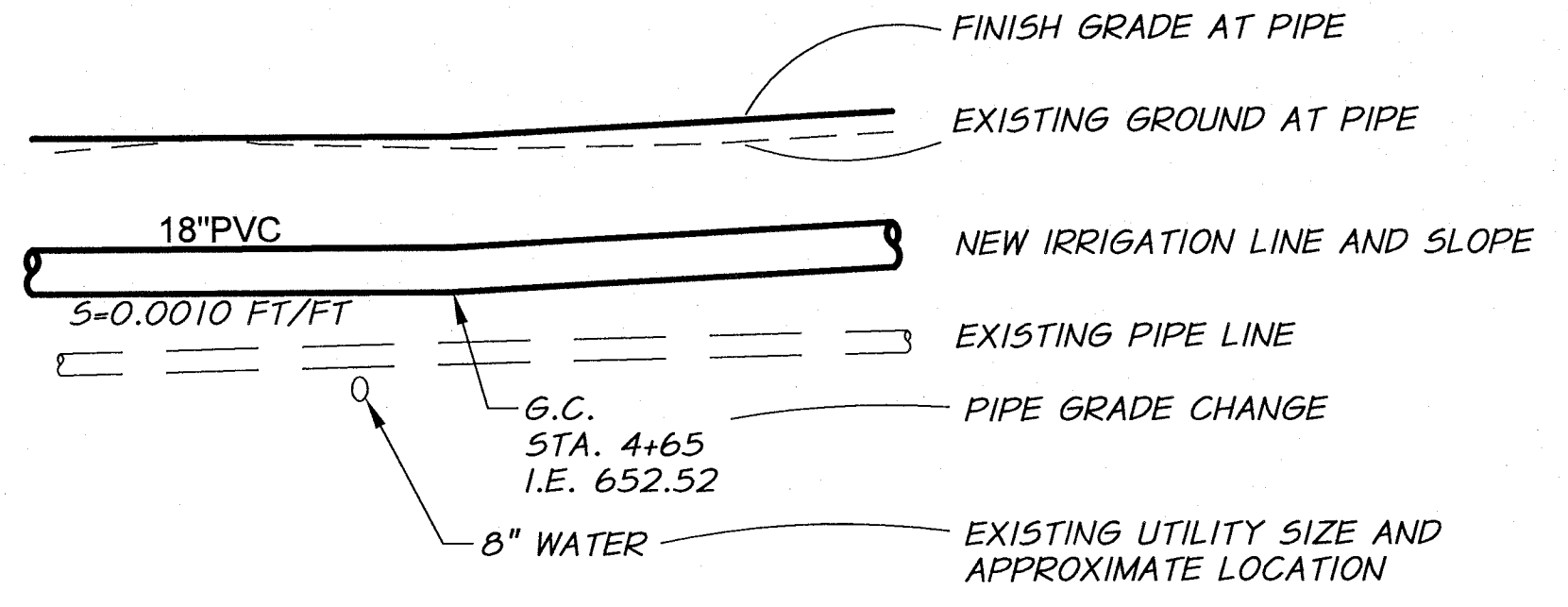
**GENERAL**

EXISTING	
FENCE LINE/GATE	— X — X — X —
CHAINLINK FENCE	— — — — —
CREEK/DITCH CENTERLINE	— — — — —
RIVERBANK/SHORELINE	— — — — —
SIGN	⊠
CONIFER TREE	☀
DECIDUOUS TREE	☀
SHRUB	☀
BUILDING	⌒

**STREET AND CURB**



**PROFILE LEGEND**



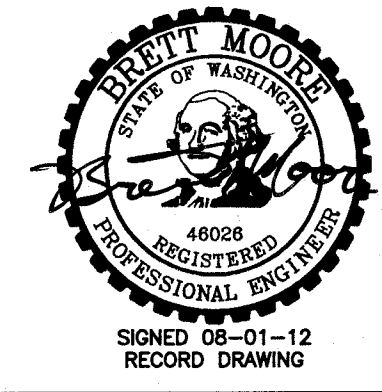
**ESTIMATED QUANTITIES FOR ROCK EXCAVATION**

PHASE 2A: ±700 CUBIC YARDS

NOTE: REFER TO THE SPECIFICATIONS FOR DESCRIPTION OF ROCK EXCAVATION. THE QUANTITIES SHOWN ARE ESTIMATES PREPARED BY THE ENGINEER AND ARE BASED UPON FIELD SURVEY DATA PERFORMED BY THE ENGINEER, AND THE IMPROVEMENTS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE ACTUAL QUANTITIES TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED FOR PREPARING HIS BID FOR THE PROJECT.

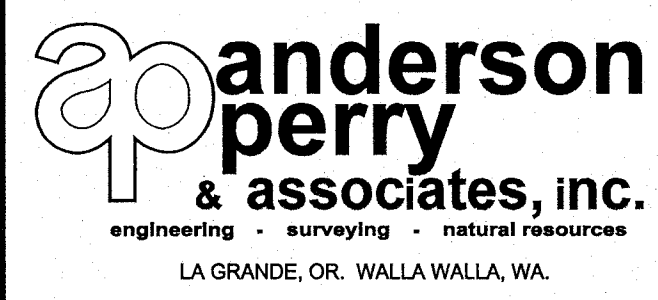
**TEST PIT NOTES**

- THE TEST PIT LOCATIONS ARE SHOWN ON THE DRAWINGS AND THE TEST PIT LOGS ARE PROVIDED IN THE APPENDIX OF THE SPECIFICATIONS.
- THE SOIL DATA, ROCK DATA, AND GROUND WATER CONDITIONS WHEN SHOWN ON THE DRAWINGS AND LOGS ARE PROVIDED SOLELY FOR THE CONTRACTOR'S INFORMATION. SUCH DATA IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS WITH RESPECT TO THE ACTUAL SUBSURFACE CONDITIONS. INFORMATION SHOWN SHALL NOT RELIEVE THE CONTRACTOR FROM MAKING SUCH ADDITIONAL INVESTIGATIONS AS HE MAY ELECT TO FAMILIARIZE HIMSELF WITH THE ACTUAL CONDITIONS TO BE ENCOUNTERED IN EXECUTING THE WORK AND PREPARING HIS BID FOR THE PROJECT.



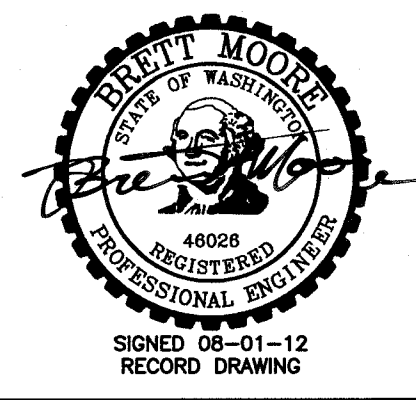
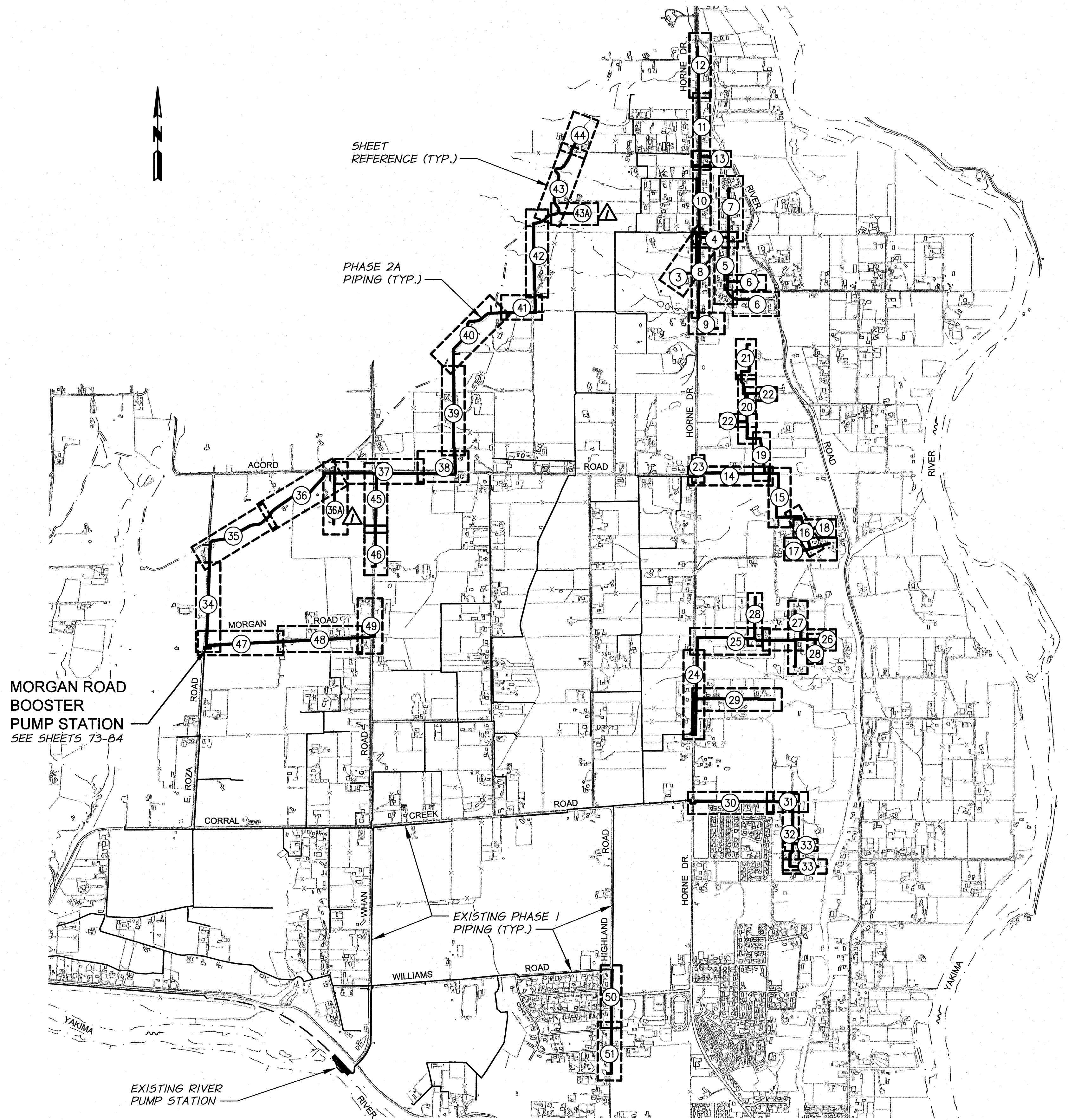
DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER	1199-336	DATE	2010
DRAWN BY	D. CHRISTMAN		ACAD FILE:	LEGEND-Ph2A.dwg		
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

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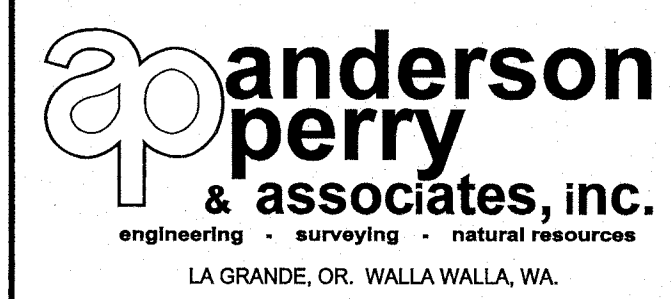
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
**LEGEND NOTES AND QUANTITIES**

SHEET  
**1**



<b>RECORD DRAWING</b>		E.H. 4/12		1000 0 1000 2000 3000 SCALE IN FEET	
REVISION DESIGNED BY <i>R. HARRIS</i> DRAWN BY <i>D. CHRISTMAN</i> REVIEWED BY <i>J. HOLLOPETER</i>	XREFS: TB-BID.dwg	BY E.H.	DATE 4/12	HORIZ. SCALE 1"=1000' ACAD FILE: SheetIndexPH2A.dwg COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.	VERT. SCALE JOB NUMBER 1199-336 DATE 2010

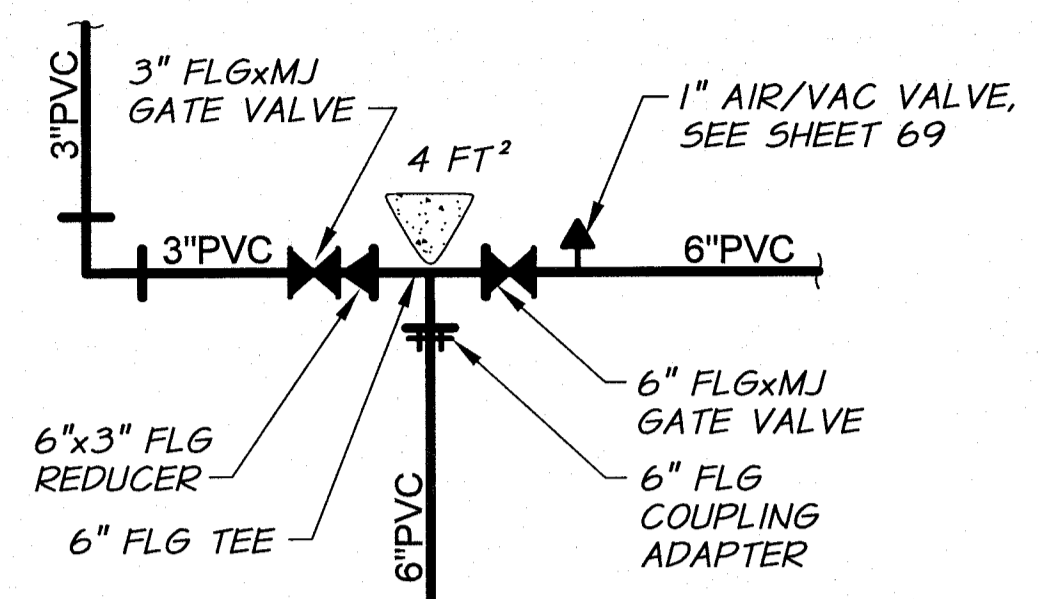
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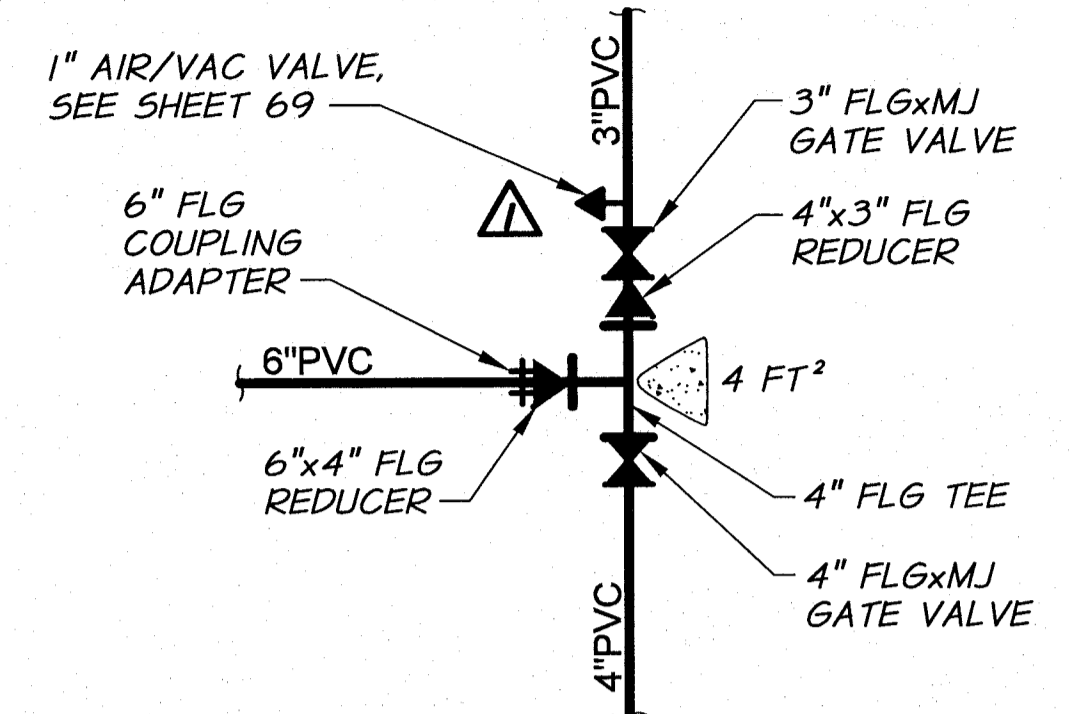
**BENTON IRRIGATION DISTRICT**  
 IRRIGATION SYSTEM IMPROVEMENTS  
 PHASE 2A  
 SHEET INDEX

SHEET  
**2**

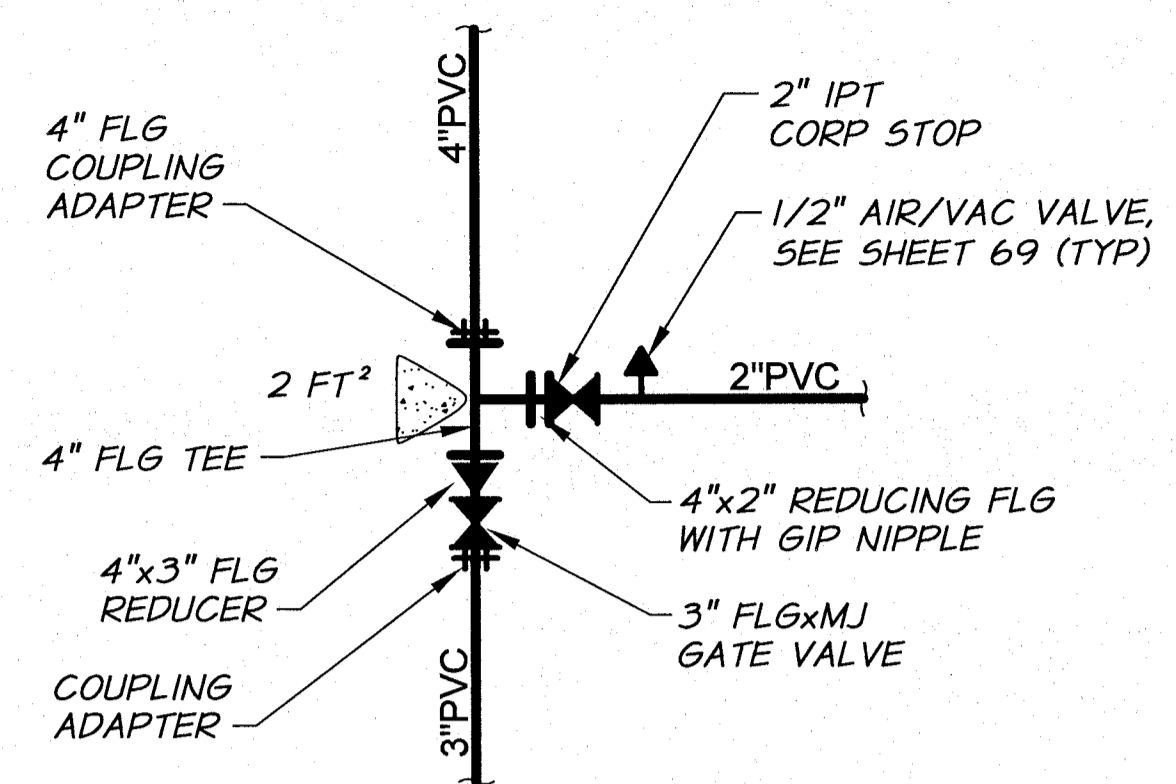
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INCIDENTAL  
TO PIPING



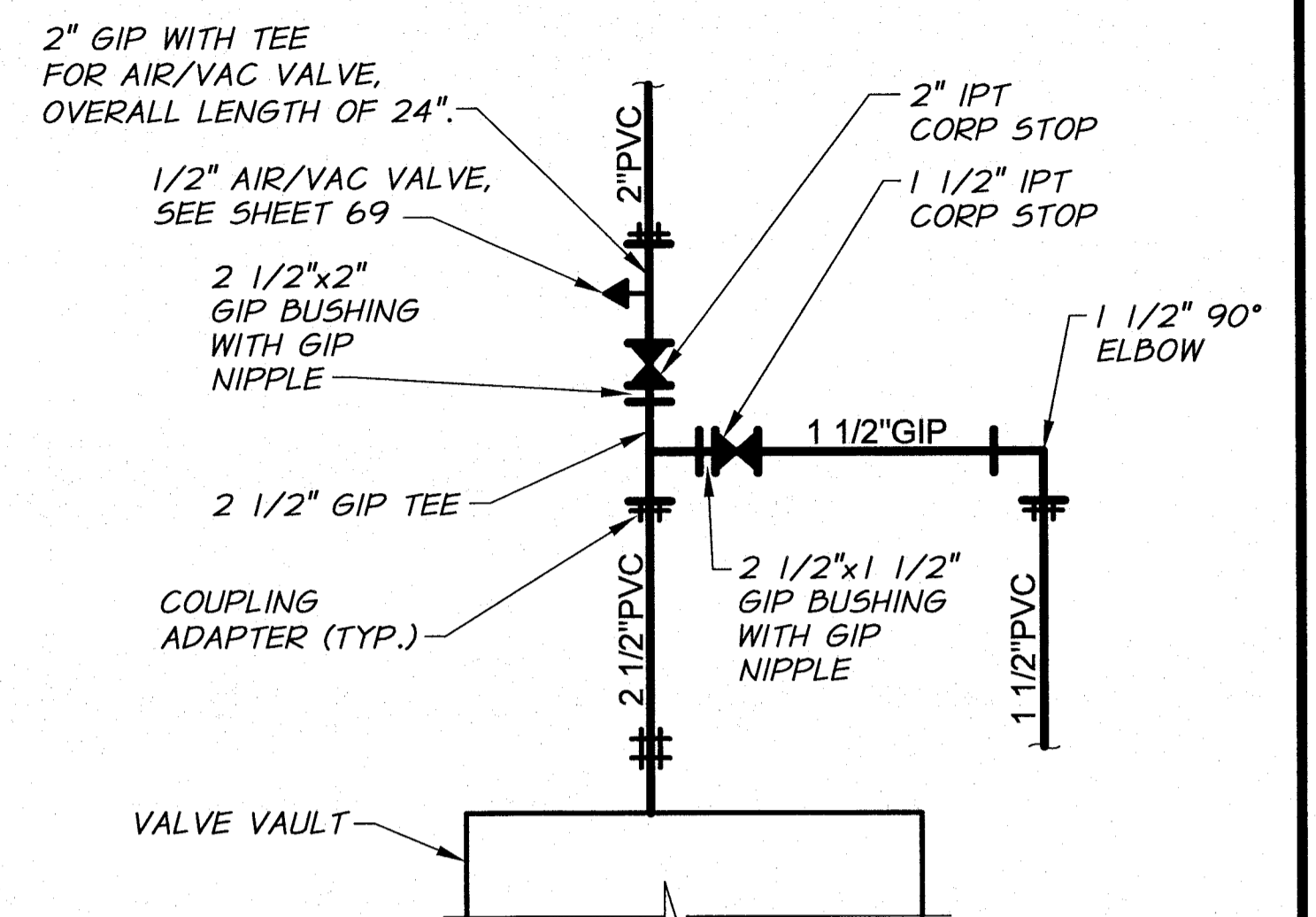
**DETAIL AA**  
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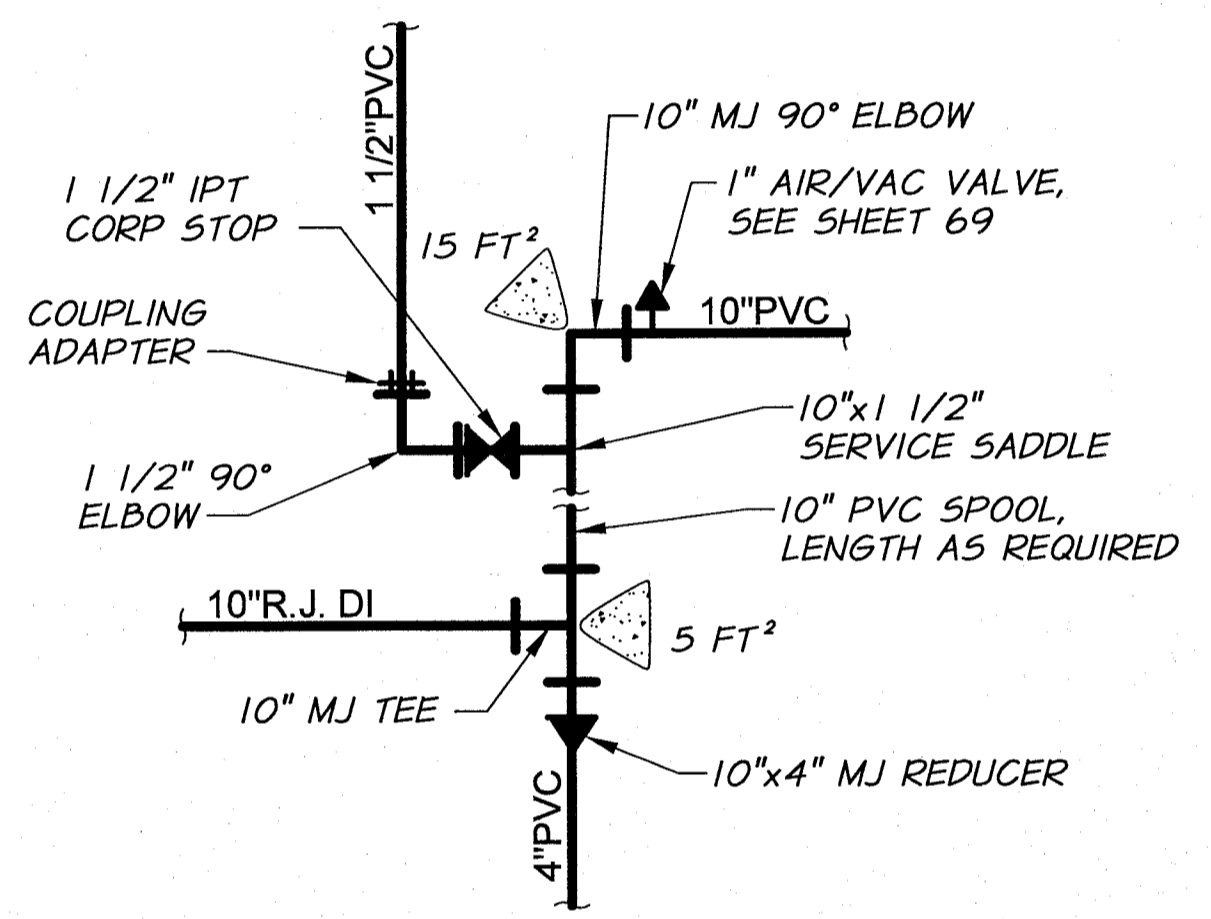
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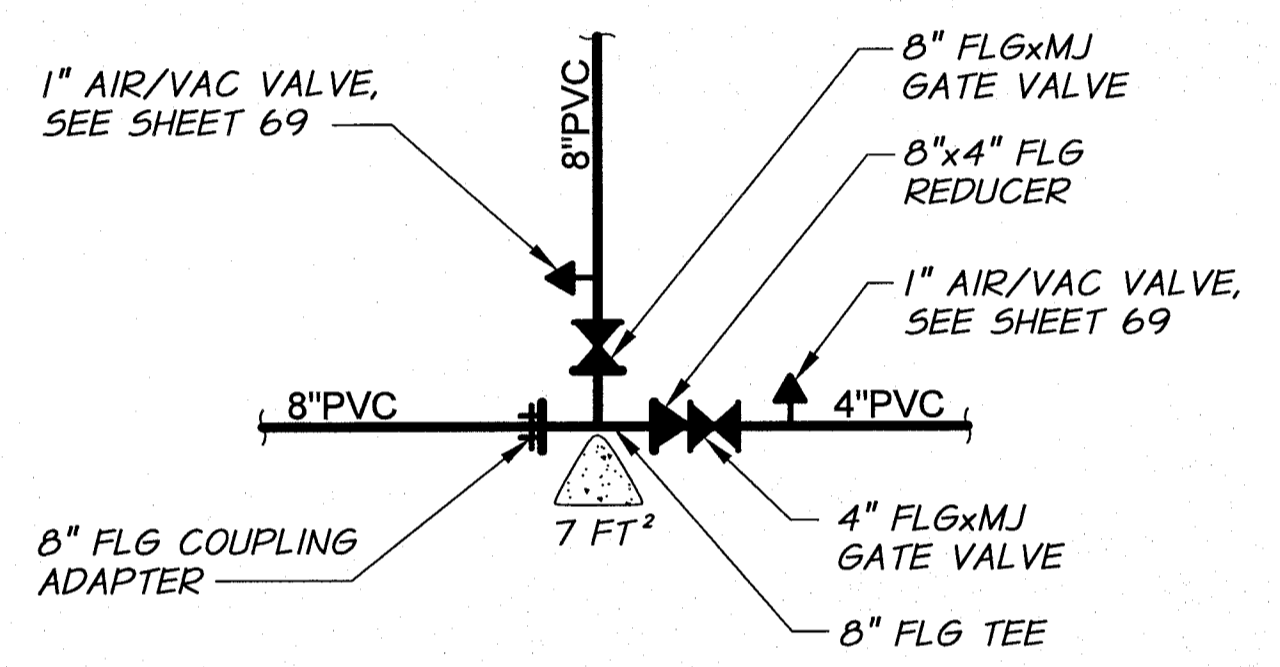
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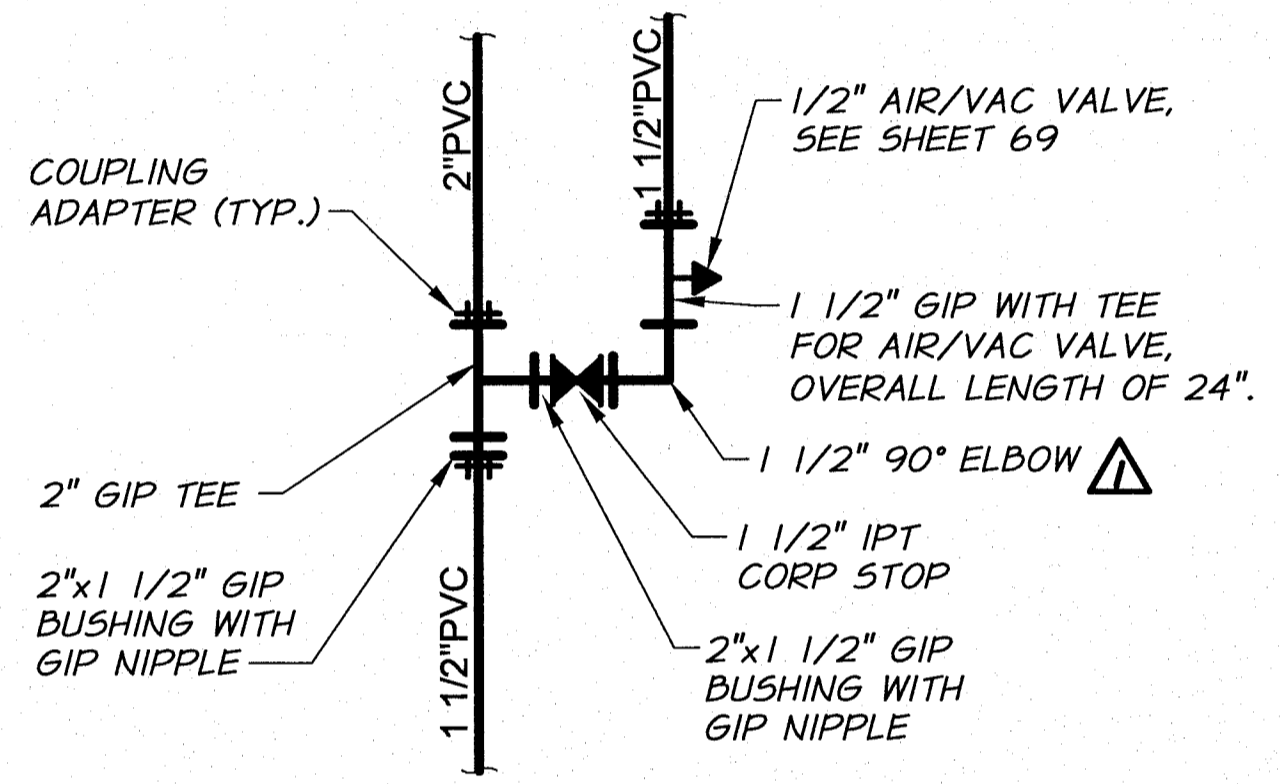
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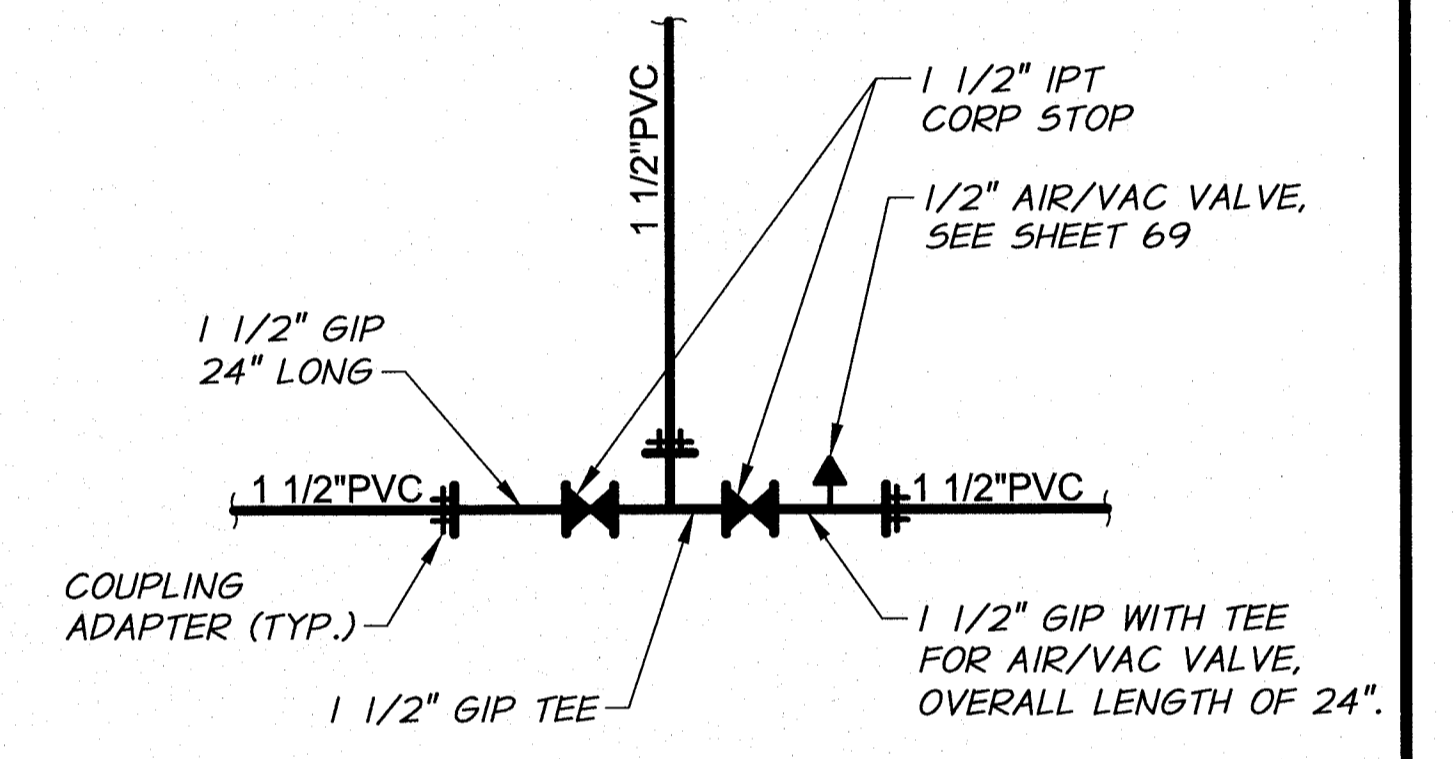
**DETAIL AE**  
REFERENCE SHEET: 14, 23



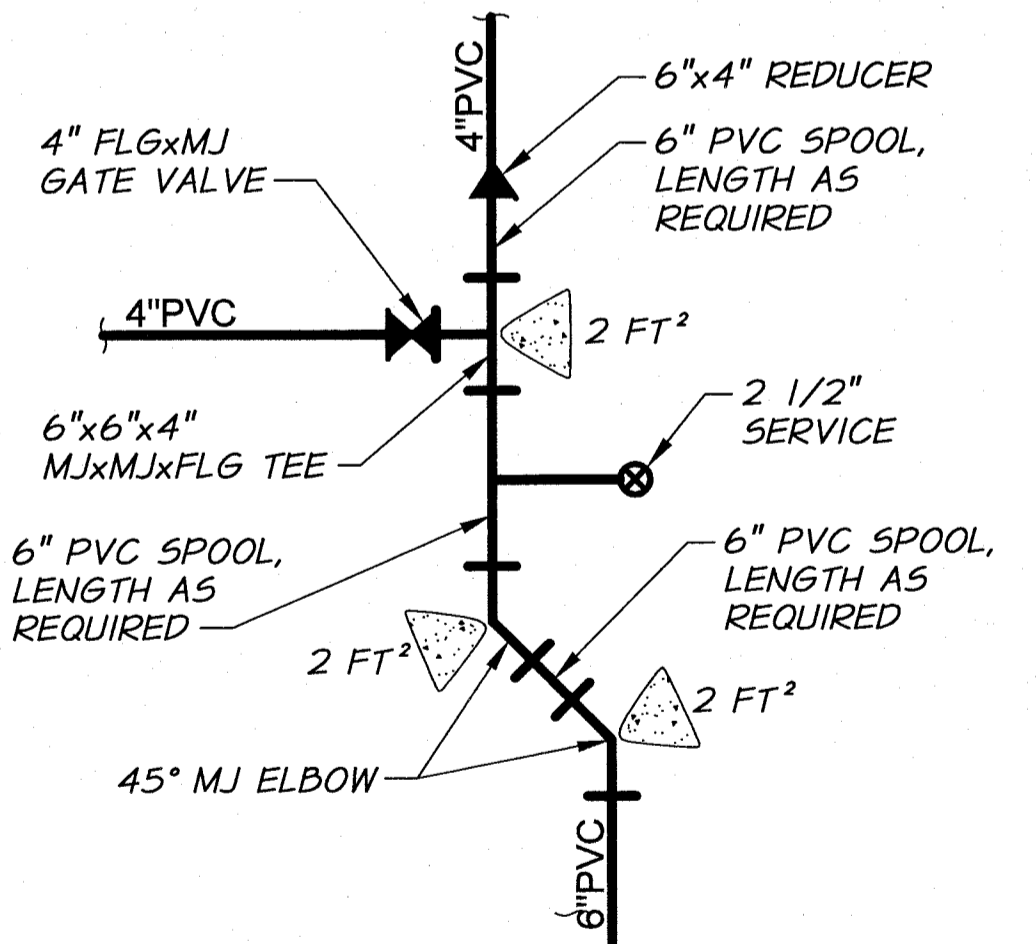
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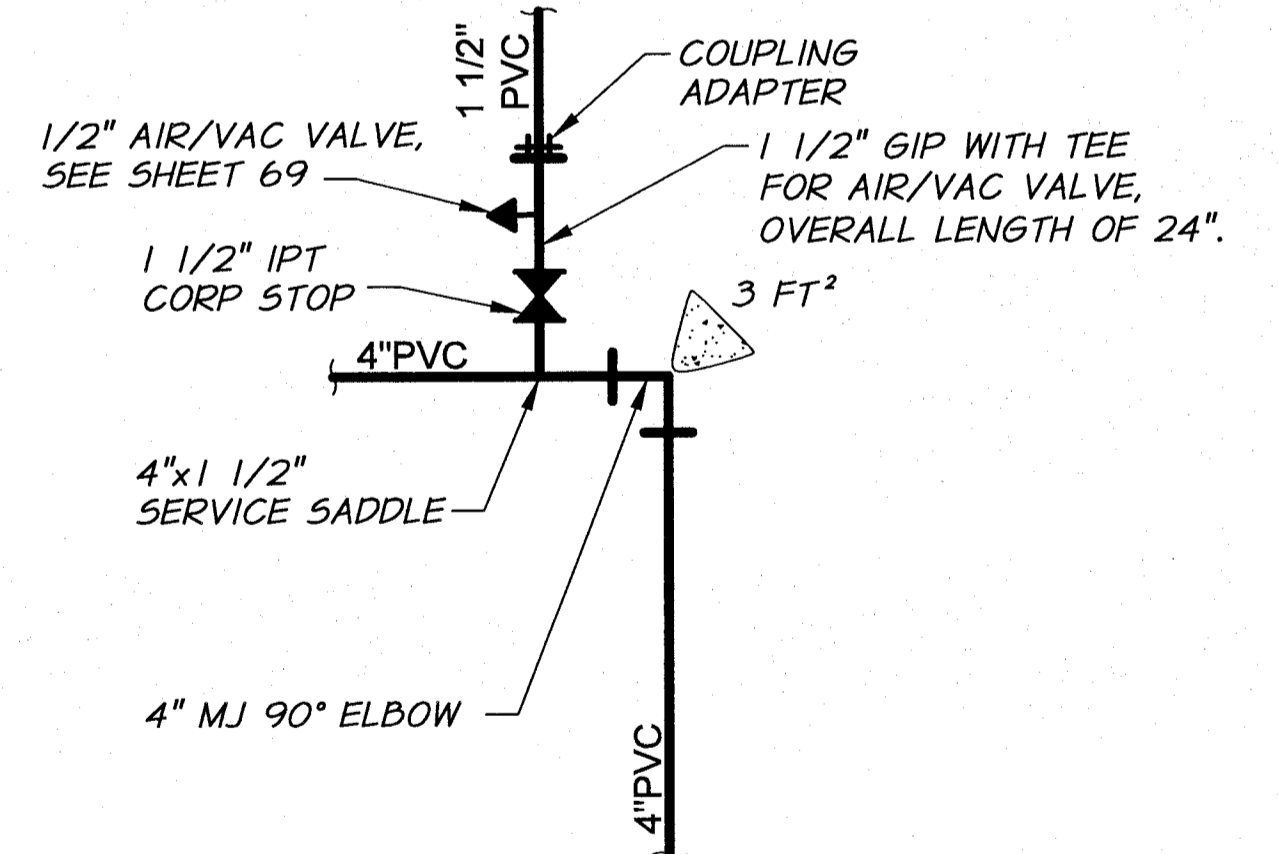
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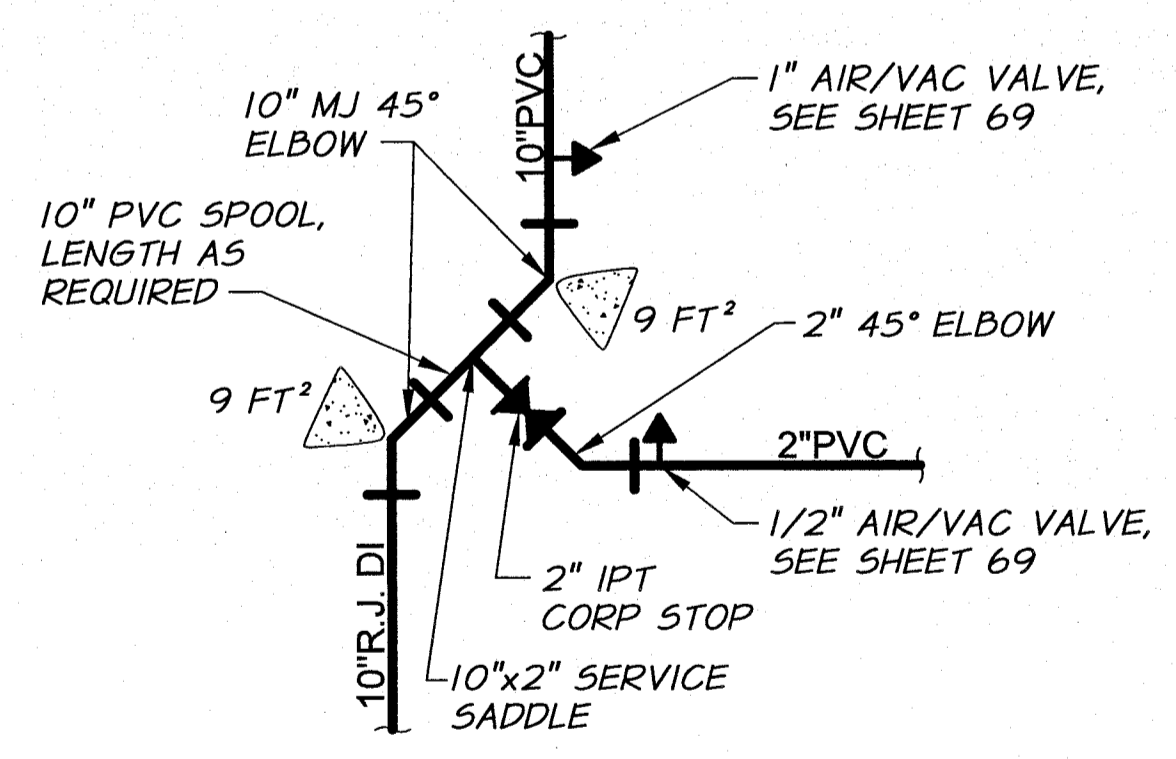
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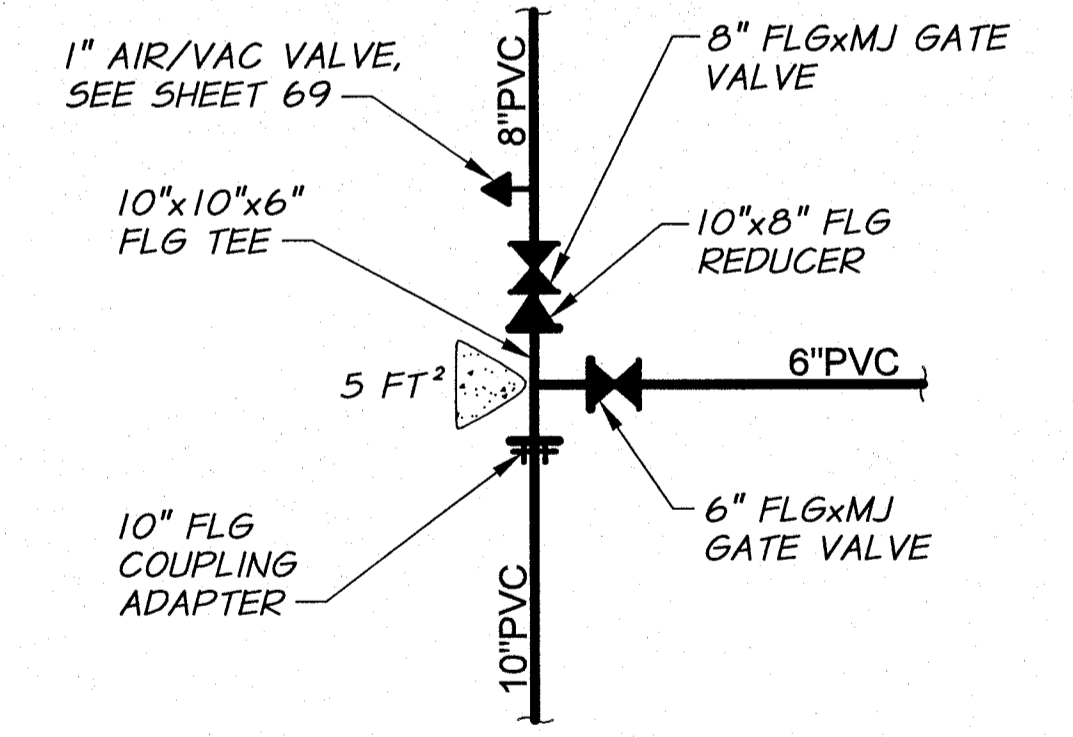
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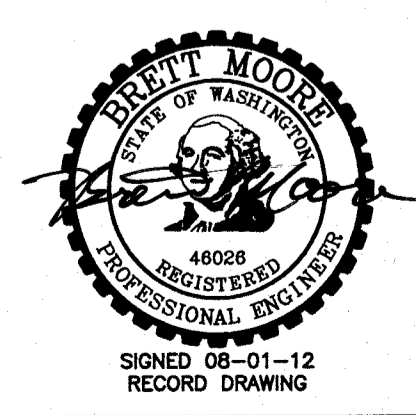
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**DETAIL AL**  
REFERENCE SHEET: 24

