

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT

STRAND JOB NO. 4516.008
CITY PROJECT #20-10-06

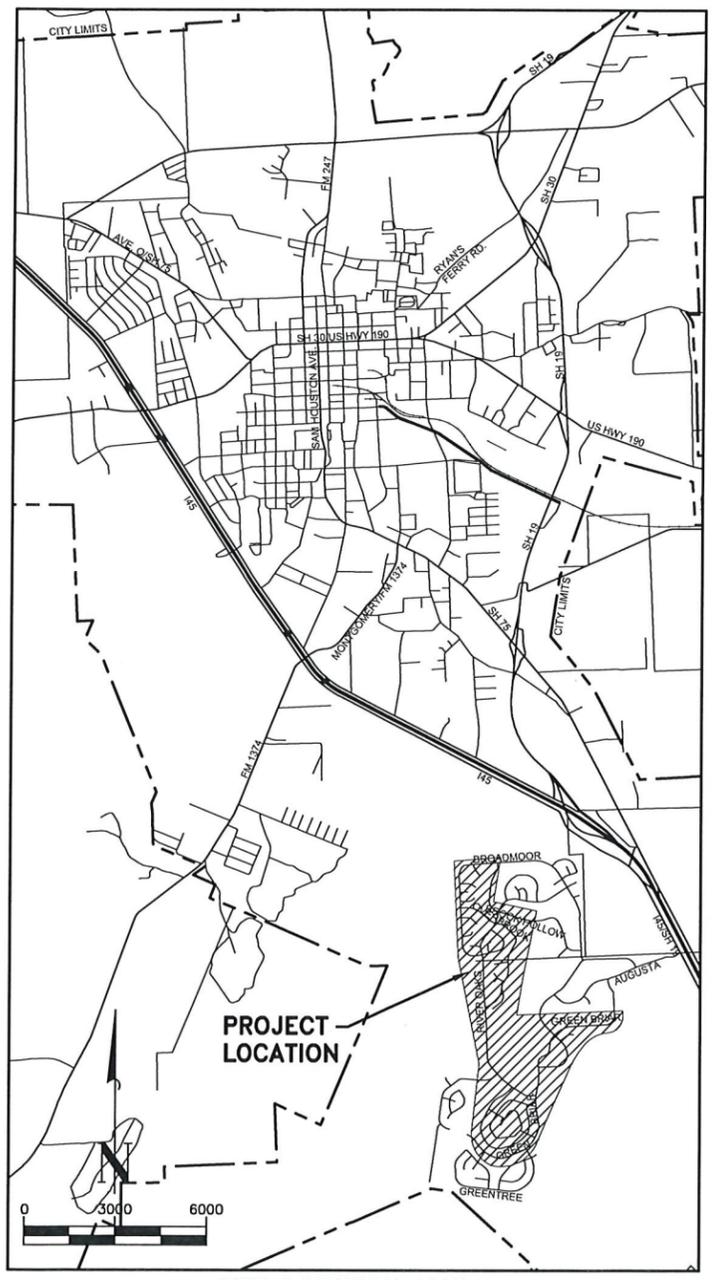
MAYOR:
ANDY BRAUNINGER

CITY COUNCIL MEMBERS:
DAIQUIRI BEEBE, WARD 1
RUSSELL HUMPHREY, WARD 2
DELORIS MASSEY, WARD 3
JON STRONG, WARD 4
BERT LYLE, POSITION 1 AT LARGE
KAREN DENMAN, POSITION 2 AT LARGE
VICKI McKENZIE, POSITION 3 AT LARGE
PAT GRAHAM, POSITION 4 AT LARGE

CITY MANAGER:
ARON KULHAVY



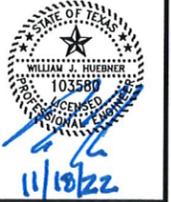
STRAND ASSOCIATES, INC.
BRENHAM, TEXAS



SITE LOCATION MAP
CITY OF HUNTSVILLE

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
1	TITLE SHEET
2	GENERAL NOTES
3	PROJECT LOCATION MAP
4	SUBBASIN A PLAN & PROFILE STA. 0+00-STA. 5+50 (BASE BID)
5	SUBBASIN A PLAN & PROFILE STA. 5+50-STA. 11+00 (BASE BID)
6	SUBBASIN A PLAN & PROFILE STA. 11+00-STA. 16+50 (BASE BID)
7	SUBBASIN A PLAN & PROFILE STA. 16+50-STA. 22+00 (BASE BID)
8	SUBBASIN A PLAN & PROFILE STA. 22+00-STA. 25+50 (BASE BID)
9	SUBBASIN A PLAN & PROFILE STA. 25+50 TO END (BASE BID)
10	SUBBASIN B (BASE BID)
11	SUBBASIN C (BASE BID)
12	SUBBASIN D NORTHEAST (ALT. BID 2)
13	SUBBASIN D NORTHWEST (ALT. BID 1)
14	SUBBASIN D SOUTH (ALT. BID 1)
15	SUBBASIN E (ALT. BID 1)
16	SANITARY SEWER DETAILS I
17	SANITARY SEWER DETAILS II
18	EROSION CONTROL DETAILS

