

**Project Location Map**

# Construction Plans

## Audubon Heights 7th Addition

### Waterloo, Iowa

### Year 2020

The 2020 SUDAS Specifications and currently applicable City of Waterloo Standard Specifications For Municipal Public Works Construction shall apply to all work performed on this Project.

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FOR REVIEW

DATE: 09/09/2020



<b>Certification</b>	
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.	
Signature: _____	
William J. Claassen, P.E.	
Date: _____, 20____	License No. _____ 9408
My license renewal date is December 31, 2021	
Pages or sheets covered by this seal: _____	

**Wayne Claassen Engineering and Surveying, Inc.**

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Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa  
Title Sheet

sheet  
A.1

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THE "ENGINEER" AS INDICATED ON THESE PLANS, SPECIAL PROVISIONS AND OR PAYMENT WILL BE MADE FOR THIS. CONTRACT DOCUMENTS IS DEFINED AS:

WAYNE CLAASSEN ENGINEERING AND SURVEYING, INC.  
2705 UNIVERSITY AVENUE (P.O. BOX 898)  
WATERLOO, IOWA 50704  
TELEPHONE: (319) 235-6294 FAX: (319) 235-0028

THE 2020 STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) AND CITY OF WATERLOO STANDARD SPECIFICATIONS FOR MUNICIPAL PUBLIC WORKS CONSTRUCTION SHALL APPLY TO ALL WORK ON THIS PROJECT.

PLANS INCLUDED IN THE PROJECT ARE FOR THE PURPOSE OF ALIGNMENT, LOCATION AND SPECIFIC DIRECTIONS FOR THE WORK TO BE PERFORMED UNDER THE CONTRACT. IRRELEVANT DATA ON THESE SHEETS IS NOT TO BE CONSIDERED A PART OF THIS CONTRACT.

THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK BETWEEN ALL EQUIPMENT SUPPLIERS, CRAFTS AND SUBCONTRACTORS INVOLVED IN THE PROJECT INCLUDING STAGING OF CONSTRUCTION AND CONSTRUCTION DETAILS.

THE PRIME CONTRACTOR SHALL INSURE ALL REQUIRED BARRICADES, FENCING, DELINEATORS, AND SUCH ADDITIONAL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT ARE ERECTED AND MAINTAINED, AND TAKE SUCH ACTIONS AS ARE REASONABLY NECESSARY TO PROTECT THE LIFE AND HEALTH OF HIS EMPLOYEES, SUBCONTRACTORS AND THE PUBLIC IN THE VICINITY OF ALL CONSTRUCTION WORK ZONES. ALL ABOVE REFERENCED TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH PART VI OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MILLENNIUM EDITION.

ALL OBSTRUCTIONS TO THE WORK REMOVED BY THE CONTRACTOR TO FACILITATE CONSTRUCTION WHICH ARE NOT SHOWN FOR REMOVAL, OR ORDERED BY THE ENGINEER, SHALL BE REPLACED WITH EQUAL OR BETTER MATERIALS AS APPROVED BY THE PROJECT ENGINEER.

THE LOCATION OF ALL KNOWN EXISTING UTILITIES AND SEWERS INDICATED ON THESE PLANS ARE TAKEN FROM EXISTING RECORDS AND ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER; THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATIONS AND ELEVATIONS OF THESE AND OTHER FACILITIES THAT MAY EXIST BUT ARE NOT SHOWN ON THE PLANS PRIOR TO SUBMITTING BIDS. THE CONTRACTOR SHALL EXPOSE UTILITIES AND SEWERS NOTED ON THE PLANS, AS DIRECTED IN THE FIELD BY THE ENGINEER, PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS SO THE EXACT LOCATIONS AND ELEVATIONS MAY BE DETERMINED. NO DIRECT PAYMENT SHALL BE MADE FOR THIS WORK, UNLESS NOTED IN SPECIFIC ITEM REFERENCE DATA, AND SHALL BE CONSIDERED INCIDENTAL TO OTHER WORK.

THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE UTILITIES AND/OR CITY DEPARTMENTS A MINIMUM OF FORTY-EIGHT (48) WORKING HOURS IN ADVANCE OF COMMENCING WORK ON THE PROJECT AND TO THEREAFTER COORDINATE NECESSARY ADJUSTMENTS AND/OR RELOCATIONS SO AS TO ELIMINATE DELAYS AND SERVICE INTERRUPTIONS. THE CONTRACTOR SHALL NOT BE COMPENSATED FOR DELAYS AND/OR EXTRA COSTS DUE TO CONFLICTS WITH ANY UTILITIES OR SEWER FACILITY UNLESS OTHERWISE NOTED.

UTILITY LOCATES-IOWA ONE CALL 800-292-8989

GAS-MIDAMERICAN ENERGY COMPANY 292-8989

ELECTRIC-MIDAMERICAN ENERGY COMPANY 292-8989

CABLE-MEDIACOM 319-232-8800

SEWER-CITY OF WATERLOO SEWER DEPARTMENT 291-4446

WATER-WATERLOO WATER WORKS 232-6280

ROADS-CITY OF WATERLOO STREET DEPARTMENT 291-4440

THE CONTRACTOR SHALL NOTE THAT EXISTING WATER, SEWERS, GAS, TELEPHONE, PROVISIONS AND ELECTRIC, ELECTRONIC AND OTHER, PUBLIC AND PRIVATE, UTILITIES, SERVICES AND CONNECTIONS FROM THESE UTILITIES MAY EXIST WITHIN OR ADJACENT TO THE WORK AREA. SPECIAL PRECAUTIONS MUST BE USED WHEN WORKING AROUND SAID UTILITIES, SERVICES AND CONNECTIONS.

PRIOR TO OPENING AN EXCAVATION, THE CONTRACTOR SHALL DETERMINE WHETHER PUBLIC OR PRIVATE UNDERGROUND INSTALLATIONS; I.E., SEWER, WATER, FUEL, ELECTRIC LINES, ETC., WILL BE ENCOUNTERED AND, IF SO, WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE APPROXIMATE LOCATIONS OF SUCH AN INSTALLATION, THE EXACT LOCATIONS SHALL BE DETERMINED BY CAREFUL PROBING OR HAND DIGGING AND, WHEN IT IS UNCOVERED, ADEQUATE PROTECTION SHALL BE PROVIDED FOR THE EXISTING INSTALLATION. ALL KNOWN OWNERS OF UNDERGROUND FACILITIES IN THE AREA CONCERNED SHALL BE ADVISED OF PROPOSED WORK AT LEAST 48 HOURS PRIOR TO THE START OF ACTUAL EXCAVATION.

THE ENGINEER SHALL FURNISH THE REQUIRED STAKES AND BENCH MARKS FOR THIS WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL MAINTAIN ALL STAKES AND REPORT ANY DAMAGE TO THE ENGINEER. THE CONTRACTOR SHALL VERIFY ALL GRADES, LINES, LEVELS AND DIMENSIONS AS SHOWN ON THE DRAWINGS, AND HE SHALL REPORT ANY ERRORS OR INCONSISTENCIES TO THE ENGINEER PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TWO (2) WORKING DAYS PRIOR TO THE NEED FOR THE SURVEY STAKES AND BENCH MARKS. IF ANY SURVEY STAKES OR BENCH MARKS ARE CARELESSLY OR WILLFULLY DESTROYED OR DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MISTAKES THAT MAY BE CAUSED BY THEIR LOSS OR DISTURBANCE, AND SHALL BE CHARGED FOR THE COST OF REPLACING THEM.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ITEMS NOT SPECIFIED FOR REMOVAL, RECONSTRUCTION, OR DEMOLITION. ALL AREAS INCLUDING BUT NOT LIMITED TO ROADWAYS, DRIVES, STRUCTURES, LAWNS, CROP LAND, AND PARKING AREAS OUTSIDE THE PROJECT SCOPE OR CONSTRUCTION LIMITS WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR, AS APPROVED BY THE PROJECT ENGINEER. NO SEPARATE PAYMENT SHALL BE MADE FOR SAID WORK AND IT SHALL BE CONSIDERED INCIDENTAL TO OTHER APPLICABLE WORK.

CONTRACTORS WISHING TO MAKE SUBSURFACE EXPLORATIONS PRIOR TO SUBMITTING BIDS ON THE PROJECT SHALL CONTACT THE PROJECT ENGINEER TO MAKE NECESSARY ARRANGEMENTS PRIOR TO CONDUCTING SAID INVESTIGATIONS.

THE CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES WITHIN OR OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE THESE AREAS FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREAS WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

BOND, MAINTENANCE, 2-YEAR: CONTRACTOR SHALL GUARANTEE THE MAINTENANCE OF THE IMPROVEMENTS TO THE OWNER FOR A PERIOD OF THREE (3) YEARS AFTER COMPLETION OF SAID IMPROVEMENTS AND ACCEPTANCE BY THE OWNER AND THE CITY. SAID BOND TO BE OF A FORM THAT IS ACCEPTABLE TO THE OWNER.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CERTIFICATIONS AND CUT SHEETS ON ALL MATERIALS TO BE INCORPORATED INTO THE PROJECT, PRIOR TO ORDERING SUCH MATERIALS.

THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA AND HAUL ROADS TO PREVENT THE SPREAD OF DUST. REFER TO ARTICLE 1107.07 OF THE IOWA D.O.T. STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS. NO PAYMENT WILL BE MADE FOR THIS ITEM. IT SHALL BE CONSIDERED INCIDENTAL TO OTHER APPLICABLE ITEMS.

ESTIMATED QUANTITY FOR NEW CONCRETE PAVEMENT INCLUDES ALL INTEGRAL CURB, ALL STREET RETURNS AND SPECIAL AREAS OF REPAIRS TO CONNECTING PAVEMENTS.

SPECIAL CARE SHALL BE TAKEN WHEN FORMING AT INTERSECTIONS SO THAT THE PROFILES AND ELEVATIONS SHOWN ON THE CROSS SECTIONS, STREET RETURN PROFILE SHEETS, AND STAKING DIAGRAM SHEETS ARE OBTAINED. SHORT LENGTHS OF FORMS OR FLEXIBLE FORMS MAY BE NECESSARY AT THESE LOCATIONS.

TO OBTAIN THE CORRECT FORM GRADES AT LOW POINTS WHERE INTAKES ARE LOCATED, THE CONTRACTOR MUST EXERCISE EXTREME CARE WHEN PAVING FULL WIDTH PAVEMENTS. THIS MAY REQUIRE POURING ONE HALF OF THE PAVEMENT AT A TIME OR OTHER METHODS APPROVED BY THE ENGINEER.

CONTRACTOR IS TO USE DUE CAUTION IN WORKING OVER AND AROUND ALL TILE LINES. BREAKS IN THE LINE DUE TO THE CONTRACTOR'S CARELESSNESS ARE TO BE REPLACED AT HIS/HER EXPENSE WITHOUT COST TO THE OWNER. EXISTING TILE LINES THAT MUST BE CUT FOR INSTALLATION OF SEWER OR WATER LINES WILL BE REPLACED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT THE OWNER'S EXPENSE AS PER THE APPLICABLE BID ITEM.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR THE OWNER'S APPROVAL OF ALL ROUTES OF HAUL OF MATERIALS TO THE PROJECT SITE. ROUTES OF HAUL WILL BE LIMITED TO THOSE ROUTES WHICH ARE APPROVED BY THE OWNER.

THE CONTRACTOR SHALL COMPLETE ALL EARTHWORK IN ACCORDANCE WITH THE PLANS. EXCAVATIONS AND EMBANKMENT CONSTRUCTION SHALL BE MECHANICALLY COMPACTED TO A MINIMUM OF 97% OF STANDARD PROCTOR DENSITY AT -2% TO +4% OF OPTIMUM MOISTURE IN MAXIMUM LIFTS OF 8" LOOSE THICKNESS. THE CONTRACTOR SHALL ADJUST THE MOISTURE OF ALL BACKFILL TO WITHIN THIS RANGE PRIOR TO PLACING IT INTO TRENCHES OR UPON THE ROADBED FOR SUBSEQUENT COMPACTION. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

EROSION CONTROL FENCING DISTURBED BY CONSTRUCTION OR OTHER ACTIVITIES ON THE SITE SHALL BE REPLACED AT NO COST TO THIS CONTRACT. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL FENCING TO PREVENT THE TRANSPORT OF SEDIMENT OFF-SITE AT NO ADDITIONAL COST TO THIS CONTRACT. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL FENCING AND OTHER EROSION CONTROL ITEMS WITHIN 48 HOURS OF THE TIME FIRST INSTRUCTED BY THE ENGINEERS.

THE CONTRACTOR AND ALL OF HIS/HER SUBCONTRACTORS SHALL MAKE THEMSELVES FAMILIAR WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES DISCHARGE OF STORMWATER FROM THIS PROJECT AND SHALL COMPLY WITH ALL ASPECTS OF THE IOWA NPDES STORM WATER GENERAL PERMIT NO. 2, THE PERMIT FOR THIS PROJECT, THE CITY OF WATERLOO STORM WATER REGULATIONS AND THE EROSION CONTROL PLAN FOR THIS PROJECT. THE CONTRACTOR AND ALL OF HIS/HER SUBCONTRACTORS SHALL SIGN THE CERTIFICATION STATEMENT PROVIDED FOR THE NPDES PERMIT FOR THIS PROJECT.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING SURFACE WATER AND GROUNDWATER CONDITIONS AT THE PROJECT. SURFACE WATER AND GROUNDWATER IS PRESENT IN THE WORK AREA AND WILL AFFECT WORKING CONDITIONS AT THE SITE. THE CONTRACTOR IS REQUIRED TO PROVIDE AND USE ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE ALL PORTIONS OF THE PROJECT AS PER THE PLANS AND SPECIFICATIONS AT NO ADDITIONAL COST ATTRIBUTABLE TO SURFACE WATER OR GROUNDWATER.

EACH CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF HIS/HER WORKERS, HIS/HER SUBCONTRACTOR'S AND THE PUBLIC.

INSTALLATION OF CLUSTER MAIL BOXES WILL BE REQUIRED. LOCATION IS BEING DETERMINED BY THE U.S. POSTAL SERVICE.

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**Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa  
General Notes**

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## ESTIMATED PROJECT QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	ESTIMATED QUANTITY
<b>EROSION CONTROL</b>			
001	EROSION CONTROL SILT FENCE	L.F.	4008
002	SEDIMENT INTAKE FILTER	EACH	18
003	9" DIA. STRAW FILLED WATTLES	L.F.	1080
004	SEED, FERTILIZE AND MULCH (IDOT RURAL MIX)	ACRES	9.1
005	SWPPP AND NPDES GENERAL PERMIT NO. 2 COMPLIANCE, COMPLETE	LUMP SUM	1
006	CONCRETE WASHOUT, LEAK-PROOF, ON-SITE, W/ SIGNAGE, PER SUDAS, COMPLETE	LUMP SUM	1
007			
008			
009			
010			
011			
012			

<b>EARTHWORK</b>			
101	TOPSOIL STRIP, SALVAGE, AND STOCKPILE	C.Y.	5663
102	CLASS 10 EXCAVATION	C.Y.	10,218
103	CLASS 10, OFF-SITE BORROW	C.Y.	3000
104	TOPSOIL RESPREAD, 4" THICKNESS	C.Y.	4883

<b>SANITARY SEWER CONSTRUCTION</b>			
201	SANITARY SEWER MANHOLE, STANDARD 48" DIA.	EACH	5
202	SANITARY SEWER MANHOLE, STANDARD 60" DIA.. W/ OUTSIDE DROP CONNECTION	EACH	1
203	SANITARY SEWER, 8-INCH DIA. WITH TEES AND WYES	L.F.	1010.9
204	SANITARY SEWER, 12-INCH DIA. WITH TEES AND WYES	L.F.	620.1
205	SANITARY SEWER SERVICE, 4-INCH DIA.	L.F.	1602
206			

<b>STORM SEWER CONSTRUCTION</b>			
401	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 48" DIA.	EACH	1
402	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 60" DIA.	EACH	2
403	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 84" DIA.	EACH	1
404	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-508	EACH	1
405	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-509	EACH	13
406	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-510, CAST-IN-PLACE	EACH	2
407	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-513, 60x36	EACH	3
408	STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-562	EACH	2
409	STORM SEWER, 15-INCH DIA. 2000D RCP	L.F.	404.6
410	STORM SEWER, 18-INCH DIA. 2000D RCP	L.F.	390.0
411	STORM SEWER, 24-INCH DIA. 2000D RCP	L.F.	451.3
412	STORM SEWER, 33-INCH DIA. 2000D RCP	L.F.	81.5
413	STORM SEWER, 36-INCH DIA. 2000D RCP	L.F.	1137.3
414	APRON, STORM SEWER, 36-INCH DIA. 2000D RCP	EACH	1
415	APRON FOOTING, SUDAS 4030.211, 36-INCH DIA	EACH	1
416	APRON GUARD DR-213, 36-INCH DIA.	EACH	1
417	EROSION STONE	TON	20

## ESTIMATED PROJECT QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	ESTIMATED QUANTITY
<b>LONGITUDINAL SUBDRAIN CONSTRUCTION</b>			
501	LONGITUDINAL SUBDRAIN, 6-INCH DIA. IN POROUS BACKFILL	L.F.	3412
502	LONGITUDINAL SUBDRAIN OUTLET TO STORM STRUCTURE	EACH	19
503	LONGITUDINAL SUBDRAIN CONNECTION TO EXISTING SUBDRAIN, COMPLETE	EACH	2
504			

<b>WATER CONSTRUCTION</b>			
601	WATER SERVICE, COPPER, 1" DIA., BY OPEN TRENCH	L.F.	1638
602	WATER SERVICE SIDE TAP CONNECTION, 1" DIA, TO WATER MAIN., COMPLETE	EACH	30
603	WATER MAIN, DUCTILE IRON, THICKNESS CLASS 52, 8-INCH DIA.	L.F.	1790
604	45° BEND, 8" DIA. D.I.P., COMPLETE WITH MECHANICAL THRUST RESTRAINT	EACH	1
605	TEE, 8" DIA. X 8" DIA. D.I.P. COMPLETE WITH MECHANICAL THRUST RESTRAINT	EACH	4
606	ENDCAP, 8" DIA. D.I.P., COMPLETE WITH MECHANICAL THRUST RESTRAINT	EACH	1
607	MJ GATEVALVE, 8" DIA., COMPLETE WITH VALVE BOX	EACH	9
608	NEW FIRE HYDRANT ASSEMBLY, M.J., 6.5' BURY, COMPLETE	EACH	5
609	TIE-IN TO EXISTING WATERMAIN, COMPLETE	EACH	2
610	MECHANICALLY RESTRAINED JOINT WATER MAIN, 8" DIA.	EACH	4
611	NITRILE NBR GASKETS, 8" DIA.	EACH	18
612			
613			
614			
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616			
617			

<b>PAVING CONSTRUCTION</b>			
701	MODIFIED SUBBASE, 8" COMPACTED THICKNESS	S.Y.	7865
702	PAVEMENT, P.C. CONCRETE, 6-INCH THICK WITH INTEGRAL CURB, IDOT CLASS C-4	S.Y.	2928
703	PAVEMENT, P.C. CONCRETE, 7-INCH THICK WITH INTEGRAL CURB, IDOT CLASS C-4	S.Y.	3753
704			
705			

<b>MISCELLANEOUS</b>			
801	TRAFFIC CONTROL	LUMP SUM	1
802	MAINTENANCE BOND, 2-YEAR	LUMP SUM	1
803	SIGNAGE, COMPLETE	LUMP SUM	1

<b>ADDITIONAL PRICES - BIDDER IS TO SUBMIT PRICES FOR THE FOLLOWING ITEMS THAT MAY OR MAY NOT BE NEEDED FOR THIS PROJECT</b>			
A1	FOUNDATION MATERIAL	TONS	UNKNOWN
A2	REPLACE EXISTING FIELD DRAIN TILE CROSSINGS	EACH	UNKNOWN
A3	CLASS 12 EXCAVATION, HAUL OFF-SITE AND DISPOSE OF ROCK AND RUBBLE	C.Y.	UNKNOWN

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**Construction Plans  
 Audubon Heights 7th Addition  
 Waterloo, Iowa  
 Estimated Project Quantities**

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**BID REFERENCE NOTES**

001. EROSION CONTROL SILT FENCE

002. SEDIMENT INTAKE FILTER, AS PER CITY OF WATERLOO STANDARD

003. 9" DIA. STRAW FILLED WATTLES

ITEMS INCLUDE INSTALLATION AS PER SUDAS AND CITY OF WATERLOO STANDARDS AND REMOVING SILT WHEN 50% FULL. ITEMS TO BE INSTALLED AND MAINTAINED AT LOCATIONS AS DIRECTED IN THE FIELD BY THE ENGINEER WITHIN 48 HOURS OF THE TIME FIRST INSTRUCTED BY THE ENGINEER.

004. SEED, FERTILIZE, AND MULCH (RURAL MIX)

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, SEED, FERTILIZING, MULCHING AND OTHER ITEMS NEEDED FOR COMPLETION IN ALL DISTURBED AREAS EXCEPT FOR PAVED AREAS ARE INCLUDED IN THIS ITEM. ITEM TO BE COMPLETED WITHIN 21 CALENDAR DAYS AFTER PAVING IS COMPLETED.

005. SWPPP AND NPDES GENERAL PERMIT NO. 2 COMPLIANCE, COMPLETE

ITEM INCLUDES MEETING ALL REQUIREMENTS TO COMPLY WITH ALL SWPPP AND NPDES GENERAL PERMIT NO. 2.

006. CONCRETE WASHOUT, LEAK-PROOF, ON-SITE, W/ SIGNAGE, PER SUDAS, COMPLETE

ITEM INCLUDES ALL MATERIALS, INSTALLATION, MAINTENANCE, REMOVAL AND OFFSITE DISPOSAL AND IN COMPLIANCE WITH ALL REQUIREMENTS OF SUDAS DIVISIONS 11 PARTS 1-3, INCLUDING, BUT NOT LIMITED TO LEAK-PROOF MATERIALS AND CONSTRUCTION REQUIREMENTS AND CITY OF WATERLOO REQUIREMENTS.

101. TOPSOIL STRIP, SALVAGE AND STOCKPILE

ITEM TO BE COMPLETED IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE 2019 SUDAS SPECIFICATIONS AND CURRENT CITY OF WATERLOO SUPPLEMENTAL SPECIFICATIONS, IT WILL BE NECESSARY FOR THE CONTRACTOR TO STAGE, STOCKPILE OR CROSS-HAUL SOME EXCAVATION IN ORDER TO FACILITATE REMOVAL, DISPOSAL AND PROPER PLACEMENT OF MATERIAL. THE CONTRACTOR MAY ELECT TO UTILIZE TEMPORARY OFF-SITE STOCKPILE AREAS PROVIDED BY THE CONTRACTOR FOR EXCAVATED MATERIALS. ANY SUCH STAGING, STOCKPILING OR CROSS-HAULING OF THE EXCAVATION OTHER THAN AS DESCRIBED ON PLANS SHALL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

ITEM INCLUDES SEPARATION TO SEPARATE STOCKPILE AREAS OF THE MORE SUITABLE MATERIAL TO BE RE-SPREAD UNDER ITEM NO. 003 FOR THE ESTABLISHMENT OF DESIRABLE VEGETATION, AS APPROVED BY THE ENGINEER, ON THIS PROJECT. NO SEPARATE MEASUREMENT OR PAYMENT FOR OVER-HAUL WILL BE MADE FOR THIS ITEM ON THIS PROJECT.

ITEM INCLUDES THE EXCAVATION OF ALL TOPSOIL WITHIN THE AREA TO BE DEVELOPED. IF THE ENGINEER DETERMINES, DURING EXCAVATION OPERATIONS, THAT AREAS OF UNDESIRABLE, UNSUITABLE AND/OR UNSTABLE AREAS OF SOIL EXIST AFTER THE TOPSOIL EXCAVATION HAS BEEN COMPLETED, HE MAY ORDER ADDITIONAL EXCAVATION TO REMOVE SAID MATERIALS. THIS "BELOW GRADE" EXCAVATION SHALL BE MEASURED AND PAID FOR AT THE UNIT BID PRICE FOR THIS ITEM, TOPSOIL STRIP, SALVAGE AND STOCKPILE. ALL STOCKPILE AREAS SHALL HAVE 4(H) TO 1(V) FLATTER SLOPES. STOCKPILE AREAS TO BE LOCATED BY ENGINEER AT TIME OF CONSTRUCTION.

ITEM INCLUDES DISKING, STRIPPING AND SEPARATELY STOCKPILING CROP AND OTHER VEGETATION FROM ALL CUT AND FILL AREAS. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THIS.

102. CLASS 10 EXCAVATION

103. CLASS 10, OFF-SITE BORROW

ITEM INCLUDES ALL GRADING TO THE LINES AND GRADES SHOWN ON THESE PLANS, CROSS-SECTIONS GRADING PLAN AND TYPICAL SECTIONS. ITEM INCLUDES OVEREXCAVATION IN AREAS TO BE TOPSOILED SO AS TO PROVIDE A 4" THICKNESS OF TOPSOIL IN ALL AREAS THAT ARE NOT TO BE PAVED OR BUILT UPON. ITEM INCLUDES CUT AND FILL CONSTRUCTION.

ESTIMATED QUANTITY INCLUDES 3,383 C.Y. OF TEMPLATE CUT, 6,835 C.Y. IN EXISTING ON-SITE STOCKPILE AND 3,000 C.Y. OF MATERIAL TO BE BROUGHT ON-SITE BY OWNER.

ITEM INCLUDES 2,598 C.Y. OF IN-PLACE SELECT FILL MATERIAL TO CONSTRUCT ROADWAY FROM 40 FEET LEFT TO 40 FEET RIGHT OF CENTERLINE PLUS 26 FEET OUTSIDE THE BACK OF CURB OF CUL-DE-SACS. THE REMAINING QUANTITY IS TO BE PLACED WITH MOISTURE AND DENSITY CONTROL AS LOT SITE FILL AS PER THE GRADING PLAN.

ALL AREAS SHALL BE COMPACTED TO 97% OF STANDARD PROCTOR DENSITY AT -2% TO +4% OF OPTIMUM. EXCAVATION MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE USED AS SITE FILL AWAY FROM ROADWAY CONSTRUCTION AS DIRECTED BY THE ENGINEER. NO ADDITIONAL MEASUREMENT OR PAYMENT FOR THIS WORK SHALL BE MADE.

IT WILL BE NECESSARY FOR THE CONTRACTOR TO STAGE, STOCKPILE OR CROSS-HAUL SOME EXCAVATION IN ORDER TO FACILITATE REMOVAL, DISPOSAL AND PROPER PLACEMENT OF MATERIAL. ANY SUCH STAGING, STOCKPILING, DISPOSAL OR CROSS-HAULING OF THE EXCAVATION SHALL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

NO PAYMENT FOR OVER-HAUL OR SOIL MOISTURE ADJUSTMENT WILL BE MADE.

ITEM INCLUDES 12" SCARIFICATION AND COMPACTION OF IN-SITU SOIL UNDER ALL STRIPPED TOPSOIL.

THE ELEVATION OF THE SUBGRADE SURFACE WILL BE CHECKED WITH A STRINGLINE FOR PROPER GRADE BY THE CONTRACTOR AFTER PAVING STAKES ARE SET. THE SURFACE OF THE SUBGRADE SHALL BE CORRECTED IN BOTH PROFILE AND CROSS-SECTION TO THE EXTENT THAT IT IS NOT HIGHER THAN THE DESIGNED ELEVATION AND AT NO POINT IS LOWER THAN 0.05 FOOT BELOW THIS ELEVATION.

ITEM INCLUDES BACKFILLING THE BACK OF CURB AND SIDEWALK AREAS AFTER PAVING OPERATIONS. BACKFILLING CURBS AND FINISH GRADING TO BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER PAVING IS COMPLETE, SEALED AND CURED..

104. TOPSOIL, RESPREAD, 4" THICKNESS

MATERIAL SHALL BE RE-SPREAD, SHAPED, FINISHED AND SMOOTH. DRAGGED TO ACHIEVE CLOSE CONFORMANCE TO THE SLOPES AND GRADES SHOWN ON THE PLANS OR MODIFIED BY THE ENGINEER SO THAT THE FINAL GRADING REFLECTS THAT THE AVERAGE NEET LINES HAVE BEEN MET AND PROPER SITE DRAINAGE IS ACHIEVED AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL COMPLETE EROSION CONTROL WORK ON ANY FINISHED AREA WITHIN 5 WORKING DAYS AFTER COMPLETION OF THIS ITEM.

TOPSOIL SHALL BE RE-SPREAD TO A UNIFORM THICKNESS OF 12". THE TOPSOIL SHALL BE LEFT FREE OF ALL ROCK AND ANY DEBRIS, AND SHALL BE SUITABLE FOR THE ESTABLISHMENT OF VEGETATION, AS APPROVED BY THE ENGINEER, WITH NO SEPARATE MEASUREMENT OR PAYMENT.

EXCESS TOPSOIL SHALL BE STOCKPILED ON-SITE IN THE DESIGNATED AREA WITH MAXIMUM 4:1 SIDESLOPES.

201. SANITARY SEWER MANHOLE, STANDARD 48" DIA.

202. SANITARY SEWER MANHOLE, STANDARD 60" DIA.. W/ OUTSIDE DROP CONNECTION

STANDARD PRE-CAST MANHOLE BASE SECTIONS SHALL BE SUPPLIED WITH A-LOK OR APPROVED EQUAL MANHOLE PIPE CONNECTORS, SET TO THE APPROVED PIPE ELEVATIONS AND ALIGNMENT AS SHOWN ON THE SHOP WORK DRAWINGS SUBMITTED TO THE ENGINEER FOR REVIEW.

ALL MANHOLE BASE SECTIONS SHALL BE SET OR CONSTRUCTED ON A MINIMUM EIGHT (8) INCH COMPACTED BASE CONSTRUCTED WITH MATERIAL MEETING THE REQUIREMENTS OF GRADATION NO. 30. COMPACTED BASE CONSTRUCTION WORK AND MATERIAL SHALL BE INCIDENTAL TO THIS ITEM.

STANDARD PRE-CAST MANHOLE SECTIONS SHALL HAVE STANDARD "O-RING" JOINTS AND SHALL BE MORTARED ON THE INSIDE AND OUTSIDE, INCLUDING LIFTING HOLES, WITH A GROUT THAT SHALL SHOW NO SHRINKAGE IN ACCORDANCE WITH ASTM C-827-78 PRIOR TO AN INITIAL SETTING AND SHALL SHOW NO SHRINKAGE IN THE HARDENED STATE UNDER ASTM C-157-77. ALL GROUTING SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI, CSI AND THE MANUFACTURER'S PUBLISHED SPECIFICATIONS FOR MIXING AND PLACING. THE CONTRACTOR SHALL SUBMIT PROPOSED GROUT DATA TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

FINAL MANHOLE ACCEPTANCE TESTING SHALL BE COMPLETED WITH THE FRAME AND LID SET TO FINAL GRADE, THE MANHOLE BACKFILLED, AND IN ACCORDANCE WITH TEST INSTRUCTIONS FOR THE "AIR-LOC" PLATE STYLE MANHOLE TESTER BY CHERNE INDUSTRIES, INC., OR AS APPROVED IN ADVANCE BY THE ENGINEER.

IT IS RECOMMENDED THAT THE CONTRACTOR PRETEST THE MANHOLE PRIOR TO FINAL ACCEPTANCE TESTING TO ALLOW TIME FOR ANY REPAIRS TO BE MADE PRIOR TO SAID TESTING DELAYING FURTHER CONSTRUCTION.

SANITARY SEWER MANHOLE FRAMES AND LIDS SHALL BE EITHER NEENAH R-1642 OR DEETER 1268 FRAME WITH SOLID COVER WITH WORD "SANITARY" STAMPED ON THE COVER. SEE CITY STANDARD DETAILS.

CONSTRUCTION OF ALL MANHOLES SHALL PROVIDE A MINIMUM OF FOUR (4) INCHES AND A MAXIMUM OF TWELVE (12) INCHES OF TWO (2) FOOT INSIDE DIAMETER SPACER RINGS, GROUTED IN PLACE WITH AN APPROVED NON-SHRINKING GROUT. THE CASTING SHALL BE SET TO FINAL GRADE UTILIZING "E-Z STICK" AS SUPPLIED BY PRESS-SEAL GASKET CORP., OR AN APPROVED EQUAL, FOR THE FULL BEARING SURFACE TO INSURE WATER TIGHTNESS.

THE CONTRACTOR SHALL GIVE THE ENGINEER ONE (1) NORMAL WORKING DAY PRIOR NOTICE TO SCHEDULE ACCEPTANCE TESTING. (NOT INCLUDING SATURDAYS, SUNDAYS OR HOLIDAYS).

ALL SAID WORK OF TESTING OF SEWER LINES SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

ITEMS INCLUDE ALL MATERIALS, FITTINGS, SEWER PLUGS, ADJUSTMENT RING, TOPSOIL SEPARATION AND RE-SPREADING, EXCAVATION, EMBEDMENT MATERIAL, BACKFILL UNDER MOISTURE AND DENSITY CONTROL, TESTING, DEWATERING, LABOR AND EQUIPMENT NECESSARY TO CONSTRUCT THESE ITEMS.

ALL SANITARY MANHOLES SHALL INCLUDE RUBBER ADJUSTMENT RINGS AS PER CITY OF WATERLOO STANDARD DETAIL FOR SANITARY SEWER MANHOLES.

ALL SANITARY MANHOLES SHALL HAVE CRETEX MANHOLE CHIMNEY SEALS, AS PER ASTM C923. SAID SEALS SHALL INCLUDE A 3/16" MIN THICKNESS, EXTRUDED OR MOLDED RUBBER SLEEVE, DOUBLE PLEATED WITH MINIMUM UNEXPANDED WIDTH OF 8" AND SHALL BE CAPABLE OF EXPANSION TO 10" WHEN INSTALLED. UPPER AND LOWER CONTACT SURFACES SHALL HAVE MULTIPLE, CONTINUOUS SEALING FINS MOLDED INTO THE SLEEVE. THE RUBBER SLEEVE SHALL BE MOUNTED TO THE INTERIOR OF THE MANHOLE WITH EXPANDABLE, STAINLESS STEEL CONFORMING TO ASTM A240, TYPE 304. BANDS SHALL BE A 16-GAUGE BY 1-3/4" WIDE (MIN). SCREWS, BOLTS AND NUTS SHALL BE STAINLESS STEEL CONFORMING TO ASTM F593 AND F594, TYPE 304. CHIMNEY SEALS ARE TO BE INSTALLED AS PER THE MANUFACTURER'S INSTRUCTIONS ON ALL SANITARY MANHOLES.

203. SANITARY SEWER, 8-INCH DIA. WITH TEES AND WYES

204. SANITARY SEWER, 12-INCH DIA. WITH TEES AND WYES

ITEM TO BE CONSTRUCTED WITH PVC TRUSS COMPOSITE PIPE WITH ELASTOMERIC JOINTS AND CLASS 1A EMBEDMENT MATERIAL FROM 4 INCHES BELOW THE PIPE TO 6 INCHES ABOVE THE TOP OF THE PIPE, ALL IN ACCORDANCE WITH ASTM D-2680, ASTM D-3212 AND THE STANDARD SPECIFICATIONS OF THE CITY OF WATERLOO AND THESE PLANS AND SPECIFICATIONS.

ESTIMATED QUANTITY IS MEASURED FROM INSIDE WALL TO INSIDE WALL OF MANHOLES. ITEM INCLUDES WATERTIGHT PLUGS AT THE UPSTREAM ENDS OF ALL SEWERS NOT ENDING IN A MANHOLE.

ITEMS INCLUDE CLEANING THE SEWER LINES OF ALL DEBRIS PRIOR TO TESTING.

ITEMS INCLUDE INTERNAL TELEVISION INSPECTION OF THE SANITARY SEWER BY AN APPROVED COMPANY AND PROVIDING A COPY OF THE TELEVISION REPORT AND COLOR MOVIE FILM OF SAID TESTING.

203. SANITARY SEWER, 8-INCH DIA. WITH TEES AND WYES (CONTINUED)

204. SANITARY SEWER, 12-INCH DIA. WITH TEES AND WYES (CONTINUED)

ITEMS INCLUDE INTERNAL TELEVISION INSPECTION OF THE SANITARY SEWER BY AN APPROVED COMPANY AND PROVIDING A COPY OF THE TELEVISION REPORT AND COLOR MOVIE FILM OF SAID TESTING.

ITEMS INCLUDE LOW PRESSURE AIR LEAK TESTING OF THE SANITARY SEWER WITH SANITARY SEWER SERVICE LINES IN PLACE AS DESCRIBED HEREIN AFTER THE SEWER HAS BEEN CLEANED AND PASSED TELEVISION INSPECTION.

1. ALL SANITARY SEWER PIPE SHALL BE LOW PRESSURE AIR LEAK TESTED IN THE PRESENCE OF THE ENGINEER. THIS SHALL INCLUDE AN APPROVED METHOD TO ISOLATE THE EXISTING SANITARY SEWER LINE FROM THE NEW CONSTRUCTION AT THE POINT OF CONNECTION. ACCEPTANCE TESTING SHALL BE IN ACCORDANCE WITH ASTM F AND UNI-BELL PVC PIPE ASSOCIATION UNI-B-6-90, AS APPROVED BY THE ENGINEER. ALL TESTING PRESSURE GAUGES AND EQUIPMENT CONTROLS SHALL BE IN AN ABOVE GROUND CONTROL PANEL. ACCEPTANCE TESTING SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING MINIMUM TEST REQUIREMENTS.