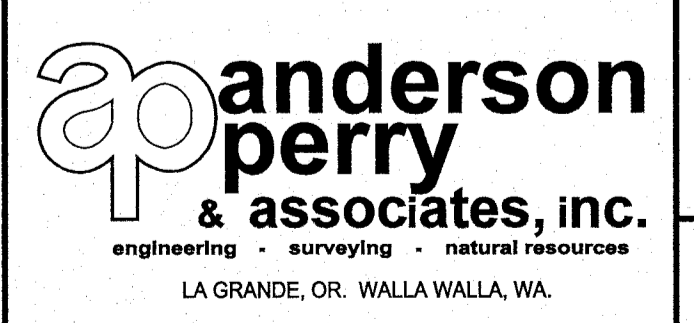


**DETAIL AM**  
REFERENCE SHEET: 24, 29



<b>RECORD DRAWING</b>		E.H.	4/12		
DESIGNED BY	R. HARRIS	XREFS:	TB-BID.dwg	JOB NUMBER	1199-336
DRAWN BY	P. RICHARDSON			DATE	2010
REVIEWED BY	J. HOLLOPETER			ACAD FILE:	WATERPIPINGDETS.dwg
				COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.	

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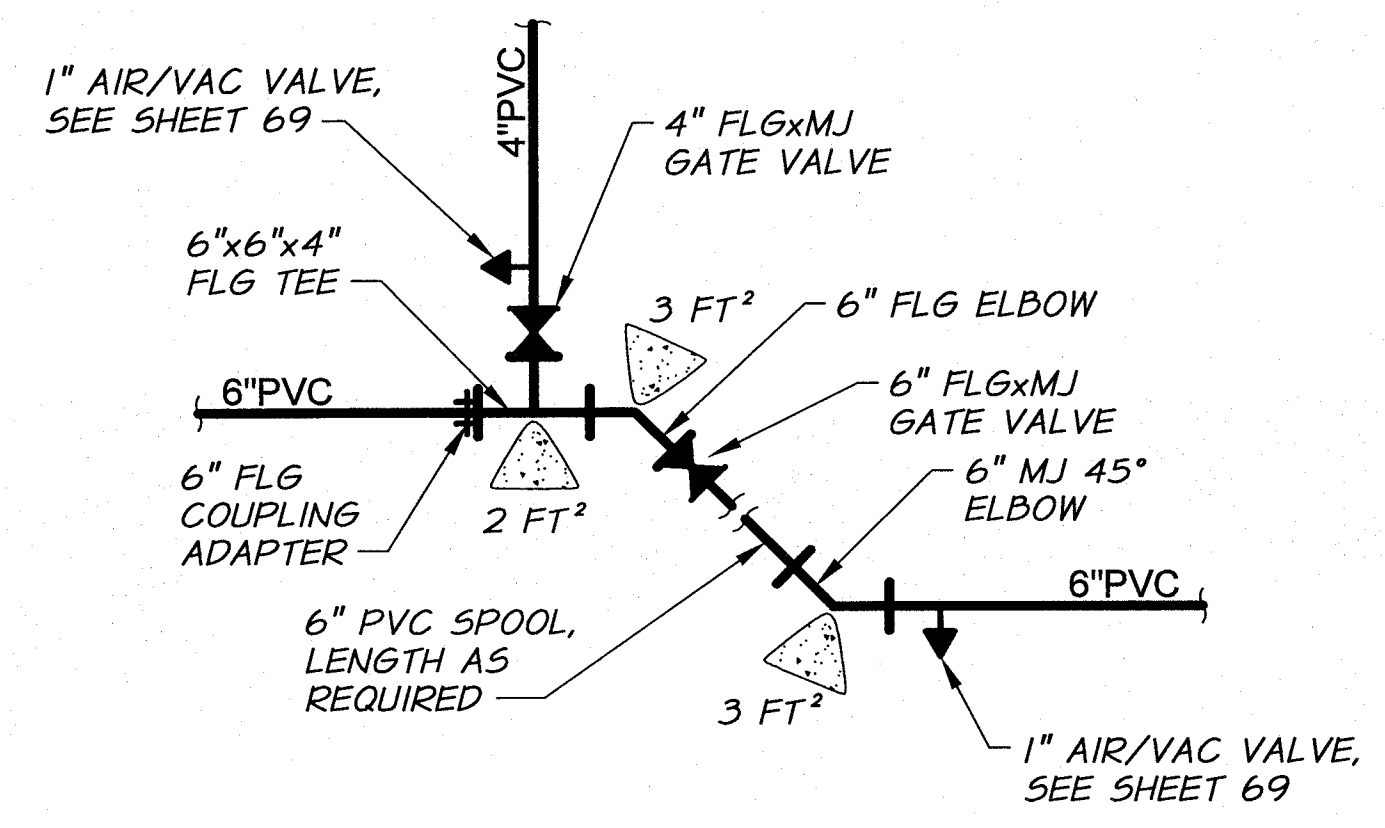


**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
PIPE CONNECTION DETAILS I

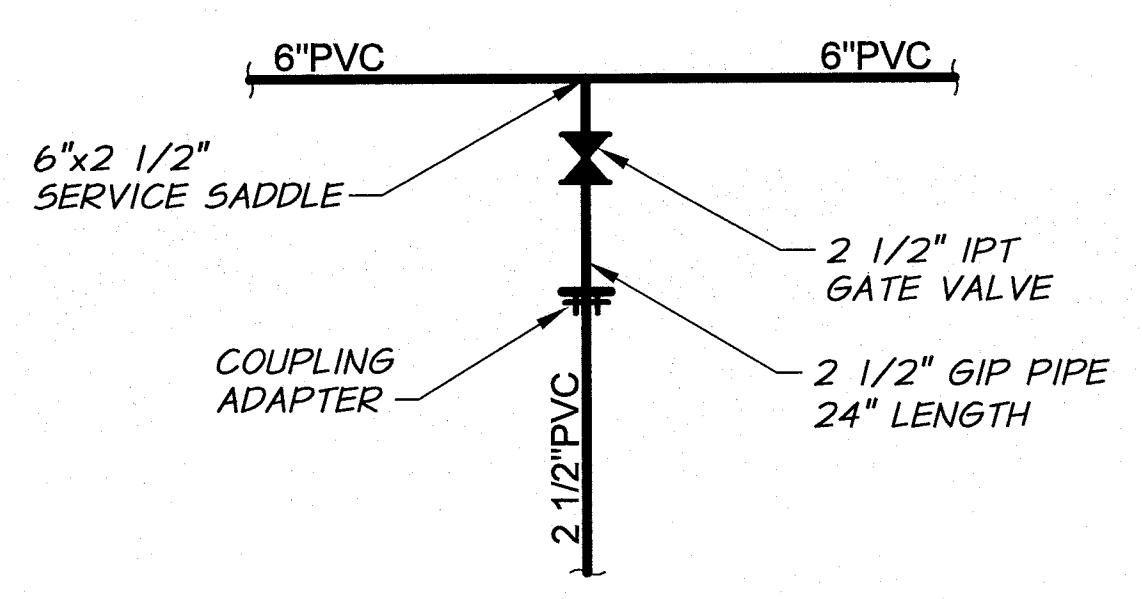
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**53**

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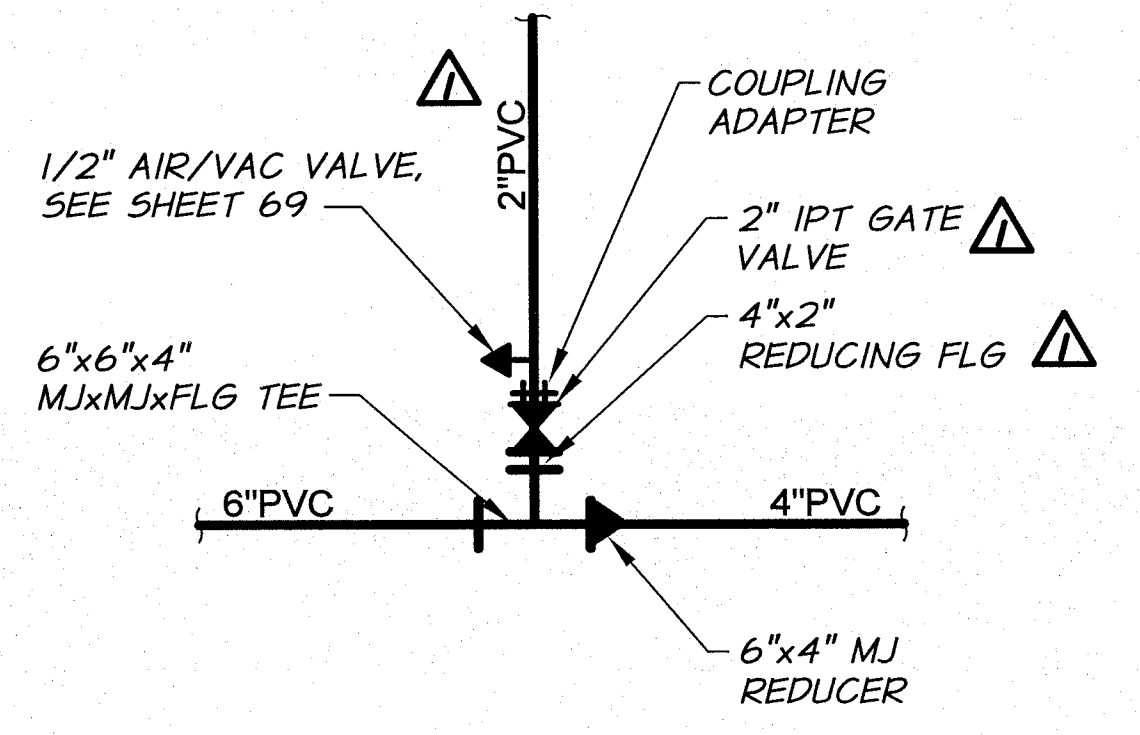
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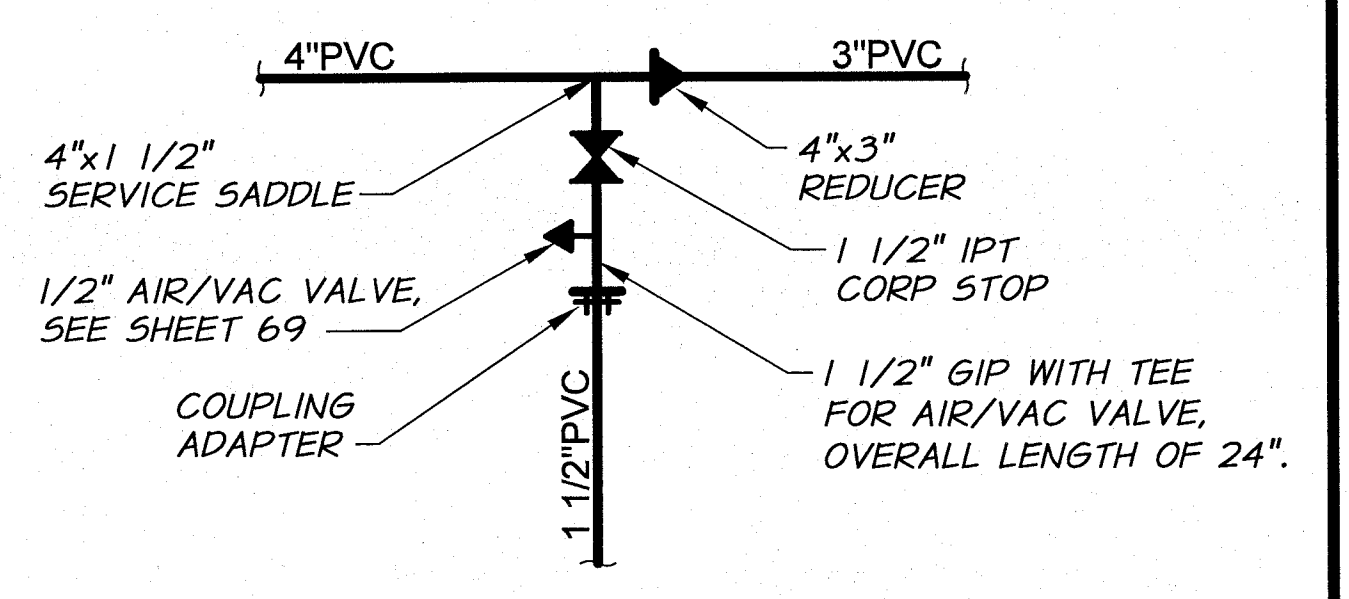
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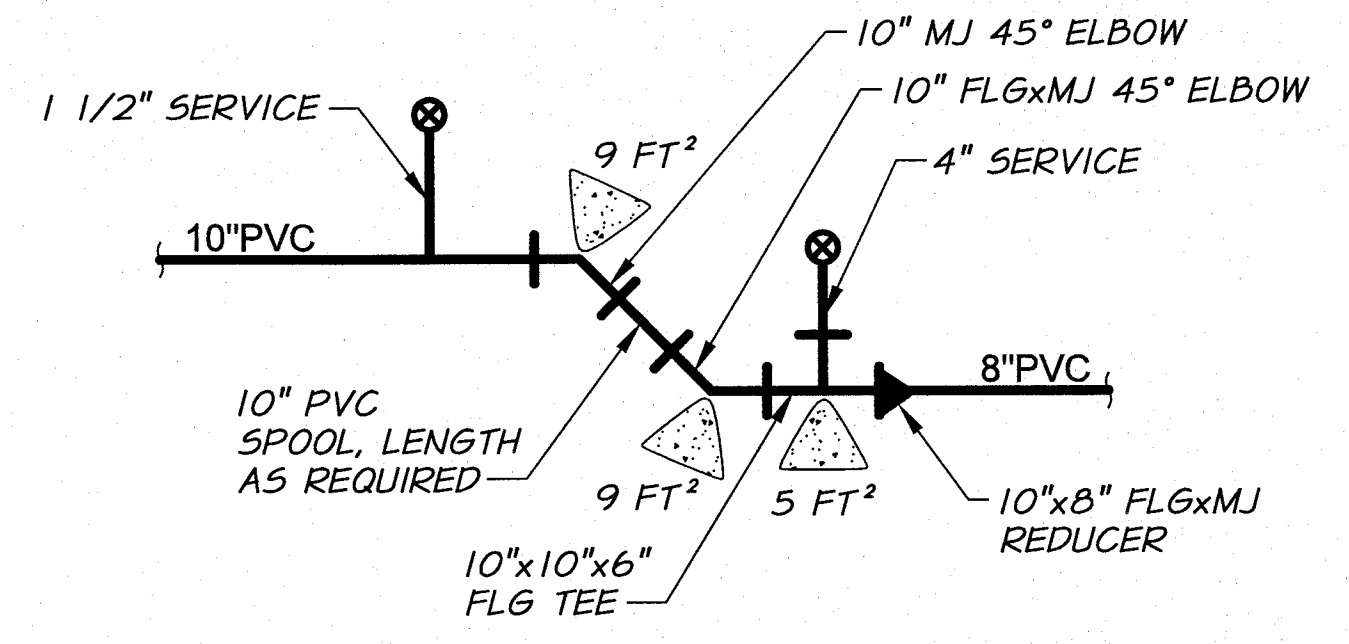
**DETAIL AP**  
REFERENCE SHEET: 26, 27



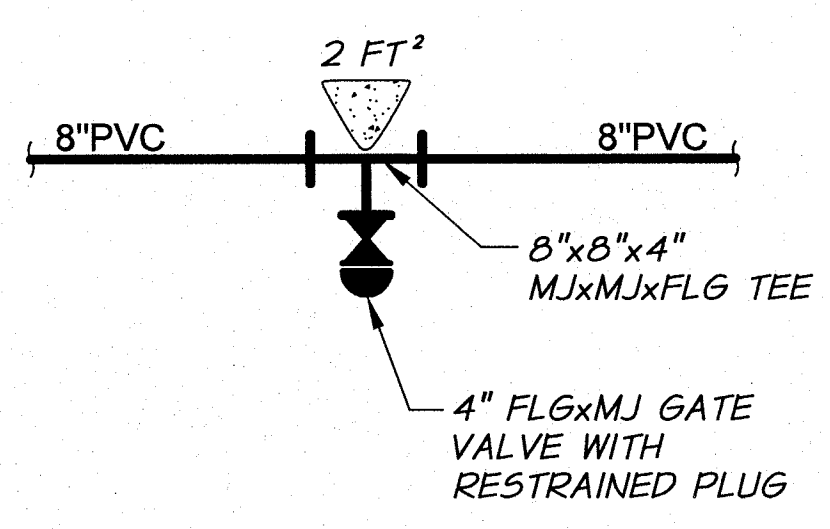
**DETAIL AQ**  
REFERENCE SHEET: 26, 27



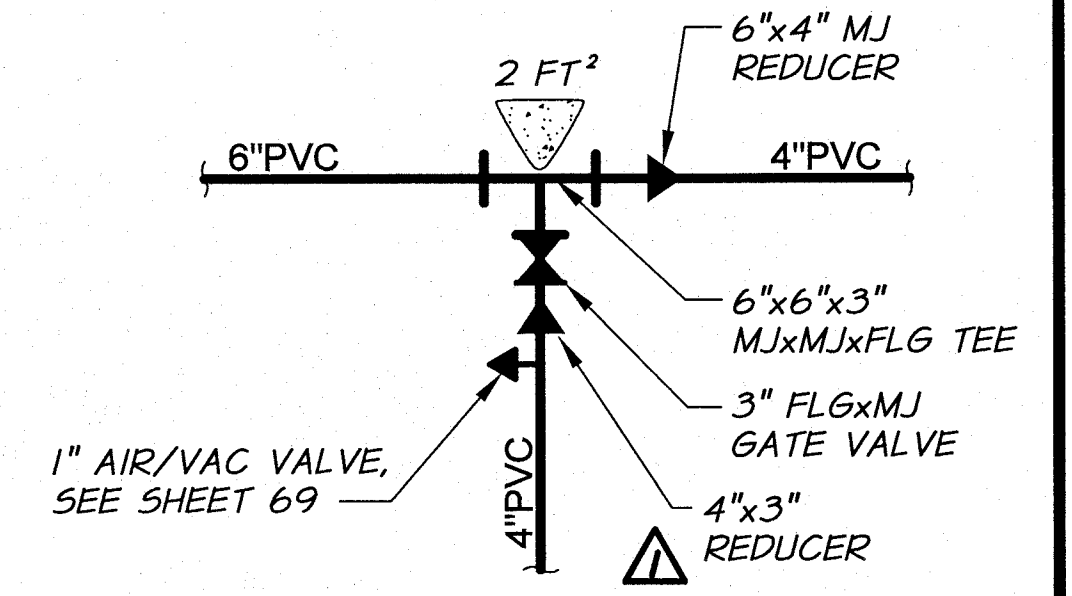
**DETAIL AR**  
REFERENCE SHEET: 26, 28



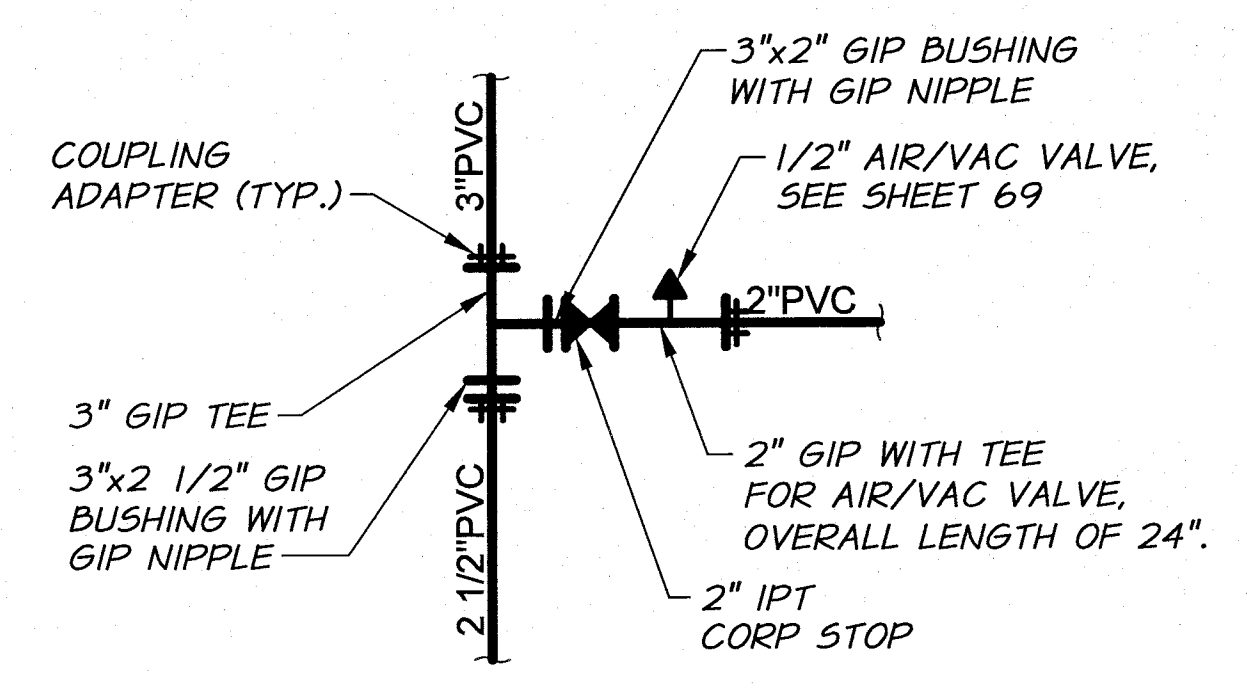
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REFERENCE SHEET: 30



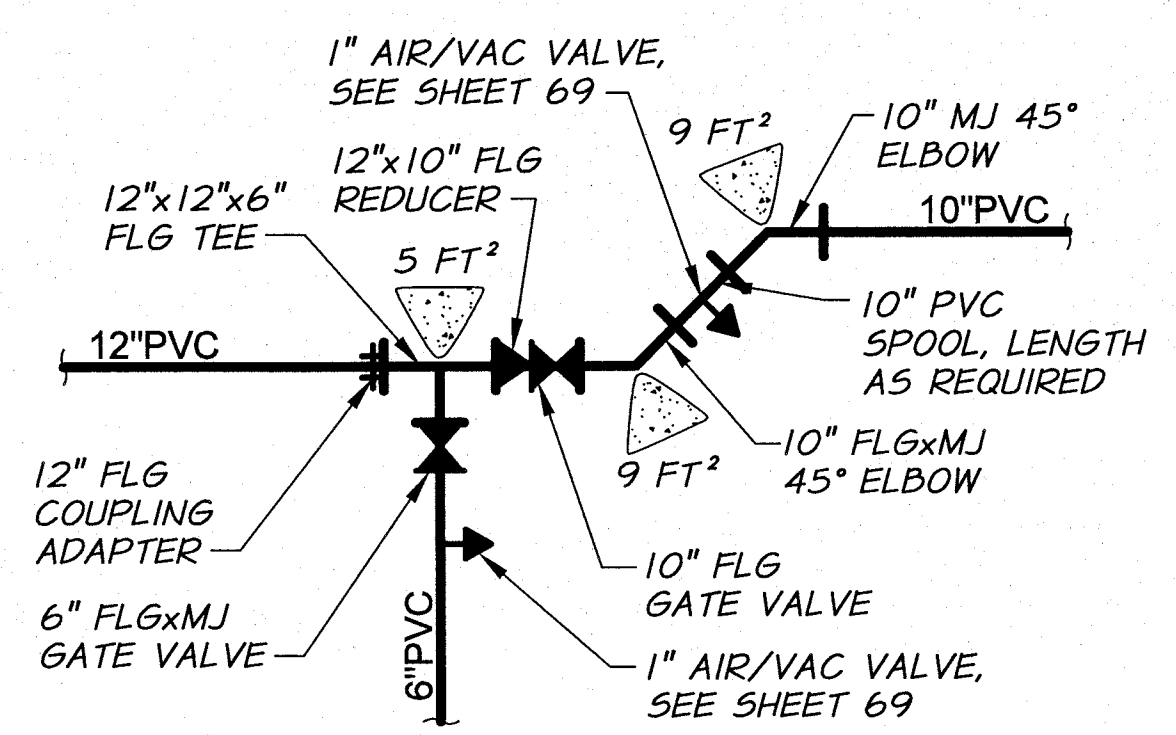
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REFERENCE SHEET: 30



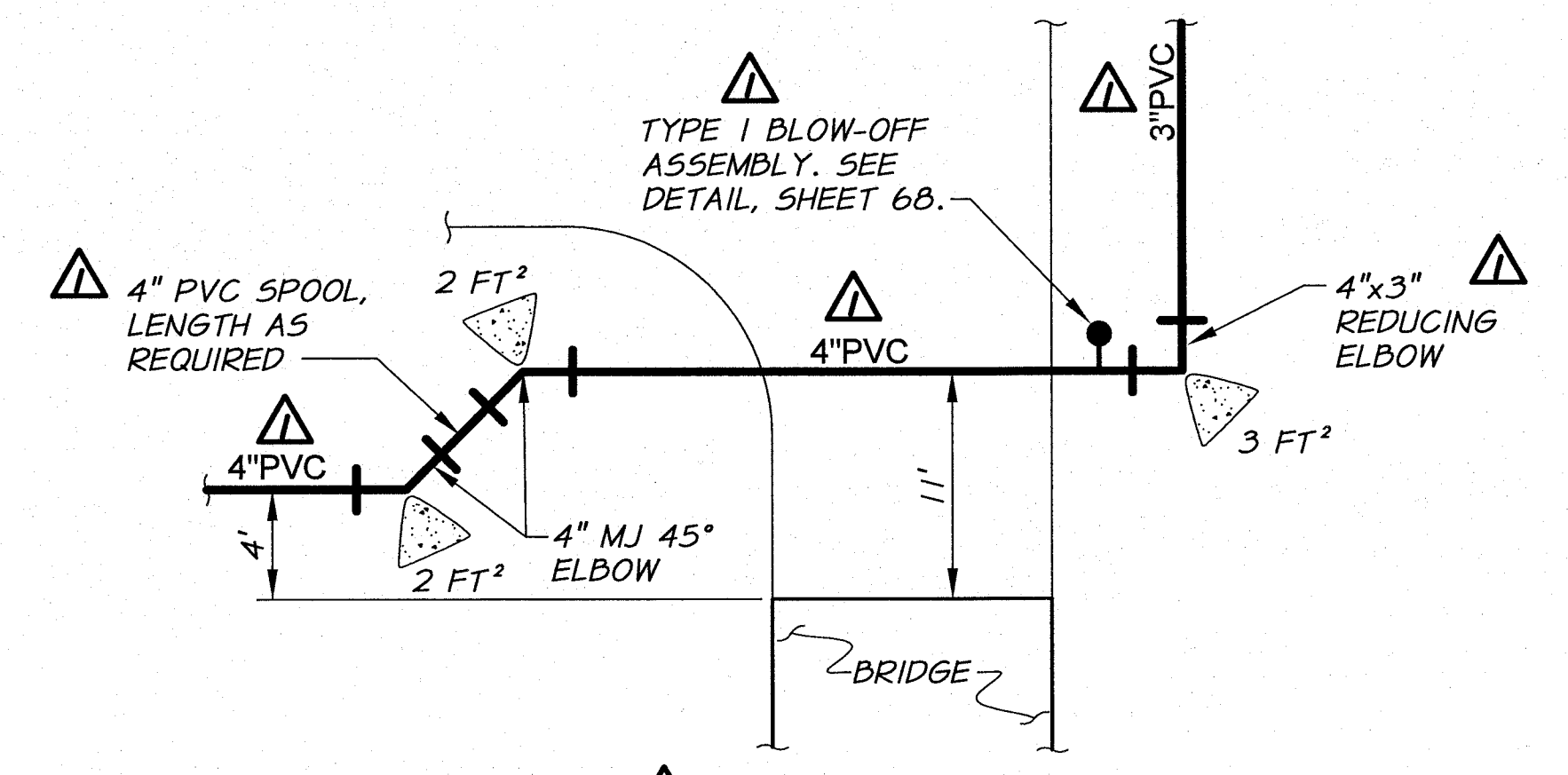
**DETAIL AV**  
REFERENCE SHEET: 31, 32



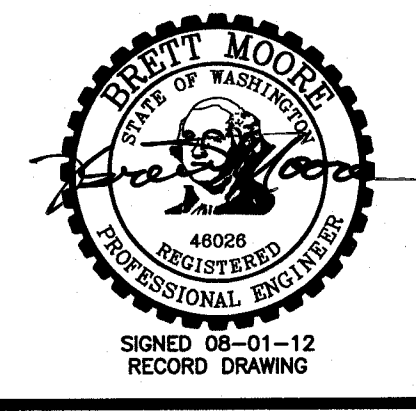
**DETAIL AW**  
REFERENCE SHEET: 32, 33



**DETAIL AX**  
REFERENCE SHEET: 37, 45

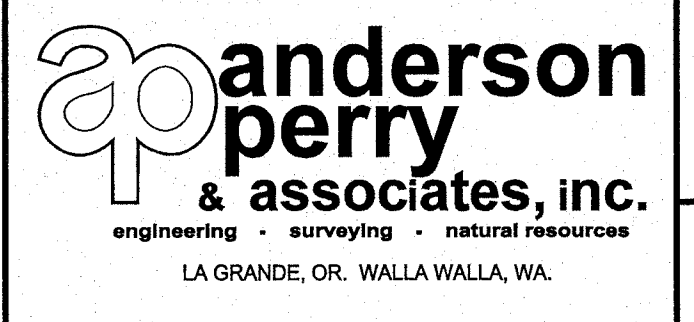


**DETAIL AY**  
REFERENCE SHEET: 49

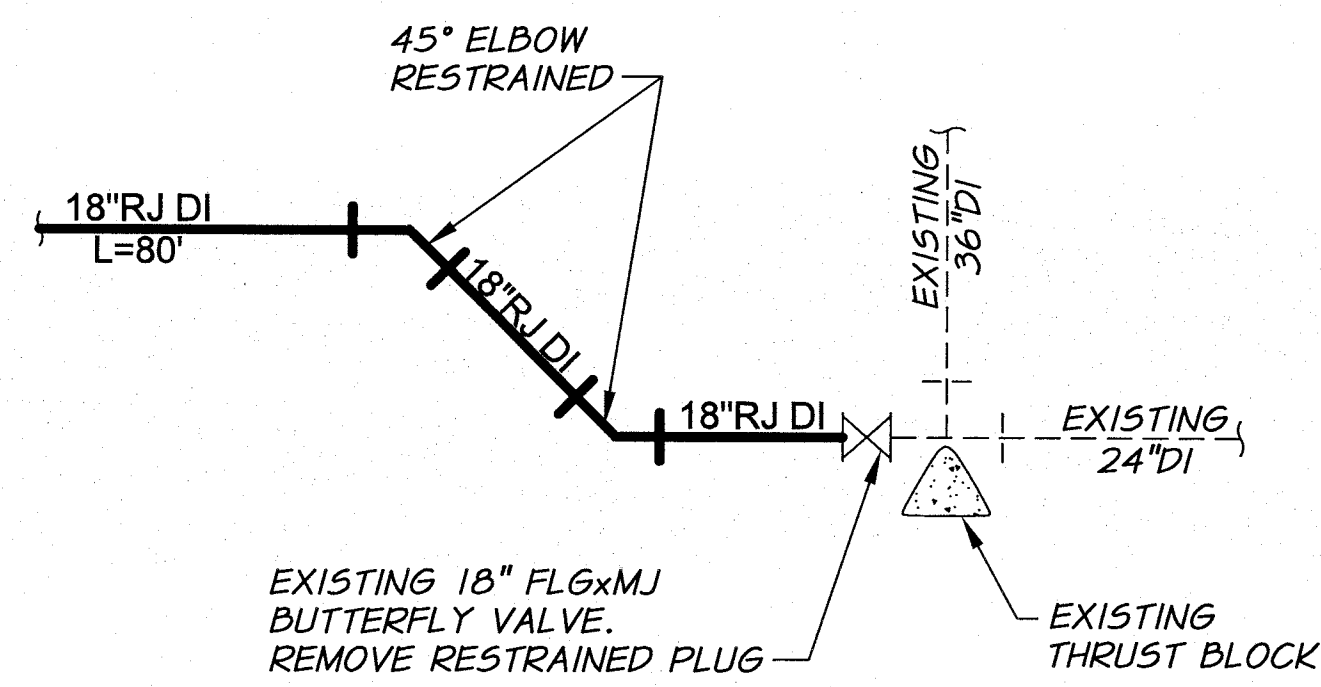


<b>RECORD DRAWING</b>		BY	E.H.	DATE	4/12	HORIZ. SCALE	NONE	VERT. SCALE	
DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg		JOB NUMBER	1199-336	DATE	2010		
DRAWN BY	P. RICHARDSON			ACAD FILE	WATERPIPINGDETS.dwg				
REVIEWED BY	J. HOLLOPETER			COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.					

