

# CITY OF LOGAN

## 600 N WWTF WATERLINE

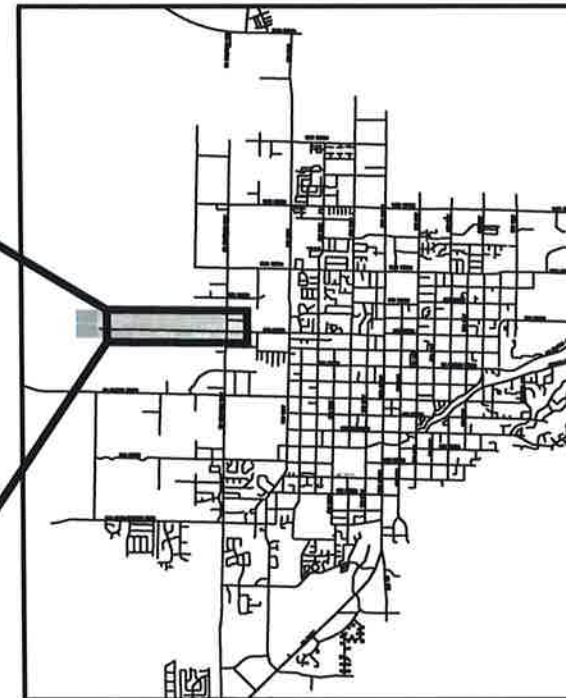
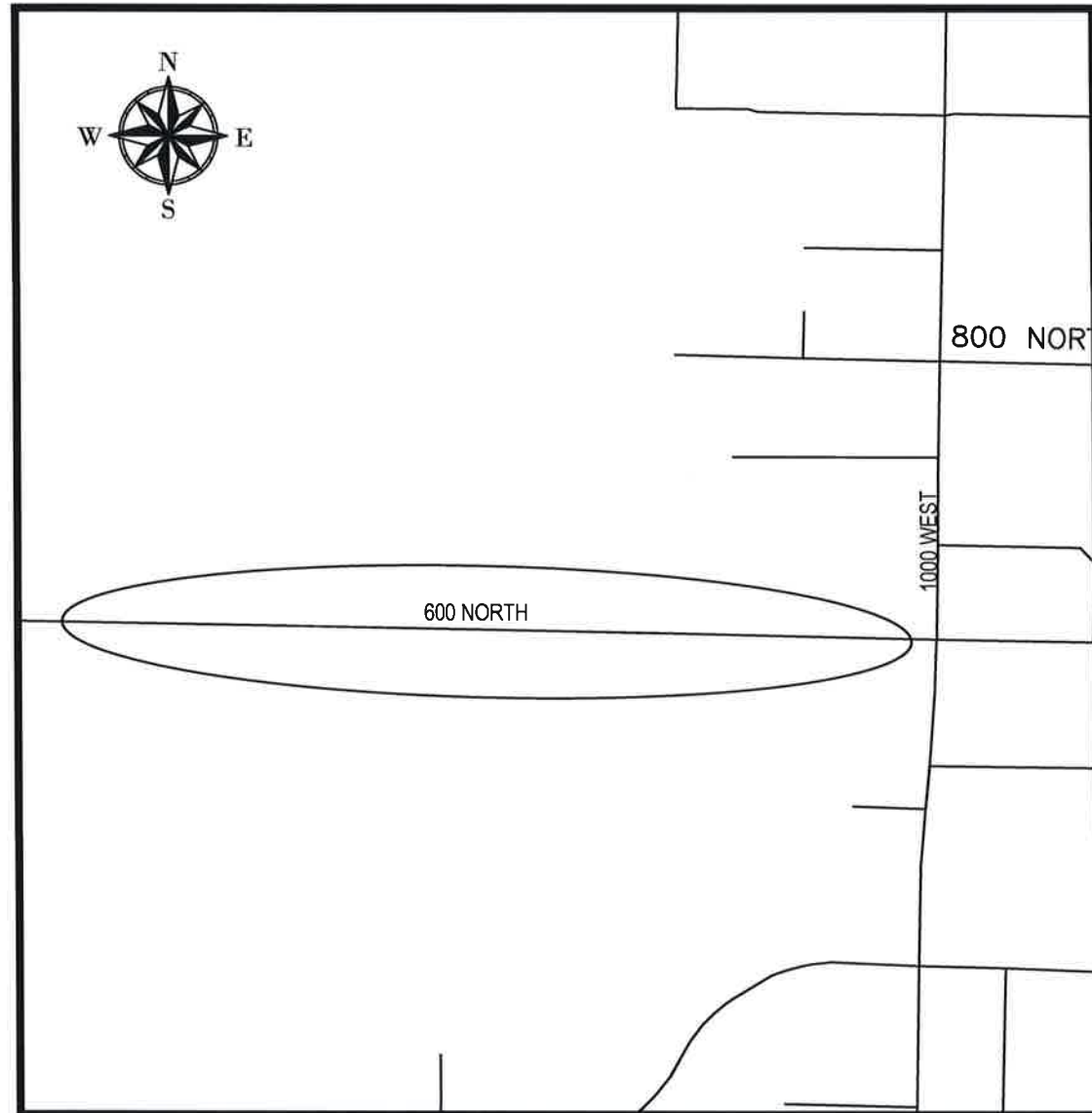
### WATERLINE

### PROJECT NUMBER: ENG# 18007



**PUBLIC WORKS DEPARTMENT**

PROJECT LOCATION

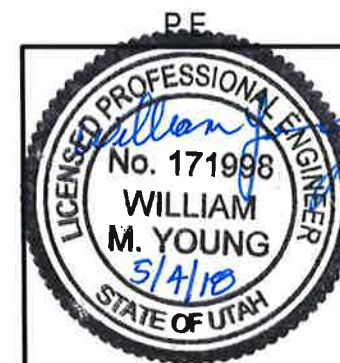


THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY THE FOLLOWING:

PUBLIC WORKS DIRECTOR: *Paul Lindhardt* 5-3-18  
PAUL LINDHARDT, P.E. DATE

WATER DIVISION MANAGER: *Cameron Draney* 5-3-2018  
CAMERON DRANEY, P.E. DATE

CITY ENGINEER: *Bill Young* 5/4/18  
BILL YOUNG, P.E. DATE



LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

DESIGNED: AOLIPHANT	DATE: 3-May-18
DRAFTED: GSTEPHENSON	PROJECT: 18007
CHECKED: TDICKINSON	REVISION: ---

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# GENERAL NOTES

## STANDARDS AND SPECIFICATIONS

- ALL CONSTRUCTION SHALL MEET CITY OF LOGAN STANDARDS AND SPECIFICATIONS (APWA 2007, AS AMENDED BY LOGAN CITY AS OF DATE APPROVED FOR CONSTRUCTION BY ENGINEER). STANDARDS AND SPECIFICATIONS CAN BE VIEWED AND PRINTED AT: [HTTP://WWW.LOGANUTAH.ORG/GOVERNMENT/DEPARTMENTS/PUBLIC\\_WORKS/ENGINEERING/ENGINEERING\\_DOCS.PHP](http://www.loganutah.org/government/departments/public_works/engineering/engineering_docs.php)
- ANY AMBIGUITIES OR CONFLICTS IDENTIFIED BY THE CONTRACTOR, CONTRACTOR'S REPRESENTATIVE, ENGINEER, OR ENGINEER'S REPRESENTATIVE SHALL BE IDENTIFIED TO THE ENGINEER IMMEDIATELY. THESE SHALL BE RESOLVED AT NO ADDITIONAL COST TO THE CITY BASED ON THE FOLLOWING ORDER OF PRECEDENCE ( PER APWA 2007 SECTION 00 72 00, PART 3, SECTION 3.2) EXCEPT AS NOTED HEREIN:
  - CONTRACT FOR CONSTRUCTION (FROM BID DOCUMENTS)
  - MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS SHALL TAKE PRECEDENCE OVER ALL PREVIOUS MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS.
  - APWA 2007 GENERAL CONDITIONS SECTION 00 72 00 AS AMENDED BY LOGAN CITY
  - SPECIAL OR SUPPLEMENTAL SPECIFICATIONS
  - PLANS (DRAWINGS)
    - WRITTEN DIMENSIONS OVER MEASURED DIMENSIONS
    - SPECIAL DETAILS OVER PLANS AND PROFILES EXCEPT THAT LOGAN CITY STANDARD DETAILS SHALL TAKE PRECEDENCE OVER CONSTRUCTION DETAILS UNLESS STATED OTHERWISE BY CITY ENGINEER.
  - STORM WATER POLLUTION PREVENTION PLAN AND OTHER PERMITS
  - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD DRAWINGS
  - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD SPECIFICATIONS
  - APWA 2007 STANDARD DRAWINGS
  - APWA 2007 STANDARD SPECIFICATIONS
- CONTRACTOR IS SOLELY RESPONSIBLE TO REVIEW AND FULLY UNDERSTAND THE PLANS DURING BIDDING. DEVIATIONS OR DISCREPANCIES ARE TO BE IDENTIFIED DURING BIDDING IF AND WHEN IDENTIFIED.

## SAFETY IN THE WORK ZONE

- ALL PERSONNEL ARE REQUIRED TO WEAR A MINIMUM OF HARD-HATS, STEEL TOE BOOTS AND SAFETY GLASSES WITHIN THE WORK ZONE.
- ORANGE OR FLORESCENT YELLOW VESTS OR CLOTHING SHALL BE WORN WHILE WORKING ON THIS PROJECT COMPLIANT WITH THE FOLLOWING:
  - CLASS 3 WHILE WORKING AT NIGHT WITHIN UDOT RIGHT-OF-WAY OR WHERE VEHICLE VELOCITIES MAY EXCEED 50 MPH.
  - CLASS 2 WHILE WORKING WITHIN LOGAN CITY RIGHT-OF-WAY AND WHERE VEHICLE VELOCITIES ARE LESS THAN 50 MPH.
- ALL TRENCHING SHALL BE IN COMPLIANCE WITH OSHA 29 CFS, PART 1926. ALL SOILS SHALL BE CONSIDERED TYPE C WHILE PREPARING TRENCH SHORING CALCULATIONS UNLESS GEOTECHNICAL REPORT SPECIFIES A TYPE D.
- CONFORM TO ALL OTHER APPLICABLE OSHA RULES AND REGULATIONS WHILE WORKING ON THIS PROJECT.

## EXISTING UTILITIES

- UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY.
- CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS BY CONTACTING BLUE STAKES AT 1-800-662-4111 OR 811 AND OTHER APPLICABLE UTILITIES PRIOR TO EXCAVATION.
- UTILITY CONTACTS ARE AS FOLLOWS:
  - WATER AND SANITARY SEWER: CAMERON DRANEY (435) 770-5033, KASEY ERICKSON (435) 994-0316 OR JARED PRATT (435) 760-4728.
  - STORM WATER: JED AL-IMARI (435) 881-4327 OR SHAWN HANSEN (435) 994-0526.
  - LOGAN CITY LIGHT AND POWER: STEVE CROSBY (435) 716-9745 OR (435) 757-8530.
  - COMCAST: ALEX VASQUEZ (801) 245-5314
  - CENTURY LINK: PAUL HIGBY (435) 232-3916
  - QUESTAR: NICK WHITE (435) 213-5662 OR (435) 755-2205
  - USU UTILITIES: LANCE MAUGHN (435) 797-7309
- CONTRACTOR SHALL POT-HOLE AND LOCATE EXISTING UTILITIES WHEN NECESSARY TO ENSURE CONSTRUCTION DOES NOT IMPACT EXISTING UTILITIES AND THAT THE LOCATION OF EXISTING UTILITIES DOES NOT AFFECT CONSTRUCTION. POT-HOLING SHALL BE DONE AT THE BEGINNING OF THE PROJECT IN ORDER TO PROVIDE UTILITY OWNERS ADEQUATE TIME TO RELOCATE SERVICES IF NECESSARY OR TO ALLOW ENGINEER TO REDESIGN PRIOR TO FABRICATION OF PRE-CAST STRUCTURES.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COSTS AND REPAIRS DUE TO DAMAGE OF EXISTING UTILITIES. ALL UTILITIES MAY NOT BE SHOWN ON PLANS.
- ALL UTILITIES SHALL BE KEPT IN WORKING ORDER EXCEPT FOR THE MINIMUM TIME NEEDED FOR EXCAVATION, TRENCHING, CONNECTIONS, ETC.
- APPROVAL FROM THE ENGINEER IS REQUIRED PRIOR TO WATER AND SEWER SHUT-DOWNS IF REQUIRED TO COMPLETE THIS PROJECT. ALL AFFECTED ENTITIES AND PROPERTY OWNERS SHALL BE NOTIFIED 72 HOURS PRIOR TO APPROVED SHUTDOWNS.

## PERMITS

- CONTRACTOR SHALL COMPLY WITH THE TERMS OF ALL PERMITS REQUIRED FOR THIS PROJECT.
- CONTRACTOR SHALL OBTAIN AND KEEP COPIES OF ALL REQUIRED PERMITS AT PROJECT LOCATION DURING REASONABLE WORKING HOURS.
- CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FROM UDOT, IF NEEDED, PRIOR TO INITIATING ANY SITE DISTURBANCE OR CONSTRUCTION IN LOGAN CITY RIGHT OF WAY
- CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT (CITY OF LOGAN) PRIOR TO INITIATING ANY SITE DISTURBANCE OR CONSTRUCTION IN LOGAN CITY RIGHT OF WAY.
- THE CONTRACTOR SHALL COMPLY WILL THE DEQ DWQ GENERAL CONSTRUCTION PERMIT (SEE SW1).
- THE CONTRACTOR WILL OBTAIN THE NOTICE OF INTENT (NOI) AND A NOTICE OF TERMINATION AT THE APPROPRIATE TMES FROM THE STATE OF UTAH DEQ DWQ. THE CONTRACTOR WILL BE INCLUDED ON THE PERMIT AND WILL BE EXPLICITLY RESPONSIBLE FOR THE RESPONSIBILITIES AS LISTED IN THE SWPPP.
- IF DEWATERING IS REQUIRED, CONTRACTOR SHALL OBTAIN DEWATERING PERMITS FROM THE STATE OF UTAH DIVISION OF WATER QUALITY AND COMPLY WITH ALL STATE REQUIREMENTS.
- CONTRACTOR SHALL OBTAIN A LOGAN CITY LAND DISTURBANCE PERMIT.