A.) AVERAGE GROUNDWATER BACK PRESSURE FOR THE SEWER BEING TESTED SHALL BE BASED UPON THE GROUNDWATER ELEVATION OBSERVED AT THE NEAREST SOIL BORING LOCATION MADE BY THE ENGINEER'S GEOTECHNICAL CONSULTANT FOR THE PROJECT.

B.) A STABILIZATION PERIOD OF AT LEAST TWO (2) MINUTES AT 4.0 PSIG GREATER THAN THE AVERAGE GROUNDWATER ELEVATION SHALL PRECEDE THE TEST.

C.) AFTER THE STABILIZATION PERIOD, THE TEST MAY BEGIN WHEN THE TEST PRESSURE IS 3.5 TO 4.0 PSIG GREATER THAN THE PSIG OR LESS IS ALLOWABLE WITHIN THE COMPUTED UNI-B-6-90 MINIMUM TEST TIME TO SATISFACTORILY PASS THE TEST.

THE CONTRACTOR SHALL GIVE THE ENGINEER ONE (1) NORMAL WORKING DAY PRIOR NOTICE TO SCHEDULE ACCEPTANCE TESTING. (NOT INCLUDING SATURDAYS, SUNDAYS OR HOLIDAYS) ALL SAID WORK OF TESTING OF SEWER LINES SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM. THE CONTRACTOR SHALL CORRECT ALL DEFECTS UNTIL THE SEWER PASSES THE TESTS.

SANITARY SEWER BACKFILL SHALL BE SUDAS CLASS F-3, WITH ALL BACKFILL ABOVE THE EMBEDMENT AND BEDDING MATERIAL COMPACTED TO 97% OF STANDARD PROCTOR DENSITY AT -2% TO + 4% OF OPTIMUM MOISTURE IN 8" MAXIMUM LOOSE LIFTS.

ITEMS INCLUDE ALL PIPE, FITTINGS, SEWER PLUGS, TOPSOIL SEPARATION AND RE-SPREADING, EXCAVATION, EMBEDMENT MATERIAL, BACKFILL UNDER MOISTURE AND DENSITY CONTROL, CLEANING, TESTING, DEWATERING, LABOR AND EQUIPMENT NECESSARY TO CONSTRUCT THESE ITEMS.

205. SANITARY SEWER SERVICE, 4-INCH DIA.

ITEMS TO BE CONSTRUCTED WITH PVC SDR 23.5 PIPE W/ELASTOMERIC JOINTS IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D 3034 AND D 2680.

ALL SANITARY SEWER SERVICE STUBS SHALL BE PLUGGED AND RESTRAINED WATERTIGHT BY USING AN APPROVED STOPPER, RATED FOR THE MAXIMUM TEST PRESSURE. ENDS OF ALL SERVICE STUBS SHALL BE MARKED WITH A MINIMUM 10 FOOT LENGTH OF 2" X 4" (APPROVED BY THE ENGINEER) AND MARKED WITH AN ORANGE METAL (T-SECTION) STEEL POST, MEETING THE REQUIREMENTS OF IOWA D. O. T. STANDARD SPECIFICATION SECTION 4154.09. ALL SAID WORK AND MATERIALS SHALL BE CONSIDERED INCIDENTAL TO SAID ITEMS.

SANITARY SEWER SERVICE BACKFILL SHALL BE SUDAS CLASS F-3, WITH ALL BACKFILL ABOVE THE EMBEDMENT AND BEDDING MATERIAL COMPACTED TO 97% OF STANDARD PROCTOR DENSITY AT -2% TO + 4% OF OPTIMUM MOISTURE IN 8" MAXIMUM LOOSE LIFTS.

ITEMS INCLUDE ALL PIPE, FITTINGS, SEWER PLUGS, TOPSOIL SEPARATION AND RE-SPREADING, EXCAVATION, EMBEDMENT MATERIAL, BACKFILL UNDER MOISTURE AND DENSITY CONTROL, CLEANING, TESTING, DEWATERING, LABOR AND EQUIPMENT NECESSARY TO CONSTRUCT THESE ITEMS.

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Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa  
Bid Reference Notes

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**BID REFERENCE NOTES**

- 401. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 48" DIA.
- 402. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 60" DIA.
- 403. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-401, 84" DIA.
- 404. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-508
- 405. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-509
- 406. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-510, CAST-IN-PLACE
- 407. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-513, 60x36
- 408. STORM SEWER INTAKE, IDOT STANDARD ROAD PLAN SW-562

SEE IOWA DEPARTMENT OF TRANSPORTATION STANDARD ROAD PLANS.

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EXCAVATION, COMPACTED BACKFILL, DEWATERING AND APPURTENANT ITEMS FOR COMPLETE INSTALLATION. COMPACTION SHALL BE 97% OF STANDARD PROCTOR DENSITY AT -2% TO +4% OF OPTIMUM MOISTURE.

ALL OUTLET PIPES FOR LONGITUDINAL SUBDRAINS SHALL BE INSTALLED IN FORMS PRIOR TO POURING INTAKES. THIS WILL BE CONSIDERED INCIDENTAL.

STORM SEWER CASTINGS AND INLETS SHALL BE STAMPED WITH "DRAINS TO RIVER" STAMP. SEE STANDARD DETAILS.

CONTRACTOR TO COMPLETE STRUCTURE BOXOUTS AND TOPS WITHIN 14 CALENDAR DAYS AFTER PAVING IS COMPLETE.

ALL INLETS SHALL HAVE POURED IN PLACE CONCRETE FILLETS.

- 404. STORM SEWER, 15-INCH DIA. 2000D RCP
- 405. STORM SEWER, 18-INCH DIA. 2000D RCP
- 406. STORM SEWER, 24-INCH DIA. 2000D RCP
- 407. STORM SEWER, 33-INCH DIA. 2000D RCP
- 408. STORM SEWER, 36-INCH DIA. 2000D RCP
- 409. APRON, STORM SEWER, 36-INCH DIA. 2000D RCP
- 410. APRON FOOTING, SUDAS 4030.211, 36-INCH DIA
- 411. APRON GUARD DR-213, 36-INCH DIA.

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EXCAVATION, DEWATERING, COMPACTED BACKFILL AND APPURTENANT ITEMS FOR COMPLETE INSTALLATION.

COMPACTION SHALL BE 97% OF STANDARD PROCTOR DENSITY AT -2% TO +4% OF OPTIMUM MOISTURE.

ITEM SHALL MEET REQUIREMENTS OF IOWA DOT STD RF-3, RF-26, AND SUDAS 4030.221.

ITEM INCLUDES DR-121 TYPE 2 CONNECTORS ON LAST 3 JOINTS OF ALL STORM SEWER AND CULVERT PIPES WITH APRONS.

APRONS SHALL INCLUDE SUDAS 4030.221 FOOTING.

CONTRACTOR SHALL USE CARE IN GRADING OR MOVING EQUIPMENT ABOVE AND AROUND THE NEW STORM SEWER. IF ANY SEWER IS DAMAGED OR MOVED OUT OF ALIGNMENT, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO CORRECT OR REPAIR IT AT NO ADDITIONAL COST TO THE OWNER.

**412. EROSION STONE**

THIS ITEM IS TO BE PLACED AT END OF THE P-1 STORM SEWER OUTLET AS DIRECTED BY ENGINEER.

ITEM INCLUDES DISPLACEMENT EXCAVATION AND ENGINEERING FABRIC PLACED UNDER ALL RIP RAP, SAID FABRIC IS INCIDENTAL TO THIS ITEM. EXCAVATION FOR PLACEMENT, DISPOSAL OF EXCAVATION, COMPACTION OF ITEM, SHAPING AND FINAL GRADING OF AREA AS DIRECTED BY THE ENGINEER IN THE FIELD SHALL ALSO BE INCIDENTAL TO THIS ITEM.

ITEM TO BE 24" THICK AND SHALL BE PLACED SO THAT THE TOP OF STONE IS NOT HIGHER THAN THE ADJOINING GRADE.

THIS WORK TO BE COMPLETED AS PER STANDARD SPECIFICATION 2507.

**501. LONGITUDINAL SUBDRAIN, 6-INCH DIA. IN POROUS BACKFILL**

SUBDRAIN TILE SHALL BE THE NOTED DIAMETER AND SHALL CONSIST OF PERFORATED PVC, CONTECH A-2000 PVC DRAIN TILE OR PERFORATED HANCOR SHURLOCK F477 OR APPROVED EQUAL HDPE WITH SOIL TIGHT JOINTS.

POROUS BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF THE 2019 SUDAS SPECIFICATIONS.

THE AGGREGATE FOR BACKFILL SHALL BE WET PRIOR TO INSTALLATION, AND A SURFACE APPLICATION OF WATER MAY BE REQUIRED BY THE ENGINEER. THE AGGREGATE FOR SUBDRAIN BACKFILL SHALL BE PLACED IN TWO LIFTS OF APPROXIMATELY EQUAL THICKNESS ABOVE THE SUBDRAIN PIPE. THE FIRST LIFT SHALL BE COMPACTED WITH A VIBRATORY COMPACTOR, NARROWER THAN THE TRENCH. THE SECOND LIFT SHALL BE COMPACTED BY THE FRONT AND REAR WHEELS OF A TRACTOR BACKHOE WITH A LOADED FRONT BUCKET (OR AS APPROVED BY THE ENGINEER).

THE BID PRICE PER FOOT FOR "LONGITUDINAL SUBDRAIN" SHALL BE FULL COMPENSATION FOR ALL MATERIALS, INCLUDING POROUS BACKFILL, FITTINGS AND FOR THE PERFORMANCE OF ALL WORK INVOLVED IN THE INSTALLATION. PAYMENT SHALL BE ON A LINEAR FOOT BASIS.

CARE SHALL BE TAKEN TO SMOOTH POROUS BACKFILL MATERIAL OUT BEFORE PLACING TILE SO THAT A CONTINUOUS SMOOTH GRADE AS PER PLAN IS MAINTAINED.

SUBDRAIN CONSTRUCTION SHALL BE PER THE DETAIL AND DR-303 TYPE 6 INSTALLATION REVISED TO BE LOCATED BEHIND THE CURB AND TYPE 12 AS PER THE PLANS.

**502. LONGITUDINAL SUBDRAIN OUTLET TO STORM STRUCTURE**

OUTLETS SHALL MEET REQUIREMENTS OF STANDARD ROAD PLANS DR-303 , OR AS APPROVED BY THE ENGINEER.

DR-303 OUTLETS SHALL BE PLACED IN INTAKES AT TIME THE INTAKES ARE POURED.

BID PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL FOR COMPLETE INSTALLATION.

**503. LONGITUDINAL SUBDRAIN CONNECTION TO EXISTING SUBDRAIN, COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL FOR COMPLETE INSTALLATION.

EACH CONNECTION SHALL BE INSTALLED AT THE SAME TIME AS THE SUBDRAIN AND BACKFILLED WITH POROUS MATERIAL IN THE SAME MANNER AS THE SUBDRAIN.

**504. SUMP PUMP SUBDRAIN OUTLET TO SUBDRAIN, COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL FOR COMPLETE INSTALLATION. EACH CONNECTION SHALL CONSIST OF A 6"x4" TEE 29' OF 4" NON PERFORATED PIPE AND AN ENDCAP MANUFACTURED BY THE SUBDRAIN PIPE MANUFACTURER.

EACH CONNECTION SHALL BE INSTALLED AT THE SAME TIME AS THE SUBDRAIN AND BACKFILLED WITH POROUS MATERIAL IN THE SAME MANNER AS THE SUBDRAIN.

THE END OF EACH 4' DIA/ CAP SHALL BE MARKED WITH A 6' "TEE" SECTION STEEL FENCE POST.

**601. WATER SERVICE, COPPER, 1" DIA., BY OPEN TRENCH**

**602. WATER SERVICE SIDE TAP CONNECTION, 1" DIA. TO WATER MAIN., COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, PIPE, EQUIPMENT, EXCAVATION AND COMPACTED BACKFILL TO COMPLETE INSTALLATION OF WATER SERVICE PIPE.

ALL WATER SERVICE CONSTRUCTION SHALL HAVE A MINIMUM COVER OF 6 FEET BELOW FINISHED GRADE AND ALL MATERIALS AND CONSTRUCTION SHALL COMPLY WITH WATERLOO WATER WORKS REQUIREMENTS. THE CONTRACTOR SHALL VERIFY THESE REQUIREMENTS PRIOR TO BIDDING ON THIS PROJECT.

THE CONTRACTOR IS TO PROVIDE CORPORATION STOP, APPROVED SADDLE AND ALL OTHER NECESSARY MATERIALS.

THE CONTRACTOR IS TO PROVIDE AND INSTALL WATER SHUT-OFF CURB BOX AND VALVE SET TO PROPER FINISH GRADE AND ALL OTHER NECESSARY MATERIALS.

CURB STOPS SHALL HAVE POSITIVE STOPS AND PAVE BOXES SHALL HAVE STAINLESS STEEL RODS.

ALL TRENCHES TO BE COMPACTED TO 97% OF STANDARD PROCTOR DENSITY AT -2% TO + 4% OF OPTIMUM MOISTURE IN 8" MAXIMUM LIFTS.

**603. WATER MAIN, DUCTILE IRON, THICKNESS CLASS 52, 8-INCH DIA.**

BID PRICE SHALL INCLUDE PIPE, 8-MIL POLYETHYLENE WRAP, TRACER WIRE SYSTEM, BEDDING MATERIALS, TRACER WIRE SYSTEM, TOPSOIL STRIPPING, SALVAGING AND RE-SPREADING, EXCAVATION, COMPACTED BACKFILL, LABOR, EQUIPMENT, DEWATERING, DISINFECTING, PRESSURE, AND LEAKAGE TESTING AND ALL OTHER ITEMS NECESSARY TO COMPLETE THIS CONSTRUCTION AND TO PROVIDE A PROPERLY OPERATING WATER MAIN.

WATER MAIN PIPE SHALL BE SLIP JOINT CLASS 52 CEMENT LINED DUCTILE IRON PIPE (D.I.P.) INSTALLED WITH A COMPLETE TRACER WIRE SYSTEM AS DETAILED IN THESE PLANS.

WATER MAIN TO BE DISINFECTED, FLUSHED AND TESTED FOR BACTERIA AND CHLORINE PRIOR TO HYDROSTATIC TESTING. ALL TESTS SHALL BE CONSIDERED INCIDENTAL TO WATER MAIN CONSTRUCTION.

THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR TESTING THE WATER MAIN. THIS SHALL INCLUDE RESTRAINED JOINTS ON PIPE AND FITTINGS AT DEADENDS, PLUGS, PIPE AND CORP STOPS OF SUFFICIENT SIZE FOR FLUSHING AFTER TESTING.

PRESSURE TEST SHALL BE 1 1/2 TIMES NORMAL WORKING PRESSURE, BUT NOT LESS THAN 150 P.S.I.

WATER MAIN TO PASS BACTERIOLOGICAL TESTING PRIOR TO PRESSURE AND LEAK TESTING. TWO CONSECUTIVE BACTERIOLOGICAL TESTS MUST PASS AT 24 HOUR MINIMUM INTERVALS TO BE ACCEPTED AS PASSING. SAID TESTING TO BE AT CONTRACTOR'S EXPENSE.

ALL SECTIONS OF AWWA STANDARD 651 SHALL APPLY, INCLUDING SECTION 4.6, WHICH IS NOT OPTIONAL. NEW WATER MAIN SHALL BE ISOLATED FROM THE EXISTING WATER MAIN UNTIL ACCEPTANCE OF THE PRESSURE, LEAK AND BACTERIOLOGICAL TESTING OF EACH SEGMENT OF NEW MAIN.

THIS INCLUDES SHOCK DISINFECTING THE EXISTING HYDRANTS AND PIPING TO BE RE-LOCATED WITH CONCENTRATED SOLUTIONS AS PER AWWA C651, SEC.4.7, INCLUDING SEC. 4.7.4 AND SEC 4.7.5.

UPON COMPLETION AND ACCEPTANCE OF THE PRESSURE, LEAK AND BACTERIOLOGICAL TESTING, THE CONTRACTOR MAY DISCHARGE THE HIGHLY CHLORINATED TEST WATER TO THE CITY'S SANITARY SEWER SYSTEM. HOWEVER, THE RATE AT WHICH SAID DISCHARGE IS MADE TO THE SANITARY SEWER WILL BE CONTROLLED BY THE CITY. THE CONTRACTOR SHALL REVIEW THIS WITH THE CITY PRIOR TO BIDDING ON THE PROJECT AND IMMEDIATELY PRIOR TO SUCH FLUSHING IS TO OCCUR. AFTER THE HIGHLY CHLORINATED WATER IS DISCHARGED, THE WATER MAIN WILL BE FLUSHED AT A HIGH RATE OF AT LEAST 450 GALLONS PER MINUTE.

ALL WORK IS TO BE COMPLETED IN A DRY TRENCH. TRENCHES ARE TO BE DEWATERED TO A DEPTH OF 2' BELOW THE BOTTOM OF THE PIPE. THIS WORK IS INCIDENTAL TO WATER MAIN CONSTRUCTION.

ALL TRENCHES TO BE COMPACTED TO 97% OF STANDARD PROCTOR DENSITY AT -2% TO + 4% OF OPTIMUM MOISTURE IN 8" LOOSE THICKNESS MAXIMUM LIFTS.

WATER FOR FILLING, FLUSHING AND TESTING WATER MAINS SHALL BE FURNISHED BY WATERLOO WATER WORKS AND PAID FOR BY THE CONTRACTOR. THE FLOW RATES AT WHICH WATER IS FURNISHED SHALL BE CONTROLLED BY THE WATERLOO WATER WORKS. THE CONTRACTOR SHALL FURNISH SATISFACTORY BACKFLOW PREVENTION DEVICES. HOSES AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE SAID FILLING, FLUSHING AND TESTING AT NO ADDITIONAL COST TO THE OWNER OR THE WATERLOO WATER WORKS.

ALL WATER MAIN INSTALLED WITHIN 4' OF STORM SEWER OR STORM SEWER INLETS SHALL BE INSULATED WITH RIGID INSULATION BOARD. THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR THIS WORK.

CONTRACTOR SHALL FURNISH AND INSTALL TRACER WIRE TERMINATION BOXES AND ANODES AS PER THE PLAN.

BID PRICE SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, EXCAVATION, COMPACTION AND APPURTENANT ITEMS NEEDED FOR INSTALLATION.

**604. 45° BEND, 8" DIA. D.I.P., COMPLETE WITH MECHANICAL THRUST RESTRAINT**

**605. TEE, 8" DIA. X 8" DIA. D.I.P. COMPLETE WITH MECHANICAL THRUST RESTRAINT**

**606. ENDCAP, 8" DIA. D.I.P., COMPLETE WITH MECHANICAL THRUST RESTRAINT**

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, EXCAVATION, COMPACTION AND APPURTENANT ITEMS NEEDED FOR INSTALLATION. ITEMS INCLUDE APPROVED MECHANICAL THRUST RESTRAINTS.

**607. MJ GATEVALVE, 8" DIA., COMPLETE WITH VALVE BOX**

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, EXCAVATION, 8-MIL POLYETHYLENE WRAP, COMPACTION AND APPURTENANT ITEMS NEEDED FOR INSTALLATION. MATERIALS AND CONSTRUCTION TO MEET WATERLOO WATER WORKS (WWW) REQUIREMENTS GATE VALVE TO BE MUELLER A2360-21 RESILIENT WEDGE GATE VALVE, OR APPROVED EQUAL WITH TYLER 3-PIECE TYPE D VALVE BOX OR APPROVED EQUAL.

ALL JOINT BOLTS AND NUTS SHALL BE COR-BLUE T-BOLTS AND NUTS.

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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**Bid Reference Notes**

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**BID REFERENCE NOTES**

**608. NEW FIRE HYDRANT ASSEMBLY, M.J., 6.5' BURY, COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, EXCAVATION, BEDDING, COMPACTED BACKFILL AND APPURTENANT ITEMS NEEDED FOR INSTALLATION. ITEM INCLUDES HYDRANT, 6" GATE VALVE AND BOX, ANCHOR TEES, HOLDING SPOOLS, MECHANICAL THRUST RESTRAINT AT ALL JOINTS, CONCRETE THRUST RESTRAINTS, CLEAN STONE, 8 MIL POLYETHYLENE WRAP, AND ALL OTHER ITEMS AND WORK NECESSARY TO PROVIDE A COMPLETE, FULLY FUNCTIONING FIRE HYDRANT. SEE DETAIL.

NEW HYDRANT MATERIALS AND INSTALLATION SHALL MEET AWWA C502 AND WATERLOO WATER WORKS (WWW) REQUIREMENTS AND SHALL BE MUELLER 250 CENTURION #A453, WATEROUS PACER (#WB-67)DR, CLOW MEDALLION, OR KENNEDY GUARDIAN. ALL HYDRANTS FURNISHED FOR THIS PROJECT SHALL OF THE SAME MODEL AND MANUFACTURER.

VALVES SHALL BE MUELLER A2360-21 6" DIA. RESILIENT WEDGE GATE VALVES OR APPROVED EQUAL. VALVE BOXES SHALL BE TYLER 3-PIECE TYPE D VALVE BOX OR APPROVED EQUAL.

ALL JOINT BOLTS AND NUTS SHALL BE COR-BLUE T-BOLTS AND NUTS.

**609. TIE-IN TO EXISTING WATERMAIN, COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, EXCAVATION, CLEANING, SHOCK DISINFECTION, SLEEVES AND OTHER MATERIALS, COMPACTION AND APPURTENANT ITEMS NEEDED FOR CONNECTING THE NEW WATER MAIN TO THE EXISTING WATER MAIN.

MATERIALS AND CONSTRUCTION TO MEET THE REQUIREMENTS OF WATERLOO WATER WORKS.

**610. MECHANICALLY RESTRAINED JOINT WATER MAIN, 8" DIA.**

BID PRICE SHALL INCLUDE ALL ADDITIONAL LABOR, EQUIPMENT, EXCAVATION, MATERIALS, INSTALLATION AND APPURTENANT ITEMS NEEDED TO MECHANICALLY RESTRAIN WATER MAIN LEADING UP TO AND AWAY FROM TEES AND DEADENDS AS DIRECTED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. SAID MECHANICAL RESTRAINT SHALL BE COMPLETED WITH MEGA LUG MECHANICAL RESTRAINTS OR APPROVED EQUAL.

THIS ITEM APPLIES TO PIPE TO PIPE CONNECTIONS REQUIRED AT THE TIME OF CONSTRUCTION BY WATERLOO WATER WORKS STAFF OR THE ENGINEER ONLY AND DOES NOT INCLUDE OR NEGATE THE REQUIREMENT FOR MECHANICAL THRUST RESTRAINTS REQUIRED BY AND TO BE INCLUDED UNDER OTHER BID ITEMS AT TEES, BENDS, ENDCAPS AND HYDRANTS.

**611. NITRILE NBR GASKETS, 8" DIA.**

PROVIDE AND INSTALL ON ALL WATERMAIN CROSSING SANITARY OR STORM SEWERS ON ALL WATERMAIN JOINTS WITHIN 15' OF SAID CROSSING.

**701. MODIFIED SUBBASE, 8" COMPACTED THICKNESS**

EIGHT (8) INCHES OF MODIFIED GRANULAR SUBBASE SHALL BE PLACED AS SHOWN ON THE TYPICAL CROSS SECTION WITH A TOLERANCE OF ZERO FEET LESS THAN EIGHT (8) INCHES AND 0.05 FEET GREATER.

THE SUBBASE MATERIAL SHALL CONFORM TO THE 2020 SUDAS STANDARD SPECIFICATIONS AND CURRENTLY APPLICABLE CITY OF WATERLOO SUPPLEMENTAL SPECIFICATIONS.

SUBBASE MATERIAL SHALL BE PAID FOR PER SECTION 2111 OF THE IOWA DOT STD SPECIFICATIONS. IF THE CONTRACTOR PLACES ADDITIONAL MATERIAL, NO EXTRA PAY SHALL BE ALLOWED. THE FINAL COMPACTION SHALL BE COMPLETED WITH A STEEL-TIRED ROLLER. ALL SUBBASE SHALL BE COMPACTED TO 97% OF MAXIMUM CONSOLIDATION. THE DEGREE OF COMPACTION WILL BE DETERMINED BY USE OF NUCLEAR TESTING EQUIPMENT. THE CONTRACTOR SHALL KEEP SUBBASE MATERIAL MOIST TO PREVENT LOSS OF COMPACTED DENSITY.

**702. PAVEMENT, P.C. CONCRETE, 6-INCH THICK WITH INTEGRAL CURB, IDOT CLASS C-4**

**703. PAVEMENT, P.C. CONCRETE, 7-INCH THICK WITH INTEGRAL CURB, IDOT CLASS C-4**

CONCRETE MIX FOR THIS ITEM SHALL BE AIR-ENTRAINED PAVEMENT MIX NO. C WITH CLASS III AGGREGATE, CLASS C FLY ASH, AND SLAG IN ACCORDANCE WITH THE 2020 SUDAS STANDARD SPECIFICATIONS AND CURRENTLY APPLICABLE CITY OF WATERLOO SUPPLEMENTAL SPECIFICATIONS.

ALL TRANSVERSE JOINTS SHALL BE C JOINTS UNLESS NOTED ON PLANS. ALL LONGITUDINAL JOINTS SHALL BE L-1 JOINTS UNLESS NOTED OTHERWISE.

ALL REINFORCING STEEL TO BE SECURELY FASTENED TO APPROVED CHAIRS PRIOR TO PAVING.

EXPANSION JOINTS SHALL BE PLACED AT LOCATIONS SHOWN ON THESE PLANS.

STREET PAVEMENT SHALL BE MACHINE Poured FULL WIDTH WITH INTEGRAL CURBS AND REC TRAIL AND SIDEWALK PAVING SHALL BE Poured IN FIXED FORMS, ALL IN ACCORDANCE THE 2019 SUDAS STANDARD SPECIFICATIONS AND CURRENTLY APPLICABLE CITY OF WATERLOO SUPPLEMENTAL SPECIFICATIONS.

CONCRETE TRUCKS WILL NOT BE ALLOWED TO BACK ON THE GRADE TO DELIVER CONCRETE TO THE PAVING EQUIPMENT.

THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS AND A MAXIMUM OF 72 HOURS ADVANCE NOTICE TO ENGINEER PRIOR TO ALL PAVING POURS.

SIDEWALK AND CURB RAMPS SHALL MEET THE REQUIREMENTS OF SUDAS STANDARD SPECIFICATION 7030 FOR SIDEWALK AND CURB RAMP COMPLIANCE.

CONCRETE MIX FOR BOXOUTS SHALL BE THE SAME MIX AS PAVEMENT. BOXOUTS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED BOXOUTS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO MANHOLE OR INTAKE CONSTRUCTION. BOXOUT THICKNESS SHALL BE 8 INCHES THICK ON THIS PROJECT. EXPANSION JOINT MATERIAL SHALL BE FULL DEPTH OF PAVEMENT.

**801. TRAFFIC CONTROL**

BID PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, FLAGGERS, SIGNS, BARRICADES AND APPURTENANT ITEMS NEEDED FOR TRAFFIC CONTROL.

THE I.D.O.T. CURRENT SPECIFICATIONS SHALL APPLY TO ALL TRAFFIC CONTROL. PAY WILL BE BY LUMP SUM PAYMENT FOR EVERYTHING NEEDED TO CARRY OUT TRAFFIC CONTROL ON THIS PROJECT. THE CONTRACTOR SHALL BE ENTIRELY RESPONSIBLE FOR THE SAFETY AND PROPER TRAFFIC CONTROL WITHOUT FURTHER DIRECTION FROM THE ENGINEER OR INSPECTOR.

CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SIGNS AND FLASHERS THROUGHOUT THE ENTIRE TIME THEY ARE IN PLACE.

**802. MAINTENANCE BOND, 2-YEAR**

CONTRACTOR SHALL GUARANTEE THE MAINTENANCE OF THE IMPROVEMENTS AGAINST DEFECTS FOR A PERIOD OF TWO YEARS AFTER ACCEPTANCE BY THE OWNER, THE CITY OF WATERLOO AND WATERLOO WATER WORKS (WWW). THIS ITEM INCLUDES PROVIDING A TWO-YEAR MAINTENANCE BOND TO THE OWNER FOR ALL WORK PERFORMED BY THE CONTRACTOR AND HIS/HER SUBCONTRACTORS ON THIS PROJECT.

SAID BOND SHALL BE OF A FORM THAT IS ACCEPTABLE TO THE OWNER. SAID TWO PERIOD SHALL BEGIN AFTER THE PROJECT IMPROVEMENTS ARE ACCEPTED BY THE OWNER, THE CITY WATERLOO AND WATERLOO WATER WORKS (WWW).

**803. SIGNAGE, COMPLETE**

BID PRICE SHALL INCLUDE ALL LABOR, SIGNS, POSTS, FASTENERS AND OTHER MATERIAL, PAVEMENT MARKINGS, EQUIPMENT AND APPURTENANT ITEMS NEEDED TO PROVIDE AND INSTALL ALL TRAFFIC CONTROL AND STREET NAME SIGNAGE AS SHOWN ON THE PLANS.

ADDITIONAL PRICES – BIDDER IS TO SUBMIT PRICES FOR THE FOLLOWING ITEMS THAT MAY OR MAY NOT BE UTILIZED ON THIS PROJECT AT THE DIRECTION OF THE ENGINEER

**A1. FOUNDATION MATERIAL**

ITEM TO BE PLACED UNDER SEWER AND WATER MAIN PIPE AND MANHOLE BEDDING WHERE UNSUITABLE SOILS MUST BE REMOVED AND REPLACED PRIOR TO INSTALLATION OF BEDDING. THE USE OF FOUNDATION STONE MUST BE APPROVED IN ADVANCE BY THE ENGINEER. WET SOIL CONDITIONS ALONE SHALL NOT BE AN ACCEPTABLE REASON FOR USING FOUNDATION STONE, AS THE TRENCH MUST BE DEWATERED PRIOR TO THIS ASSESSMENT.

**A2. REPLACE EXISTING FIELD DRAIN TILE CROSSING, 3" TO 8" DIA.**

THIS ITEM INCLUDES ALL WORK AND MATERIALS NECESSARY TO REPLACE ACTIVE AND INACTIVE EXISTING FIELD DRAIN TILES CUT BY TRENCH EXCAVATIONS.

EXISTING TILES TO BE REPLACED WITH PERFORATED SDR 35 PVC OF SAME DIAMETER AND TIED INTO EXISTING, UNDISTURBED TILE LINES WITH FERNCO CONNECTORS OR APPROVED EQUAL. REPLACED TILE LINES TO BE PLACED ON BACKFILL COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY.

TILE LINES TO BE BACKFILLED WITH 1" MAX. CLEAN CRUSHED STONE FROM 4" BELOW TILE TO 12" ABOVE TOP OF PIPE FOR FULL LENGTH OF REPLACEMENT.

TILES CUT BY EXCAVATION SHALL BE REPLACED FOR THE FULL WITH OF THE TRENCH PLUS 2' ON EACH SIDE OF THE TRENCH EXCAVATION.

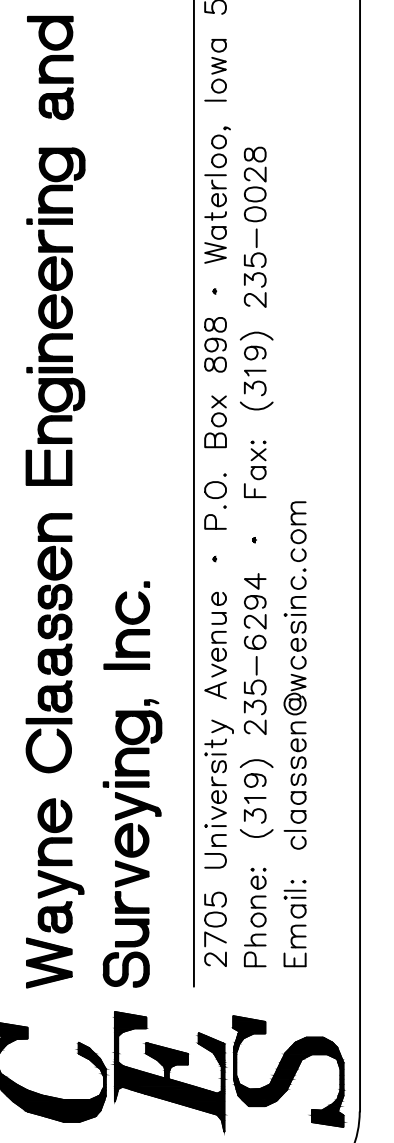
THE CONTRACTOR SHALL MAKE TILE LINE REPAIRS TO ROUTE TILE WATER OVER TRENCH EXCAVATION AREAS IMMEDIATELY AFTER CUTTING THE TILE AND BACKFILLING THE TRENCH.

CUT TILE LINES SHALL BE PROTECTED FROM DIRT AND OTHER MATERIALS ENTERING THE TILE PRIOR TO REPAIRS.

MEASUREMENT AND PAYMENT SHALL BE ON THE BASIS OF PER EACH TILE LINE CUT AND REPLACED.

**A3. CLASS 12 EXCAVATION, HAUL OFFSITE AND DISPOSE OF ROCK AND RUBBLE**

ITEM INCLUDES HAULING SAID MATERIALS OFF-SITE. PLACING SAID MATERIALS IN AN ON-SITE STORAGE AREA WILL NOT BE MEASURED OR PAID FOR AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. WASTE MATERIALS FROM CONSTRUCTION WILL BE HAULED OFF-SITE AND SHALL NOT BE MEASURED FOR PAYMENT.



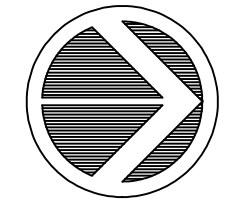
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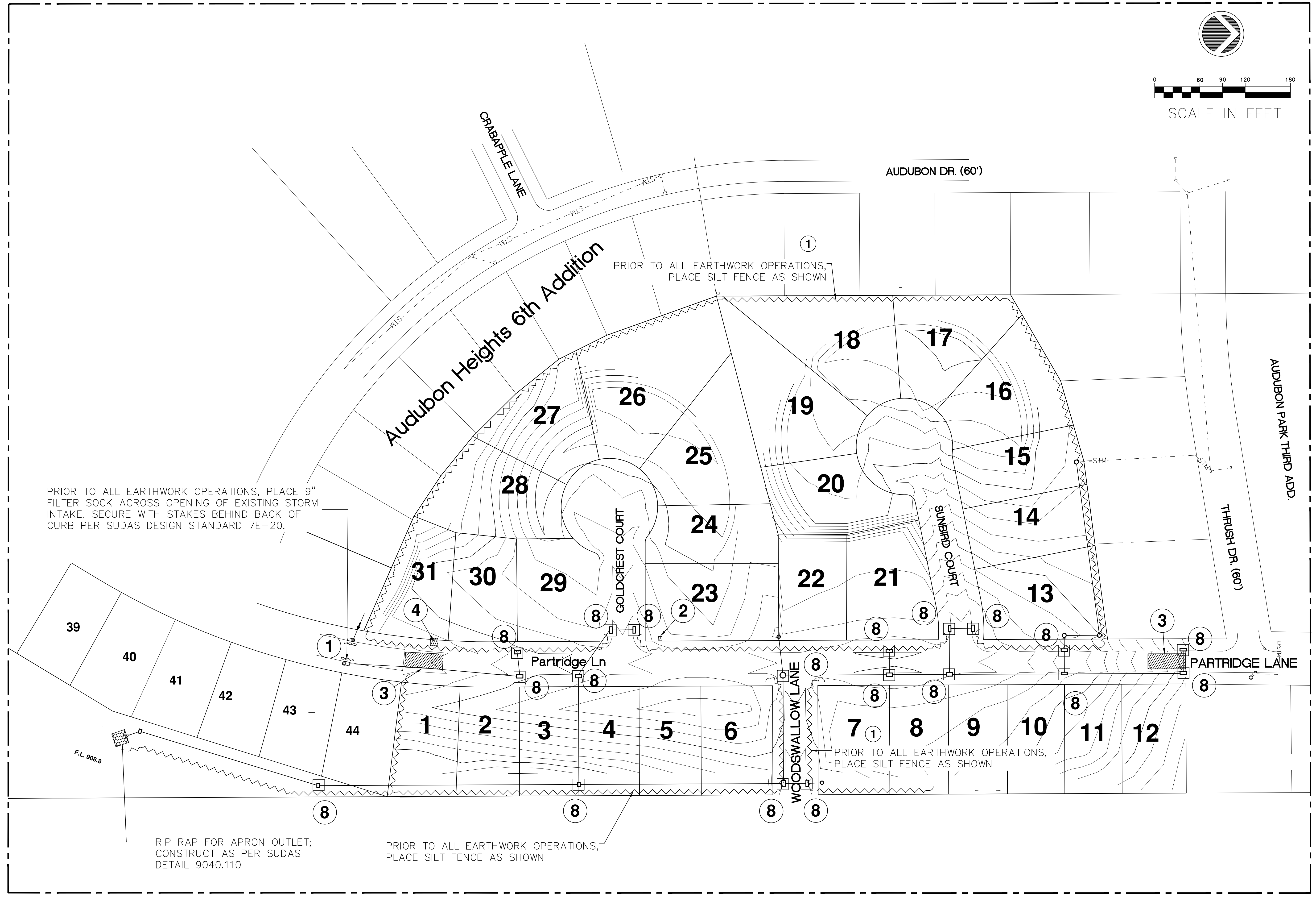
Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa  
Bid Reference Notes

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SCALE IN FEET



PRIOR TO ALL EARTHWORK OPERATIONS, PLACE 9" FILTER SOCK ACROSS OPENING OF EXISTING STORM INTAKE. SECURE WITH STAKES BEHIND BACK OF CURB PER SUDAS DESIGN STANDARD 7E-20.