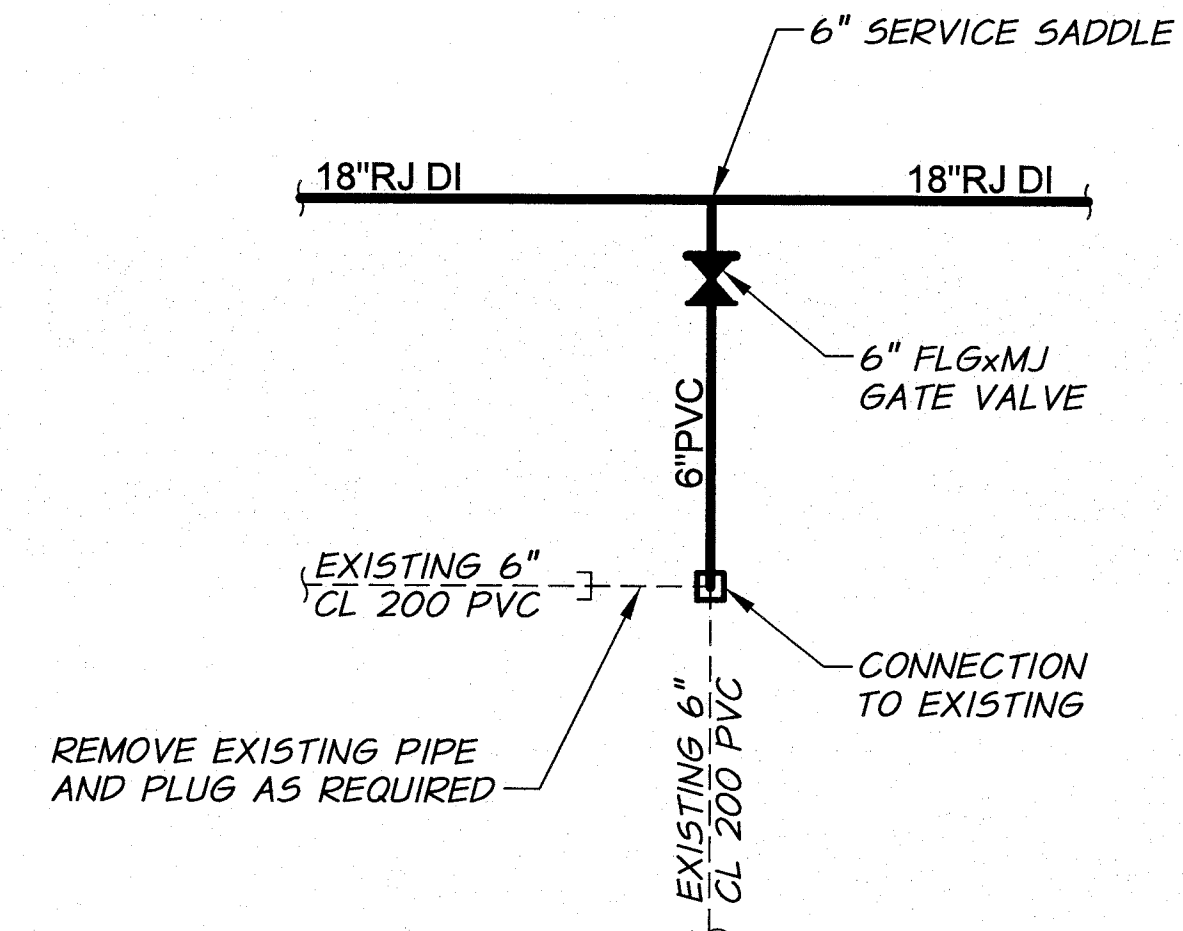
**RECORD DRAWINGS**  
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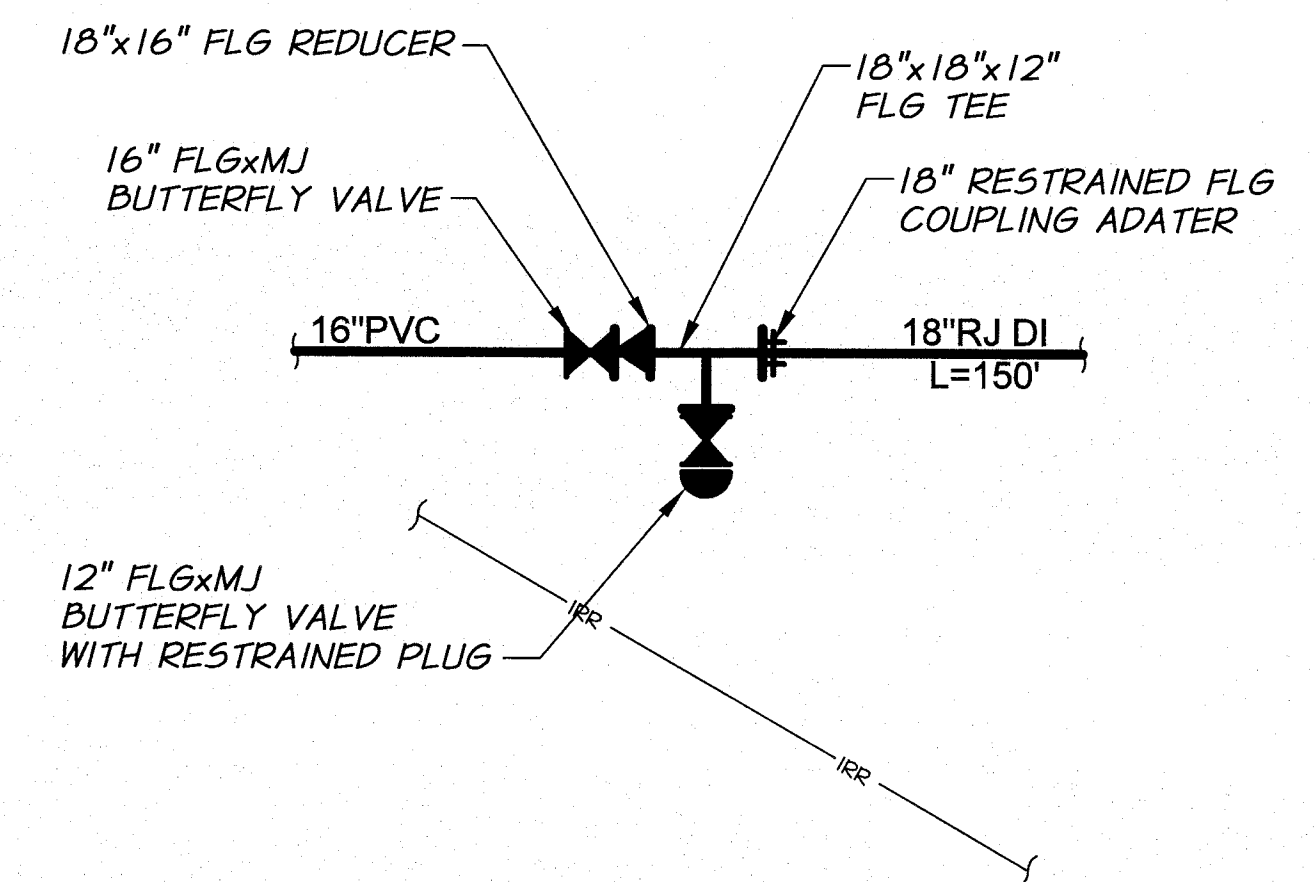
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
**PIPE CONNECTION DETAILS II**



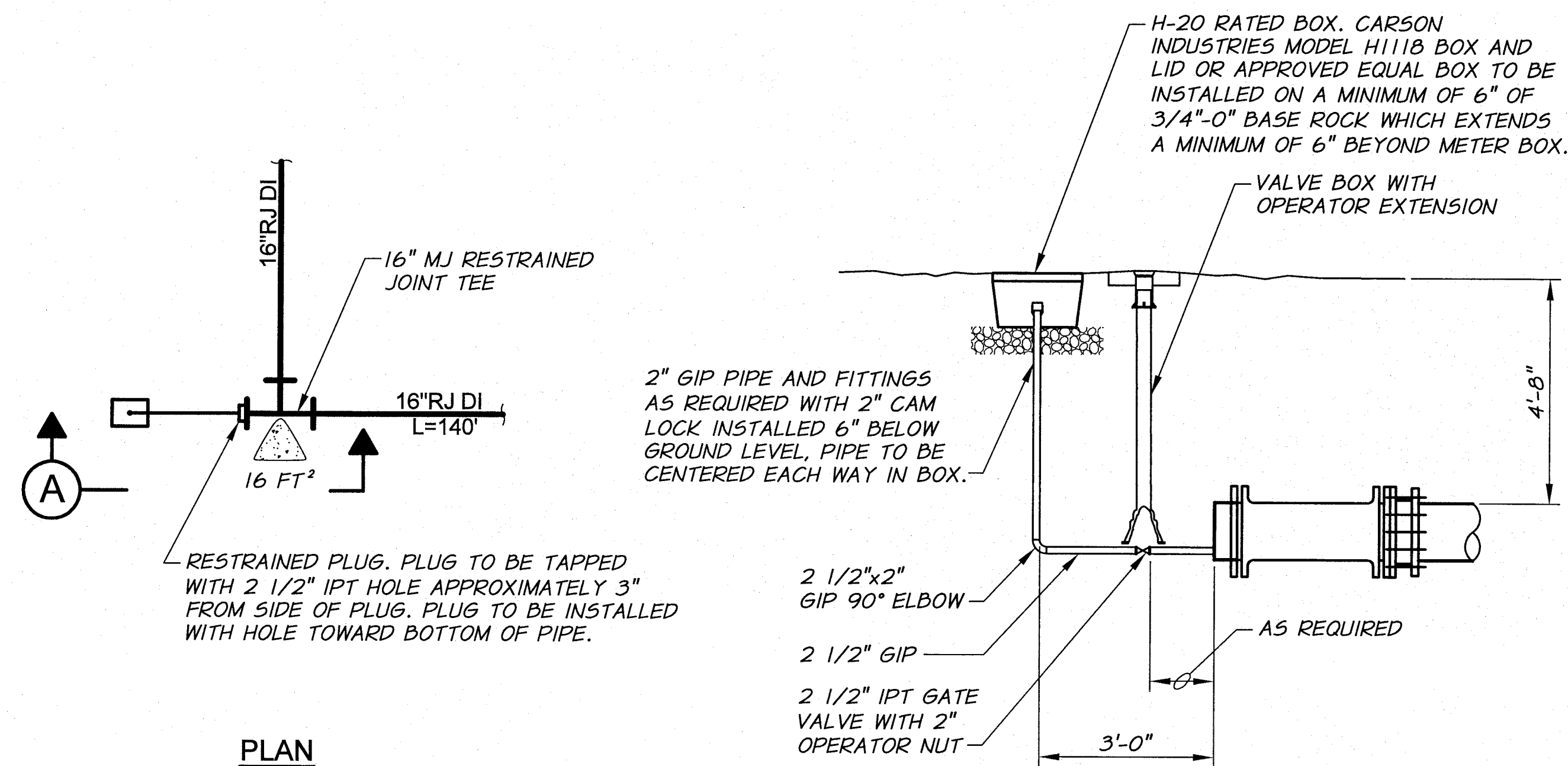
**DETAIL AZ**  
REFERENCE SHEET: 50



**DETAIL BA**  
REFERENCE SHEET: 50



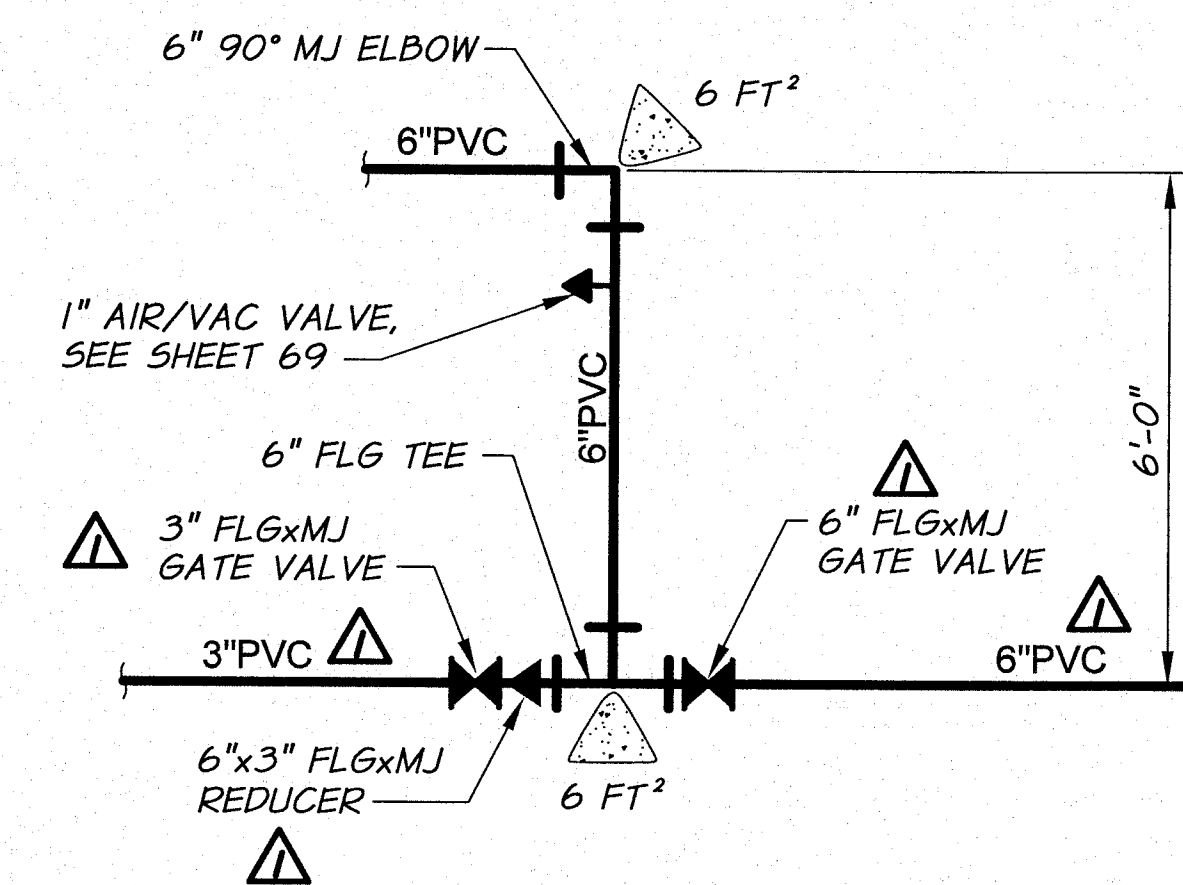
**DETAIL BB**  
REFERENCE SHEET: 51



**PLAN**

**SECTION A**

**DETAIL BC**  
REFERENCE SHEET: 51



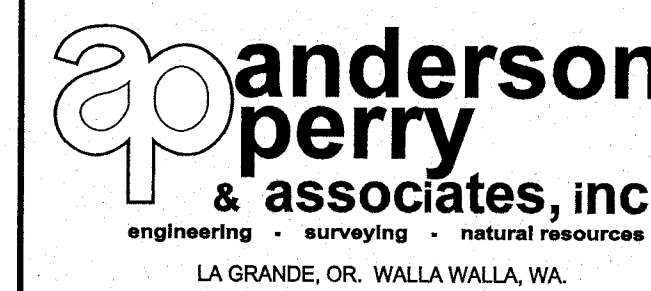
**DETAIL BD**  
REFERENCE SHEET: 4



REVISION		BY	DATE	HORIZ. SCALE	VERT. SCALE
RECORD DRAWING		E.H.	4/12	NONE	
DESIGNED BY	R. HARRIS	XREFS:	TB-BID.dwg	JOB NUMBER	1199-336
DRAWN BY	P. RICHARDSON	ACAD FILE:	WATERPIPINGDETS.dwg	DATE	2010
REVIEWED BY	J. HOLLOPETER	COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

**RECORD DRAWINGS**

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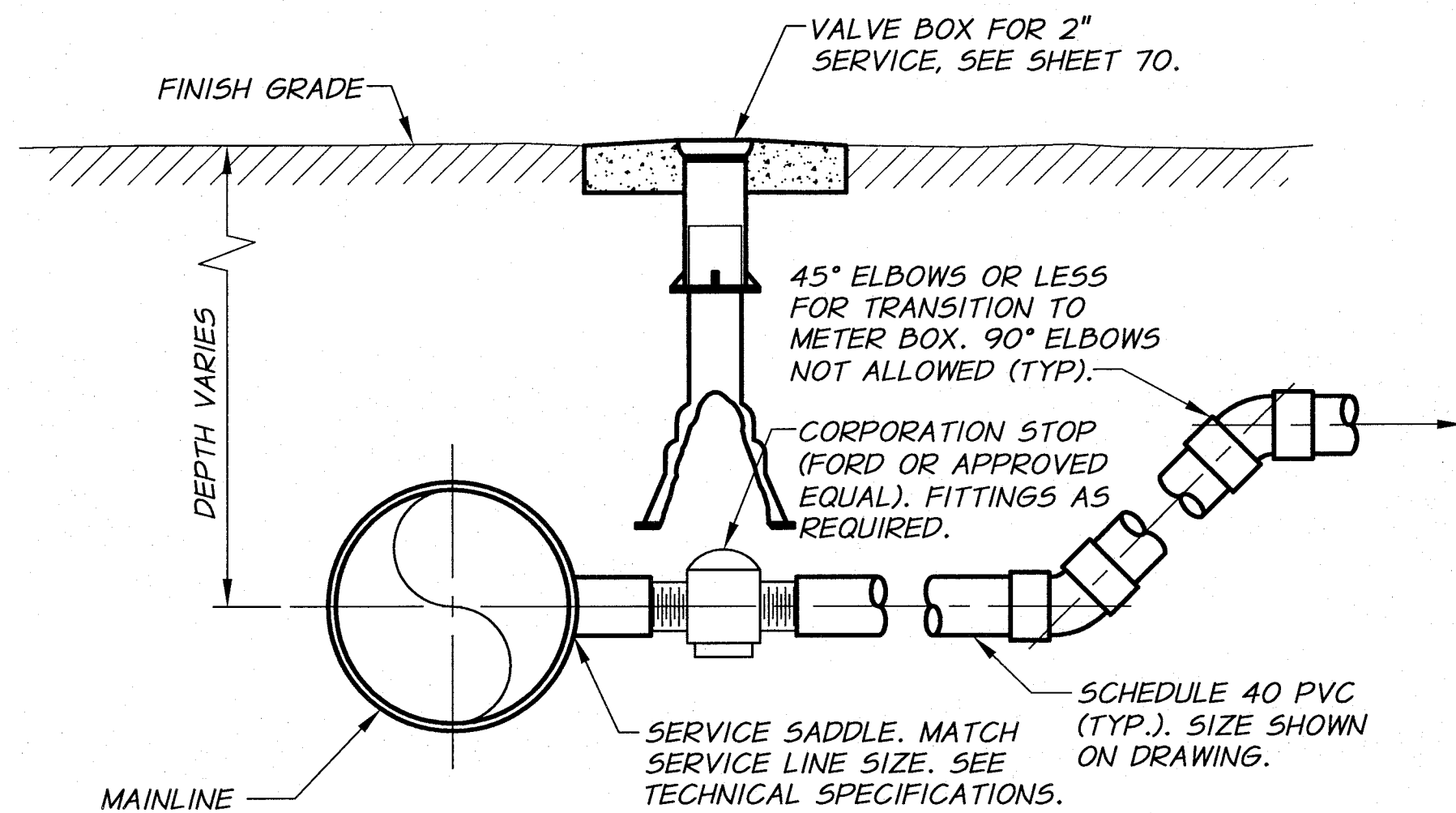


**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

PIPE CONNECTION DETAILS III

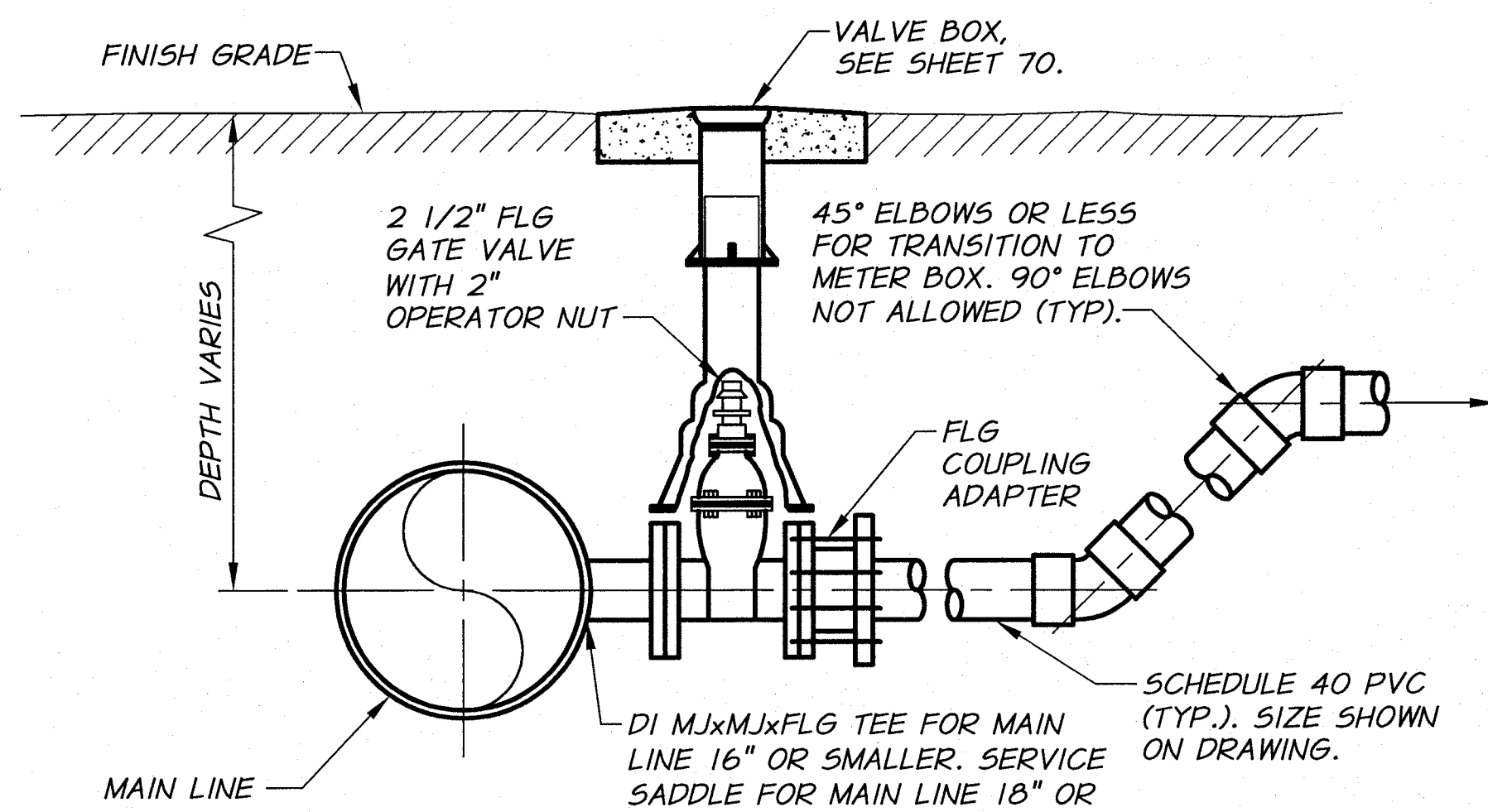
SHEET

**55**



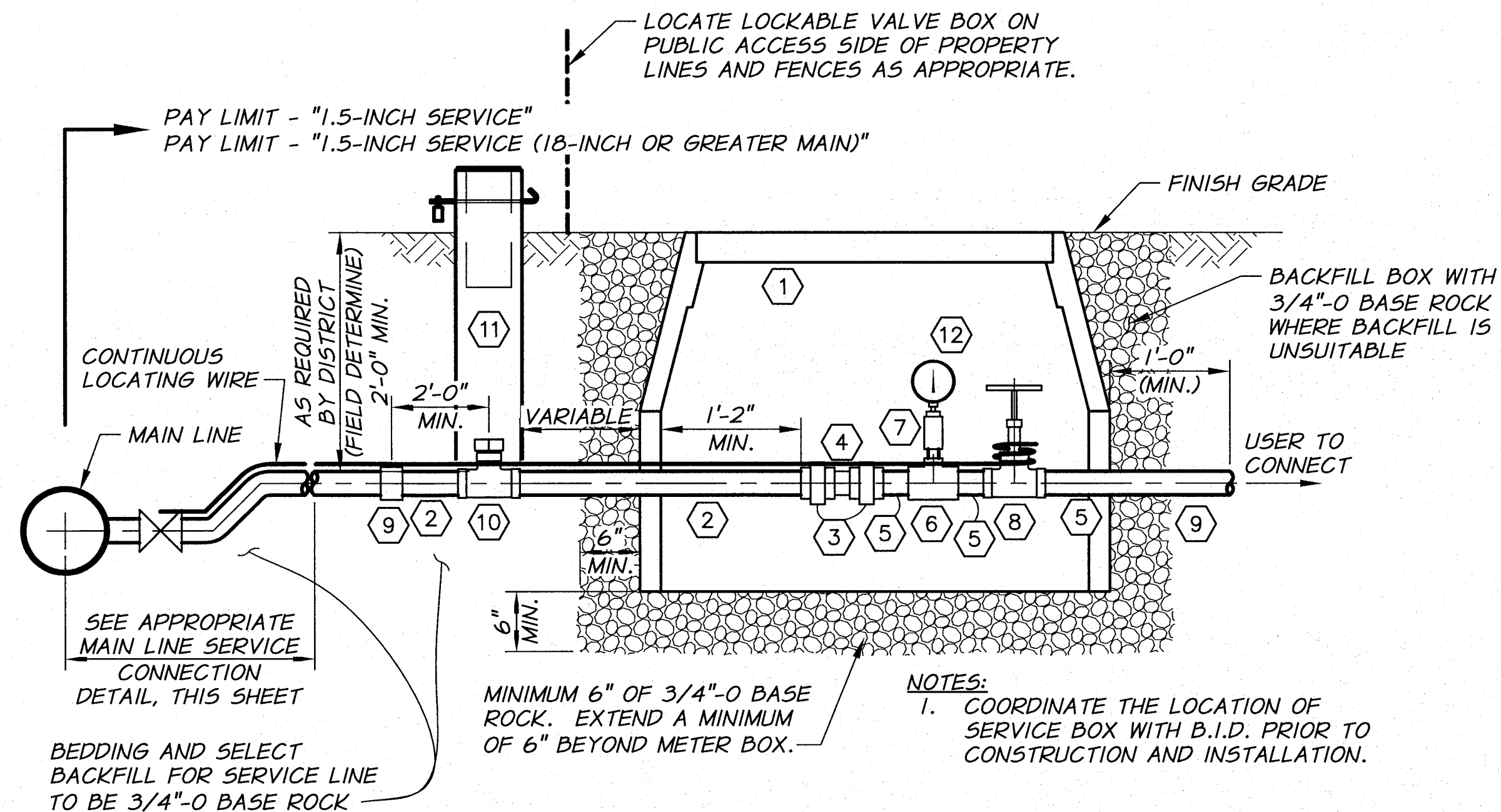
- NOTES:**
- SERVICES ON 18" OR LARGER MAIN LINE SHALL BE MADE WITH SERVICE SADDLES MADE SPECIFICALLY FOR THE PIPE SIZE AND TYPE.
  - COORDINATE THE LOCATION OF SERVICE LINE CONNECTION WITH B.I.D. PRIOR TO CONSTRUCTION AND INSTALLATION.

**MAIN LINE SERVICE CONNECTION  
FOR 1.5" AND 2" SERVICE  
N.T.S.**



- NOTES:**
- SERVICES ON 18" OR LARGER MAIN LINE SHALL BE MADE WITH SERVICE SADDLES DESIGNED SPECIFICALLY FOR THE PIPE SIZE AND TYPE.
  - COORDINATE THE LOCATION OF SERVICE LINE CONNECTION WITH B.I.D. PRIOR TO CONSTRUCTION AND INSTALLATION.

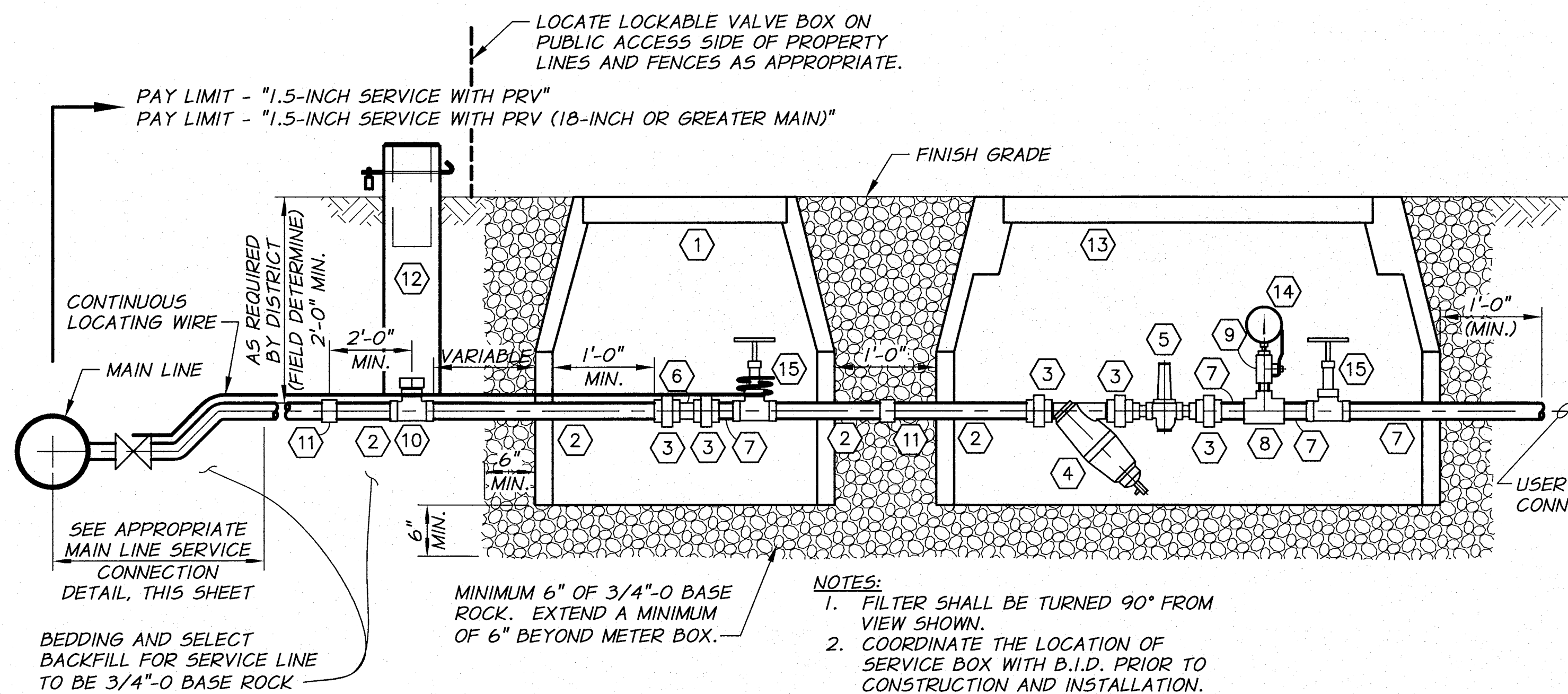
**MAIN LINE SERVICE CONNECTION  
FOR 2.5" SERVICE  
N.T.S.**



**TYPICAL 1.5" SERVICE DETAIL  
WITHOUT PRESSURE REDUCING VALVE  
N.T.S.**

**SERVICE FITTING SCHEDULE**

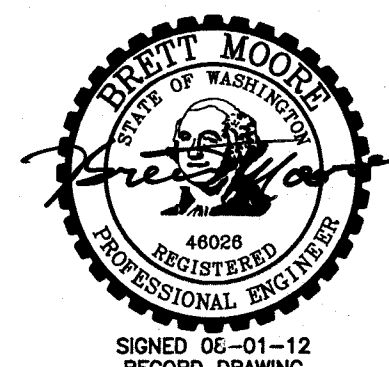
- CARSON INDUSTRIES MODEL 2436-36 VAULT WITH LID. INSTALL IN NON-TRAFFIC BEARING ZONE.
- SCH. 40 G.I.P. PIPE
- G.I.P. UNION
- DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
- THREADED SCH. 40 G.I.P. SPOOL, LENGTH AS REQUIRED.
- SIZE x 3/4" G.I.P. TEE
- 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED)
- BRASS THREADED GATE VALVE
- TRANSITION COUPLING AND FITTINGS AS REQ'D
- CORP STOP WITH 2" OPERATOR NUT FOR 1.5" SERVICE.
- LOCKABLE VALVE BOX. SEE DETAIL, SHEET 70.
- BRASS QUICK COUPLING SOCKET (UNVALVED). ORIENT COUPLING SO THAT INSTALLED, OWNER SUPPLIED, GAUGE IS VIEWABLE FROM ACCESS OPENING.



**TYPICAL 1.5" SERVICE DETAIL  
WITH PRESSURE REDUCING VALVE  
N.T.S.**

**SERVICE FITTING SCHEDULE**

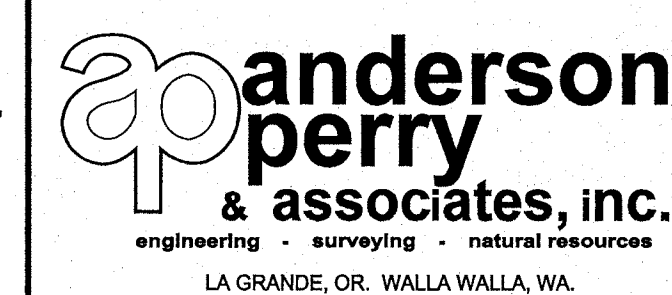
- CARSON INDUSTRIES MODEL 2424-36 VAULT WITH LID. INSTALL IN NON-TRAFFIC BEARING ZONE.
- SCH. 40 G.I.P. PIPE
- G.I.P. UNION OR G.I.P. REDUCING UNION AS REQUIRED
- Y-STRAINER WITH 40 MESH FILTER SCREEN. AMIAD FILTER NO. 1-1601 1-1/2" SUPER FILTER
- CLA-VAL 990 PRESSURE REDUCING VALVE. SIZE AS SHOWN ON PLANS. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.
- DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
- THREADED SCH. 40 G.I.P. SPOOL, LENGTH AS REQUIRED.
- 1-1/2"x3/4" G.I.P. TEE
- 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED).
- 1-1/2" CORP STOP WITH 2" OPERATOR NUT
- TRANSITION COUPLING AND FITTINGS AS REQ'D
- LOCKABLE VALVE BOX. SEE DETAIL, SHEET 70.
- CARSON INDUSTRIES MODEL 2448-36 VAULT WITH LID. INSTALL IN NON-TRAFFIC BEARING ZONE.
- BRASS QUICK COUPLING SOCKET (UNVALVED). ORIENT COUPLING SO THAT INSTALLED, OWNER SUPPLIED, GAUGE IS VIEWABLE FROM ACCESS OPENING.
- 1-1/2" BRASS THREADED GATE VALVE



REVISION	BY	DATE	HORIZ. SCALE NONE	VERT. SCALE
DESIGNED BY R. HARRIS			JOB NUMBER 1199-336	DATE 2010
DRAWN BY D. CHRISTMAN			ACAD FILE: ServiceDets.dwg	
REVIEWED BY J. HOLLOPETER			COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.	

**RECORD DRAWINGS**

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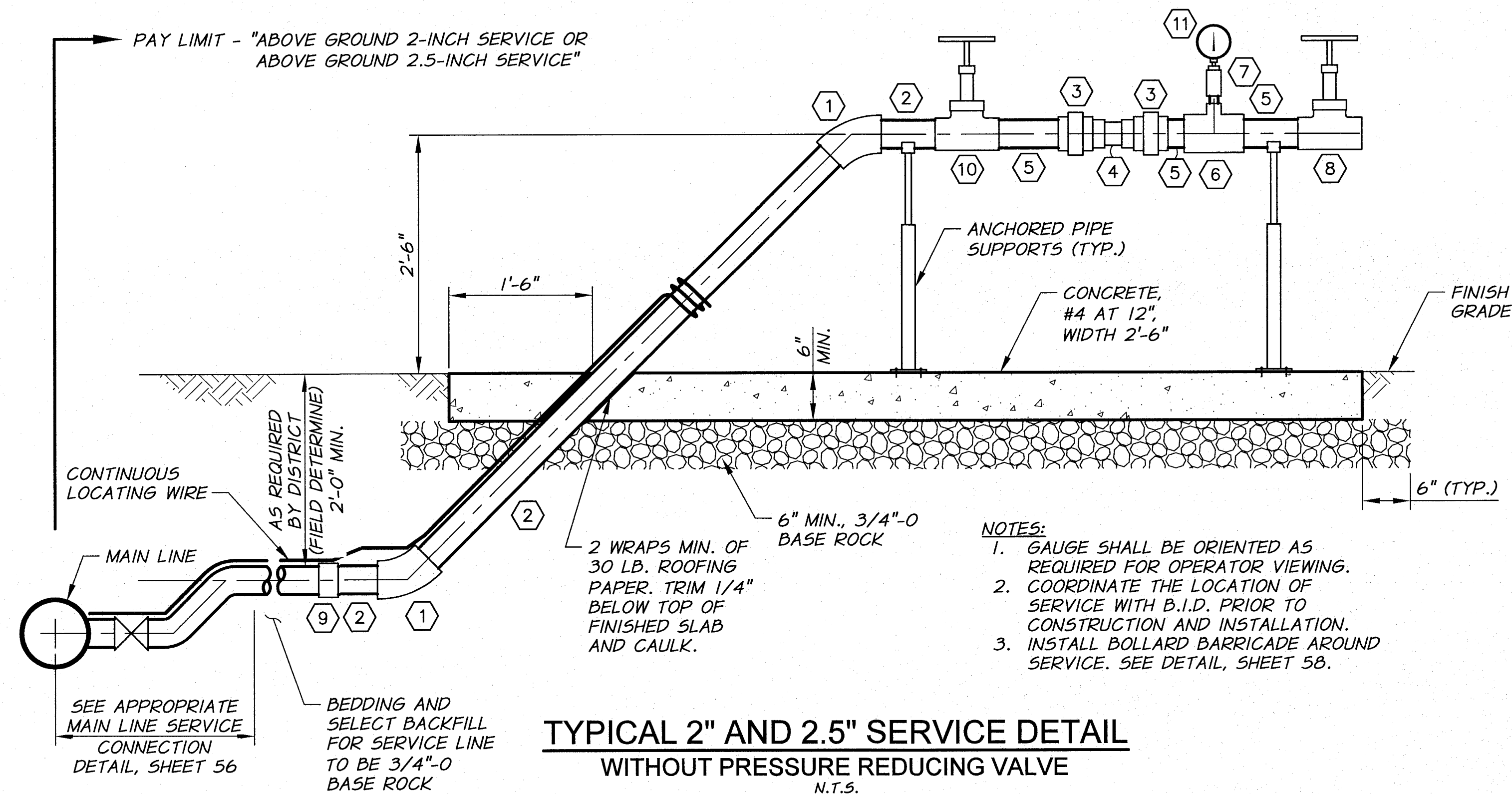


**BENTON IRRIGATION DISTRICT  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A**

SERVICE DETAILS I

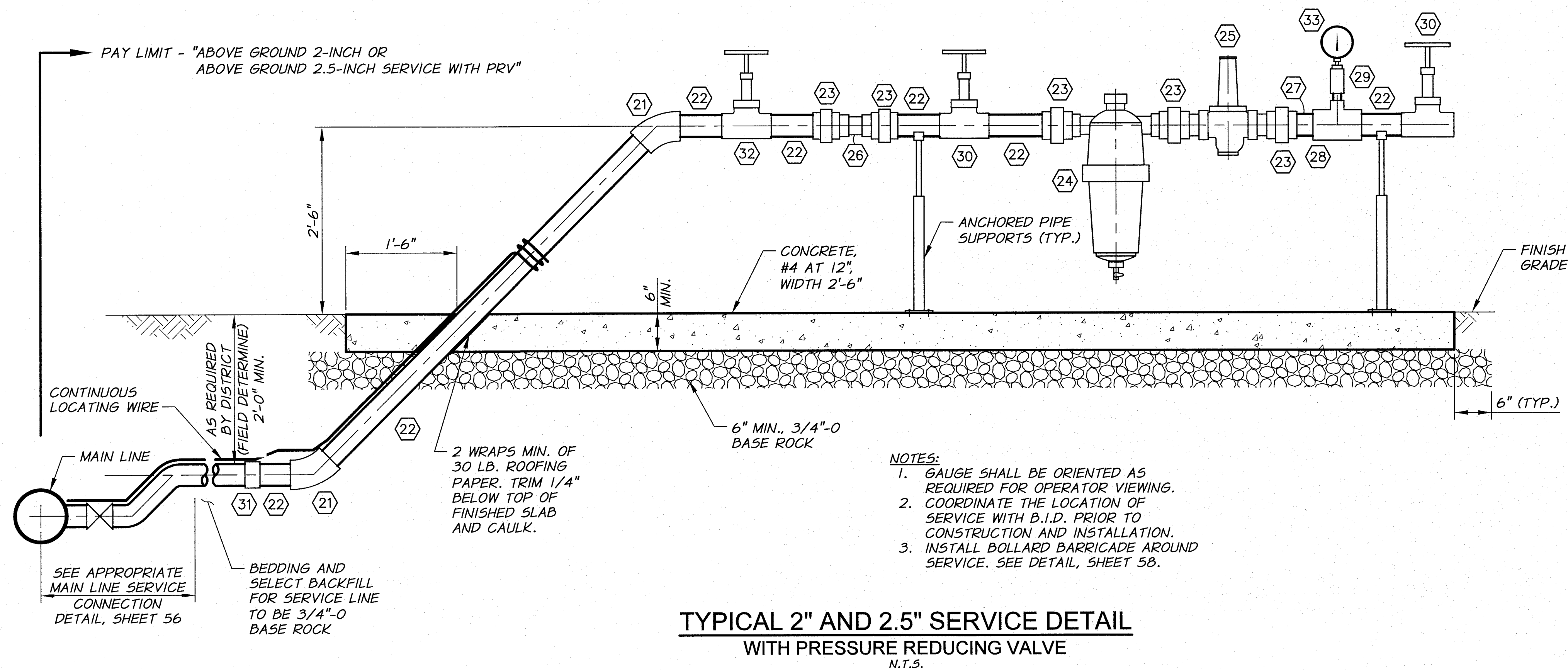
SHEET

56



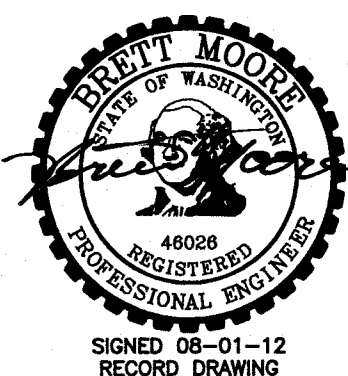
**SERVICE FITTING SCHEDULE**

- 1 6.I.P. 45° ELBOW
- 2 SCH. 40 6.I.P. PIPE
- 3 6.I.P. UNION
- 4 DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
- 5 THREADED SCH. 40 6.I.P. SPOOL, LENGTH AS REQUIRED.
- 6 SIZE x 3/4" 6.I.P. TEE
- 7 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED)
- 8 BRASS THREADED GATE VALVE
- 9 TRANSITION COUPLING AND FITTINGS AS REQ'D
- 10 2" LOCKING THREADED BRASS GATE VALVE WITH 2 1/2"x2" BUSHINGS AS REQ'D
- 11 BRASS QUICK COUPLING SOCKET (UNVALVED) GAUGE BY OWNER



**SERVICE FITTING SCHEDULE**

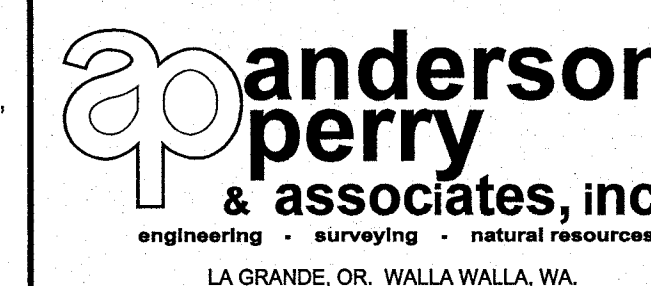
- 21 6.I.P. 45° ELBOW
- 22 SCH. 40 6.I.P. PIPE
- 23 6.I.P. UNION OR 6.I.P. REDUCING UNION AS REQUIRED
- 24 STRAINER WITH 40 MESH FILTER SCREEN. AMIAD FILTER 2" T-SUPER
- 25 CLA-VAL 990 PRESSURE REDUCING VALVE. SIZE AS SHOWN ON PLANS. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.
- 26 DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
- 27 SCH. 40 6.I.P. SPOOL
- 28 SIZE x 3/4" 6.I.P. TEE
- 29 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED)
- 30 BRASS THREADED GATE VALVE
- 31 TRANSITION COUPLING AND FITTINGS AS REQ'D
- 32 2" LOCKING THREADED BRASS GATE VALVE WITH 2 1/2"x2" BUSHINGS AS REQUIRED
- 33 BRASS QUICK COUPLING SOCKET (UNVALVED) GAUGE BY OWNER.



REVISION	BY	DATE	HORZ. SCALE	NONE	VERT. SCALE
DESIGNED BY	R. HARRIS		JOB NUMBER	1199-336	DATE
DRAWN BY	D. CHRISTMAN		ACAD FILE	ServiceDets.dwg	
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.		