# CONSTRUCTION NOTES

## SURVEY AND CONSTRUCTION STAKING

- CONTRACTOR SHALL PROVIDE ALL SURVEY FOR THE PROJECT BY A LICENSED PROFESSIONAL SURVEYOR WHO IS LICENSED IN THE STATE OF UTAH. SURVEY WILL INCLUDE (IF REQUIRED IN THESE PLANS) BUT NOT BE LIMITED TO:
  - CONSTRUCTION STAKING, INCLUDING CREATING ALL STAKE OUT FILES.
  - UTILITY LOCATIONS
  - PROVIDE SURVEY FOR UTILITY RELOCATION FOR UTILITY PROVIDERS
  - ROW AND ROAD CENTERLINE MARKERS (CITY PROVIDED PER CITY SURVEYOR)
  - LIMIT OF DISTURBANCE
  - SURVEY AND MARKING OF BOUNDARY OF WETLANDS TO BE PROTECTED
  - AREAS AND LIMITS OF DEMOLITION
  - VERIFICATION OF QUANTITIES FOR EACH PAYMENT REQUEST
- SURVEYOR SHALL PROVIDE COMPLETE RECORD DRAWINGS (INCLUDING RED LINE DRAWINGS WITH SURVEY POINTS VERIFYING LOCATIONS) SHOWING WHERE ANY CHANGES IN THE ORIGINAL DESIGN WHERE REQUIRED. FINAL PUNCH LISTS AND FINAL PAYMENTS SHALL NOT BE MADE UNTIL RECORD DRAWINGS HAVE BEEN RECEIVED, REVIEWED, CORRECTED WHERE REQUIRED, AND APPROVED BY ENGINEER.
- ALL SURVEY CONTROL DATA ARE INCLUDED ON SHEET S1. FILES WILL BE MADE AVAILABLE TO SURVEYOR FROM CITY AS NEEDED.

## ACCESS RESTRICTIONS, ROAD AND LANE CLOSURES, PEDESTRIAN ACCESS AND TRAFFIC CONTROL PLAN

- CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN, ADEQUATE TRAFFIC CONTROL, SIGNING, BARRICADING, AND PEDESTRIAN DIRECTION THROUGH AND AROUND THE CONSTRUCTION WORK ZONE IN COMPLIANCE WITH THE UDOT MUTCD AS REQUIRED BY UTAH STATE LAW ( R920-1).
- THE TRAFFIC CONTROL PLANS SHALL BE PROVIDED TO THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO THE PRE-CONSTRUCTION MEETING TO ALLOW REVIEW FOR APPROVAL. COMMENTS AND REQUIRED CHANGES SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING. ALL CORRECTIONS SHALL BE INCORPORATED INTO THE TRAFFIC CONTROL PLAN BEFORE A WORK IN THE RIGHT-OF-WAY PERMIT WILL BE ISSUED.
- CONTRACTOR SHALL INSTALL AND MAINTAIN ALL TRAFFIC CONTROL AS PART OF THIS PROJECT.
- CONTRACTOR SHALL INSPECT TRAFFIC CONTROL DAILY TO ENSURE A SAFE WORK ZONE.
- ANY SIGNIFICANT MODIFICATIONS TO THE TRAFFIC CONTROL PLAN DURING CONSTRUCTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.
- PROPERTY OWNERS, RESIDENTS, AND BUSINESSES SHALL BE GIVEN 48 HOURS NOTICE OF DRIVEWAY ACCESS RESTRICTIONS DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING HOMEOWNERS, RESIDENTS, AND BUSINESSES AS NEW PIPING AND CONCRETE ARE INSTALLED.
- ACCESS TO ALL BUSINESSES WITHIN THE PROJECT AREA SHALL BE COORDINATED WITH BUSINESS OWNERS AND REASONABLY MAINTAINED DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE LANE CLOSURES AND PARTIAL AND COMPLETE ROAD CLOSURES WITH THE ENGINEER.
- CONTRACTOR SHALL NOTIFY EMERGENCY SERVICES, CACHE VALLEY TRANSIT AUTHORITY, LOGAN CITY ENVIRONMENTAL DEPARTMENT, USU POLICE, AGGIE SHUTTLE, AND THE SCHOOL DISTRICT OF CLOSURE AT LEAST 48- HOURS PRIOR TO CLOSURE. THROUGH TRAFFIC MUST BE MAINTAINED TO THE GREATEST EXTENT REASONABLE AND SAFE. .

## IRRIGATION AND CANAL IMPACTS

- DAMAGE OF EXISTING IRRIGATION SYSTEMS AND BOXES WILL BE REPAIRED BY CONTRACTOR.
- CONTRACTOR SHALL ENSURE PRIVATE IRRIGATION WATER DELIVERED BY CANAL COMPANIES IS AVAILABLE TO ALL USERS OF THE SYSTEM AT THEIR SCHEDULED TIMES OF USE. COORDINATE INTERRUPTIONS WITH INDIVIDUAL USERS.
- CONTRACTOR SHALL COORDINATE METHOD OF IRRIGATION DELIVERY DURING CONSTRUCTION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO INITIATING CONSTRUCTION. ALL METHODS OF MITIGATING IMPACT SHALL BE APPROVED IN WRITING BY WATER USERS, OR THEIR DESIGNATED REPRESENTATIVE, PRIOR TO INITIATING DISTURBANCE.
- AUTHORIZED USERS OF THE IRRIGATION SYSTEM SHALL BE GIVEN 48 HOURS NOTICE PRIOR TO INTERRUPTIONS TO IRRIGATION SYSTEM.

## QUALITY CONTROL TESTING

- CONTRACTOR SHALL EMPLOY AN APPROVED QUALITY CONTROL TESTING AGENCY TO PROVIDE TESTING FOR THE SITE IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF APWA MANUAL OF STANDARDS AND SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- THE CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE PROCTOR, GRADATION, AND CBR VALUES FOR PROPOSED GRANULAR BORROW AND UNTREATED BASE COURSE AT THE PRE-CONSTRUCTION MEETING. COMPACTION TESTS SHALL BE PROVIDED AT LEAST AT THE INTERVALS REQUIRED IN APWA 2007 STANDARD SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE ASPHALT TESTING INCLUDING NUCLEAR DENSITY TESTING FOR COMPACTION AND OTHER FIELD TESTS REQUIRED BY APWA SECTION 32 12 16, ACCEPTANCE. PATCH ALL ASPHALT CORE SAMPLES WITH CONCRETE.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE CONCRETE TESTING INCLUDING AIR, SLUMP, 7 DAY BREAK TEST, AND 28 DAY BREAK TESTS AS REQUIRED BY APWA SECTION 03 30 05.
- FIELD TEST RESULTS SHALL BE IMMEDIATELY SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN, THE DESIGNATED PUBLIC WORKS INSPECTOR FOR THE PROJECT, AND A COPY OF EACH REPORT KEPT ONSITE. EACH FAILED FIELD TEST AND ITS CORRESPONDING PASSING TEST SHALL BE CLEARLY IDENTIFIED IN EACH FIELD TEST REPORT.
- LABORATORY TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN WITHIN 48 HOURS OF DETERMINATION.
- A FINAL SUMMARY REPORT, IN TABULAR FORM, SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. THE FINAL SUMMARY REPORT SHALL INCLUDE TABULAR RESULTS SHOWING EACH FAILED TEST AND ITS CORRESPONDING PASSING TEST.

SHEET NO: GN1

SCALE NO SCALE

REVISION BLOCK

DATE: 3-May-18

DESIGNED: ADLPHANT

DRAWN: CSTEPHENSON

CHECKED: TDICKINSON

600 N WWTF WATERLINE

GENERAL NOTES

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE  
PUBLIC WORKS DEPARTMENT

# UTILITY LEGEND

EXISTING GAS	_____	gas	_____
EXISTING TELECOM	_____	uc	_____
EXISTING UNDERGROUND POWER	_____	ugp	_____
EXISTING SANITARY SEWER	_____	ss	_____
EXISTING WATER	_____	w	_____
EXISTING IRRIGATION	_____	irr	_____
ASPHALT SAW CUT	_____ CUT _____		
NEW WATER	===== W =====		
3 NEW POWER CONDUITS	===== W =====		
NEW COMMUNICATIONS CONDUIT	===== W =====		
PARCEL BOUNDARIES	-----		

# PROJECT SPECIFIC NOTES

## EXCAVATION

- EXCAVATED MATERIALS SHALL NOT BE REUSED ON THIS PROJECT.
- EXCAVATION AS PER LOGAN CITY AMENDED APWA PLAN 382S

## RIGHT OF WAY, CENTERLINE, AND GPS MONUMENTS

- ALL EXISTING RIGHT OF WAY MONUMENTS, CENTERLINE MONUMENTS, AND GPS MONUMENTS SHALL BE PROTECTED AND MAINTAINED UNDISTURBED UNLESS DIRECTED OTHERWISE BY THESE PLANS OR BY CHANGE ORDER SIGNED BY THE ENGINEER.
- WHERE DIRECTED ON DRAWINGS TO RESTORE OR RELOCATE MONUMENT:
  - CAREFULLY REMOVE CONCRETE OR ASPHALT FROM AROUND MONUMENT WITHOUT DISTURBING MONUMENT.
  - OBTAIN LID, FRAME, AND COVER TO PLACE OVER MONUMENT FROM LOGAN CITY SURVEYOR.
  - COORDINATE PLACEMENT OF OF LID, FRAME, AND COVER WITH LOGAN CITY SURVEYOR AND INSTALL LID, FRAME AND COVER AT THE FINISHED GRADE SPECIFIED IN THE LOGAN CITY STANDARD DETAILS.
  - COORDINATE FINAL VERIFICATION OF THE LID, FRAME, COVER AND RESTORED MONUMENT HORIZONTAL AND VERTICAL ELEVATIONS FOR FINAL APPROVAL WITH LOGAN CITY SURVEYOR.
- WHERE DIRECTED ON DRAWINGS:
  - INSTALL RIGHT OF WAY, CENTERLINE, AND GPS MONUMENTS IN ACCORDANCE WITH LOGAN CITY STANDARDS AND SPECIFICATIONS.
  - OBTAIN LID, FRAME, COVER, AND MONUMENT FROM THE LOGAN CITY SURVEYOR.
  - INSTALL TO THE SATISFACTION OF THE LOGAN CITY SURVEYOR.
  - ALL CONCRETE USED TO SET, RESTORE, OR RELOCATE MONUMENTS SHALL BE IN COMPLIANCE WITH CONCRETE COLLARS.

## GRANULAR BORROW

- GRANULAR BORROW SHALL BE IN ACCORDANCE WITH APWA SECTION 31 05 13 WITH A MAXIMUM PARTICLE SIZE OF 3 INCHES (RATHER THAN 2 INCHES). GRANULAR BORROW CONSIST OF AN A-1-a (ASTM D3282) SOIL.
- GRANULAR BORROW SHALL HAVE A MINIMUM CBR VALUE OF 45.
- GRANULAR BORROW SHALL BE PLACED AS PER APWA STANDARDS AND SPECIFICATIONS.

## SEWER ROCK OR WASHED ROCK

- SEWER ROCK OR WASHED ROCK SHALL BE CRUSHED AND WASHED CLASS 5 SEWER ROCK PER APWA 31 05 13.
- SEWER ROCK OR WASHED ROCK MAY ONLY BE USED WHERE SPECIFIED IN THESE PLANS OR AS DIRECTED BY THE ENGINEER.

## UNTREATED BASE COURSE

- PIPE ZONE AND BEDDING AND BACKFILL SHALL BE UNTREATED BASE COURSE MATERIAL CLASS A OR B, GRADE  $\frac{3}{4}$  IN COMPLIANCE WITH APWA SECTION 32 11 23.
- UNTREATED BASE COURSE MATERIAL USED FOR ROADWAY, CURB AND GUTTER, AND SIDEWALKS SHALL BE CLASS A, GRADE  $\frac{3}{4}$  OR GRADE 1, WITH A MINIMUM CBR VALUE OF 70 IN COMPLIANCE WITH APWA SECTION 32 11 23.

## HOT MIX ASPHALT

- SEE DETAIL ON DT2 FOR SPECIFIC CROSS SECTION INFORMATION.
- PROVIDE LOGAN CITY WITH SPECIFIED AND SELECTED ASPHALT MIX DESIGNS, AND SELECTED TACK COAT AT PRE-CONSTRUCTION MEETING.
- ALL HOT MIX ASPHALT IN LOGAN CITY RIGHT OF WAY SHALL BE PG 58-28, DM-1/2, MARSHALL MIX PER 2017 APWA 32 12 05. AS WELL AS ANY CURRANT UPDATES OR AMENDMENTS TO ASPHALT SECTIONS.
- APPLY TACK COAT, COMPLIANT WITH APWA SECTION 32 12 14, BETWEEN LAYERS OR LIFTS IF THE PREVIOUS PAVEMENT LAYER IS DIRTY OR OLDER THAN 24 HOURS PER APWA SECTION 32 12 16.

## ASPHALT AND CONCRETE SAW CUTS AND PATCHES

- ALL ASPHALT AND CONCRETE CUT LOCATIONS REPRESENT FINISHED LOCATIONS. CUTS ARE TO BE NEAT, CLEAN, AND VERTICAL PRIOR TO PATCHING ASPHALT OR CONCRETE.
- SAW CUTS AND FINISHED EDGES, INCLUDING CONCRETE, SHALL BE CLEANED OF OIL, DIRT, AND DEBRIS PRIOR TO APPLICATION OF TACK COAT.
- ANY SAW CUTS REQUIRED PRIOR TO THE FINAL PATCH TO FACILITATE CONSTRUCTION ARE CONTRACTOR WAYS AND MEANS AND WILL NOT BE PAID IN ADDITION TO THE FINAL CUTS. ADDITIONALLY, ANY DAMAGE TO THE SAW CUT EDGE SHALL BE REPAIRED TO MEET LOGAN CITY REQUIREMENTS AT NO ADDITIONAL EXPENSE TO THE CITY.
- ALL SAW CUT EDGES AND FINISHED EDGES SHALL BE TREATED WITH A TACK COAT PRIOR TO THE PLACEMENT OF ASPHALT IN ACCORDANCE WITH APWA SECTION 32 12 14.