PRIOR TO ALL EARTHWORK OPERATIONS, PLACE SILT FENCE AS SHOWN

PRIOR TO ALL EARTHWORK OPERATIONS, PLACE SILT FENCE AS SHOWN

RIP RAP FOR APRON OUTLET; CONSTRUCT AS PER SUDAS DETAIL 9040.110

PRIOR TO ALL EARTHWORK OPERATIONS, PLACE SILT FENCE AS SHOWN

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Construction Plans for  
 Audubon Heights 7th Addition  
 Waterloo, Iowa  
 Erosion Control Plan

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SEQUENCE OF ACTIVITIES NOTES:

- DO NOT DISTURB AN AREA UNTIL IT IS NECESSARY FOR CONSTRUCTION TO PROCEED.
- COVER OR STABILIZE DISTURBED AREAS INCLUDING STOCKPILES AND SLOPES IMMEDIATELY AFTER AN AREA IS NO LONGER TO BE ACTIVELY WORKED FOR 14 CALENDAR DAYS.
- TIME CONSTRUCTION ACTIVITIES TO LIMIT IMPACT FROM WEATHER/SEASONAL CHANGES.
- DO NOT REMOVE PERIMETER CONTROLS UNTIL UPSTREAM AREAS ARE STABILIZED.
- INSTALL INFILTRATION CONTROLS AFTER UPSTREAM AREAS ARE STABILIZED.
- IN THE EVENT OF SNOW COVER, STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICAL.
- CONTACT THE CITY ENGINEER FOR A PRE-CONSTRUCTION INSPECTION BEFORE CONSTRUCTION BEGINS.
- CONTACT THE CITY ENGINEER FOR A POST-CONSTRUCTION INSPECTION BEFORE TEMPORARY CONTROLS ARE REMOVED.
- WINTER MONTHS DO NOT EXCLUDE DISTURBED AREAS FROM BEING STABILIZED; IF THEY WILL NOT BE ACTIVELY WORKED FOR 14 DAYS THEY NEED STABILIZATION IMMEDIATELY IN THE FORM OF HYDROMULCH OR TUCKED STRAW MULCH OR THE LIKE.

INSPECTION NOTES:

- INSPECTIONS SHALL BE MADE ONCE EVERY 7 DAYS.
- CORRECTIVE ACTIONS SHALL BE MADE AS SOON AS PRACTICABLE AFTER INSPECTION.
- REPORTS SHALL BE MADE AVAILABLE TO ANY COMPLIANCE INSPECTOR.
- REPORTS AND RECORDS SHALL BE RETAINED BY PERMITEE FOR 3-YEARS AFTER NOD IS SUBMITTED.

GENERAL NOTES:

- ALL WORKERS ON SITE SHALL BE MADE AWARE OF CONTROLS AND REGULATIONS.
- ALL COLLECTED SEDIMENT AND DEBRIS SHALL BE PROPERLY DISPOSED OF.
- CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
- NO HAZARDOUS WASTE MAY BE DISPOSED OF IN SANITARY LANDFILLS.
- DO NOT DISPOSE OF RUBBLE IN WETLANDS, FLOODPLAINS OR DRAINAGE WAYS WITHOUT IDNR OR JURISDICTION APPROVAL.
- TREAT OR DISPOSE OF SANITARY WASTES GENERATED ON-SITE IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
- ALL MATERIALS HAULED OFF-SITE SHALL BE SECURED TO PREVENT LITTERING.
- ANY MATERIALS TRACKED ONTO STREETS SHALL BE REMOVED WITH 24-HOURS.
- DUMPSTERS SHALL BE COVERED TO PREVENT STORM WATER CONTAMINATION.
- ALL SAW CUTTING SLURRY SHALL BE CAPTURED, WHETHER IT BE VACUUMING UP OR DAMMING AND SWEEPING.

SITE MAP NOTES:

- SITE MAP SHALL BE UPDATED AS CONDITIONS AND/OR CONTROL LOCATIONS CHANGE.
- IF CONTROL LOCATIONS CANNOT BE PRE-DETERMINED, THE SWPPP MANAGER SHALL ADD THEM TO THE SITE MAP AS THEY ARE IMPLEMENTED.

STORM WATER POLLUTION PREVENTION PLAN AND EROSION CONTROL PLAN

- Erosion control fencing disturbed by construction or other activities on the site shall be replaced at no cost to this contract. The Contractor shall maintain all erosion control fencing to prevent the transport of sediment off-site at no additional cost to this contract. The Contractor shall install and maintain all erosion control fencing and other erosion control items within 48 hours of the time first instructed by the Owner's representative.
- The Contractor and all his/her subcontractors shall make themselves familiar with the National Pollutant Discharge Elimination System (NPDES) Permit that authorizes discharge of stormwater from this project and shall comply with all aspects of the Iowa NPDES Storm Water General Permit No. 2, the Permit for this project, and the Storm Water Pollution Prevention Plan and Erosion Control Plan for this project. The Contractor and all of his/her subcontractors shall sign and agree to the terms of the Certification Statement provided, and for the NPDES Permit for this project.
- The Contractor shall take particular notice to Part IV. D. 2. C. (1). Waste Disposal of the Iowa NPDES Storm Water General Permit No. 2 and shall include this work with his/her bid for this project.
- The Contractor shall take particular notice to Part IV D. 4. Inspections of the Iowa NPDES Storm Water General Permit No. 2 and shall include this work with his/her bid for this project.

EROSION CONTROL PLAN:

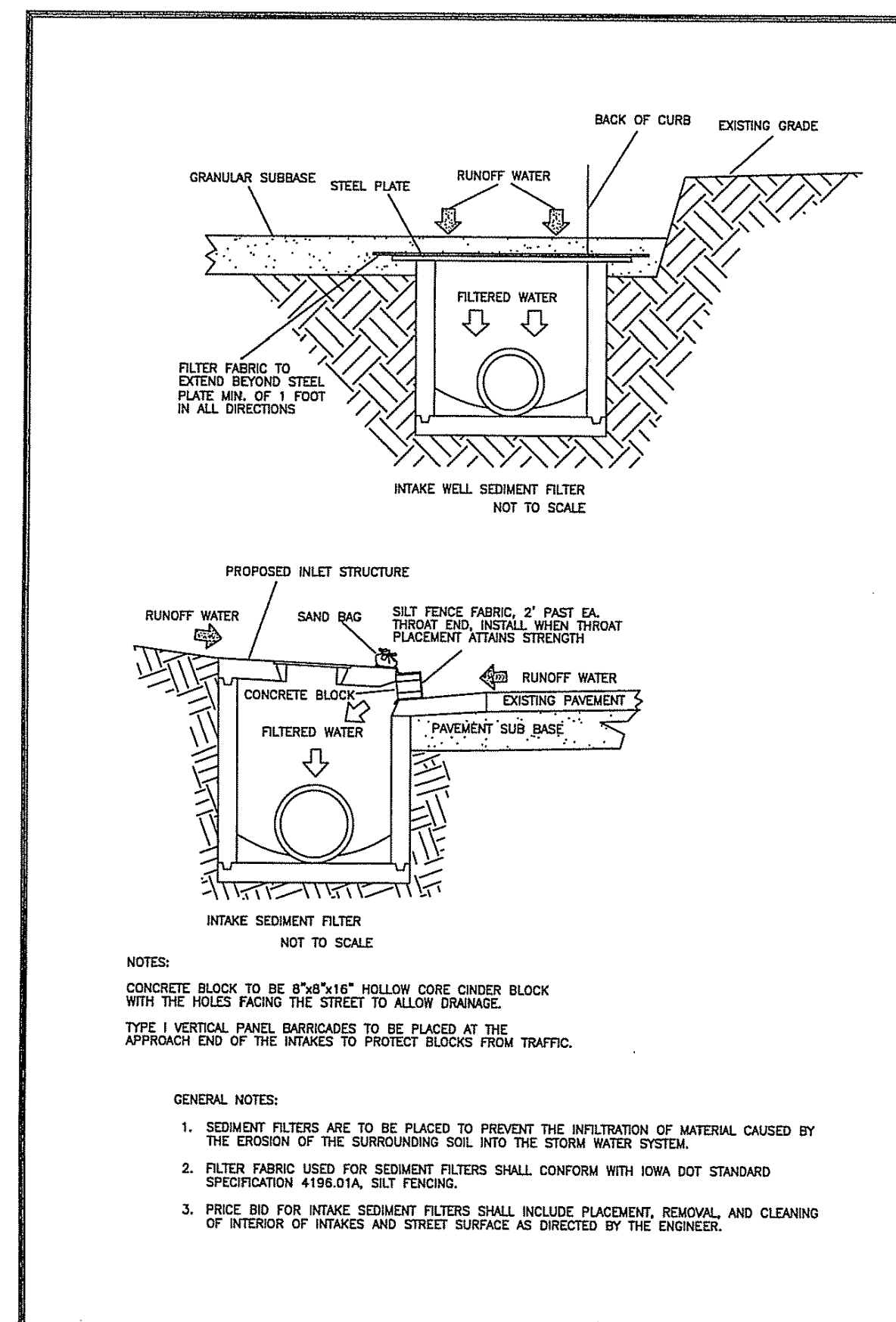
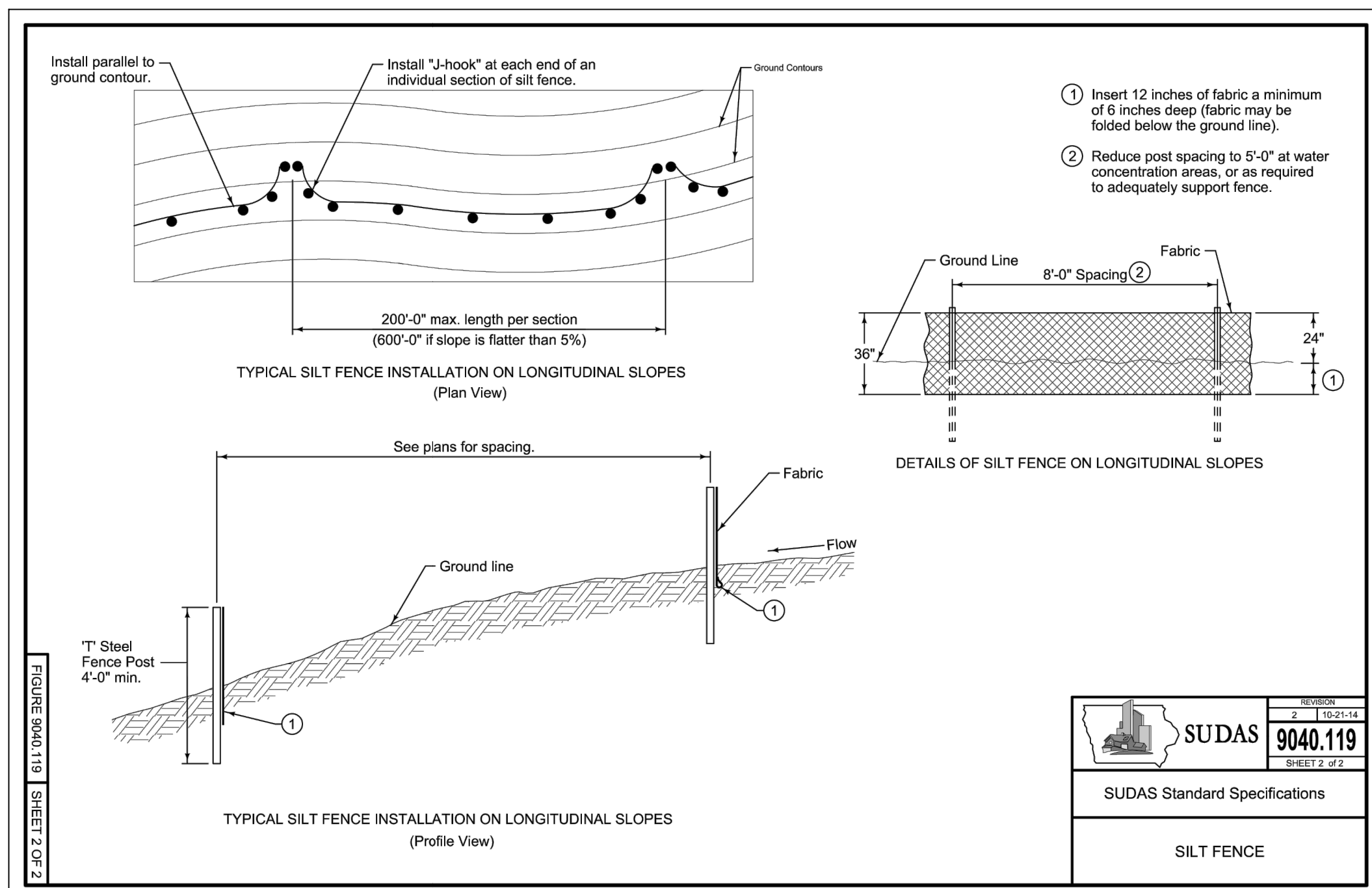
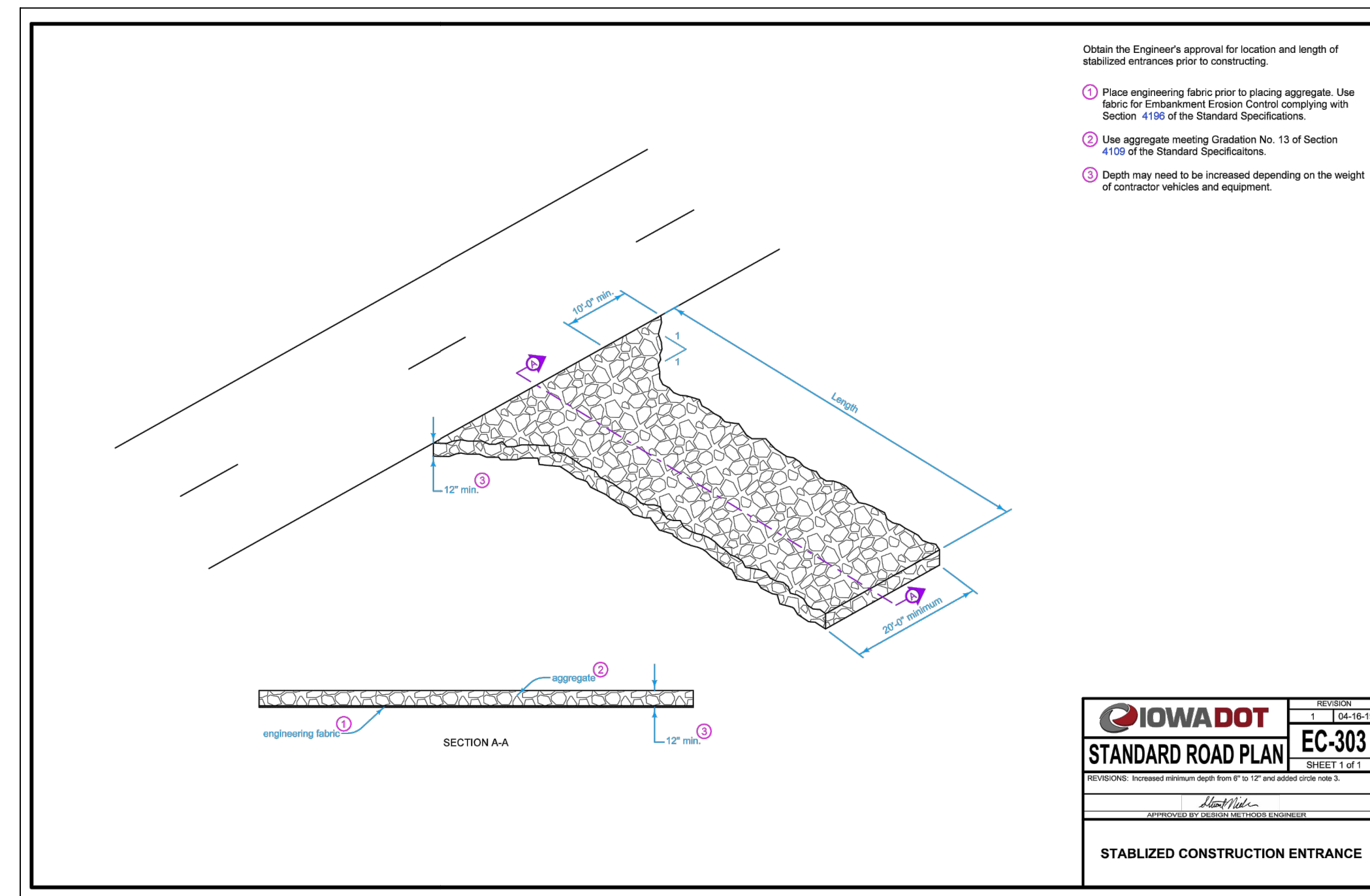
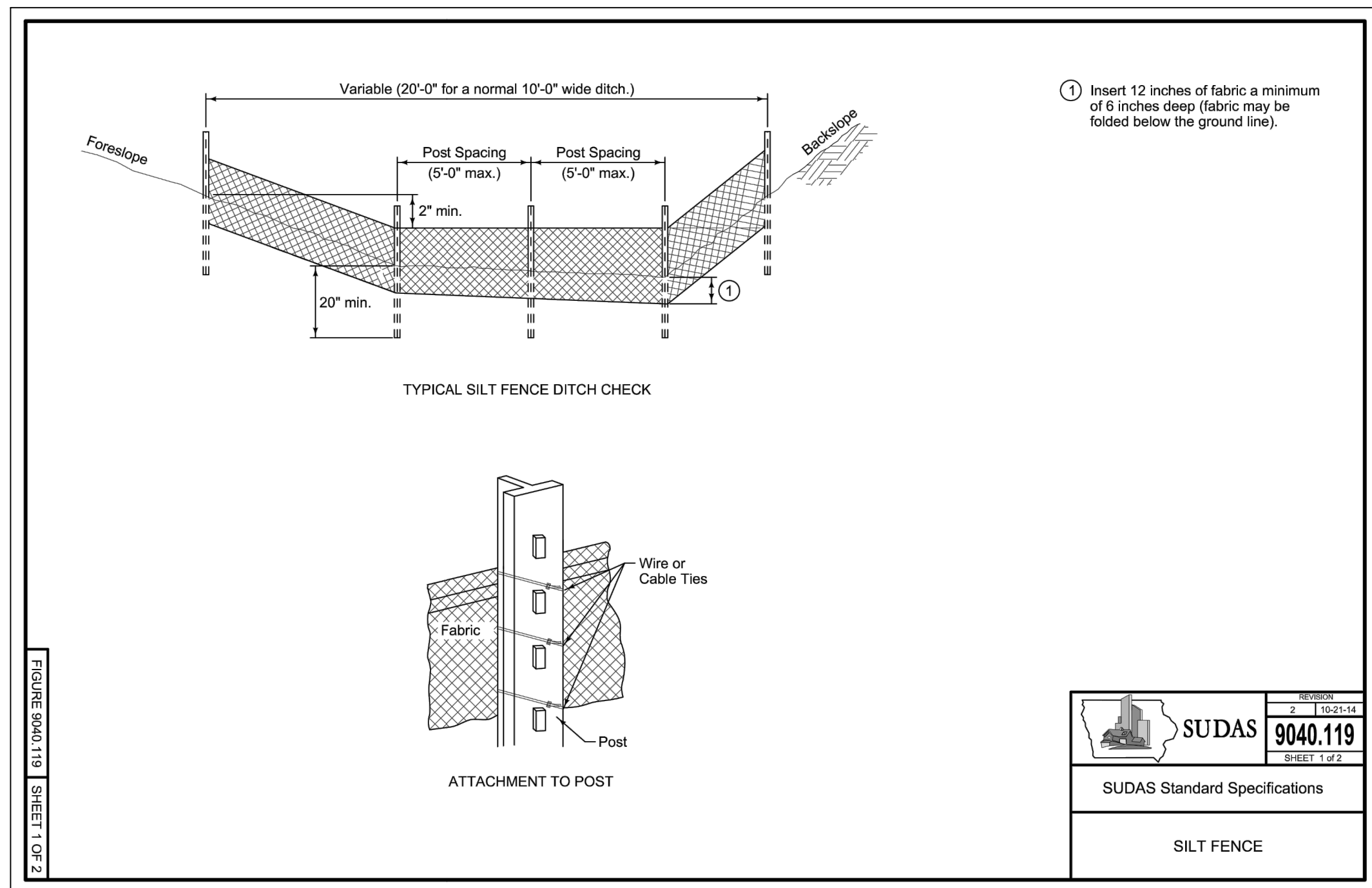
- INSTALL EROSION CONTROL SILT FENCE OR 9" DIA. STRAW FILLED WATTLE AT LOCATIONS AS SHOWN; MAINTAIN THROUGHOUT CONSTRUCTION BY REMOVING ACCUMULATED SILT AND RESTORING SILT FENCE TO FULLY FUNCTIONING CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. COMPLETE AS PER SUDAS DESIGN MANUAL 7E-22, 7E-28 AND SUDAS SPECIFICATION 9040.  
  
AT ALL AREAS WHERE EROSION CONTROL SILT FENCING IS INSTALLED, J-HOOKS SHALL ALSO BE INSTALLED AT 200' MAXIMUM INTERVALS.  
  
ALL DISTURBED AREAS THAT ARE NOT TO BE ACTIVELY WORKED WITHIN 14 DAYS SHALL BE TEMPORARILY STABILIZED WITH SEEDING, SILT FENCE AND WATTLES IMMEDIATELY. THIS INCLUDES STOCKPILES AND SLOPES. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH SUDAS SPECIFICATIONS AND THE SUDAS DESIGN MANUAL. ALL SLOPES OF 3:1 OR GREATER ARE TO BE STABILIZED WITH HYDROSEEDING AND WATTLES.
- INSTALL PORTABLE SANITARY FACILITY
- A 20' WIDE X 50' LONG ROCKED TRUCK CLEAN OFF AREA SHALL BE PLACED AS SHOWN ON THIS PLAN TO ACCESS THIS SITE. CLEAN OFF AREA SHALL BE INSTALLED PRIOR TO SITE CONSTRUCTION AND SHALL BE USED TO PREVENT DIRT/DEBRIS FROM LEAVING THE SITE FROM TRUCK TRAFFIC. ONCE A MAJORITY OF THE SITE WORK IS COMPLETE AND THE TRUCK CLEAN OFF AREA IS NO LONGER NEEDED THEN IT CAN BE REMOVED.
- PLACE CONCRETE WASHOUT BASIN. WASHOUT MAY BE PRE-FABRICATED BAGS OR CONTAINERS ONLY. SCRAPINGS FROM CONCRETE TRUCK CHUTES MAY BE PLACED IN PILES NEXT TO THE WASHOUT CONTAINERS TO PROLONG THEIR LIFE. WASHOUT SITES MUST ALSO BE LEGIBLY SIGNED.
- NOTIFY CITY FOR PRE-CONSTRUCTION INSPECTION
- BEGIN REMOVALS, DEMOLITION, TOPSOIL STRIPPING, SALVAGING AND STOCKPILING. EXCESS MATERIALS TO BE HAULED OFF SITE.
- BEGIN ROUGH GRADING OF SITE.
- STORM SEWER CONSTRUCTION  
  
INSTALL EROSION CONTROL MEASURES AROUND STORM STRUCTURES AS LISTED BELOW; SEE SECTION 3.9 OF THE IOWA CONSTRUCTION SITE EROSION CONTROL MANUAL FOR INSTALLATION DETAILS. MAINTAIN UNTIL SITE SEEDING OR PAVING HAS BEEN ESTABLISHED.  
  
INLET IN GRASS AREA - INSTALL 9" DIA. STRAW FILLED WATTLE AROUND STRUCTURE AND INSTALL INTERIOR INLET BAG  
  
INLET IN PAVED AREA - INSTALL 9" DIA. STRAW FILLED WATTLE AROUND STRUCTURE AND INSTALL INTERIOR INLET BAG
- SANITARY AND WATERMAIN CONSTRUCTION
- BUILDING CONSTRUCTION
- COMPLETION OF GRADING, SUBBASE AND PAVEMENT CONSTRUCTION
- RESPREAD TOPSOIL ON ALL DISTURBED AREAS NOT BUILT UPON OR PAVED WITH A MINIMUM UNIFORM ROLLED THICKNESS OF 4".  
  
HYDROSEED ALL AREAS NOT PAVED, ROCKED OR BUILT UPON THAT DO NOT HAVE ESTABLISHED TURF IN GOOD CONDITION. HYDROSEED AREAS WITH SLOPES AT 3:1 OR GREATER. PLACE 9" WATTLES, PROPERLY PLACED AND STAKED AS PER SUDAS DESIGN MANUAL 7E-22 AND SUDAS SPECIFICATION 9040. WATTLES ARE TO BE PLACED IN PARALLEL RUNS ALONG THE ENTIRE LENGTH OF SEEDED SLOPES AT SPACINGS NO MORE THAN 20' HYDROSEED AS PER SUDAS SPECIFICATION 9040 AND SUDAS DESIGN MANUAL 7E-6.
- COMPLETE CLEAN-UP OF ALL PAVEMENT AREAS.
- NOTIFY CITY FOR POST-CONSTRUCTION INSPECTION
- REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROLS
- FINAL NOTICE OF DISCONTINUATION OF CONSTRUCTION ACTIVITY

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**Construction Plans for  
 Audubon Heights 7th Addition  
 Waterloo, Iowa  
 Erosion Control Plan**

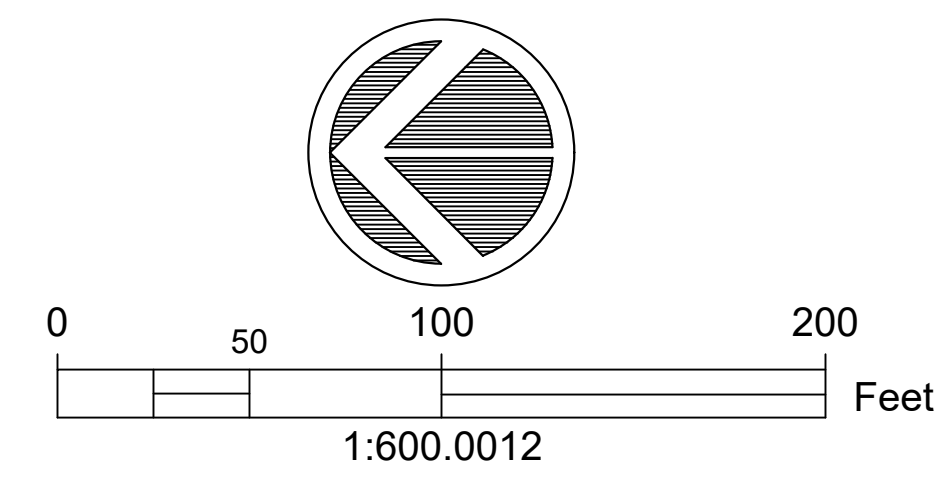
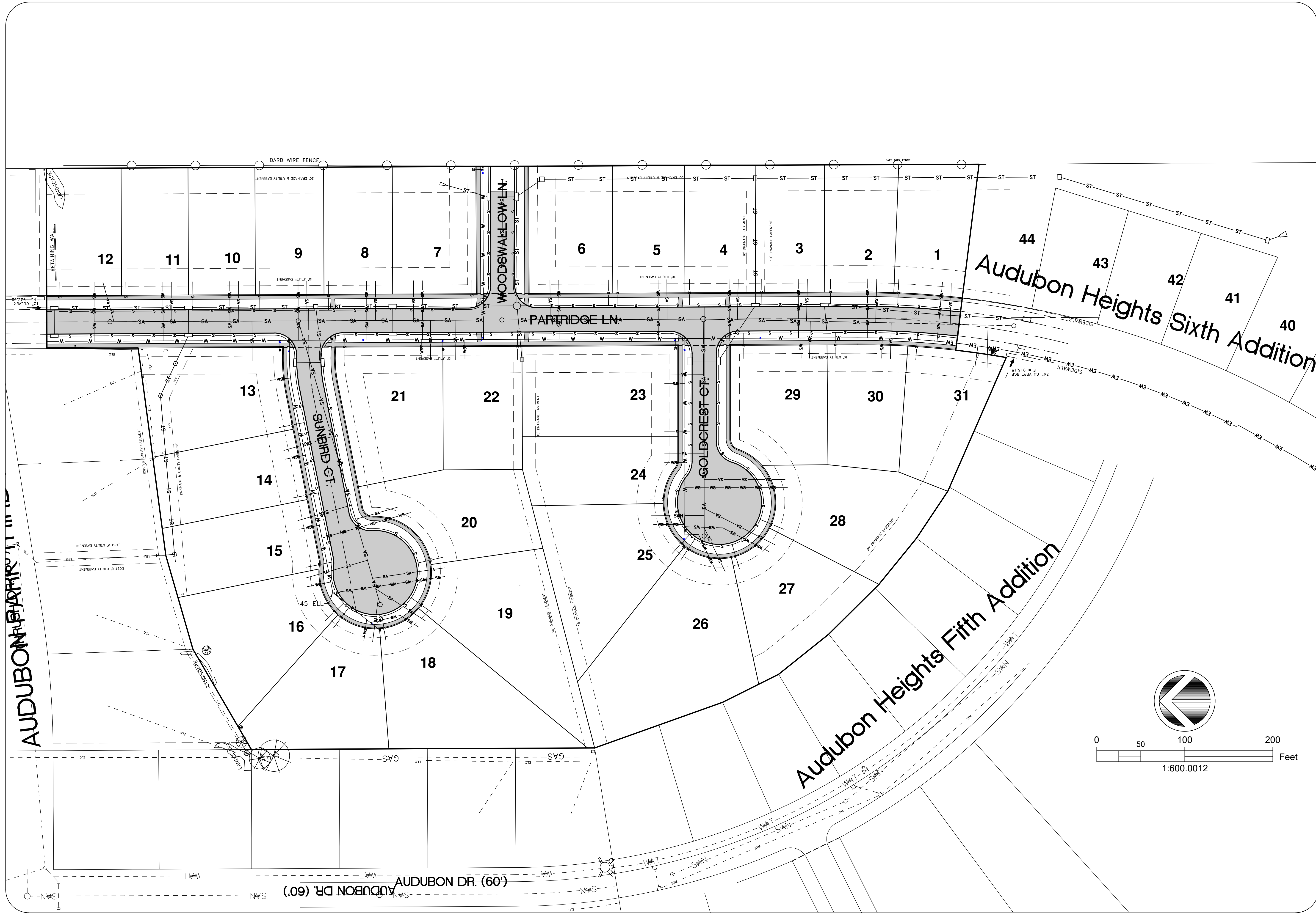




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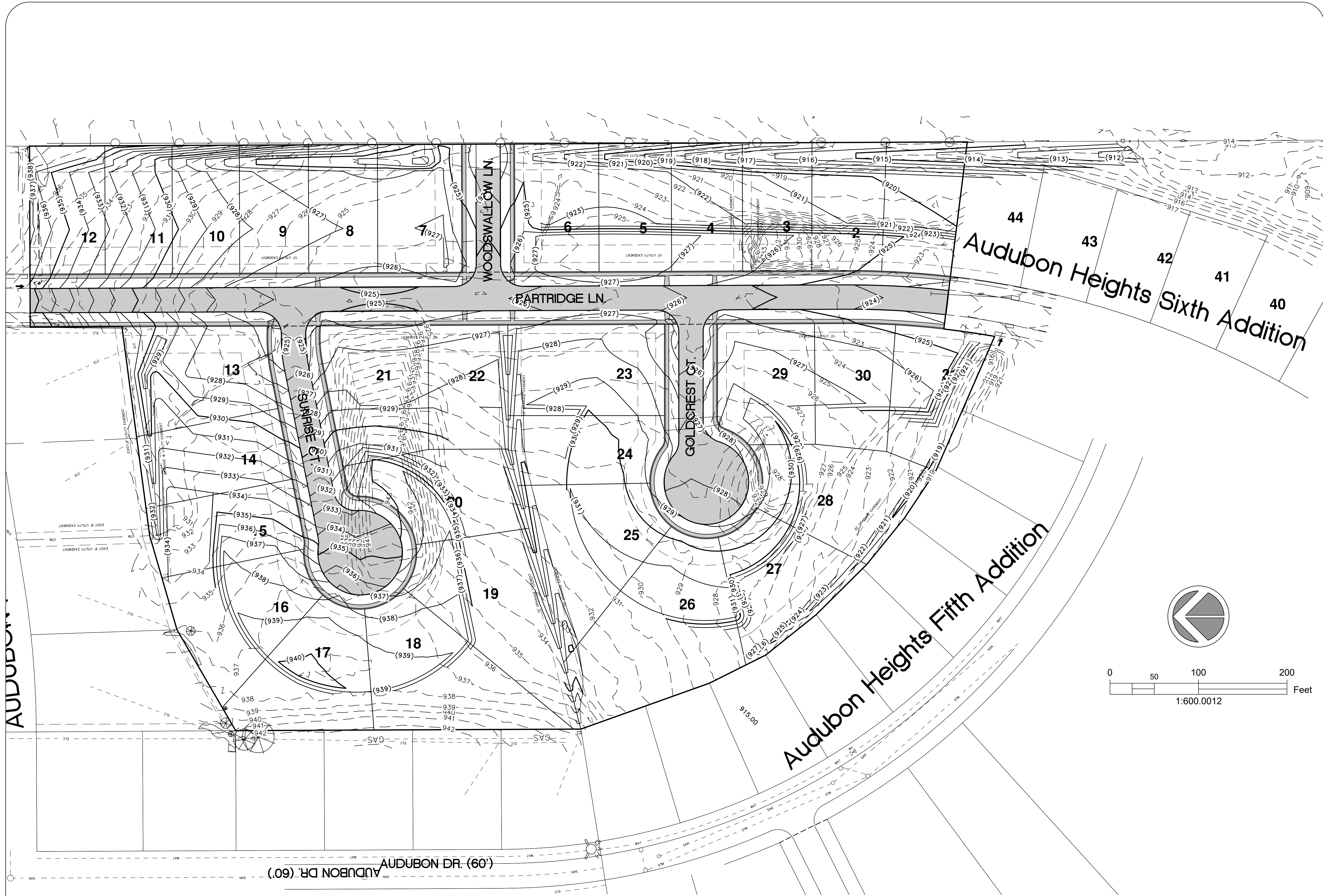
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**Construction Plans**  
**Audubon Heights 7th Addition**  
 Waterloo, Iowa  
**Site Plan**

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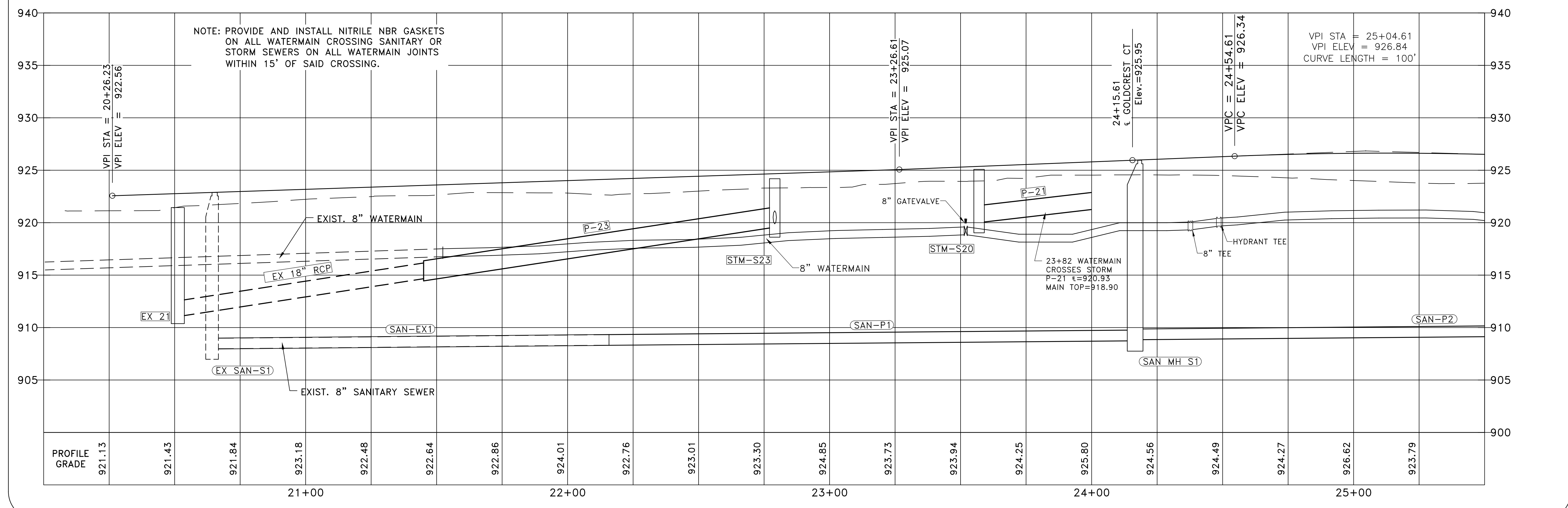
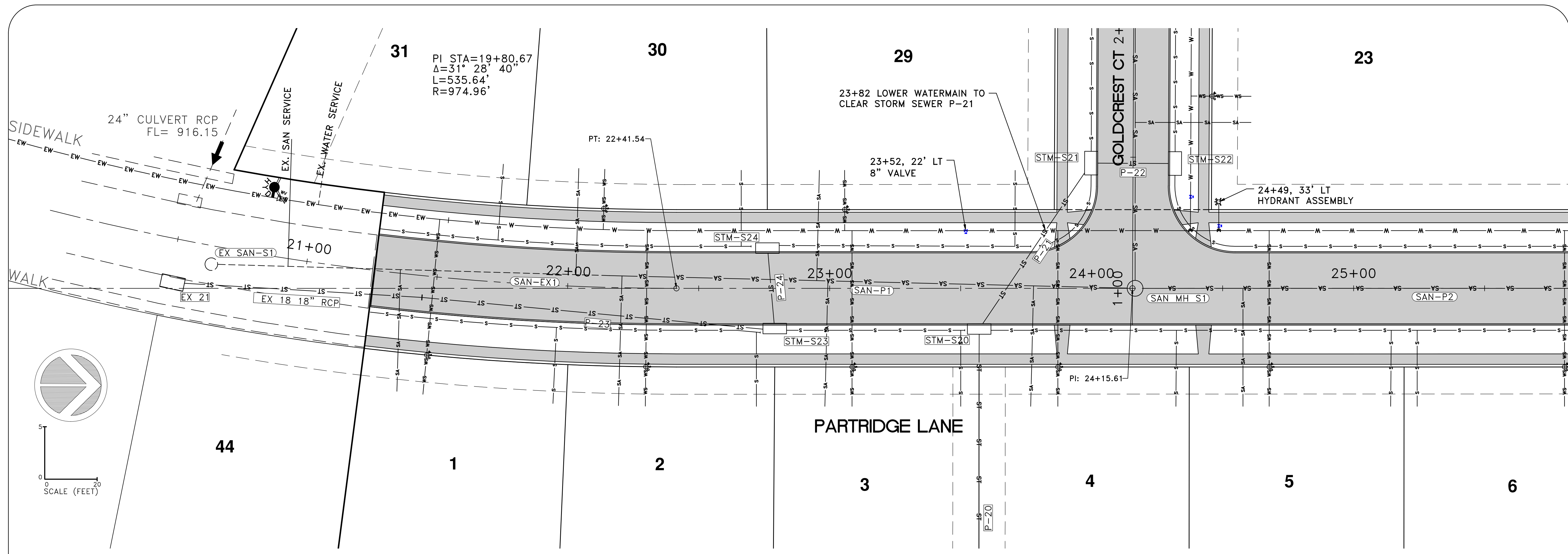


