

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

Land Development Division

JAN 16 2014

Date

**ADDENDUM NO. 1
TO
INVITATION FOR BIDS**

**IFB-14-HHL-006
LOWER KULA WATER SYSTEM IMPROVEMENTS**

Notice to All Prospective Offerors

This addendum is hereby made a part of the contract documents for Lower Kula Water System Improvements, IFB-14-HHL-006, and it shall amend the said contract documents as detailed within this Addendum document.

APPROVED:



Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

Please execute and immediately return the receipt below to the Department of Hawaiian Home Lands via facsimile to (808) 620-9283, Mr. Stewart Matsunaga, Land Development Division.

Receipt of Addendum No. 1 for the Lower Kula Water System Improvements, Invitation for Bids No.: IFB-14-HHL-006, is hereby acknowledged.

Signed: (Name)

Title

Name of Firm/Company

Date

Addendum No. 1
IFB No.: IFB-14-HHL-006
Lower Kula Water System Improvements

This Addendum No. 1 shall incorporate the following amendments to IFB-14-HHL-006:

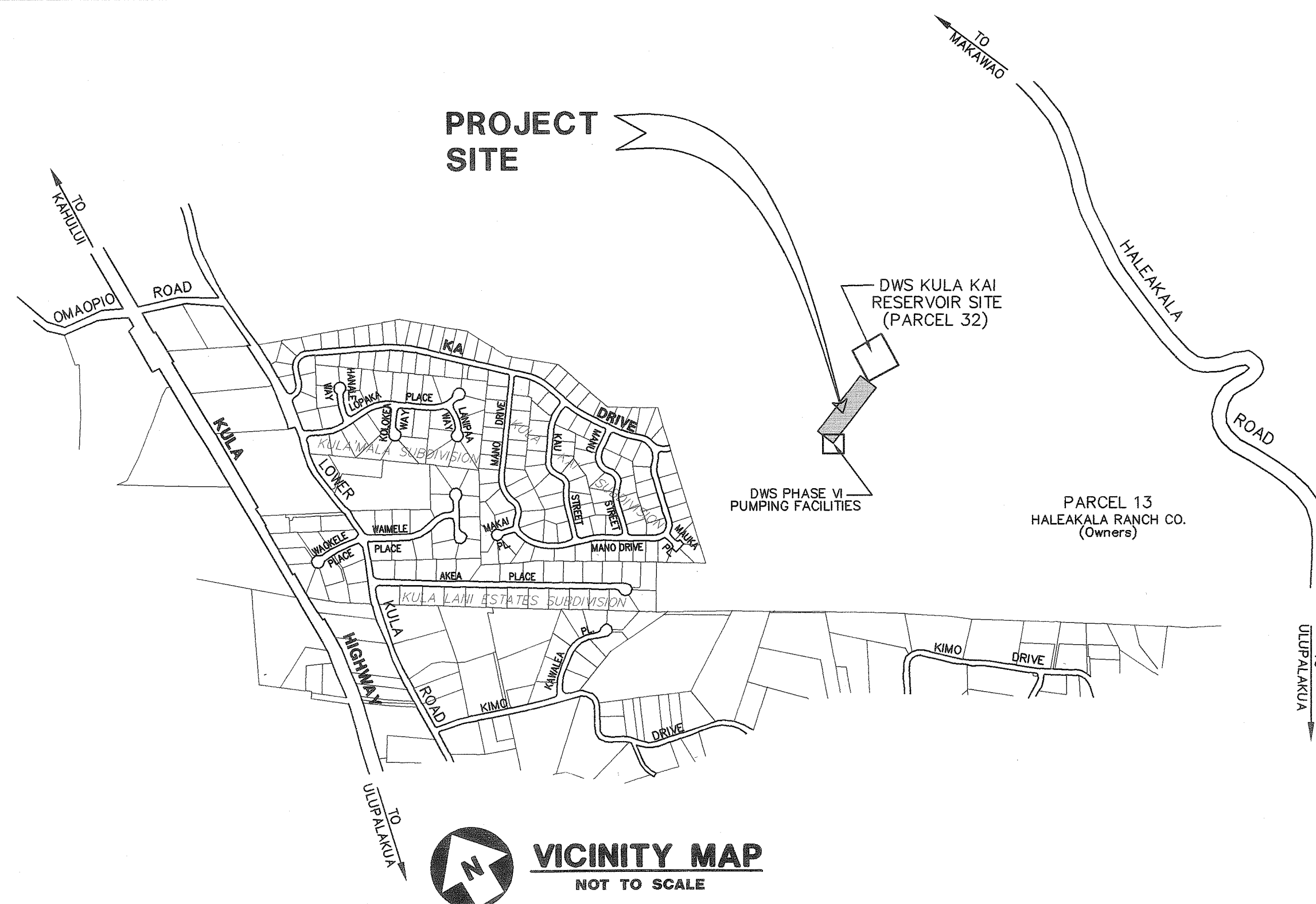
Inclusions

1. The correct Tax Map Key Number for the project site is: (2) 2-3-004:13(portion) and 32, and not (2) 3-4-013:13 as stated in the Notice to Bidders published on January 7, 2014.
2. Full size plans (24" x 36") available for download in PDF format on the Department of Hawaiian Homes website, at: <http://dhhl.hawaii.gov/procurement/>

AT
KULA, MAUI, HAWAII
TAX MAP KEY (2) 2-3-04: 13 (PORTION) AND 32



**PREPARED BY: R. T. TANAKA ENGINEERS, INC.
871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793**



11/19/2012
DATE

1	TITLE SHEET
2	CONSTRUCTION NOTES AND DETAILS
3	18" DUCTILE IRON PIPELINE – PLAN & PROFILE
4	ENLARGEMENT & MISCELLANEOUS DETAILS
5	DETAILS: CONC. PIER, ANCHOR BLOCK AND PIPE SUPPORT
6	MISCELLANEOUS DETAILS

(Layout)
Z:\DRAWING\1998\98-12\LKWT_NOTES.dwg 07--NOV--2012 : : Revised By:Nancy

GENERAL CONSTRUCTION NOTES:

1. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS OF THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
2. THE CONTRACTOR SHALL EMPLOY A HAWAII REGISTERED PROFESSIONAL SURVEYOR TO PERFORM ALL CONSTRUCTION STAKEOUTS, THE COST OF WHICH SHALL BE BORNE BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE IN OBTAINING NECESSARY PERMITS FOR THE WORK AND PROVIDE PUBLIC NOTICES AS REQUIRED.
4. THE CONTRACTOR WILL BE REQUIRED TO ARRANGE HIS WORK SO AS TO MINIMIZE INTERFERENCES WITH THE PUBLIC, LOCAL TRAFFIC AND WORKING OPERATIONS OF THE BUSINESSES WITHIN THE PROJECT AREA.
5. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR HIS CONSTRUCTION METHODS AND FOR JOB SITE SAFETY REQUIREMENTS AND PRECAUTIONS.
6. WHEN TRENCH EXCAVATION IS ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT, AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING TO FULLY PROTECT IT FROM DAMAGE.
7. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH INCLUDING SHORING TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC.
8. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT-OF-WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORISTS, EXCEPT DURING ACTUAL WORKING HOURS.
9. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH AND SAFETY AND ENVIRONMENTAL QUALITY.
10. ALLOWABLE NOISE LEVELS FROM THE CONSTRUCTION ACTIVITIES SHALL BE IN CONFORMANCE WITH THE STATE DEPARTMENT OF HEALTH STANDARDS. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYLIGHT HOURS.
11. THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR, AND PAY FOR ALL TEMPORARY UTILITIES REQUIRED FOR HIS WORK.
12. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION OR BETTER, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, FENCES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL. DEMOLITION AND RESTORATION OF EXISTING ITEMS SHALL BE INCIDENTAL TO THE VARIOUS ITEMS OF BID.

COMPACTION REQUIREMENTS:

1. TESTING OF MATERIALS SHALL BE CONDUCTED BY AN APPROVED INDEPENDENT TESTING AGENCY IN ACCORDANCE WITH ASTM STANDARD METHODS, OR AS SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION, AS FOLLOWS:
 - a) EMBANKMENT/SELECT BORROW AND SUBGRADE MATERIALS: ONE (1) COMPACTION TEST PER LIFT OF MATERIAL PER 600 SQUARE YARDS;
 - b) AGGREGATE SUBBASE COURSE: ONE (1) COMPACTION TEST PER LIFT OF MATERIAL PER 400 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER PROJECT;
 - c) AGGREGATE BASE COURSE: ONE (1) COMPACTION TEST PER LIFT OF MATERIAL PER 300 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER PROJECT;
 - d) ASPHALT CONCRETE PAVEMENT OR ASPHALT TREATED BASE COURSE: THREE (3) A.C. CORES FOR THICKNESS AND DENSITY TESTS PER PROJECT;
 - e) TRENCH BACKFILL MATERIAL: ONE (1) TEST FOR EACH 300 LINEAL FEET OF TRENCH PER LIFT OF MATERIAL.
2. CONTRACTOR SHALL SUBMIT ALL TESTING REPORTS INCLUDING RESULTS TO THE COUNTY'S INSPECTION AGENCY FOR REVIEW AND APPROVAL PRIOR TO COUNTY'S ACCEPTANCE OF WORK.
3. THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE COUNTY OF ANY TESTING FAILURES AND CORRECT EACH FAILURE PRIOR TO PROCEEDING TO THE NEXT PHASE OF CONSTRUCTION.

PERMITTEE NOTES TO CONTROL DRAINAGE AND EROSION:

1. CONTROL DUST BY MEANS OF WATER WAGONS OR BY INSTALLING TEMPORARY SPRINKLER SYSTEMS OR BOTH IF NECESSARY.
2. GRADED AREAS SHALL BE THOROUGHLY WATERED AFTER CONSTRUCTION ACTIVITY HAS CEASED FOR THE DAY AND FOR THE WEEKEND AND HOLIDAYS.
3. ALL EXPOSED AREAS SHALL BE PAVED, GRASSED, OR PERMANENTLY LANDSCAPED AS SOON AS FINISHED GRADING IS COMPLETED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR THE WATER NECESSARY FOR DUST CONTROL AND IRRIGATION PURPOSES.
5. CONTRACTOR TO CONSTRUCT TEMPORARY DIVERSION DITCHES OR SWALES AWAY FROM GRADED AREAS TO NATURAL DRAINAGEWAYS DURING CONSTRUCTION.
6. CONTRACTOR SHALL SUBMIT A SATISFACTORY SOIL EROSION CONTROL PLAN TO MINIMIZE SOIL EROSION PRIOR TO AN ISSUANCE OF A GRADING PERMIT.
THE SOIL EROSION CONTROL PLAN SHALL INCLUDE BEST MANAGEMENT PRACTICES (BMP) TO MINIMIZE OR PREVENT SEDIMENTS FROM LEAVING THE CONSTRUCTION AREA IN COMPLIANCE WITH SECTION 20.08.035 OF THE MAUI COUNTY CODE. (ORD.NO. 2684)
7. THE CONTRACTOR IS THE SOLE PARTY RESPONSIBLE FOR THE ADEQUACY OF ALL TEMPORARY CONTROL MEASURES TO PROTECT THE WORK FROM THE EFFECTS OF EROSION.
8. COST OF TEMPORARY EROSION CONTROL MEASURES IS INCIDENTAL TO THE COST OF THE PROJECT.