## CULINARY WATER INSTALLATION

- SHOP DRAWINGS AND CUT SHEETS OF ALL CULINARY WATER MATERIALS SHALL BE PROVIDED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING.
- ALL POLYVINYL CHLORIDE (PVC) PIPE SHALL BE IN ACCORDANCE WITH APWA SECTION 33 05 07. ALL POLYVINYL CHLORIDE (PVC) PIPE SHALL BE RIGID, THERMOPLASTIC PRESSURE CLASS 305 (DR14) AND MEET THE REQUIREMENTS OF ANSII/AWWA STANDARD C900 FOR WATER DISTRIBUTION PIPE.
- ALL FITTINGS FOR POLYVINYL CHLORIDE (PVC) PIPE SHALL BE DUCTILE IRON (DI) AND SHALL MEET THE REQUIREMENTS OF NSF 61 AND ANSII/AWWA C-153.
- ALL POLYETHYLENE SERVICE LINES (CULINARY WATER) SHALL BE IN ACCORDANCE WITH AWWA C901.
- ALL DUCTILE IRON PIPE (DI OR DIP) AND METALLIC FITTINGS SHALL BE CLASS 350.
- ALL DI PIPE AND METALLIC FITTINGS SHALL BE WRAPPED WITH 8 MIL VINYL WRAP AND GREASE ALL NUTS AND BOLTS WITH A POLY FM GREASE OR EQUIVALENT FOOD GRADE GREASE PER APWA SECTION 33 05 05.
- ALL CULINARY OR DRINKING WATER PIPE SHALL BE EITHER DI (CLASS 350) OR PVC (MINIMUM PRESSURE RATING OF 230 PSI) FOR ALL MAINS, FIRE LINES, AND SERVICES LARGER THAN 3 INCHES. ALL SERVICES 3 INCHES AND SMALLER SHALL BE C901 PE TUBING RATED FOR THE 230 PSI. ALL PVC AND PE USED IN CULINARY WATER SYSTEMS SHALL BE DYED BLUE AT THE TIME OF MANUFACTURE.

- ALL FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION, CLOW MEDALLION, OR EAST JORDAN 5BR250. NO EQUIVALENTS ARE EXCEPTED TO THESE THREE HYDRANT TYPES.
- ALL VALVES (GATE VALVES AND BUTTERFLY VALVES) SHALL BE CLASS 250.
- ALL FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED PER LOGAN CITY STANDARDS AND SPECIFICATIONS WITH 6" DI (OR LARGER IF SPECIFIED) FROM THE WATER MAIN TO THE HYDRANT, A TEE AND GATE VALVE ON THE MAIN, AND THE GATE VALVE BEING THE HYDRANT ISOLATION VALVE PER APWA PLAN NO. 511 AS AMENDED BY LOGAN CITY .
- CAP ALL LINES RELOCATED OR REMOVED AT THE MAIN LINE PER LOGAN CITY STANDARDS AND SPECIFICATIONS AND AS SPECIFIED IN THESE DRAWINGS.
- CAP ALL RELOCATED OR REMOVED SERVICES AT THE MAIN BY REMOVING THE CORP STOP VALVE AND INSTALLING A BRASS THREADED PLUG. NO ALTERNATIVES ALLOWED.
- ALL NEW WATER LINE CONNECTIONS SHALL BE HOT TAPPED TO THE EXISTING MAIN LINE (8" NOMINAL DIAMETER DUCTILE IRON) USING STAINLESS STEEL TAPPING SADDLES AND NEW VALVES PER LOGAN CITY STANDARDS AND SPECIFICATIONS.
- ALL WATER METERS RELOCATED SHALL INCLUDE THE INSTALLATION OF ALL NEW SERVICE TAP AND VALVE, 1" SERVICE LINE AND METER SETTER, 21" CORRUGATED WHITE PVC METER BARREL WITH FRAME AND LID PER LOGAN CITY STANDARDS.
- ALL WATER METERS SHALL BE PROVIDED BY LOGAN CITY.
- PIPING SHALL BE INSTALLED IN ACCORDANCE WITH APWA STANDARDS AND SPECS AS AMENDED BY LOGAN CITY PLAN NO 382S.
- THRUST BLOCKS, WHERE REQUIRED SHALL BE CONSTRUCTED SUCH THAT BEARING AREA IS AT LEAST 2 SQUARE FEET. CENTER OF AREA OF BEARING SHALL MATCH CENTER OF PIPELINE BEING RESTRAINED. VOLUME OF CONCRETE FOR EACH THRUST BLOCK SHALL BE LESS THAN 3 CUBIC YARDS.
- THRUST RESTRAINT SHALL CONSIST OF A MIXTURE OF FLANGE BY FLANGE RESTRAINT, RESTRAINING ROD TYPE RESTRAINT, OR JOINT FITTING TYPE JOINT RESTRAINT SIMILAR TO MEGA-LUG OR EQUIVALENT.
- ALL THRUST RESTRAINT SYSTEMS INFORMATION AND LOCATION SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING FOR APPROVAL BY ENGINEER.
- ALL THRUST RESTRAINTS SHALL BE AT LEAST FOR THE LENGTHS AND DISTANCES IDENTIFIED IN THE PLANS.
- TRACER WIRE SHALL BE INSTALLED PER LOGAN CITY STANDARDS AND SPECIFICATIONS ALONG TOP OF PIPE FROM VALVE TO VALVE OR OTHER RISER TYPE.
- BLUE WARNING TAPE LABELED WATER SHALL BE INSTALLED ABOVE WATER PIPE PER LOGAN CITY STANDARDS AND SPECIFICATIONS.

## LANDSCAPING AND DISTURBED AREAS.

- CONTRACTOR SHALL REPAIR DISTURBED SURFACES TO EXISTING CONDITIONS, INCLUDING, BUT NOT LIMITED TO UTILITY LINES AND SERVICES, ASPHALT REPAIR, DRIVEWAYS, PLANTER STRIPS, SPRINKLER AND IRRIGATION SYSTEMS, AND GENERAL CLEANUP EXCEPT WHERE INSTRUCTED OTHERWISE.
- CONTRACTOR SHALL MARK IRRIGATION HEADS AND SYSTEM ALONG EDGE OF SIDEWALK IDENTIFYING LOCATION OF SPRINKLER HEADS, LINES, AND WIRES. ANY DAMAGE TO THE HEADS, LINES, AND WIRES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
- CONTRACTOR SHALL PROVIDE AND INSTALL TOP SOIL TO SHAPE AND CONTOUR LAWNS, LANDSCAPED AREAS, AND OTHER LANDS TO MATCH NEW GRADES TO RESTORE AREAS TO PRE-CONSTRUCTION CONDITIONS.
- SOD GRASS, PURCHASED FROM A LOCAL VENDOR, SHALL BE PROVIDED AND INSTALLED AT DISTURBED LANDSCAPED AREAS, RESTORING AREAS TO PRE-CONSTRUCTION CONDITION.
- SPECIAL CARE SHALL BE TAKEN TO PRESERVE AND PROTECT EXISTING MATURE TREES AND THEIR ROOT SYSTEMS UNLESS TREES ARE SPECIFIED FOR REMOVAL.
- TOPSOIL USED IN CONSTRUCT OR REPAIR DISTURBED OR NEW LANDSCAPING SHALL BE COMPLIANT WITH APWA SECTION 31 05 13, PART 2.9. CONTRACTOR SHALL PROVIDE SOURCE, GRADATION, AND VERIFICATION OF CHEMICAL CHARACTERISTICS AND PHYSICAL CHARACTERISTICS AT PRE-CONSTRUCTION MEETING.

## POWER AND COMMUNICATIONS CONDUITS.

- CONTRACTOR SHALL INSTALL POWER AND COMMUNICATIONS CONDUITS AS PER LOGAN CITY LIGHT AND POWER SPECIFICATIONS INCLUDING BUT NOT LIMITED TO 48" DEEP FOR PRIMARY TRENCHES, 12 INCH SEPARATION BETWEEN POWER AND COMMUNICATIONS, 12 INCHES MINIMUM SAND BACKFILL ON CONDUIT AND SECTIONALIZER SPECIFICATION
- ALL ELBOWS WILL BE 4 FT RADIUS DUE TO LONG PULL DISTANCES.
- ANY AND ALL QUESTIONS ON THE CONDUITS WILL BE ANSWERED BY MATT TURNBOW OF LIGHT AND POWER AT # (435) 787-2657

SHEET NO:	SN1				
SCALE NO SCALE					
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DRAFTED: GSTEPHENSON					
600 N WWTF WATERLINE	SPECIAL NOTES				
<b>LOGAN CITY ENGINEERING</b> 290 NORTH 100 WEST LOGAN, UTAH 84321					

PRINT DATE/TIME: 5/18 9:51 AM

# STORM WATER POLLUTION PREVENTION INFORMATION

## SITE EVALUATION, ASSESSMENT, AND PLANNING

PROJECT SITE/NAME: 600 N WWTF WATERLINE  
PROJECT LOCATION: 600 N WWTF WATERLINE, SEE COVER SHEET  
CITY: LOGAN, UTAH 84321  
COUNTY: CACHE  
LATITUDE/LONGITUDE (GOOGLE EARTH)  
LAT: 41°44'35.1" NORTH LONG: 111°51'34.9" WEST

## CONTACT INFORMATION AND RESPONSIBLE PARTIES:

OWNER: LOGAN CITY  
290 NORTH 100 WEST  
LOGAN, UT 84321  
(435) 716-9152 (PUBLIC WORKS)

PROJECT MANAGER:  
ALEX OLIPHANT, EIT  
LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UT 84321  
(435) 716-9165  
ALEX.OLIPHANT@LOGANUTAH.ORG

STORMWATER MANAGER AND SWPPP CONTACT  
TBD-THIS IS TO BE FILLED IN BY THE CONTRACTOR

LOGAN CITY REGULATORY STORMWATER INSPECTOR  
LYNN MAYS  
LOGAN CITY STREETS AND STORMWATER FOREMAN  
290 NORTH 100 WEST  
LOGAN, UT 84321  
(435) 716-9167 (DAY)  
(435) 716-9090 (AFTER HOURS EMERGENCY)  
LYNN.MAYS@LOGANUTAH.ORG

## NATURE AND SEQUENCE OF CONSTRUCTION

THE CITY IS INSTALLING A 12 INCH WATERLINE DOWN THE 600 NORTH FROM 1000 WEST TO THE WASTE WATER TREATMENT FACILITIES AND HEAD WORKS

BEST MANAGEMENT PRACTICES (BMPS) FOR ALL OF THE ACTIVITIES WILL BE APPLIED TO THE SITE TO PROTECT THE SOUTHWEST FIELD CANAL AND LOGAN RIVER FROM POSSIBLE CONTAMINATION . BI-WEEKLY INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR'S RSI INSPECTOR FOR THE DURATION OF CONSTRUCTION.

THE FUNCTION OF THIS ACTIVITY IS PUBLIC.  
ESTIMATED START DATE: MAY 2018  
ESTIMATED COMPLETION: JULY 2018

## SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS

THE SOILS ON THIS SITE ARE LOGAN SILTY CLAY LOAM, COLLETT SILTY CLAY LOAM,SALT LAKE-ROSHE SPRINGS COMPLEX, AND AIRPORT-SALT LAKE COMPLEX AS OBTAINED BY THE NRCS SOILS SURVEY WEBSITE.

**SLOPES:** SLOPES ON THIS PROJECT ARE FROM 2 TO 10 PERCENT. SITE CONDITIONS ARE NOT SUBJECT TO EROSION IN THEIR PRE-CONSTRUCTION CONDITION.

**DRAINAGE PATTERNS:** DRAINAGE PATTERNS ARE FROM EAST TO WEST

**VEGETATION:** VEGETATION IS DEVELOPED ASPHALT, GRAVEL, AND GRASS LANDSCAPING.

## CONSTRUCTION SITE ESTIMATES

CONSTRUCTION SITE AREA TO BE DISTURBED: 0.84 ACRES  
TOTAL PROJECT AREA: 0.94 ACRES  
PERCENT IMPERVIOUS AREA BEFORE CONSTRUCTION: 98%  
PERCENT IMPERVIOUS AREA AFTER CONSTRUCTION: 98%  
RUNOFF CN NUMBER AFTER CONSTRUCTION: 98 SAME AS BEFORE CONSTRUCTION  
100-YEAR PEAK RUNOFF BEFORE CONSTRUCTION: 10.6 CFS  
100-YEAR PEAK RUNOFF AFTER CONSTRUCTION: 10.6 CFS  
DETENTION REQUIREMENTS: 0 ACRE-FEET

## RECEIVING WATERS

THE RECEIVING WATER FOR THIS PROJECT IS THE LOGAN COW PASTURE CANAL.

## SITE FEATURES AND SITE SENSITIVE AREAS TO BE PROTECTED

THERE ARE WETLANDS IN AND AROUND THE NEAR BY CANAL WHICH SHALL BE AVOIDED AND PROTECTED.

## ENDANGERED SPECIES

THERE ARE NO ENDANGERED SPECIES ASSOCIATED WITH THIS SITE. IT IS ALL DEVELOPED ROADWAY.

## HISTORIC PRESERVATION

THERE ARE NO HISTORIC SITES LISTED ON THIS PROJECT

## GENERAL LOCATION MAP

FOR THE GENERAL LOCATION MAP, SEE COVER SHEET.

## BMP EVALUATION FOR 90TH PERCENTILE STORM

THE GENERAL STORMWATER MS4 PERMIT REQUIRES PERMITTED AGENCIES TO RETAIN, INFILTRATE, OR EVAPORATE THE 90TH PERCENTILE STORM WHERE POSSIBLE. THE ENGINEER HAS COMPLETED AN ANALYSIS ON THIS SITE AND HAS DETERMINED IT IS NOT REQUIRED FOR THIS SITE FOR THE FOLLOWING REASONS:

1. THERE IS INSUFFICIENT AREA DISTURBED (UNDER 1 ACRE)

## BMPS

1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN BMPS, INSPECT AND MANAGE THE SITE,
2. THE CONTRACTOR SHALL ENSURE THAT NO POLLUTION LEAVES THE DESIGNATED WORK ZONE BY IMPLEMENTING STANDARD BMP'S AND COMMON PRACTICES APPROVED BY THE ENGINEER.