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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**GRADING PLAN**





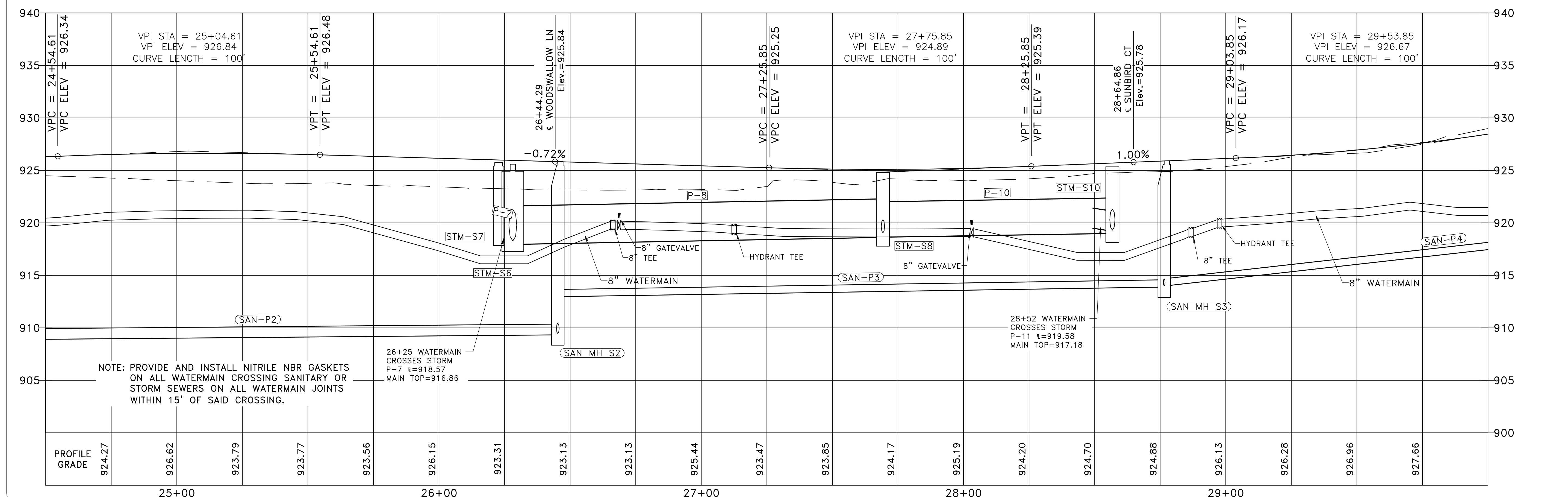
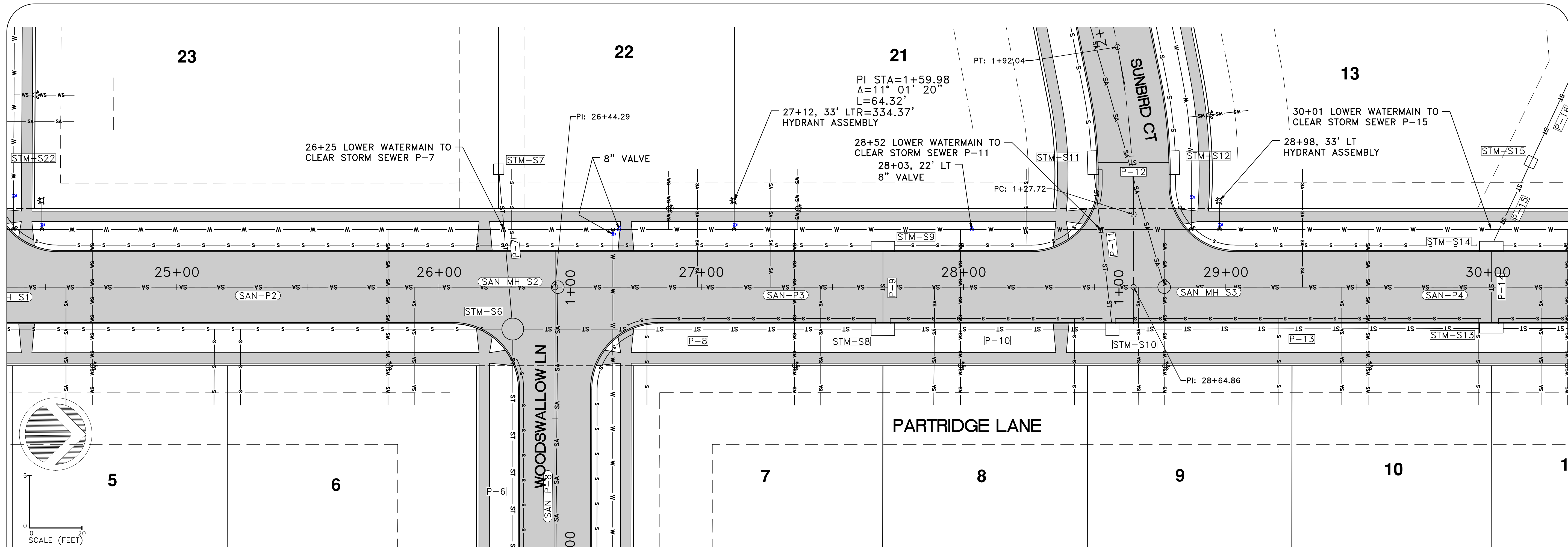


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**Construction Plans  
 Audubon Heights 7th Addition  
 Waterloo, Iowa  
 Plan and Profile - Partridge Lane**

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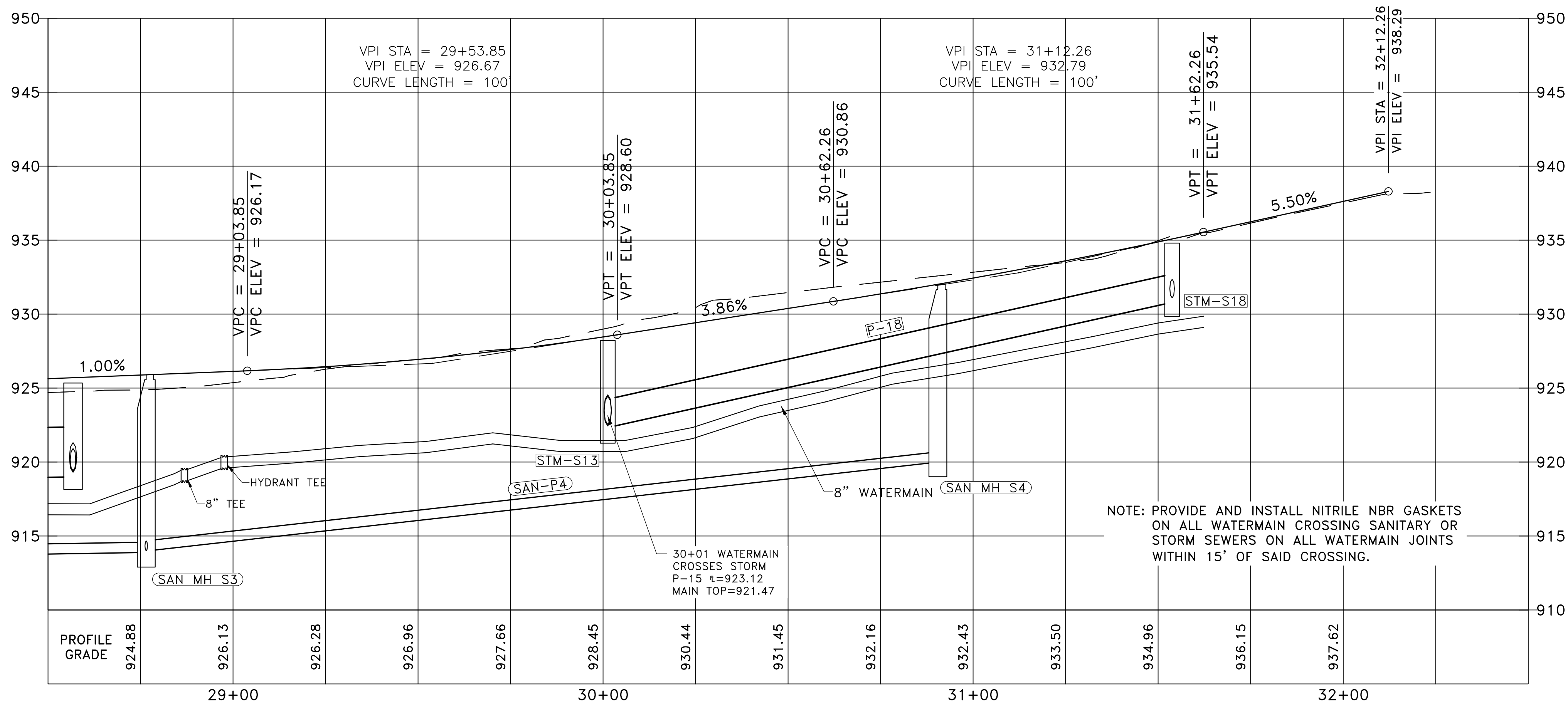
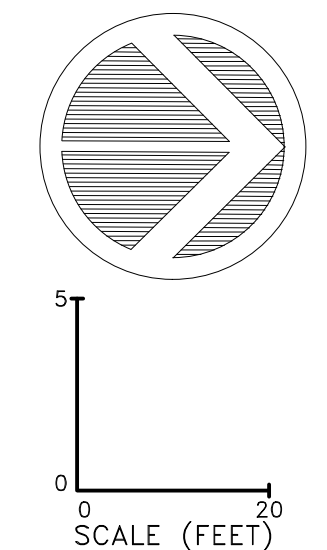
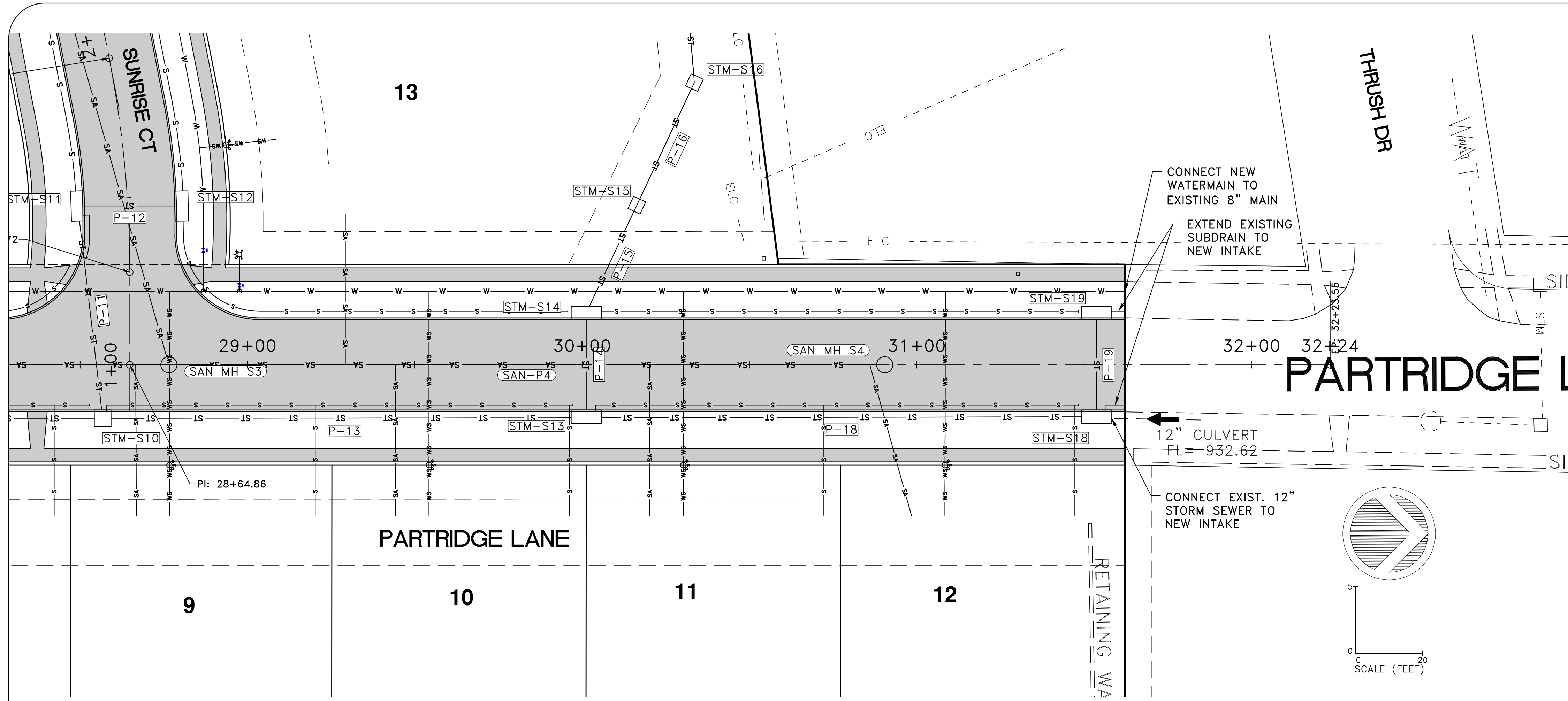
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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**Plan and Profile - Partridge Lane**

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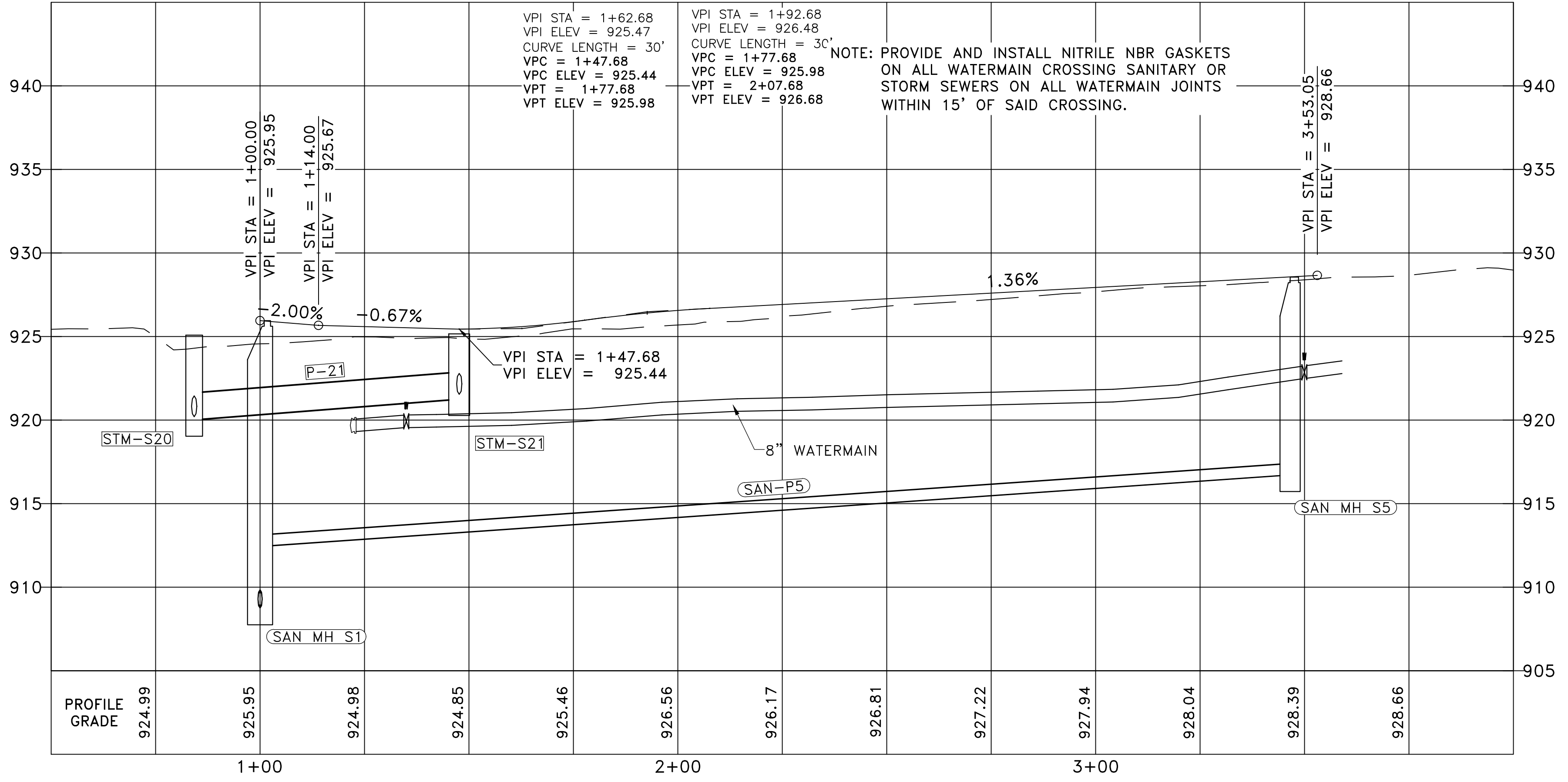
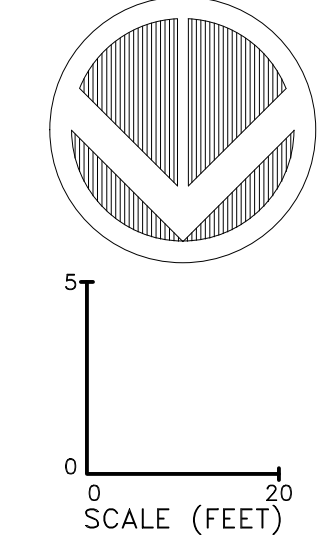
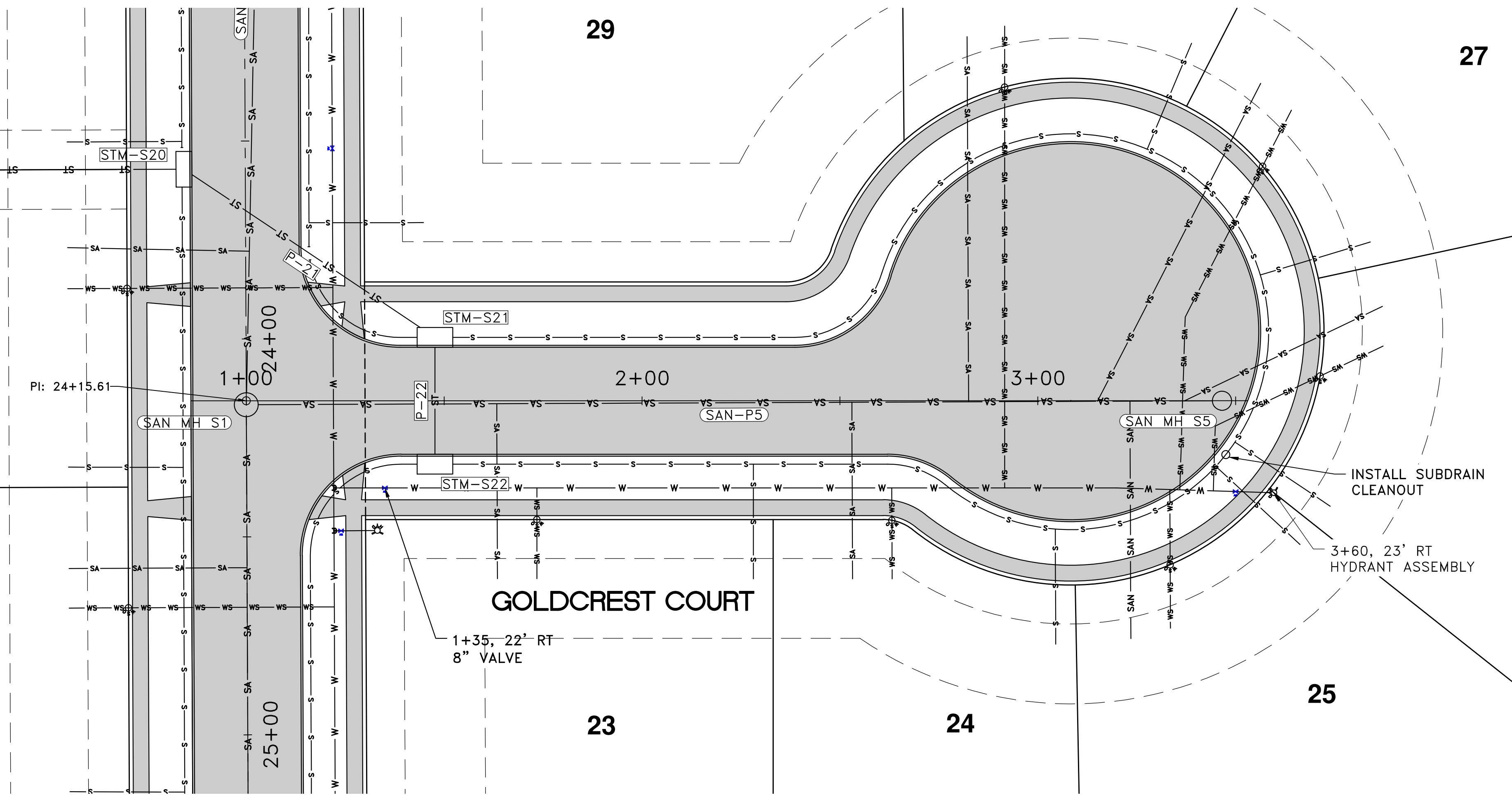




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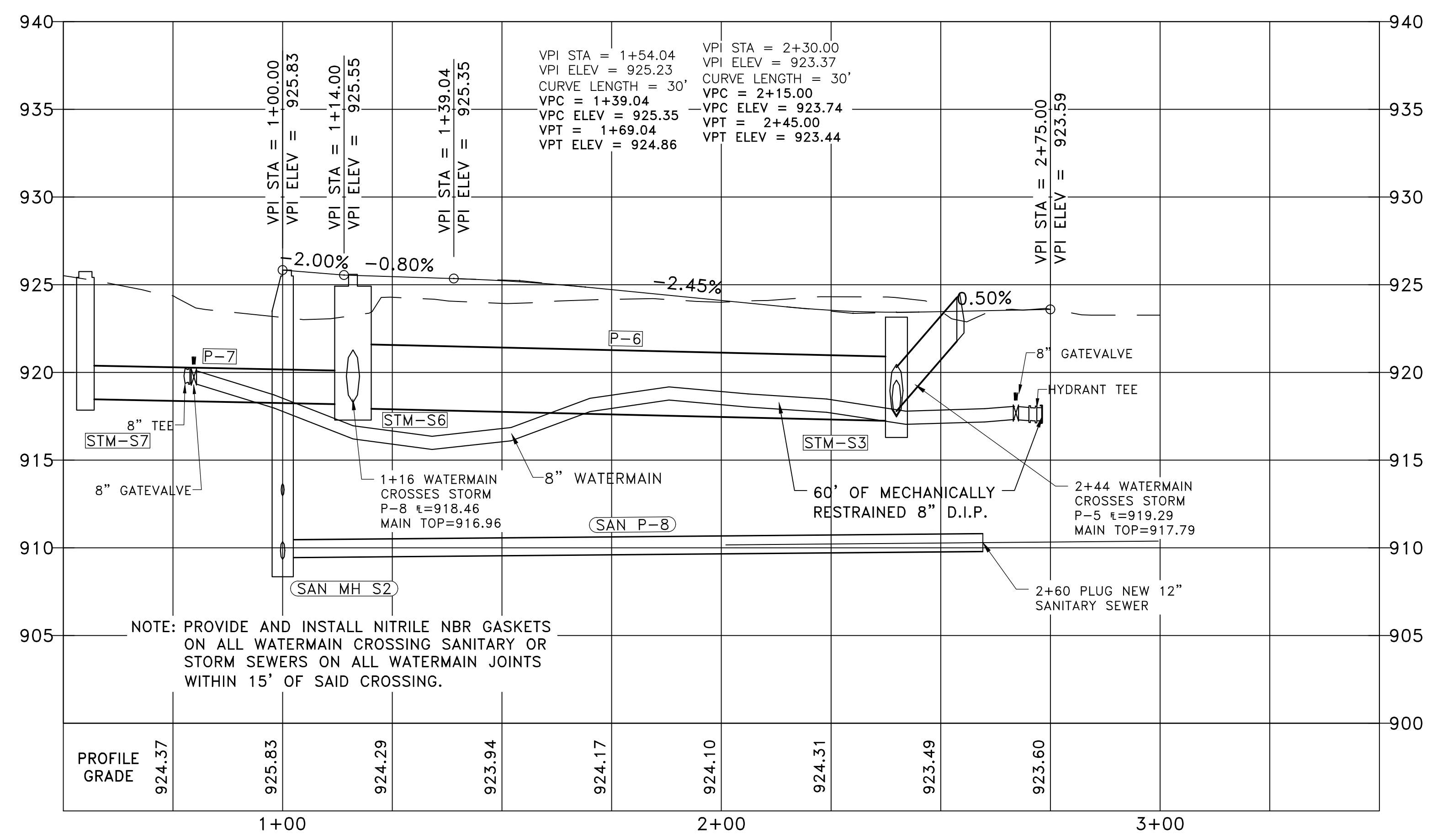
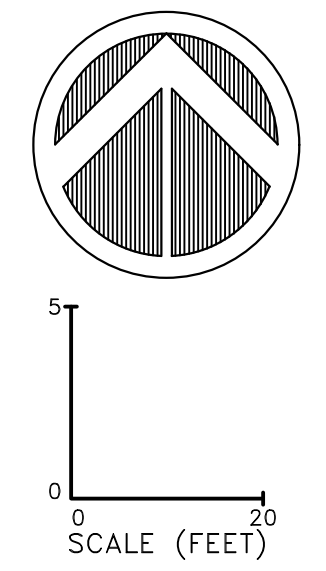
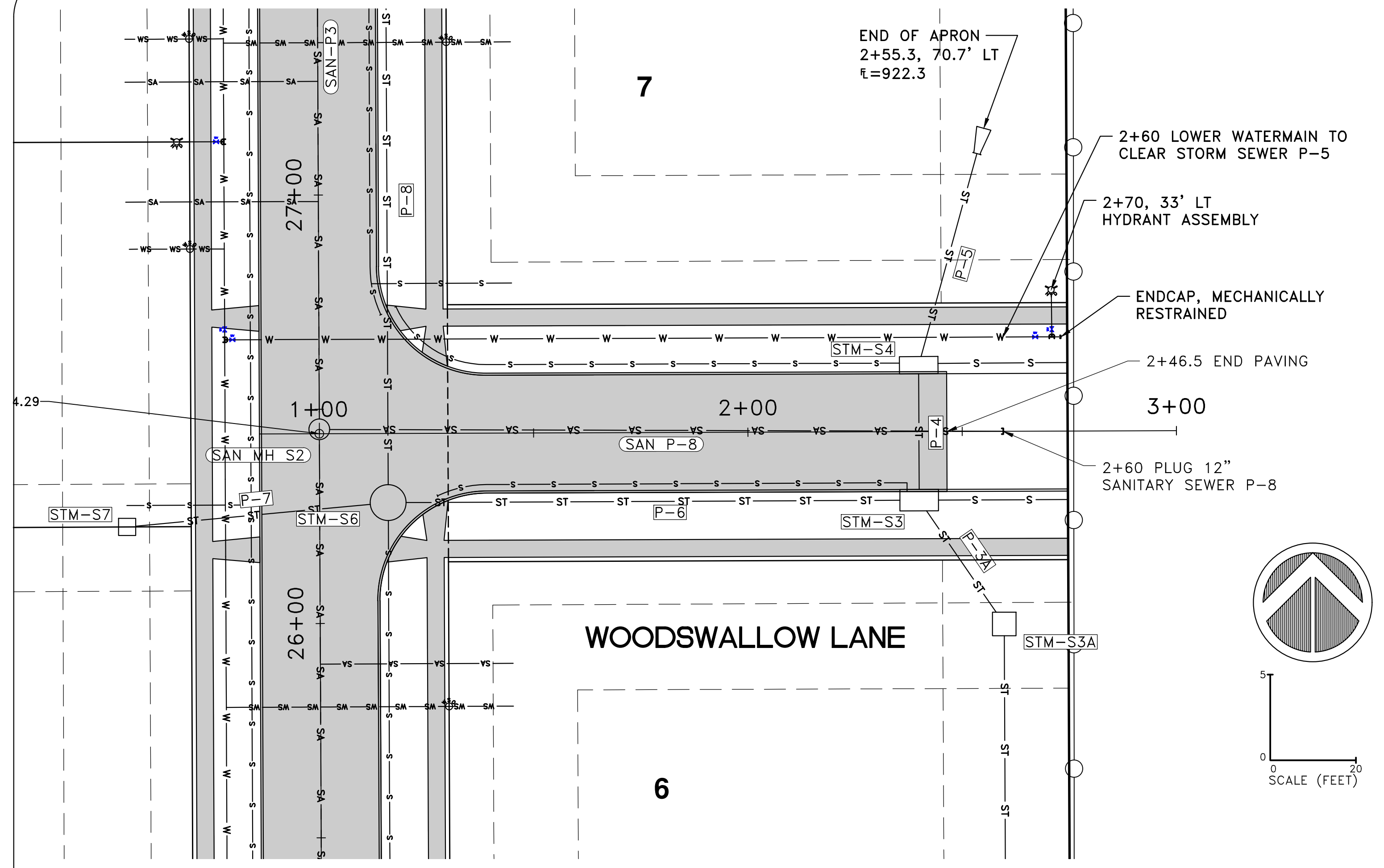
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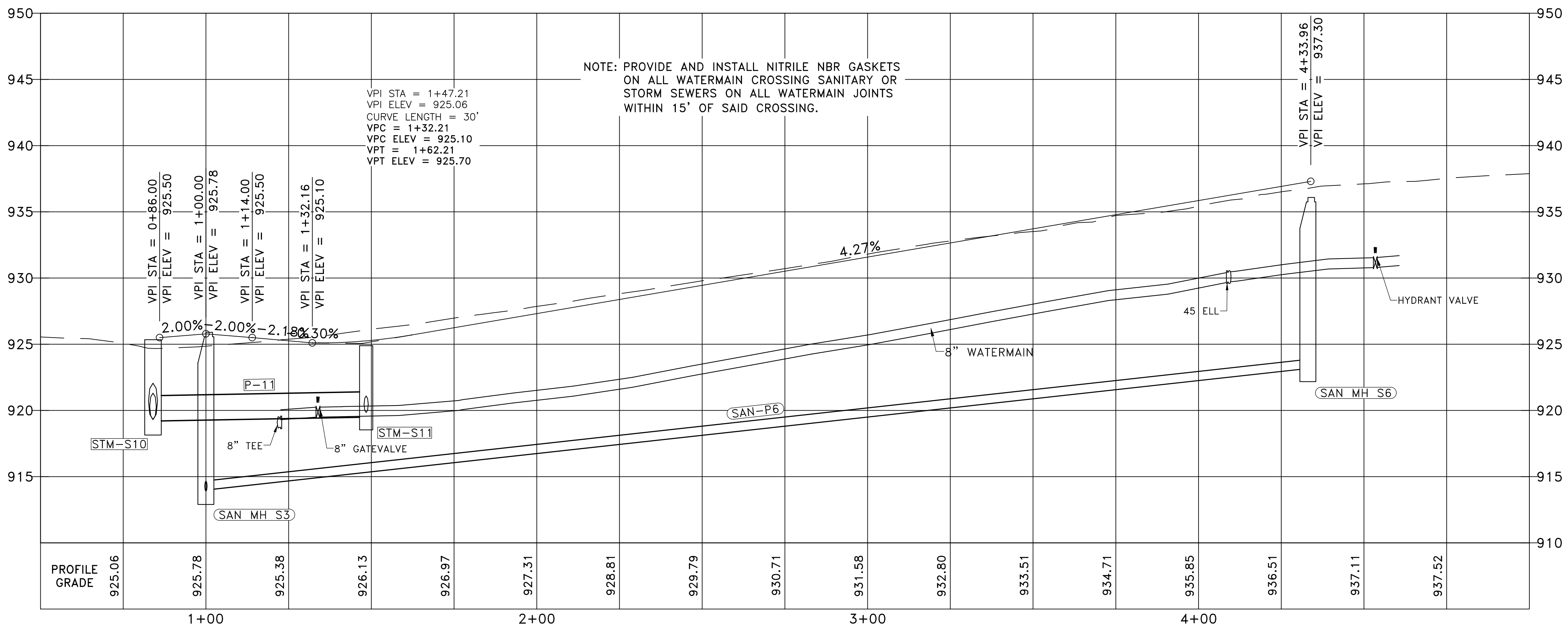
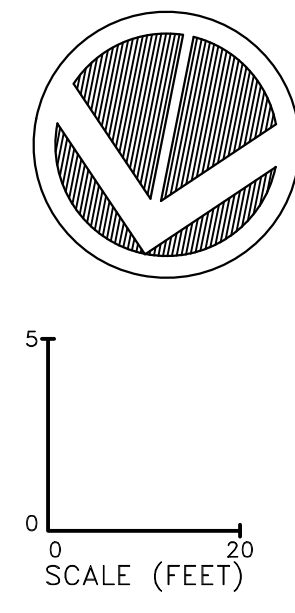
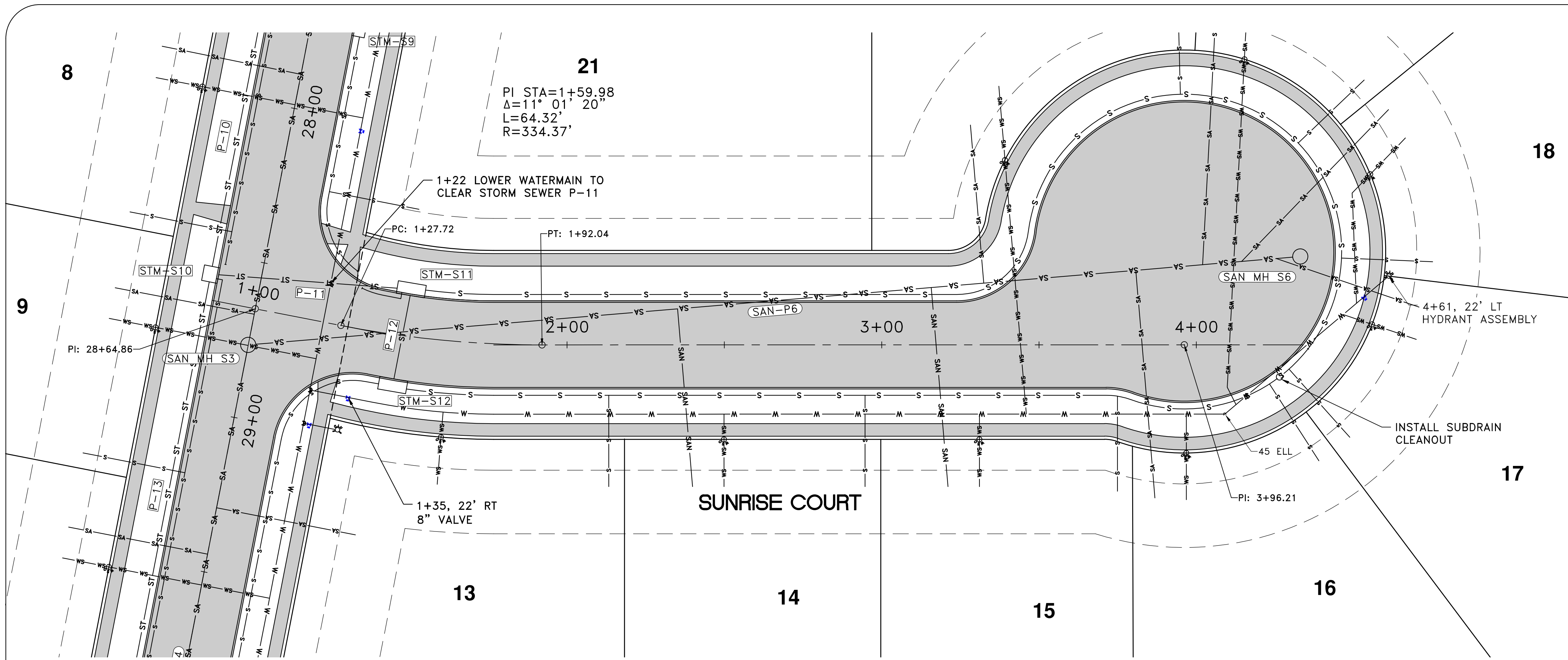
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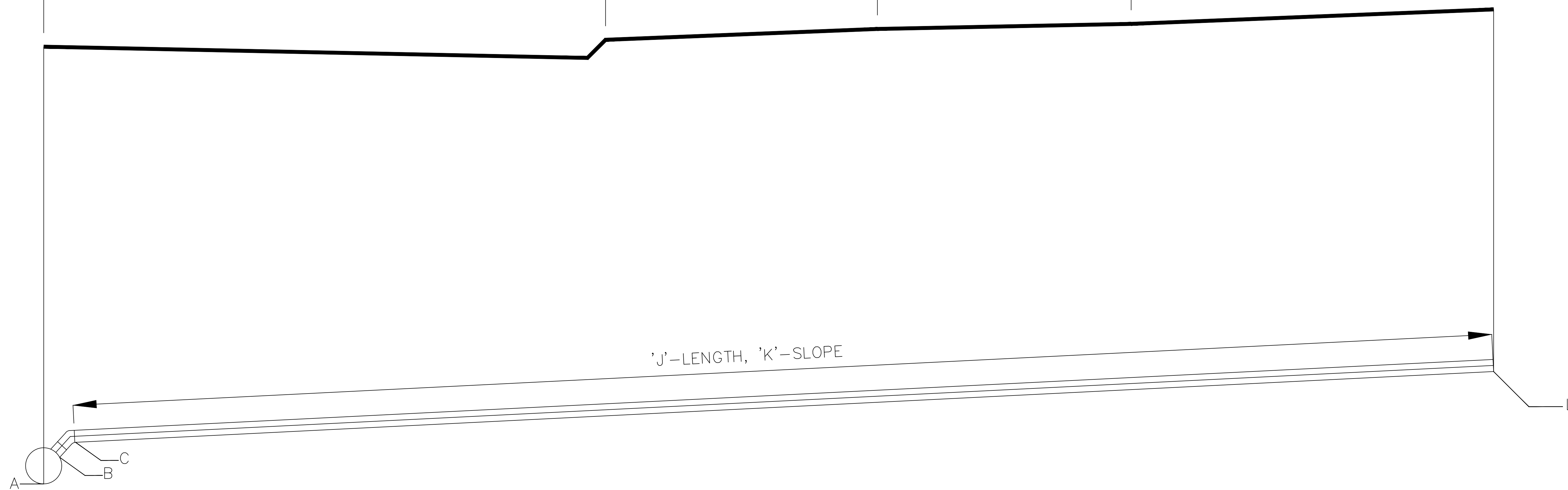
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BACK OF CURB