**RECORD DRAWINGS**

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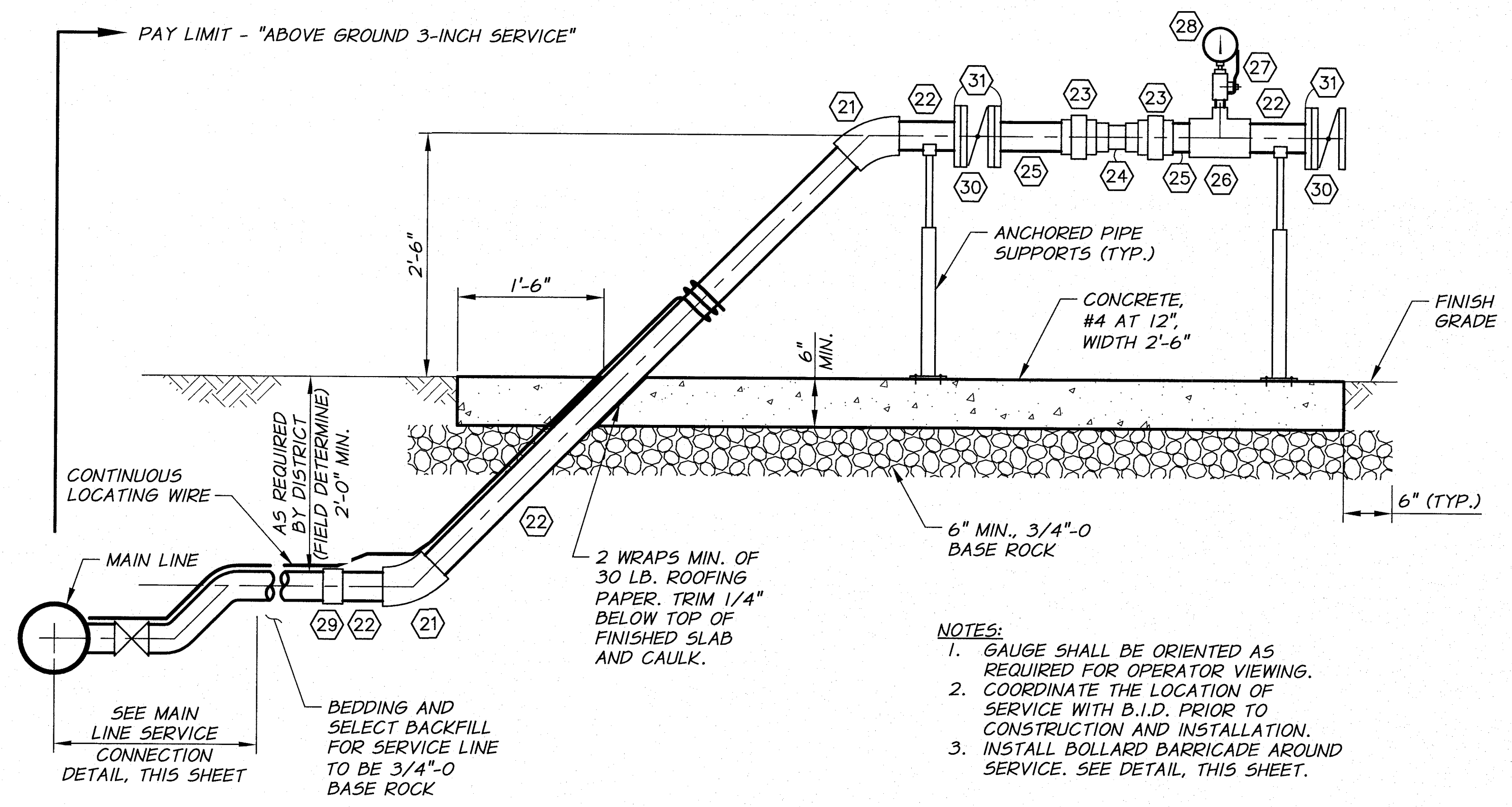
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

SERVICE DETAILS II

SHEET

57

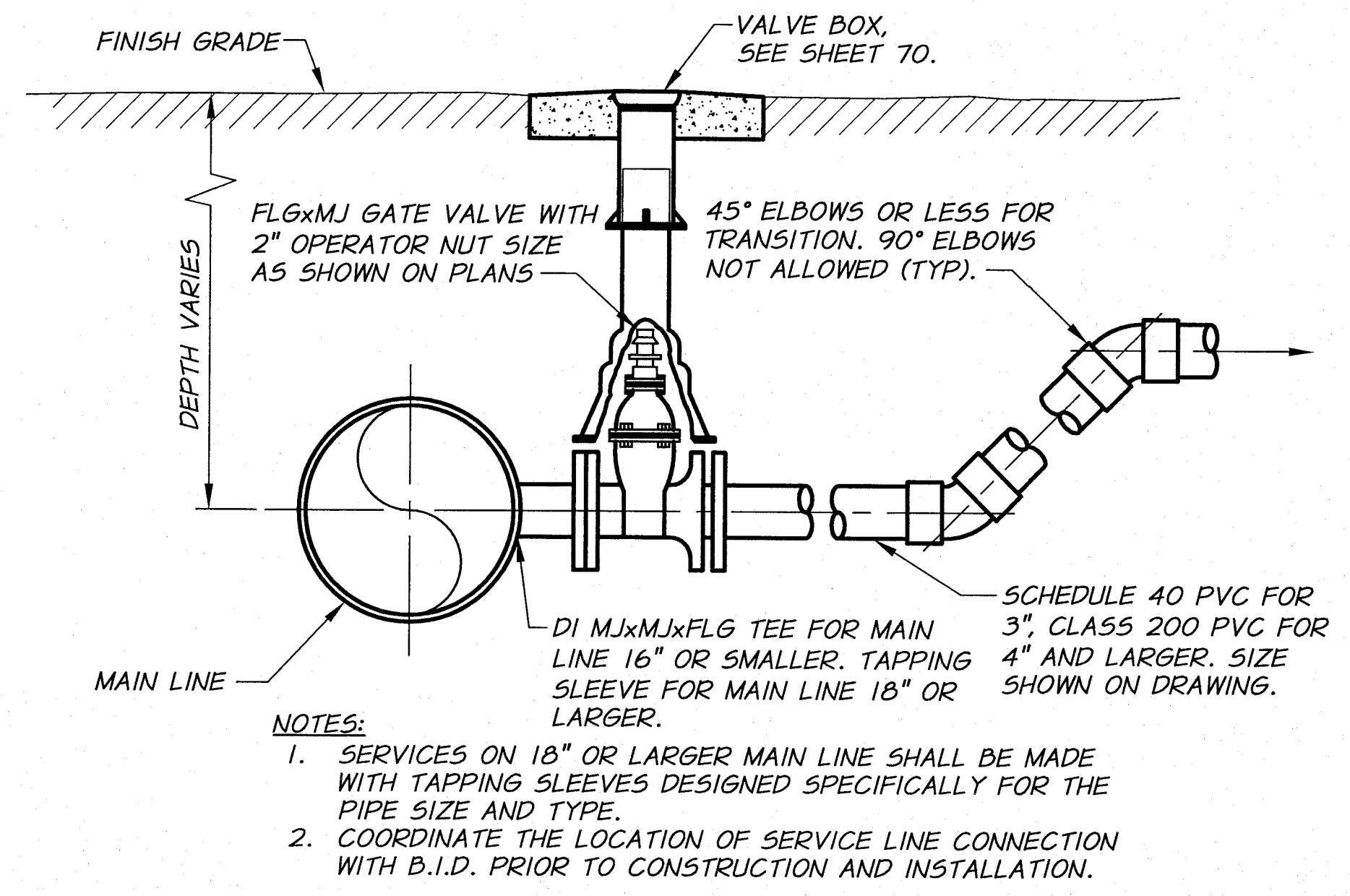
ARCHIVED



- NOTES:**
1. GAUGE SHALL BE ORIENTED AS REQUIRED FOR OPERATOR VIEWING.
  2. COORDINATE THE LOCATION OF SERVICE WITH B.I.D. PRIOR TO CONSTRUCTION AND INSTALLATION.
  3. INSTALL BOLLARD BARRICADE AROUND SERVICE. SEE DETAIL, THIS SHEET.

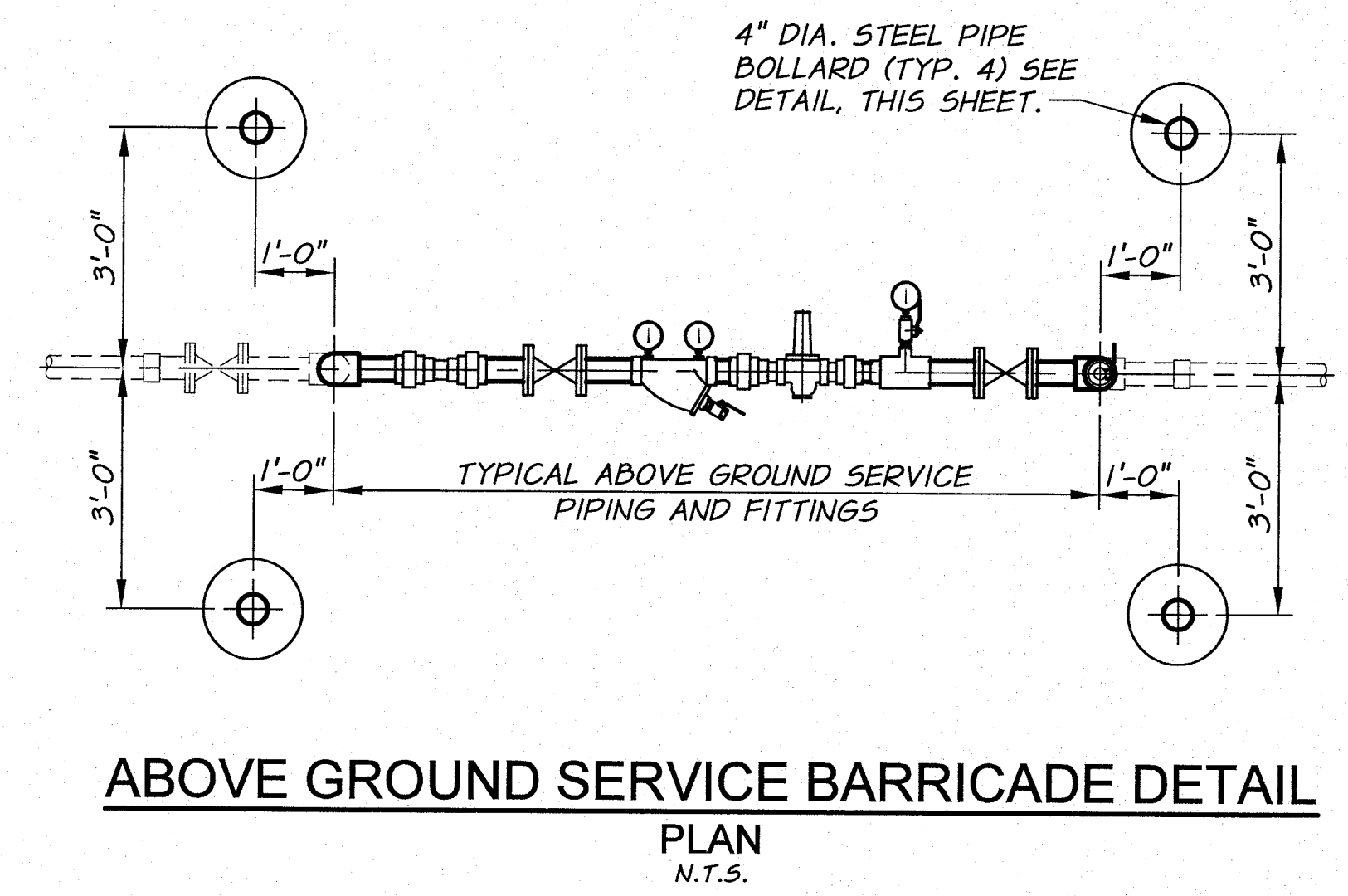
- SERVICE FITTING SCHEDULE**
- (21) G.I.P. ELBOW
  - (22) SCH. 40 G.I.P. PIPE
  - (23) G.I.P. UNION OR G.I.P. REDUCING UNION AS REQUIRED
  - (24) DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
  - (25) THREADED SCH. 40 G.I.P. SPOOL, LENGTH AS REQUIRED.
  - (26) SIZE x 3/4" G.I.P. TEE
  - (27) 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED)
  - (28) BRASS QUICK COUPLING SOCKET (UNVALVED) GAUGE BY OWNER
  - (29) TRANSITION COUPLING AND FITTINGS AS REQ'D
  - (30) 3" BUTTERFLY VALVE WITH WHEEL OPERATOR AND POSITION INDICATOR
  - (31) FLG ADAPTER

**TYPICAL 3" SERVICE DETAIL  
WITHOUT PRESSURE REDUCING VALVE  
N.T.S.**

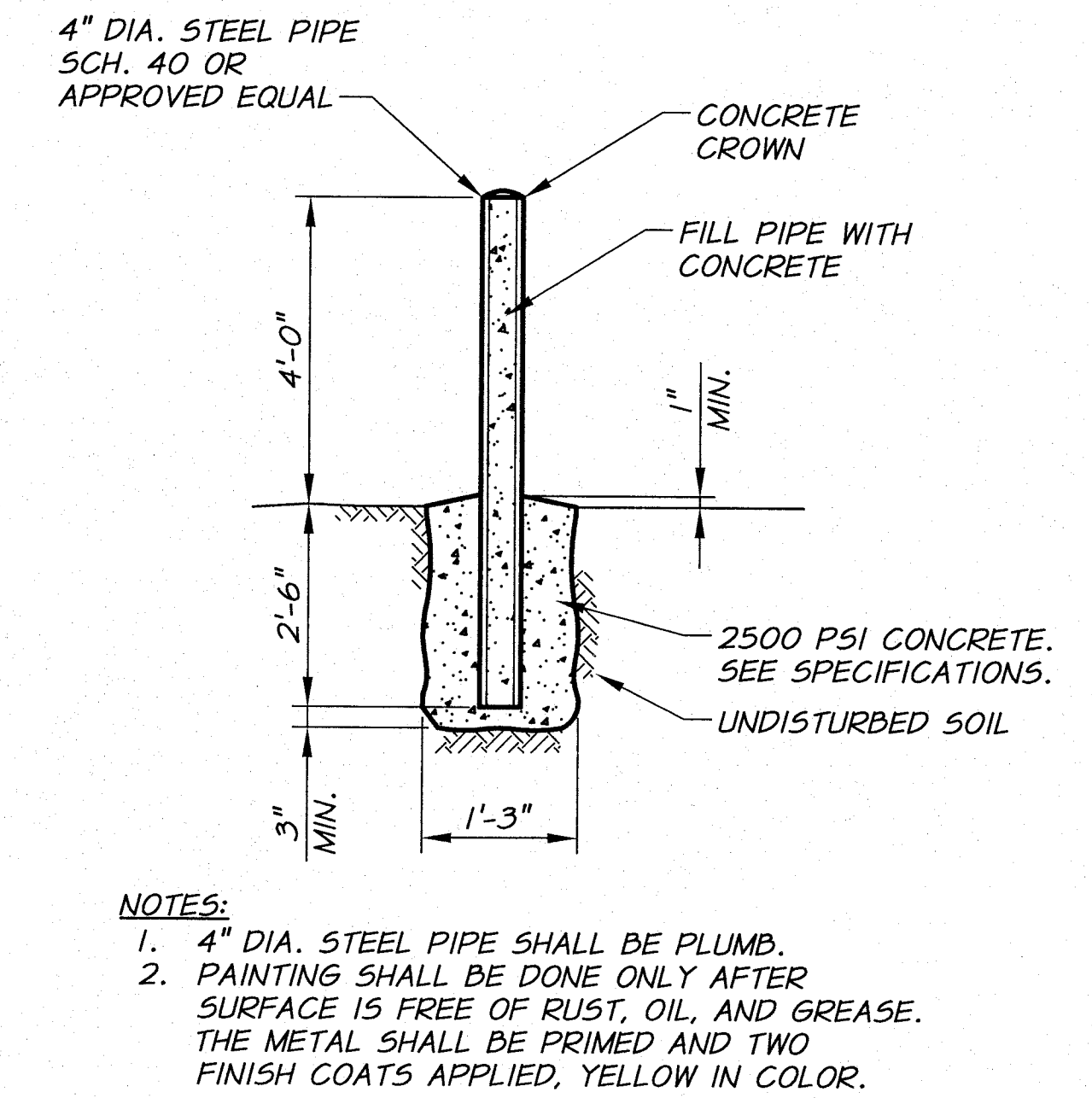


- NOTES:**
1. SERVICES ON 18" OR LARGER MAIN LINE SHALL BE MADE WITH TAPPING SLEEVES DESIGNED SPECIFICALLY FOR THE PIPE SIZE AND TYPE.
  2. COORDINATE THE LOCATION OF SERVICE LINE CONNECTION WITH B.I.D. PRIOR TO CONSTRUCTION AND INSTALLATION.

**MAIN LINE SERVICE CONNECTION  
FOR 3" SERVICE AND LARGER  
N.T.S.**

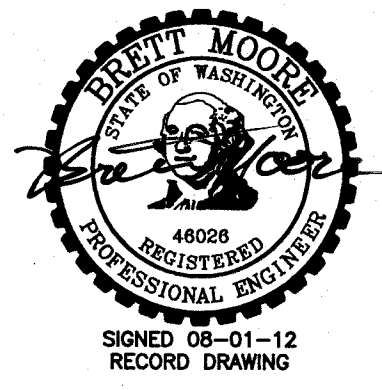


**ABOVE GROUND SERVICE BARRICADE DETAIL  
PLAN  
N.T.S.**



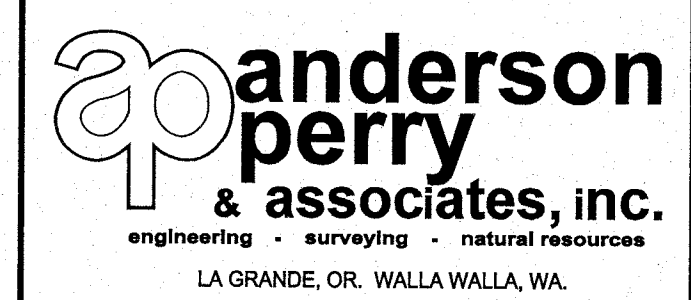
- NOTES:**
1. 4" DIA. STEEL PIPE SHALL BE PLUMB.
  2. PAINTING SHALL BE DONE ONLY AFTER SURFACE IS FREE OF RUST, OIL, AND GREASE. THE METAL SHALL BE PRIMED AND TWO FINISH COATS APPLIED, YELLOW IN COLOR.

**BOLLARD DETAIL  
N.T.S.**



REVISION	BY	DATE	HORIZ. SCALE	VERT. SCALE
DESIGNED BY	R. HARRIS		NONE	
DRAWN BY	D. CHRISTMAN		JOB NUMBER	1199-336
REVIEWED BY	J. HOLLOPETER		ACAD FILE:	ServiceDets.dwg
			DATE	2010
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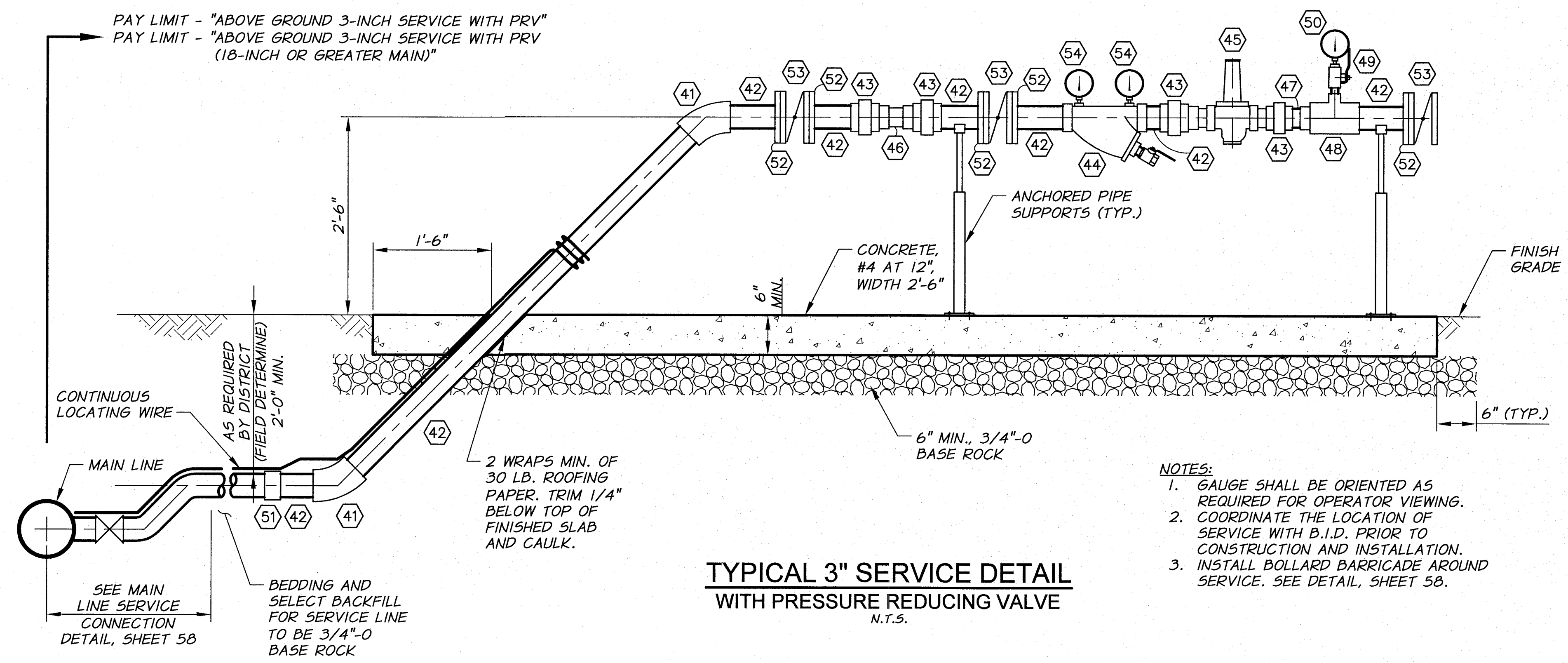
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**BENTON IRRIGATION DISTRICT  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A**

SERVICE DETAILS III

SHEET  
**58**

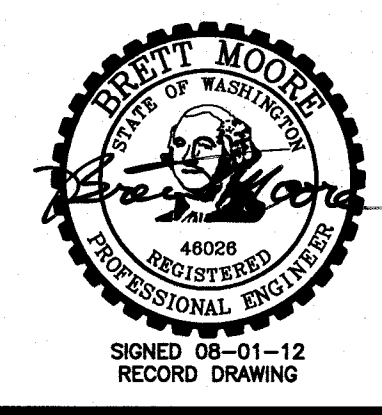


**SERVICE FITTING SCHEDULE**

- 41 G.I.P. 45° ELBOW
- 42 SCH. 40 G.I.P. PIPE
- 43 G.I.P. UNION OR G.I.P. REDUCING UNION AS REQUIRED
- 44 3" SONNTAG ALUMINUM Y-FILTER WITH 40 MESH FILTER SCREEN
- 45 CLA-VAL 990 PRESSURE REDUCING VALVE. SIZE AS SHOWN ON PLANS. SEE TECHNICAL SPECIFICATIONS FOR DETAILS.
- 46 DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS.
- 47 SCH. 40 G.I.P. SPOOL
- 48 3"x3/4" G.I.P. TEE
- 49 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" BUSHING AND BRASS QUICK COUPLING PLUG (UNVALVED)
- 50 BRASS QUICK COUPLING SOCKET (UNVALVED) GAUGE BY OWNER
- 51 TRANSITION COUPLING AND FITTINGS AS REQ'D
- 52 FLANGE ADAPTER
- 53 3" FLG BUTTERFLY VALVE WITH WHEEL OPERATOR AND POSITION INDICATOR
- 54 4" SS GLYCERIN FILLED PRESSURE GAUGE. FITTINGS AS REQUIRED.

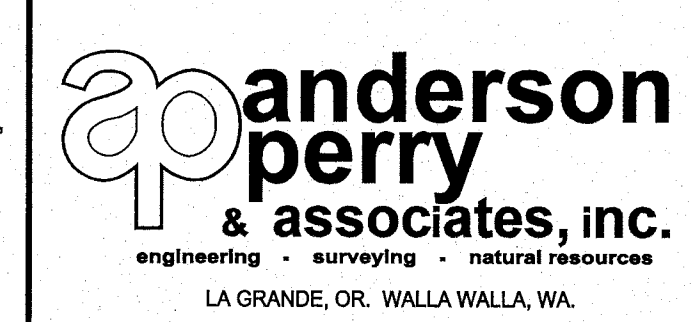
- NOTES:**
1. GAUGE SHALL BE ORIENTED AS REQUIRED FOR OPERATOR VIEWING.
  2. COORDINATE THE LOCATION OF SERVICE WITH B.I.D. PRIOR TO CONSTRUCTION AND INSTALLATION.
  3. INSTALL BOLLARD BARRICADE AROUND SERVICE. SEE DETAIL, SHEET 58.

**TYPICAL 3" SERVICE DETAIL WITH PRESSURE REDUCING VALVE**  
N.T.S.



DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER	1199-336	DATE	2010
DRAWN BY	D. CHRISTMAN		ACAD FILE	ServiceDets.dwg		
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

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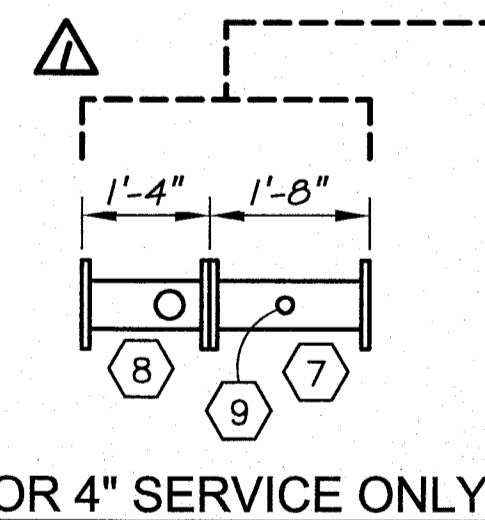
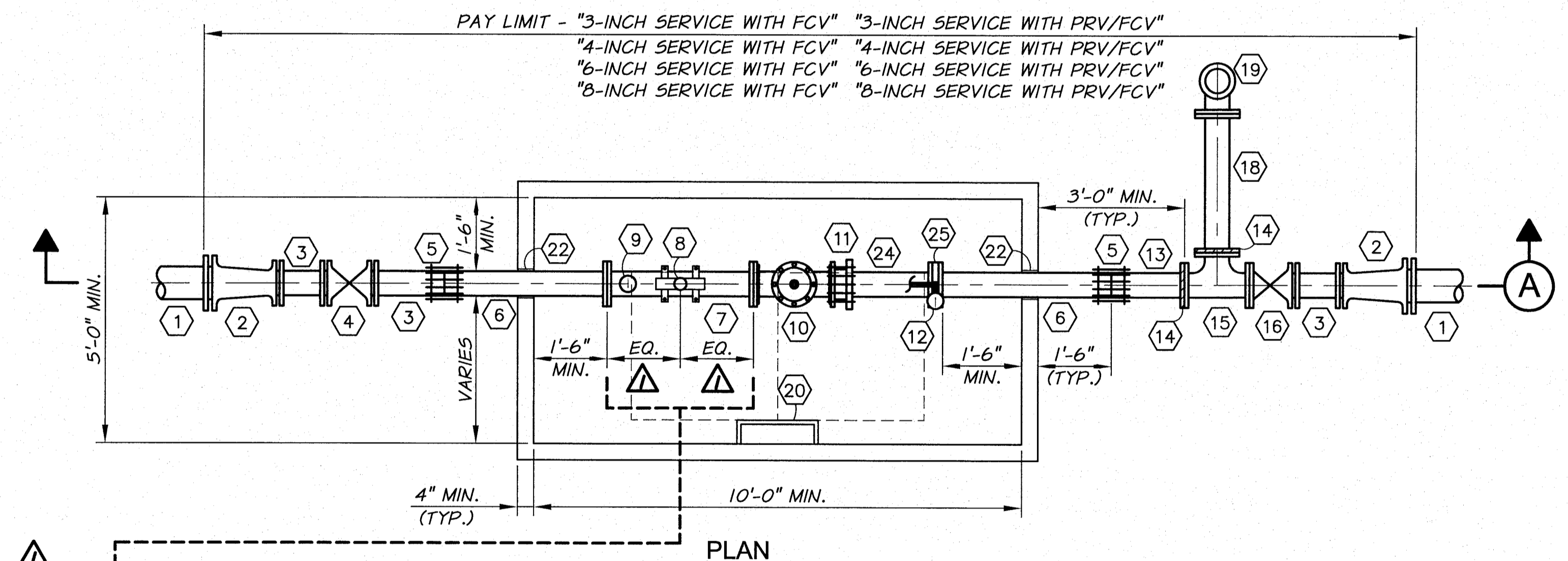
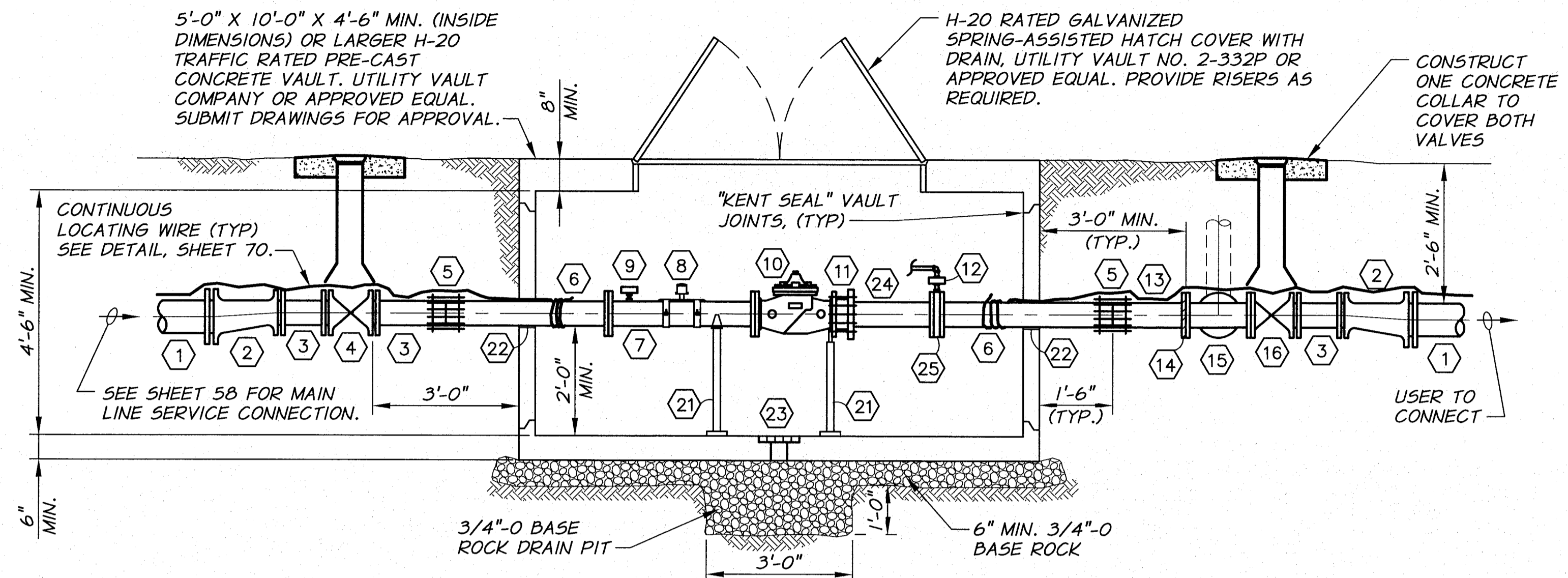
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
  
SERVICE DETAILS IV

SHEET  
**59**

**FITTING SCHEDULE**

- ① SERVICE LINE PVC PIPING
- ② MJ ECCENTRIC REDUCER
- ③ CLASS 200 PVC PIPING
- ④ MJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70.
- ⑤ COUPLING
- ⑥ FLG X PE D.I. SPOOL, LENGTH AS REQUIRED
- ⚠ ⑦ FOR 4" SERVICE: 3" FLG DI SPOOL x 1'-8" L.G.  
FOR 6" SERVICE: 4" FLG GIP SPOOL x 4'-0" L.G.  
FOR 8" SERVICE: 6" FLG DI SPOOL x 4'-0" L.G.
- ⚠ ⑧ FOR 4" SERVICE: 3" MICROMETER FLOWMETER MODEL MWS00  
FOR 6" AND 8" SERVICE: MICROMETER FLOWMETER MODEL LP 32
- ⑨ FOR PRV/FCV SERVICE ONLY: 3/4" TAPPING SADDLE WITH 3/4" THREADED BRASS BALL VALVE, 3/4"x1/4" BUSHING, AND BRASS QUICK COUPLING PLUG (UNVALVED)
- ⑩ CLA-VAL 49-01 FLOW CONTROL OR COMBINATION FLOW CONTROL AND PRESSURE REDUCING VALVE, TYPE AS SHOWN ON PLANS. SEE TABLE 1, THIS SHEET, AND SPECIFICATIONS FOR DETAILS.
- ⑪ RESTRAINED FLANGE COUPLING ADAPTER
- ⑫ BRASS QUICK COUPLING PLUG (UNVALVED) AND FITTINGS AS REQUIRED ON ORIFICE PILOT PIPING. PROVIDE ADDITIONAL ISOLATION VALVE.
- ⑬ PE DI SPOOL LENGTH AS REQUIRED
- ⑭ FLANGE COUPLING ADAPTER
- ⑮ FLG SIZE x SIZE x SIZE TEE, BRANCH NOT TO EXCEED 6"
- ⑯ FLG x MJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70.
- ⑰ RESERVED
- ⑱ FLG x PE SPOOL, LENGTH AS REQUIRED, FITTINGS AS REQUIRED
- ⑲ MAINGUARD BLOW-OFF #7600 (SEE TABLE 1, THIS SHEET). ENCLOSURE TO BE CARSON INDUSTRIES MODEL H2436 TRAFFIC BEARING VAULT AND LID WITH EXTENSIONS AS REQUIRED.
- ⑳ OSHA APPROVED GALVANIZED STEEL LADDER WITH 4 FOOT REMOVABLE EXTENSION
- ㉑ PIPE SUPPORT. SEE TYPICAL PIPE SUPPORT DETAIL SHEET 68.
- ㉒ SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- ㉓ BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE
- ㉔ FLG x PE DI SPOOL x 2 FT. LONG
- ㉕ ORIFICE PLATE

SERVICE SIZE	CONTROL VALVE SIZE	BLOW-OFF INLET	BLOW-OFF OUTLET
4-INCH	3"	4"	4"
6-INCH	4"	⚠ 4"	4"
8-INCH	6"	6"	4"

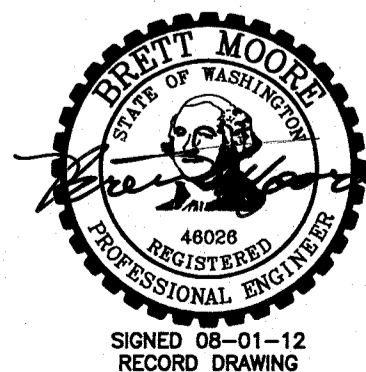


⚠ FOR 4" SERVICE ONLY

- NOTES:**
1. PIPING SIZE TO MATCH CONTROL VALVE SIZE UNLESS OTHERWISE NOTED.
  2. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
  3. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  4. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "-INCH SERVICE FCV" OR THE "-INCH SERVICE PRV/FCV" PAY ITEM.

**4", 6", AND 8" SERVICE WITH PRV/FCV OR FCV DETAIL**

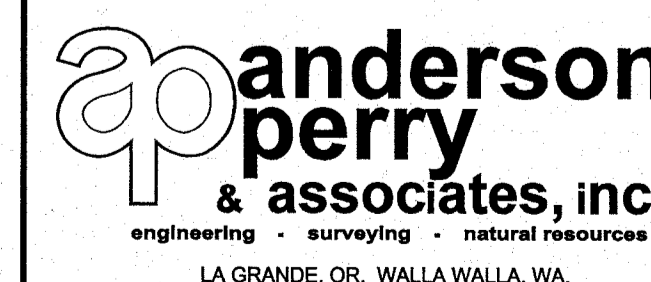
N.T.S.



REVISION		BY	DATE	HORIZ. SCALE	VERT. SCALE
⚠ RECORD DRAWING		E.H.	4/12	1/2"=1'-0"	
DESIGNED BY	XREFS: TB-BID.dwg		JOB NUMBER	DATE	
DRAWN BY			1199-336	2010	
REVIEWED BY			ACAD FILE: IrrgDets-1.dwg		
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**RECORD DRAWINGS**

These record drawings have been prepared, in part, on the basis of information compiled and furnished by others. They may contain some discrepancies and omissions, and do not necessarily represent "exact" field conditions. The Owner and the Engineer accept no responsibility for their accuracy.



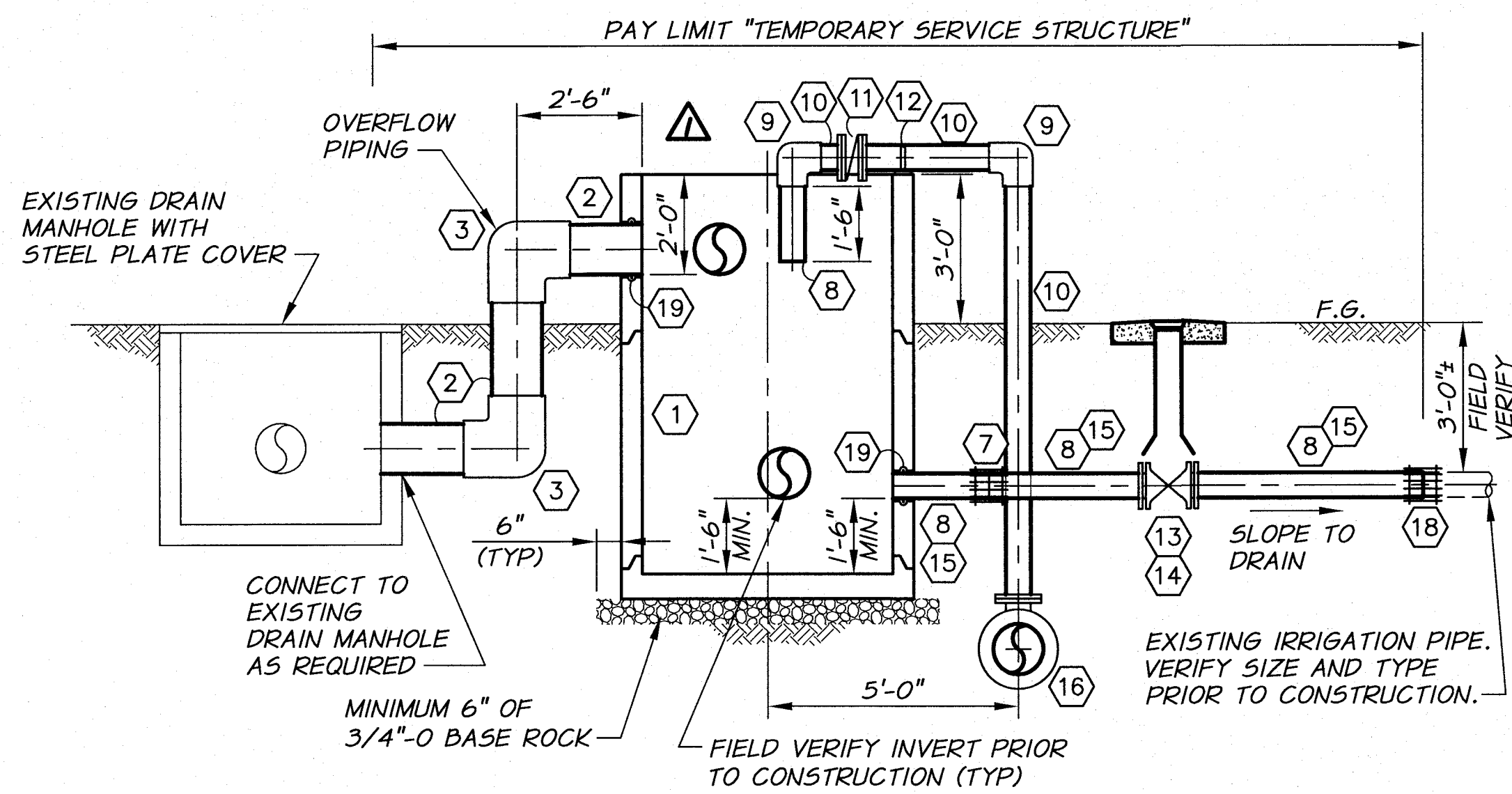
**BENTON IRRIGATION DISTRICT  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A**