## POTENTIAL SOURCES OF POLLUTION

POTENTIAL POLLUTANT MATERIAL	ACTUAL POLLUTANT	POLLUTANT SOURCE	MANAGEMENT PRACTICE
SEDIMENT/TOTAL SUSPENDED SOLIDS	SEDIMENT	EROSION OF DISTURBED SOILS	MINIMIZE SOIL DISTURBANCE. INSTALL BMPS
SOILS STABILIZATION MATERIAL	VARIOUS MATERIALS BOTH FLOATABLE AND SOLUBLE	DISTURBED AREAS WHERE SLOPES OR SUSCEPTIBLE SOIL TYPES ARE EXPOSED	INSTALL SEDIMENT CONTROL BMPS
CONCRETE-WHITE/SOLID GREY	LIMESTONE, SAND, pH, CHROMIUM	EXTRA CONCRETE WHEN POURING CONCRETE	CLEAN UP EXCESS AND EXTRA CONCRETE AND DISPOSE OF AT SPECIFIED LOCATION. SEE ALSO CONCRETE WASHOUT
OILS-BROWN OILY PETROLEUM AND HYDROCARBONS	MINERAL OIL, HYDRAULIC FLUID, MOTOR OIL, ETC.	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	NO OILS WILL BE CHANGED ON SITE. LEAKS WILL BE REPAIRED IMMEDIATELY.
ASPHALT AND PAVING - BLACK SOLIDS	OIL AND PETROLEUM DISTILLAGES	ASPHALT PAVING OPERATIONS	PAVING OPERATIONS WILL NOT BE PERFORMED WITHIN 8 HOURS OF EXPECTED STORMS EXCEEDING 0.5 INCH.
GREASE	GREASE AND LUBE OIL	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	KEEP EQUIPMENT CLEAN AND WIPED DOWN
ANTIFREEZE	ETHYLENE GLYCOL	ENGINE COLLUANT	FIX LEAKS IMMEDIATELY. REPAIRS WILL NOT BE MADE ON SITE
CONSTRUCTION DEWATERING	TSS/SEDIMENTS	DEWATERING ACTIVITIES	CONTRACTOR TO OBTAIN PERMIT IF DEWATERING IS REQUIRED.
FUELS	BENZENE, ETHYL BENZENE, TOULENE, XYLENE, MTBE, PETROLEUM DISTALLATE, OILS/GREASES, NAPHTHALEN, COAL OIL	USED IN VEHICLES AND POWER EQUIPMENT	FUELING WILL NOT BE ALLOWED ON SITE UNLESS OVER AN IMPERMEABLE SURFACE WITH AN EMERGENCY CLEANUP KIT AT THE LOCATION
PESTICIDES AND INSECTICIDES, FUNGICIDES, HERBICIDES, AND RODENTICIDES	CHLORINATED HYDROCARBONS, ORANOPHOSPHATES, CARBAMATES, ARSENIC	USED FOR CONTROL OF PESTS DURING REVEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER PESTICIDES WILL BE IMMEDIATELY REMOVED FROM SITE
CONCRETE CURING COMPOUNDS - CREAMY WHITE LIQUID	WHITE PIGMENTED LIQUID TYPE 2. (VARIES BY MANUFACTURER)	USED FOR CONTROL OF CONCRETE CURING	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER WILL BE REMOVED FROM SITE
CONCRETE WASHOUT WATER	pH	CONCRETE TRUCKS AND PUMP TRUCKS	WASH WATER FROM CONCRETE TRUCKS WILL BE CONTAINED IN A LEAK PROOF LOCATION DESIGNATED BY THE CONTRACTOR
TRASH	SOLID WASTES	TRASH LEFT OVER FROM CONSTRUCTION ACTIVITIES	REMOVE ALL TRASH FROM SITE DAILY. DO NOT DISPOSE OF TRASH IN HOLES OR TRENCHES
SANITARY WASTE MANAGEMENT	BACTERIA, PARASITES, VIRUSES	FECAL COLIFORM, BACTERIA ASSOCIATED WITH HUMAN OR ANIMAL WASTES	NO PUBLIC RESTROOMS AVAILABLE. CONTRACTOR SHALL PROVIDE PORTABLE FACILITIES AND ENSURE THEY ARE SECURED FROM TIPPING AND ARE MAINTAINED
FERTILIZERS - LIQUID AND SOLID GRAIN	NITROGEN, PHOSPHORUS	FERILIZERS USED IN RESTORING VEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS WILL BE PROMPTLY REMOVED FROM SITE

## BEST MANAGEMENT PRACTICES

SPECIFIC BMPS WILL BE SPECIFIED BY THE CONTRACTORS SWPPP.

SHEET NO:

SW1

SCALE NO SCALE

1" VERIFY SCALE

SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER

REVISION BLOCK

DATE: 5-MAY-18

ENG #: 18007

DESIGNED: A.OLIPHANT

DRAWN: C. STEPHENSON

CHECKED: T. DICKINSON

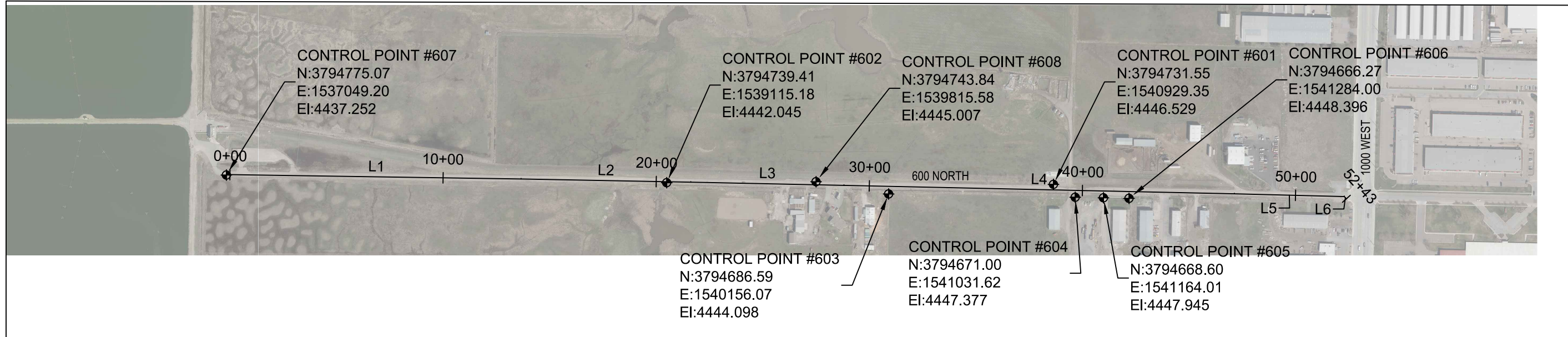
600 N WWTF WATERLINE

STORM WATER POLLUTION PREVENTION INFORMATION

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321



PROJECT FILE LOCATION: G:\pubwork\Engineer\00\_Engineering File System\PROJECTS 2018\ENG18007-200 North to WWTF-18 inch Water Main\Design (CAD)\GENERAL NOTES-18007.dwg



600 NORTH WATER LINE ALIGNMENT				
Line #	Length	Direction	Start Point	End Point
L1	1365.97	S89° 07' 59.31"E	(1537065.97,3794777.50)	(1538431.79,3794756.83)
L2	796.26	S88° 55' 34.23"E	(1538431.79,3794756.83)	(1539227.91,3794741.91)
L3	718.75	S88° 48' 54.37"E	(1539227.91,3794741.91)	(1539946.50,3794727.05)
L4	1832.15	S88° 45' 41.03"E	(1539946.50,3794727.05)	(1541778.23,3794687.44)
L5	516.00	S88° 33' 57.58"E	(1541778.23,3794687.44)	(1542294.06,3794674.53)
L6	14.25	S42° 22' 30.40"E	(1542294.06,3794674.53)	(1542303.67,3794664.00)

SURVEY CONTROL POINTS				
Point #	Elevation	Northing	Easting	Description
608	4445.01	3794743.84	1539815.58	600N_NAIL_AERIAL POINT
600	4471.43	3794628.42	1543746.36	600N800W_GPS BCM MON 347_NW52
601	4446.53	3794731.55	1540929.35	600N_GPS RBR 348_1/2 RBR-NO BCM
602	4442.04	3794739.41	1539115.18	600N_GPS BCM 349_NW54
603	4444.10	3794686.59	1540156.07	600N_RBR 5/8_PC LS6162_WAYNE CROW
604	4447.38	3794671.00	1541031.62	600N_RBR 5/8_PC LS7881387_ADVANCED
605	4447.94	3794668.60	1541164.01	600N_RBR 5/8_BROKEN CAP
606	4448.40	3794666.27	1541284.00	600N_RBR 5/8_PC LS7881387 ADVANCED
607	4437.25	3794775.07	1537049.20	600N_NAIL WITH WASHER_AERIAL POINT

- DIGITAL FILES IN CIVIL 3D (2017) WILL BE PROVIDED TO THE SURVEYOR TO SIMPLIFY STAKING. DESIGN FILES INCLUDE ALIGNMENTS AND PROFILES.

SHEET NO: **S1**

SCALE: NO SCALE  
1" = 100'  
VERIFY SCALE  
SCALE = 1/2" SHOWN SCALE  
IF PLOTTED ON B SIZE PAPER

DESIGNED: ADLPHANT	DATE: 3-May-18	REVISION BLOCK
DRAWN: GSTEPHENSON	ENG #: 18007	
CHECKED: TDICKINSON		

**600 N WWTF WATERLINE**

**SURVEY CONTROL**

**LOGAN CITY ENGINEERING**  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

**LOGAN CITY**  
CITY UNITED IN SERVICE  
PUBLIC WORKS DEPARTMENT

PRINT DATE/TIME: 5/31/18 9:50 AM



INSTALL 2-INCH WATER METER & VAULT  
STA=1+53.47, L 21.65-FEET

INSTALL 2 UNDERGROUND PULL BOX SECTIONALIZERS  
1 FOR 3" POWER CONDUITS AND 1 FOR 1 3"  
COMMUNICATIONS CONDUIT AT STA: 1+70 OFFSET -27.00'

MAINTAIN PROPER CLEARANCE  
FROM FIRE HYDRANT ASSEMBLY

INSTALL FIRE HYDRANT ASSEMBLY  
STA 0+76 OFFSET -28- FEET

INSTALL POWER AND  
COMMUNICATIONS CONDUIT BANK  
48" DEEP 5000.00 FT TOTAL

INSTALL FIRE HYDRANT ASSEMBLY  
STA 5+67 OFFSET -19- FEET

INSTALL BLIND FLANGE  
ON BUTTERFLY VALVE

0+00.00 0+50.00 1+00.00 1+50.00 2+00.00 2+50.00 3+00.00 3+50.00 4+00.00 4+50.00 5+00.00 5+50.00 6+00.00

sfm 8.00

INSTALL 12 INCH BUTTERFLY VALVE  
STA 0+74 OFFSET 0- FEET

INSTALL 12 INCH BUTTERFLY VALVE  
STA 5+65 OFFSET 0- FEET

INSTALL 12 X 6-INCH TEE AT STA 0+76

INSTALL 5165 FT TOTAL OF 12-INCH PVC WATERLINE  
AS PER DETAIL ON SHEET DT2

REMOVE EXISTING ASPHALT

SAW CUT EXISTING ASPHALT  
AS PER SHEET DT2

PROTECT EXISTING SEWER FORCE MAIN

INSTALL HOT MIX ASPHALT, 3-INCHES THICK,  
WITH 8-INCHES OF UNTREATED BASE COURSE

MATCH LINE STA 6+00.00  
NEXT SHEET PP-02

SHEET NO: PP-1

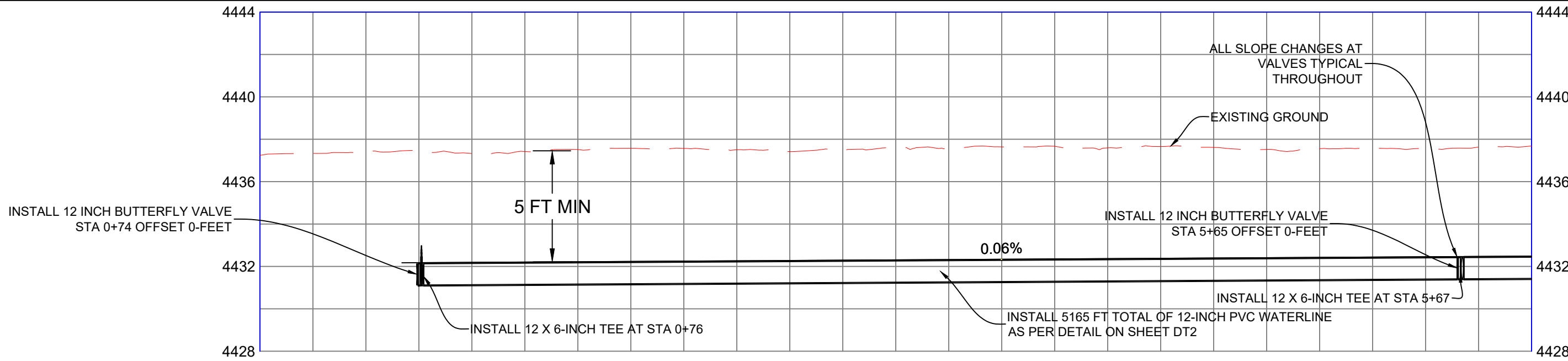
0' 25' 50'