SIDEWALK EDGE

ROAD R/W

10' EASEMENT



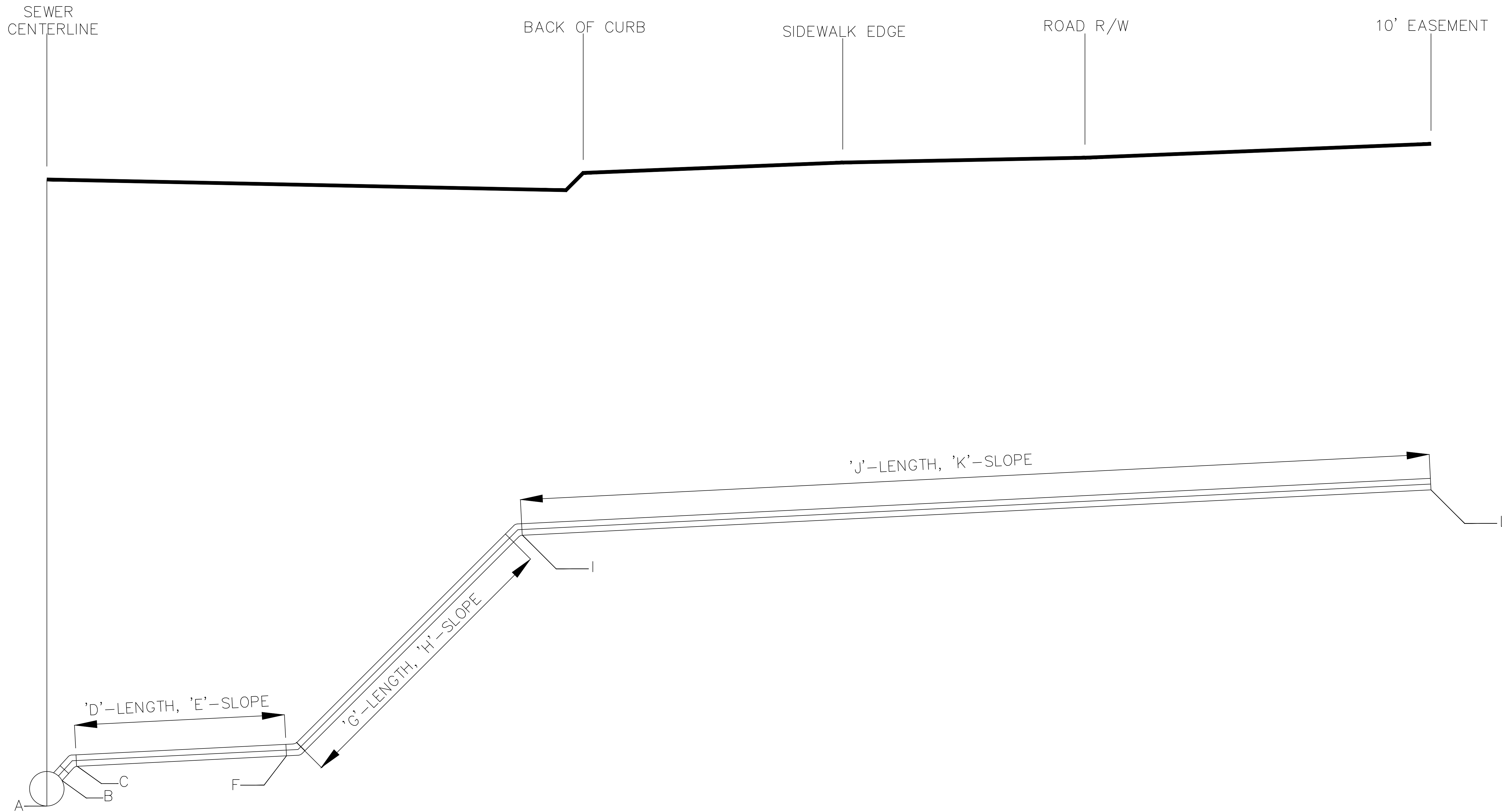
SANITARY SEWER SERVICE INSTALLATION DIAGRAM  
 (SEE SANITARY SERVICE TABLE AND SUDAS FIGURE 4010.201 SHEET 1 OF 2)

**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**Sanitary Sewer and Services Details**

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 2705 University Avenue • P.O. Box 898 • Waterloo, Iowa 50701  
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 Email: claassen@wcesinc.com

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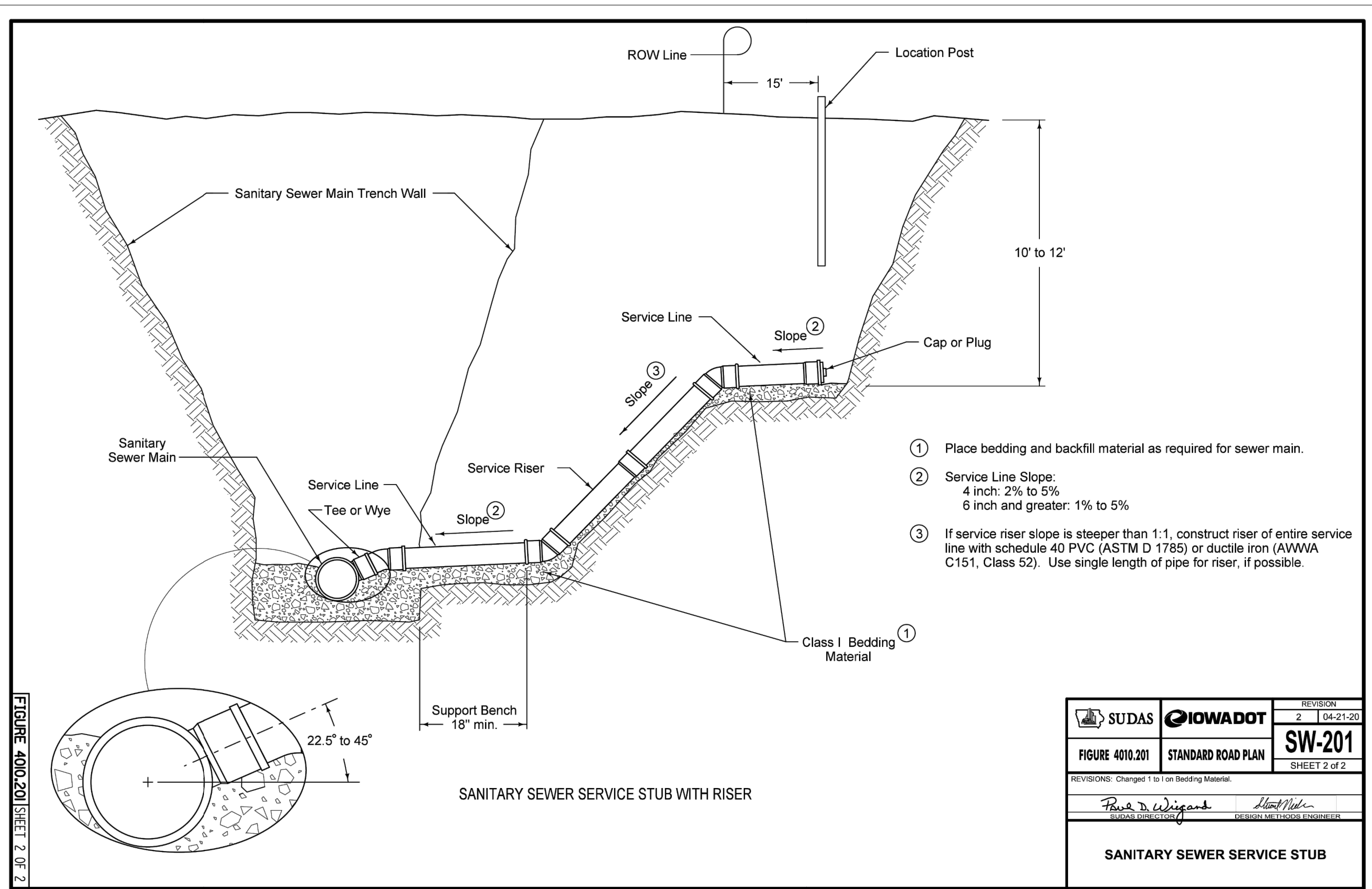
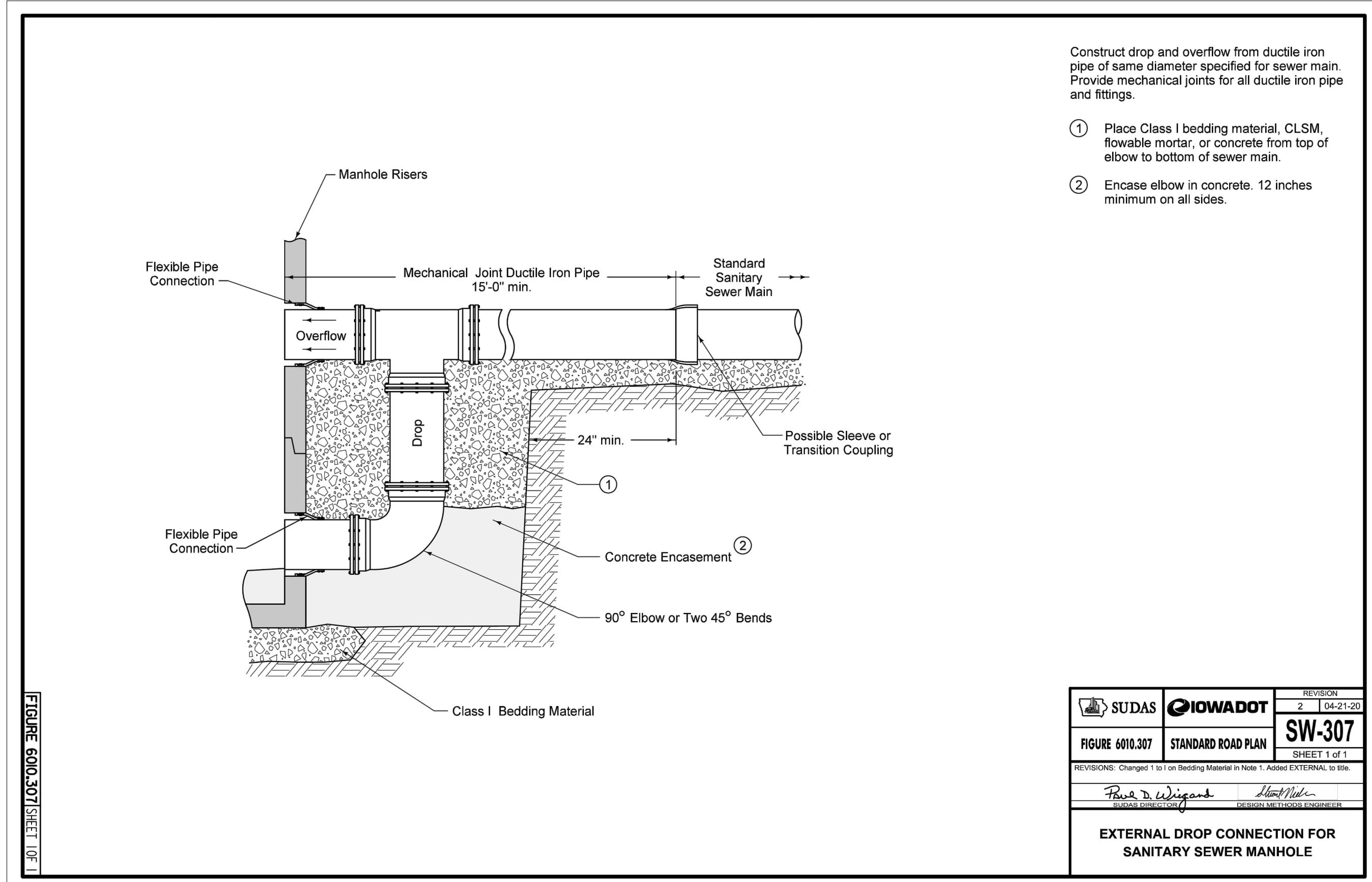
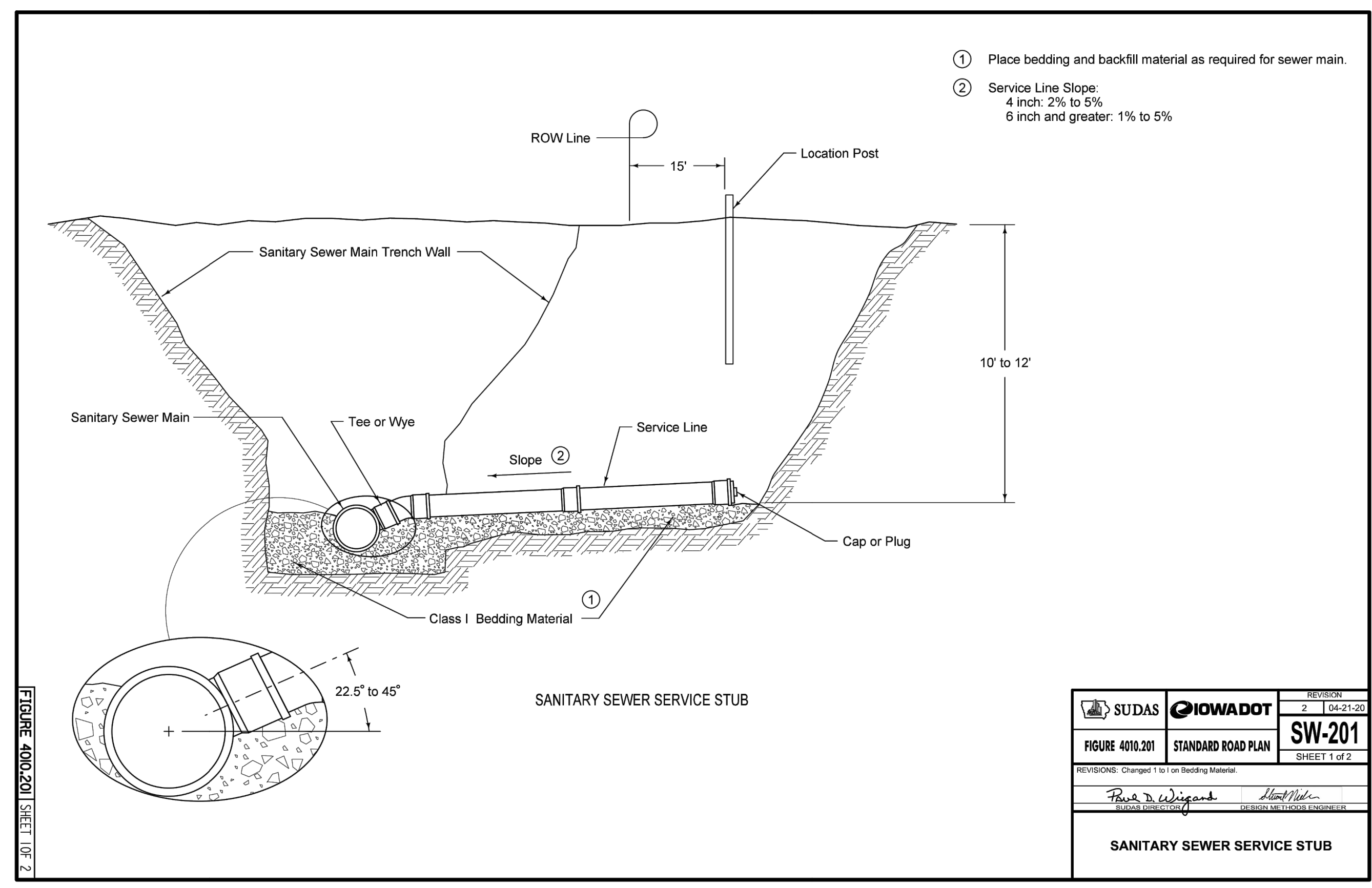
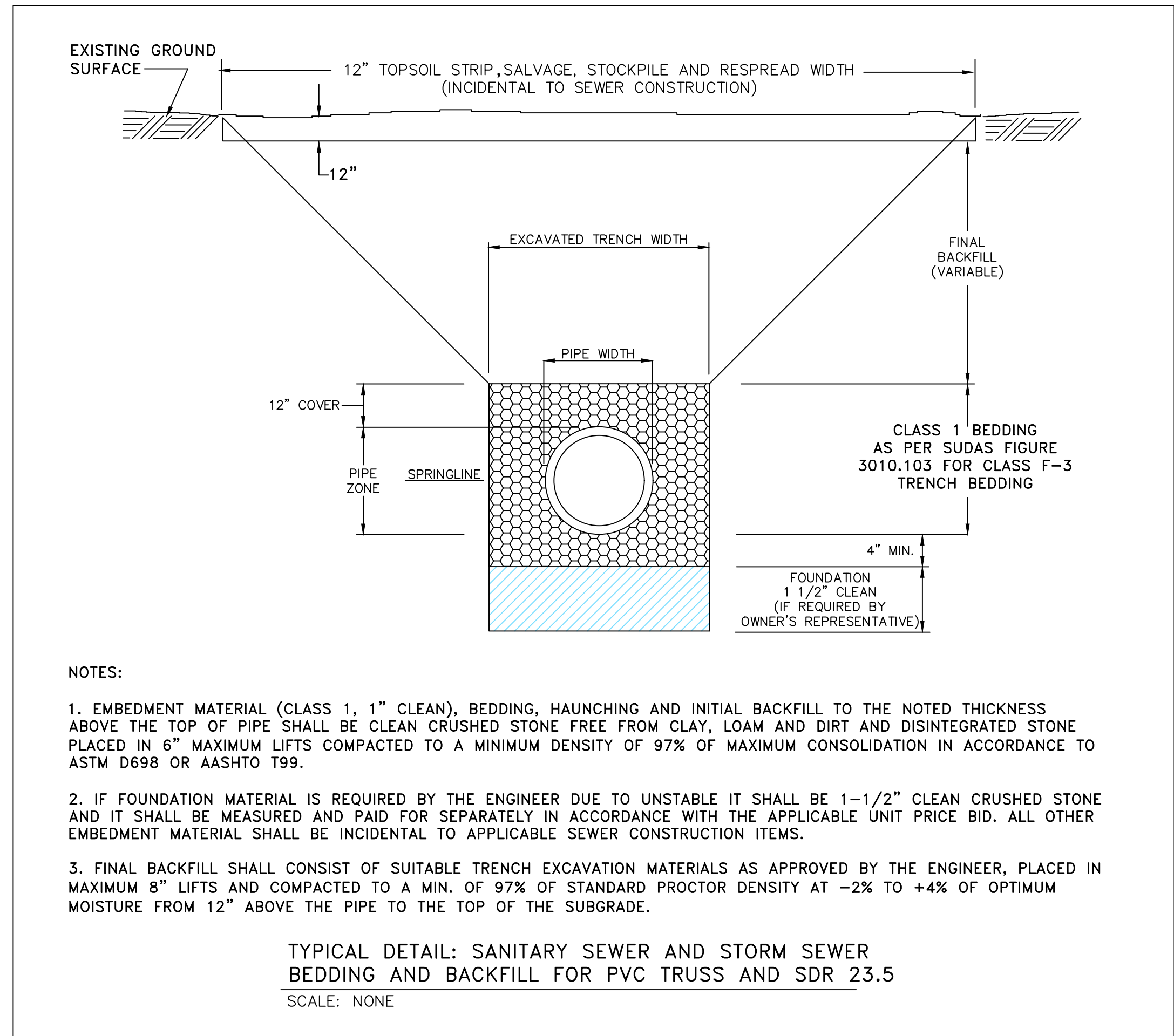
SANITARY SEWER SERVICE INSTALLATION DIAGRAM  
 (SEE SANITARY SERVICE TABLE AND SUDAS FIGURE 4010.201 SHEET 2 OF 2)

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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**Sanitary Sewer and Services Details**





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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**  
**Sanitary Sewer and Services Details**

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## LIST OF INTAKES AND MANHOLES

NUMBER	STREET	LOCATION	TYPE OR STANDARD ROAD PLAN	FORM GRADE ELEV.	PIPE OUT	PIPE IN	BOTTOM WELL ELEV.	NOTE
STM-S1A	STORM OUTLET	0+22.74, N 3627253.44 E 5221113.26	SW-513 60 X 36	914.81	S 908.89 P-1A	S 908.89 P-1A	908.89	5
STM-S1B	STORM OUTLET	2+69.63, N 3627489.60 E 5221185.25	SW-513 60 X 36	916.00	S 909.48 P-1B	S 909.48 P-1B	909.48	5
STM-S2	PARTRIDGE LN	23+56.92, RT N 3627835.28 E 5221183.70	SW-513 60 X 36	918.26	S 910.27 P-2	S 910.27 P-2	910.27	1,3,4
STM-S3	WOODSWALLOW LN	2+39.92, RT N 3628106.43 E 5221162.75	SW-510	923.15	SE 917.46 P-3A	SE 917.46 P-3A	916.96	1,2
STM-S3A	WOODSWALLOW LN	2+59.67, RT N 3628077.53 E 5221182.61	SW-513 60 X 60	923.50	S 916.66 P-3	S 916.66 P-3	916.16	1,2
STM-S4	WOODSWALLOW LN	2+39.91, LT N 3628137.93 E 5221162.63	SW-509	923.15	S 917.94 P-4	S 917.94 P-4	917.44	1,2
STM-S6	PARTRIDGE LN	26+28.14, RT N 3628105.85 E 5221038.85	SW-401 84 DIA	925.59	E 918.28 P-6	E 918.28 P-6	917.78	1
STM-S7	PARTRIDGE LN	26+22.74, LT N 3628100.17 E 5220977.91	SW-562	925.75	E 918.69 P-7	E 918.69 P-7	918.19	1,3,4
STM-S8	PARTRIDGE LN	27+69.27, RT N 3628246.97 E 5221038.22	SW-510	924.81	S 918.95 P-8	S 918.95 P-8	918.45	1,2
STM-S9	PARTRIDGE LN	27+69.27, LT N 3628246.83 E 5221006.72	SW-509	924.81	E 919.33 P-9	E 919.33 P-9	918.83	1,2,4
STM-S10	PARTRIDGE LN	28+56.76, RT N 3628334.46 E 5221037.83	SW-508	925.34	S 919.31 P-10	S 919.31 P-10	918.81	1,2
STM-S11	SUNBIRD CT	1+48.44, LT N 3628326.72 E 5220974.36	SW-509	924.89	E 919.70 P-11	E 919.70 P-11	919.20	1,2
STM-S12	SUNBIRD CT	1+46.61, RT N 3628357.73 E 5220974.22	SW-509	924.89	S 919.94 P-12	S 919.94 P-12	919.44	1,2
STM-S13	PARTRIDGE LN	30+01.25, RT N 3628478.96 E 5221036.68	SW-509	928.22	S 922.44 P-13	S 922.44 P-13	921.94	1,2
STM-S14	PARTRIDGE LN	30+01.25, LT N 3628478.82 E 5221005.68	SW-509	928.22	E 922.92 P-14	E 922.92 P-14	922.42	1,2
STM-S15	PARTRIDGE LN	30+16.37, LT N 3628493.79 E 5220973.39	SW-562	928.00	SE 923.34 P-15	SE 923.34 P-15	922.84	3
STM-S16	PARTRIDGE LN	30+33.56, LT N 3628510.82 E 5220936.64	SW-562	928.70	SE 924.07 P-16	SE 924.07 P-16	923.57	3
STM-S17	SUNBIRD CT	3+31.40, RT N 3628494.83 E 5220756.38	SW-562	932.00	E 927.00 P-17	E 927.00 P-17	926.50	1,2
STM-S18	PARTRIDGE LN	31+53.77, RT N 3628631.47 E 5221035.99	SW-509	934.80	S 931.00 P-18	S 931.00 P-18	930.50	1,2
STM-S19	PARTRIDGE LN	31+53.78, LT N 3628631.34 E 5221005.00	SW-509	934.80	E 931.24 P-19	E 931.24 P-19	930.74	1,2
STM-S20	PARTRIDGE LN	23+57.06, RT N 3627834.77 E 5221039.57	SW-509	925.08	E 920.20 P-20	E 920.20 P-20	919.70	1,2
STM-S21	GOLDCREST CT	1+47.68, LT N 3627877.25 E 5220976.13	SW-509	925.16	SE 921.44 P-21	SE 921.44 P-21	920.94	1,2
STM-S22	GOLDCREST CT	1+47.68, RT N 3627909.25 E 5220976.13	SW-509	925.16	S 921.82 P-22	S 921.82 P-22	921.32	1,2
STM-S23	PARTRIDGE LN	22+79.05, RT N 3627756.76 E 5221039.75	SW-509	924.19	S 919.78 P-23	S 919.78 P-23	919.28	1,2
STM-S24	PARTRIDGE LN	22+76.23, LT N 3627753.80 E 5221009.10	SW-509	924.16	E 920.16 P-24	E 920.16 P-24	919.66	1,2

## LIST OF STORM SEWER PIPE

LINE NUMBER	FROM	TO	PIPE MATERIAL	PIPE DIAMETER (INCHES)	LENGTH OF LINE (FEET)	SLOPE %	INLET ELEVATION	OUTLET ELEVATION	NOTES
P-1A	STM-S1A	APRON OUTLET	36" RCP	36	13.3	0.22%	908.89	908.86	1,2,4
P-1B	STM-S1B	STM-S1A	36" RCP	36	243.8	0.20%	909.48	908.99	1
P-2	STM-S2	STM-S1B	36" RCP	36	342.7	0.20%	910.27	909.58	1
P-3	STM-S3A	STM-S2	36" RCP	36	238.3	2.64%	916.66	910.37	1
P-3A	STM-S3	STM-S3A	36" RCP	36	29.5	2.38%	917.46	916.76	1
P-4	STM-S4	STM-S3	24 INCH RCP	24	28.0	1.36%	917.94	917.56	1
P-5	STM-S5	STM-S4	24 INCH RCP	24	49.8	7.99%	922.02	918.04	1,2,3
P-6	STM-S6	STM-S3	36" RCP	36	116.4	0.62%	918.28	917.56	1
P-7	STM-S7	STM-S6	18" RCP	18	56.2	0.54%	918.69	918.38	1
P-8	STM-S8	STM-S6	36" RCP	36	133.6	0.50%	918.95	918.28	1
P-9	STM-S9	STM-S8	15" RCP	15	28.0	1.00%	919.33	919.05	1
P-10	STM-S10	STM-S8	33" RCP	33	81.5	0.44%	919.31	918.95	1
P-11	STM-S11	STM-S10	18" RCP	18	57.9	0.50%	919.70	919.41	1
P-12	STM-S12	STM-S11	15" RCP	15	28.0	0.36%	919.94	919.84	1
P-13	STM-S13	STM-S10	24" RCP	24	138.5	2.26%	922.44	919.31	1
P-14	STM-S14	STM-S13	24" RCP	24	28.0	1.36%	922.92	922.54	1
P-15	STM-S15	STM-S14	24" RCP	24	32.4	0.99%	923.34	923.02	1
P-16	STM-S16	STM-S15	24" RCP	24	37.5	1.69%	924.07	923.44	1
P-17	STM-S17	STM-S16	24" RCP	24	177.7	1.59%	927.00	924.17	1
P-18	STM-S18	STM-S13	18" RCP	18	144.6	5.85%	931.00	922.54	1
P-19	STM-S19	STM-S18	15" RCP	15	28.0	0.50%	931.24	931.10	1
P-20	STM-S20	STM-S2	15" RCP	15	140.2	7.01%	920.20	910.37	1
P-21	STM-S21	STM-S20	15" RCP	15	70.5	1.76%	921.44	920.20	1
P-22	STM-S22	STM-S21	15" RCP	15	28.0	1.00%	921.82	921.54	1
P-23	STM-S23	EX 18	18" RCP	18	131.3	3.90%	919.78	914.66	
P-24	STM-S24	STM-S23	15" RCP	15	27.8	1.01%	920.16	919.88	

**NOTES:**

- ALL STORM SEWER PIPE SHALL BE 2000D RCP. RCP PIPE JOINTS SHALL BE WRAPPED IN MIRAFI 140N FABRIC OR APPROVED EQUAL. SAID WRAP SHALL BE A MINIMUM 24" WIDTH, CENTERED ON THE PIPE JOINT AND OVERLAPPED A MINIMUM OF 12" AND SHALL BE IN INTIMATE CONTACT WITH THE PIPE.
- TIE APRON AND LAST 3 JOINTS PER IDOT DR-121, TYPE 2 SEALED JOINTS.
- PIPE LENGTH DOES NOT INCLUDE REQUIRED DR-201 24 INCH DIA. APRON WITH DR-213 PIPE APRON GUARD.
- PIPE LENGTH DOES NOT INCLUDE REQUIRED DR-201 36 INCH DIA. APRON WITH DR-213 PIPE APRON GUARD.

**NOTES:**

- CONTRACTOR TO COMPLETE STRUCTURE BOXOUTS AND TOPS AS APPLICABLE WITHIN 14 CALENDAR DAYS AFTER PAVING IS COMPLETE.
- REQUIRES POURED AND SHAPED FILLET.
- OMIT 18" CONCRETE APRON.
- STRUCTURE SHORT WALL PIPES EXCEED SIZE LIMITS FOR PRE-CAST. STRUCTURE TO BE CAST-IN-PLACE.
- WALL WIDTH ON LONG SIDE SHALL BE 60 INCHES TO ACCOMMODATE 36-INCH OR 33-INCH PIPES. SHORT WALL TO BE 36 INCHES WIDE.