DEPARTMENT OF WATER SUPPLY NOTES FOR WATER SYSTEM: (REV. 12/1/07)

1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER SUPPLY (DWS) IN WRITING, ONE (1) WEEK PRIOR TO COMMENCEMENT OF WORK.
2. ALL MATERIALS USED AND METHOD OF CONSTRUCTION OF WATER SYSTEM FACILITIES SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF DWS WATER SYSTEM STANDARDS. THE CONTRACTOR SHALL OBTAIN THE LATEST REVISIONS OF THE DWS STANDARDS BEFORE COMMENCING CONSTRUCTION.
3. ALL WATER SYSTEM WORK SHALL BE PERFORMED BY CONTRACTORS POSSESSING VALID STATE OF HAWAII CONTRACTOR'S LICENSES, REGARDLESS OF THE VALUE OF THE WORK.
4. THE EXACT DEPTH AND LOCATION OF EXISTING WATERLINES, SERVICE LATERALS AND OTHER UTILITIES ARE NOT KNOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE SAME PRIOR TO TRENCHING FOR THE NEW WATERLINE. THE COST OF LOWERING, RELOCATING OR ADJUSTING EXISTING WATERLINES, SERVICE LATERALS AND OTHER UTILITIES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE NEW WATERLINE, UNLESS NOTED OTHERWISE, AND WILL NOT BE PAID FOR SEPARATELY.
5. CONCRETE FOR REACTION BLOCKS AND ANCHOR BLOCKS SHALL BE DWS CLASS 2500.
6. THE MAXIMUM DISTANCE BETWEEN VALVE NUT AND TOP OF MANHOLE COVER SHALL BE THREE (3) FEET.
7. THE CONTRACTOR SHALL SUBMIT A MATERIALS LIST TO DWS FOR APPROVAL PRIOR TO CONSTRUCTION.
8. CONNECTION TO DWS SYSTEM:
 - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY FITTINGS AND OTHER MATERIALS AND EQUIPMENT REQUIRED FOR THE HOOK-UP. HE SHALL VERIFY THE EXACT LOCATION, DEPTH, TYPE, AND CONDITION OF THE EXISTING LINE BEFORE ORDERING MATERIALS FOR THE HOOK-UP. HE SHALL, HOWEVER, CHECK WITH DWS BEFORE EXCAVATING FOR VERIFICATION PURPOSES.
 - B. WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED FOR BURIED APPLICATIONS, AND FLANGED JOINT FITTINGS SHALL BE USED FOR EXPOSED APPLICATIONS.
 - C. AUTHORIZED DWS PERSONNEL WILL MAKE FINAL CONNECTION TO THE EXISTING LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY DWS FOR SAID WORK, INCLUDING THE COST OF PRESSURE TESTING AND DISINFECTION.
 - D. IF THE DWS PROVIDES ONLY INSPECTION AND SUPERVISING OPERATORS, AND DOES NOT PROVIDE PERSONNEL FOR THE ACTUAL CONNECTION, THE CONTRACTOR SHALL PROVIDE ALL PIPE FITTERS AND LABORS TO MAKE THE CONNECTION.
 - E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR FOR CLEANING AND CHLORINATION, TRENCH EXCAVATION, BACKFILLING, PAVING AND OTHER WORK NECESSARY TO COMPLETE THE HOOK-UP, AS DIRECTED BY AND TO THE SATISFACTION OF THE DEPARTMENT OF WATER SUPPLY.
9. MINIMUM COVER OVER WATER MAIN, 6" DIAMETER OR LARGER, SHALL BE 3'-0". MINIMUM COVER FOR 4" DIAMETER SHALL BE 2'-6". MINIMUM COVER FOR DIAMETERS LESS THAN 4" SHALL BE 1'-6"
10. BOLTS FOR EXPOSED FLANGED DUCTILE IRON PIPE JOINTS SHALL BE EITHER SILICON BRONZE BOLTS AND NUTS OR 316 STAINLESS STEEL BOLTING WITH THE HEAVY DUTY STAINLESS STEEL NUTS (ONLY) FURNISHED WITH TRIPAC 2000 BLUE COATING SYSTEM. ANTI-SEIZE SHALL NOT BE USED. T-BOLTS FOR DUCTILE IRON MECHANICAL JOINT (MJ) PIPE AND FITTING CONNECTIONS IN UNDERGROUND SITUATIONS SHALL BE ONE OF THE FOLLOWING SYSTEMS:
 - A. 316 STAINLESS STEEL T-BOLTS WITH THE HEAVY DUTY STAINLESS STEEL NUTS (ONLY) FURNISHED WITH TRIPAC 2000 BLUE COATING SYSTEM. ANTI-SEIZE SHALL NOT BE USED.
 - B. COR-TEN T-BOLTS AND NUTS WITH HIGH GRADE ZINC SACRIFICIAL ANODES, EQUIVALENT TO "DURATRON" SACRIFICIAL "SAC-NUT" MODULES, INSTALLED ON THE NUTS FOR ALL STANDARD COR-TEN T-BOLTS.
 - C. COR-TEN T-BOLTS AND NUTS BOTH FACTORY COATED WITH TRIPAC 2000 BLUE COATING SYSTEM BY "TRIPAC FASTENERS".
11. ALL BURIED METALS SHALL BE WRAPPED WITH POLYWRAP. FOR ALL BURIED INSTALLATIONS OF DUCTILE IRON PIPE AND FITTINGS, POLYWRAP IS REQUIRED EXCEPT WITHIN CONCRETE JACKETS.
12. LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
13. THE CONTRACTOR SHALL PAINT AND NUMBER THE FIRE HYDRANT. NUMBERING TO BE FURNISHED BY DWS.
14. WATER MAINS AND APPURTENANCES SHALL BE SUBJECT TO HYDROSTATIC TESTING IN ACCORDANCE WITH THE LATEST REVISION OF AWWA C600, UNDER THE "HYDROSTATIC TESTING" SECTION, TO A PRESSURE OF AT LEAST 1.5 TIMES THE WORKING PRESSURE. UNLESS OTHERWISE STATED IN THE CONSTRUCTION DOCUMENTS OR LIMITED BY THE PRESSURE RATING OF EQUIPMENT, THE PRESSURE TEST AND LEAKAGE TEST SHALL BE PERFORMED AT 225 POUNDS PER SQUARE IN PRESSURE.
15. THE DEVELOPER SHALL SUBMIT A COST LIST ALONG WITH AN AFFIDAVIT FOR THE WATER SYSTEM PRIOR TO ACCEPTANCE.
16. THE CONTRACTOR SHALL SUBMIT TWO (2) SETS OF RECORD DRAWINGS VIA A CONSULTANT PRIOR TO ACCEPTANCE OF THE WATER SYSTEM. AN ELECTRONIC IMAGE FILE IN TIFF FORMAT SHALL BE PROVIDED TO THE DWS FOR ALL PROJECT.
17. THE CONTRACTOR SHALL FURNISH AND INSTALL DUCTILE IRON NIPPLES WHETHER OR NOT SPECIFIED ON THE CONSTRUCTION PLANS FOR COMPLETE INSTALLATION OF THE WATERLINE AT THE CONTRACTOR'S EXPENSE.
18. THE CONTRACTOR SHALL FURNISH TEMPORARY CLEANOUTS WHEN NECESSARY TO TEST, FLUSH, AND CHLORINATE THE WATERLINE AT THE CONTRACTOR'S EXPENSE.
19. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PORTIONS OF ABANDONED WATERLINES THAT ARE EXPOSED OR WITHIN 12-INCHES BELOW THE GROUND SURFACE AT THE CONTRACTOR'S EXPENSE.
20. THE CONTRACTOR SHALL ADJUST TO FINISHED GRADES, ALL EXISTING VALVE BOXES AND MANHOLES, INCLUDING FRAME AND COVERS FOR ALL UTILITIES (I.E., WATER, SEWER, DRAIN, ETC.) AFFECTED BY THE WORK WHETHER SHOWN OR NOT SHOWN ON THE PLANS AT THE CONTRACTOR'S EXPENSE.
21. THE CONTRACTOR SHALL RESTORE ALL ROAD IMPROVEMENTS DISTURBED OR DAMAGED DURING CONSTRUCTION IN ACCORDANCE WITH THE 2005 "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AS AMENDED, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS AT THE CONTRACTOR'S EXPENSE. ROAD IMPROVEMENTS INCLUDE, BUT ARE NOT LIMITED TO, PAVEMENT, PAVEMENT MARKERS, STRIPING, AND SPEED HUMPS.

DEPARTMENT OF WATER SUPPLY NOTES FOR CHLORINATION OF WATER SYSTEM PIPELINES: (REV. 12/1/07)

1. WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651. ALL PROCEDURES AND MATERIALS (LIQUID CHLORINE OR CALCIUM HYPOCHLORITE) USED FOR THE CHLORINATION OF THE PROJECT SHALL CONFORM TO AWWA REQUIREMENTS.
2. PRIOR TO CHLORINATION, THE PROJECT PIPELINES SHALL BE THOROUGHLY CLEANED. CLEANING OF LINES 36" AND LARGER SHALL BE BY PIGGING USING FOAM PIGS. SMALLER LINES CAN BE FLUSHED IN ACCORDANCE WITH AWWA REQUIREMENTS IF ADEQUATE WATER SUPPLY IS PROVIDED, OTHERWISE BY PIGGING. THE CONTRACTOR SHALL SUBMIT HIS PLAN FOR PIPELINE CLEANING, INCLUDING FITTING REQUIREMENTS FOR PIGGING, FOR APPROVAL PRIOR TO PROCEEDING.
3. THE INTERIOR SURFACES OF THE PROJECT SHALL BE EXPOSED TO THE CHLORINATING SOLUTION FOR A MINIMUM OF 24 HOURS AND THE CHLORINE RESIDUAL SHALL NOT BE LESS THAN 10 PPM AFTER SUCH TIME.
4. SHOULD CALCIUM HYPOCHLORITE BE USED, NO SOLID AND/OR UNDISSOLVED PORTION OF THE COMPOUND SHALL BE INTRODUCED INTO ANY SECTION OF THE PROJECT TO BE CHLORINATED.
5. AT THE END OF THE 24-HOUR DISINFECTION PERIOD, REPRESENTATIVE SAMPLES SHALL BE TAKEN AND ANALYZED TO ASSURE A CHLORINE RESIDUAL OF AT LEAST 10 PPM. MEASUREMENTS FOR CHLORINE RESIDUAL TESTS SHALL BE BY A TRAINED, QUALIFIED TESTER APPROVED BY THE DIRECTOR.
6. SHOULD THE RESULTS INDICATE ADEQUATE CHLORINATION, THE PROJECT SHALL BE THOROUGHLY FLUSHED AND FILLED WITH POTABLE WATER FROM THE EXISTING POTABLE WATER SYSTEM AND AGAIN TESTED FOR CHLORINE RESIDUAL. THE FLUSHING SHALL BE CONSIDERED ADEQUATE IF THE TEST RESULTS INDICATE THAT THE WATER IN THE PROJECT HAS COMPARABLE CHLORINE RESIDUAL AS THE WATER IN THE EXISTING SYSTEM.
7. FOLLOWING THE ACCEPTABLE FLUSHING OF THE HIGH CONCENTRATION CHLORINE SOLUTION, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES SHALL BE TAKEN AT LEAST 24 HOURS APART FROM REPRESENTATIVE POINTS IN THE PROJECT AND SUBJECTED TO MICRO BIOLOGICAL TESTS PERFORMED BY A CERTIFIED LABORATORY APPROVED BY THE DEPARTMENT OF HEALTH. AT LEAST ONE SET OF SAMPLES SHALL BE COLLECTED AND TESTED FROM EVERY 1,200 FEET OF THE NEW WATER MAIN, PLUS ONE SET FROM THE END OF THE LINE AND AT LEAST ONE SET FROM EACH BRANCH. POSITIVE RESULTS WILL NOT BE ACCEPTABLE AND THE ENTIRE CHLORINATION PROCESS WILL BE REPEATED.
8. ANALYSIS FOR RESIDUAL CHLORINE SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER," AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
9. MICRO BIOLOGICAL TESTS SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER," AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
10. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL OF THE FOREGOING.