1" = 50' SCALE

DESIGNED: AQUILANT	DATE: 3-May-18
DRAWN: GSTEPHENSON	ENG #: 18007
CHECKED: THICKINSON	

200 N TO WWTF 12-INCH WATER MAIN  
PLAN AND PROFILE  
STA 0+00.00 TO STA 6+00.00

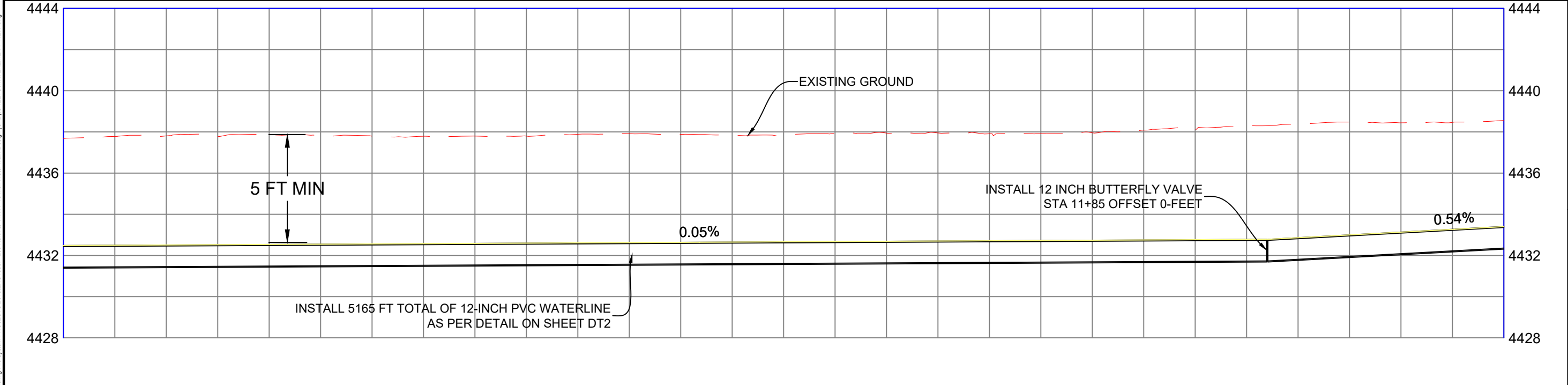
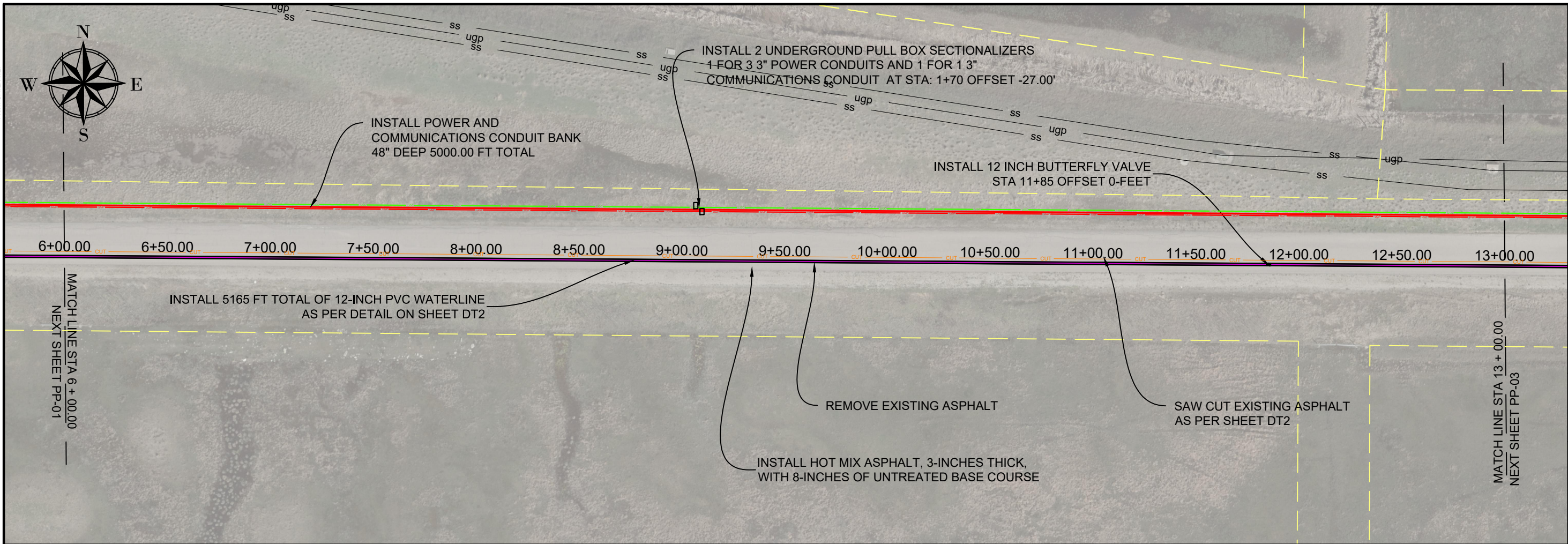
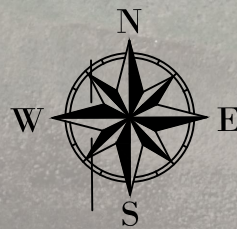
LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321



4437.25	4437.33	4437.43	4437.43	4432.175	4437.33	4432.190	4437.42	4432.204	4437.52	4432.219	4437.57	4432.234	4437.57	4432.248	4437.50	4432.263	4437.42	4432.278	4437.45	4432.292	4437.62	4432.307	4437.57	4432.322	4437.64	4432.336	4437.67	4432.351	4437.59	4432.366	4437.65	4432.380	4437.61	4432.395	4437.52	4432.410	4437.55	4432.424	4437.58	4432.439	4437.56	4432.454	4437.63	4432.468	4437.68	4432.483
0+00	0+50	5.25	5.14	1+00	5.22	1+50	5.30	5.34	2+00	5.32	2+50	5.24	5.14	3+00	5.32	5.25	3+50	5.30	5.32	4+00	5.23	5.27	4+50	5.22	5.11	5+00	5.13	5.14	5+50	5.11	5.17	6+00	5.20													

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\Projects\2018\ENG 18007 - 200 North to WWTF - 18 inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

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4437.81	4432.511	4437.86	4432.536	4437.79	4432.562	4437.80	4432.587	4437.88	4432.613	4437.89	4432.638	4437.85	4432.664	4437.94	4432.689	4437.91	4432.715	4437.96	4432.740	4438.11	4432.766	4438.39	4432.863	4438.44	4433.132
5.30	5.33	5.23	5.21	5.27	5.25	5.19	5.25	5.19	5.22	5.35	5.53	5.31													
6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00	10+50	11+00	11+50	12+00	12+50													

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\Projects\2018\ENG\18007\_200 North to WWTF 18 inch Water Main\Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

SHEET NO: **PP-2**

0'  
25'  
50'  
1" = 50'  
SCALE

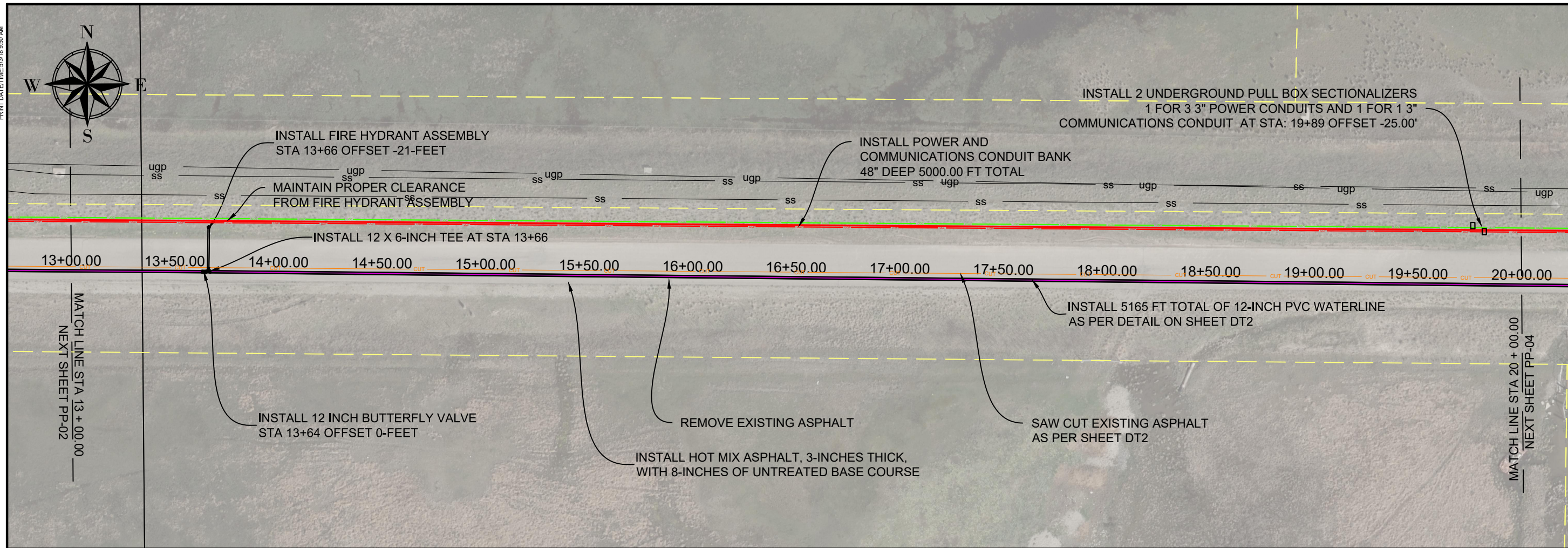
REVISION BLOCK	DATE: 3 May 18	DESIGNED: AQUILANT	DRAWN: GSTEPHENSON
	ENG #: 18007	CHECKED: THICKINSON	

**200 N TO WWTF 12-INCH WATER MAIN**

PLAN AND PROFILE  
STA 6+00.00 TO STA 13+00.00

**LOGAN CITY ENGINEERING**  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

PRINT DATE/TIME: 5/31/18 9:50 AM



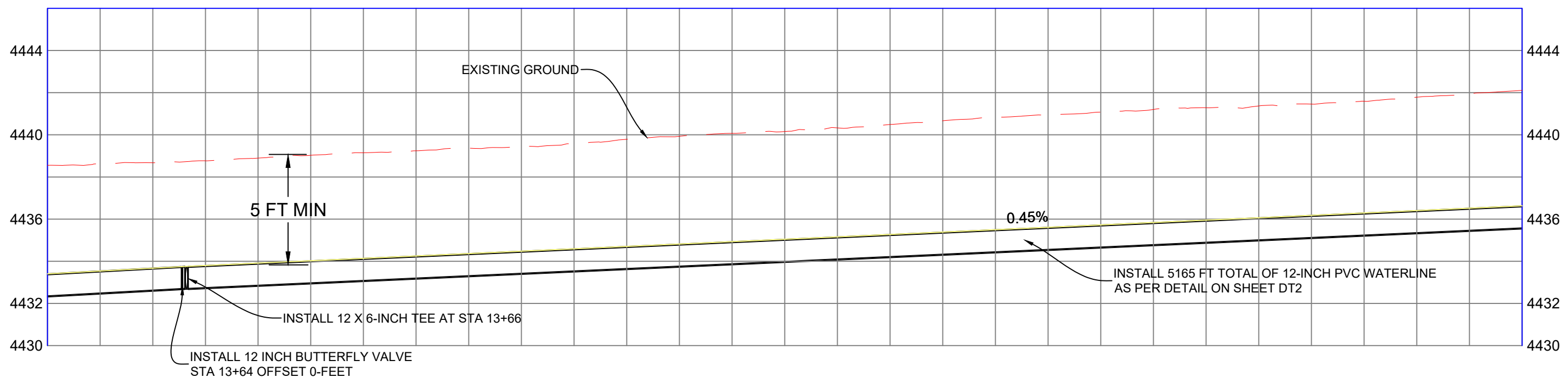
SHEET NO: **PP-3**

0'  
25'  
50'

1" = 50'  
SCALE

DESIGNED: AQUILHANT	DATE: 3 May 18
DRAWN: GSTEPHENSON	ENG #: 18007
CHECKED: THICKINSON	

PROJECT FILE LOCATION: G:\public\Engineering File System\Projects\2018\ENG\18007\_200 North to WWTF 18 inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg



4438.67	4438.89	4439.15	4439.36	4439.59	4439.93	4440.16	4440.49	4440.82	4441.08	4441.29	4441.46	4441.79
4433.671	4433.912	4434.139	4434.366	4434.592	4434.819	4435.045	4435.272	4435.498	4435.725	4435.951	4436.178	4436.405
5.00	4.98	5.01	5.00	5.00	5.11	5.11	5.22	5.32	5.35	5.33	5.28	5.38
13+50	14+00	14+50	15+00	15+50	16+00	16+50	17+00	17+50	18+00	18+50	19+00	19+50