**Wayne Claassen Engineering and Surveying, Inc.**

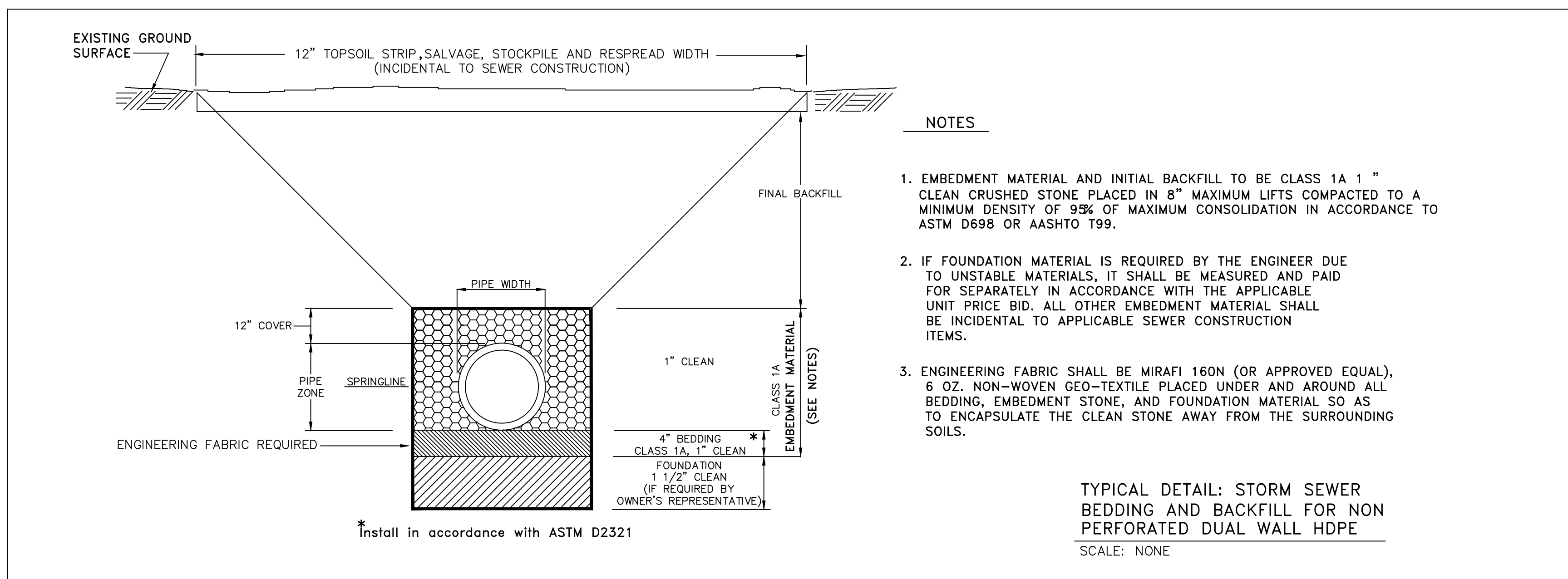
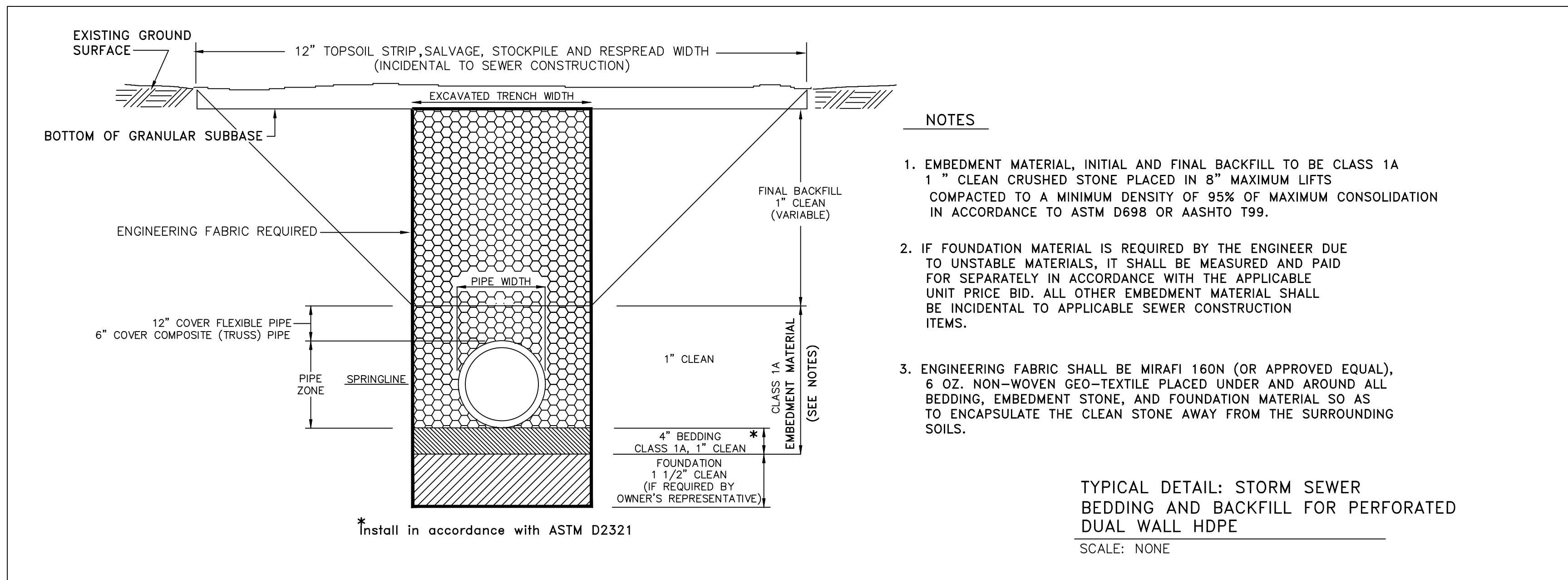
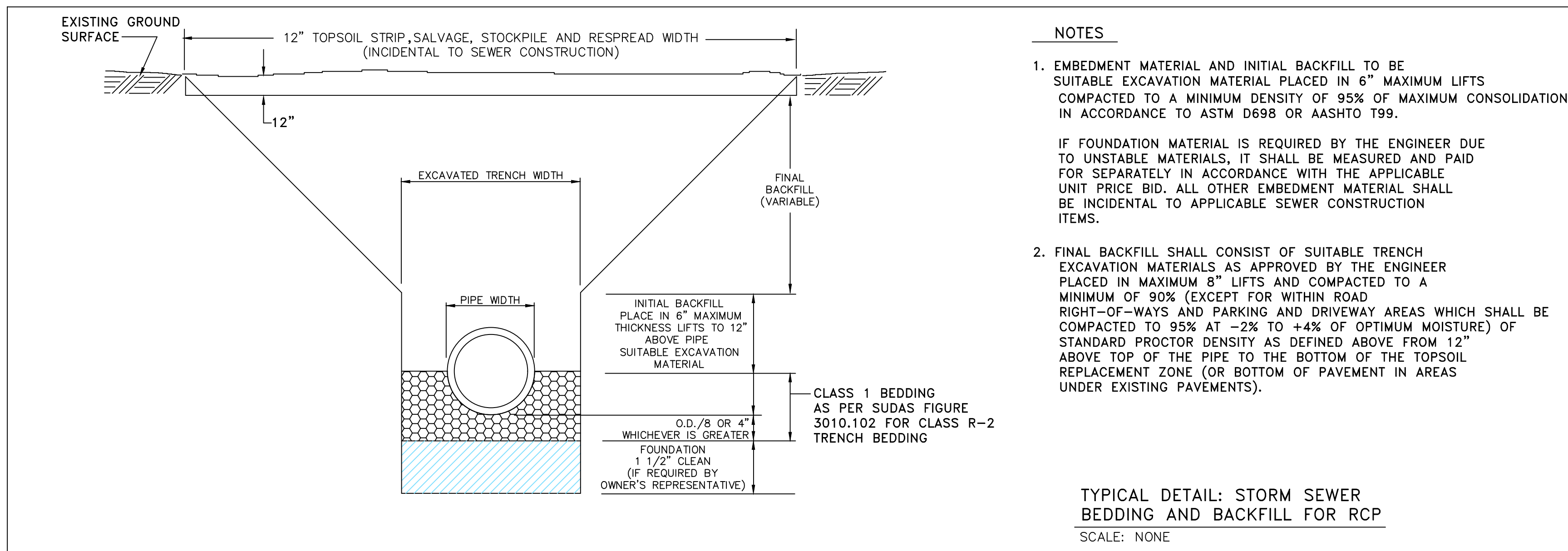
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**Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa  
Storm Sewer Tabulations**

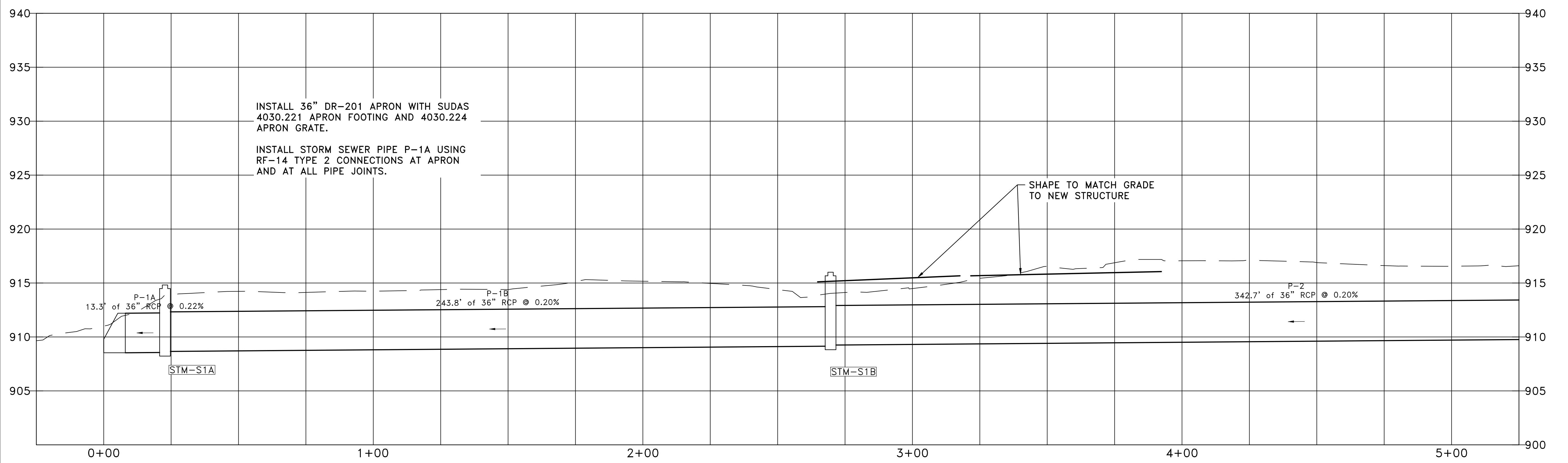
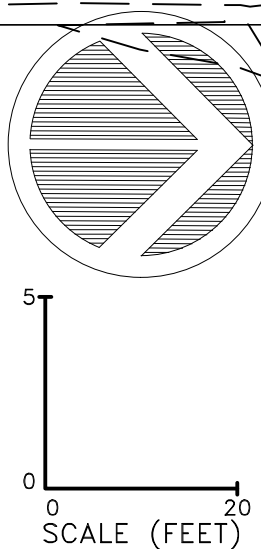
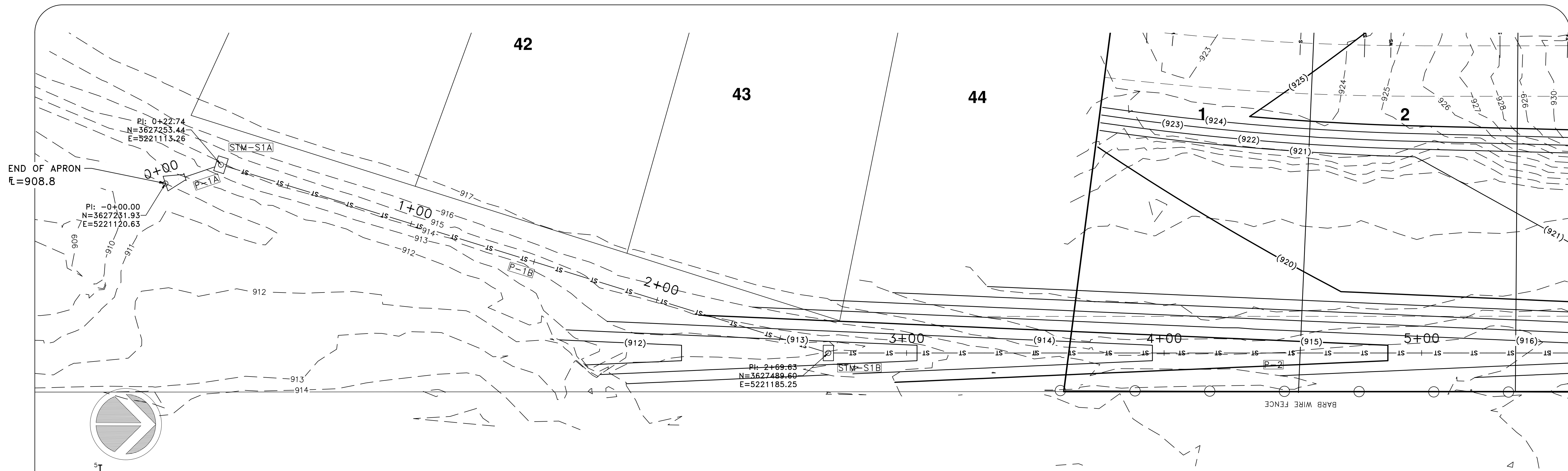
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INSTALL 36" DR-201 APRON WITH SUDAS  
4030.221 APRON FOOTING AND 4030.224  
APRON GRATE.

INSTALL STORM SEWER PIPE P-1A USING  
RF-14 TYPE 2 CONNECTIONS AT APRON  
AND AT ALL PIPE JOINTS.

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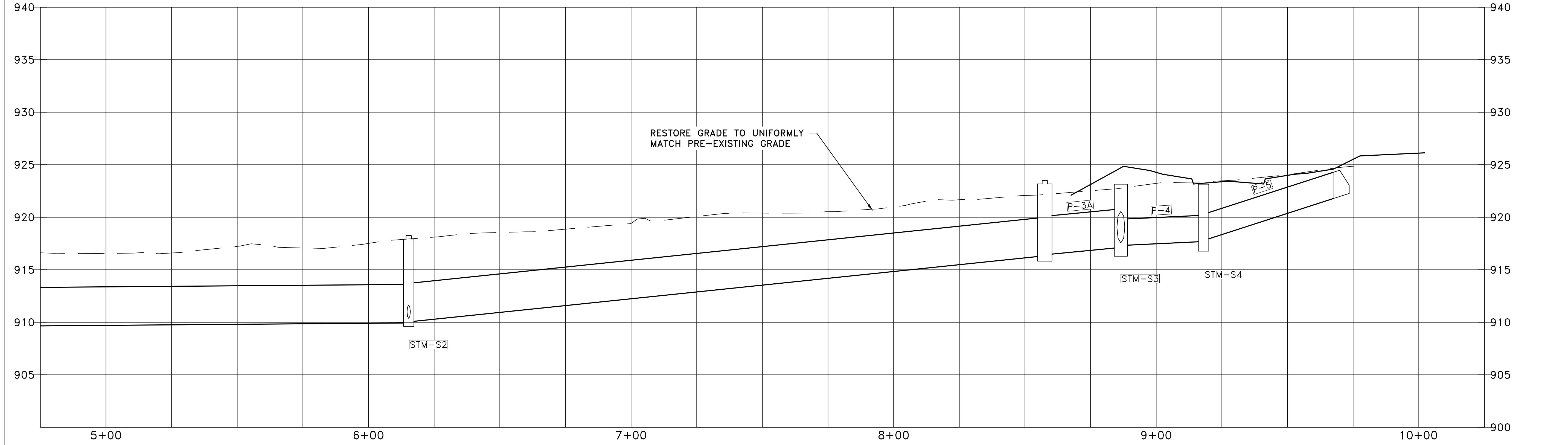
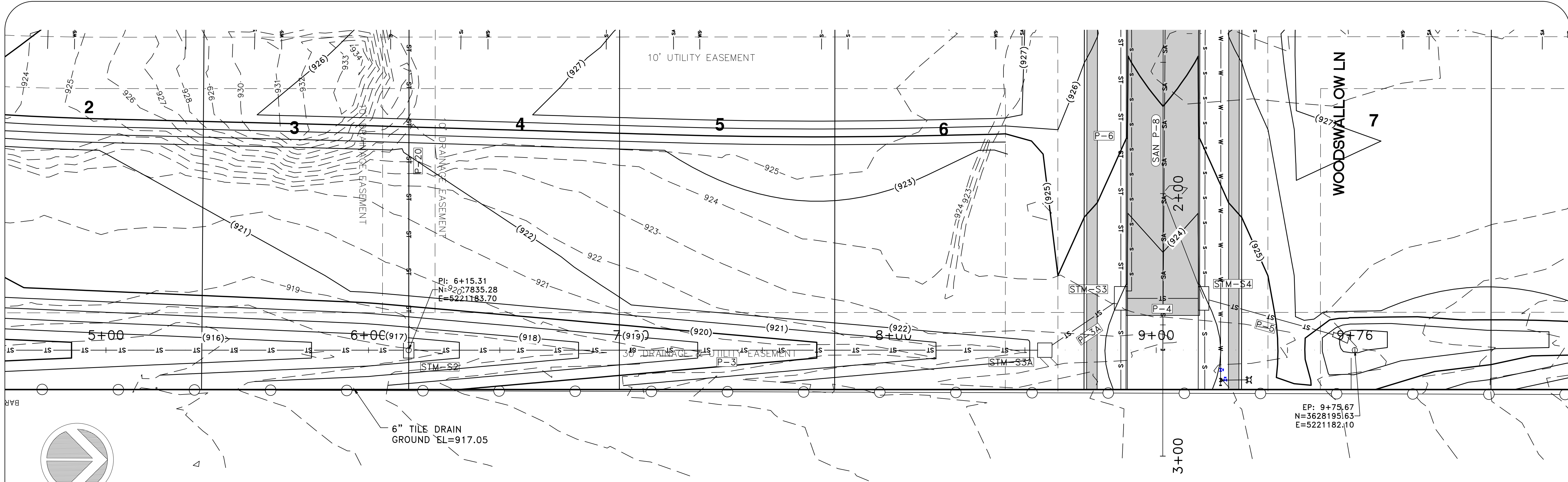
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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**

**Plan and Profile - Storm Sewer Outlet**

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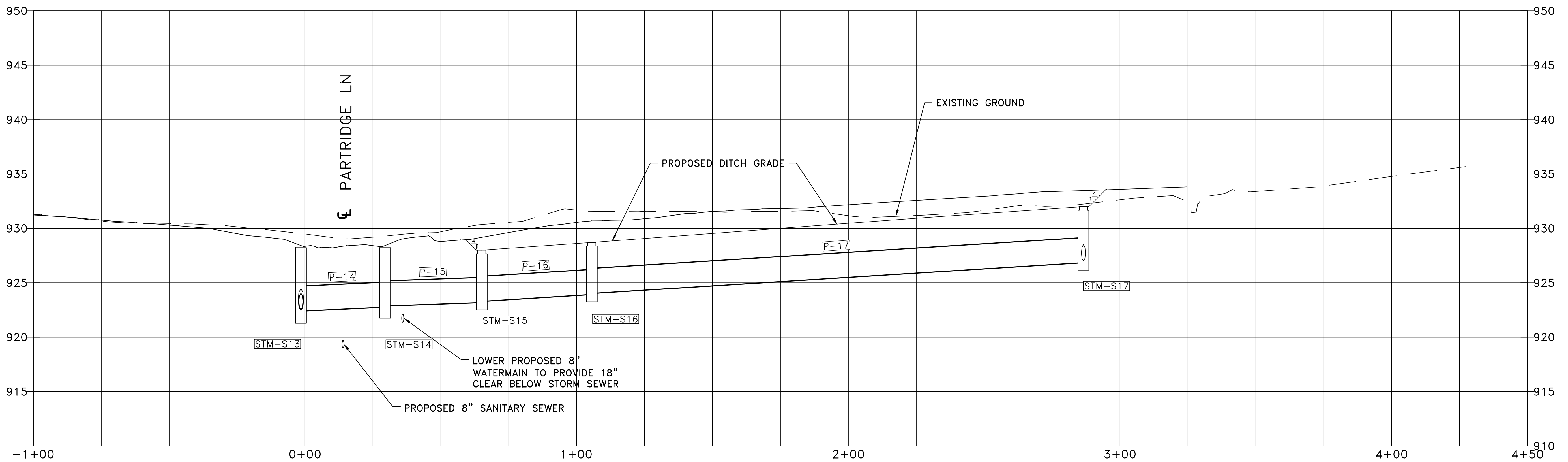
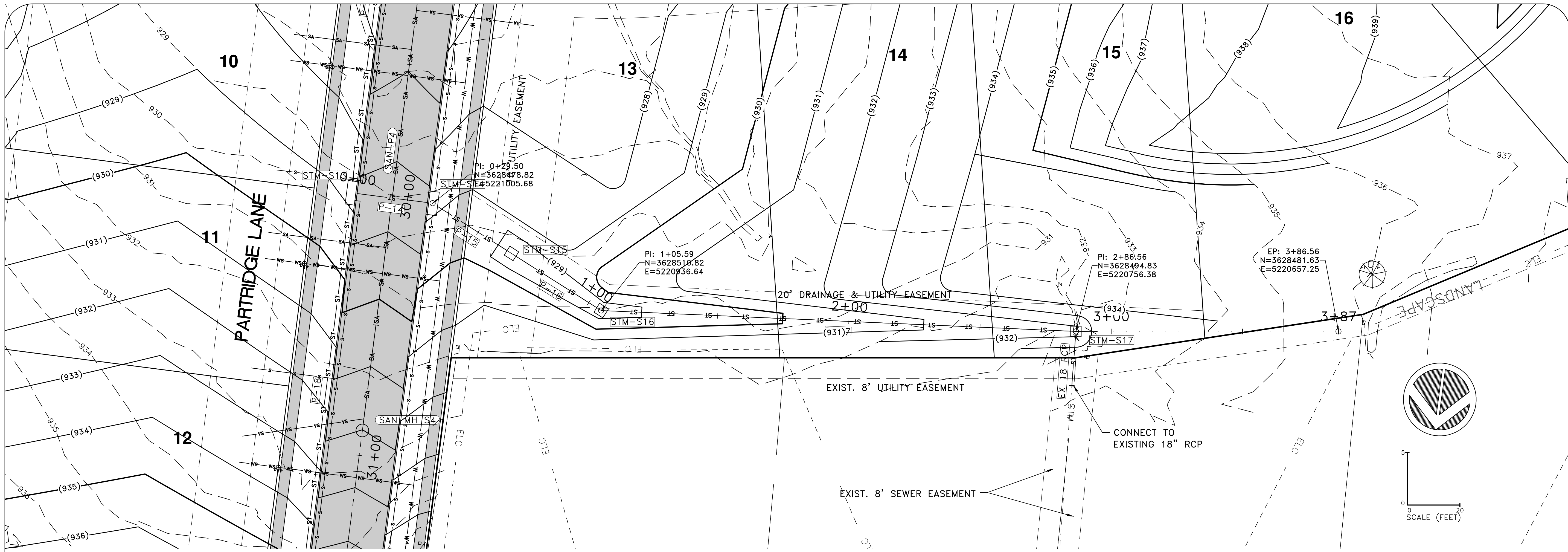
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**Construction Plans**  
**Audubon Heights 7th Addition**  
**Waterloo, Iowa**

**Plan and Profile - Storm Sewer Outlet**

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## LIST OF SUMP PUMP SUBDRAIN OUTLETS

LOT NO.	STREET	LOCATION	NOTES
1	PARTRIDGE LN	21+96 RT	1-3
2	PARTRIDGE LN	22+72 RT	1-3
3	PARTRIDGE LN	23+50 RT	1-3
4	PARTRIDGE LN	24+32 RT	1-3
5	PARTRIDGE LN	25+14 RT	1-3
6	PARTRIDGE LN	25+24 RT	1-3
7	PARTRIDGE LN	26+79 RT	1-4
8	PARTRIDGE LN	28+42 RT	1-4
9	PARTRIDGE LN	29+20 RT	1-4
10	PARTRIDGE LN	29+96 RT	1-4
11	PARTRIDGE LN	30+72 RT	1-4
12	PARTRIDGE LN	31+47 RT	1-3
13	SUNBIRD CT	2+13 RT	1-3
14	SUNBIRD CT	2+95 RT	1-3
15	SUNBIRD CT	3+75 RT	1-3
16	SUNBIRD CT	4+23 RT	1-3
17	SUNBIRD CT	4+30 RT	1-3
18	SUNBIRD CT	4+46 LT	1-3
19	SUNBIRD CT	4+32 LT	1-3
20	SUNBIRD CT	3+95 LT	1-3
21	PARTRIDGE LN	28+24 LT	1-3
22	PARTRIDGE LN	26+28 LT	1-3
23	GOLDCREST CT	2+28 RT	1-3
24	GOLDCREST CT	3+05 RT	1-3
25	GOLDCREST CT	3+45 RT	1-3
26	GOLDCREST CT	3+50 RT	1-3
27	GOLDCREST CT	3+56 LT	1-3
28	GOLDCREST CT	3+28 LT	1-3
29	PARTRIDGE LN	23+71 LT	1-3
30	PARTRIDGE LN	22+66 LT	1-3
31	PARTRIDGE LN	21+72 LT	1-3

### NOTES:

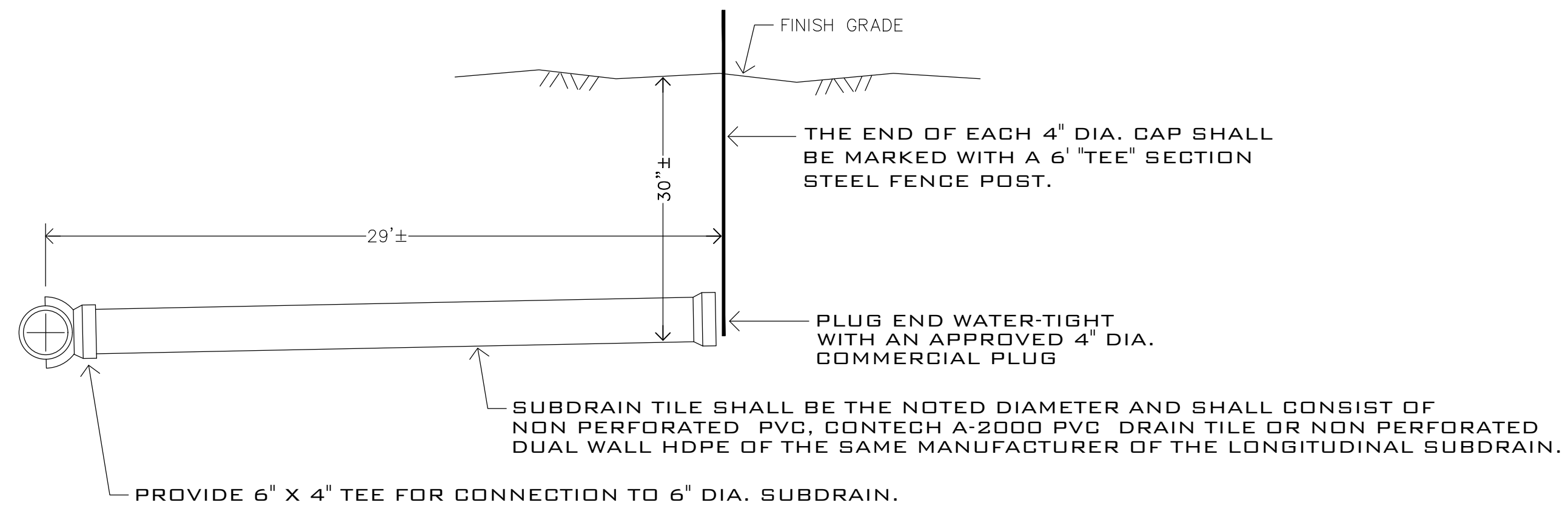
- CONNECTION SHALL CONSIST OF A MANUFACTURED TEE (ON SUBDRAIN CONNECTIONS ONLY), 29 FEET OF 4" DIA. NON-PERFORATED PIPE AND A 4" DIA. MANUFACTURED ENDCAP. ALL THE SAME MATERIAL AS THE LONGITUDINAL SUBDRAIN.
- EACH CONNECTION SHALL BE INSTALLED AT THE SAME TIME AS THE SUBDRAIN OR STORM SEWER (AS APPLICABLE) AND BACKFILLED WITH POROUS MATERIAL IN THE SAME MANNER AS SUBDRAINS.
- THE END OF EACH 4" DIA. END CAP SHALL BE MARKED WITH A 6" "TEE" SECTION STEEL FENCE POST.
- THIS LINE SHALL OUTLET TO PROPOSED STORM SEWER VIA AN INSERTA-TEE, CORE DRILLED CONNECTION OR OTHER APPROVED CONNECTION. ALL CONNECTIONS SHALL BE SOILTIGHT.

## LIST OF LONGITUDINAL SUBDRAIN

NUMBER	STREET	FROM	TO	SIDE	INSTALLATION TYPE	PIPE DIA. (IN.)	PIPE LENGTH (FT.)	DEPTH	OUTLET TYPE	NOTE
SUB-1	PARTRIDGE LN	22+74	EXIST SUBDRAIN	RT	BEHIND CURB	6	149	48"	TO EXIST SUBDRAIN	1, 2, 5
SUB-2	PARTRIDGE LN	STM-S24	EXIST SUBDRAIN	LT	BEHIND CURB	6	142	48"	TO EXIST SUBDRAIN	1, 2, 5
SUB-3	PARTRIDGE LN	STM-S20	STM-S23	RT	BEHIND CURB	6	68	48"	TO NEW STRUCTURE	1-4
SUB-4	PARTRIDGE LN	23+77	STM-S24	LT	BEHIND CURB	6	96	48"	TO NEW STRUCTURE	1-3
SUB-5	PARTRIDGE LN	STM-S6	STM-S20	RT	BEHIND CURB	6	262	48"	TO NEW STRUCTURE	1-3, 6
SUB-6	PARTRIDGE LN	STM-S9	STM-S22	LT	BEHIND CURB	6	350	48"	TO NEW STRUCTURE	1-3
SUB-7	PARTRIDGE LN	26+72	STM-S8	RT	UNDER PAVEMENT	6	97	48"	TO NEW STRUCTURE	1-3
SUB-8	PARTRIDGE LN	STM-S10	STM-S8	RT	UNDER PAVEMENT	6	83	48"	TO NEW STRUCTURE	1-4
SUB-9	PARTRIDGE LN	28+47	STM-S9	LT	BEHIND CURB	6	79	48"	TO NEW STRUCTURE	1-3
SUB-10	PARTRIDGE LN	STM-S13	STM-S10	RT	UNDER PAVEMENT	6	141	48"	TO NEW STRUCTURE	1-4
SUB-11	PARTRIDGE LN	STM-S14	STM-S2	LT	BEHIND CURB	6	132	48"	TO NEW STRUCTURE	1-4
SUB-12	PARTRIDGE LN	STM-S18	STM-S3	RT	UNDER PAVEMENT	6	146	48"	TO NEW STRUCTURE	1-4
SUB-13	PARTRIDGE LN	STM-S19	STM-S14	LT	BEHIND CURB	6	143	48"	TO NEW STRUCTURE	1-4
SUB-14	GOLDCREST CT	1+16	STM-S21	LT	BEHIND CURB	6	37	48"	TO NEW STRUCTURE	1-3, 6
SUB-15	GOLDCREST CT	STM-S22	STM-S21	LT, RT	BEHIND CURB	6	496	48"	TO NEW STRUCTURE	1-3
SUB-16	WOODSWALLOW LN	1+28	STM-S3	RT	UNDER PAVEMENT	6	132	48"	TO NEW STRUCTURE	1-3
SUB-17	WOODSWALLOW LN	1+18	STM-S4	LT	BEHIND CURB	6	143	48"	TO NEW STRUCTURE	1-3
SUB-18	WOODSWALLOW LN	2+67	STM-S3	RT	UNDER PAVEMENT	6	11	48"	TO NEW STRUCTURE	1-3
SUB-19	WOODSWALLOW LN	2+67	STM-S4	LT	BEHIND CURB	6	11	48"	TO NEW STRUCTURE	1-3
SUB-20	SUNBIRD CT	1+32	STM-S11	LT	UNDER PAVEMENT	6	15	48"	TO NEW STRUCTURE	1-3, 6
SUB-21	SUNBIRD CT	STM-S12	STM-S11	LT, RT	BEHIND CURB	6	679	48"	TO NEW STRUCTURE	1-3

### NOTES:

- SUBDRAINS MUST BE CONSTRUCTED IN POROUS BACKFILL PER IOWA DOT STANDARD ROAD PLAN DR-303.
- SUBDRAIN TILE SHALL BE THE NOTED DIAMETER AND SHALL COMPLY WITH AASHTO M 252, TYPE S, CORRUGATED EXTERIOR AND SMOOTH INTERIOR PIPE.
- THIS LINE SHALL OUTLET INTO STORM SEWER STRUCTURE WITH A REMOVABLE GRATE TYPE RODENT GUARD (4040.233). CONNECTION TO STRUCTURE SHALL BE CONSTRUCTED PER CURRENT CITY OF WATERLOO STANDARD SPECIFICATION FOR CONNECTIONS TO STORM SEWER INTAKES.
- THE UPSTREAM END OF THIS LINE SHALL TIE INTO STROM SEWER STRUCTURE (FOR CLEANING PURPOSES). THE UPSTREAM END OF THIS PIPE SHALL BE PLUGGED WATER-TIGHT USING A REMOVABLE ENDCAP SUPPLIED BY THE ENDCAP MANUFACTURER.
- THIS LINE SHALL OUTLET TO THE EXISTING 6" SUBDRAIN IN THE AUDUBON HEIGHTS 6TH ADDITION.
- THIS LINE SHALL OUTLET TO A NEW STORM SEWER PIPE.

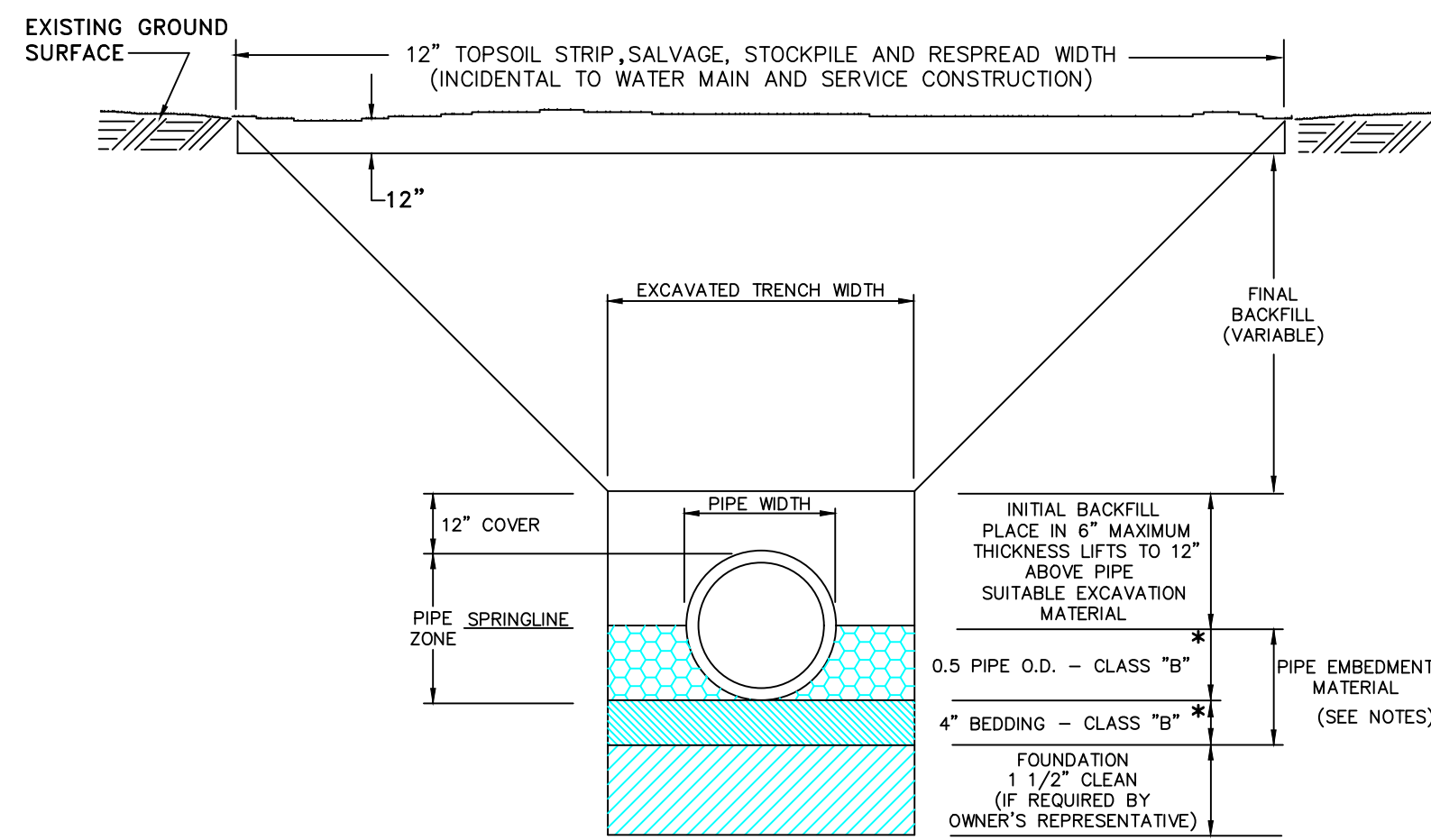


Typical Detail- Sump Pump Subdrain Outlet

Scale: None

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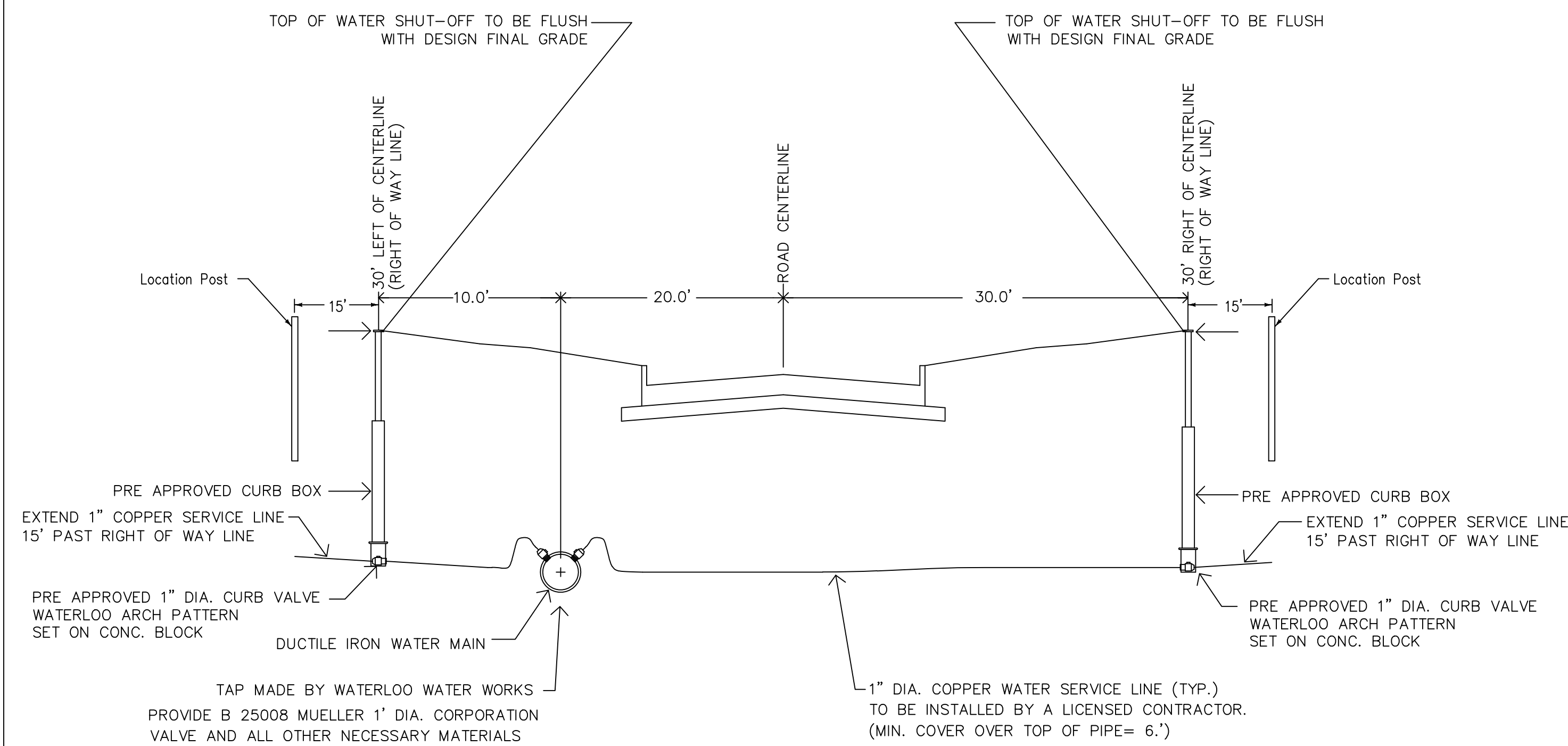
\* Install in accordance with ASTM C12-86

**NOTES**

- EMBEDMENT MATERIAL AND INITIAL BACKFILL TO BE SUITABLE EXCAVATION MATERIAL PLACED IN 6" MAXIMUM LIFTS COMPACTED TO A MINIMUM DENSITY OF 95% OF MAXIMUM CONSOLIDATION IN ACCORDANCE TO ASTM D698 OR AASHTO T99. IF FOUNDATION MATERIAL IS REQUIRED BY THE ENGINEER DUE TO UNSTABLE MATERIALS, IT SHALL BE MEASURED AND PAID FOR SEPARATELY IN ACCORDANCE WITH THE APPLICABLE UNIT PRICE BID. ALL OTHER EMBEDMENT MATERIAL SHALL BE INCIDENTAL TO APPLICABLE SEWER CONSTRUCTION ITEMS.
- FINAL BACKFILL SHALL CONSIST OF SUITABLE TRENCH EXCAVATION MATERIALS AS APPROVED BY THE ENGINEER PLACED IN MAXIMUM 8" LIFTS AND COMPACTED TO A MINIMUM OF 90% (EXCEPT FOR WITHIN ROAD RIGHT-OF-WAYS AND PARKING AND DRIVEWAY AREAS WHICH SHALL BE COMPACTED TO 95% AT -2% TO +4% OF OPTIMUM MOISTURE) OF STANDARD PROCTOR DENSITY AS DEFINED ABOVE FROM 12" ABOVE TOP OF THE PIPE TO THE BOTTOM OF THE TOPSOIL REPLACEMENT ZONE (OR BOTTOM OF PAVEMENT IN AREAS UNDER EXISTING PAVEMENTS).