SERVICE DETAILS V

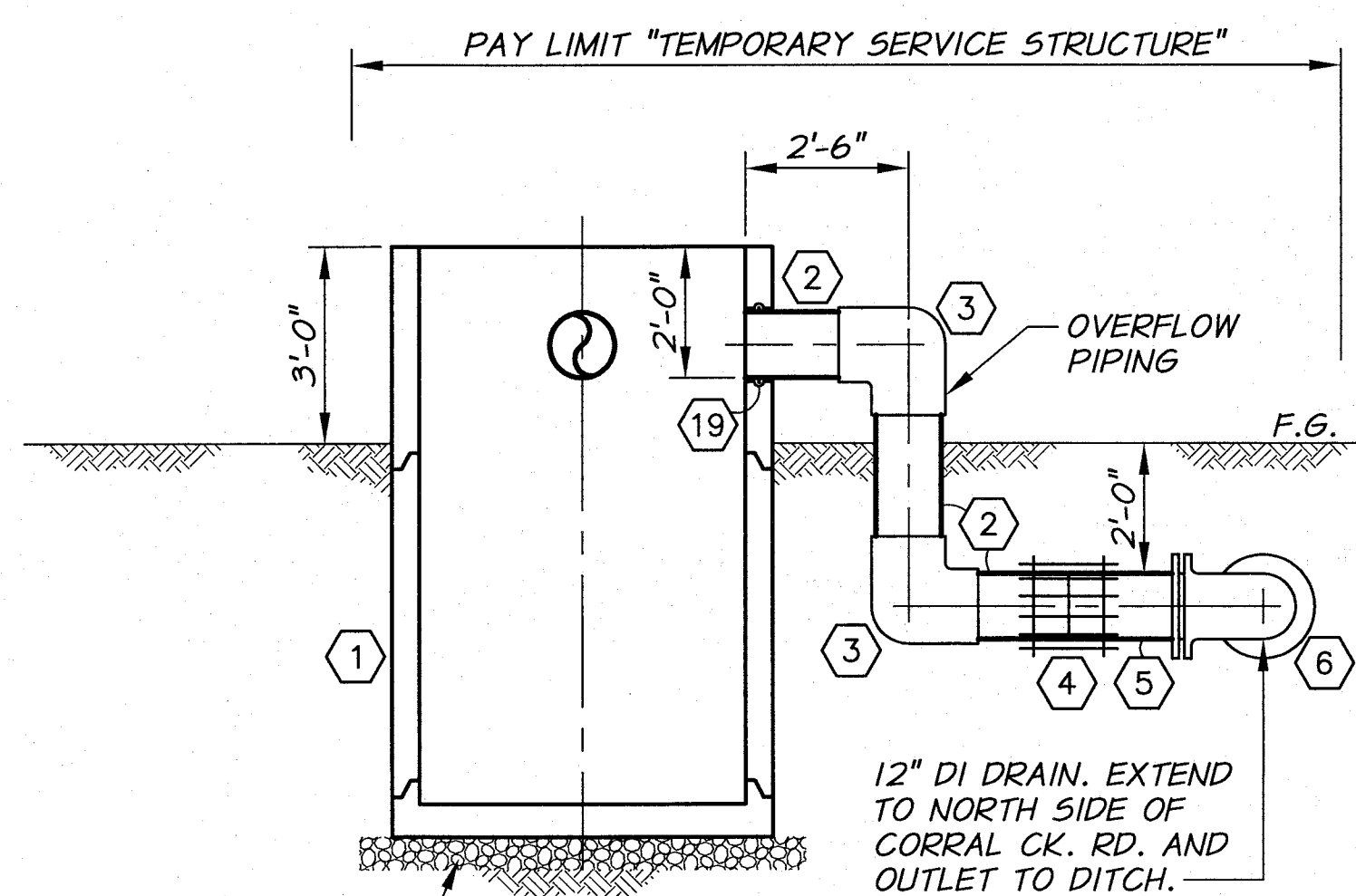
SHEET

**60**

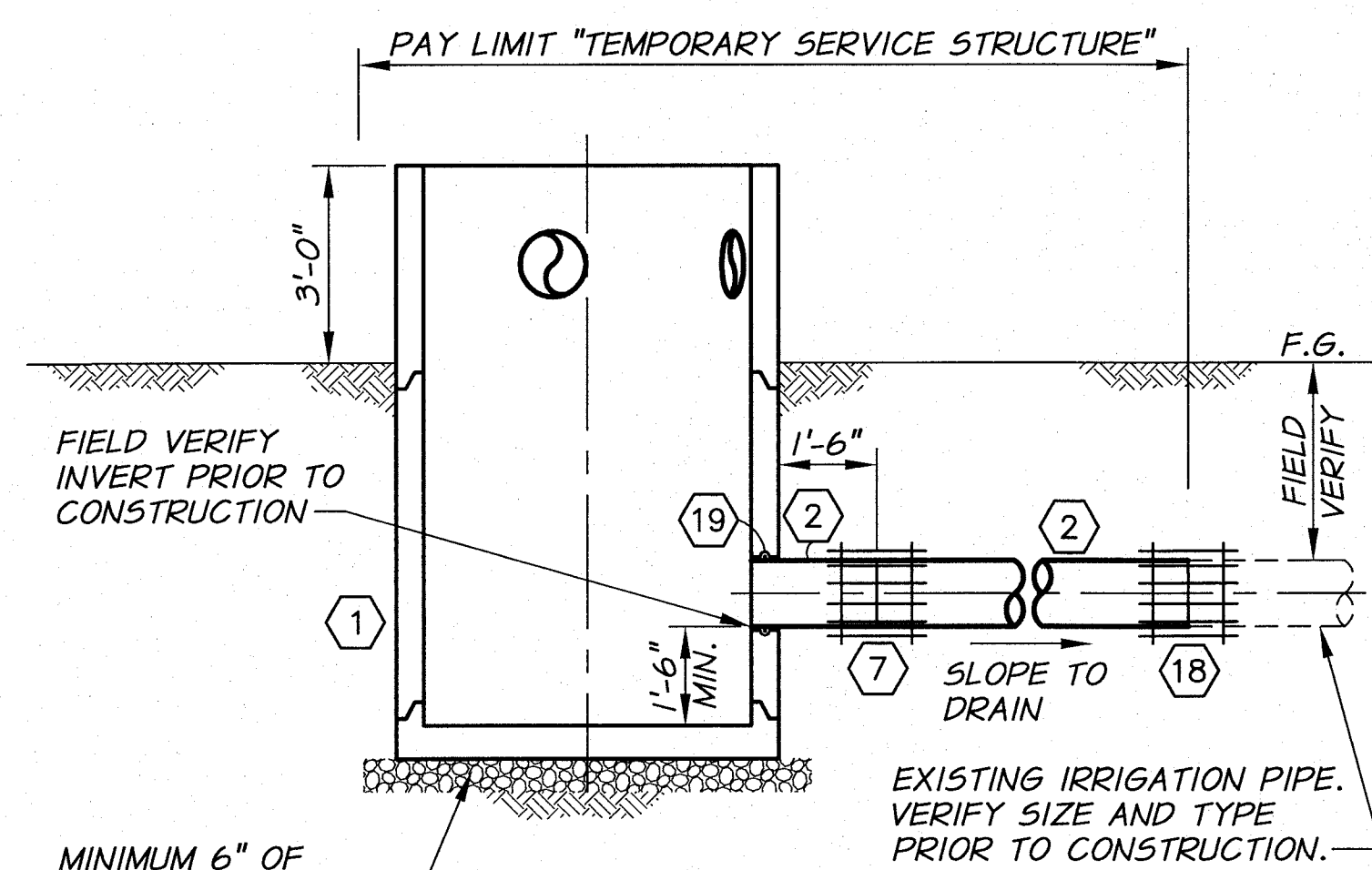
ARCHIVED



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



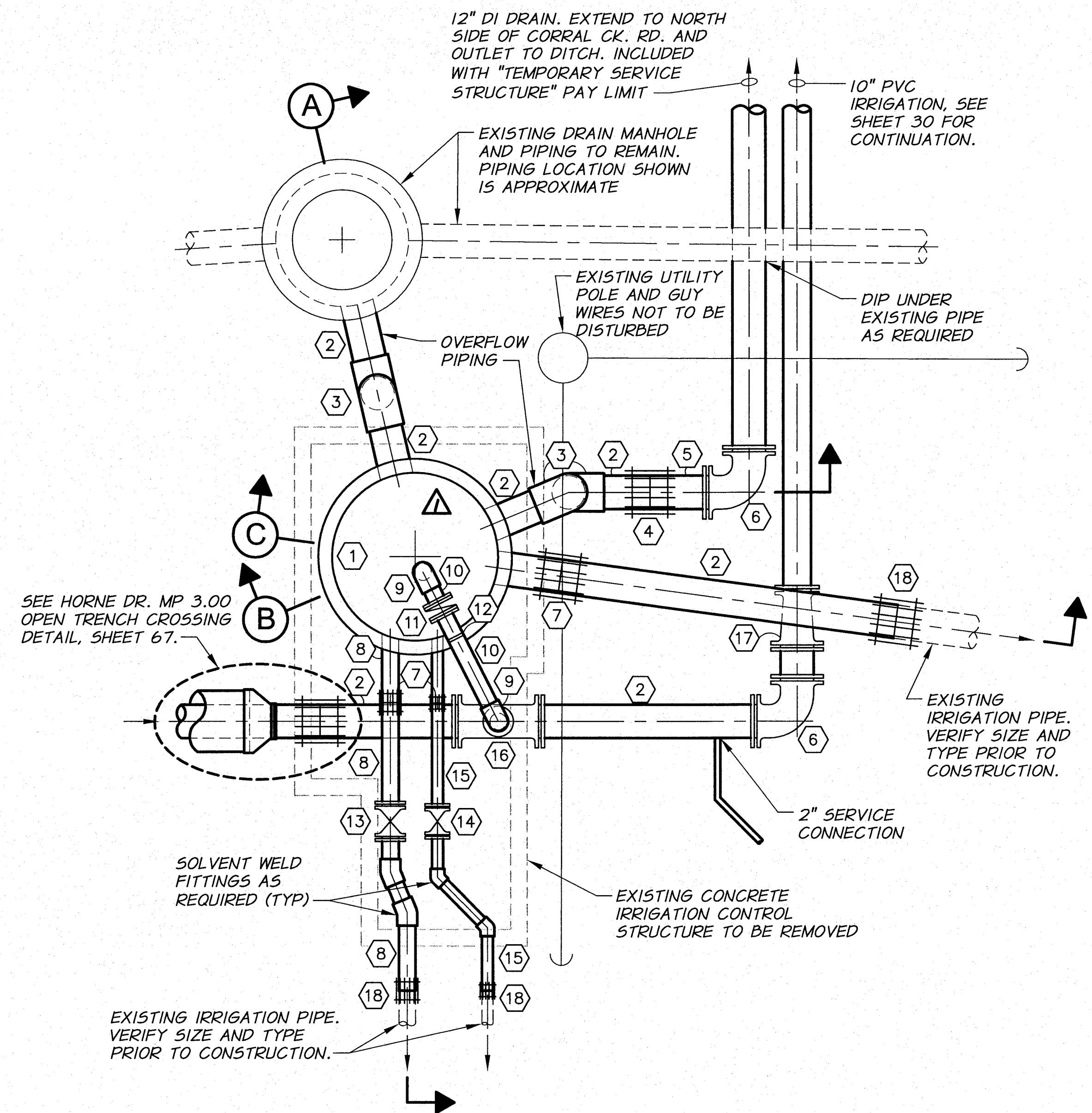
**SECTION B**  
3/8"=1'-0"



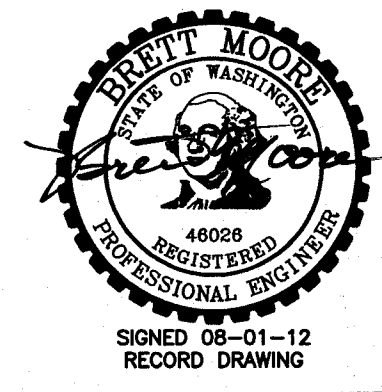
**SECTION C**  
3/8"=1'-0"

**PIPING SCHEDULE**

- ① 5 FT. DIAMETER PRECAST MANHOLE
- ② 12" PVC PIPE SPOOL, LENGTH AS REQUIRED
- ③ 12" SOLVENT WELD 90° ELBOW
- ④ 12" COUPLING ADAPTER
- ⑤ 12" DI PIPE SPOOL, LENGTH AS REQUIRED
- ⑥ 12" MJ 90° ELBOW
- ⑦ FLEXIBLE COUPLING, SIZE AS REQUIRED
- ⑧ 6" PVC PIPE SPOOL, LENGTH AS REQUIRED
- ⑨ 6" SOLVENT WELD 90° ELBOW
- ⑩ 6" FLG x SOLVENT WELD SPOOL, LENGTH AS REQUIRED
- ⑪ 6" FLG BUTTERFLY VALVE WITH HANDWHEEL OPERATOR
- ⑫ 5.5. STRAP AS REQUIRED. SECURE PIPE TO PRECAST MANHOLE AS REQUIRED
- ⑬ 6" MJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70
- ⑭ 4" MJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70
- ⑮ 4" PVC PIPE SPOOL, LENGTH AS REQUIRED
- ⑯ 12"x12"x6" MJxMJxFLG TEE
- ⑰ 12"x10" MJ REDUCER
- ⑱ CONNECTION TO EXISTING, FITTINGS AS REQUIRED
- ⑲ MANHOLE CONNECTOR "A-LOK" OR APPROVED EQUAL
- ⚠️ 20 GOLDEN HARVEST GH-36 ALUMINUM HAND SLIDE GATE, FACE MOUNTED, HEIGHT = 2 FT.

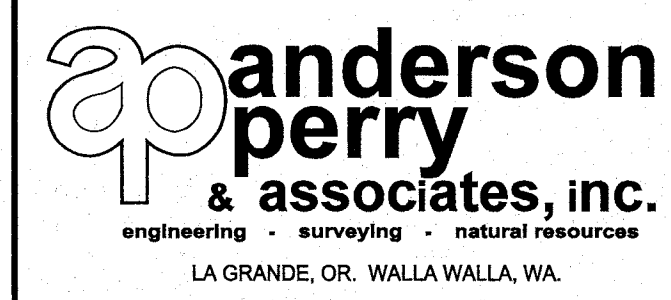


**PLAN**  
3/8"=1'-0"



RECORD DRAWING		E.H. 4/12	
DESIGNED BY R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER 1199-336	DATE 2010
DRAWN BY D. CHRISTMAN		ACAD FILE: ServiceDets.dwg	
REVIEWED BY J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.	

**RECORD DRAWINGS**  
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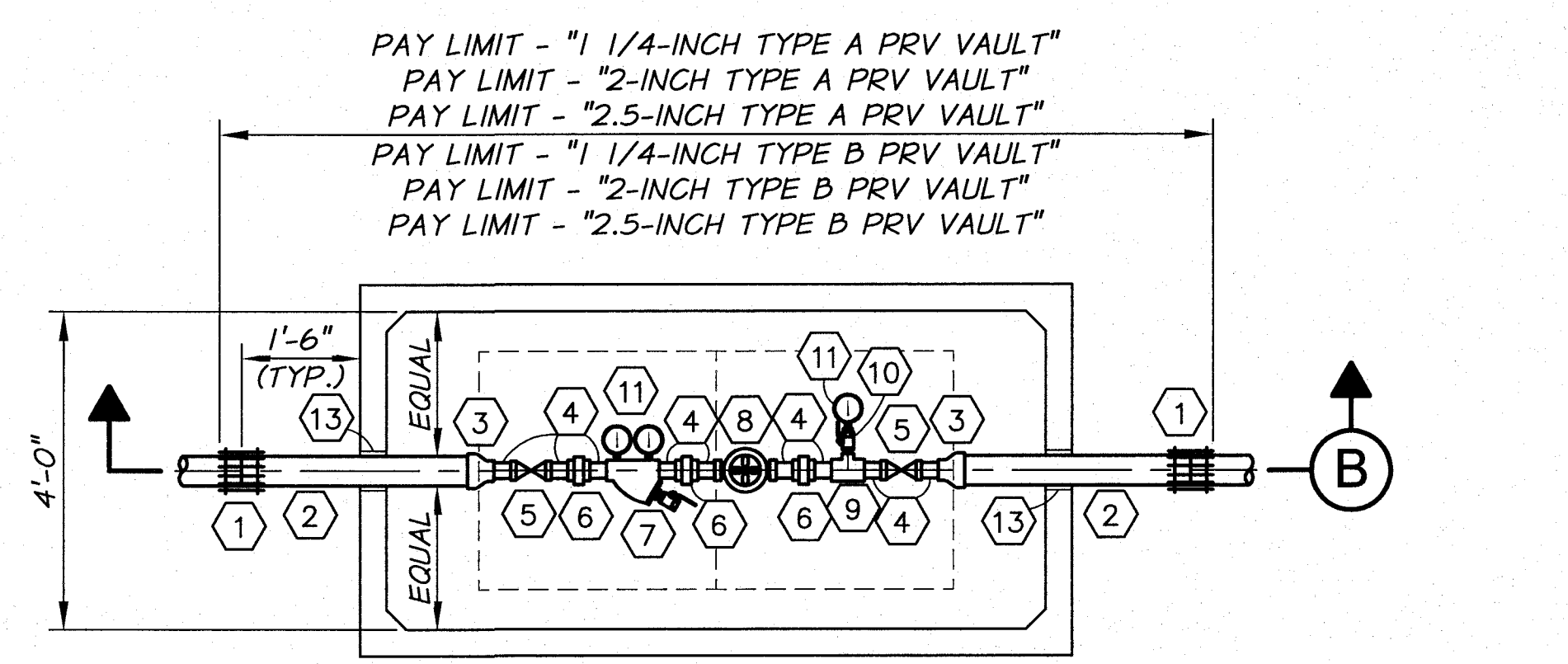
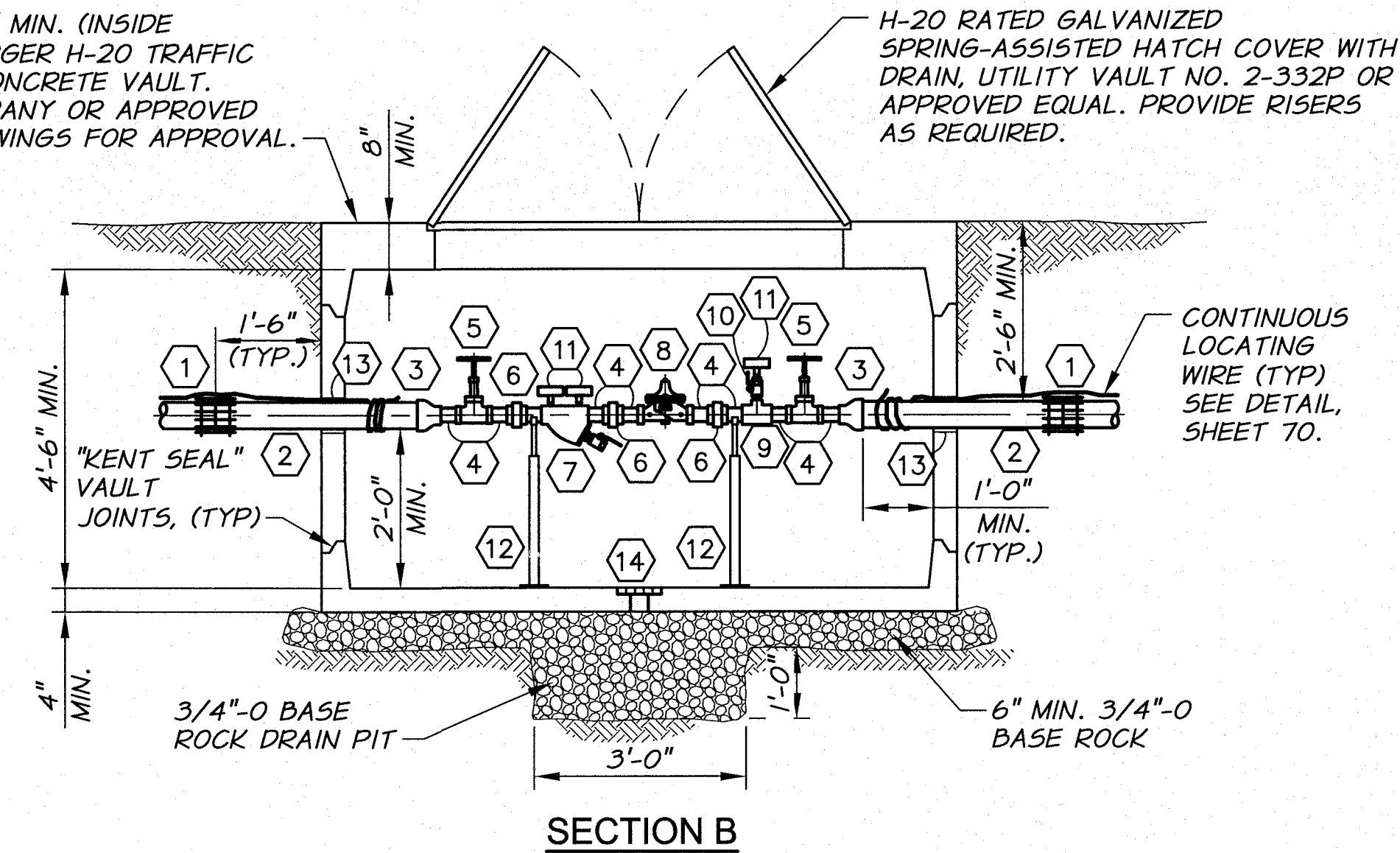
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
  
SERVICE DETAILS V  
TEMPORARY SERVICE STRUCTURE

4'-0" X 8'-6" X 4'-6" MIN. (INSIDE DIMENSIONS) OR LARGER H-20 TRAFFIC RATED PRE-CAST CONCRETE VAULT. UTILITY VAULT COMPANY OR APPROVED EQUAL. SUBMIT DRAWINGS FOR APPROVAL.

H-20 RATED GALVANIZED SPRING-ASSISTED HATCH COVER WITH DRAIN, UTILITY VAULT NO. 2-332P OR APPROVED EQUAL. PROVIDE RISERS AS REQUIRED.

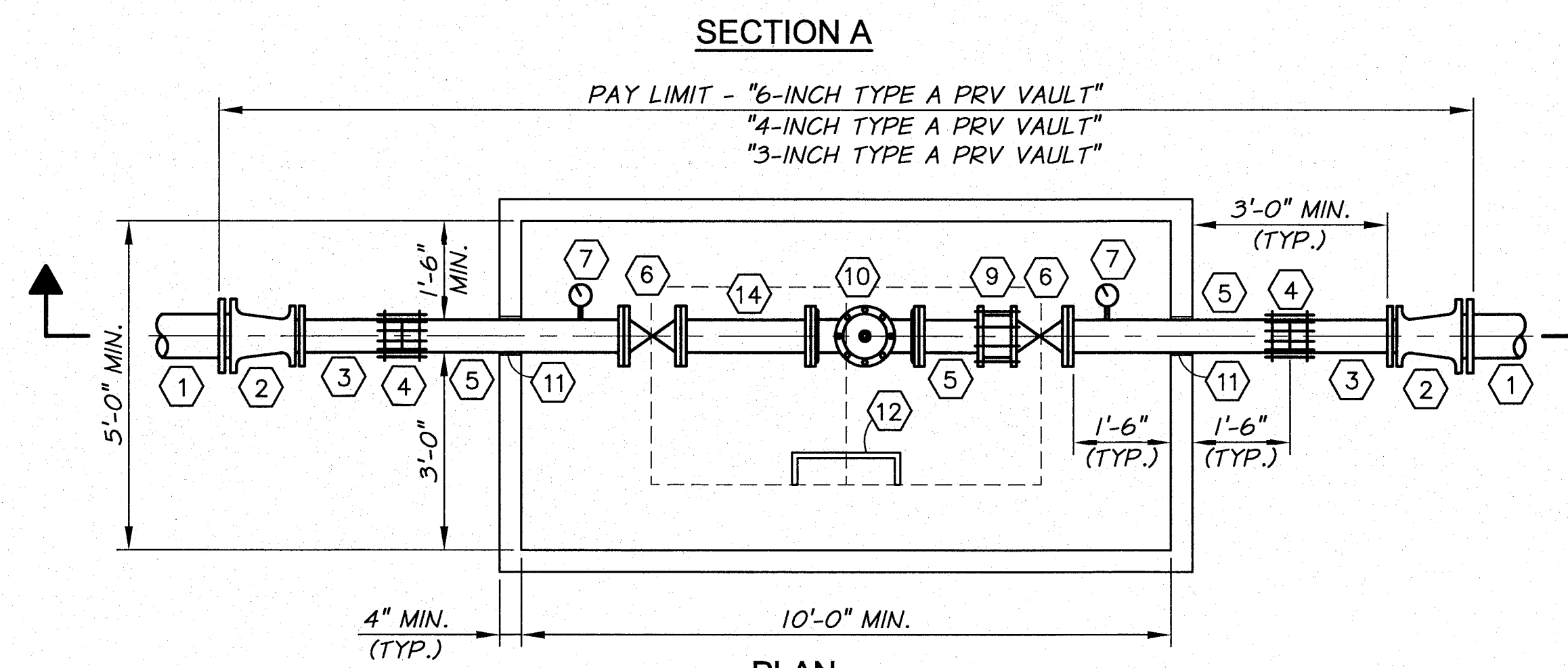
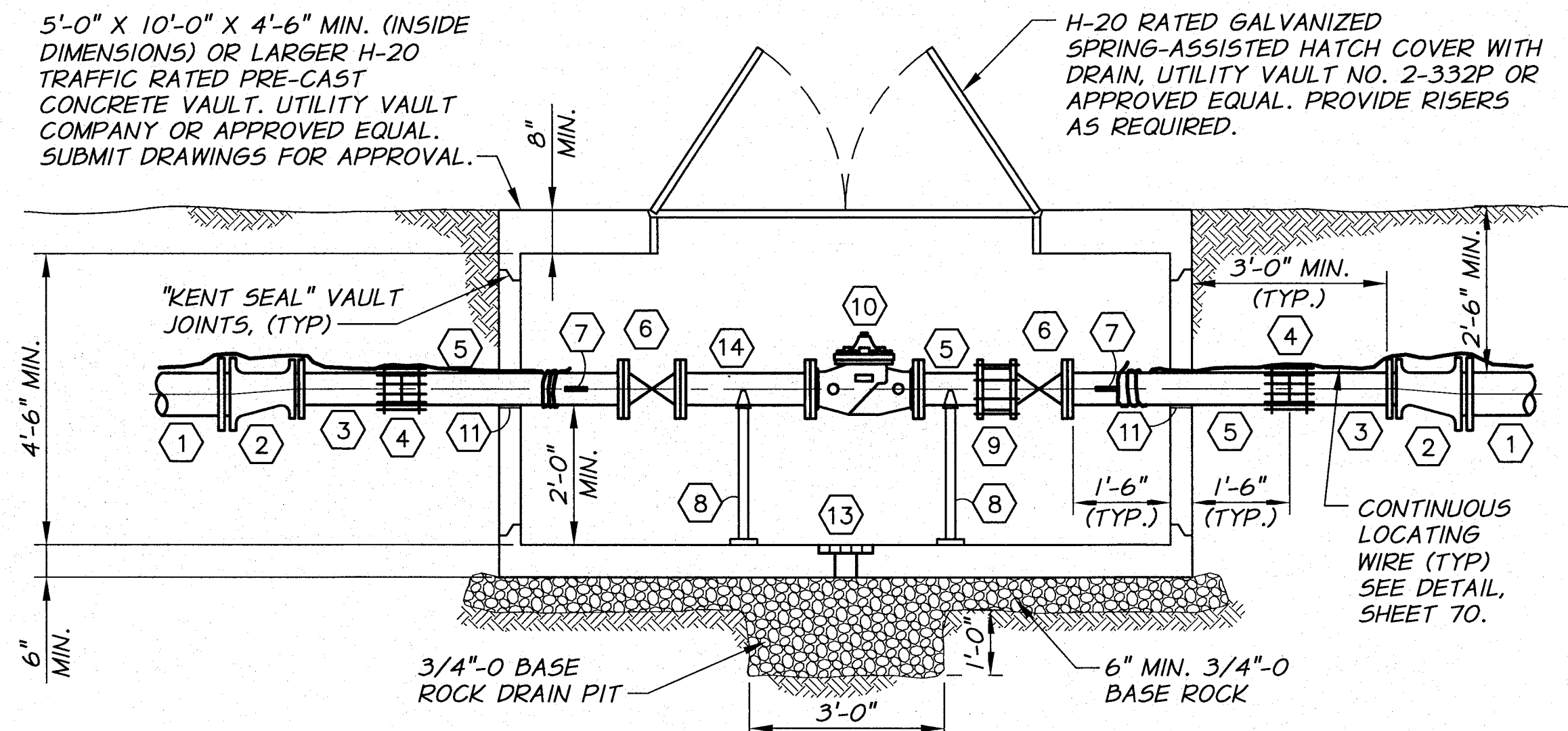
**FITTING SCHEDULE**

- 1 TRANSITION COUPLING
- 2 GIP, SIZE AS SHOWN ON PLANS
- 3 THREADED GIP REDUCER WHERE REQUIRED
- 4 1 1/4", 2", OR 2 1/2" THREADED GIP
- 5 BRASS THREADED GATE VALVE
- 6 GIP UNION
- 7 SONNTAG ALUMINUM Y FILTER WITH 3/32 SCREEN
- 8 1 1/4", 2", OR 2 1/2" THREADED PRESSURE REDUCING VALVE, CLA-VAL 90-01 FOR TYPE A, 1 1/4", 2", OR 2 1/2" THREADED PRESSURE REDUCING VALVE, CLA-VAL 990 FOR TYPE B.
- 9 SIZE x 3/4" THREADED GIP TEE
- 10 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" NPT BUSHING AND QUICK COUPLING
- 11 4" SS GLYCERIN FILLED PRESSURE GAUGE WITH FITTINGS AS REQUIRED. ORIENT GAUGE SO THAT FACE IS CLEARLY VISIBLE FROM VAULT ACCESS OPENING.
- 12 PIPE SUPPORT. SEE DETAIL, SHEET 68.
- 13 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- 14 BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE



- NOTES:**
1. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
  2. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  3. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "...-INCH TYPE A OR B PRESSURE REDUCING VALVE" PAY ITEM.

**1 1/4", 2", AND 2.5" PRESSURE REDUCING VALVE VAULT DETAIL**  
TYPE A OR TYPE B  
N.T.S.

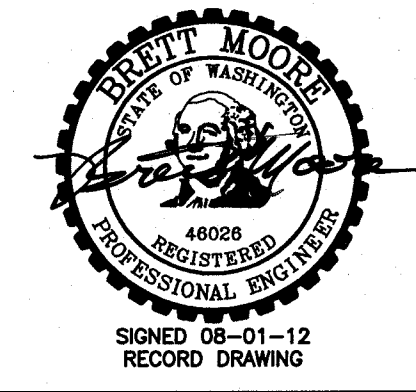


- NOTES:**
1. PIPING SIZE TO MATCH CONTROL VALVE SIZE UNLESS OTHERWISE NOTED.
  2. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
  3. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  4. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "...-INCH PRESSURE REDUCING VALVE" PAY ITEM.

**FITTING SCHEDULE**

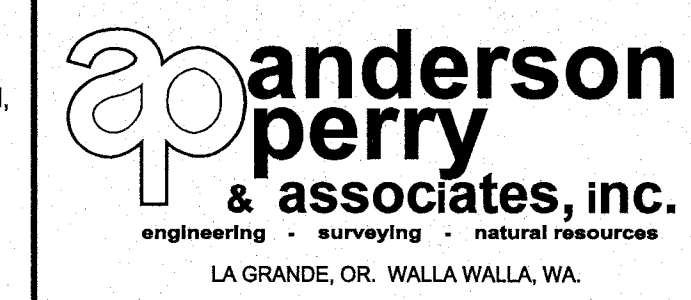
- 1 PVC PIPING, SIZE PER MAIN LINE
- 2 MJ ECCENTRIC REDUCER
- 3 PE D.I. SPOOL, LENGTH AS REQUIRED
- 4 COUPLING
- 5 FLG X PE D.I. SPOOL, LENGTH AS REQUIRED
- 6 FLG GATE VALVE WITH HANDWHEEL OPERATOR
- 7 4" S.S. PRESSURE GAUGE, GLYCERIN FILLED, 0-150 P.S.I. WITH 2 P.S.I. GRADUATIONS, PRESSURE SNUBBER, ISOLATION VALVE AND FITTINGS AS REQUIRED. TAP D.I. PIPE AS REQUIRED. ORIENT GAUGE SO THAT FACE IS CLEARLY VISIBLE FROM VAULT ACCESS OPENING.
- 8 PIPE SUPPORT. SEE TYPICAL PIPE SUPPORT DETAIL SHEET 68.
- 9 RESTRAINED FLANGE COUPLING ADAPTER
- 10 FLG PRESSURE REDUCING VALVE, CLA-VAL MODEL 90-01 FLANGED, OR APPROVED EQUAL.
- 11 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- 12 OSHA APPROVED GALVANIZED STEEL LADDER WITH 4 FOOT REMOVABLE EXTENSION
- 13 BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE
- 14 FLG DI SPOOL X 2 FT. LONG

**3", 4", AND 6" TYPE A PRESSURE REDUCING VALVE VAULT DETAIL**  
N.T.S.



DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER	1199-336	DATE	2010
DRAWN BY	D. CHRISTMAN		ACAD FILE:	IrrgDets-I.dwg		
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

**RECORD DRAWINGS**  
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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
**VALVE VAULT DETAILS**  
PRV VAULTS

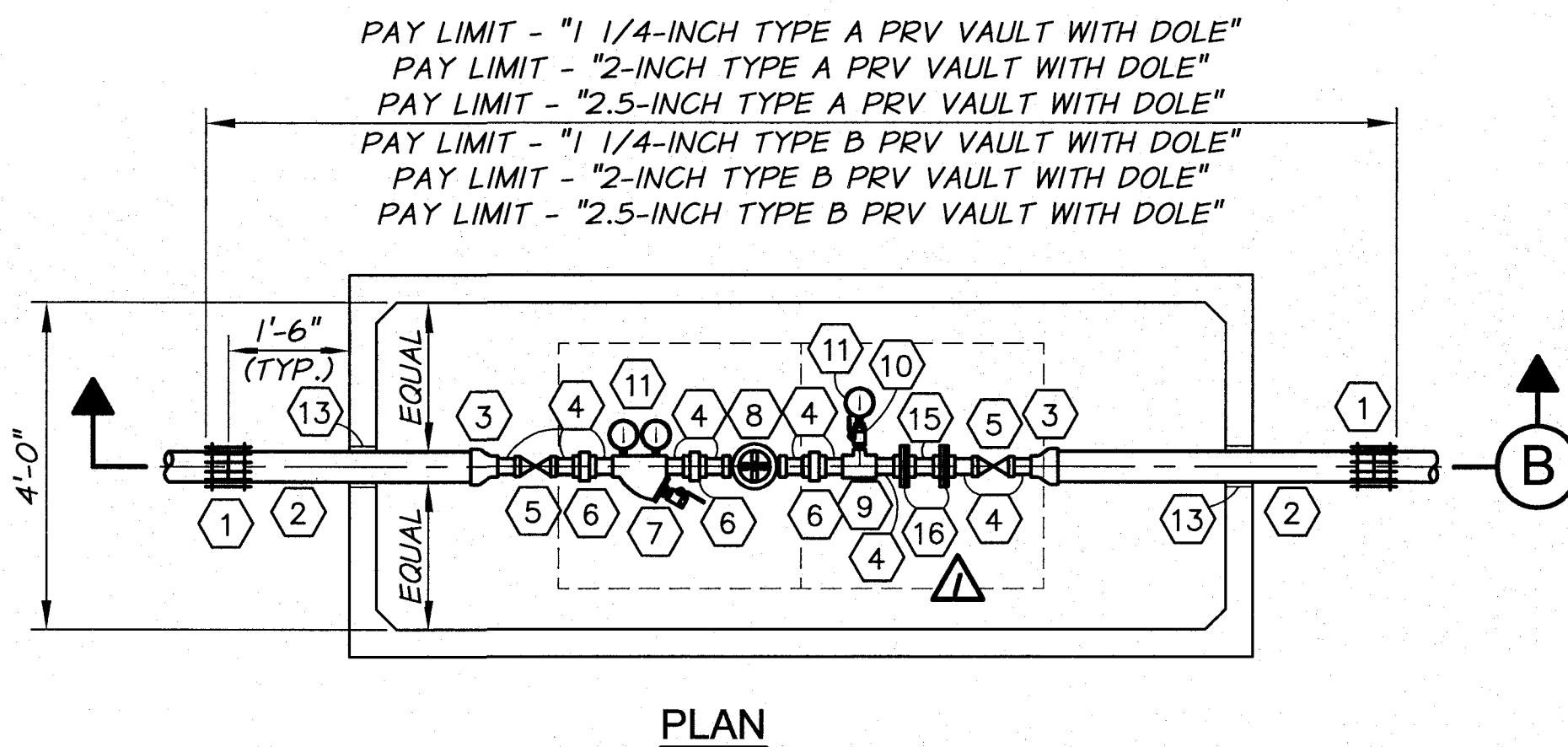
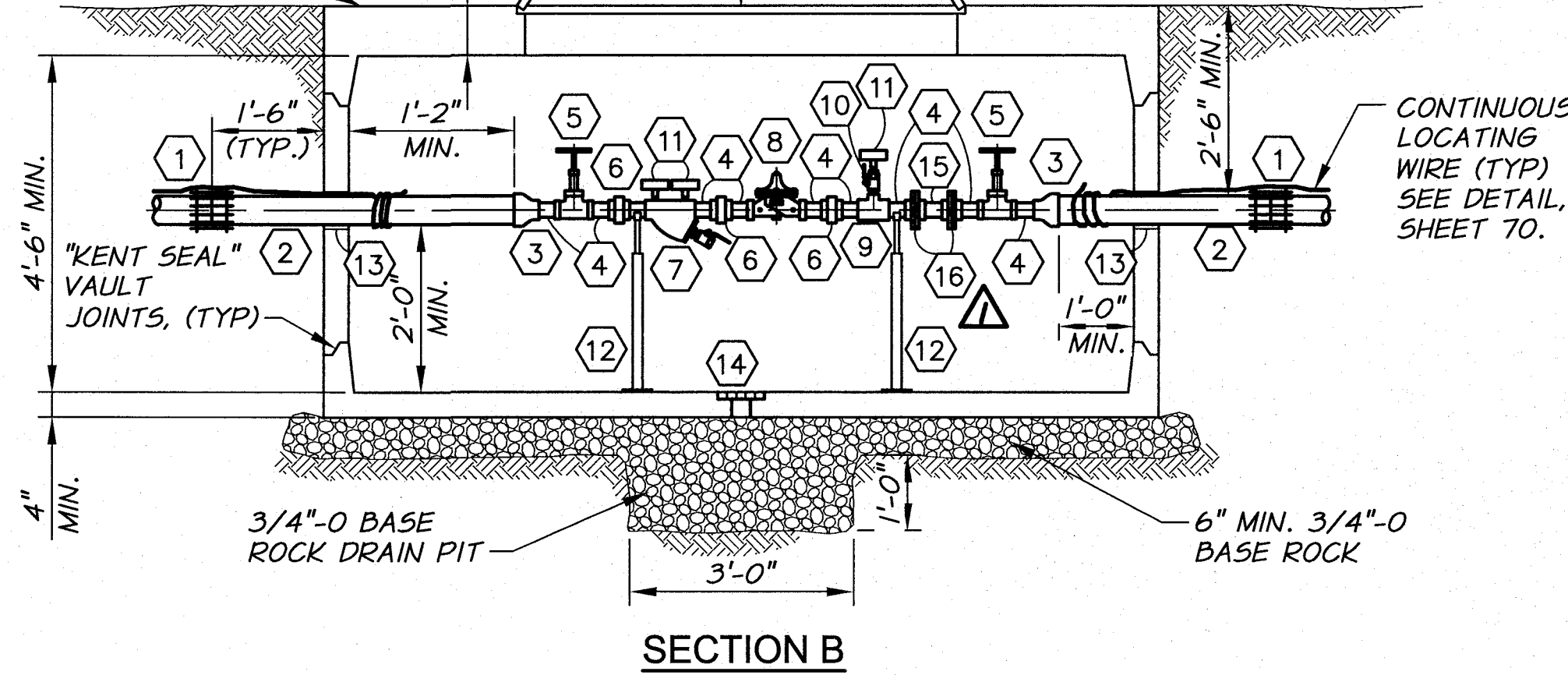
SHEET  
**62**

H-20 TRAFFIC RATED PRE-CAST CONCRETE VAULT. UTILITY VAULT COMPANY OR APPROVED EQUAL. SUBMIT DRAWINGS FOR APPROVAL. 4'-0" X 8'-6" X 4'-6" MIN. (INSIDE DIMENSIONS) FOR 1 1/4" VALVE AND 4'-0" X 10'-6" X 4'-6" MIN. (INSIDE DIMENSIONS) FOR 2" AND 2 1/2" VALVE

H-20 RATED GALVANIZED SPRING-ASSISTED HATCH COVER WITH DRAIN, UTILITY VAULT NO. 2-332P OR APPROVED EQUAL. PROVIDE RISERS AS REQUIRED.

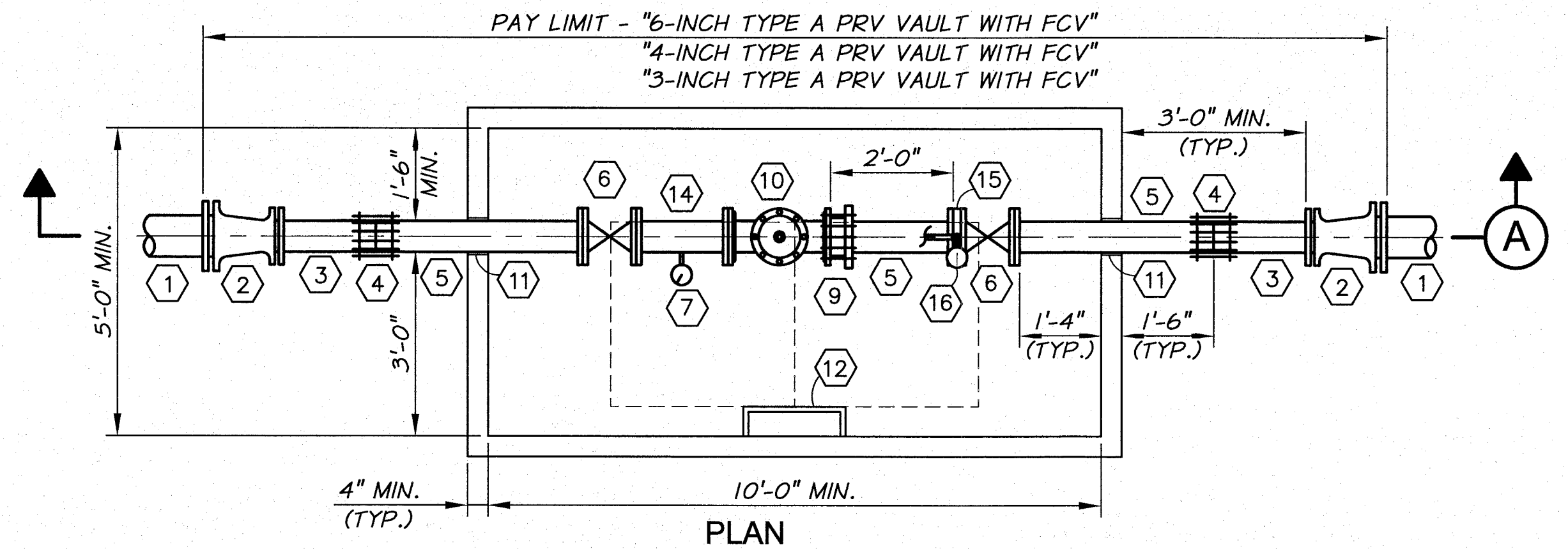
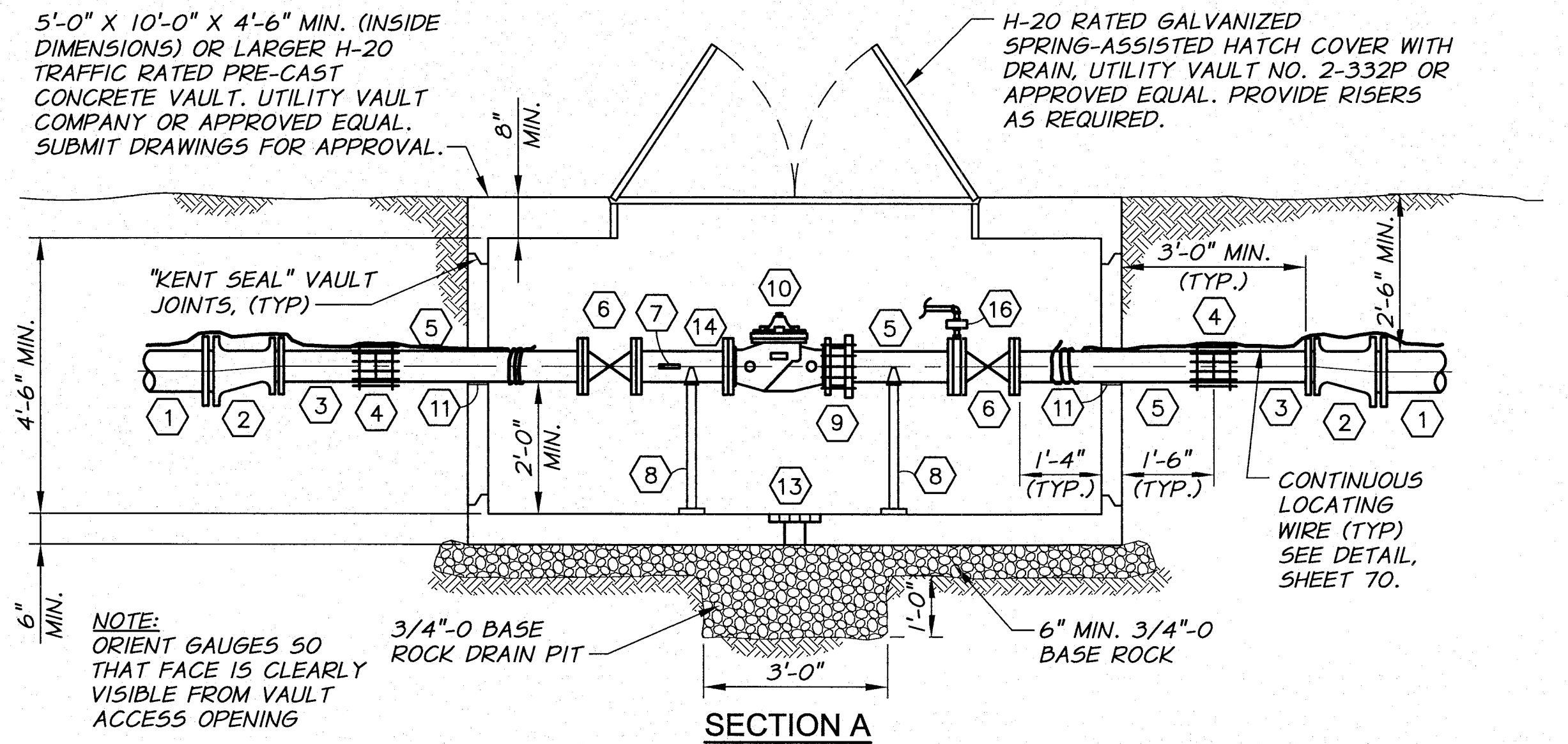
**FITTING SCHEDULE**

- 1 TRANSITION COUPLING
- 2 GIP, SIZE AS SHOWN ON PLANS
- 3 THREADED GIP REDUCER WHERE REQUIRED
- 4 1 1/4", 2", OR 2 1/2" THREADED GIP
- 5 BRASS THREADED GATE VALVE
- 6 GIP UNION
- 7 SONNTAG ALUMINUM Y FILTER WITH 3/32 SCREEN
- 8 1 1/4", 2", OR 2 1/2" THREADED PRESSURE REDUCING VALVE, CLA-VAL 90-01 FOR TYPE A. 1 1/4", 2", OR 2 1/2" THREADED PRESSURE REDUCING VALVE, CLA-VAL 990 FOR TYPE B.
- 9 SIZE x 3/4" THREADED GIP TEE
- 10 3/4" THREADED BRASS BALL VALVE WITH 3/4"x1/4" NPT BUSHING AND QUICK COUPLING
- 11 4" S5 GLYCERIN FILLED PRESSURE GAUGE WITH FITTINGS AS REQUIRED. ORIENT GAUGE SO THAT FACE IS CLEARLY VISIBLE FROM VAULT ACCESS OPENING.
- 12 PIPE SUPPORT. SEE DETAIL, SHEET 68.
- 13 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- 14 BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE
- 15 DOLE FLOW CONTROL VALVE. SIZE AS SHOWN ON PLANS
- 16 THREADED RAISED FACE FLANGES WITH THROUGH BOLTS



- NOTES:**
1. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
  2. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  3. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "\_\_\_-INCH TYPE A OR B PRESSURE REDUCING VALVE" PAY ITEM.