UTILITY LINES, PIPES, SERVICES AND APPURTENANCES:

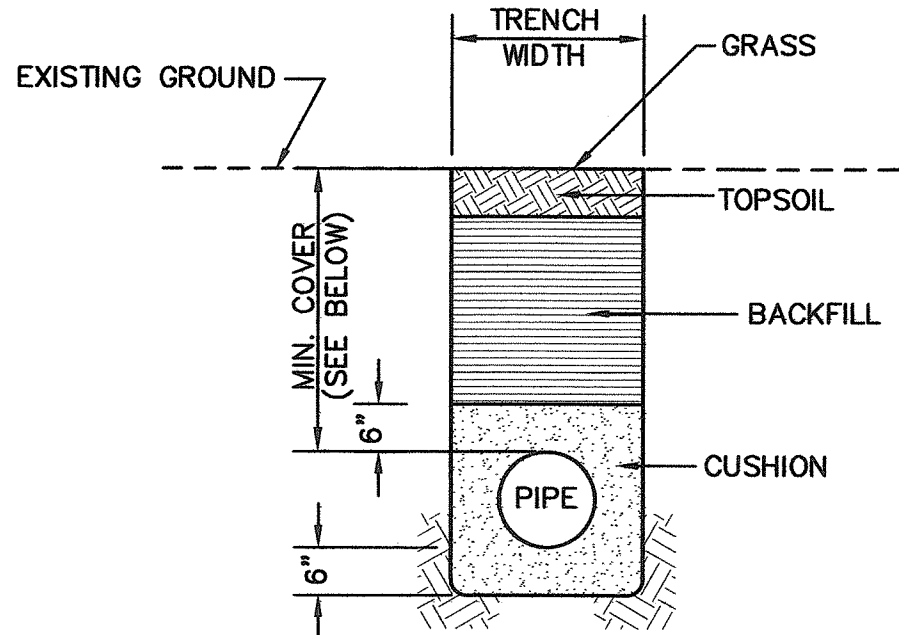
1. THE EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE ONLY APPROXIMATE AND WERE DETERMINED FROM AVAILABLE PLANS WITHIN THE PROJECT AREA. THEREFORE, THE LOCATION AND/OR DEPTH OF THESE UTILITIES ARE NOT GUARANTEED BY THE CONSULTANTS NOR BY THE DWS. THE CONTRACTOR SHALL VERIFY THESE INFORMATION BY HANDY TONING, HANDICONG, ETC. PRIOR TO STARTING EXCAVATION WORK. IN ADDITION, THE CONTRACTOR SHALL CONTACT AND COORDINATE WORK INVOLVING OR AFFECTING THE EXISTING UTILITIES WITH THE PROPER AUTHORITIES, BOTH PUBLIC AND PRIVATE, TO MINIMIZE DAMAGES AND DISRUPTION TO SERVICE. THE CONTRACTOR SHALL SEE TO IT THAT HIS WORKMEN OR OPERATORS SHALL BE APPRISED OF THE UTILITIES EXISTENCE AND LOCATION.
2. ANY UTILITIES, WHETHER SHOWN OR NOT ON THE CONTRACT PLANS, THAT THE CONTRACTOR ENCOUNTERS DURING THE PROGRESS OF THE WORK, SUCH AS TELEPHONE DUCTS, ELECTRIC DUCTS, WATER LINES, SEWER LINES, ELECTRIC LINES, GAS LINES AND DRAINAGE PIPES, ETC., SHALL NOT BE DISTURBED OR DAMAGED UNLESS OTHERWISE INSTRUCTED IN THE PLANS AND SPECIFICATIONS. IN THE EVENT THE UTILITIES ARE DAMAGED OR DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE HELD LIABLE FOR THE DAMAGED OR DISTURBED UTILITIES. THE CONTRACTOR SHALL REPAIR THE DAMAGED OR DISTURBED UTILITIES TO THE EXISTING CONDITIONS OR BETTER AT NO COST TO THE DWS. ANY DAMAGE CLAIMS DUE TO THE DISRUPTION OF SERVICE CAUSED BY THE UTILITIES BEING DAMAGED SHALL BE PAID BY THE CONTRACTOR WHO SHALL SAVE HARMLESS THE DWS AND CONSULTANTS FROM ALL SUITS, ACTIONS OR CLAIMS OF ANY CHARACTER BROUGHT ON ACCOUNT OF SUCH DAMAGES.
3. THE CONTRACTOR SHALL CONTACT THE VARIOUS UTILITY COMPANIES PRIOR TO START OF CONSTRUCTION TO COORDINATE THE WORK TO BE DONE BY THE UTILITY'S OWN FORCES IN ORDER THAT THESE WORKS MAY PROCEED IN A REASONABLE MANNER AND WILL NOT DELAY THE PROGRESS OF THE CONSTRUCTION. ALSO, TO OBTAIN FROM THEM ANY INFORMATION PERTAINING TO EXISTING UTILITIES THAT WILL EITHER SUPPLEMENT THE INFORMATION SHOWN ON THE PLANS OR WILL CORRECT ANY SUCH INFORMATION THAT MAY BE IN ERROR.
4. ANY INTERRUPTION OF EXISTING SERVICES SHALL BE APPROVED BY THE ENGINEER. ABANDONMENT OF EXISTING UTILITY LINES AND APPURTENANCES SHALL BE DONE ONLY AFTER THE NEW UTILITY SYSTEMS ARE OPERATIONAL AND ACCEPTED BY RESPONSIBLE AGENCIES.
5. THE CONTRACTOR SHALL VERIFY THE LOCATIONS (HORIZONTAL & VERTICAL) OF ALL STRUCTURES, UTILITIES, ETC., PRIOR TO START OF ANY WORK. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE DIRECTOR AND ANY CHANGES SHALL BE MADE IN ACCORDANCE WITH HIS INSTRUCTIONS. STARTING WORK ON THE PARTICULAR ACTIVITY SHALL BE CONSTRUED TO MEAN THAT THE CONTRACTOR AGREES THAT THE EXISTING LOCATION ARE ESSENTIALLY CORRECT AS SHOWN.
6. EXISTING PIPES TO BE ABANDONED SHALL BE SECURELY SEALED WITH TIGHT-FITTING PLUG OR A WALL OF CLASS "B" CONCRETE NOT LESS THAN 6" THICK.

NOTES FOR TOPOGRAPHIC FEATURES:

1. ELEVATION DATUM = ASSUMED
2. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD, HOWEVER, CONNECTION OF UNDERGROUND UTILITY LINES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, BUT FROM OTHERS NOT CONNECTED WITH THIS COMPANY. THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.
3. RIGHT-OF-WAY AND BOUNDARY LINES SHOWN ARE APPROXIMATE AND SHOWN FOR CONVENIENCE ONLY.

ADDITIONAL WATER SYSTEM NOTES:

1. EXISTING WATER SYSTEM
 - A. THE CONTRACTOR'S ATTENTION IS CALLED TO THE EXISTING WATER SYSTEM AND APPURTENANCES NOW SERVING THE PROJECT AREA. THE SYSTEM SHALL BE MAINTAINED IN SERVICE UNTIL SUCH TIME AS THE NEW MAINS, SERVICE LATERALS AND SERVICE CONNECTIONS ARE INSTALLED, TESTED, CHLORINATED, FLUSHED AND THE EXISTING SERVICES TRANSFERRED TO THE NEW SYSTEM.
 - B. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF ANY DAMAGE TO THE EXISTING WATER SYSTEM DUE TO HIS CONSTRUCTION OPERATION. THE DEPARTMENT WILL PERFORM ALL NECESSARY REPAIRS AND THE COST SHALL BE PAID FOR BY THE CONTRACTOR.
 - C. AFTER THE NEW WATER SYSTEM AND APPURTENANCES OR PORTIONS THEREOF INCLUDING SERVICE LATERALS, SERVICE CONNECTIONS AND METER BOXES HAVE BEEN INSTALLED, THE CONTRACTOR WILL RECONNECT THE EXISTING SERVICE TO THE NEW SYSTEM AS NOTED BELOW (NOTE #2).
2. WATER SERVICE LATERAL CONNECTIONS:
 - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR FOR RECONNECTING CONSUMER'S PIPE TO NEW SERVICE LATERAL AND COMPLETE INSTALLATION OF SERVICE LATERAL, TO THE SATISFACTION OF THE DEPARTMENT OF WATER SUPPLY.
 - B. THE CONTRACTOR SHALL COORDINATE WATER METER INSTALLATION WITH THE DEPARTMENT OF WATER SUPPLY.
 - C. AUTHORIZED DEPARTMENT OF WATER SUPPLY PERSONNEL SHALL MAKE THE WATER METER RELOCATION FROM EXISTING SERVICE LATERAL TO NEW SERVICE LATERAL.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING WATER SERVICE TO CONSUMERS AT ALL TIMES. IF WATER SERVICE DISRUPTION IS NECESSARY, THE CONTRACTOR SHALL COORDINATE ALL DISRUPTIONS OF SERVICE WITH THE CONSUMERS.
4. ANY ITEMS TO BE REMOVED AND SALVAGED SHALL BE TAKEN TO THE DEPARTMENT OF WATER SUPPLY BASE YARD AT ALL TIMES AT CONTRACTOR'S EXPENSE.



TYPICAL TRENCH RESTORATION DETAIL

AT GRASSED AREA

SCALE: 1/2 in. = 1 ft.

NOTES:

1. CONTRACTOR SHALL PROVIDE A TEMPORARY COLD MIX PATCH IF PERMANENT RESTORATION CANNOT BE MADE WITHIN 24 HOURS OF BACKFILL.
2. ALL EXPOSED AREAS SHALL BE GRASSED.
3. MINIMUM COVER FOR WATERLINE:
 - a) UNDER ROAD PAVEMENT = 36"
 - b) UNDER SHOULDER AREA:
 - 1) SMALLER THAN 4" = 24"
 - 2) 4" = 30"
 - 3) 6" AND LARGER = 36"
4. ANY DAMAGES TO EXISTING UTILITIES SHALL BE REPLACED AND/OR RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT OF WATER SUPPLY.
5. FURTHER PAVEMENT AREAS DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE RECONSTRUCTED AND REPAVED AS DIRECTED BY THE DEPARTMENT OF WATER SUPPLY OR BY THE DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT AT NO ADDITIONAL COST TO THE COUNTY.

Tanaka
ENGINEERS, INC.

CIVIL & STRUCTURAL
ENGINEERS
LAND SURVEYORS

871 KOLU STREET
SUITE 201
WAILUKU, MAUI, HAWAII
PHONE No.: 242-6861

CONSTRUCTION PLANS FOR
LOWER KULA WATER SYSTEM IMPROVEMENTS
(BYPASS WATERLINE FOR PHASE VI PUMPING FACILITIES)
AT
KULA, MAUI, HAWAII
TAX MAP KEY: (212-3-04: 13(PORION) & 32

CONSTRUCTION NOTES AND DETAILS

KIRK T. TANAKA
LICENSED
PROFESSIONAL
ENGINEER
No. 6646-C
HAWAII, U.S.A.

LICENSE EXPIRES: 04/30/14

THIS WORK WAS PREPARED
BY ME OR UNDER MY
DIRECT SUPERVISION.

Kirk T. Tanaka

DATE : 11/07/12

REVISIONS:

11/07/12 REVISIONS PER D.W.S.