### Typical Section- Bedding and Backfill for Water Main and Services

Scale: None



TYPICAL CROSS SECTION:  
1" DIA. WATER SERVICE CONSTRUCTION  
SCALE: NONE

### LIST OF WATER SERVICES

LOT NO.	STREET	LOCATION	SERVICE MATERIAL	SERVICE DIA.	SERVICE LENGTH	MINIMUM SERVICE BURY DEPTH	NOTES
1	PARTRIDGE	21+49 , 30'	RT	COPPER	1"	6'	1-4
2	PARTRIDGE	22+30 , 30'	RT	COPPER	1"	6'	1-4
3	PARTRIDGE	23+09 , 30'	RT	COPPER	1"	6'	1-4
4	PARTRIDGE	23+87 , 30'	RT	COPPER	1"	6'	1-4
5	PARTRIDGE	24+68 , 30'	RT	COPPER	1"	6'	1-4
6	PARTRIDGE	25+81 , 30'	RT	COPPER	1"	6'	1-4
7	PARTRIDGE	27+36 , 30'	RT	COPPER	1"	6'	1-4
8	PARTRIDGE	27+99 , 30'	RT	COPPER	1"	6'	1-4
9	PARTRIDGE	28+77 , 30'	RT	COPPER	1"	6'	1-4
10	PARTRIDGE	29+54 , 30'	RT	COPPER	1"	6'	1-4
11	PARTRIDGE	30+30 , 30'	RT	COPPER	1"	6'	1-4
12	PARTRIDGE	31+08 , 30'	RT	COPPER	1"	6'	1-4
13	PARTRIDGE	1+62 , 30'	RT	COPPER	1"	23'	1-4
14	SUNBIRD	2+50 , 30'	RT	COPPER	1"	23'	1-4
15	SUNBIRD	3+31 , 30'	RT	COPPER	1"	23'	1-4
16	SUNBIRD	3+97 , 34'	RT	COPPER	1"	27'	1-4
17	SUNBIRD	4+56 , 7'	LT	COPPER	1"	25'	1-4
18	SUNBIRD	4+55 , 54'	LT	COPPER	1"	59'	1-4
19	SUNBIRD	4+15 , 91'	LT	COPPER	1"	126'	1-4
20	SUNBIRD	3+39 , 59'	LT	COPPER	1"	105'	1-4
21	PARTRIDGE	27+37 , 30'	LT	COPPER	1"	23'	1-4
22	PARTRIDGE	26+88 , 30'	LT	COPPER	1"	23'	1-4
23	GOLDCREST	1+73 , 30'	RT	COPPER	1"	23'	1-4
24	GOLDCREST	2+63 , 30'	RT	COPPER	1"	23'	1-4
25	GOLDCREST	3+33 , 41'	RT	COPPER	1"	35'	1-4
26	GOLDCREST	3+71 , 6'	LT	COPPER	1"	63'	1-4
27	GOLDCREST	3+57 , 59'	LT	COPPER	1"	102'	1-4
28	GOLDCREST	2+92 , 79'	LT	COPPER	1"	117'	1-4
29	PARTRIDGE	23+06 , 30'	LT	COPPER	1"	23'	1-4
30	PARTRIDGE	22+13 , 30'	LT	COPPER	1"	23'	1-4
31	EXIST. SERVICE -- SEE AUDUBON HEIGHTS 6TH ADDITION PLANS			1"	--	--	5

**NOTES:**

- WATER SERVICE CONSTRUCTION AND MATERIALS SHALL COMPLY WITH WATERLOO WATER WORKS SPECIFICATIONS.
- WATER SERVICE CURB BOXES ARE TO BE LOCATED ON THE OUTSIDE OF THE 10' UTILITY EASEMENT ADJOINING THE STREET R/W LINES.
- ALL WATER SYSTEM CONSTRUCTION TO HAVE A MINIMUM 6' OF COVER OVER TOP OF PIPE.
- ALL CONSTRUCTION SHALL COMPLY WITH SECTION 29 OF TEN STATES STANDARDS REGARDING SEWER/WATER MAIN SEPARATION.
- APPROX. STA 0+75, 45' LT, COPPER

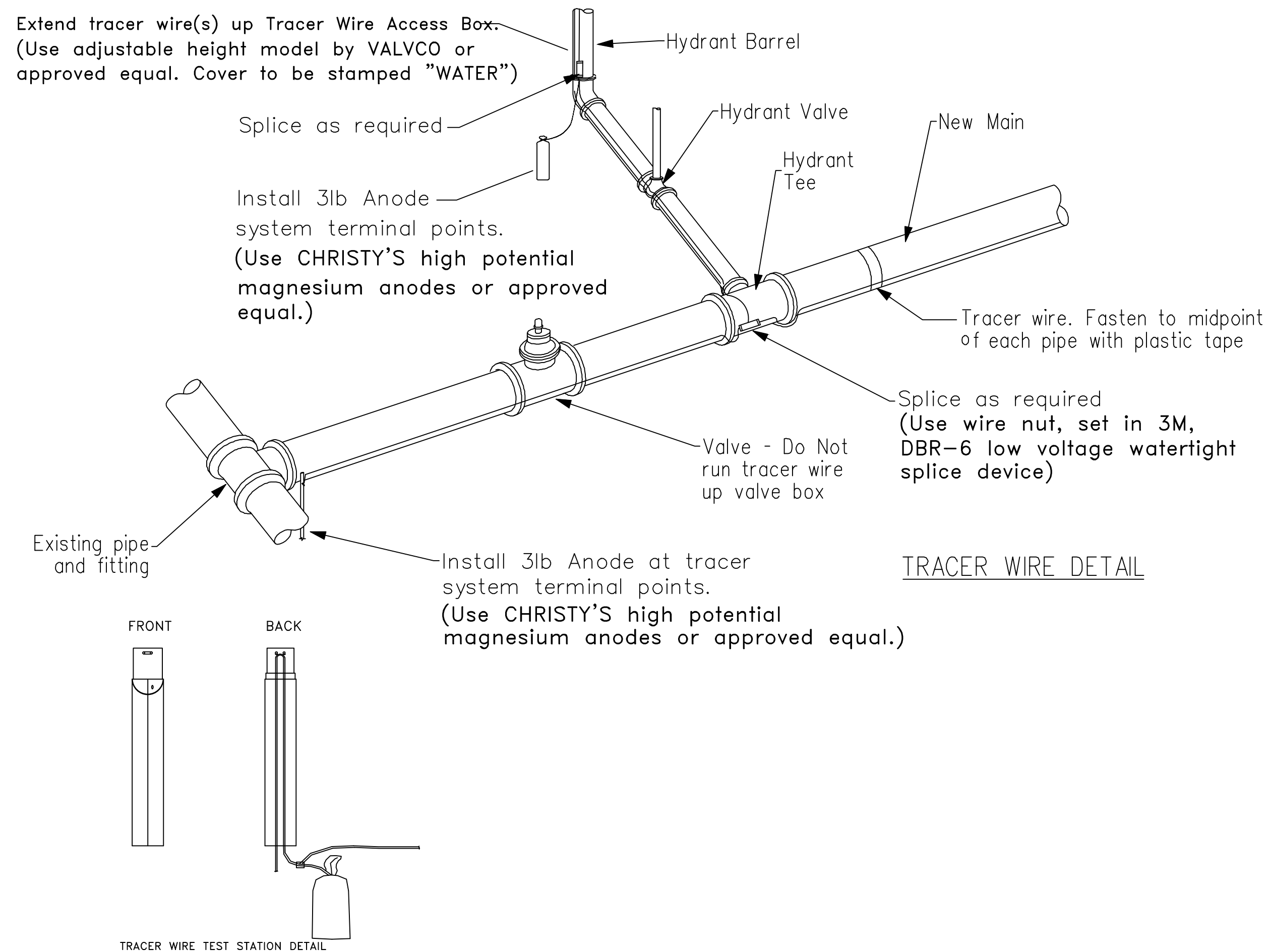
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**Construction Plans  
 Audubon Heights 7th Addition  
 Waterloo, Iowa  
 Water Services**

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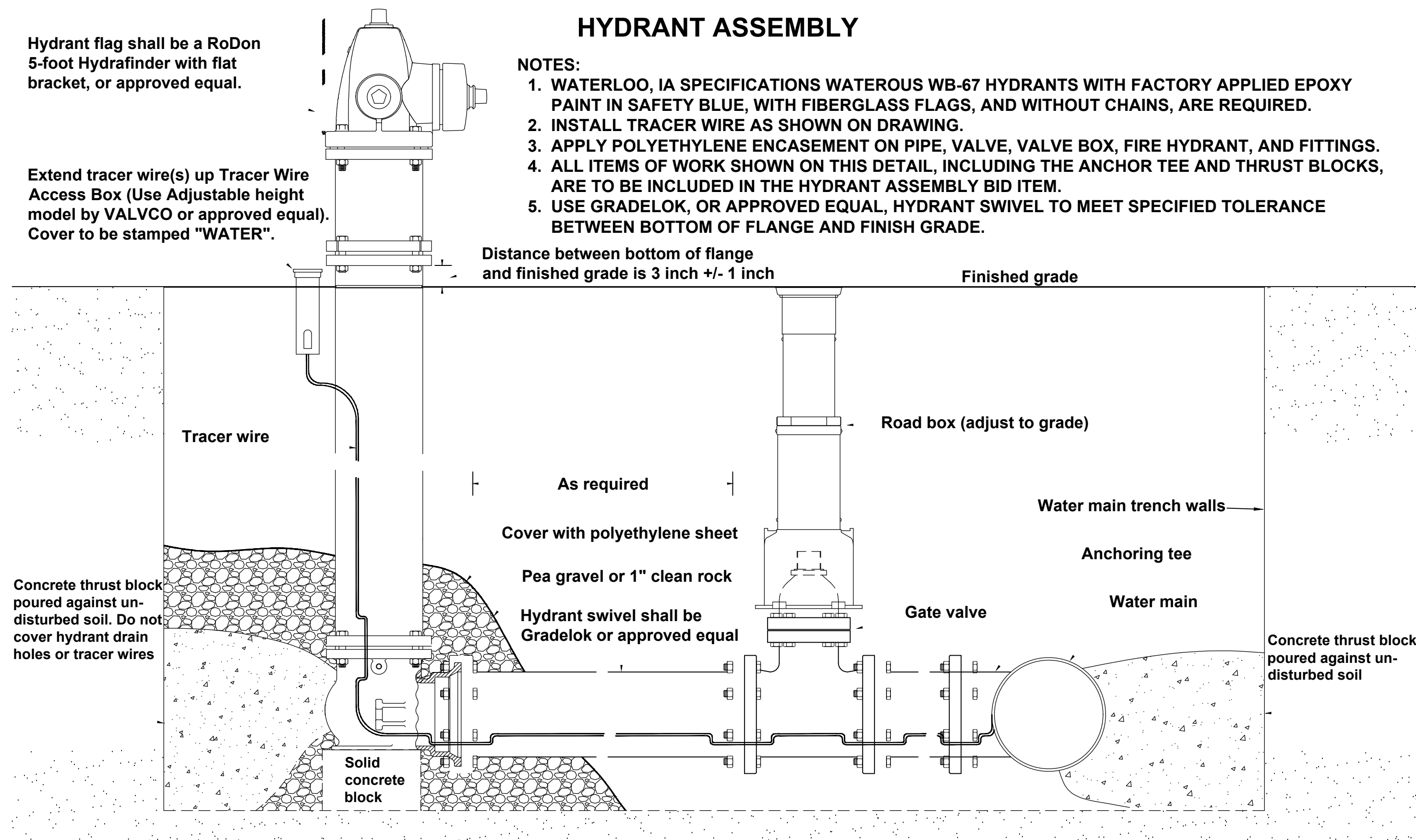
TRACER WIRE DETAIL

**TRACER WIRE SYSTEM GENERAL NOTES**

A SINGLE STRAND TRACER WIRE SYSTEM SHALL BE INSTALLED WITH ALL WATER MAIN ON THIS PROJECT. THE WIRE SHALL BE INSULATED, COPPER, SINGLE STRAND, AWG 12 (MINIMUM) GAGE, BLUE COLORED TW, THW, THWM OR THWN, OR APPROVED EQUAL. THIS TRACER WIRE SHALL BE ATTACHED TO THE SIDE OF THE WATER MAIN AT ITS MIDPOINT, OUTSIDE OF THE PIPE'S POLY WRAP, WITH PLASTIC TAPE. THE TRACER WIRE SHALL FOLLOW ALL NEW WATER MAIN AND APPURTENANCES AND SHALL BE LOOPED TO THE SURFACE AT ALL NEW AND RELOCATED FIRE HYDRANTS. SAID LOOPS SHALL BE EXTENDED TO THE SURFACE INSIDE AN ADJUSTABLE HEIGHT VALVCO TRACER WIRE ACCESS BOX OR APPROVED, SET VERTICALLY AND FLUSH WITH THE GROUND AT THE HYDRANT BASE AT ALL NEW AND RELOCATED FIRE HYDRANTS. CONNECT TRACER WIRE TO TERMINALS, ALLOWING 12" OF ADDITIONAL WIRE IN THE BARREL OF THE ACCESS BOX.

THIS WILL REQUIRE MULTIPLE LOOPS TO THE SURFACE WHERE NEW WATER MAINS CROSS OR CONNECT SUCH AS AT INTERSECTIONS. THE TRACER WIRE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF SPLICES. SPLICES SHALL BE MADE WITH WATER-TIGHT DEVICES SPECIFICALLY MADE FOR THIS PURPOSE THAT ARE PRE-APPROVED BY THE ENGINEER. THE CONTRACTOR IS TO EXERCISE CARE TO PRESERVE THE INTEGRITY OF THE TRACER SYSTEM AND SHALL CONDUCT TESTS AFTER FINAL BACKFILL TO TEST AND INSURE THE CONDUCTIVITY OF THE SYSTEM.

**TRACER WIRE DETAILS**



**HYDRANT ASSEMBLY DETAIL**

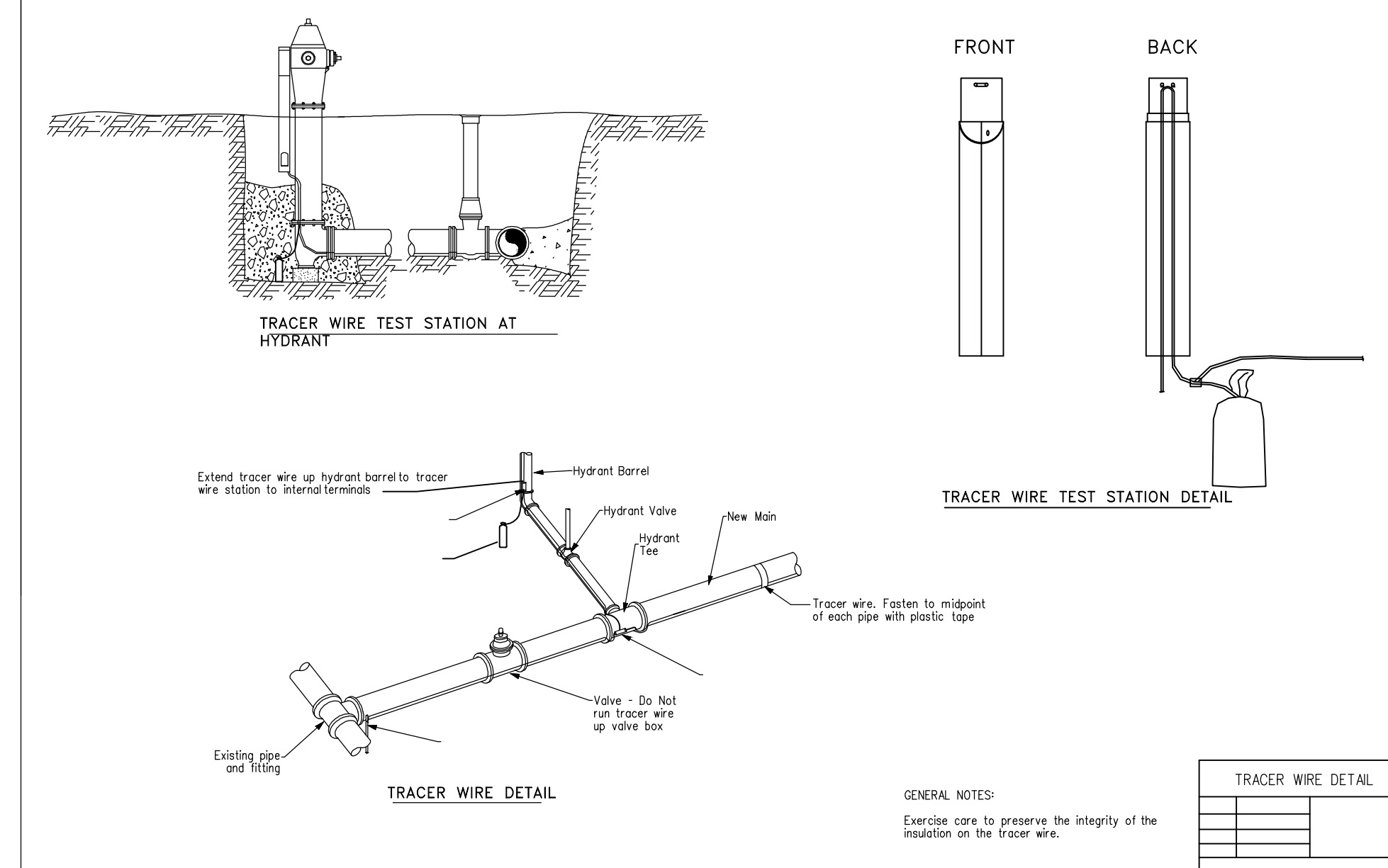
**HYDRANT ASSEMBLY**

**NOTES:**

1. WATERLOO, IA SPECIFICATIONS WATERLOUS WB-67 HYDRANTS WITH FACTORY APPLIED EPOXY PAINT IN SAFETY BLUE, WITH FIBERGLASS FLAGS, AND WITHOUT CHAINS, ARE REQUIRED.
2. INSTALL TRACER WIRE AS SHOWN ON DRAWING.
3. APPLY POLYETHYLENE ENCASMENT ON PIPE, VALVE, VALVE BOX, FIRE HYDRANT, AND FITTINGS.
4. ALL ITEMS OF WORK SHOWN ON THIS DETAIL, INCLUDING THE ANCHOR TEE AND THRUST BLOCKS, ARE TO BE INCLUDED IN THE HYDRANT ASSEMBLY BID ITEM.
5. USE GRADELOK, OR APPROVED EQUAL, HYDRANT SWIVEL TO MEET SPECIFIED TOLERANCE BETWEEN BOTTOM OF FLANGE AND FINISH GRADE.

Hydrant flag shall be a RoDon 5-foot Hydrfinder with flat bracket, or approved equal.

Extend tracer wire(s) up Tracer Wire Access Box (Use Adjustable height model by VALVCO or approved equal). Cover to be stamped "WATER".



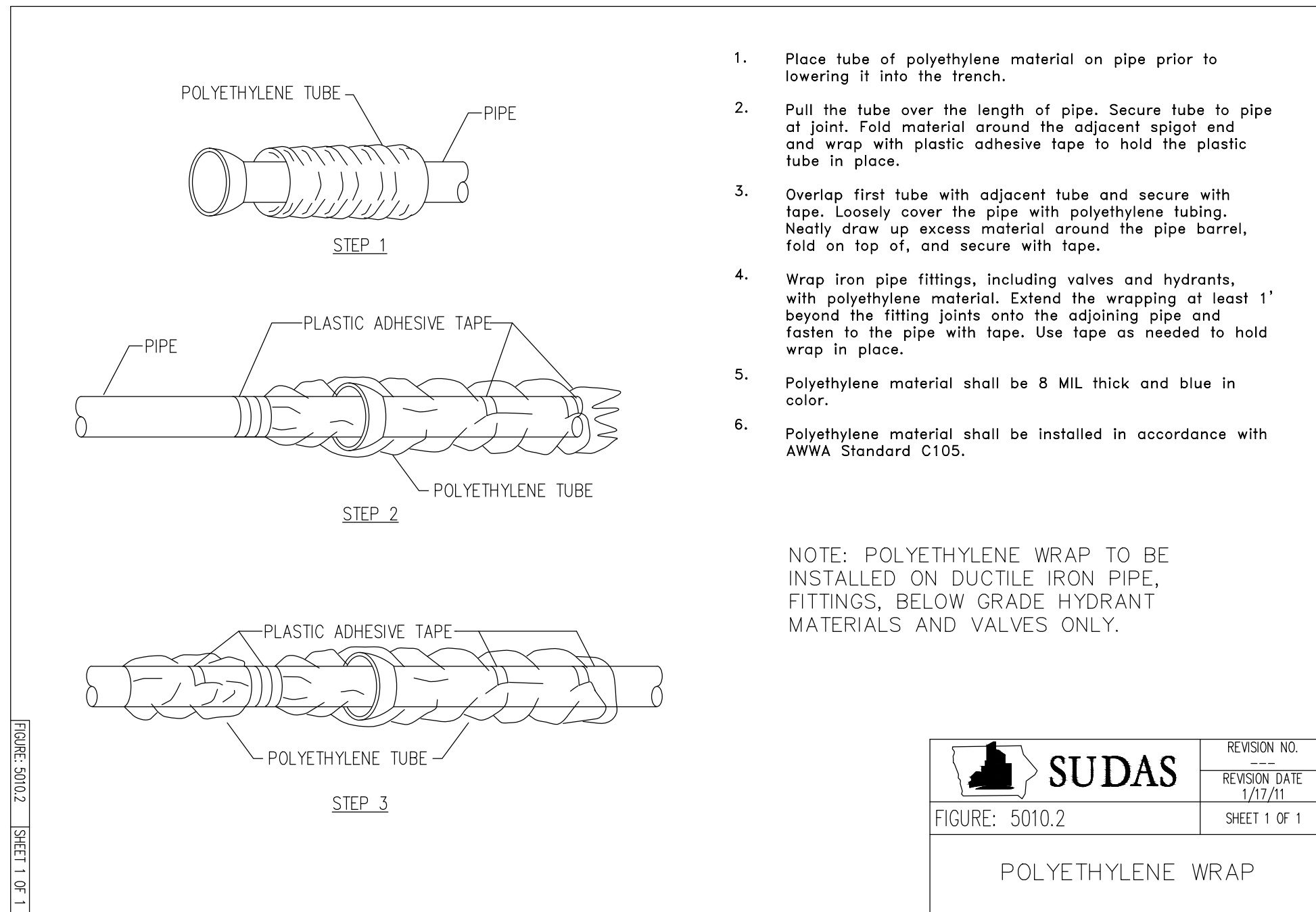
TRACER WIRE DETAIL

TRACER WIRE DETAIL

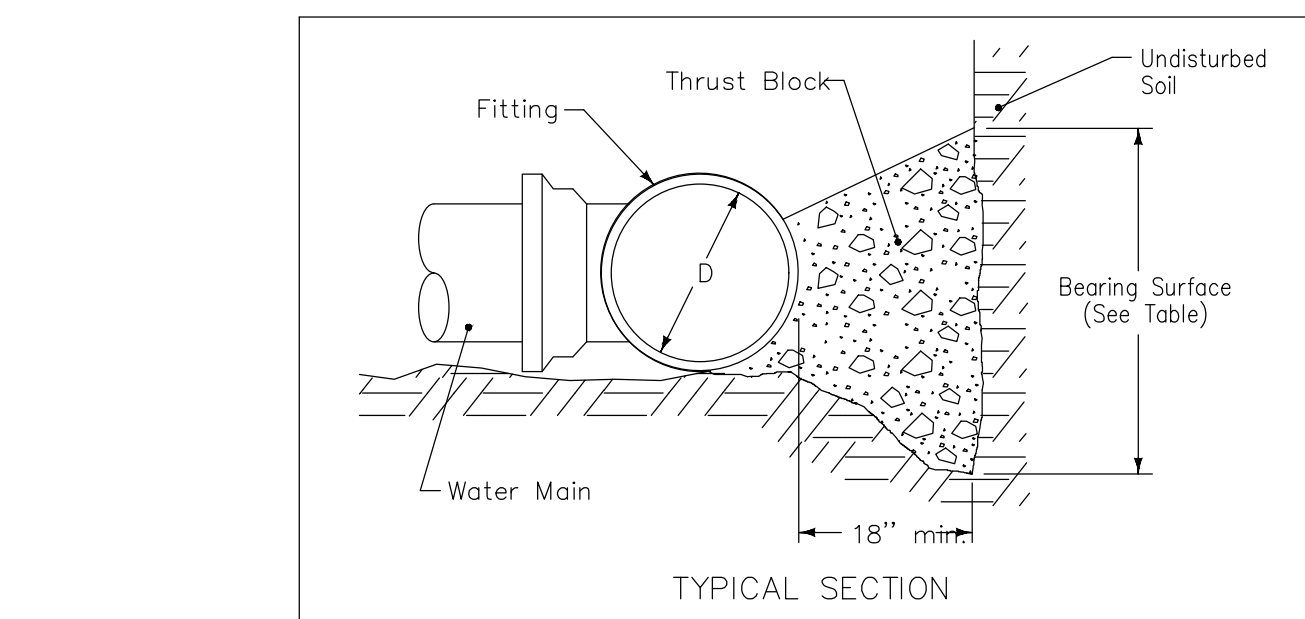
GENERAL NOTES:  
Exercise care to preserve the integrity of the insulation on the tracer wire.

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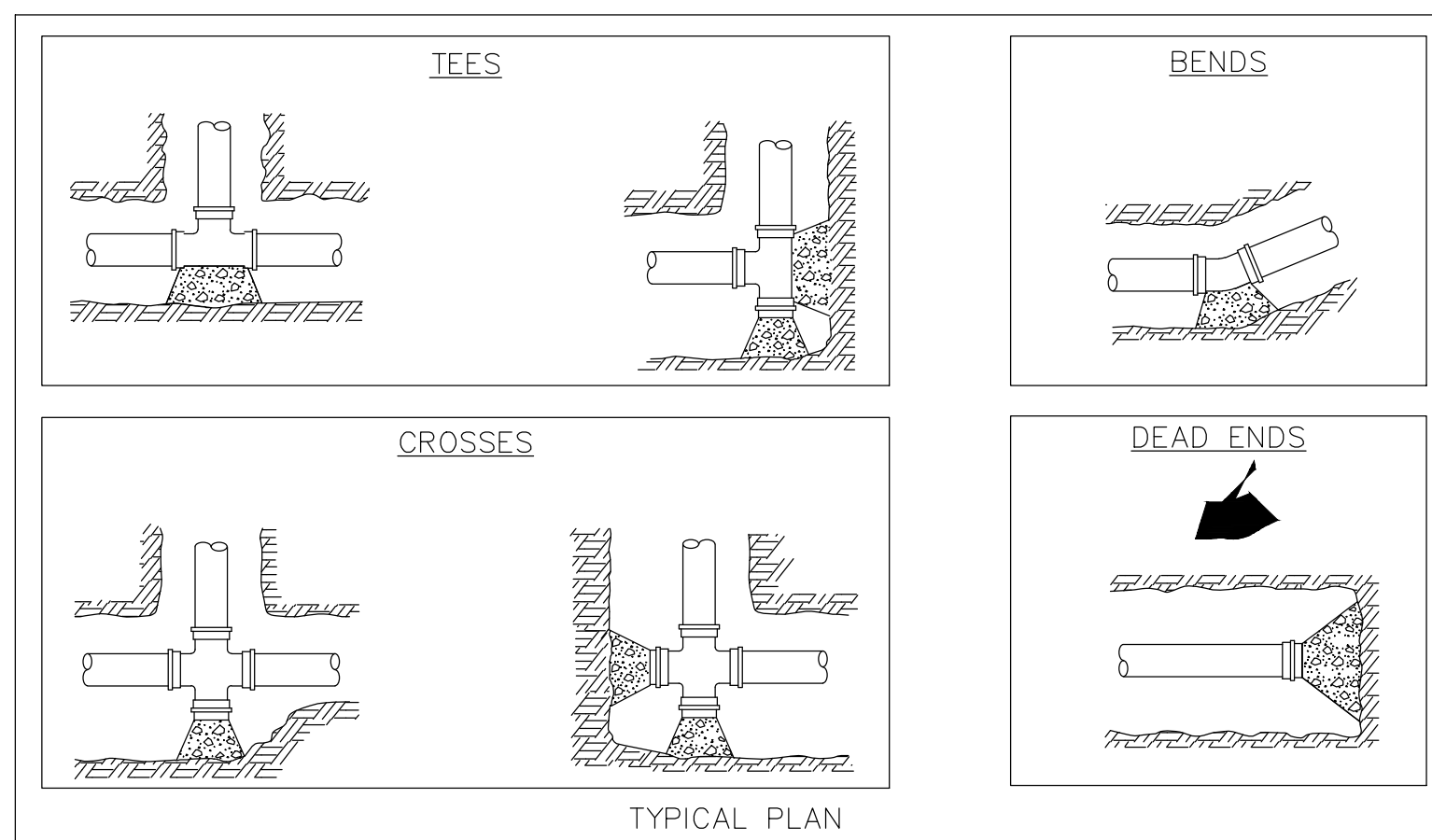
## POLYETHYLENE WRAP IS REQUIRED ON ALL DUCTILE IRON PIPE, VALVES AND FITTINGS.



Extend thrust blocks to undisturbed soil. Excavation into trench wall may be necessary.

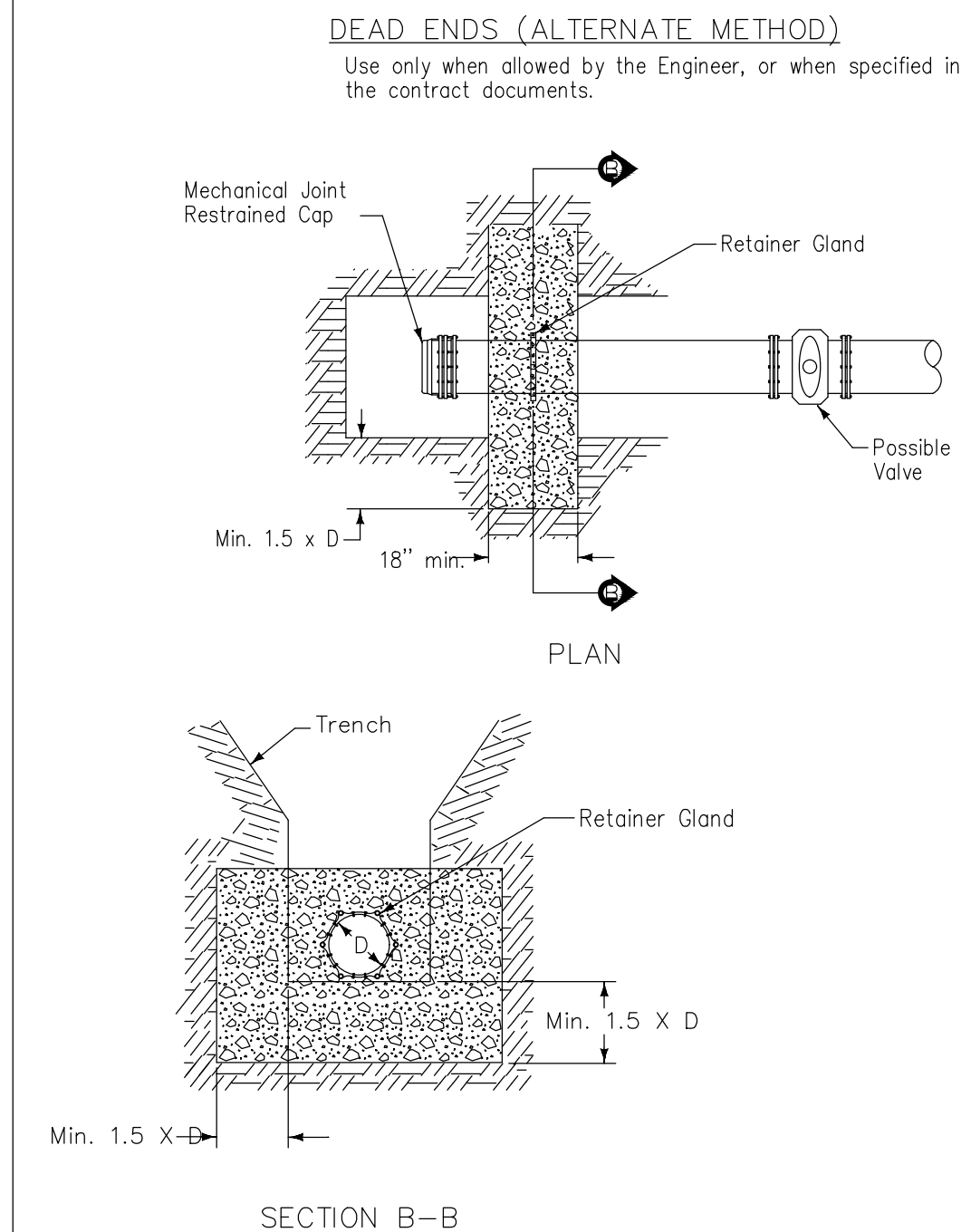
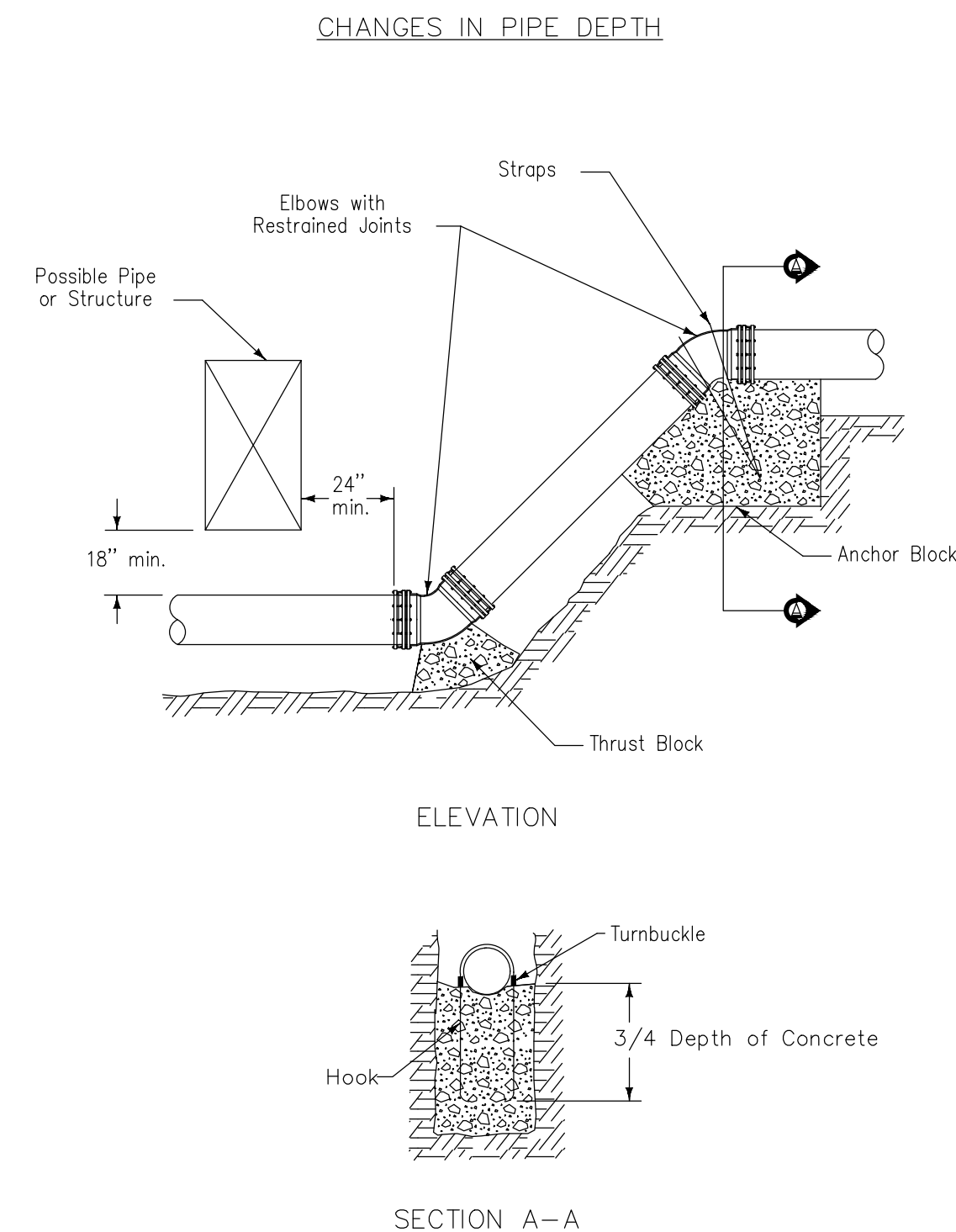
Form vertical surfaces of poured concrete thrust blocks except on bearing surface.

Encase all fittings in polyethylene wrap. Do not allow concrete to directly contact joints or fitting bolts.



Diameter of Pipe, D (inches)	MINIMUM BEARING SURFACE (sf)				
	Bends				Tees and Dead Ends
	11.25°	22.5°	45°	90°	
4	1	1	2	4	3
6	1	2	4	8	6
8	2	4	7	14	10
10	3	6	11	21	15
12	4	8	16	29	21
14	5	11	21	39	28
16	7	14	27	50	36
18	9	17	34	63	45
20	11	21	42	78	55
24	15	31	60	111	78
30	24	47	92	171	120
36	34	67	132	244	173

Minimum surface area based on water pressure of 150 psi and allowable soil pressure of 1,000 psf.