**1 1/4", 2", AND 2 1/2" PRV VAULT WITH DOLE FCV DETAIL**  
TYPE A OR TYPE B  
N.T.S.

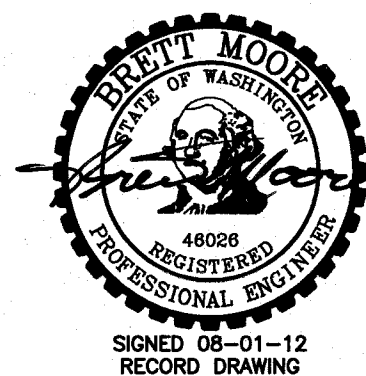


- NOTES:**
1. PIPING SIZE TO MATCH CONTROL VALVE SIZE UNLESS OTHERWISE NOTED.
  2. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
  3. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  4. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "\_\_\_-INCH PRESSURE REDUCING VALVE" PAY ITEM.

**FITTING SCHEDULE**

- 1 PVC PIPING, SIZE PER MAIN LINE
- 2 MJ ECCENTRIC REDUCER
- 3 PE D.I. SPOOL, LENGTH AS REQUIRED
- 4 COUPLING
- 5 FLG X PE D.I. SPOOL, LENGTH AS REQUIRED
- 6 FLG GATE VALVE WITH HANDWHEEL OPERATOR
- 7 4" S.S. PRESSURE GAUGE, GLYCERIN FILLED, 0-150 P.S.I. WITH 2 P.S.I. GRADUATIONS, PRESSURE SNUBBER, ISOLATION VALVE AND FITTINGS AS REQUIRED. TAP D.I. PIPE AS REQUIRED.
- 8 PIPE SUPPORT. SEE TYPICAL PIPE SUPPORT DETAIL SHEET 68.
- 9 RESTRAINED FLANGE COUPLING ADAPTER
- 10 FLG PRESSURE REDUCING VALVE, CLA-VAL MODEL 90-01 FLANGED, OR APPROVED EQUAL.
- 11 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- 12 OSHA APPROVED GALVANIZED STEEL LADDER WITH 4 FOOT REMOVABLE EXTENSION
- 13 BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE
- 14 FLG DI SPOOL X 1'-6" LONG
- 15 ORIFICE PLATE
- 16 4" S.S. PRESSURE GAUGE, GLYCERIN FILLED, 0-150 P.S.I. WITH 2 P.S.I. GRADUATIONS, PRESSURE SNUBBER, ISOLATION VALVE AND FITTINGS AS REQUIRED ON ORIFICE PILOT PIPING.

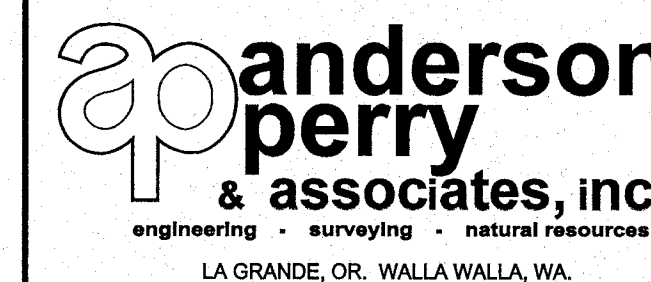
**3", 4", AND 6" TYPE A PRESSURE REDUCING/FLOW CONTROL VALVE VAULT DETAIL**  
N.T.S.



RECORD DRAWING		E.H.	4/12
DESIGNED BY	R. HARRIS	XREFS:	TB-BID.dwg
DRAWN BY	D. CHRISTMAN	JOB NUMBER	1199-336
REVIEWED BY	J. HOLLOPETER	DATE	2010
		ACAD FILE	lrrgDets-l.dwg
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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

VALVE VAULT DETAILS  
PRV WITH FCV VAULTS

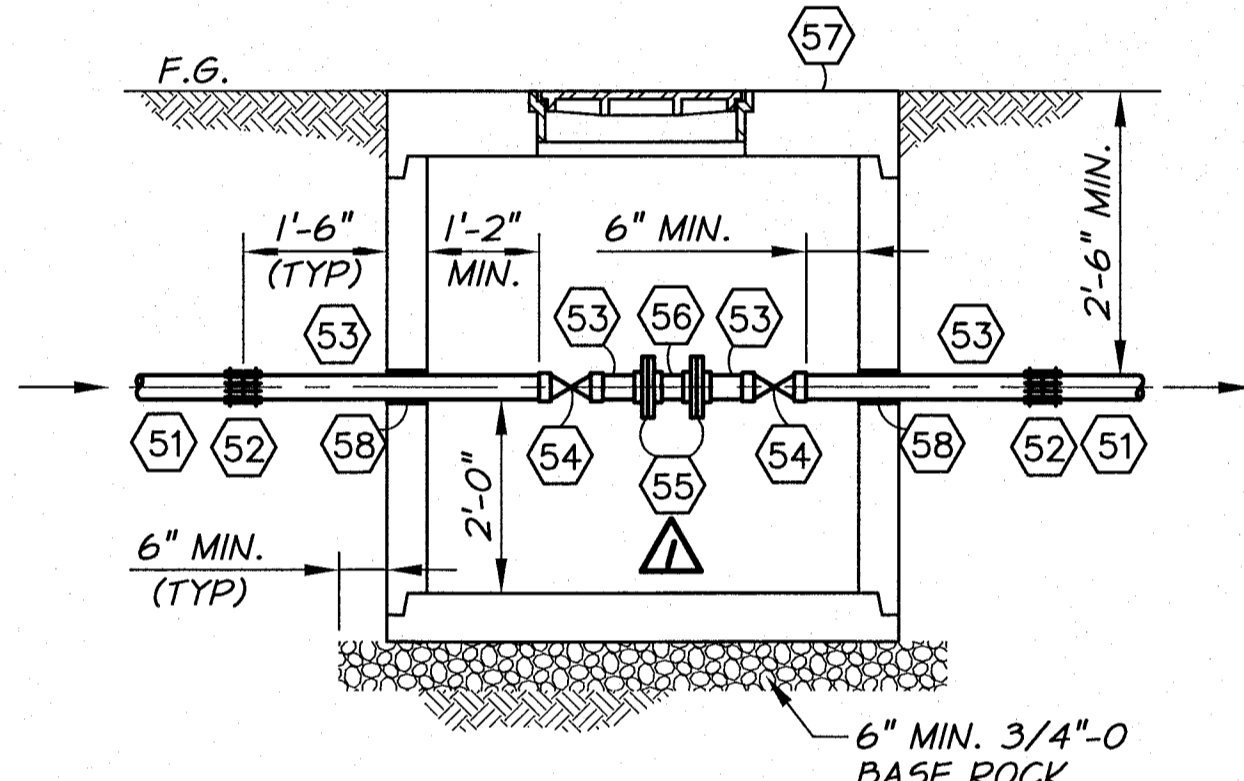
SHEET

**63**

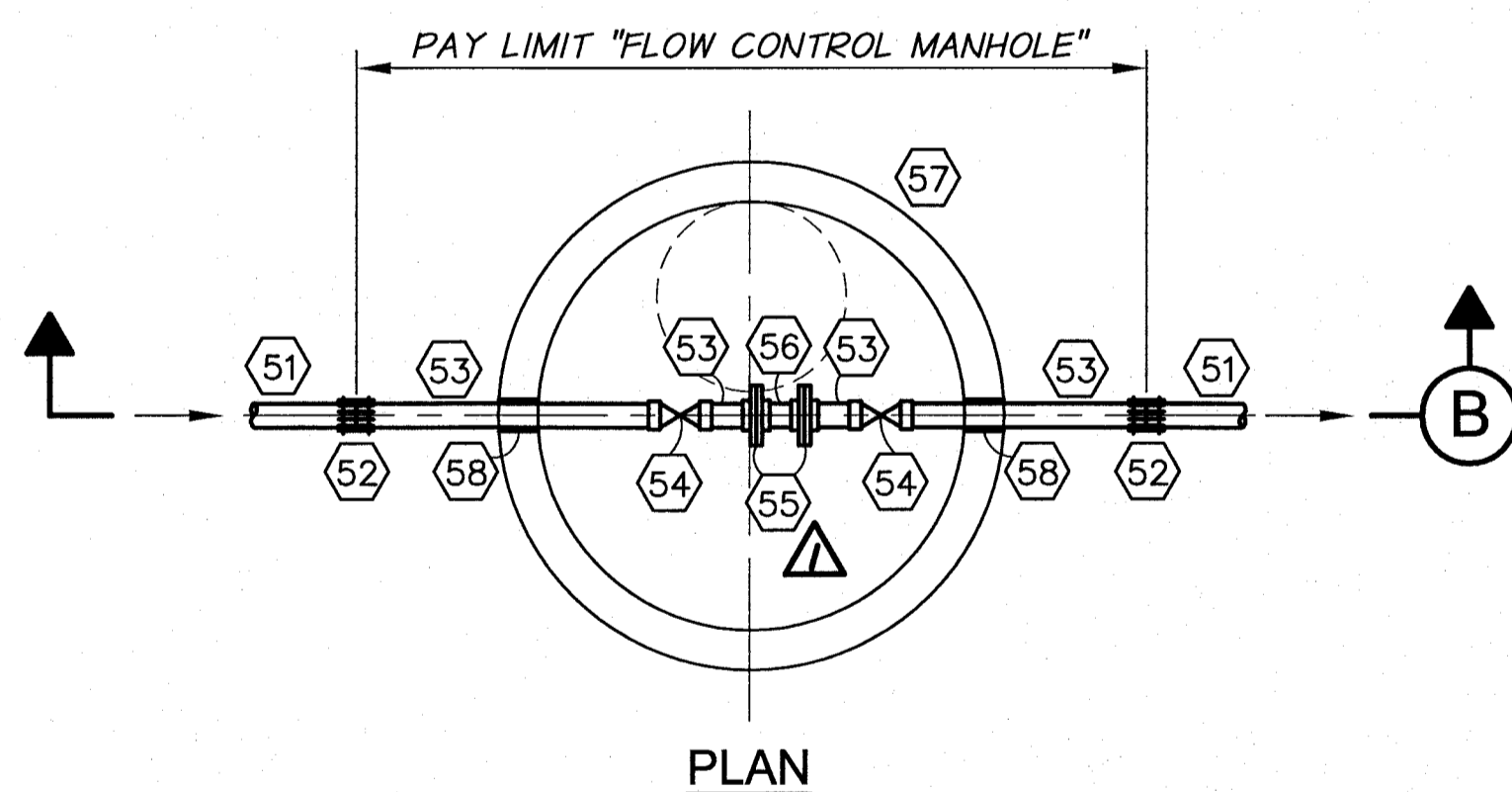
ARCHIVED

**FITTING SCHEDULE**

- 51 PVC MAIN PIPING
- 52 COUPLING ADAPTER
- 53 GIP, SIZE OF MAIN
- 54 BRASS THREADED GATE VALVE
- 55 **THREADED RAISED FACE FLANGES. GASKET TO MATCH RAISED FACE.**
- 56 DOLE FLOW CONTROL VALVE, SIZE SPECIFIED ON DRAWINGS
- 57 54" PRECAST MANHOLE WITH H2O TRAFFIC RATED FLAT TOP AND 24" MANHOLE COVER WITH FRAME CAST INTO SLAB
- 58 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT



**SECTION B**

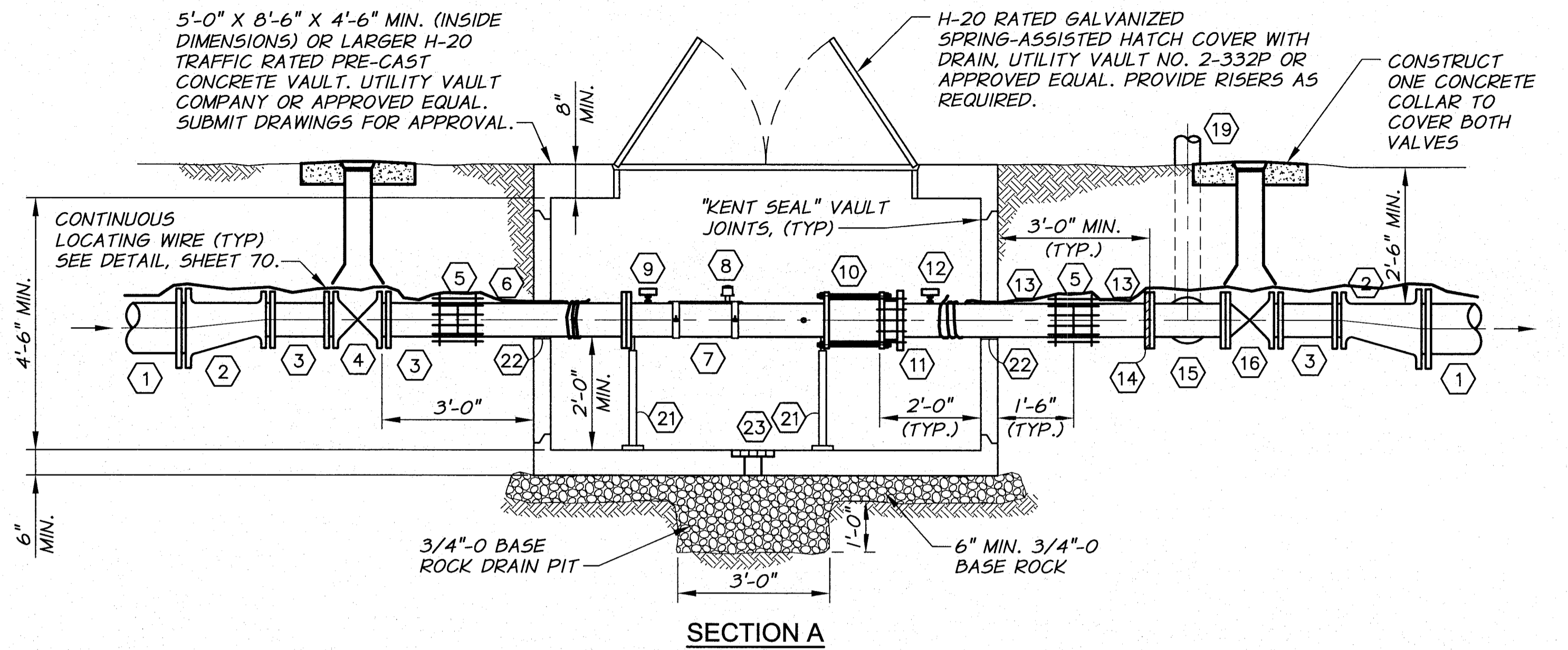


**FLOW CONTROL MANHOLE DETAIL**

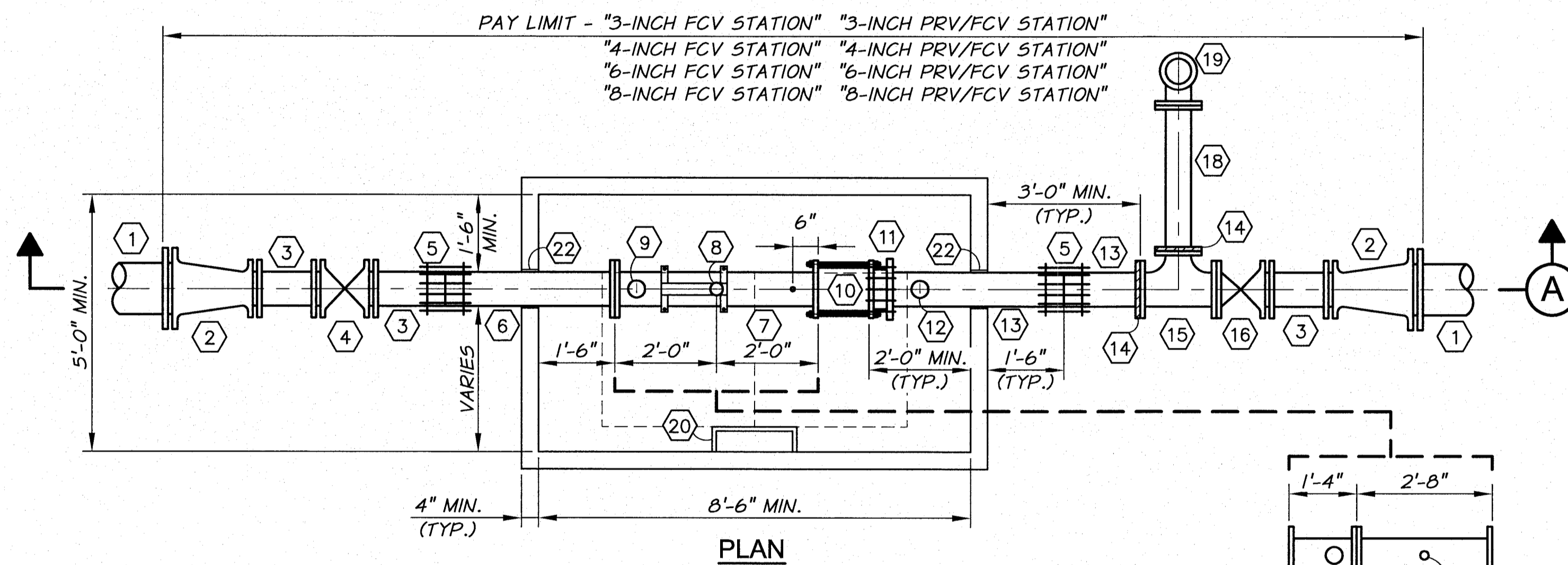
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**FITTING SCHEDULE**

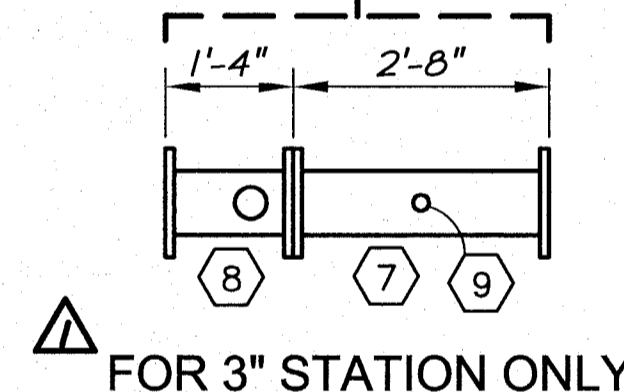
- 1 PVC PIPING, SIZE PER MAIN LINE
- 2 MJ ECCENTRIC REDUCER
- 3 PVC PIPING
- 4 MJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70.
- 5 COUPLING
- 6 FLG X PE D.I. SPOOL, LENGTH AS REQUIRED
- 7 **FOR 3" STATION: 3" FLG DI SPOOL x 2'-8" LG. FOR 4" STATION: 4" FLG GIP SPOOL x 4'-0" LG. FOR 6" AND 8" STATION: FLG DI SPOOL x 4'-0" LG.**
- 8 **FOR 3" STATION: MICROMETER FLOWMETER MODEL MW500 FOR 4" STATION: MICROMETER FLOWMETER MODEL LP-22 FOR 6" AND 8" STATION: MICROMETER FLOWMETER MODEL LP 32**
- 9 **FOR PRV/FCV STATIONS ONLY: 3/4" TAPPING SADDLE WITH 3/4" THREADED BRASS BALL VALVE, 3/4"x1/4" BUSHING, AND BRASS QUICK COUPLING PLUG (UNVALVED)**
- 10 WAFER STYLE 800 SERIES NELSON CONTROL VALVE. TYPE AS SHOWN ON PLANS, PRV/FCV OR FCV. SEE SPECIFICATIONS FOR DETAILS. PROVIDE LONG BOLTS FOR FLANGES AS REQUIRED. LOCATE PADDLE 6" UPSTREAM OF VALVE. 1-INCH TAPPING SADDLE REQUIRED.
- 11 RESTRAINED FLANGE COUPLING ADAPTER
- 12 SAME AS ITEM 9, REQUIRED FOR BOTH TYPES OF CONTROL VALVES.
- 13 PE DI SPOOL LENGTH AS REQUIRED
- 14 FLANGE COUPLING ADAPTER
- 15 FLG SIZExSIZExSIZE TEE, BRANCH NOT TO EXCEED 6"
- 16 FLGxMJ GATE VALVE WITH VALVE BOX. SEE DETAIL, SHEET 70.
- 17 RESERVED
- 18 FLGxPE SPOOL, LENGTH AS REQUIRED, FITTINGS AS REQUIRED
- 19 MAINGUARD BLOW-OFF #7600 FOR 4-INCH, 6-INCH AND 8-INCH CONTROL VALVE STATIONS. ECLIPSE NO. 85 BLOW-OFF HYDRANT FOR 3-INCH CONTROL VALVE STATIONS (SEE TABLE 1, THIS SHEET). ENCLOSURE TO BE CARSON INDUSTRIES MODEL H2436 TRAFFIC BEARING VAULT AND LID WITH EXTENSIONS AS REQUIRED.
- 20 OSHA APPROVED GALVANIZED STEEL LADDER WITH 4 FOOT REMOVABLE EXTENSION
- 21 PIPE SUPPORT. SEE TYPICAL PIPE SUPPORT DETAIL SHEET 68.
- 22 SEAL PIPE PENETRATIONS WATERTIGHT WITH NON-SHRINK GROUT
- 23 BRASS GRATED DRAIN WITH KNOCKOUT HOLE FOR DRAIN PIPE



**SECTION A**



**PLAN**



**FOR 3" STATION ONLY**

**NOTES:**

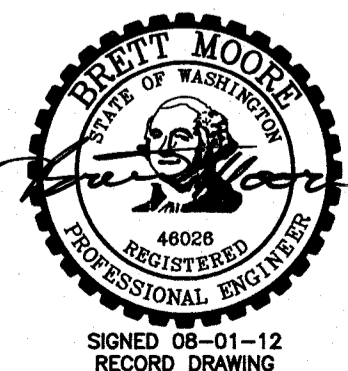
1. PIPING SIZE TO MATCH CONTROL VALVE SIZE UNLESS OTHERWISE NOTED.
2. SET FRAME AND COVER TO GRADE AND PROVIDE GRADE RINGS AS REQUIRED.
3. PIPE SUPPORTS TO BE SIZED APPROPRIATELY FOR PIPE AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. ALL WORK SHOWN IN THIS DETAIL, INCLUDING ANY REQUIRED SURFACE RESTORATION, SHALL BE INCLUDED IN THE "3-INCH FCV STATION" OR THE "3-INCH PRV/FCV STATION" PAY ITEM.

**TABLE 1**

CONTROL VALVE SIZE	BLOW-OFF TYPE	INLET	OUTLET
3-INCH	ECLIPSE NO. 85 BLOW-OFF HYDRANT	3"	2 1/2 NST
4-INCH	MAINGUARD BLOW-OFF #7600	4"	4"
6-INCH	MAINGUARD BLOW-OFF #7600	6"	4"
8-INCH	MAINGUARD BLOW-OFF #7600	6"	4"

**3", 4", 6" AND 8" PRV/FCV AND FCV STATION DETAIL**

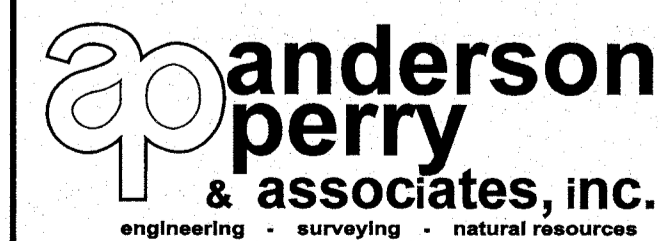
N.T.S.



<b>RECORD DRAWING</b>		E.H.	4/12
DESIGNED BY	R. HARRIS	BY	DATE
DRAWN BY	D. CHRISTMAN	HORIZ. SCALE	NONE
REVIEWED BY	J. HOLLGPETER	VERT. SCALE	
XREFS: TB-BID.dwg		JOB NUMBER	1199-336
		DATE	2010
		ACAD FILE:	lrrgDets-l.dwg
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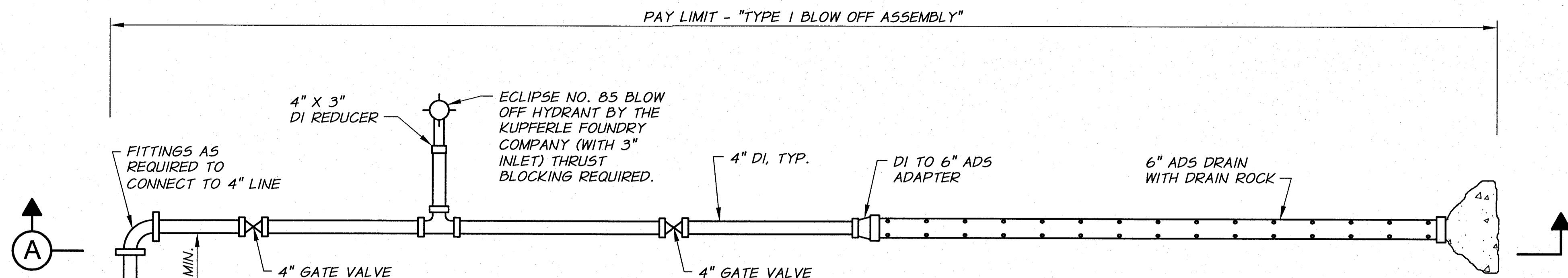
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

**VALVE VAULT DETAILS**  
FLOW CONTROL MANHOLE AND PRV/FCV AND FCV STATIONS

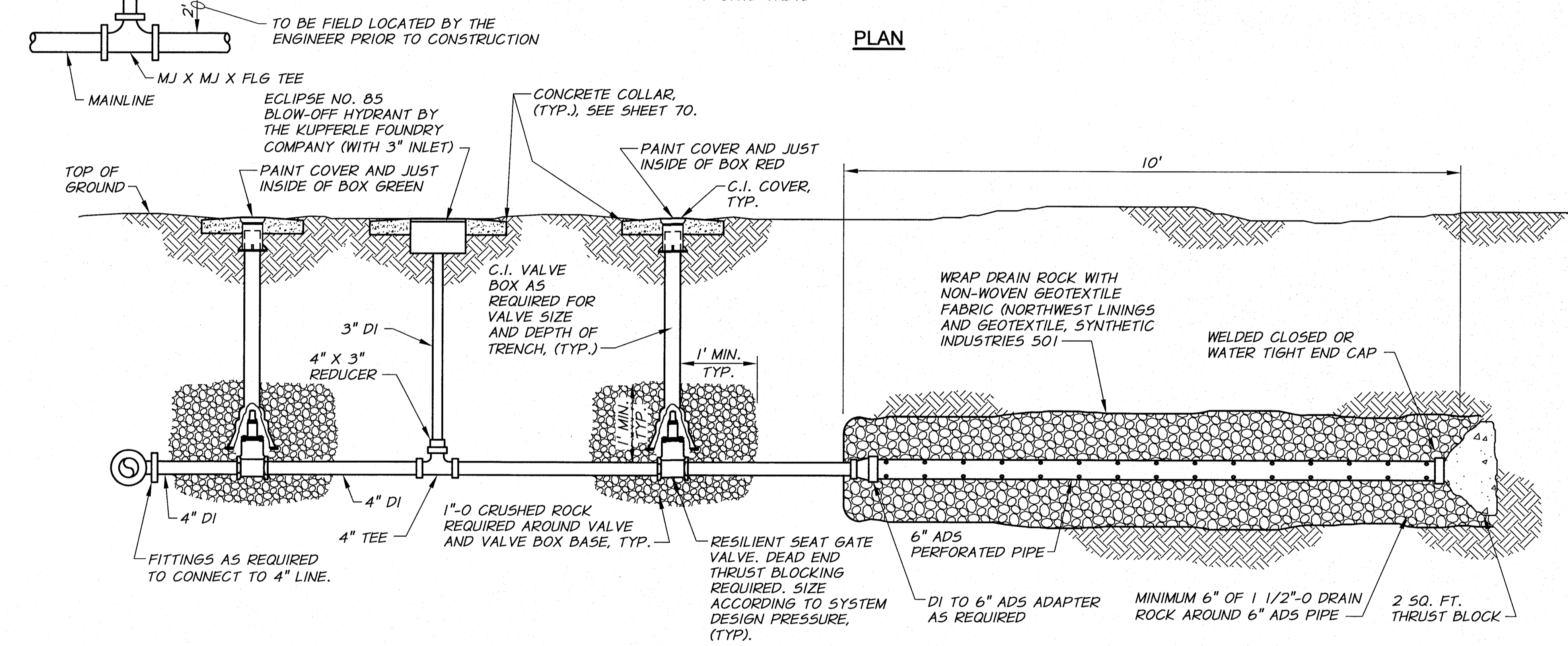
SHEET

**64**

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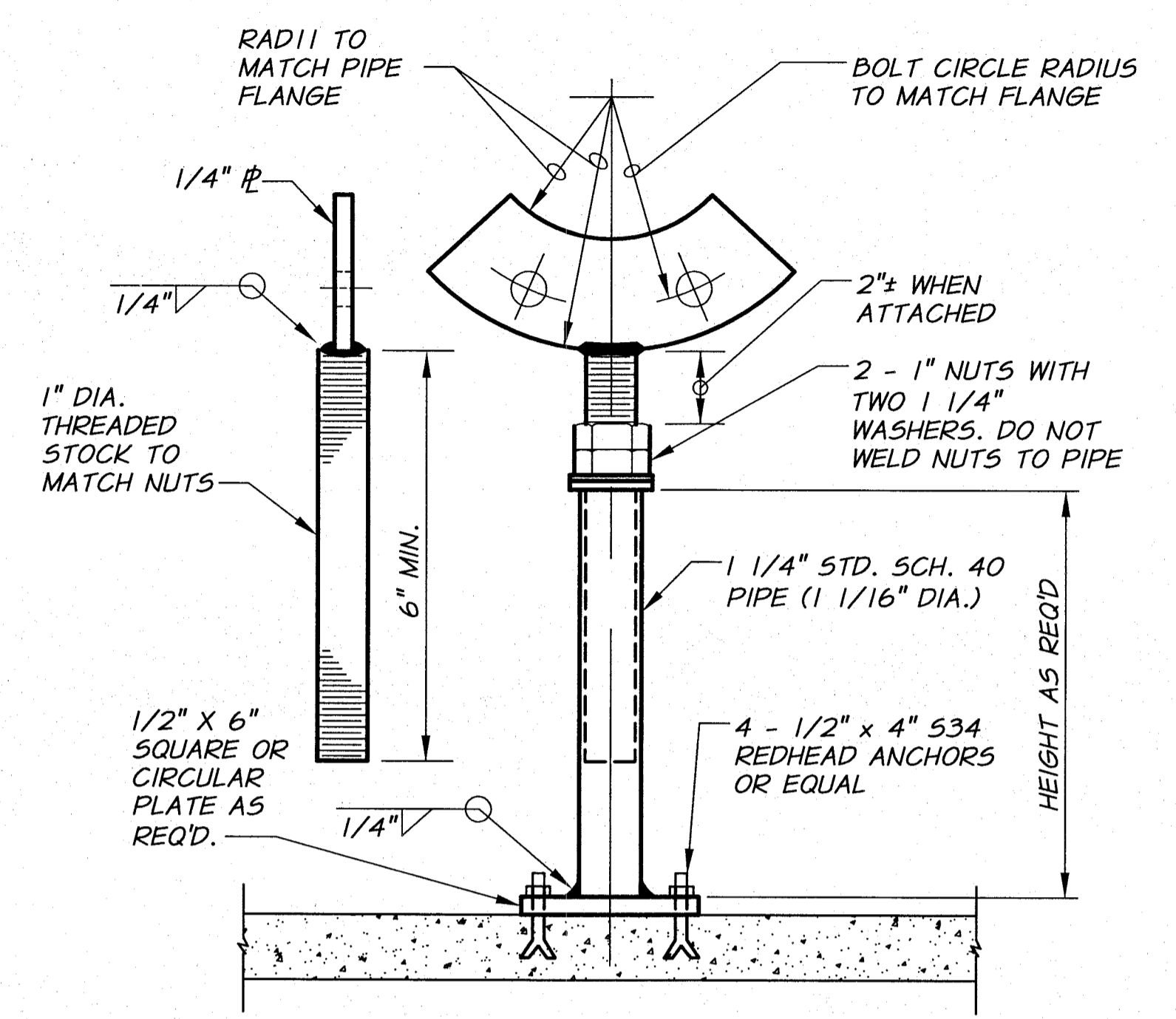


PLAN

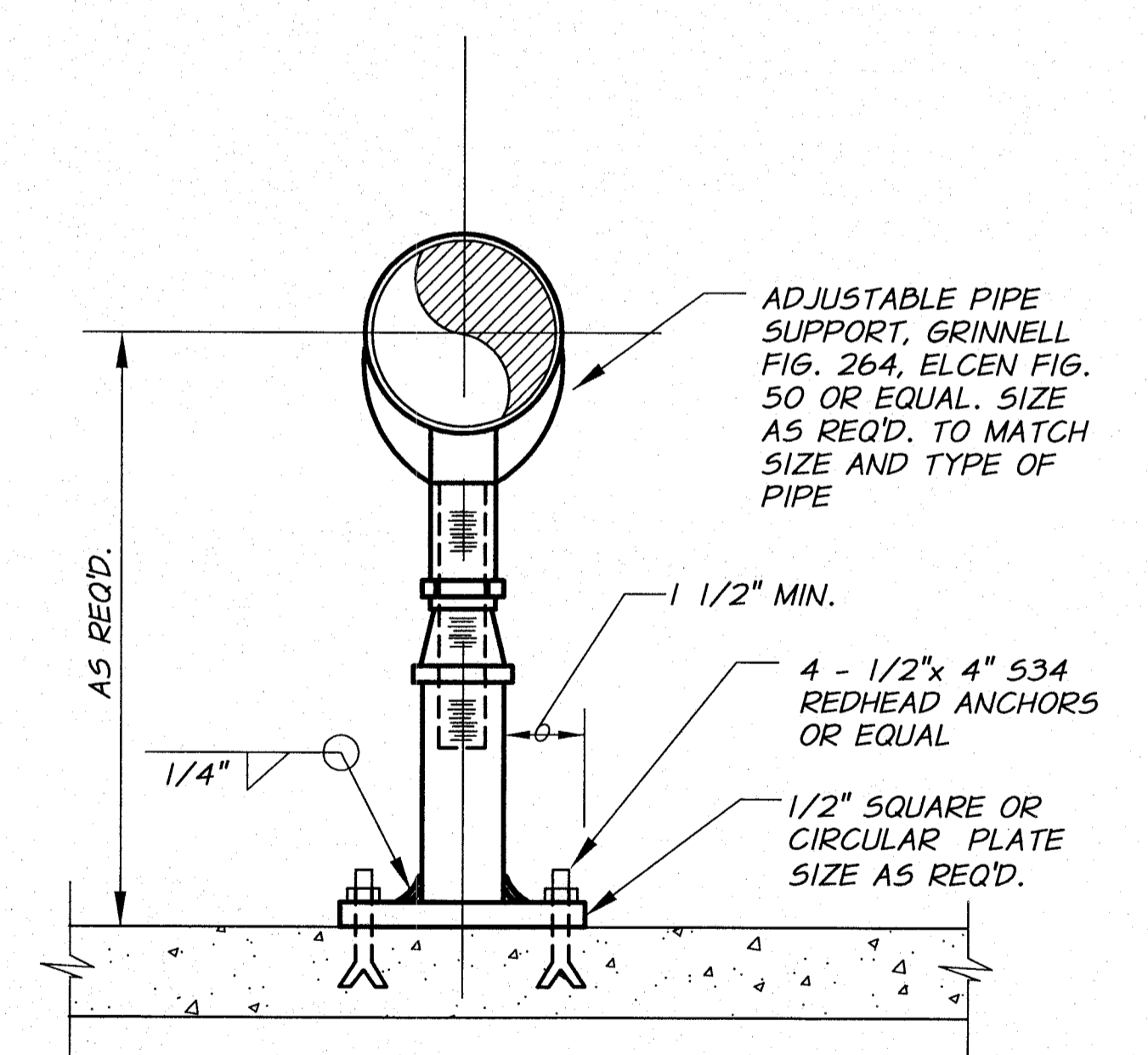


SECTION A  
TYPE 1 BLOW-OFF ASSEMBLY DETAIL  
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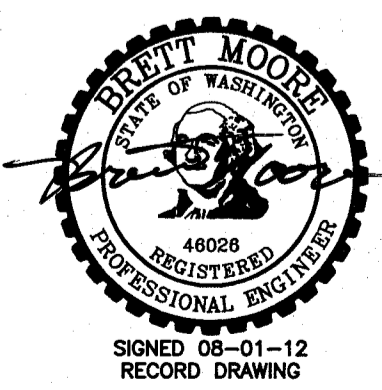
NOTE:  
BLOW-OFF TO BE FIELD  
LOCATED BY THE  
ENGINEER PRIOR TO  
CONSTRUCTION.



PIPE SUPPORT DETAIL  
N.T.S.

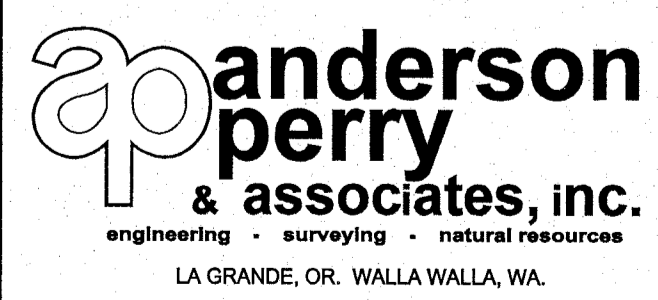


PIPE SUPPORT DETAIL  
N.T.S.