(2) 2-3-03:

T.M.K.: 13(PORION) & 32

SCALE: AS NOTED

DESIGNED BY: R.T.

CHECKED BY: R.T.

DRAWN BY: M.K.

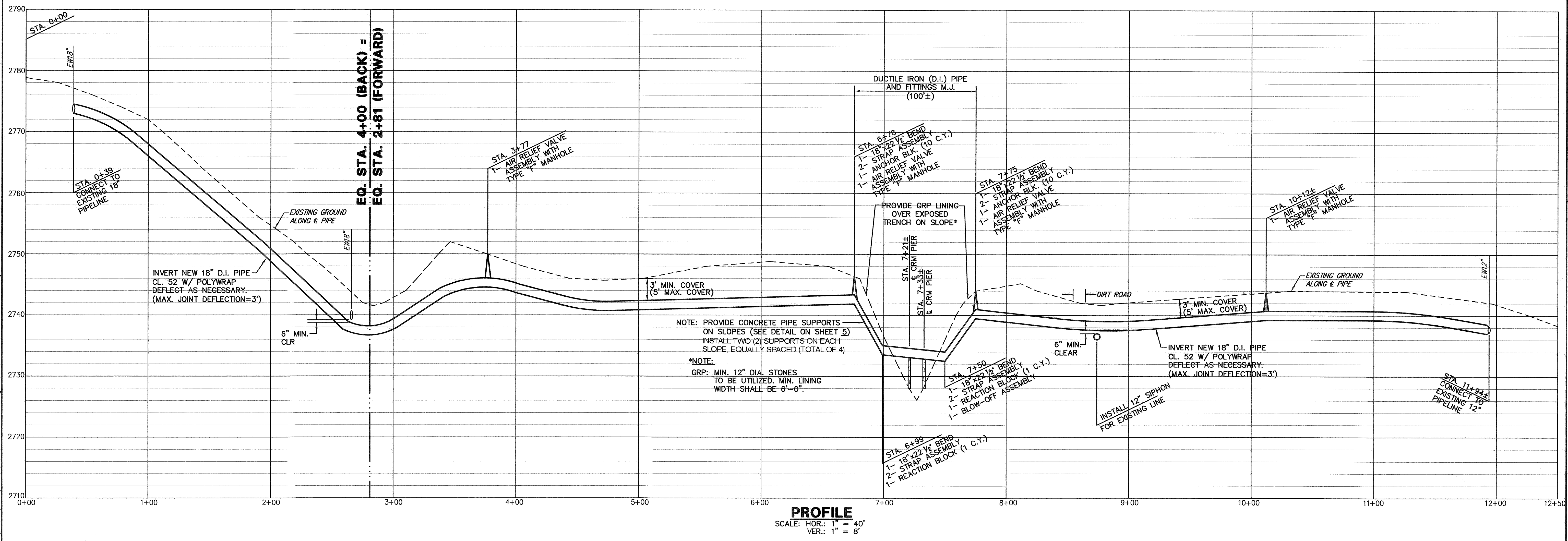
DATE: FEBRUARY 2002

JOB No.: 96-12

SHEET

2

OF 6 SHEETS



(SHT.3)
Z:\DRAW1\1996\96-12\KWL.T-REV_6-02-03.dwg 21-DEC-2012 : Revised BY:Nancy

STA. 0+39
CUT EXISTING WASHOUT LINE AND
INSTALL:
1 - 18" TEE, M.J.
1 - 18" BUTTERFLY VALVE, M.J. w/ SVB
1 - 18" SLEEVE, M.J.
1 - CONCRETE REACTION BLOCK

REMOVE 18" PIPE NIPPLE AND
INSTALL:
1 - 18" PLUG, M.J.
1 - CONCRETE REACTION BLOCK

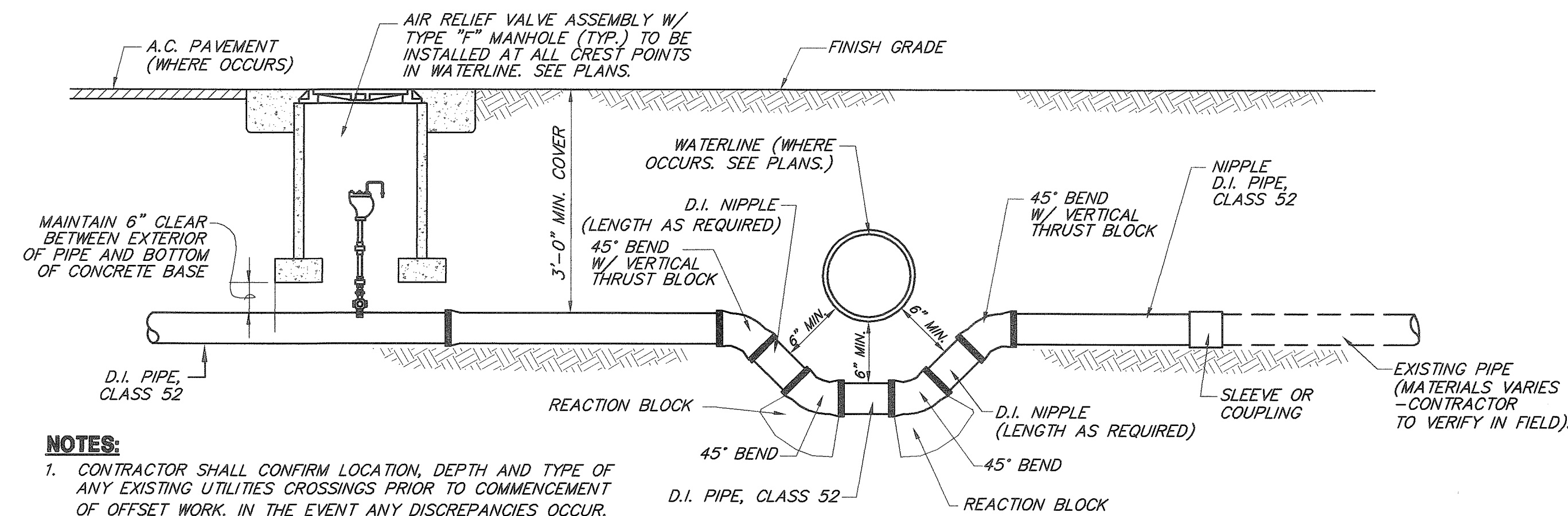
REMOVE 18" x 90° BEND AND
CONCRETE BLOCK AND EXTEND 18" LINE
1 - 18" SLEEVE, M.J.

DIVE UNDER PUMP SUCTION LINE
2 - 18" x 45° VERT. BENDS, M.J.
1 - ANCHOR BLOCK
1 - REACTION BLOCK

PUMP SUCTION LINE
NEW 18" D.I. PIPE, CL.52
w/ POLYWRAP

STA. 1+25
REMOVE AND REPLACE
EXIST. FENCE LINE.

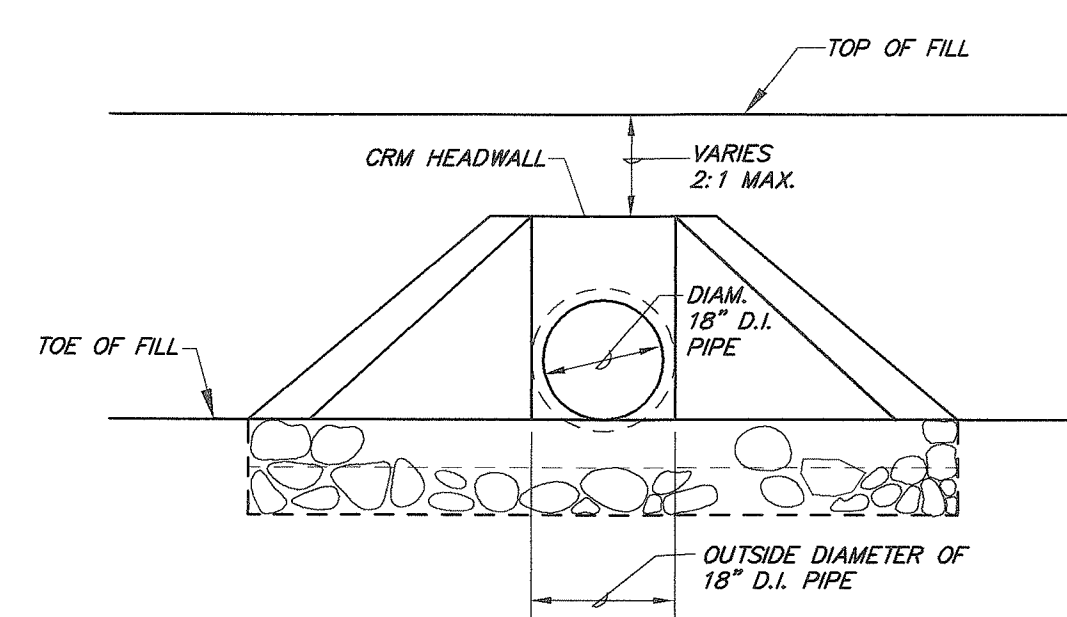
ENLARGEMENT
SCALE: 1" = 10'



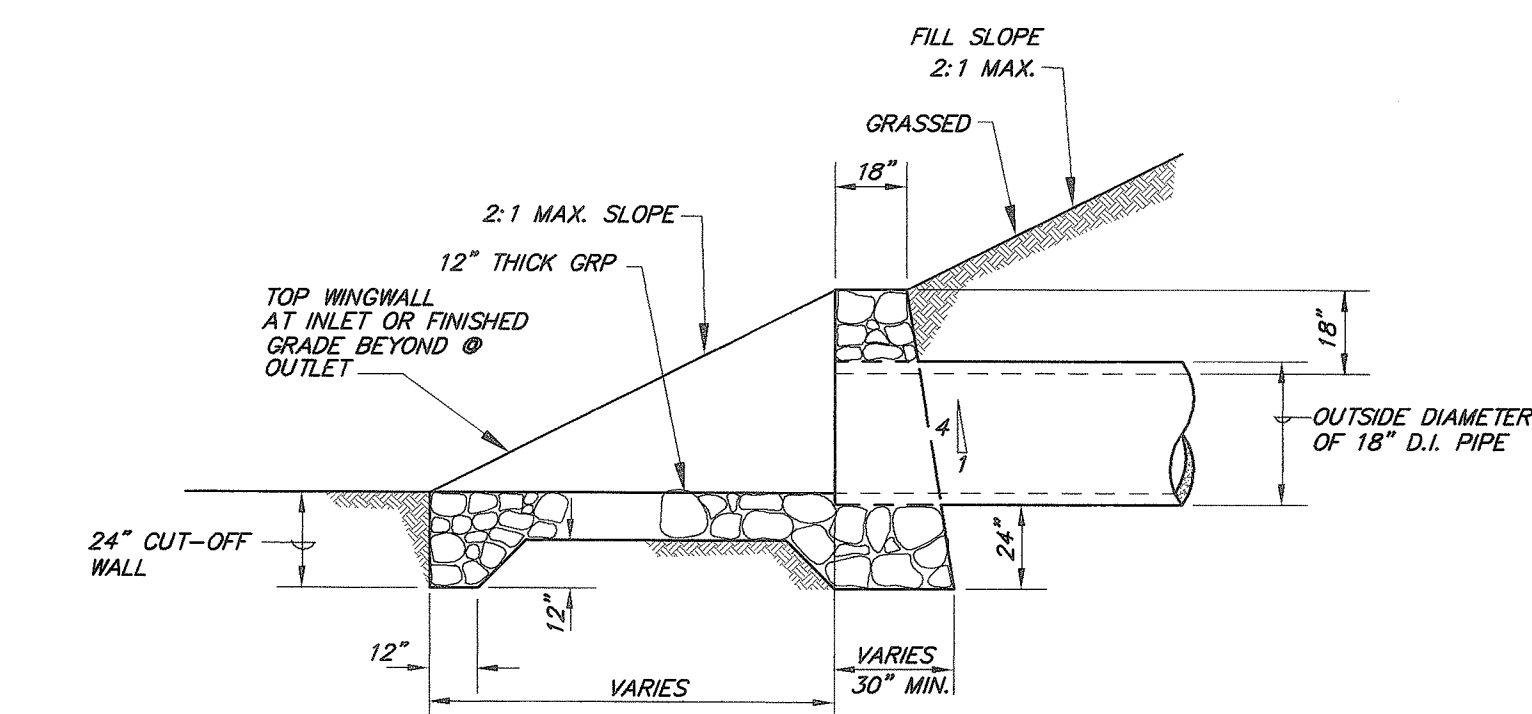
NOTES:

- CONTRACTOR SHALL CONFIRM LOCATION, DEPTH AND TYPE OF ANY EXISTING UTILITIES CROSSINGS PRIOR TO COMMENCEMENT OF OFFSET WORK. IN THE EVENT ANY DISCREPANCIES OCCUR, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, OTHERWISE ANY CORRECTIVE WORK REQUIRED SHALL BE PERFORMED SOLELY AT THE CONTRACTORS EXPENSE.
- FOR CONNECTIONS TO EXISTING A.C. (ASBESTOS-CEMENT) PIPE THE DEPARTMENT OF WATER SUPPLY PROHIBITS CUTTING OF THE A.C. PIPE. CONTRACTOR SHALL REMOVE ONE (1) COMPLETE SECTION OF A.C. PIPE AT EACH CONNECTION TO THE EXISTING A.C. WATERLINE AND REPLACE SAME WITH EQUIVALENT DIAMETER DUCTILE IRON PIPE (CLASS 52).
- WHEREVER CONSTRUCTION JOINTS ARE REQUIRED 6" RUBBER OR NEOPRENE WATERSTOPS SHALL BE INSTALLED. WATERSTOP SHALL BE OF THE TYPE SPECIFIED AND MANUFACTURED BY THE KIRK HILL COMPANY, OR APPROVED EQUAL.
- ALL INTERIOR JOINTS AND FITTINGS SHALL BE "M.J."
- INVERT ELEVATIONS OF TOP BENDS SHALL BE EQUAL.
- INVERT ELEVATIONS OF BOTTOM BENDS SHALL BE EQUAL.

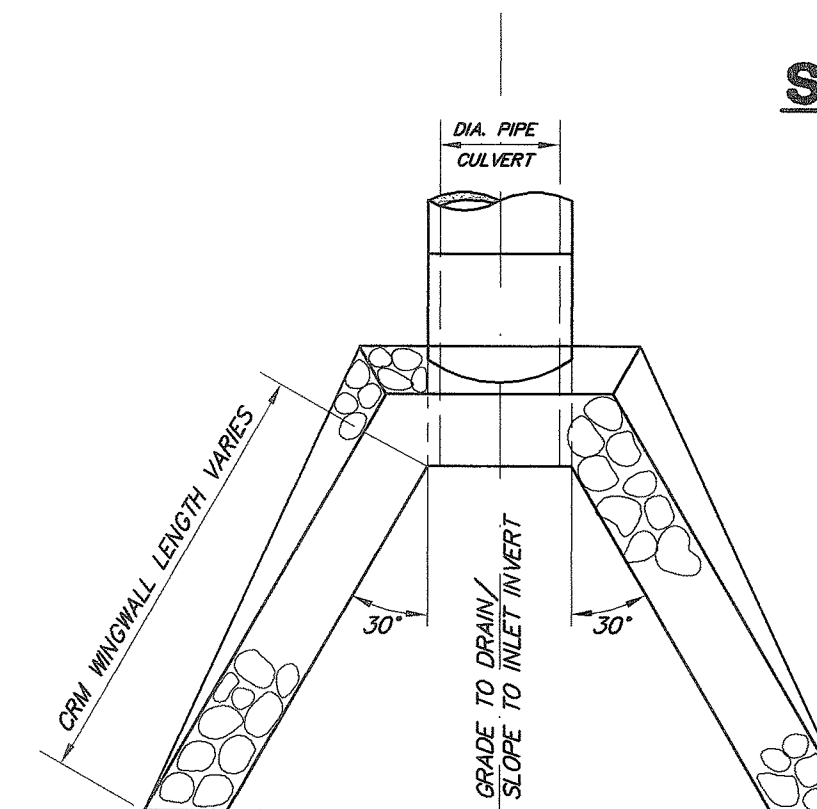
TYPICAL SECTION AT SIPHON (WL/WL) CROSSING NOT TO SCALE



FRONT ELEVATION



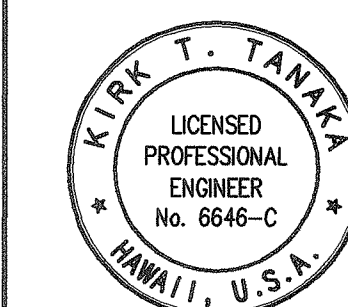
SIDE ELEVATION



PLAN

CEMENT RUBBLE MASONRY HEADWALL STRUCTURE

NOT TO SCALE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

K.T. Tanaka

DATE: 12/12/03

REVISIONS:

06-04-03 REVISIONS PER D.W.S.

T.M.K.: (2) 2-3-04:13 (POR.)
& 32

SCALE: AS NOTED

DESIGNED BY: R.T.

CHECKED BY: R.T.

DRAWN BY: N.D.