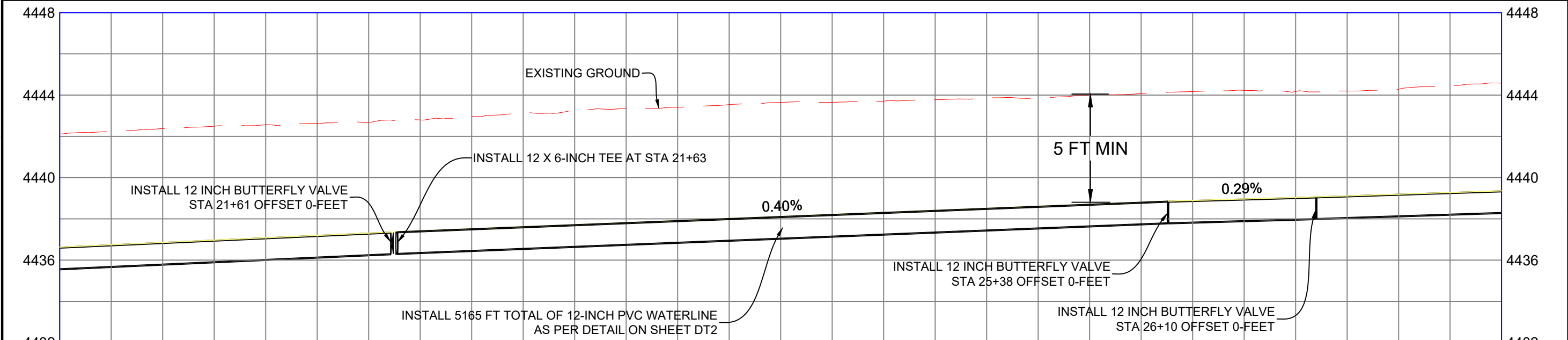
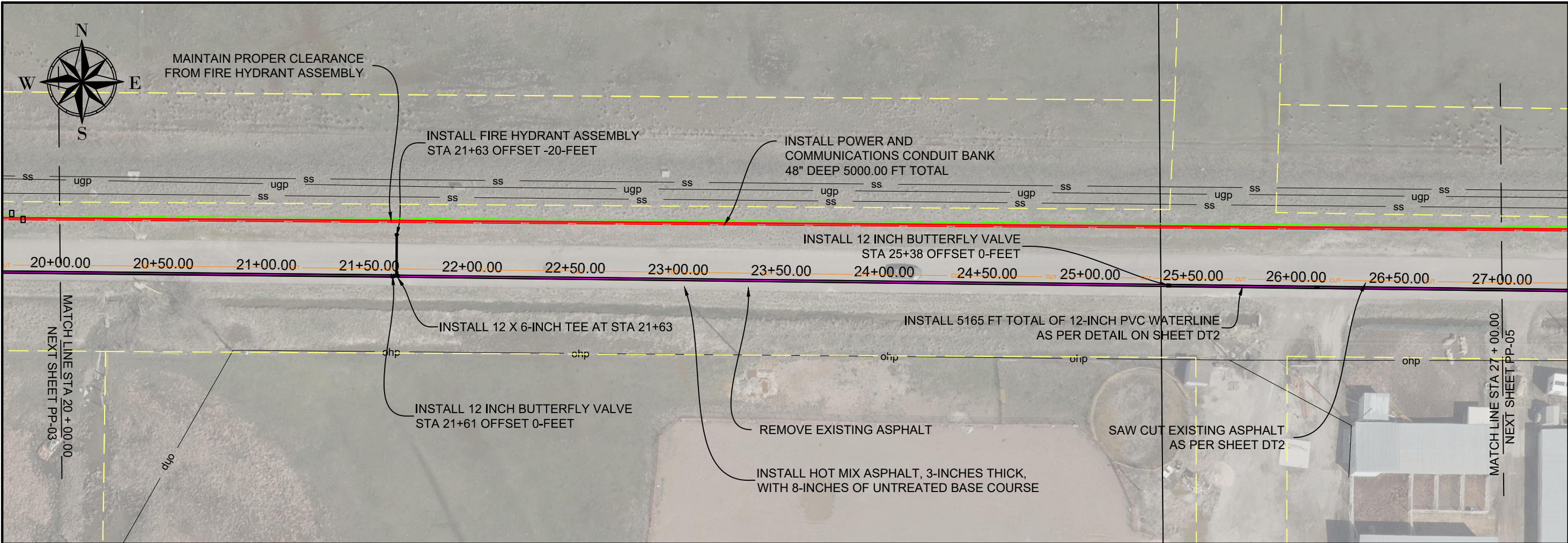
200 N TO WWTF 12-INCH WATER MAIN  
PLAN AND PROFILE  
STA 13+00.00 TO STA 20+00.00

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4442.38	4442.56	4442.67	4442.97	4443.24	4443.41	4443.65	4443.70	4443.86	4443.97	4444.17	4444.18	4444.28
4436.858	4437.084	4437.311	4437.517	4437.716	4437.914	4438.113	4438.312	4438.510	4438.709	4438.894	4439.037	4439.196
5.52	5.48	5.36	5.46	5.52	5.49	5.54	5.39	5.35	5.26	5.28	5.14	5.09
20+50	21+00	21+50	22+00	22+50	23+00	23+50	24+00	24+50	25+00	25+50	26+00	26+50

SHEET NO. **PP-4**

0'  
25'  
50'  
SCALE  
1" = 50'

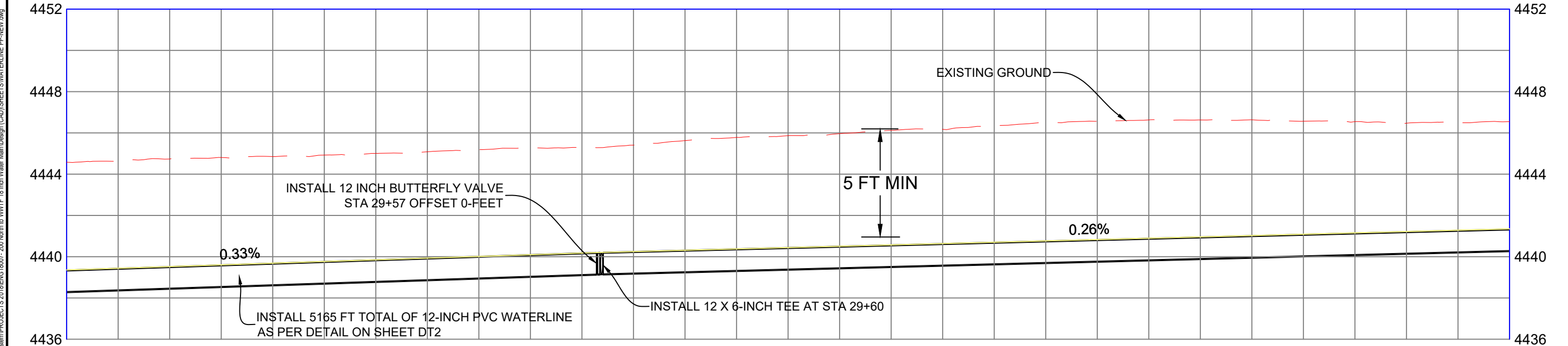
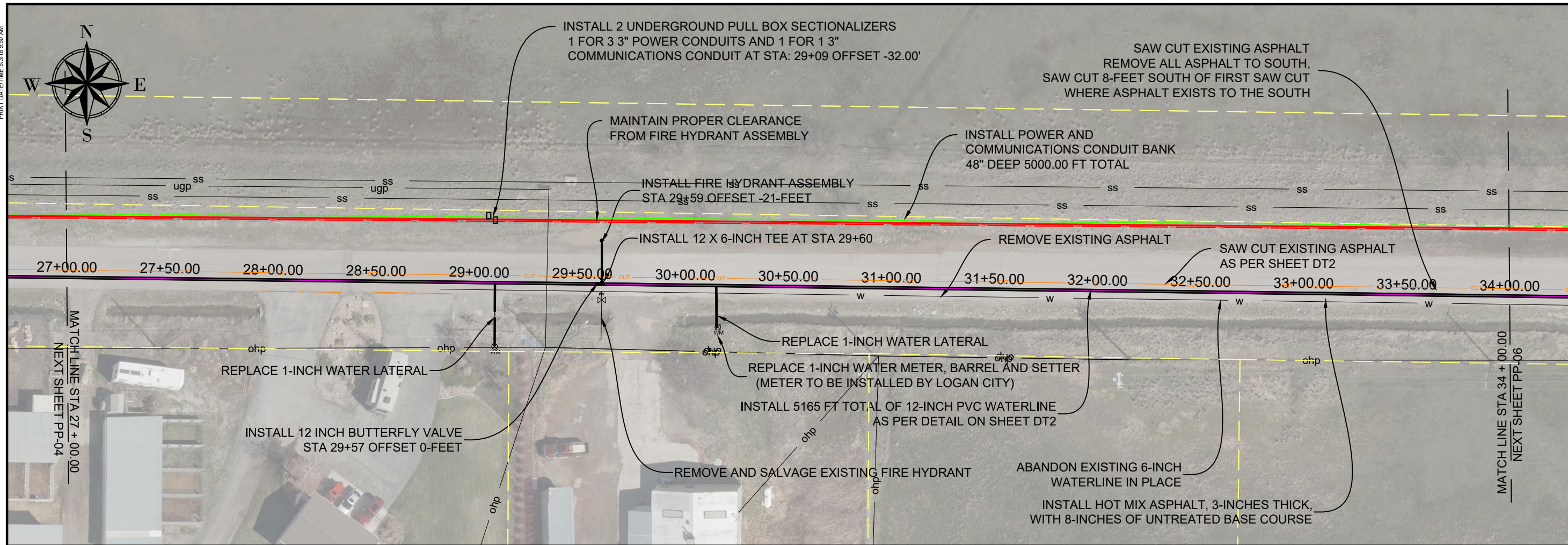
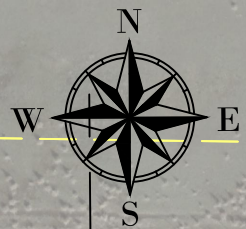
REVISION BLOCK	DATE: 3 May 18	DESIGNED: AQUILHANT	DRAWN: GSTEPHENSON
	ENG #: 18007	CHECKED: THICKINSON	

**200 N TO WWTF 12-INCH WATER MAIN**

PLAN AND PROFILE  
STA 20+00.00 TO STA 27+00.00

**LOGAN CITY ENGINEERING**  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

PRINT DATE/TIME: 5/31/18 9:50 AM



4444.74	4444.85	4445.01	4445.19	4445.30	4445.63	4445.86	4446.12	4446.36	4446.56	4446.63	4446.57	4446.47
4439.524	4439.687	4439.851	4440.015	4440.179	4440.314	4440.443	4440.573	4440.702	4440.832	4440.961	4441.091	4441.220
5.21	5.17	5.16	5.17	5.12	5.31	5.42	5.55	5.66	5.73	5.67	5.47	5.25
27+50	28+00	28+50	29+00	29+50	30+00	30+50	31+00	31+50	32+00	32+50	33+00	33+50

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG 18007 - 200 North to WWTF - 18 inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

SHEET NO: **PP-5**

SCALE: 1" = 50'

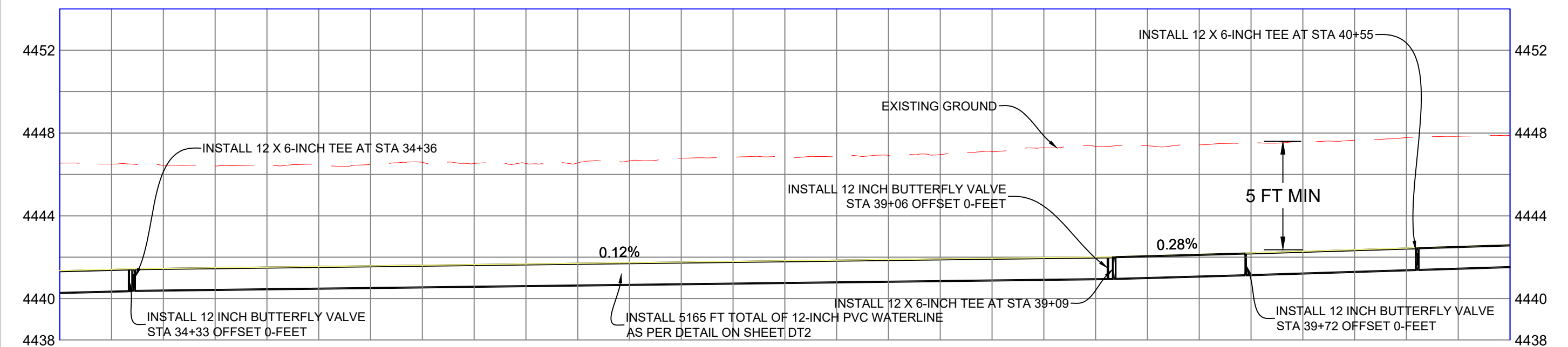
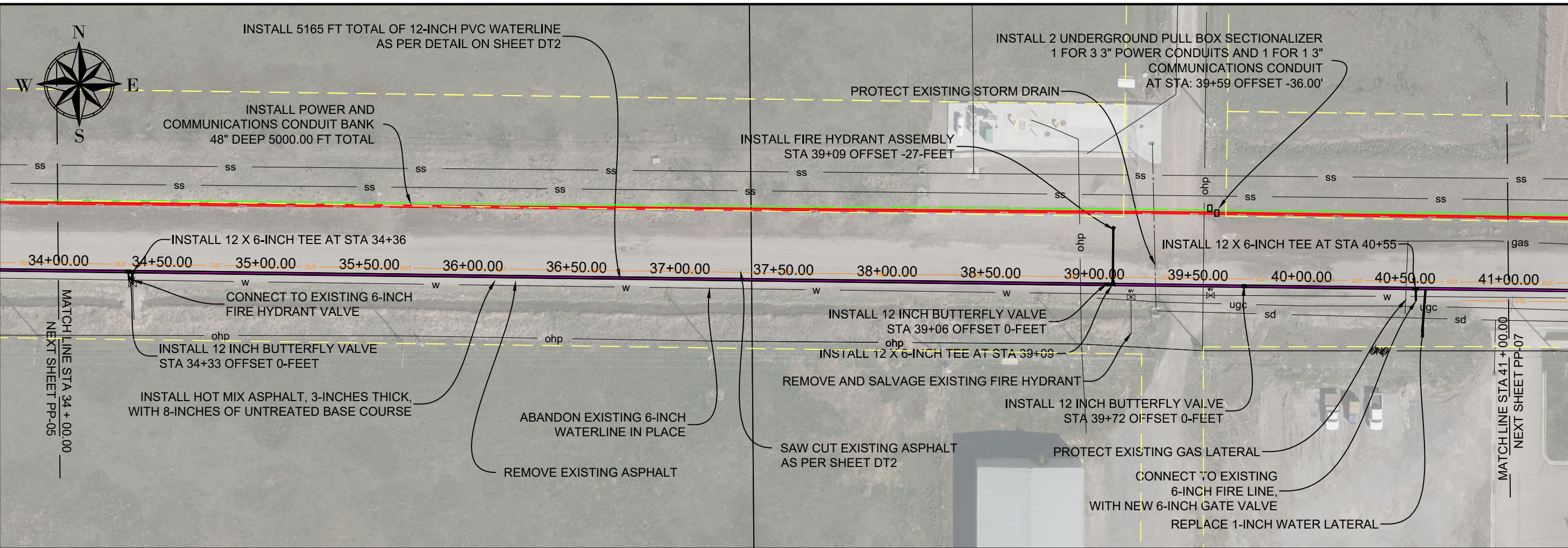
200 N TO WWTF 12-INCH WATER MAIN  
PLAN AND PROFILE  
STA 27+00.00 TO STA 34+00.00