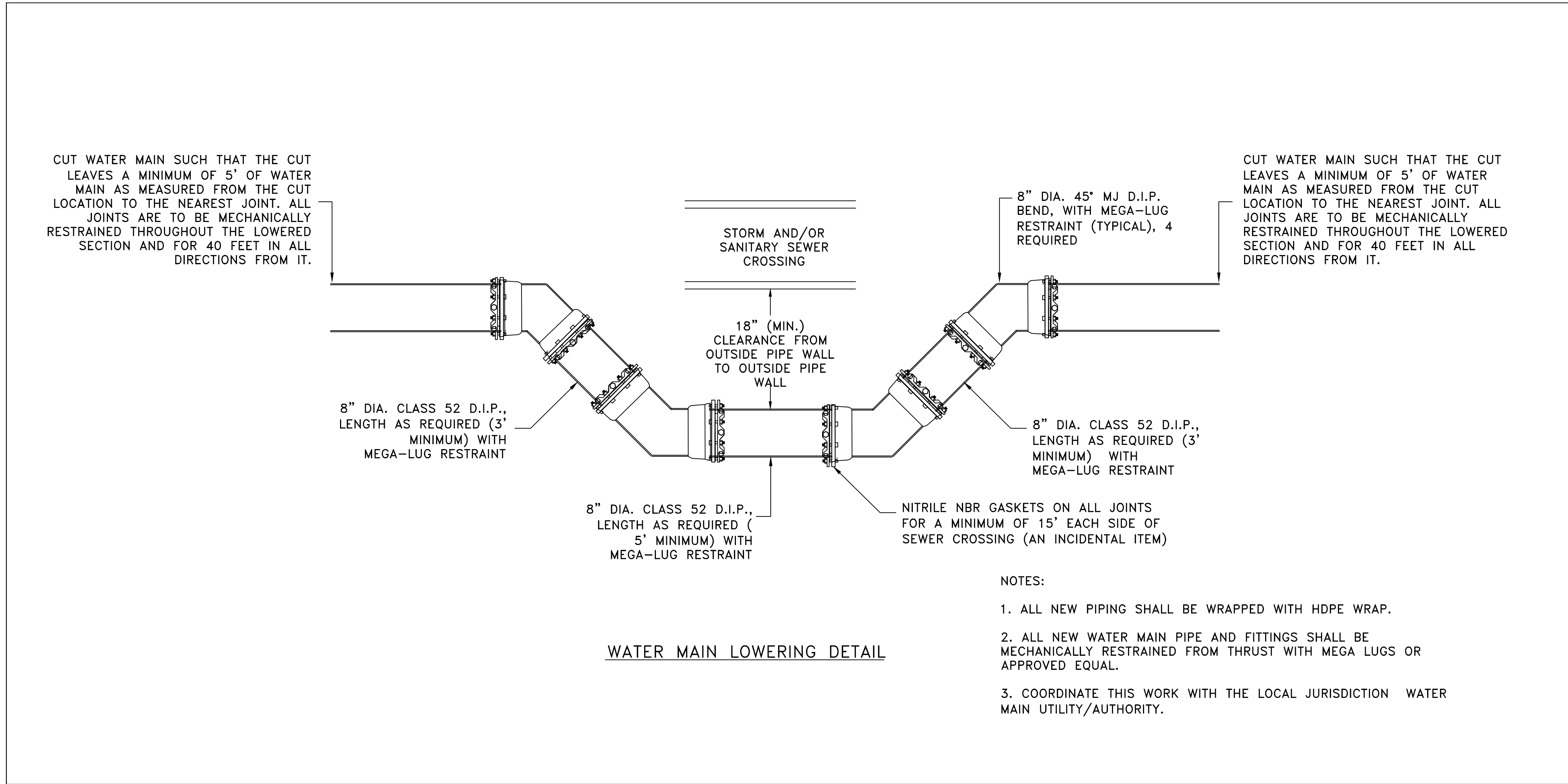
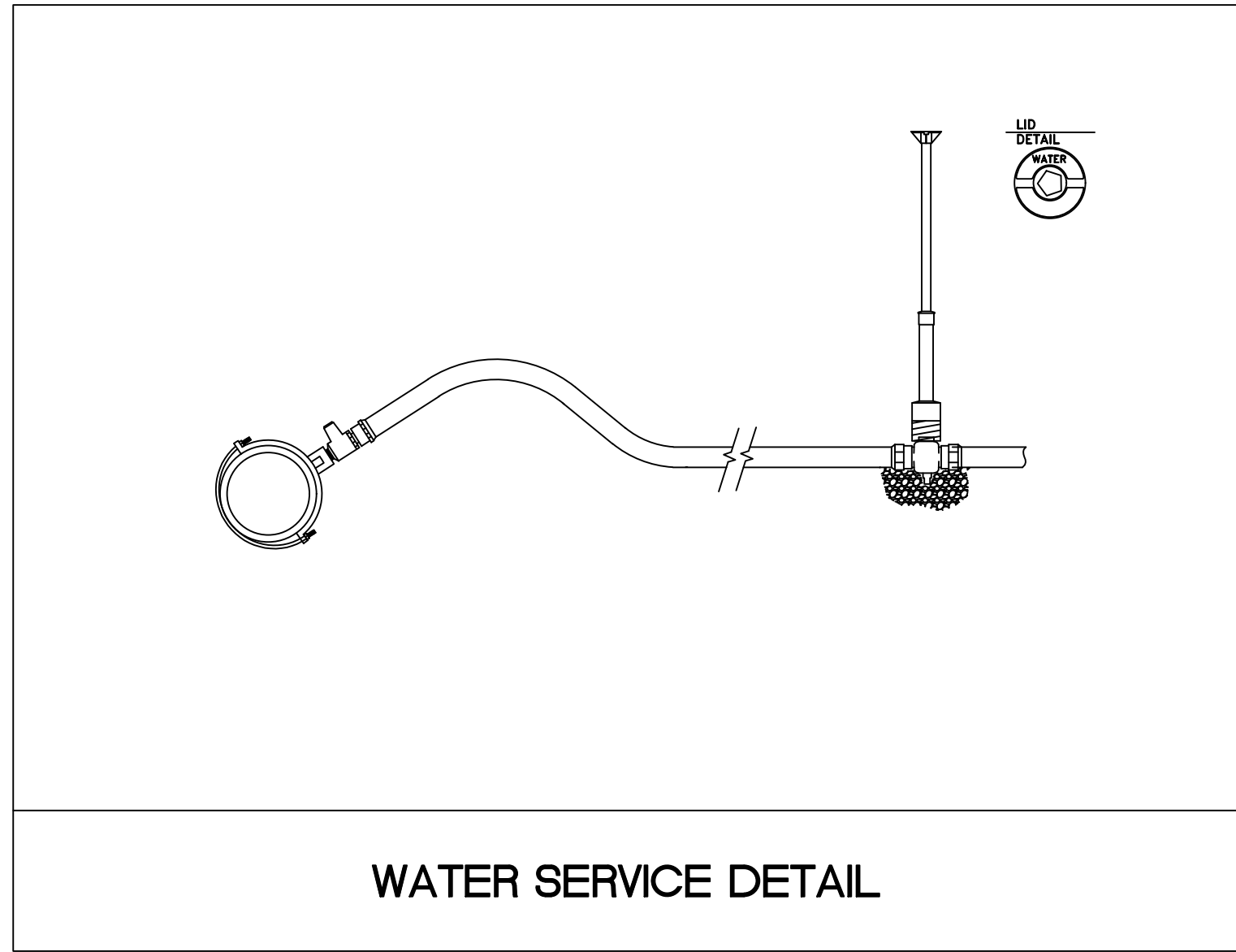


## POURED CONCRETE THRUST BLOCK DETAILS

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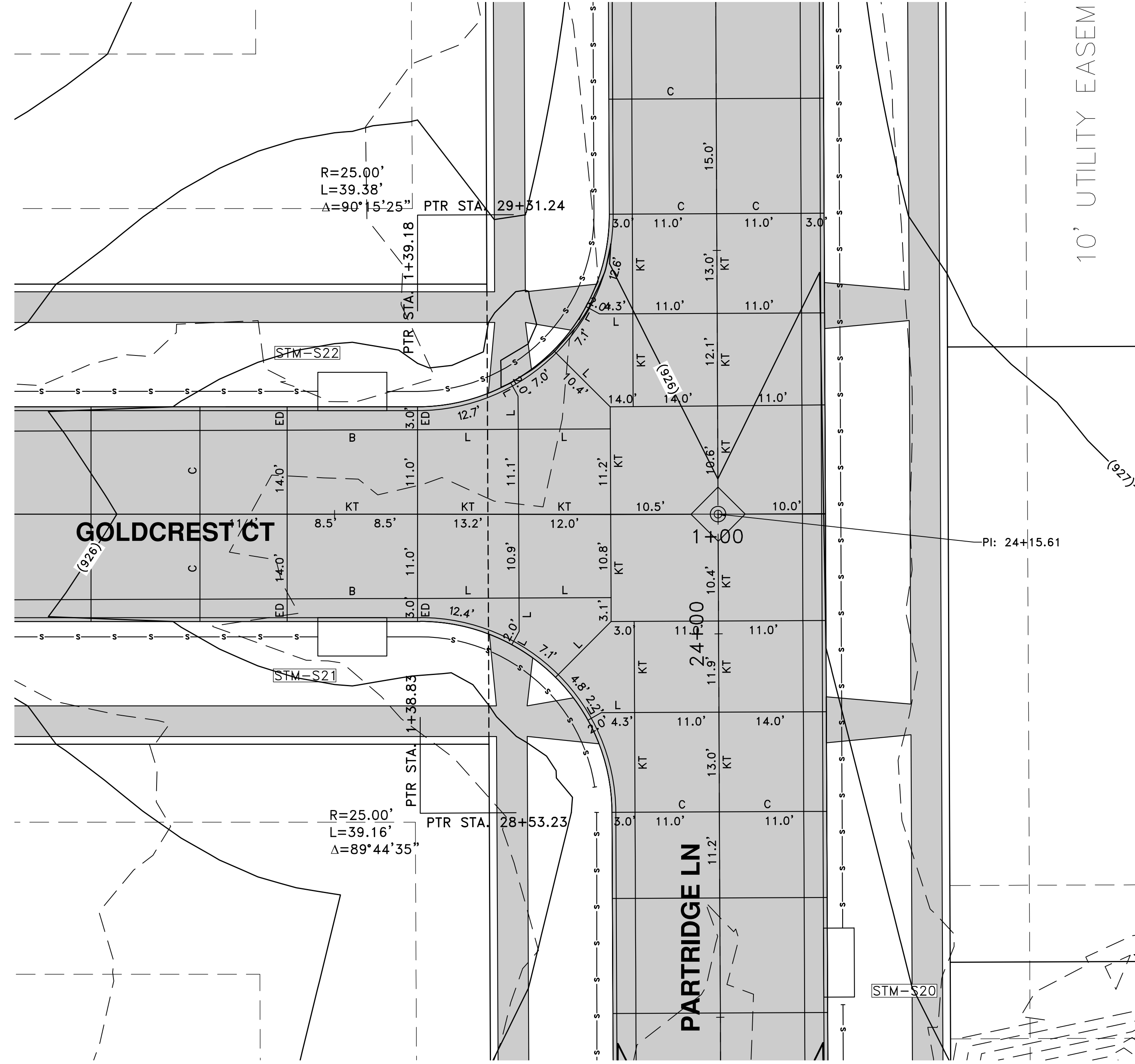
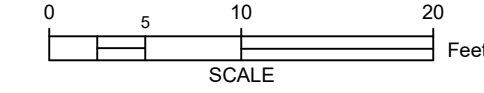
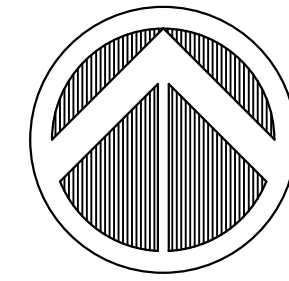
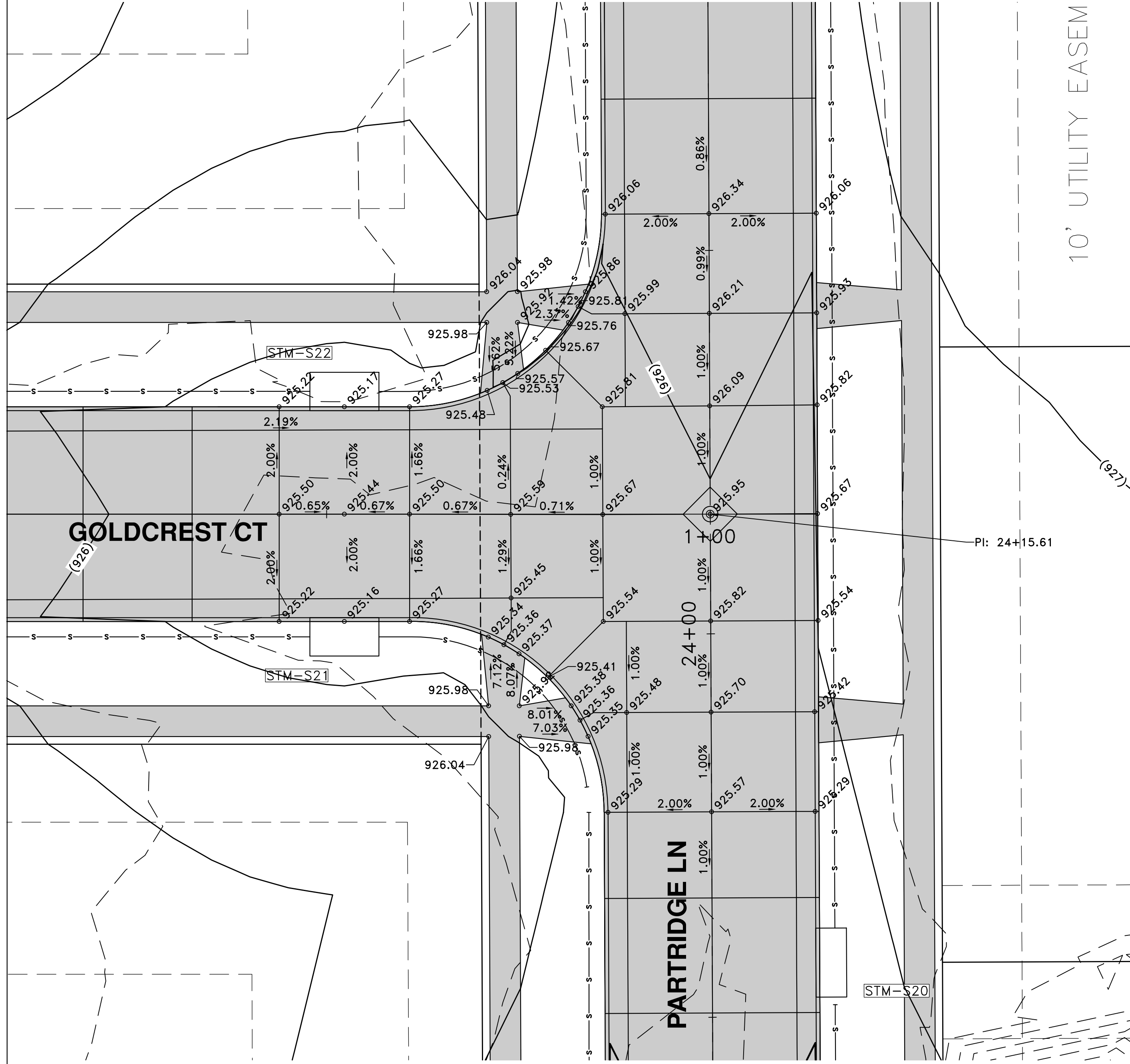
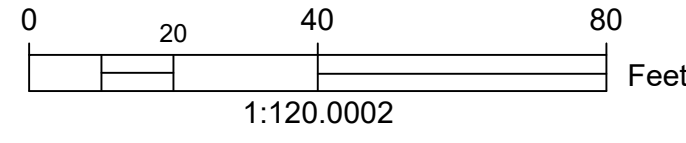
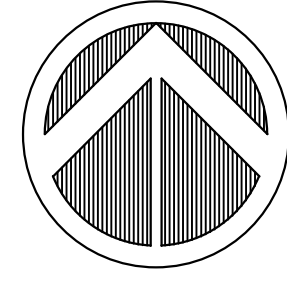




- NOTES:
1. ALL NEW PIPING SHALL BE WRAPPED WITH HDPE WRAP.
  2. ALL NEW WATER MAIN PIPE AND FITTINGS SHALL BE MECHANICALLY RESTRAINED FROM THRUST WITH MEGA LUGS OR APPROVED EQUAL.
  3. COORDINATE THIS WORK WITH THE LOCAL JURISDICTION WATER MAIN UTILITY/AUTHORITY.

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Construction Plans  
Audubon Heights 7th Addition  
Waterloo, Iowa

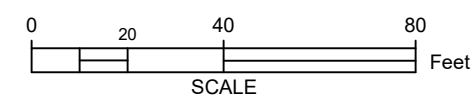
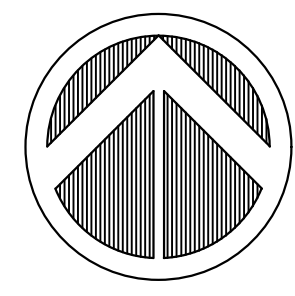
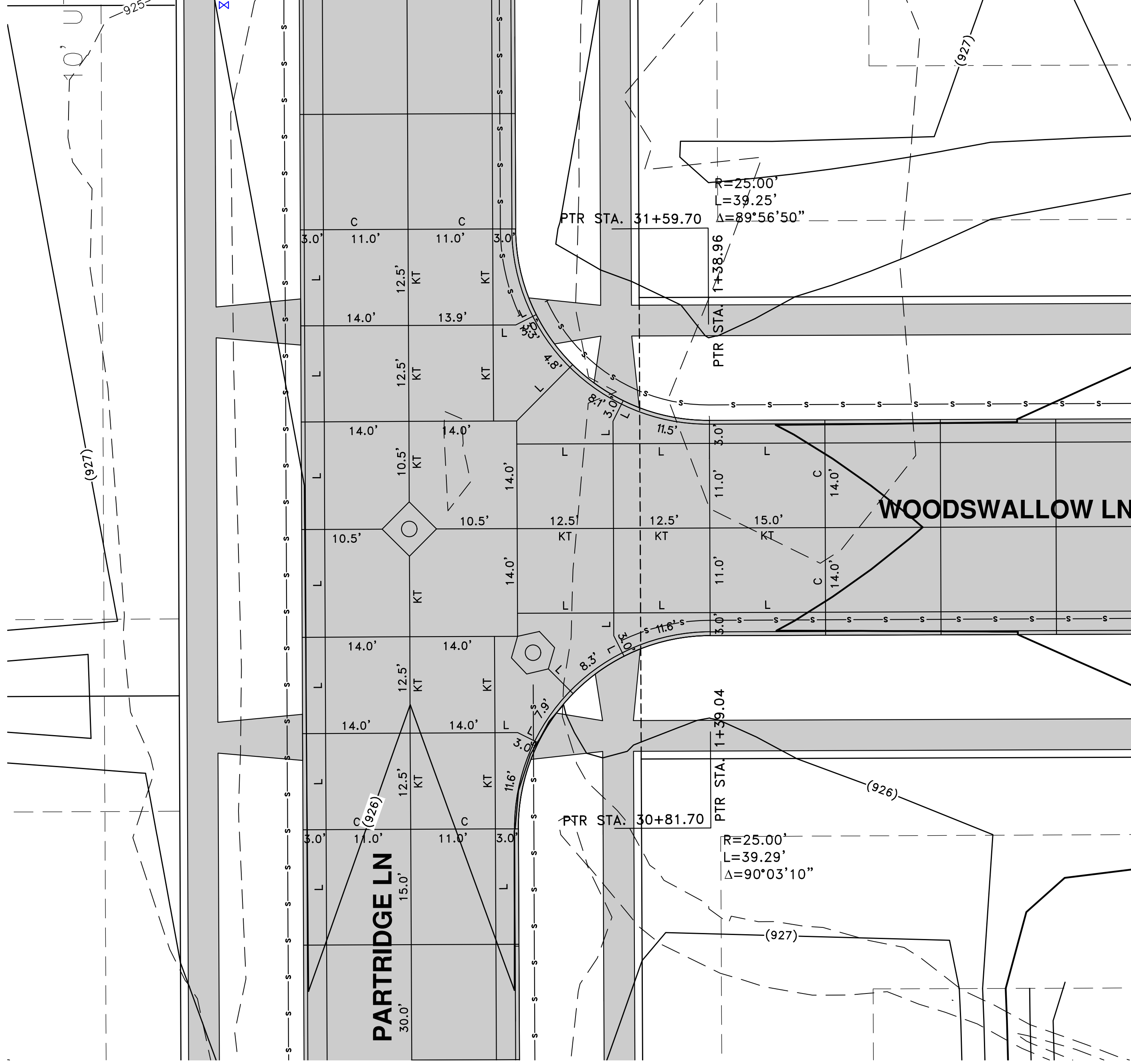
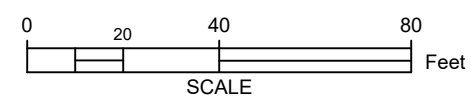
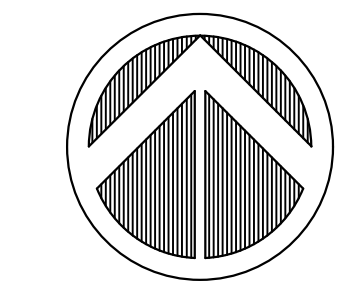
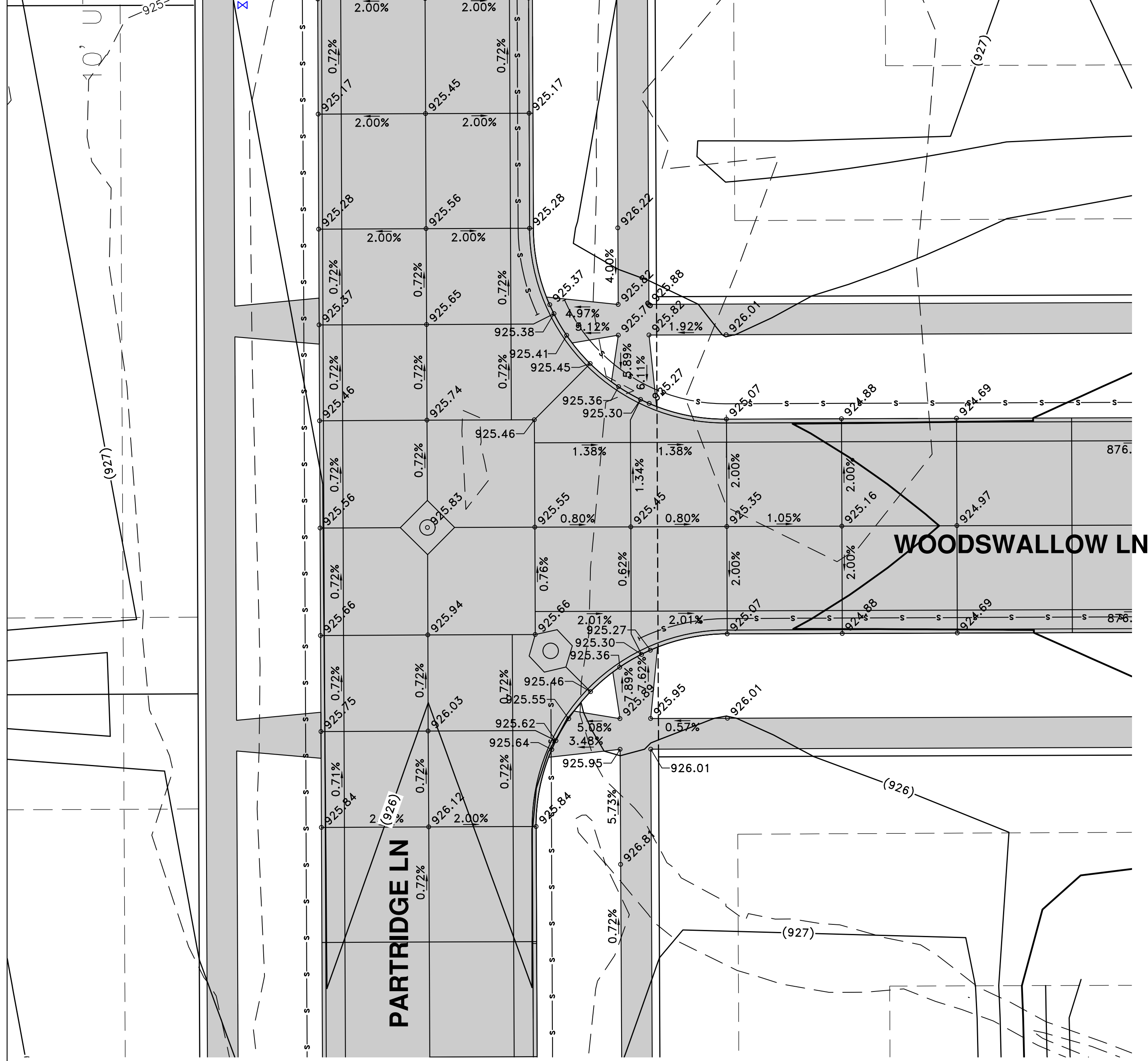
INTERSECTION DETAILS

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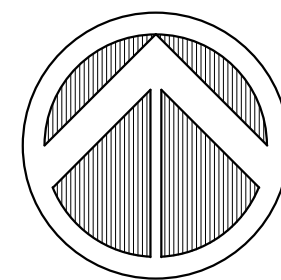


Construction Plans  
 Audubon Heights 7th Addition  
 Waterloo, Iowa

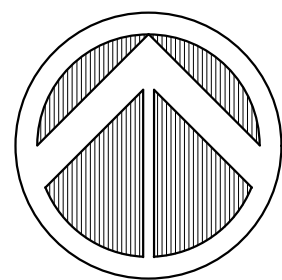
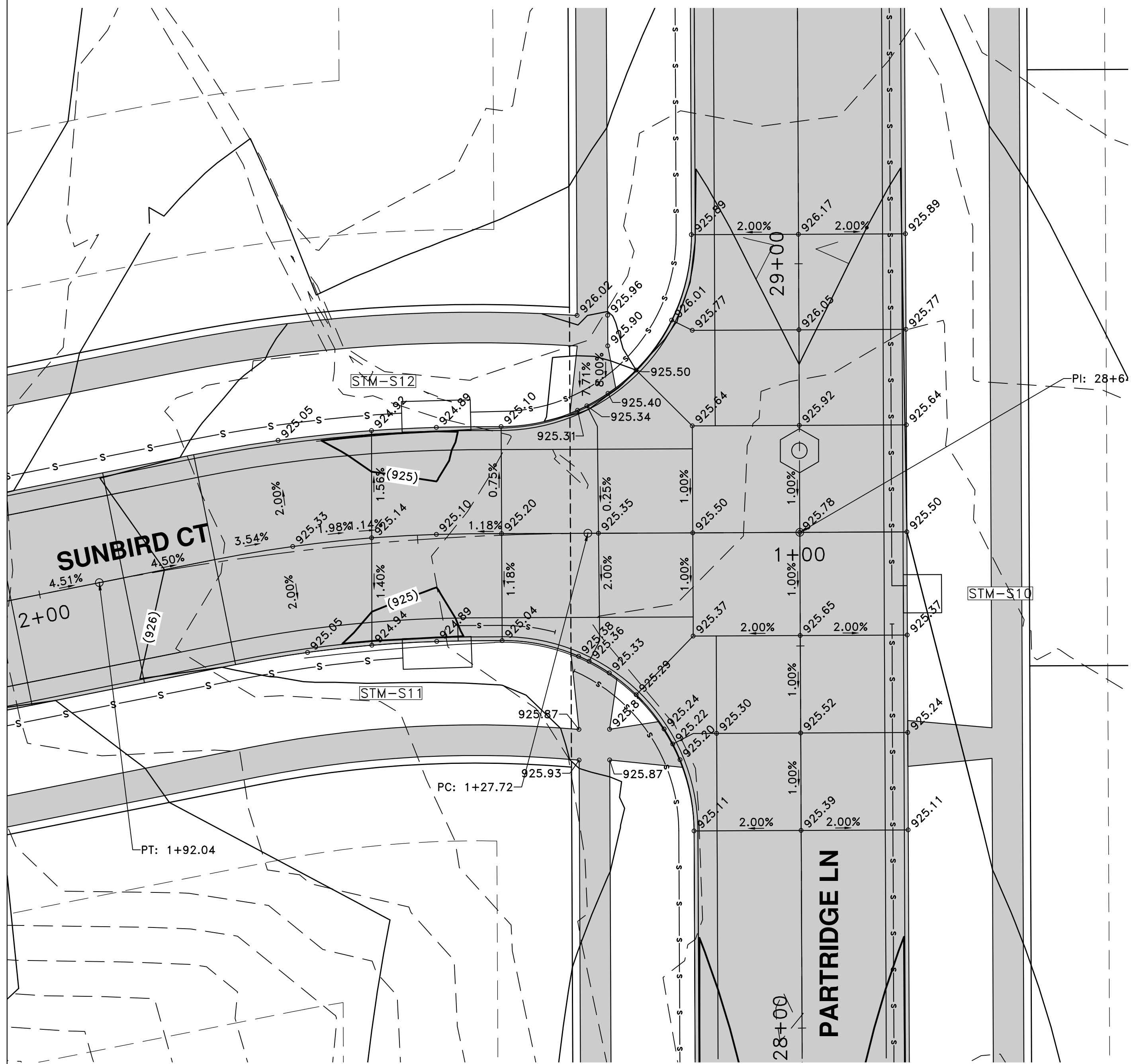
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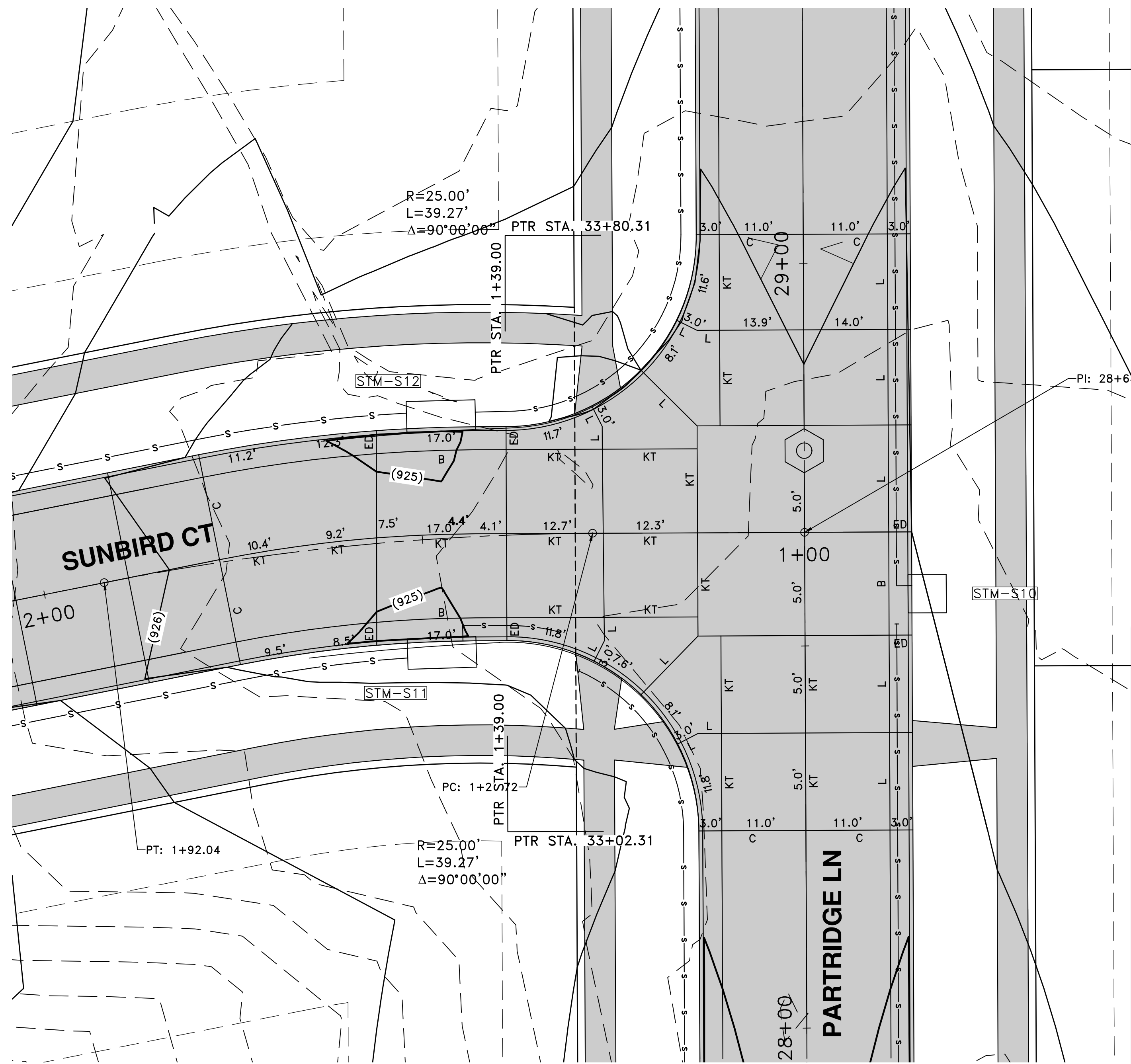
**Wayne Claassen Engineering and Surveying, Inc.**  
 2705 University Avenue • P.O. Box 898 • Waterloo, Iowa 50701  
 Phone: (319) 235-6294 • Fax: (319) 235-0028  
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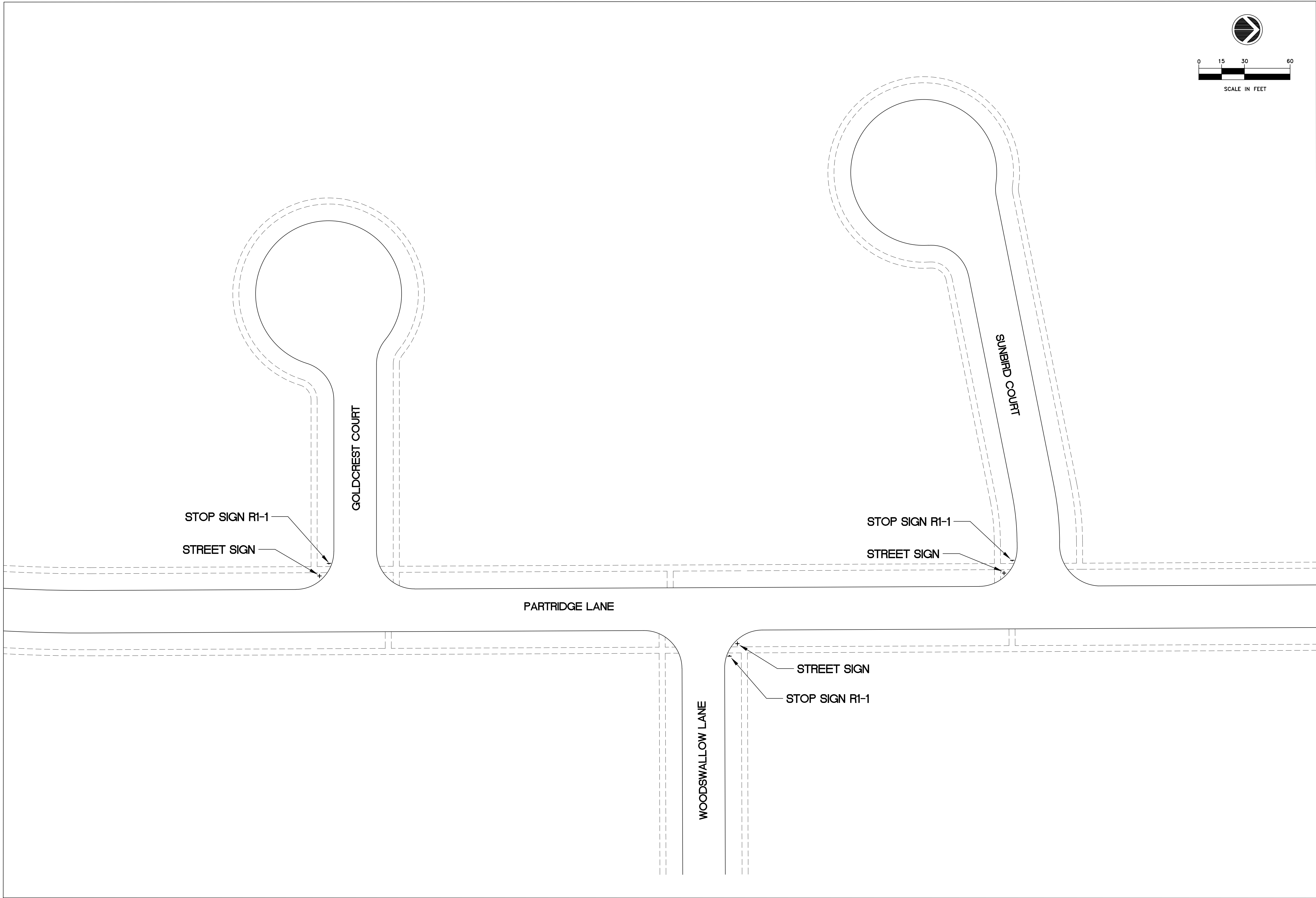
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**Construction Plans for  
Audubon Heights 7th Addition  
Waterloo, Iowa  
Signage Plan**

sheet  
J.1

BK. _____	PG. _____	DR. _____	DATE _____
FILE NO. _____	CKD _____	FILENAME: _____	DATE _____
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