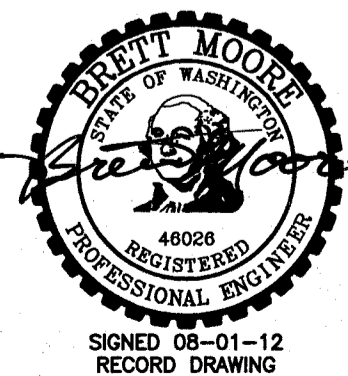
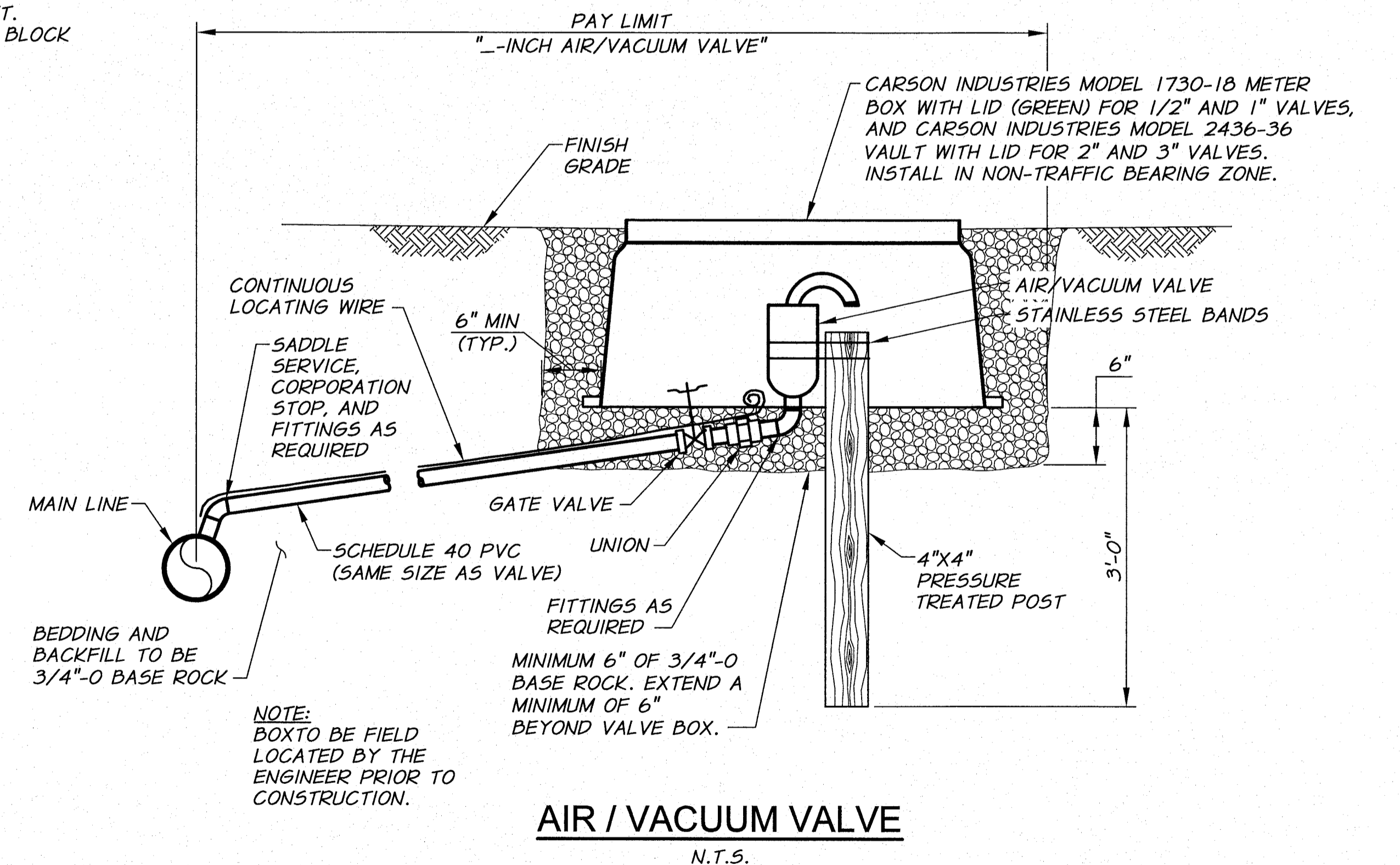
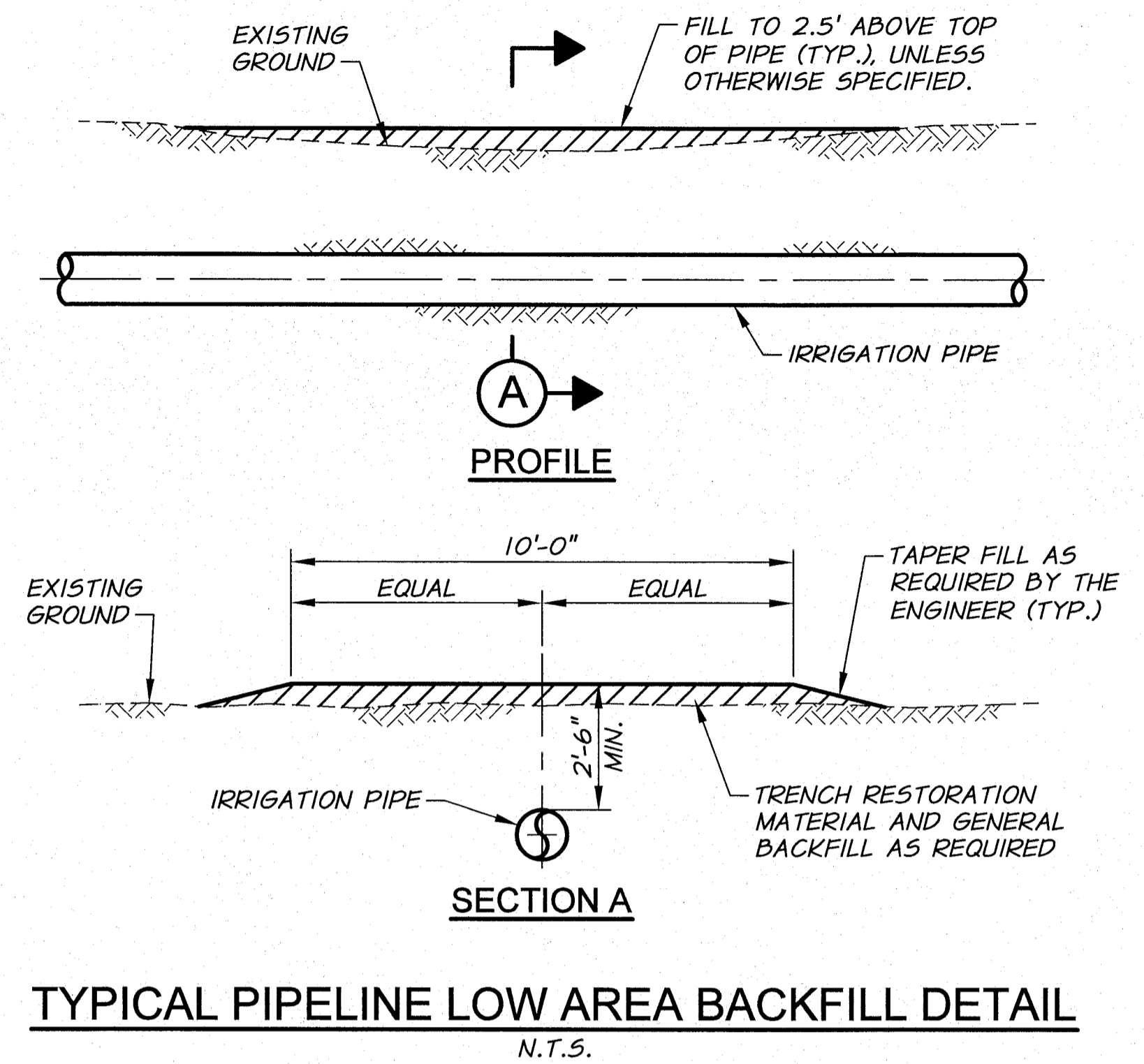
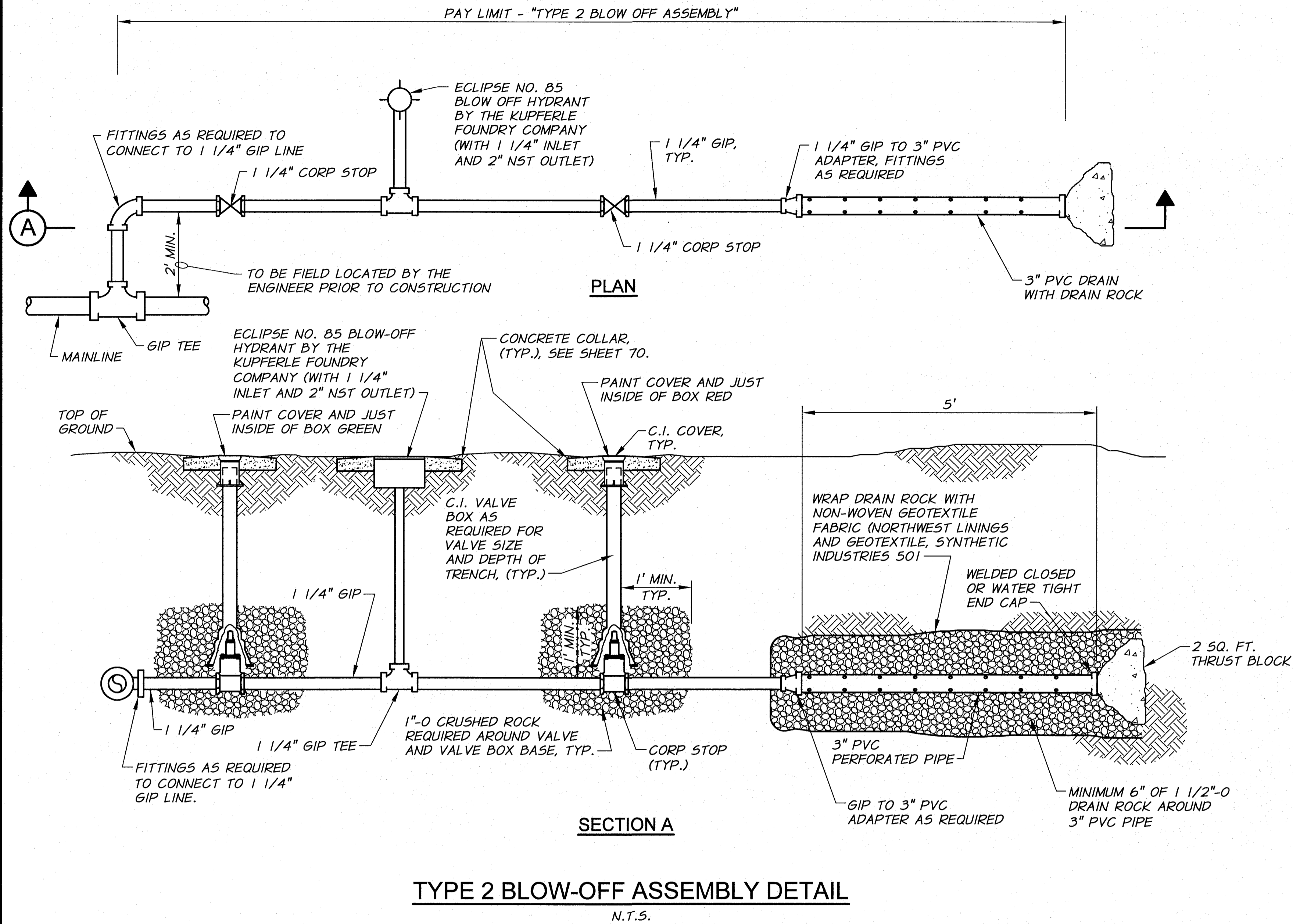
DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER	1199-336	DATE	2010
DRAWN BY	P. RICHARDSON		ACAD FILE	lrrgDets.dwg		
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
MISCELLANEOUS DETAILS I

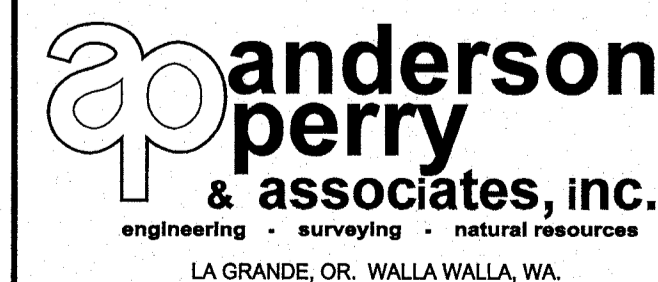
SHEET  
**68**



REVISION	BY	DATE	HORIZ. SCALE	VERT. SCALE
DESIGNED BY	R. HARRIS		NONE	
DRAWN BY	P. RICHARDSON		JOB NUMBER	1199-336
REVIEWED BY	J. HOLLOPETER		ACAD FILE:	lrrgDets.dwg
			DATE	
			2010	
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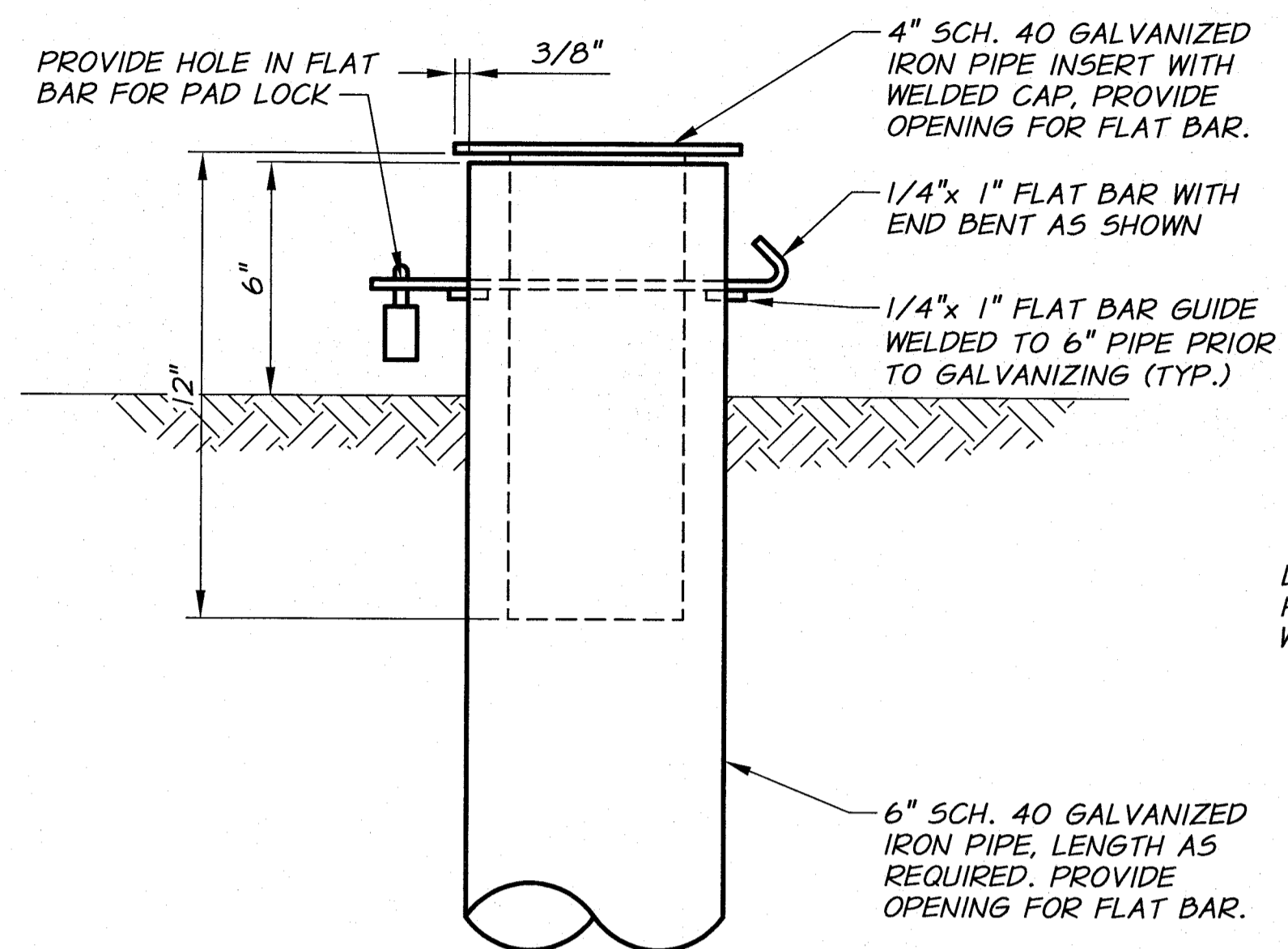
**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

MISCELLANEOUS DETAILS II

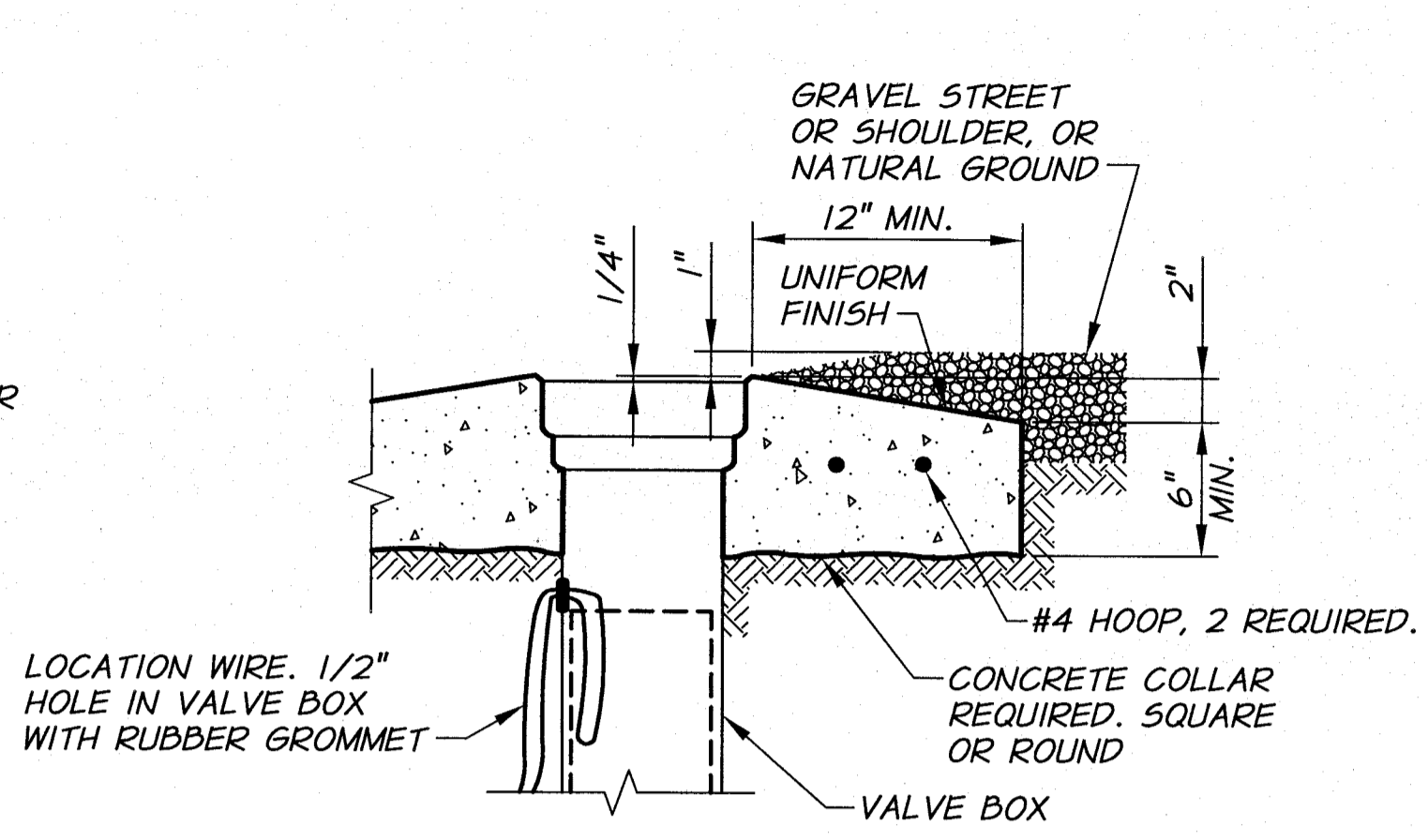
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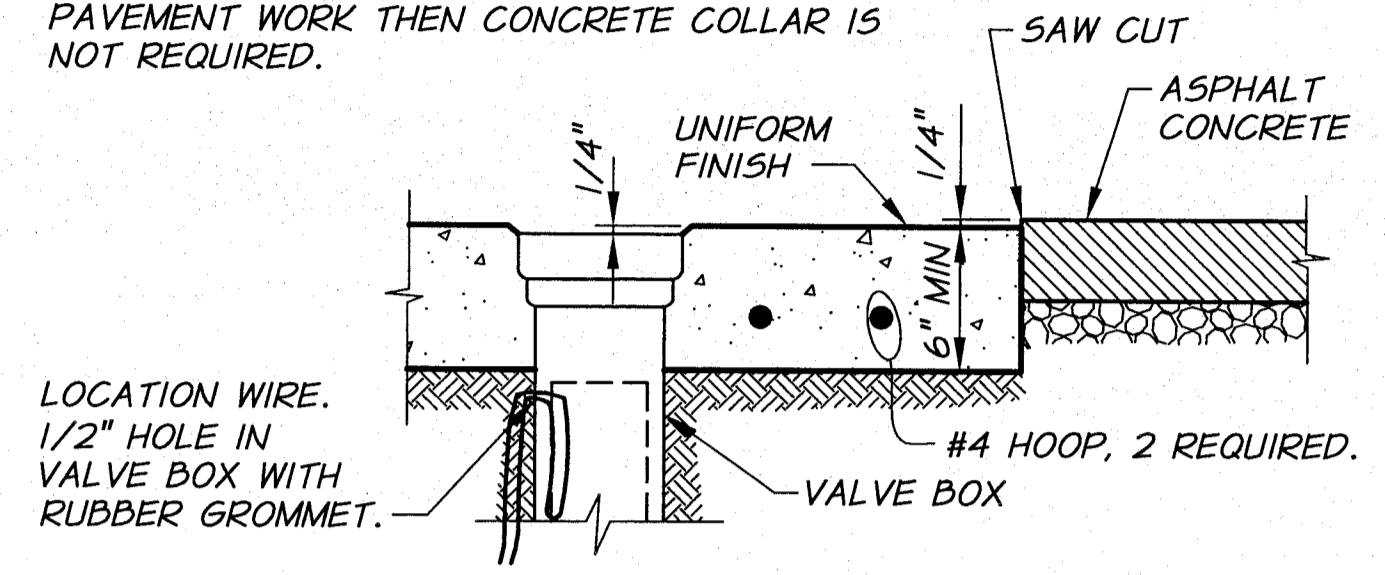
**LOCKABLE VALVE BOX DETAIL**  
N.T.S.



**CONCRETE COLLAR DETAIL**  
IN GRAVEL STREETS OR NATURAL GROUND  
N.T.S.

REQUIREMENTS FOR CONCRETE COLLARS:  
1. CONCRETE: 3/4", 7 SACK, 4000 PSI AT 28 DAYS, 2" TO 4" SLUMP, 4-7% AIR.  
2. COLLAR TO BE FORMED AND UNIFORMLY ROUND.  
3. SMOOTH BROOMED FINISH REQUIRED.  
4. APPLY CONCRETE CURING COMPOUND.  
5. PROTECT FROM TRAFFIC FOR 4 DAYS MIN.

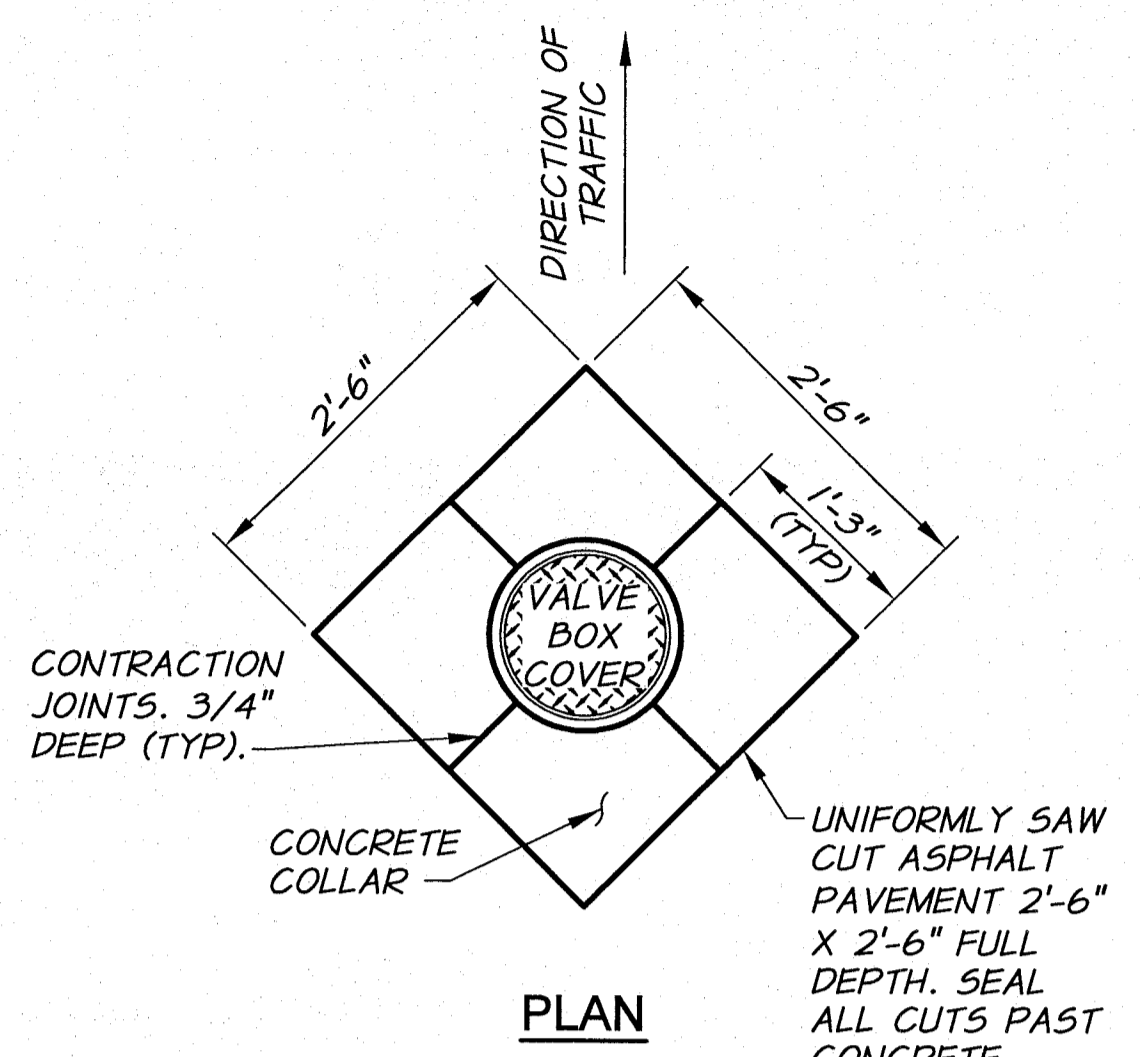
NOTE:  
CONCRETE COLLAR REQUIRED IF VALVE BOX GRADE IS ADJUSTED AFTER ASPHALT PAVEMENT WORK IS PERFORMED. IF GRADE ADJUSTMENT OCCURS PRIOR TO ASPHALT PAVEMENT WORK THEN CONCRETE COLLAR IS NOT REQUIRED.



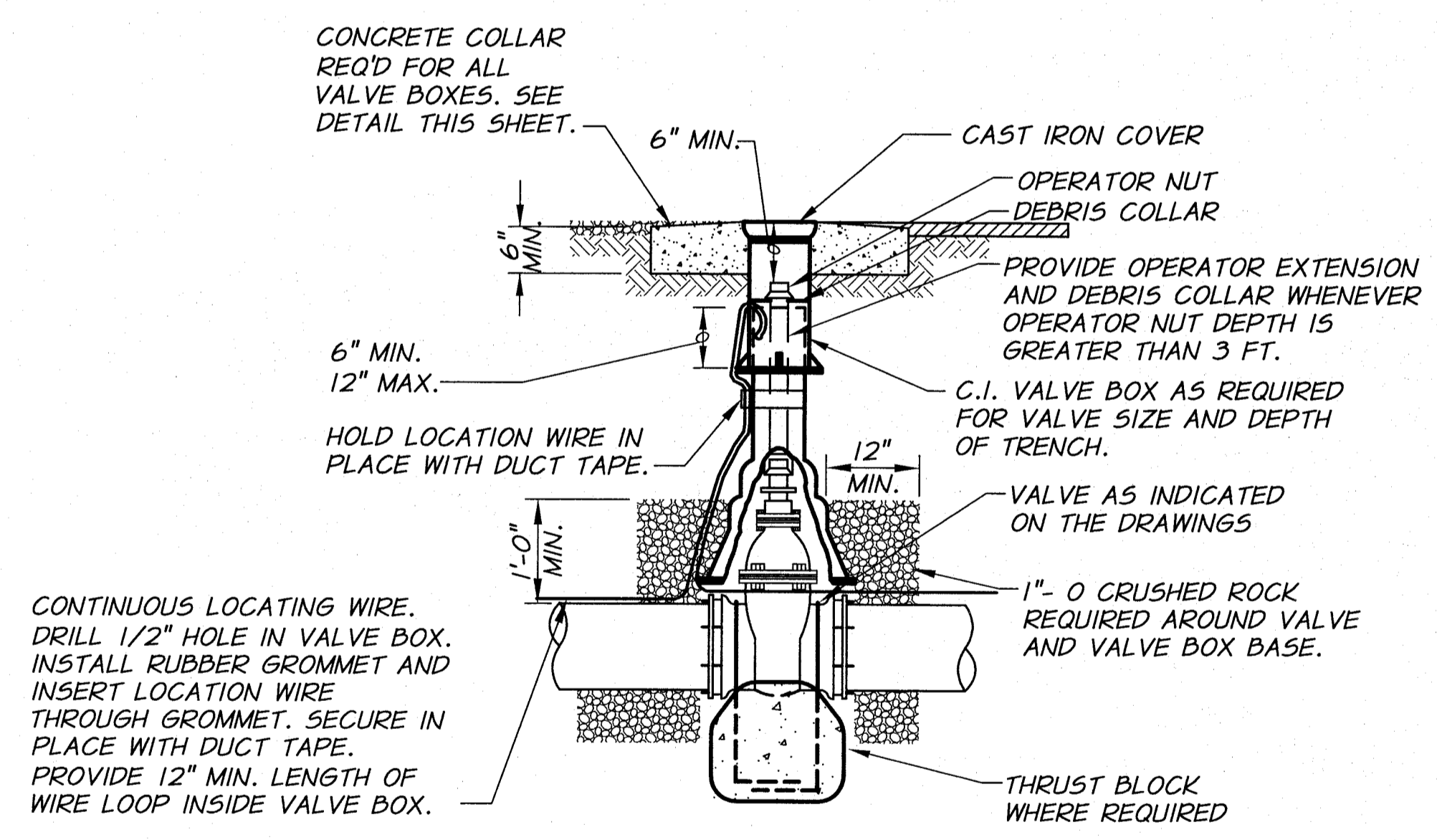
**TYPICAL SECTION**

**VALVE BOX CONCRETE COLLAR DETAIL**  
IN ASPHALT PAVEMENT  
N.T.S.

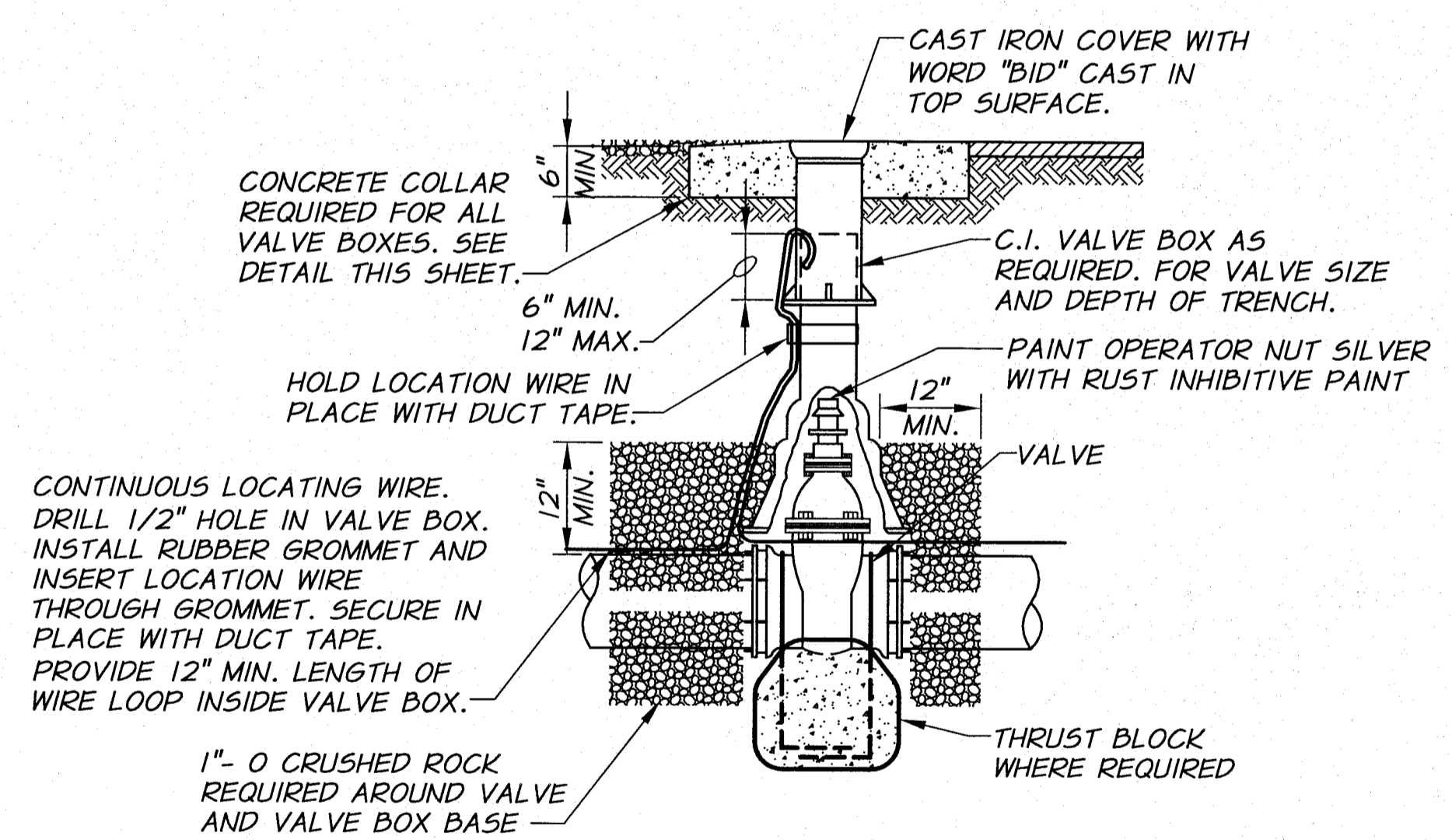
REQUIREMENTS FOR CONCRETE COLLARS:  
1. CONCRETE: 3/4", 7 SACK, 4000 PSI AT 28 DAYS, 2" TO 4" SLUMP, 4-7% AIR.  
2. SMOOTH BROOMED FINISH REQUIRED.  
3. APPLY CONCRETE CURING COMPOUND.  
4. PROTECT FROM TRAFFIC FOR 4 DAYS MINIMUM.



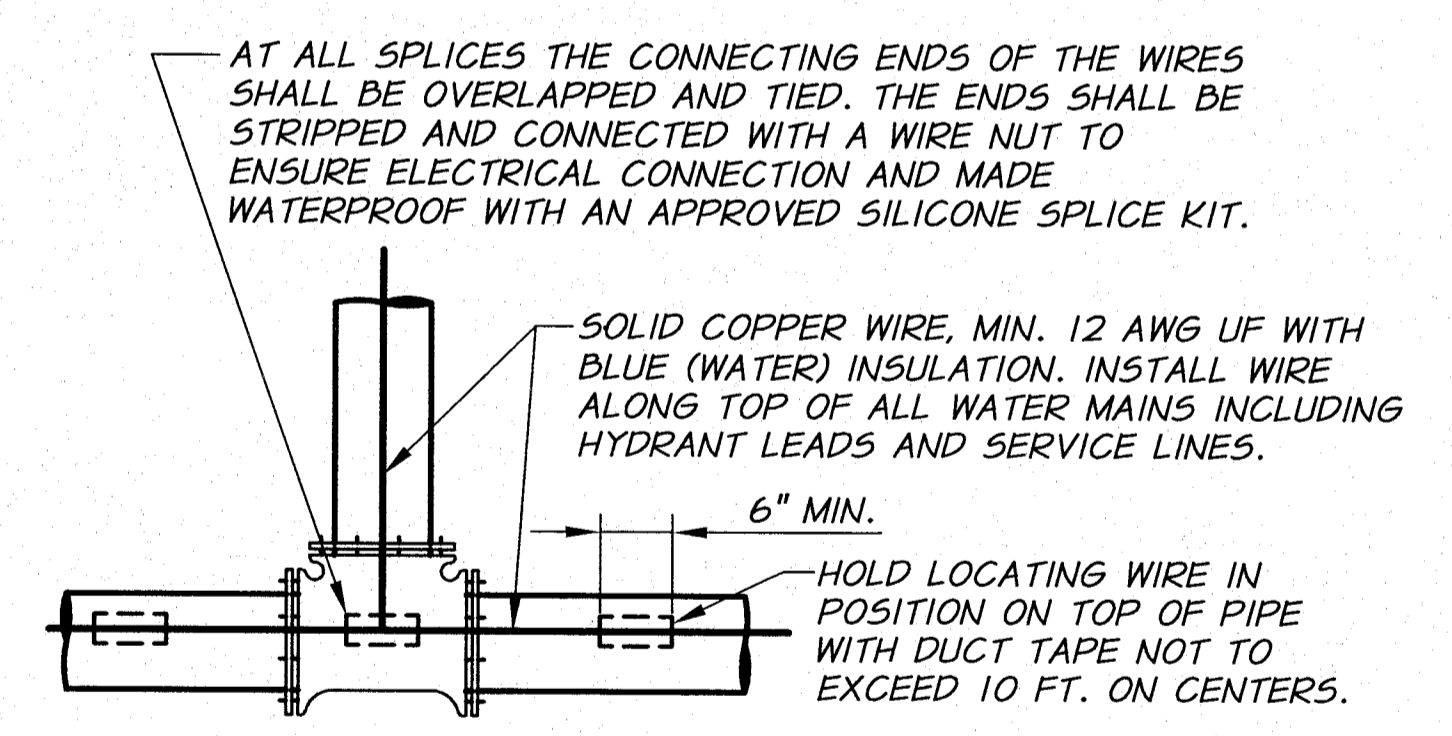
**PLAN**



**VALVE BOX EXTENSION DETAIL**  
N.T.S.



**VALVE BOX DETAIL**  
N.T.S.

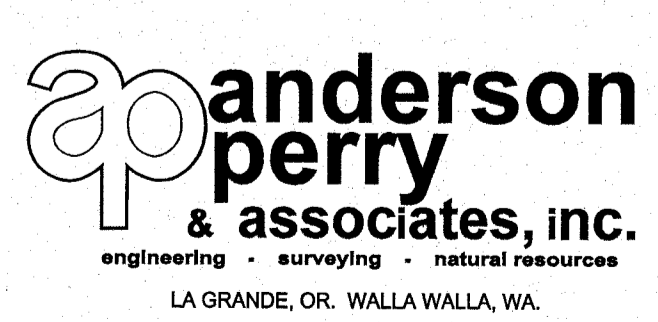


**CONTINUOUS LOCATING WIRE DETAIL**  
N.T.S.



DESIGNED BY	R. HARRIS	XREFS: TB-BID.dwg	JOB NUMBER	1199-336	DATE	2010
DRAWN BY	D. CHRISTMAN		ACAD FILE:	IrrgDets-11.dwg		
REVIEWED BY	J. HOLLOPETER		COPYRIGHT 2010 BY ANDERSON-PERRY & ASSOC., INC.			

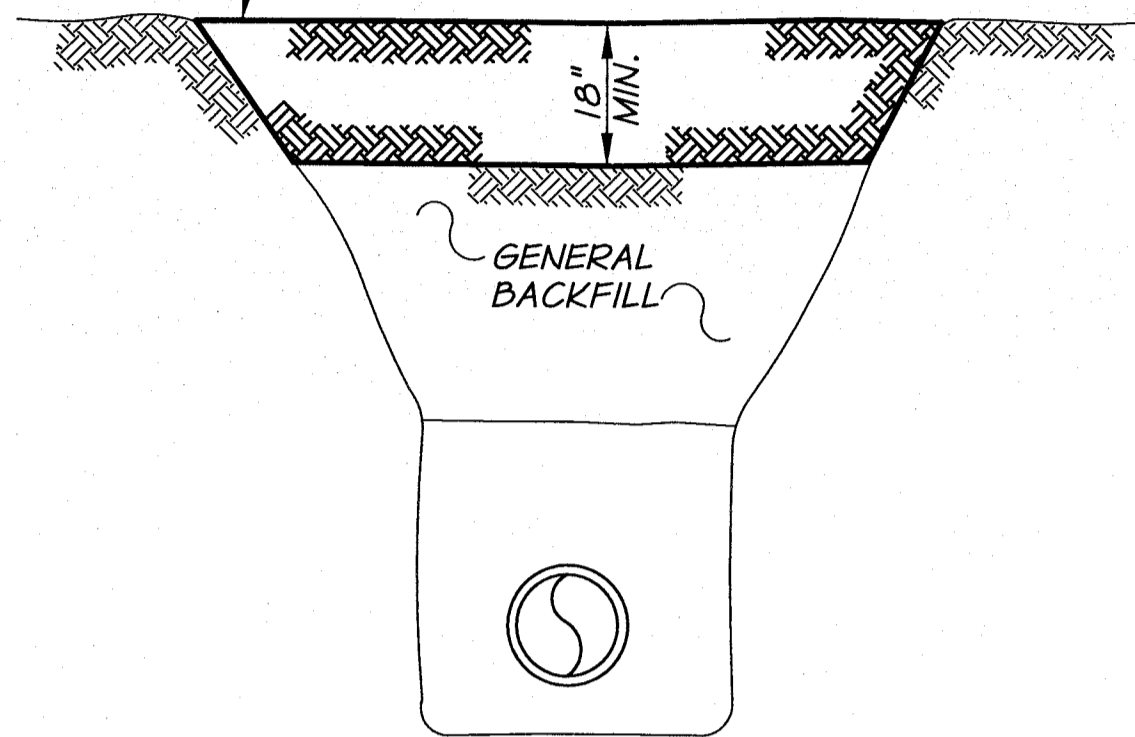
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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A  
MISCELLANEOUS DETAILS III

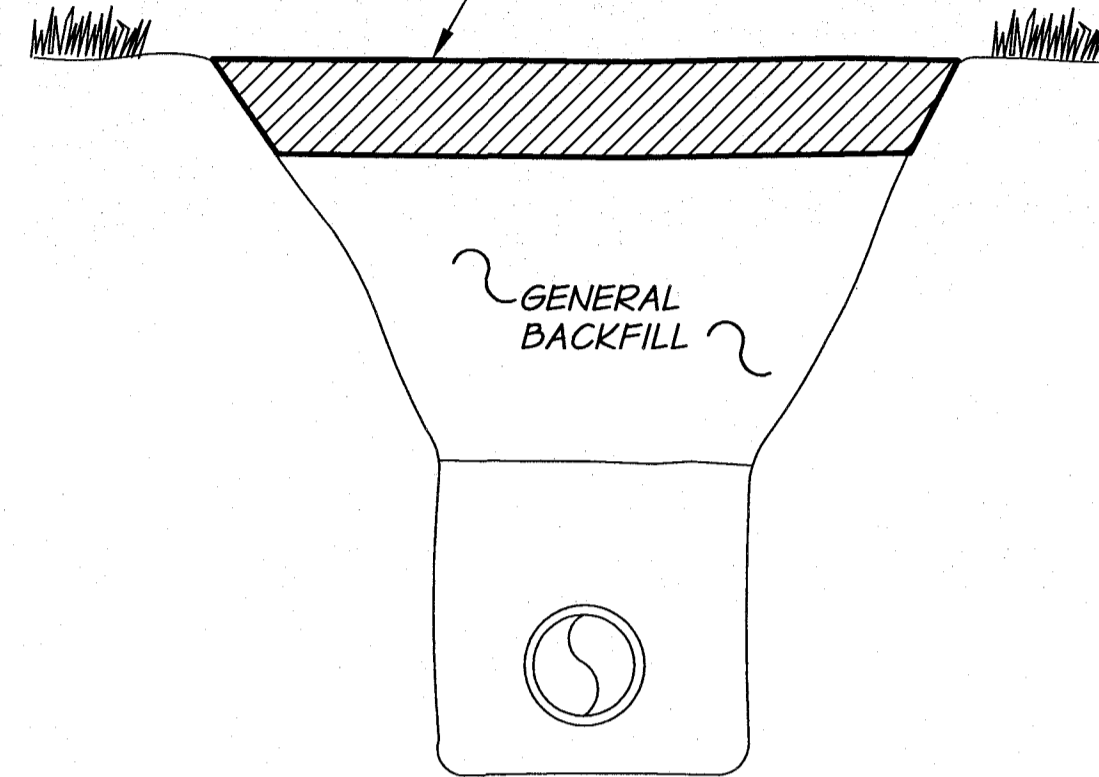
SHEET  
**70**

THE TOP 18" OF TOPSOIL IN THE EXCAVATION AREA SHALL BE REMOVED AND STOCKPILED AT A SEPARATE LOCATION FROM GENERAL TRENCH EXCAVATION. THIS TOPSOIL SHALL NOT BE MIXED OR CONTAMINATED WITH ANY OTHER MATERIAL. UPON COMPLETION OF THE TRENCH BACKFILL, AND AFTER ALL ROCKS AND UNSUITABLE MATERIAL HAVE BEEN REMOVED FROM WORK AREA, THE TOPSOIL SHALL BE REPLACED AND GRADED TO MATCH EXISTING GROUND. THE DISTURBED AREA SHALL THEN BE HYDROSEED ACCORDING TO HYDROSEED RESTORATION.