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE  
PUBLIC WORKS DEPARTMENT

DESIGNED: AQUILANT	DATE: 3-May-18	REVISION BLOCK
DRAWN: GSTEPHENSON	ENG #: 18007	
CHECKED: THICKINSON		

PRINT DATE/TIME: 5/31/18 9:50 AM



4446.44	4441.458	4446.45	4441.519	4446.47	4441.581	4446.53	4441.642	4446.56	4441.704	4446.79	4441.765	4446.83	4441.826	4446.92	4441.888	4447.10	4441.949	4447.35	4442.010	4447.43	4442.139	4447.57	4442.287	4447.78	4442.442
4.98	4.93	4.89	4.89	4.85	5.02	5.01	5.03	5.15	5.34	5.29	5.29	5.34													
34+50	35+00	35+50	36+00	36+50	37+00	37+50	38+00	38+50	39+00	39+50	40+00	40+50													

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS\2018\ENG\18007-200 North to WWTF-18 Inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

SHEET NO: **PP-6**

SCALE: 1" = 50'

DATE: 3 May 18

DESIGNED: AQUILANT

DRAFTED: GSTEPHENSON

ENGINEER: THICKINSON

ENG #: 18007

CHECKED: THICKINSON

**200 N TO WWTF 12-INCH WATER MAIN**

PLAN AND PROFILE

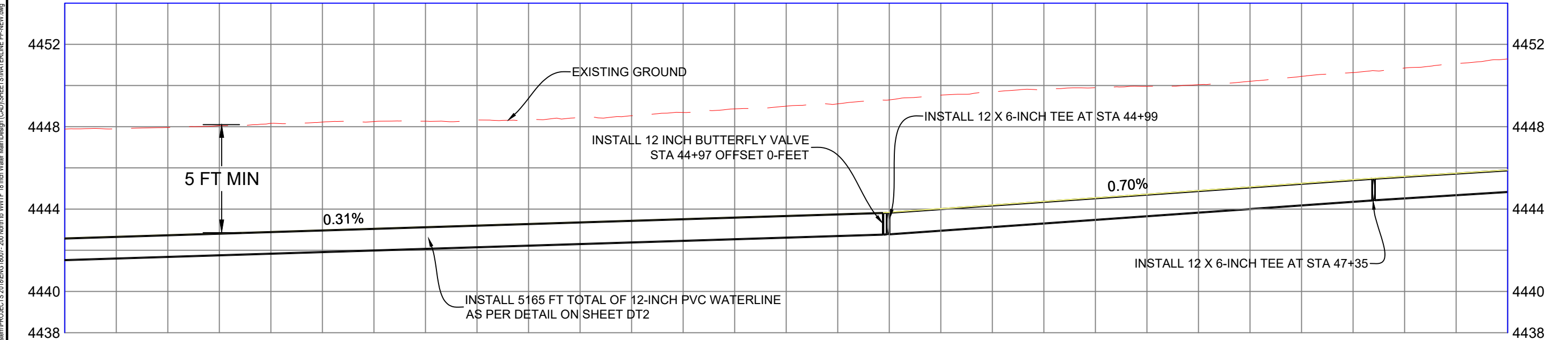
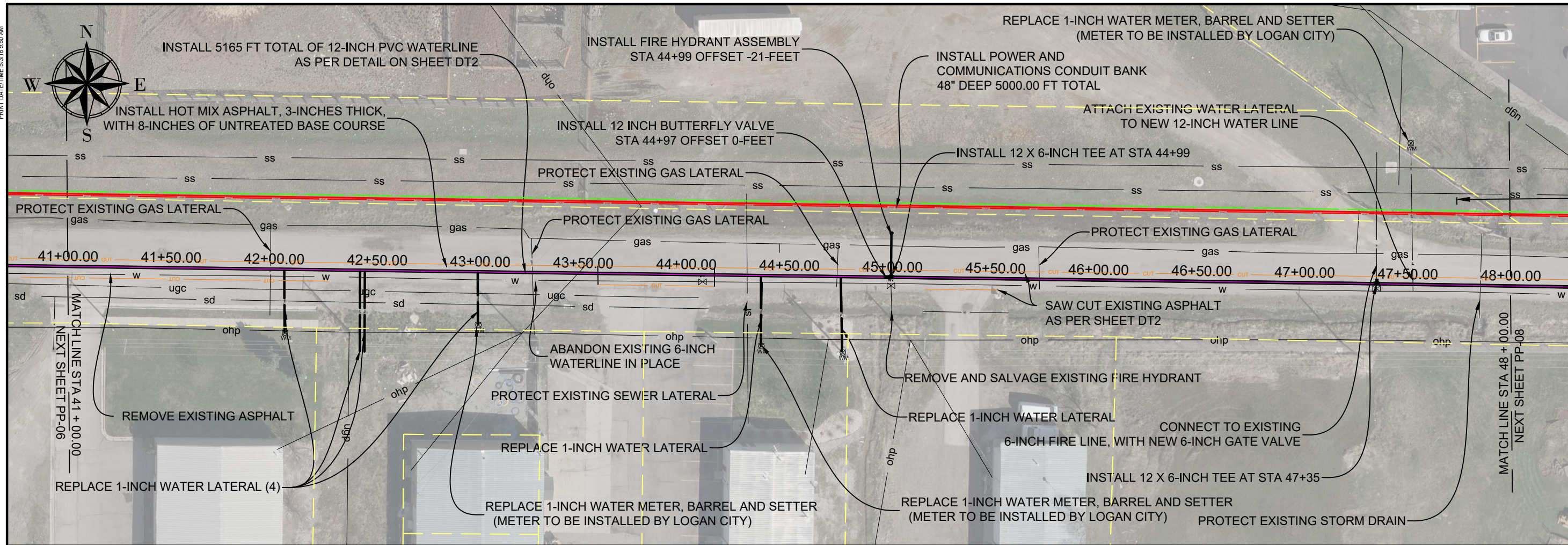
STA 34+00.00 TO STA 41+00.00

**LOGAN CITY ENGINEERING**

290 NORTH 100 WEST

LOGAN, UTAH 84321

PRINT DATE/TIME: 5/31/18 9:50 AM



4447.97	4442.753	4448.16	4442.909	4448.25	4443.064	4448.32	4443.220	4448.43	4443.376	4448.69	4443.531	4449.00	4443.687	4449.30	4443.849	4449.70	4444.200	4449.90	4444.551	4450.04	4444.902	4450.45	4445.253	4450.85	4445.591
5.21	5.25	5.19	5.10	5.05	5.16	5.31	5.45	5.50	5.35	5.14	5.19	5.26													
41+50	42+00	42+50	43+00	43+50	44+00	44+50	45+00	45+50	46+00	46+50	47+00	47+50													

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG 18007 - 200 North to WWTF - 18 inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

SHEET NO: **PP-7**

0'  
25'  
50'  
1" = 50'  
SCALE

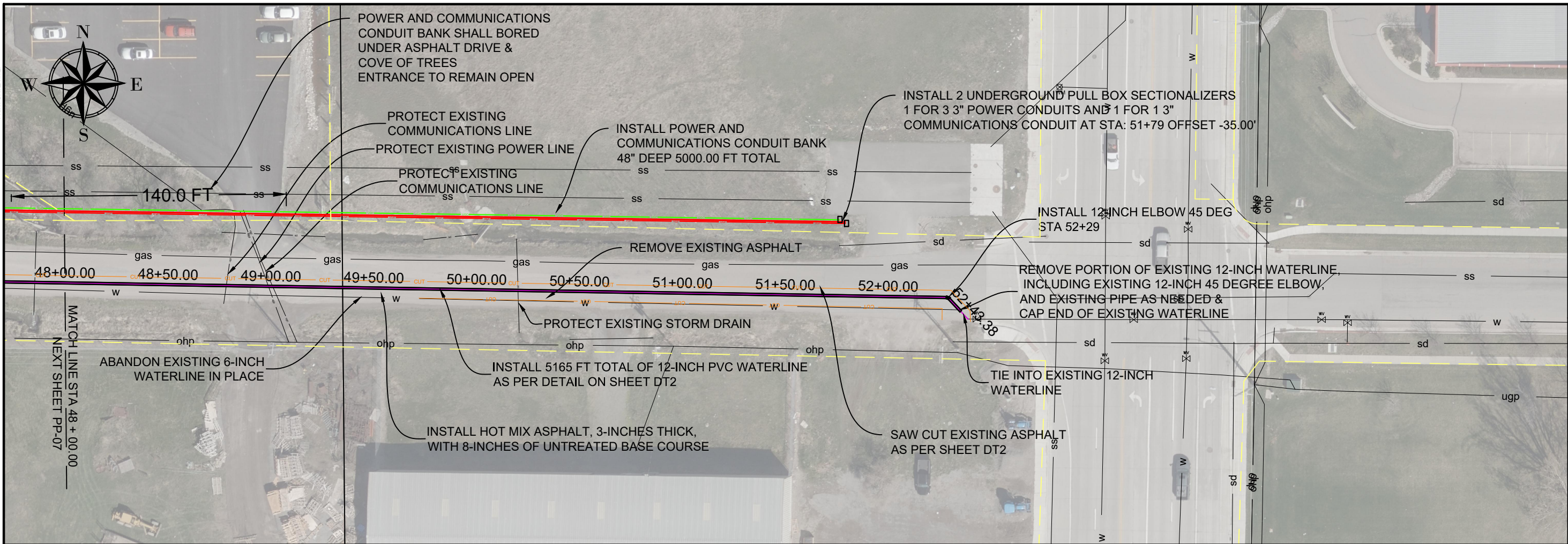
DESIGNED: AQUILANT	DATE: 3 May 18	REVISION CHECK:	REVISION:
DRAWN: GSTEPHENSON	ENG #: 18007		
CHECKED: THICKINSON			

**200 N TO WWTF 12-INCH WATER MAIN**

PLAN AND PROFILE  
STA 41+00.00 TO STA 48+00.00

**LOGAN CITY ENGINEERING**  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

PRINT DATE/TIME: 5/31/18 9:50 AM



SHEET NO: **PP-8**

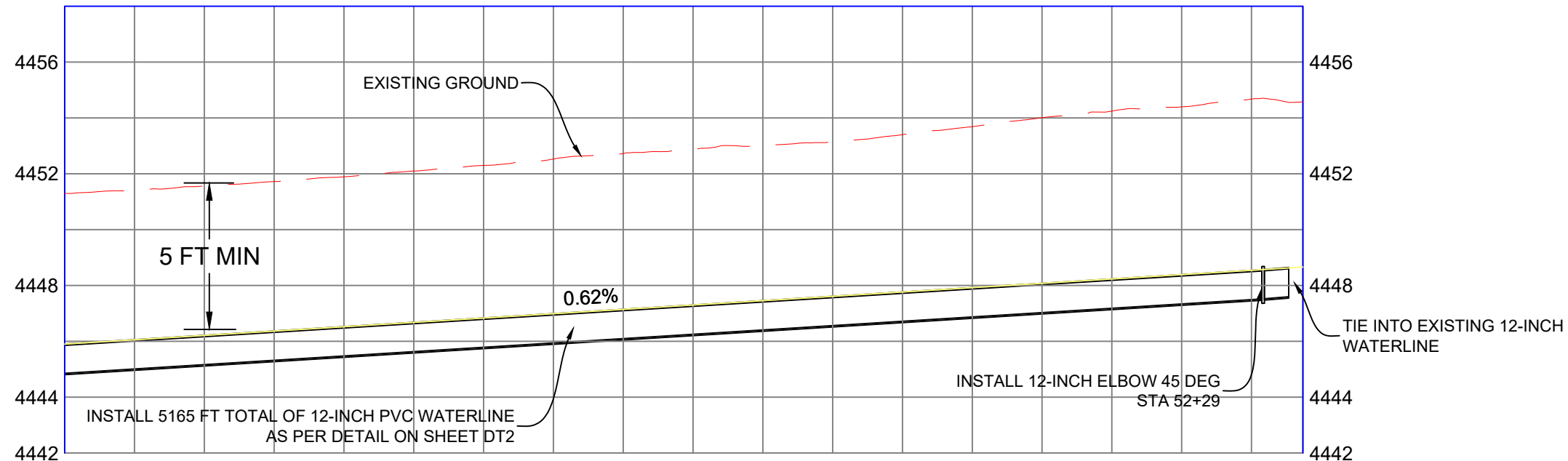
0'  
25'  
50'

1" = 50'  
SCALE

REVISION BLOCK

DATE: 3 May 18  
DESIGNED: AQUIPHANT  
DRAFTED: GSTEPHENSON  
CHECKED: THICKINSON  
ENG #: 18007

PROJECT FILE LOCATION: G:\public\Engineering File System\Projects\2018\ENG\18007\_200 North to WWTF 18 inch Water Main Design (CAD) SHEETS\WATERLINE PP-NEW.dwg

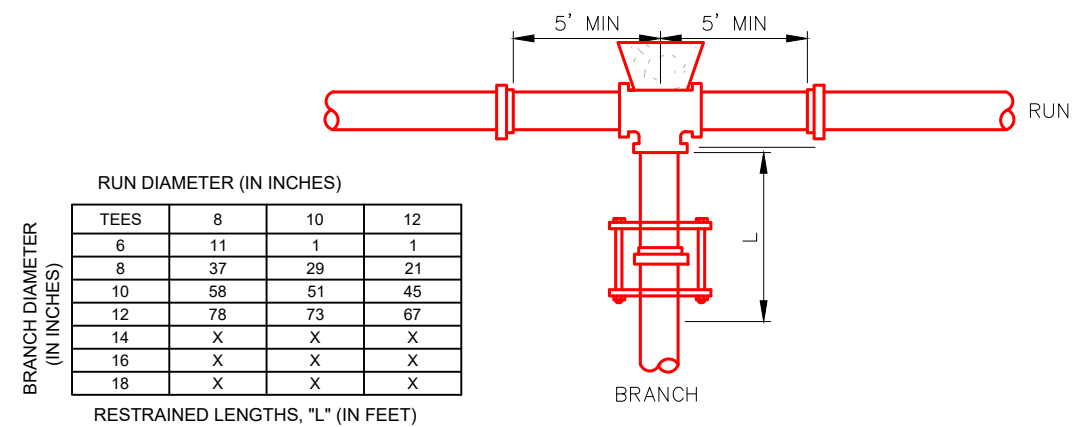


4451.56	4446.213	4451.89	4446.524	4452.30	4446.835	4452.73	4447.146	4452.98	4447.457	4453.40	4447.768	4454.01	4448.079	4454.40	4448.390
5.35	5.37	5.46	5.58	5.53	5.63	5.93	6.01								
48+50	49+00	49+50	50+00	50+50	51+00	51+50	52+00								