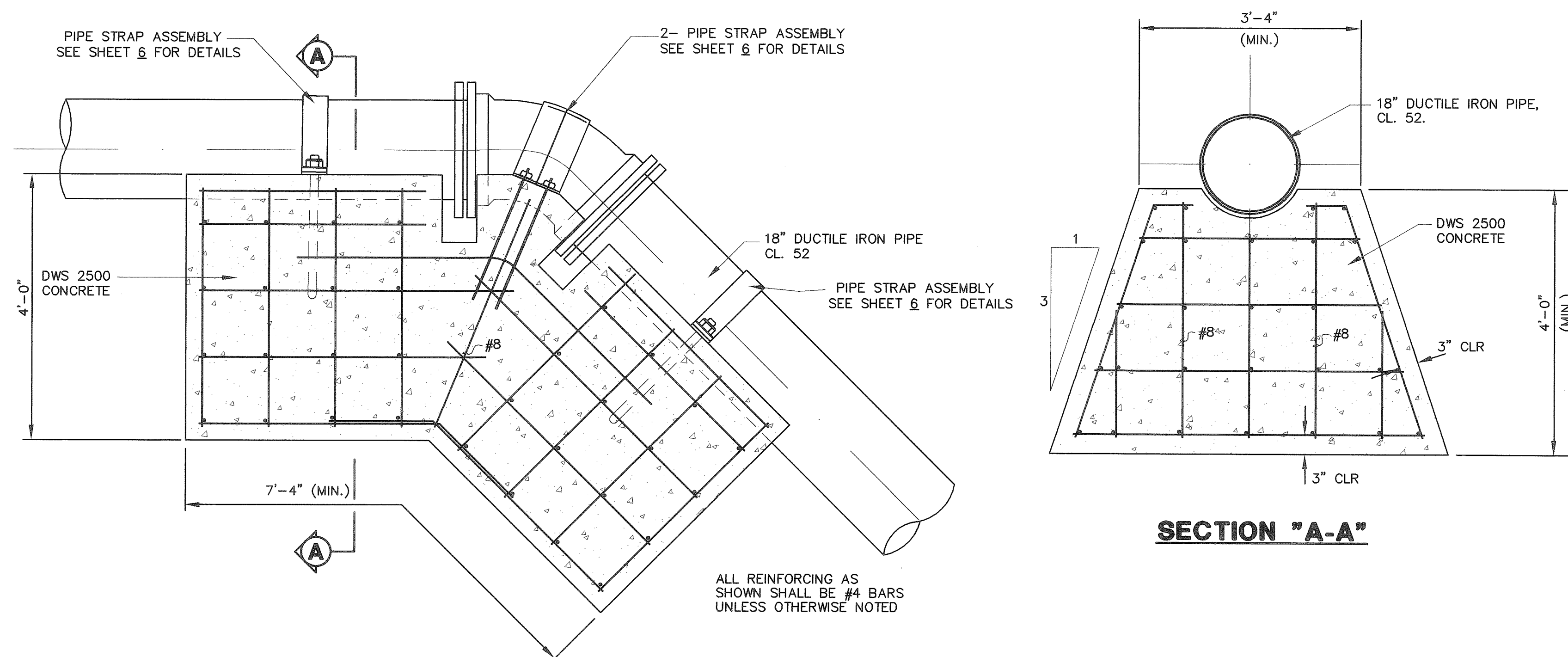
DATE: FEBRUARY 2002

JOB No.: 96-12

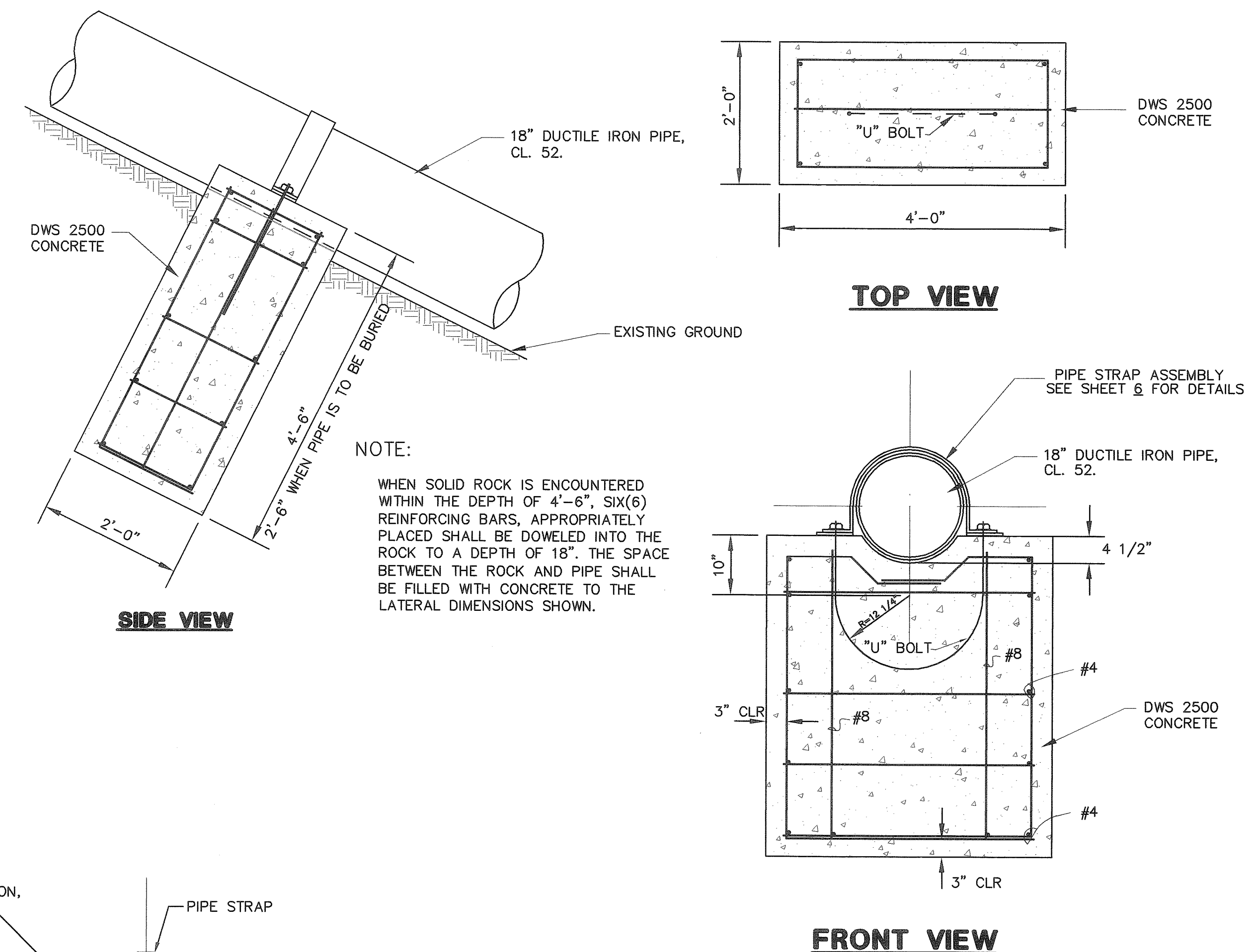
SHEET

4

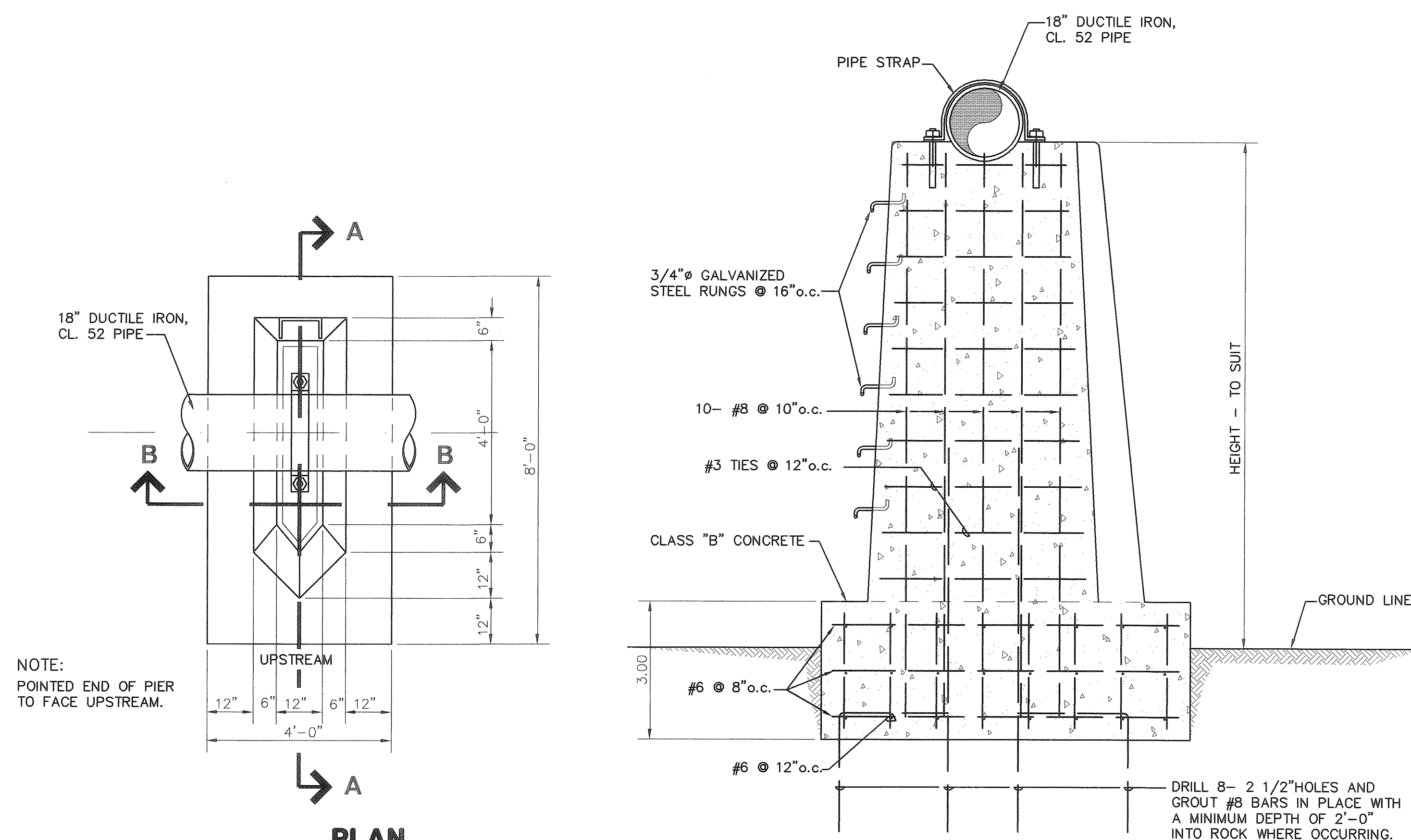
OF 6 SHEETS



TYPICAL ANCHOR BLOCK
WITH TWO(2) STRAP ASSEMBLY

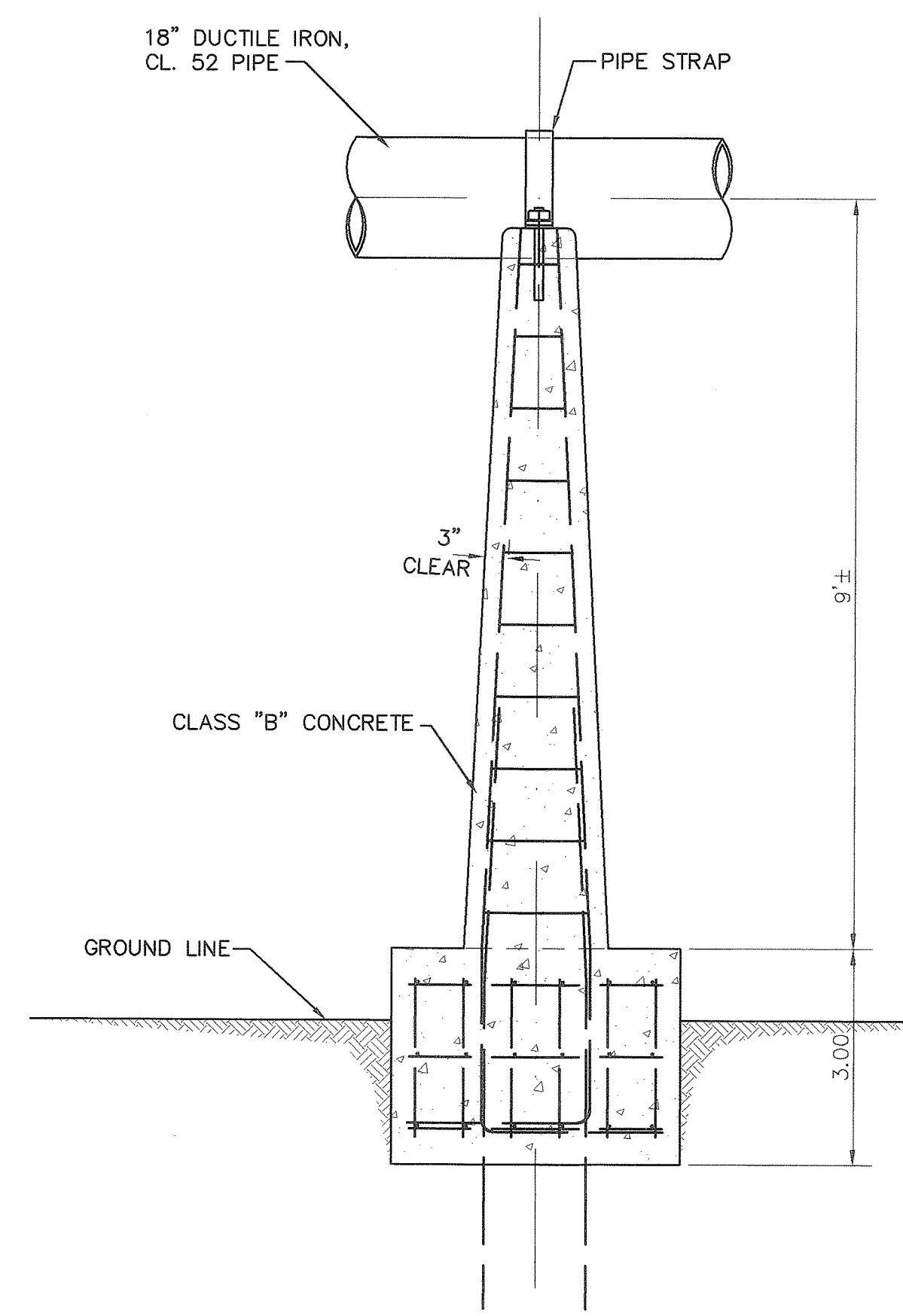


PIPE SUPPORTS FOR SLOPES WITHIN GULCHES

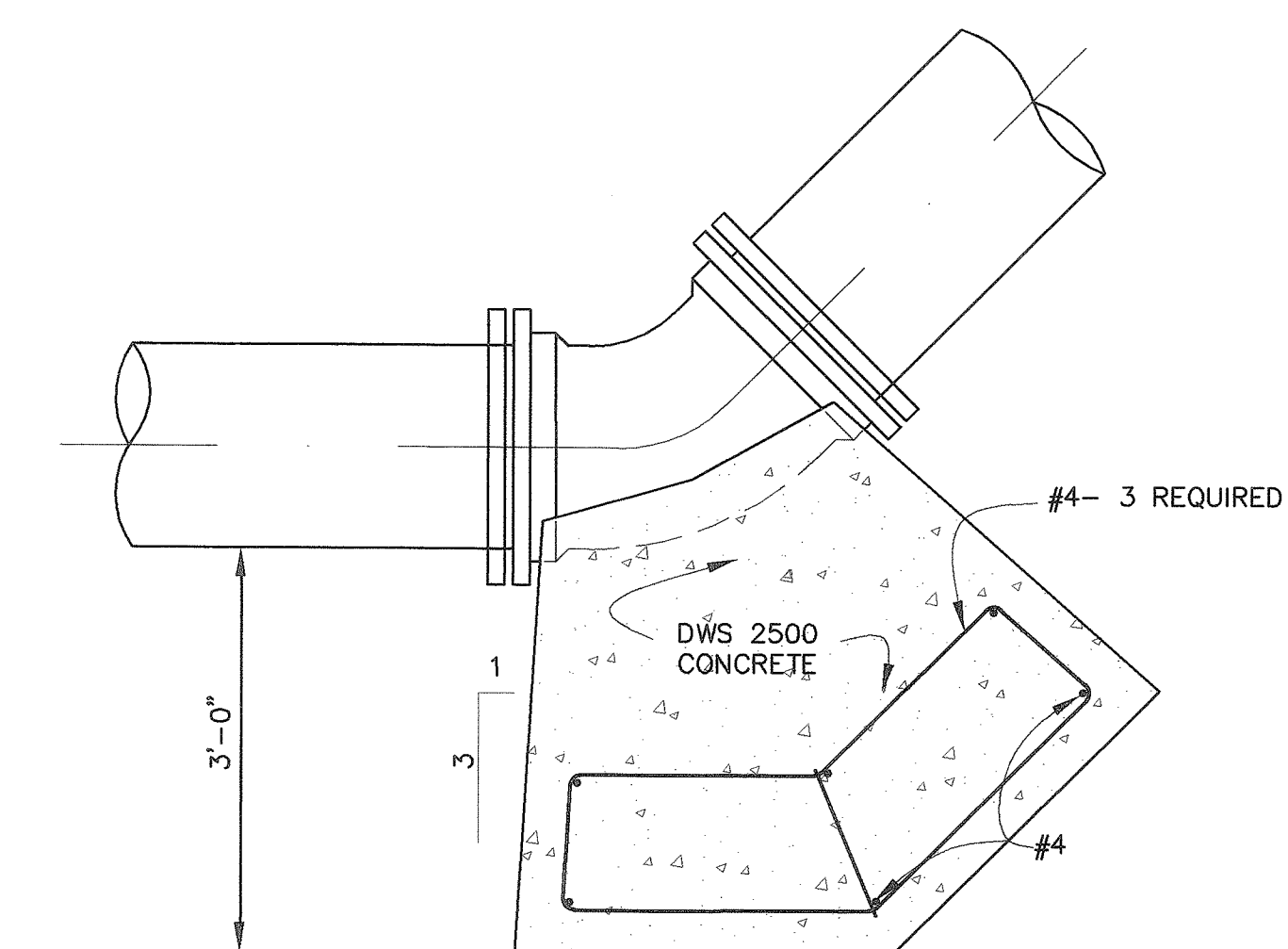


SECTION "A-A"