**TRENCH RESTORATION**  
AGRICULTURAL AREAS  
N.T.S.

REMOVE DEBRIS AND ROCK WHICH ARE NOT TYPICAL TO THE AREA. REPLACE TOPSOIL EQUAL TO EXISTING OR 6" WHICH EVER IS GREATER. RAKE AND SHAPE TO MATCH EXISTING. HYDROSEED PER HYDROSEED RESTORATION.



**TRENCH RESTORATION**  
LAWNS & LANDSCAPED AREAS  
N.T.S.

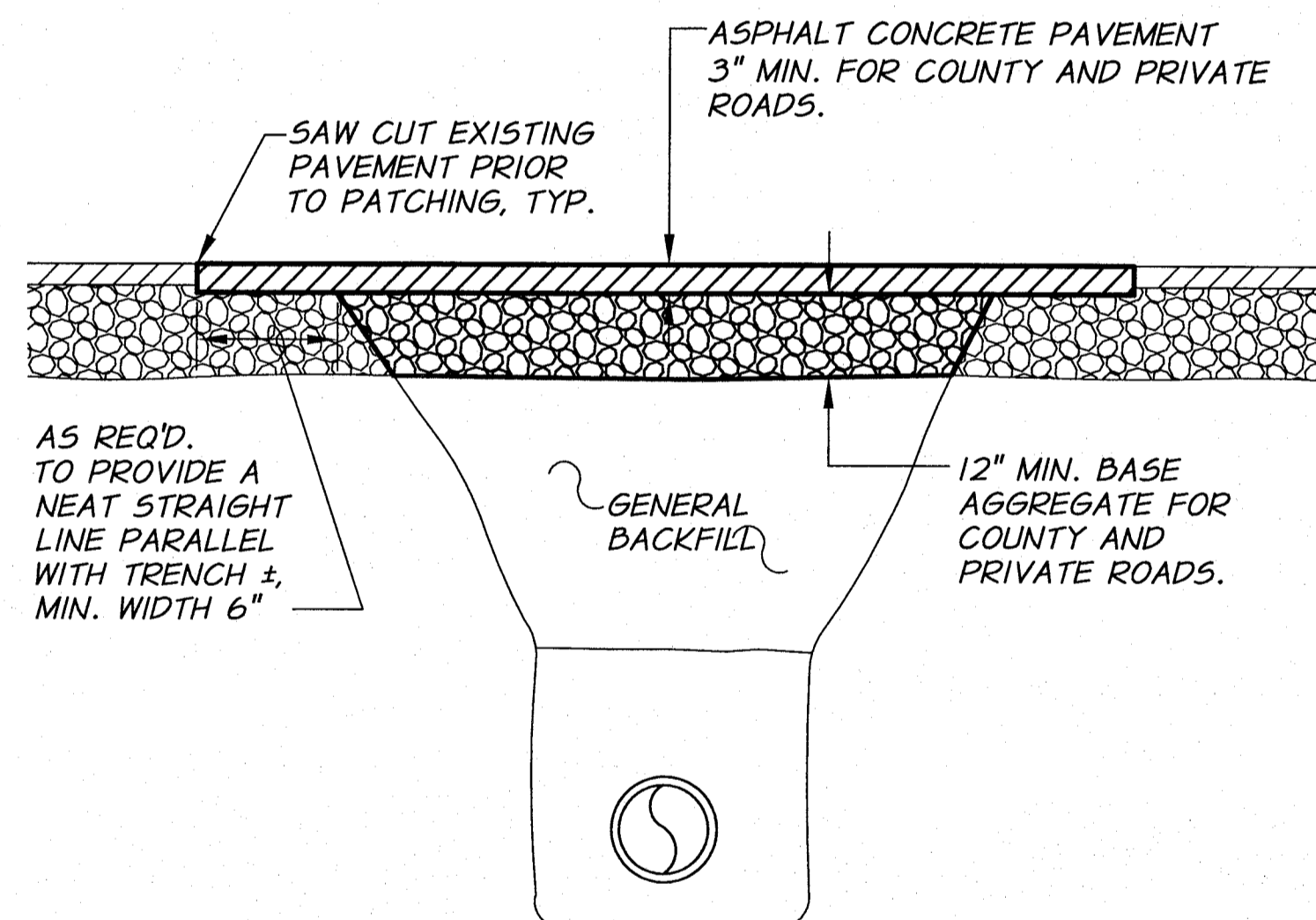
MULTIPLE INSTALLATIONS (ALL SHAPES)

DIAMETER	MIN. SPACE BETWEEN PIPE
UP TO 18"	18"

NOTES  
1. SURFACING OF PAVED AREAS SHALL COMPLY WITH STREET CUT STANDARD DRAWING.

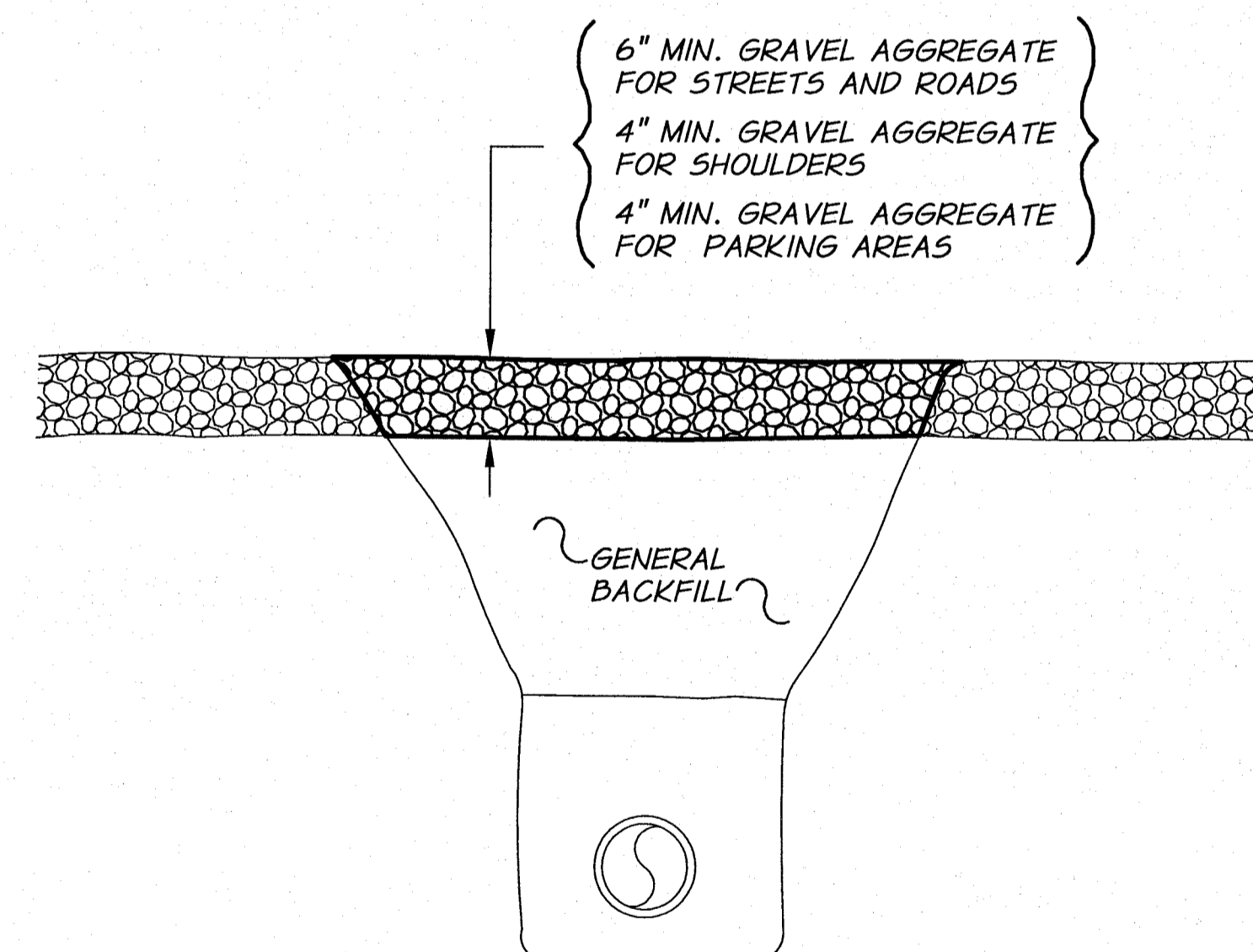
TRENCH BACKFILL AND BEDDING TABLE					
	ASPHALT SURFACE RESTORATION	GRAVEL STREETS, ROADWAYS, SHOULDERS AND PARKING AREAS	HYDROSEED RESTORATION AND NATURAL AREAS	HORNE DR. OPEN TRENCH CROSSING ASPHALT SURFACE RESTORATION	HORNE DRIVE SHOULDER
<b>SURFACE</b>	SURFACING MATCHING EXISTING	3/4"-0 GRAVEL AGGREGATE (FOR THICKNESS SEE DETAIL THIS SHEET)	TOPSOIL OR AS DIRECTED	SURFACING MATCHING EXISTING	SURFACING MATCHING EXISTING
<b>BASE MATERIAL UNDER SURFACE</b>	3/4"-0 BASE ROCK	GENERAL BACKFILL	TOPSOIL OR AS DIRECTED	CDF	3/4"-0 BASE ROCK
<b>GENERAL BACKFILL</b>	3/4"-0 BASE ROCK	GENERAL BACKFILL	GENERAL BACKFILL	CDF	3/4"-0 BASE ROCK
<b>SELECT BACKFILL</b>	3/4"-0 BASE ROCK	*3/4"-0 BASE ROCK OR NATIVE	*3/4"-0 BASE ROCK OR NATIVE	CDF	3/4"-0 BASE ROCK
<b>BEDDING</b>	3/4"-0 BASE ROCK	*3/4"-0 BASE ROCK OR NATIVE	*3/4"-0 BASE ROCK OR NATIVE	CDF	3/4"-0 BASE ROCK

\*SEE THE SPECIFICATION FOR USE OF NATIVE SOILS IN LUE OF 3/4"-0 BASE ROCK. FOR 16" AND 18" PIPE, SELECT BACKFILL AND BEDDING SHALL BE 3/4"-0 BASE ROCK.

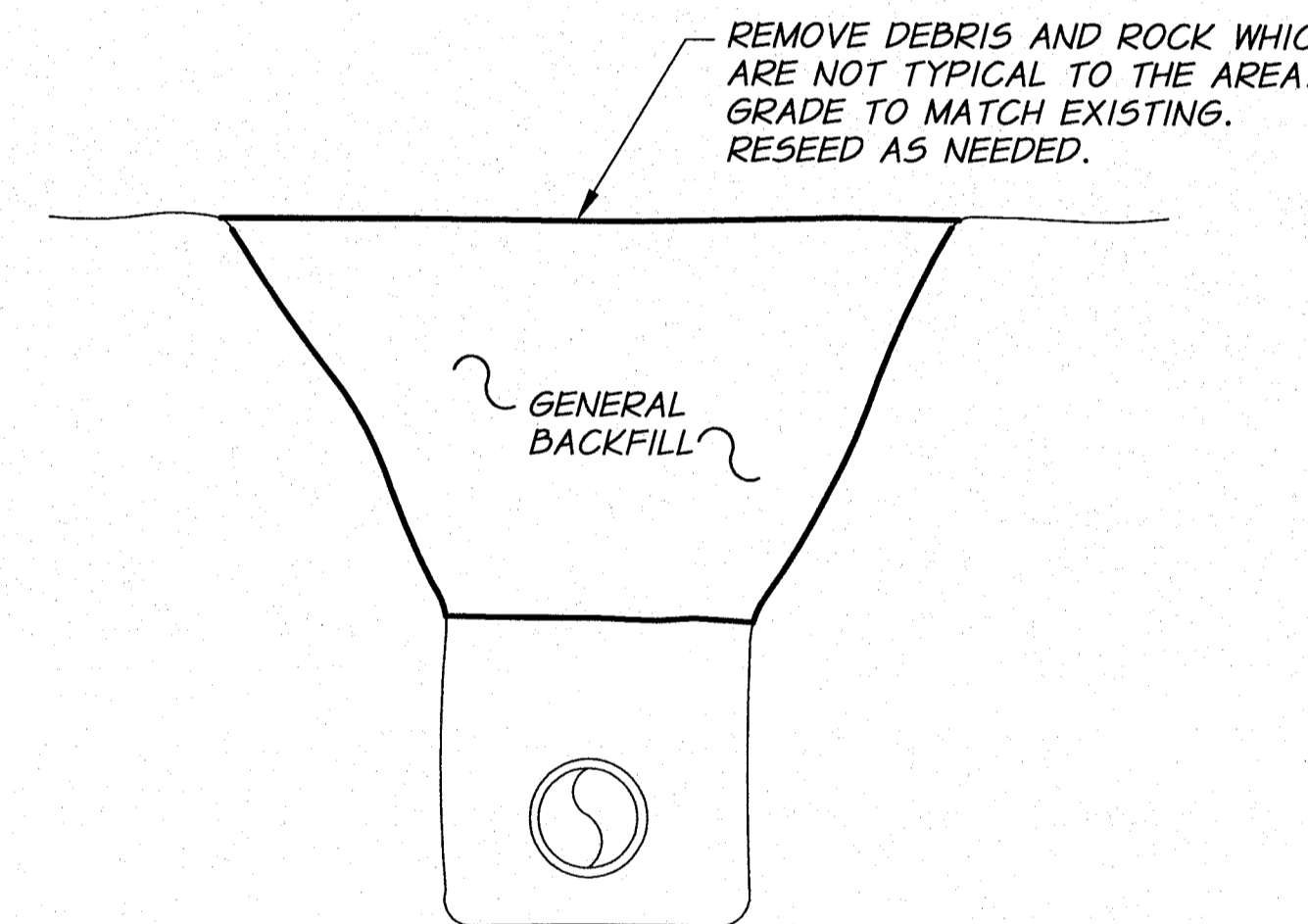


**TRENCH RESTORATION**  
PAVED STREETS AND ROADWAYS  
("ASPHALT SURFACE RESTORATION" PAY ITEM)

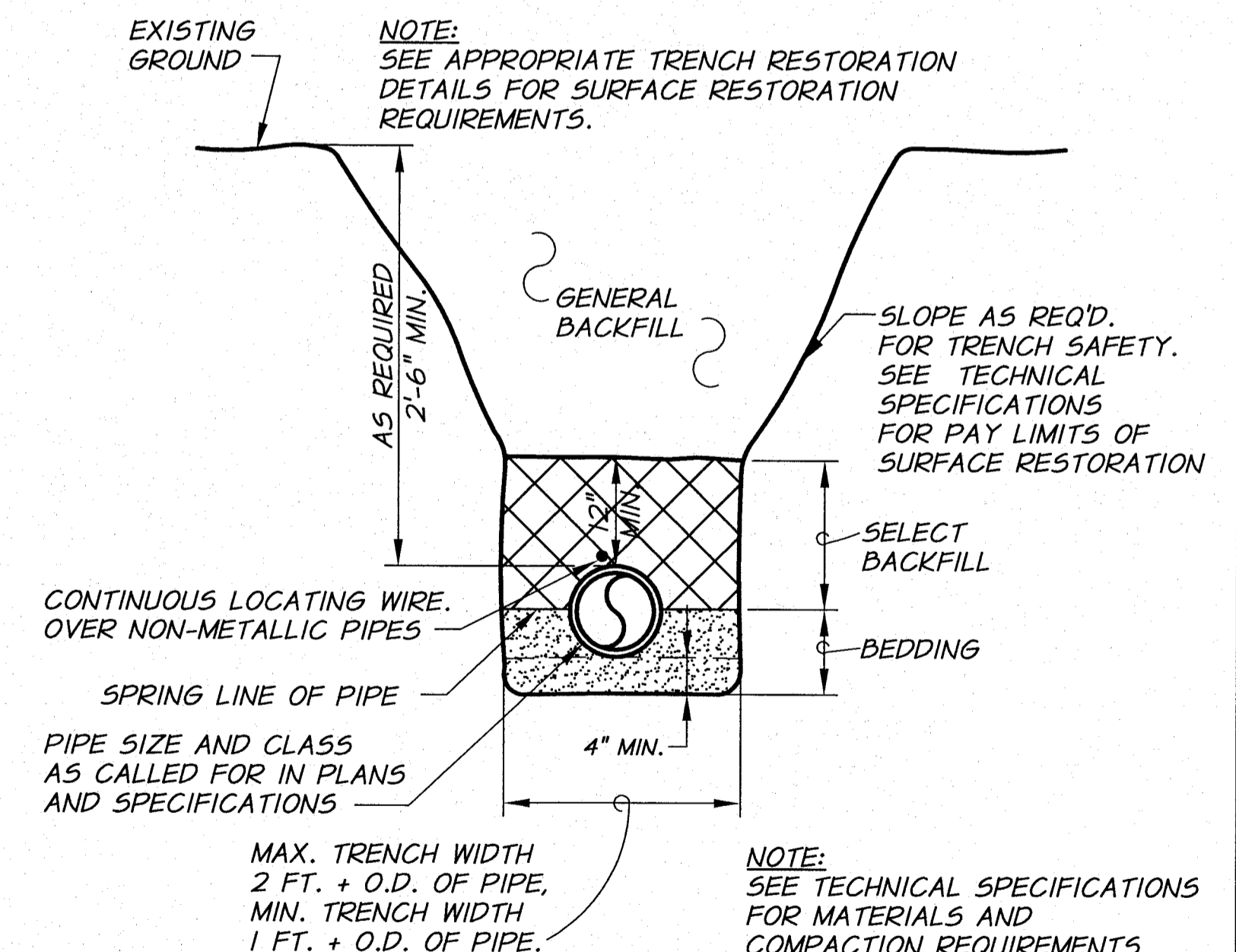
FOR HORNE DRIVE ASPHALT SURFACE RESTORATION SEE SPECIFICATIONS



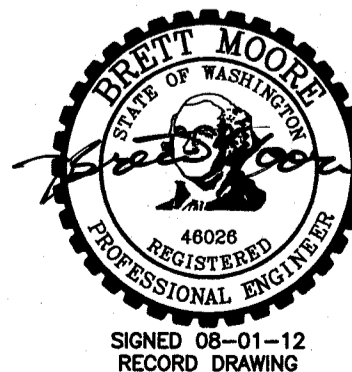
**TRENCH RESTORATION**  
GRAVEL STREETS, ROADWAYS, SHOULDERS, AND PARKING AREAS  
("GRAVEL SURFACE RESTORATION" PAY ITEM)  
N.T.S.



**TRENCH RESTORATION**  
GENERAL AREAS  
N.T.S.



**TRENCH EXCAVATION AND BACKFILL**  
N.T.S.

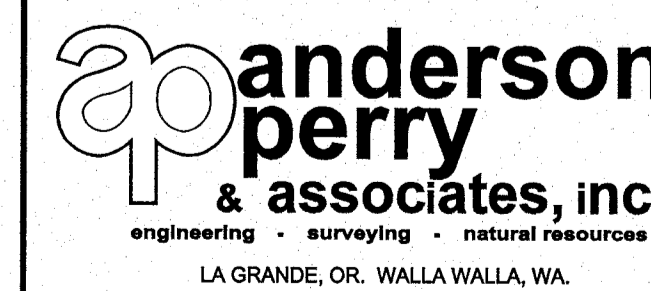


REVISION	BY	DATE	HORZ. SCALE	VERT. SCALE
DESIGNED BY	R. HARRIS		NONE	
DRAWN BY	D. CHRISTMAN		1199-336	2010
REVIEWED BY	J. HOLLOWPETER		TrenchDets.dwg	

XREFS: TB-BID.dwg  
ACAD FILE: TrenchDets.dwg  
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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

TRENCH DETAILS

SHEET

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**THRUST BLOCK NOTES**

- THRUST BLOCKS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:
  - ALL CHANGES IN DIRECTION.
  - ALL DEAD-ENDS.
  - ALL VALVES 8-INCHES AND LARGER SHALL BE SIZE FOR CLOSED CONDITION EXCEPTIONS:
    - WHEN RESTRAINED JOINT PIPE IS USED ON BOTH SIDES OF VALVE.
    - WHEN VALVE IS RESTRAINED JOINT CONNECTED TO A FITTING WHICH HAS APPROPRIATE THRUST BLOCKING.
  - AT LOCATIONS SPECIFICALLY CALLED OUT ON THE DRAWINGS.
  - AT TEMPORARY DEAD ENDS DURING PIPE INSTALLATIONS AS REQUIRED FOR TEMPORARY PRESSURE TESTING.
  - AT OTHER LOCATIONS REQUIRED BY THE ENGINEER.
- THRUST BLOCKS SHALL BE SIZED AS REQUIRED BY SOIL CONDITIONS AND DESIGN PRESSURE.
- PLACE CONCRETE AGAINST UNDISTURBED TRENCH WALL.
- CONCRETE SHALL BE 2,500 PSI MINIMUM.
- ALL CONCRETE SHALL BE PLACED SO THAT PIPE, FITTING JOINTS, BOLTS AND NUTS, ETC., WILL BE ACCESSIBLE FOR REPAIRS.
- PLACE ONE LAYER OF VISQUEEN BETWEEN FITTING AND CONCRETE TO FACILITATE FUTURE REMOVAL OF THRUST BLOCK IF REQUIRED.
- ANCHOR RODS SHALL BE 3/4" DIAMETER GALVANIZED STEEL RODS OR #6 EPOXY COATED REINFORCEMENT BAR, AASHTO M284, HAVING AN 18" MINIMUM EMBEDMENT IN CONCRETE.
- IF THE REQUIRED BEARING AREA IS LESS THAN 1 SQUARE FOOT, A THRUST BLOCK SHALL NOT BE REQUIRED.
- ALL THRUST BLOCKS SHALL BE SIZED PER THE FOLLOWING PRESSURES UNLESS OTHERWISE NOTED:
 

PVC CL 160/165 PIPE	=	150 PSI
18" AND SMALLER DI PIPE	=	150 PSI

**DETERMINATION OF THRUST BLOCK BEARING AREA**

**NOTE:** WHEN THRUST BLOCK BEARING AREA IS NOT SPECIFIED ON THE PLANS OR DETERMINED BY THE ENGINEER, THE FOLLOWING PROCEDURE SHALL BE USED TO DETERMINE REQUIRED BEARING AREA.

- DETERMINE THRUST (T) FOR TYPE OF FITTING OR JOINT AND SIZE OF PIPE FROM TABLE NO. 1 OR TABLE NO. 3.
- DETERMINE BEARING CAPACITY (B) OF SOIL FROM TABLE NO. 2.
- DETERMINE REQUIRED BEARING AREA (A) AS FOLLOWS:  
 $A = T \div B$   
 EXAMPLE: DESIGN PRESSURE = 175 PSI  
 PIPE = 12"  
 FITTING = TEE  
 SOIL - SANDY GRAVEL  
 FROM TABLE NO. 1: T = 15,050 LB.  
 FROM TABLE NO. 2: B = 3000 LB/SQ.FT.  
 $A = 15,050 \div 1.75 = 8.8 \text{ SQ.FT.} = 9 \text{ SQ.FT. (ROUND UP TO NEAREST 3,000 WHOLE SQ.FT.)}$

**TABLE NO. 1**  
THRUST AT FITTINGS IN POUNDS AT 100 PSI OF PRESSURE

PIPE SIZE	TEES AND DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1,680	2,310	1,290	660	340
6"	3,770	5,320	2,890	1,480	750
8"	6,690	9,460	5,120	2,620	1,320
10"	10,440	14,780	8,010	4,090	2,050
12"	15,050	21,280	11,520	5,880	2,960
14"	20,490	28,960	15,680	8,000	4,020
16"	26,750	37,830	20,470	10,440	5,260
18"	33,850	47,870	25,910	13,210	6,640
20"	41,790	59,090	31,980	16,310	8,190
24"	60,170	85,100	46,060	23,490	11,800

**NOTE:** FOR WATER PRESSURES DIFFERENT THAN 100 PSI, MULTIPLY THRUST FOUND IN TABLE NO. 1 BY REQUIRED PROPORTION. EXAMPLE: DESIGN PRESSURE = 175 PSI. MULTIPLY VALUE IN TABLE BY 1.75

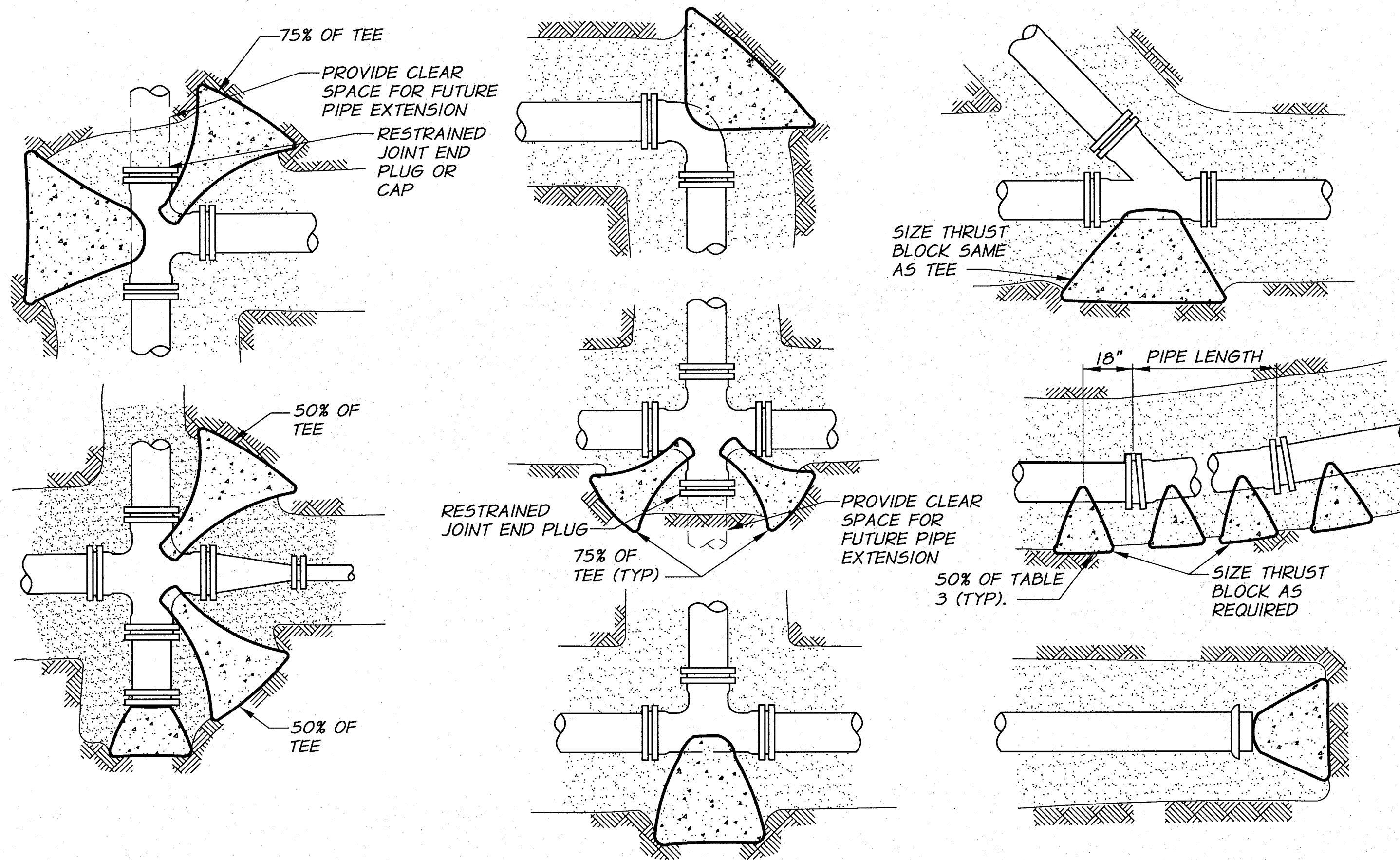
**TABLE NO. 2**

SOIL	SAFE BEARING LOAD LB/SQ.FT.
SOFT CLAY	500
SILT	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED WITH CLAY	4,000
HARD CLAY	4,000

**TABLE NO. 3**  
SIDE THRUST PER 100 LB./SQ.IN. PRESSURE PER DEGREE OF DEFLECTION

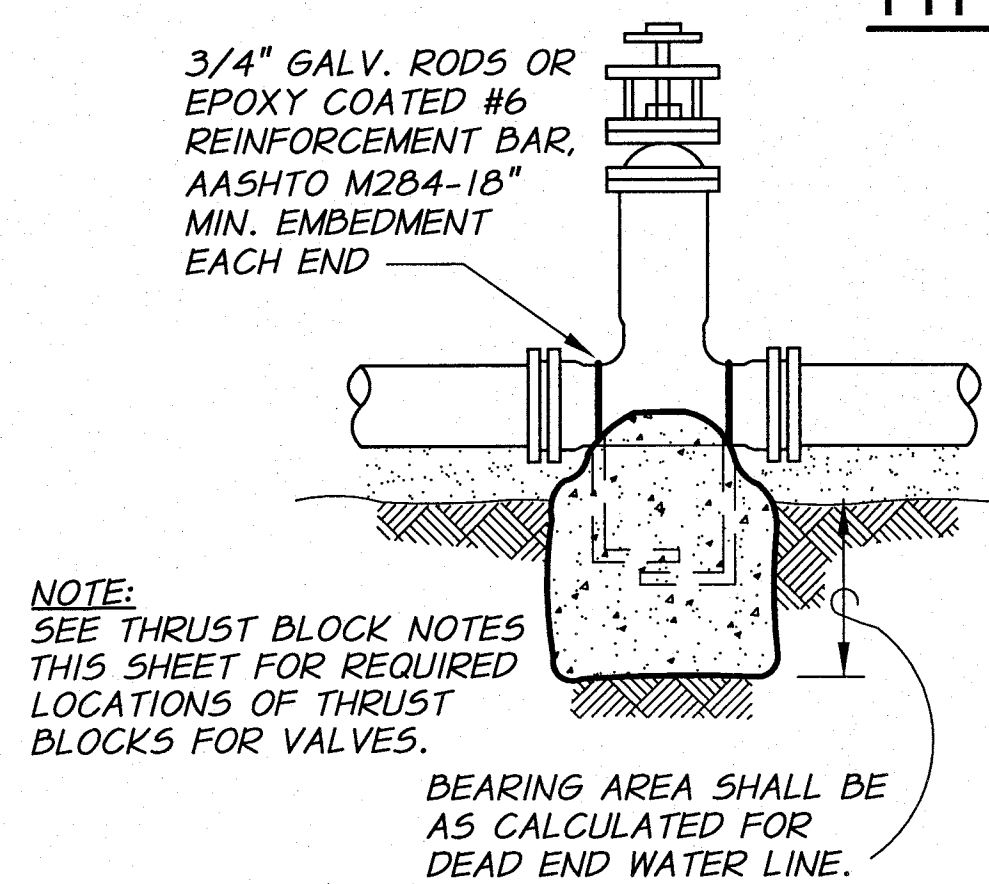
PIPE SIZE	SIDE THRUST-LB	PIPE SIZE	SIDE THRUST-LB
4"	N/A	14"	360
6"	N/A	16"	470
8"	N/A	18"	600
10"	190	20"	730
12"	270	24"	1,050

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST



**TYPICAL THRUST BLOCK LOCATIONS**

PLAN VIEWS

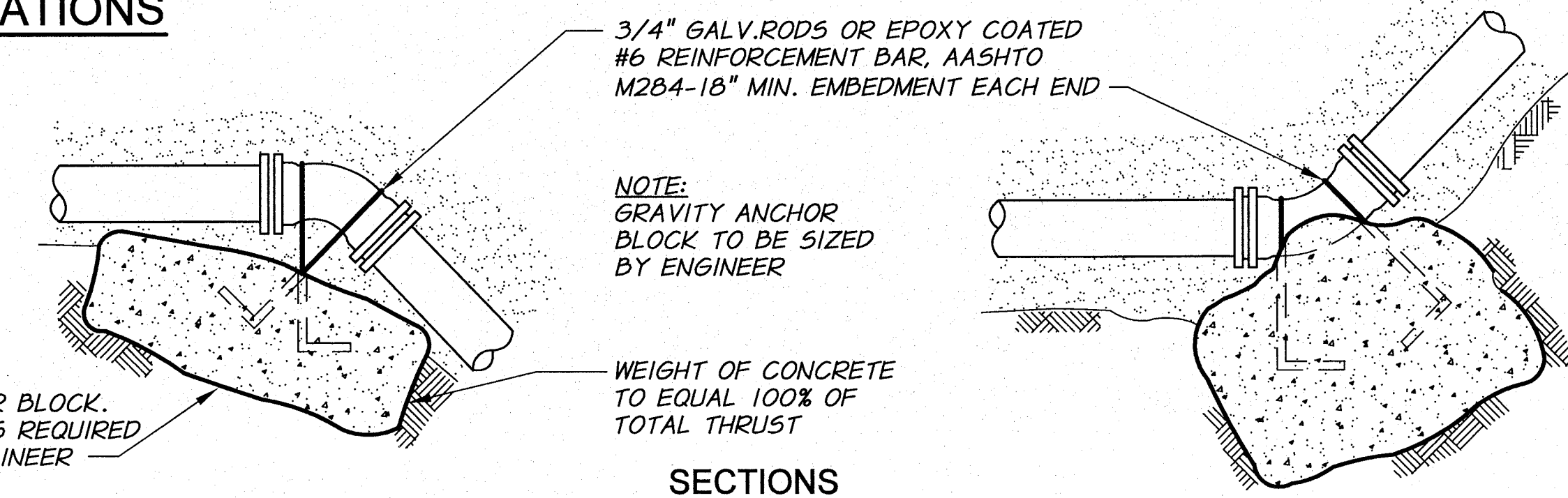


**NOTE:** SEE THRUST BLOCK NOTES THIS SHEET FOR REQUIRED LOCATIONS OF THRUST BLOCKS FOR VALVES.

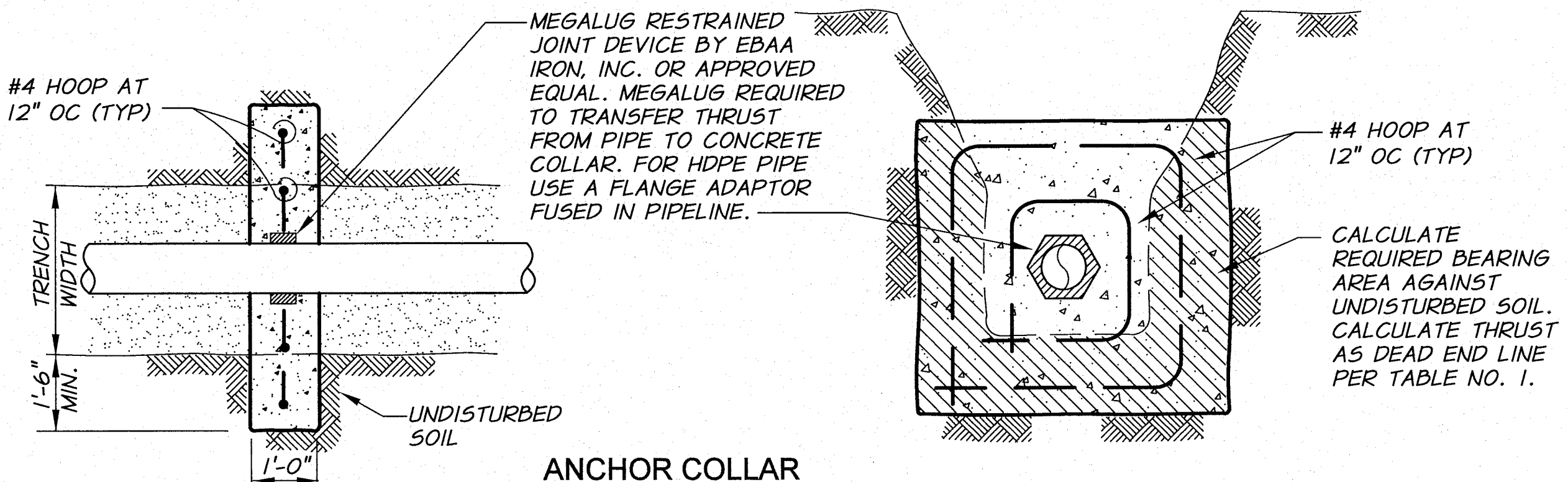
BEARING AREA SHALL BE AS CALCULATED FOR DEAD END WATER LINE.

**TYPICAL VALVE THRUST BLOCK**

**NOTE:** NOT REQUIRED FOR VALVES WITH FLANGED CONNECTION TO TEE WITH THRUST BLOCK.

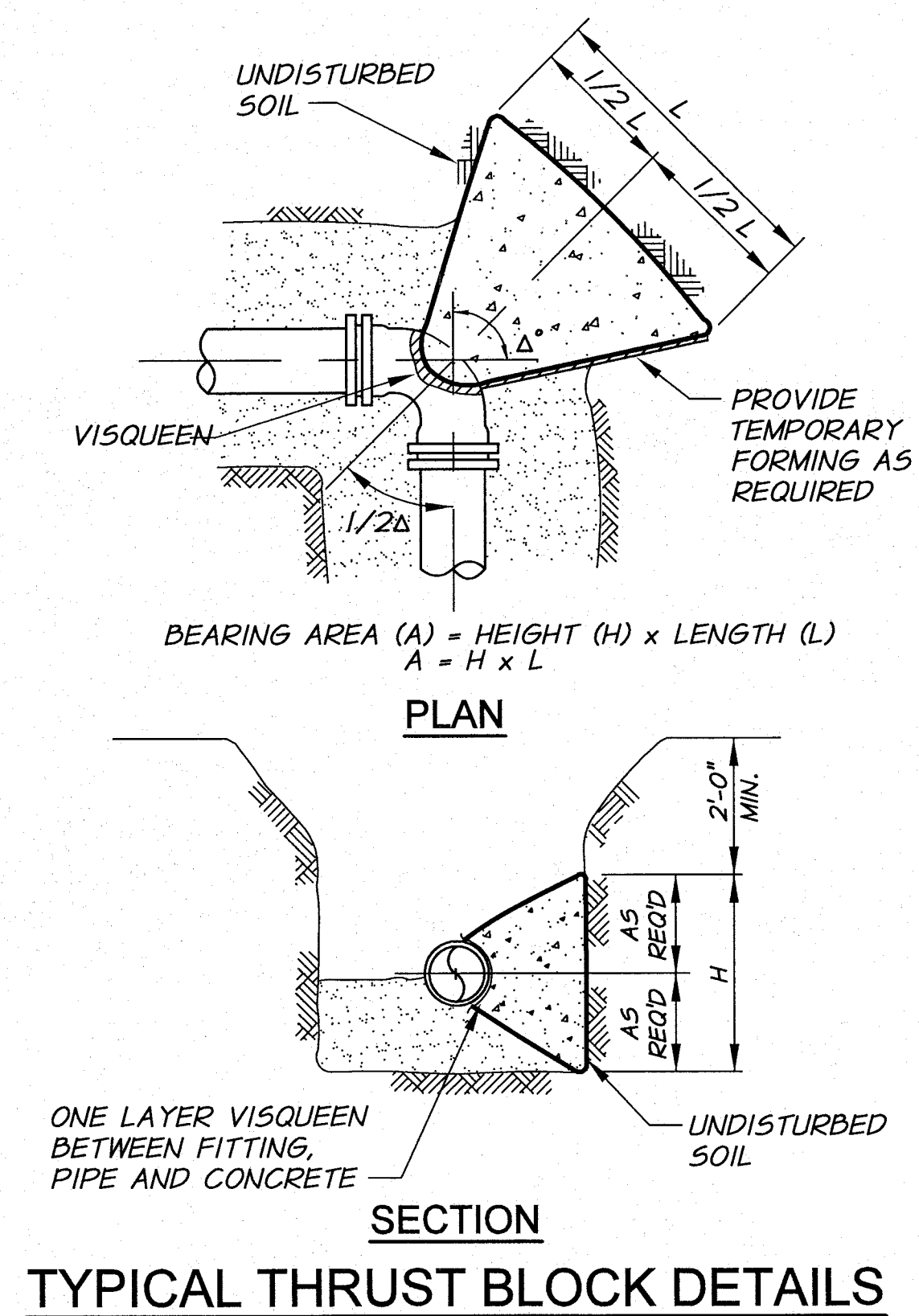


SECTIONS

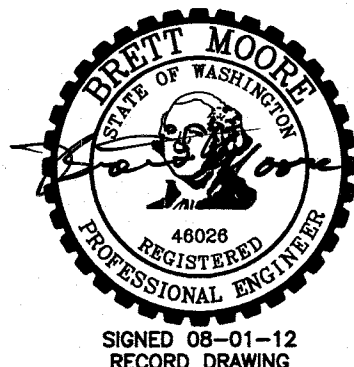


ANCHOR COLLAR

**TYPICAL ANCHOR BLOCKS**



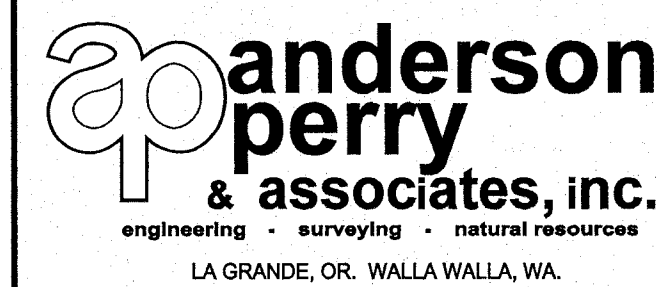
**TYPICAL THRUST BLOCK DETAILS**



REVISION	BY	DATE	HORIZ. SCALE NONE	VERT. SCALE
DESIGNED BY R. HARRIS	XREFS: TB-BID.dwg		JOB NUMBER 1199-336	DATE 2010
DRAWN BY D. CHRISTMAN			ACAD FILE Thrust-ConveySys.dwg	
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**BENTON IRRIGATION DISTRICT**  
IRRIGATION SYSTEM IMPROVEMENTS  
PHASE 2A

THRUST BLOCK DETAILS

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