200 N TO WWTF 12-INCH WATER MAIN  
PLAN AND PROFILE  
STA 48+00.00 TO STA 52+43.00

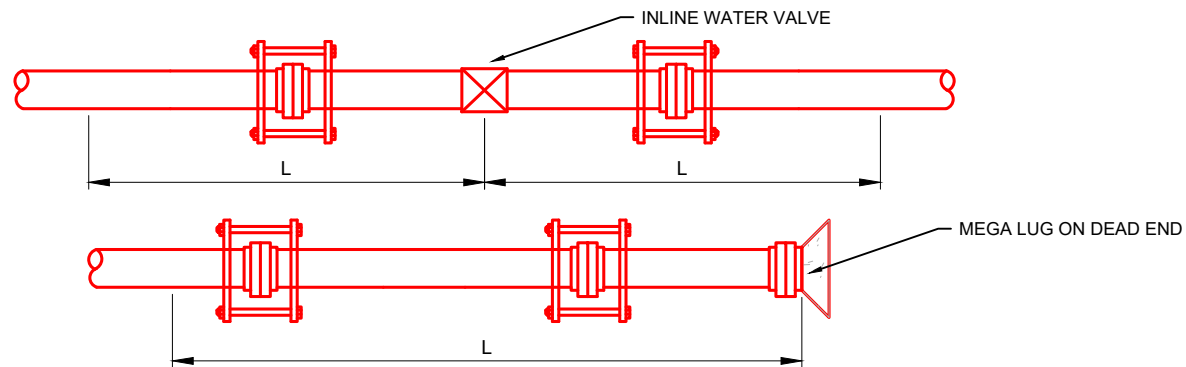
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290 NORTH 100 WEST  
LOGAN, UTAH 84321

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PUBLIC WORKS DEPARTMENT



- NOTES:
- RESTRIAN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. THERE SHOULD BE A 5 FT MINIMUM LENGTH OF PIPE INSTALLED ON EACH SIDE OF THE RUN.
  - ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH-ON PIPE PER CITY SPECIFICATION.

**A** STANDARD TEE RESTRAINING SYSTEM DETAIL  
NTS



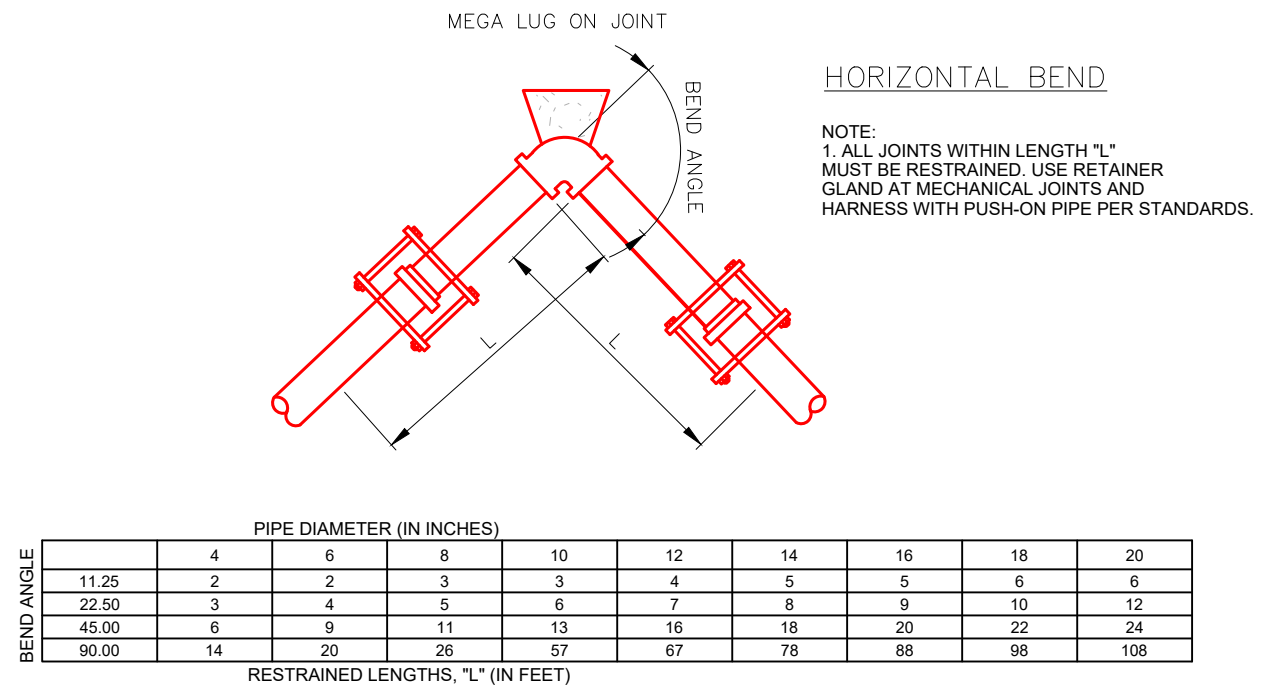
- NOTE:
- ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER STANDARDS.
  - IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED JOINT LENGTH SHALL BE DETERMINED BY THE ENGINEER.

PIPE DIAMETER (IN INCHES)								
4	6	8	10	12	14	16	18	20
37	53	70	85	100	118	131	145	161

RESTRAINED LENGTHS, "L" (IN FEET)

**B** IN LINE VALVE / DEAD END RESTRAINING SYSTEM DETAIL  
NTS

- GENERAL RESTRAINING NOTES:
- ALL JOINTS WITHIN THE CALCULATED RESTRAINT LENGTH MUST BE RESTRAINED.
  - IF THE DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, ALL JOINTS BETWEEN THE FITTINGS MUST BE RESTRAINED.
  - PIPE ON EITHER SIDE OF FITTINGS SHALL BE A MINIMUM 5 FT. LENGTH PIPE SECTION.
  - PLACE 1.5' TO 2' SQUARE CONCRETE THRUST BLOCK AT EACH FITTING.
  - RESTRAIN LENGTH CALCULATIONS ARE BASED ON:
    - USCS SOIL TYPE CL (INORGANIC CLAYS-NATIVE SOIL BACKFILLED WITH GRANULAR MATERIAL).
    - TESTING PRESSURE OF 225 PSI (PER LOGAN CITY ENGINEER).
    - SAFETY FACTOR OF 1.5.



HORIZONTAL BEND

NOTE:  
1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER STANDARDS.

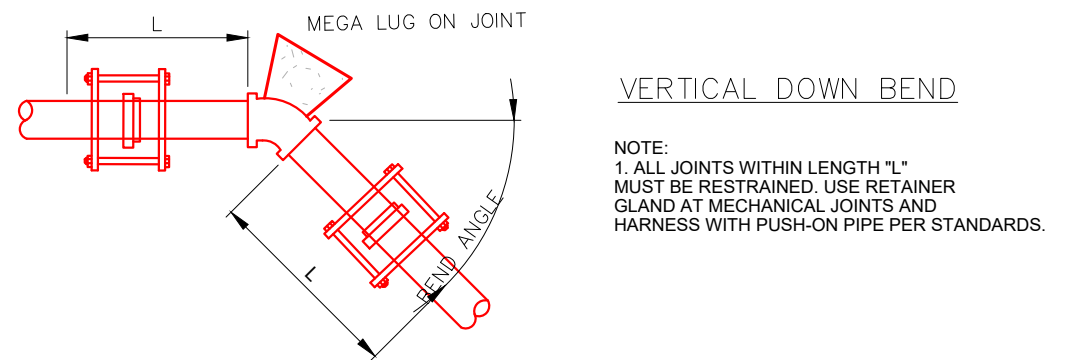
SHEET NO: DT-1

SCALE: 1" = 50'

DESIGNED: AQUILANT  
DATE: 3 May 18

DRAFTED: GSTEPHENSON  
ENG #: 18007

CHECKED: THICKINSON



VERTICAL DOWN BEND

NOTE:  
1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER STANDARDS.

6 INCH NOMINAL SIZE ONLY DEPTH OF VERTICAL OFFSET OR LOOP (IN FEET)

BEND ANGLE	UPPER BEND RESTRAINT LENGTH	DEPTH OF VERTICAL OFFSET OR LOOP (IN FEET)				
		2	4	6	8	10
11.25	8	3	3	2	2	2
22.50	15	6	5	4	3	3
45.00	31	12	9	7	6	5

RESTRAINT LENGTHS FOR LOWER BEND, "L" (IN FEET)

12 INCH NOMINAL SIZE ONLY DEPTH OF VERTICAL OFFSET OR LOOP (IN FEET)

BEND ANGLE	UPPER BEND RESTRAINT LENGTH	DEPTH OF VERTICAL OFFSET OR LOOP (IN FEET)				
		2	4	6	8	10
11.25	14	6	4	4	3	3
22.50	28	11	8	7	6	5
45.00	58	22	16	13	11	10

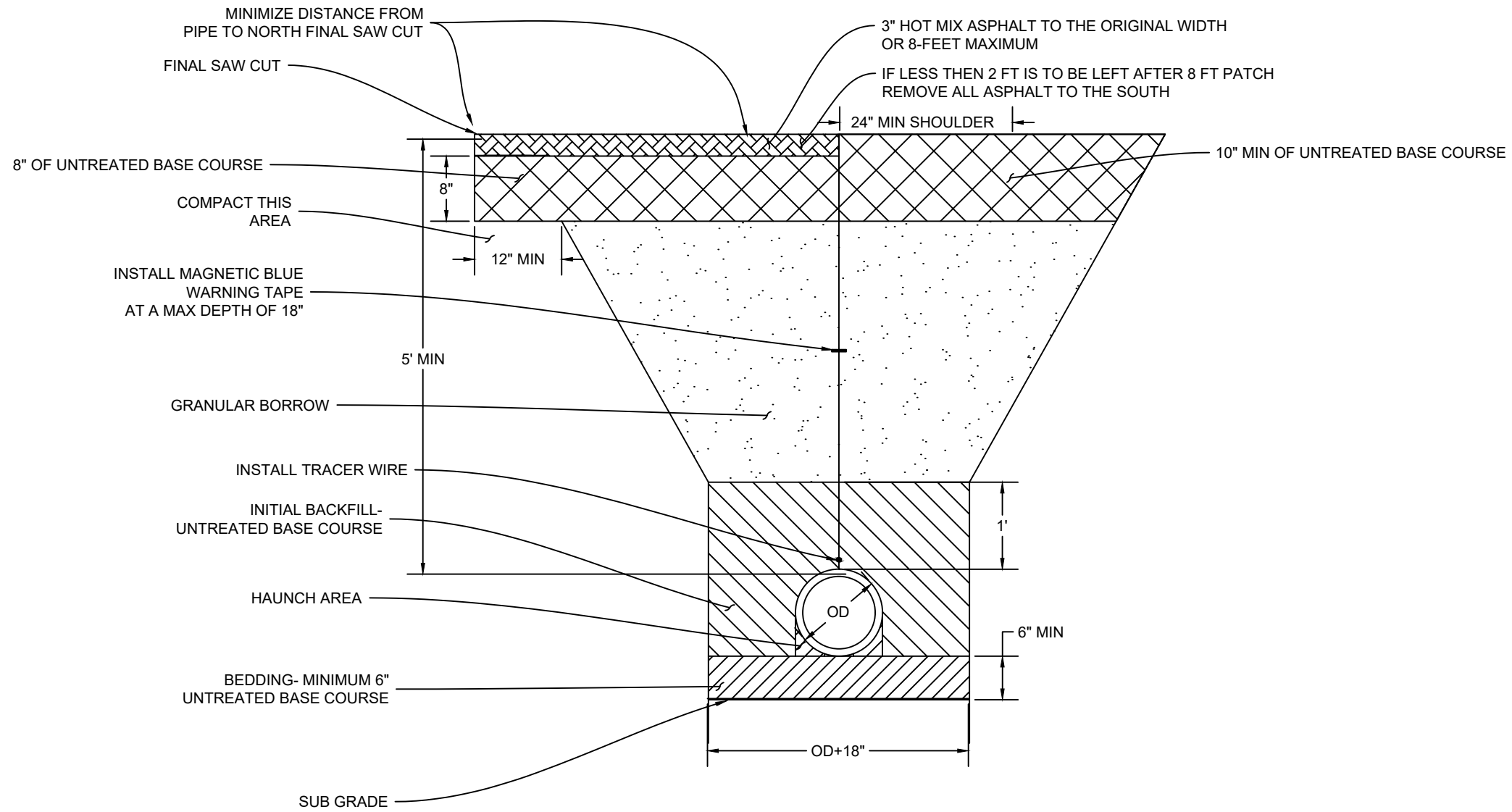
RESTRAINT LENGTHS FOR LOWER BEND, "L" (IN FEET)

**C** STANDARD BENDS RESTRAINING SYSTEM DETAIL  
NTS

200 N TO WWTF 12-INCH WATER MAIN DETAILS

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

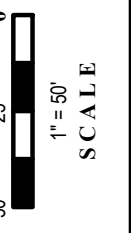
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PUBLIC WORKS DEPARTMENT



**NOTES:**

1. PLACE PLASTIC PIPE ONLY WITHIN A TRENCH. PLACE FILL MATERIAL AT OR ABOVE THE PIPE BACKFILL ELEVATION BEFORE EXCAVATION OF THE TRENCH WHEN PLACED IN AN EMBANKMENT.
2. DO NOT DISTURB THE INSTALLED PIPE OR EMBEDMENT OR LEAVE VOIDS WHEN USING TRENCH BOXES AND SHIELDS.

**A** TYPICAL PIPE TRENCH SECTION  
 - NTS



DESIGNED:	ADRIPHANT	DATE:	3 May/18
DRAWN:	GSTEPHENSON	ENG #:	18007
CHECKED:	TUCKINSON		

200 N TO WWTF 12-INCH WATER MAIN  
 DETAILS CONTINUED

LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321