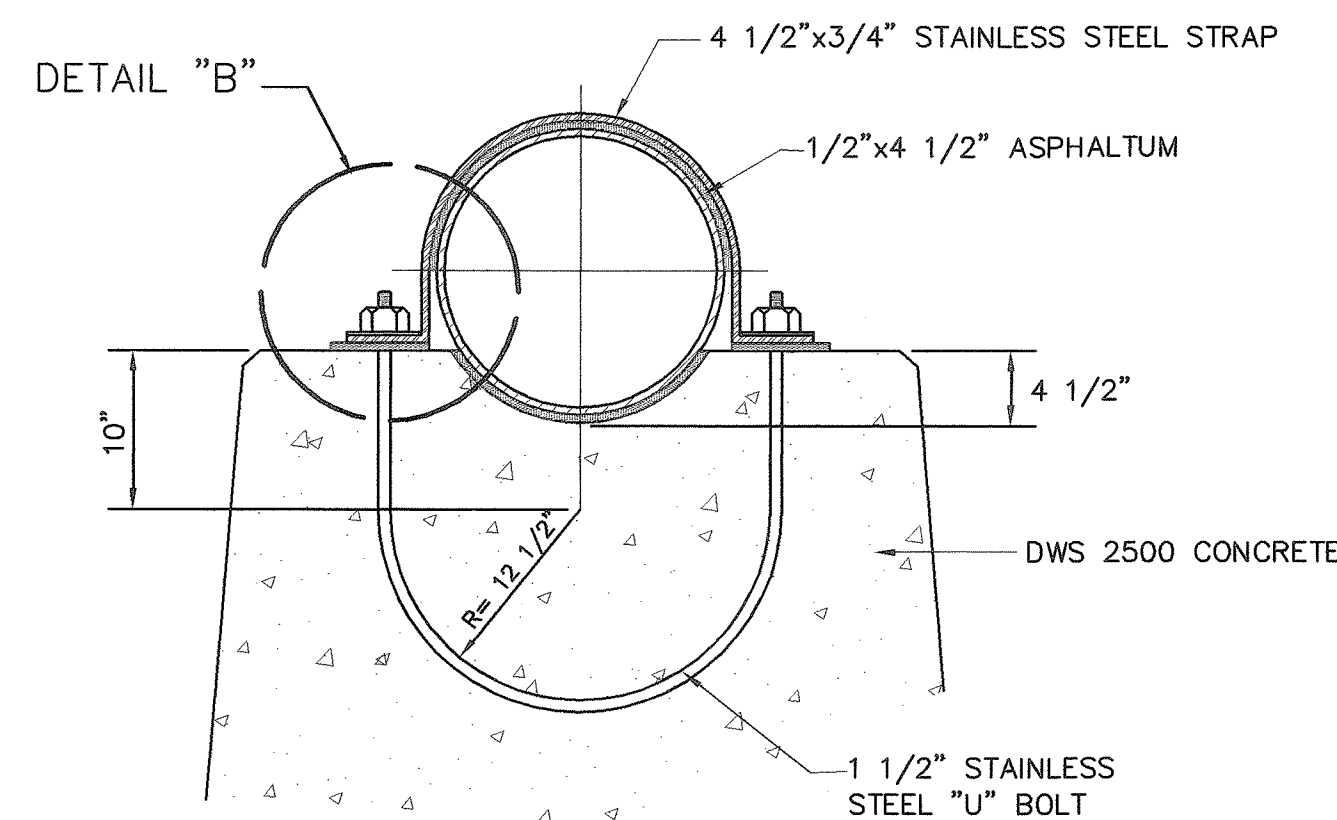
CONCRETE PIER PIPE SUPPORT



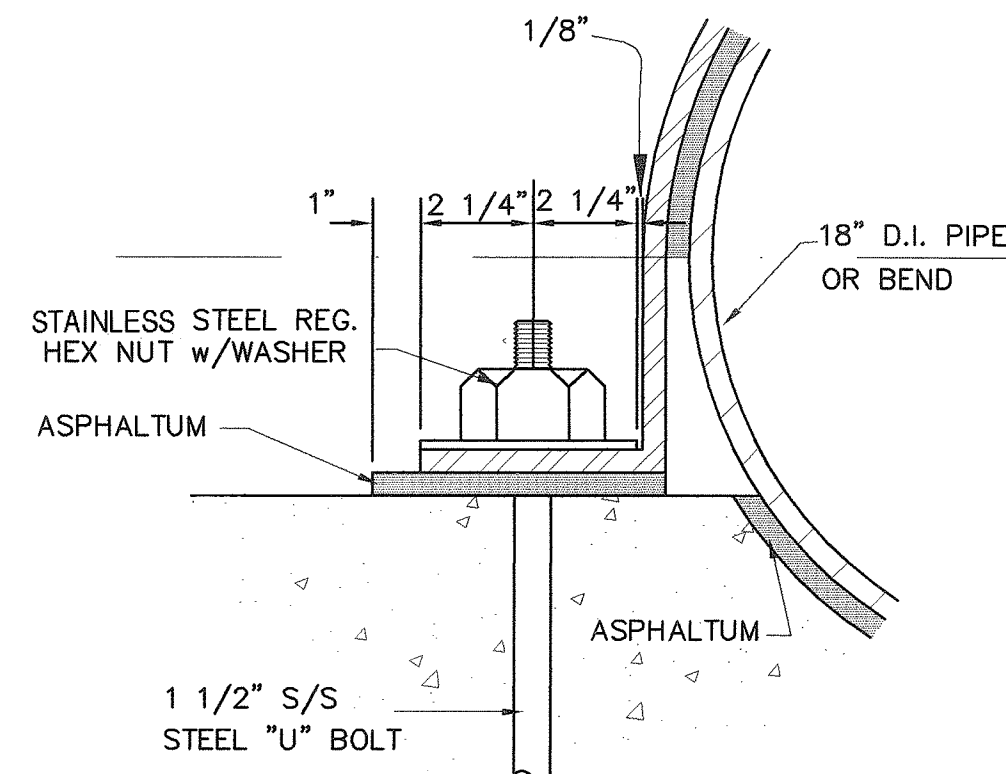
SECTION "B-B"



CONCRETE REACTION BLOCKS FOR HORIZONTAL AND VERTICAL BENDS



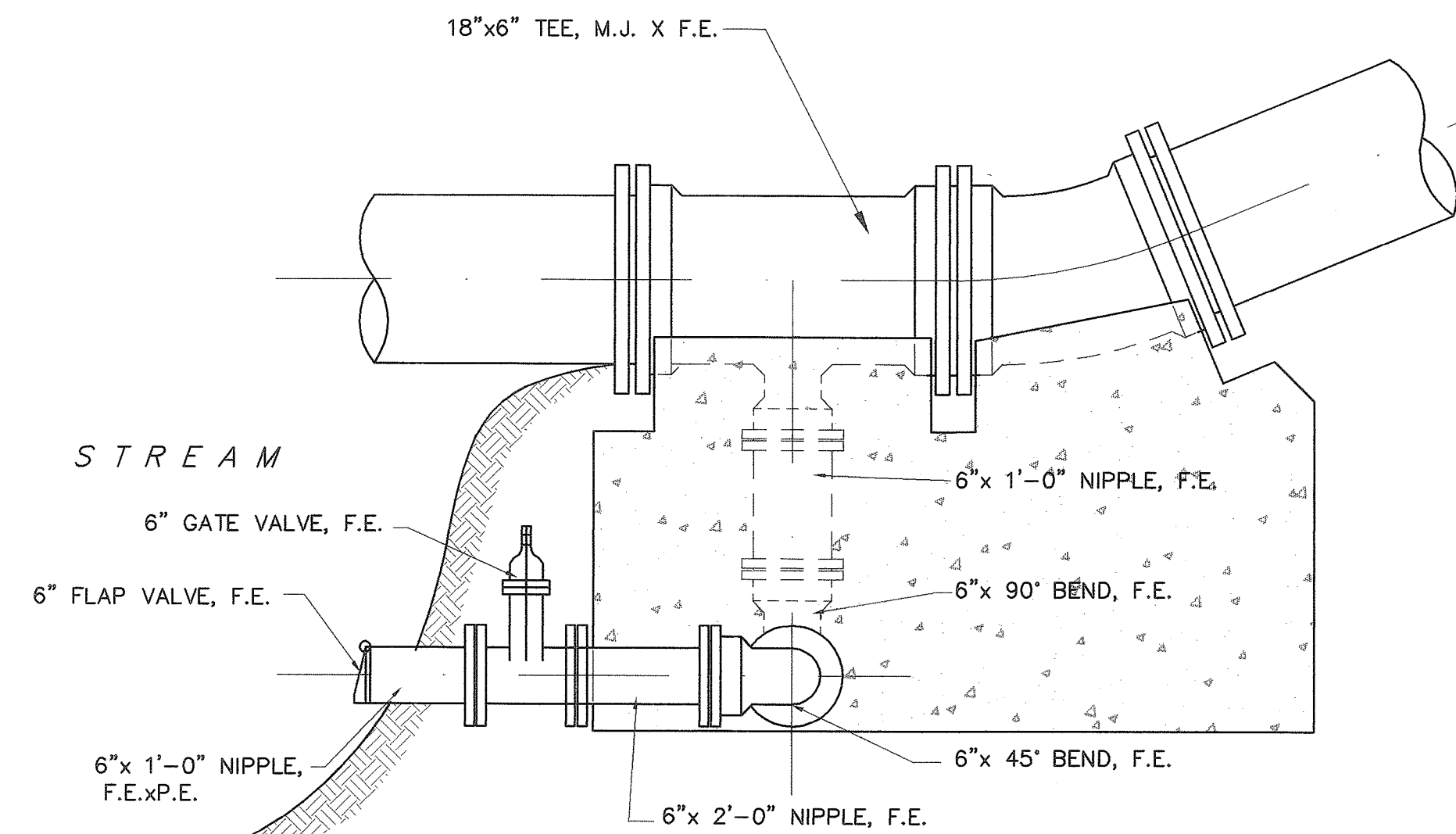
SIDE VIEW
SCALE: 1" = 1'-0"



DETAIL "B"
SCALE: 3" = 1'-0"

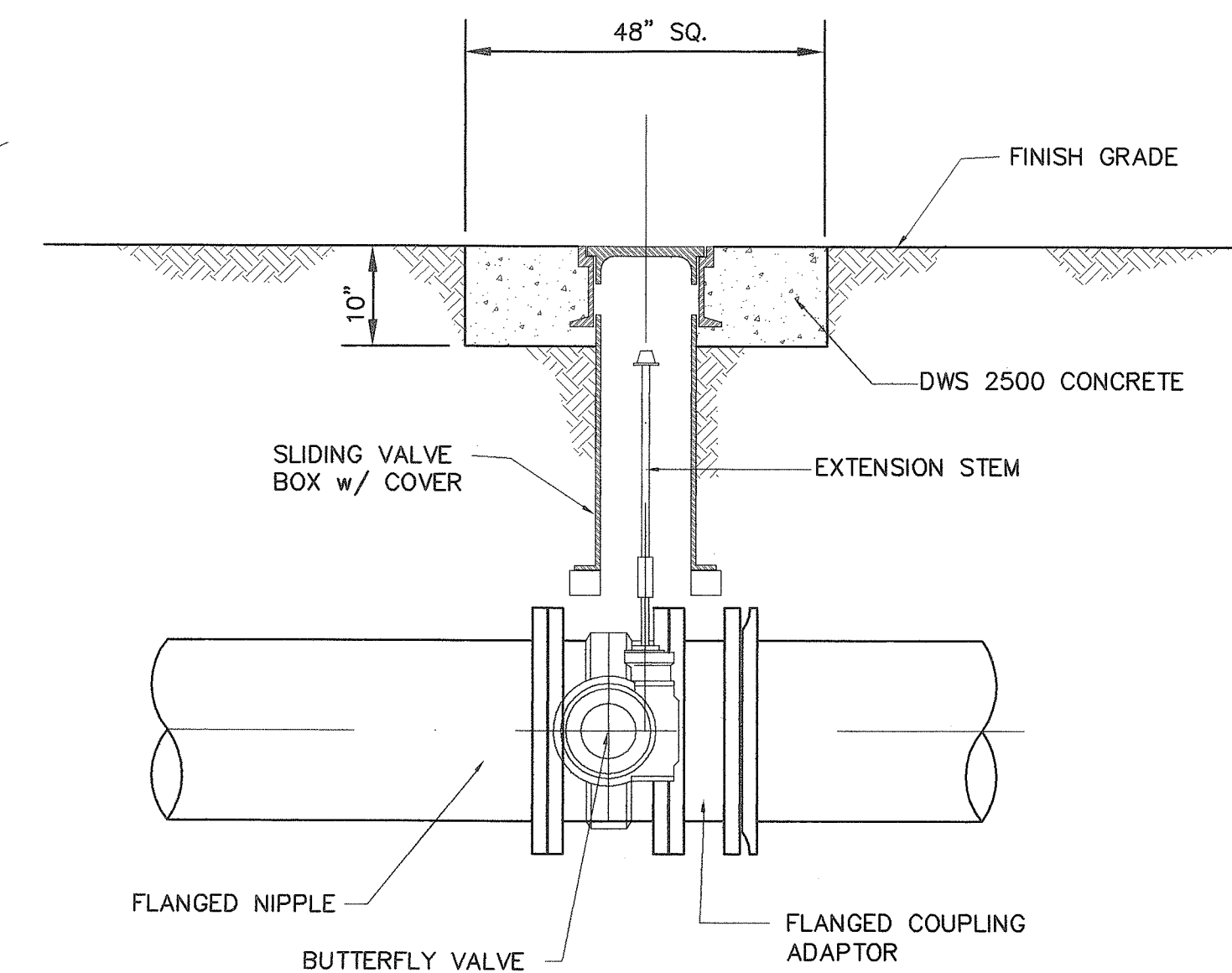
STRAP ASSEMBLY DETAIL

SCALE: AS NOTED



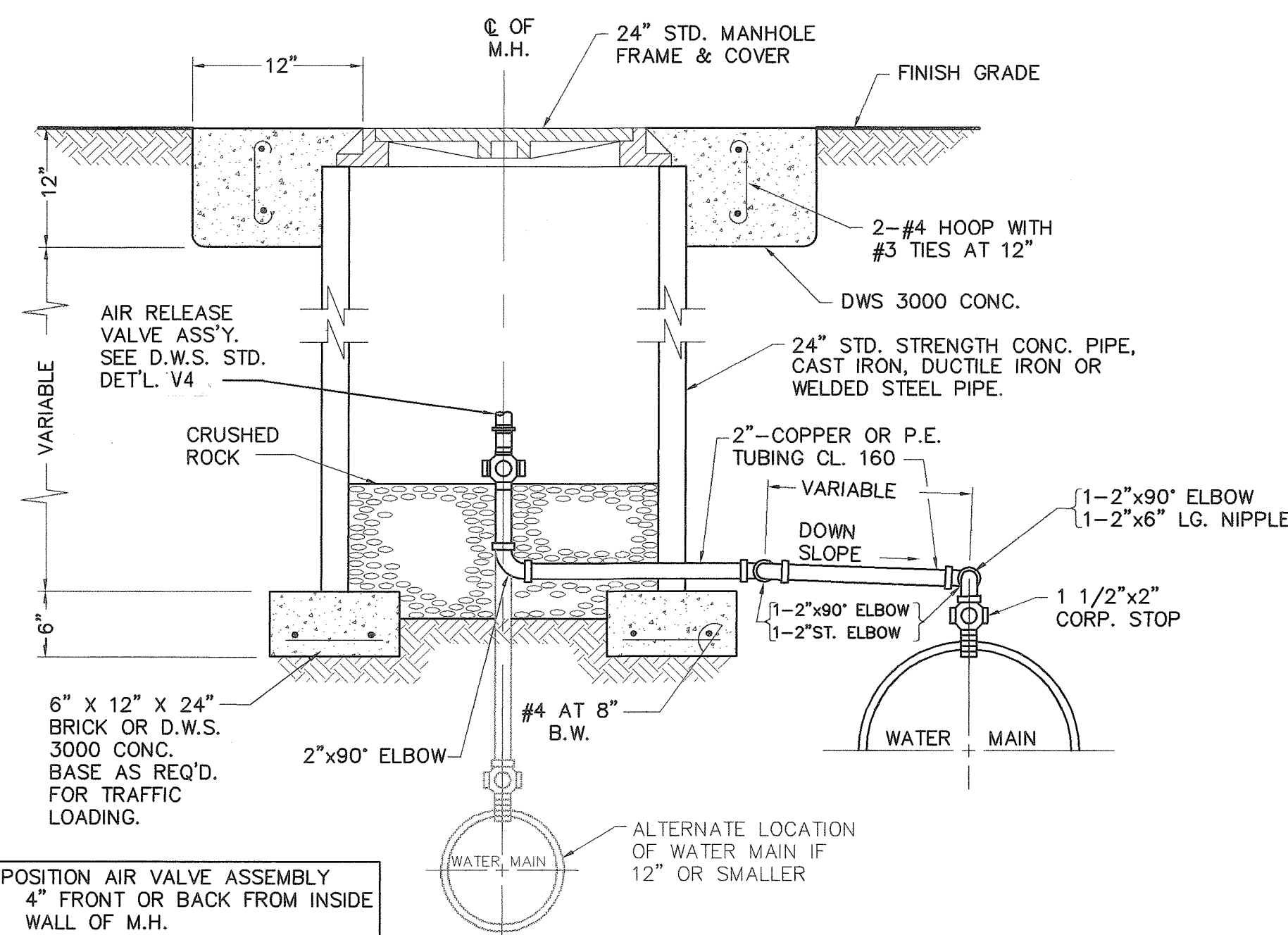
BLOW-OFF ASSEMBLY

TYPE B
NOT TO SCALE



BUTTERFLY VALVE

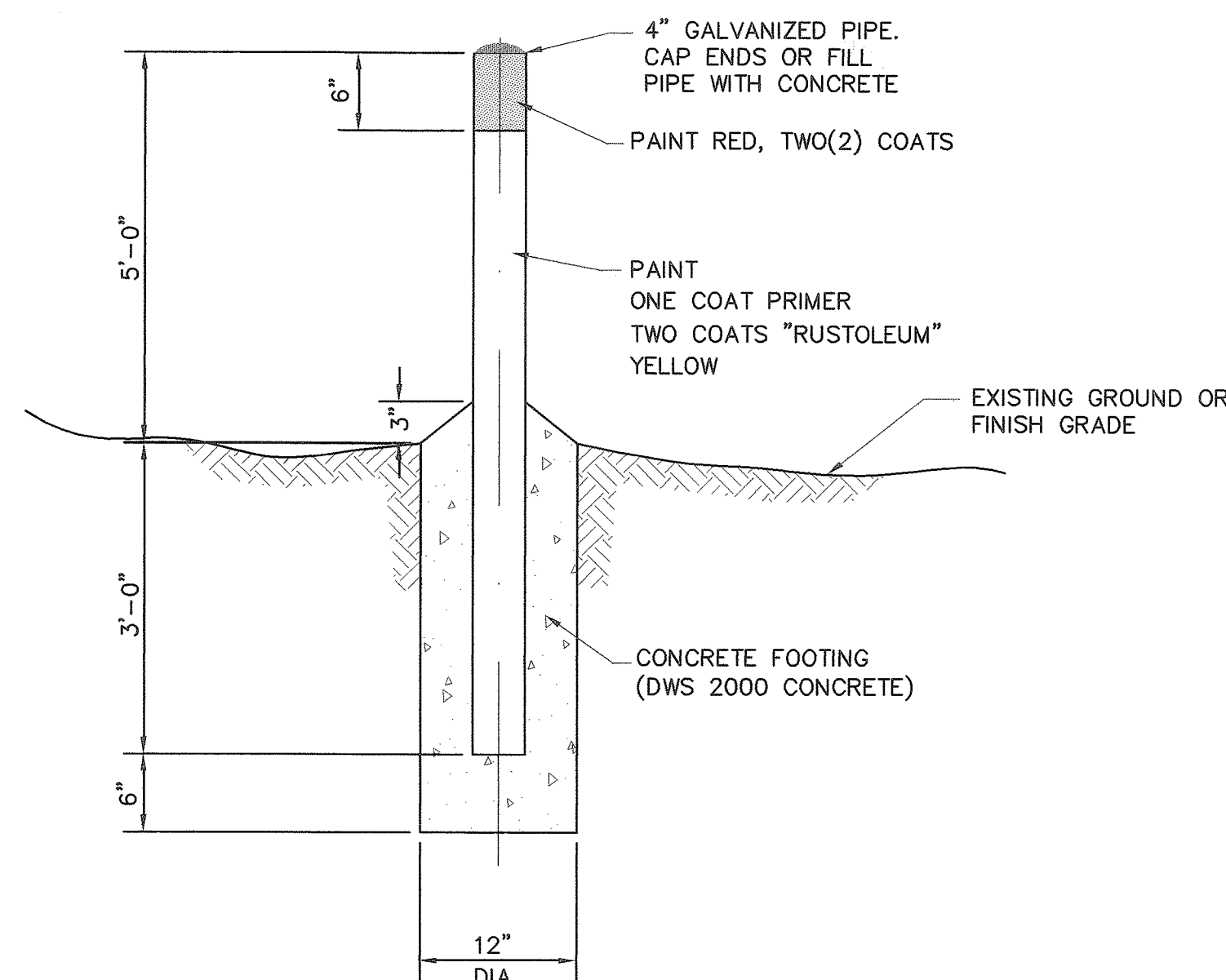
NOT TO SCALE



SECTION THROUGH MANHOLE

AIR VALVE MANHOLE TYPE "F"

D.W.S. STANDARD DETAIL 25R
NOT TO SCALE



PIPELINE MARKER

NOT TO SCALE