ENGINEERING DEPARTMENT
CITY OF HUNTSVILLE, TX
 REVIEWED BY: *Kathie S. Jeng-Bulloch*
 Dr. Kathie S. Jeng-Bulloch, P.E., D.WRE, CFM
 City Engineer
 Director of Engineering Department
 DATE: 11/28/2022



STRAND ASSOCIATES, INC.
 TBPE NO. F-8405 TBPLS NO. 10030000
 1906 NIEBUHR BRENHAM, TX 77833
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 TBPE No. F-8405

CITY OF HUNTSVILLE
NB-06 SANITARY SEWER REHABILITATION PROJECT
PHASE 2
STRAND JOB NO. 4516.008 | CITY PROJECT #20-10-06

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GENERAL SAN. SEWER NOTES:

- IN ADDITION TO THE OTHER NOTIFICATIONS REQUIRED BY THE SPECIFICATIONS AND CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE CITY OF HUNTSVILLE, AT (936)291-5400, AND STRAND ASSOCIATES, INC., AT (979)836-7937, WHEN THE FOLLOWING PHASES OF CONSTRUCTION ARE ABOUT TO BEGIN:
 - 48 HOURS BEFORE ACTUAL WORK BEGINS, AND
 - 24 HOURS BEFORE ANY REQUIRED TESTING.
- CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITY LINES LOCATED AT LEAST 48 HOURS BEFORE DIGGING.
- CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY TO PROVIDE FOR TRAFFIC CONTROL IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. IN THE EVENT OF STREET CLOSURES, CONTRACTOR SHALL NOTIFY ALL EMERGENCY SERVICE PROVIDERS AT LEAST 24 HOURS PRIOR TO CLOSING STREETS TO TRAFFIC. CONTRACTOR SHALL SUBMIT DETAILED PLAN FOR TRAFFIC CONTROL FOR ENGINEER/CITY REVIEW AND ACCEPTANCE.
- ALL UNDERGROUND UTILITY LINES SHOWN ON THE PLANS ARE SHOWN FOR THE PURPOSE OF MAKING THE CONTRACTOR AWARE THAT THEY EXIST. NEITHER THE OWNER, NOR THE ENGINEER GUARANTEES THE ACCURACY THEREOF. ALSO, THE LOCATIONS OF SOME EXISTING UTILITY LINES ARE NOT KNOWN AND THE CONTRACTOR WILL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES DURING CONSTRUCTION. THE FINAL ALIGNMENT OF THE PROPOSED LINES ARE SUBJECT TO MODIFICATION PENDING THE ESTABLISHMENT OF THE EXISTING UTILITY LOCATIONS AND THE CONTRACTOR WILL BE COMPENSATED FOR EXTRA PIPE AND FITTINGS AT UNIT PRICE BID BUT NO COMPENSATION WILL BE MADE FOR EXTRA TIME RESULTING FROM THE MODIFICATIONS.
- ANY PROPERTY BOUNDARY MONUMENTS DISTURBED BY CONTRACTOR SHALL BE REPLACED TO THE ORIGINAL CONDITION BY A REGISTERED PROFESSIONAL LAND SURVEYOR AT CONTRACTOR'S EXPENSE.
- UNLESS SPECIFICALLY IDENTIFIED ON THE PLAN SET, ALL PUBLIC EASEMENTS DENOTED ON THESE PLANS HAVE BEEN DEDICATED TO THE USE OF THE PUBLIC FOREVER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT ALWAYS OF INGRESS AND EGRESS TO AND FROM AND UPON THESE EASEMENTS FOR CONSTRUCTION, RECONSTRUCTION, INSPECTION, PATROLLING, MAINTAINING AND ADDING TO OR REMOVING ALL OR PARTS OF ITS RESPECTIVE SYSTEMS WITHOUT THE NECESSITY AT ANY TIME OF GETTING THE PERMISSION OF THE PROPERTY OWNER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT TO MOVE AND KEEP MOVED ALL OR PART OF ANY BUILDING, FENCES, TREES, SHRUBS, OTHER GROUNDS OR IMPROVEMENTS THAT IN ANY WAY ENDANGER OR INTERFERE WITH THE CONSTRUCTION, MAINTENANCE, OR EFFICIENCY OF ITS RESPECTIVE SYSTEMS ON ANY OF THE EASEMENTS. NEITHER THE CITY OF HUNTSVILLE NOR ANY PUBLIC UTILITY SHALL BE RESPONSIBLE FOR REPLACING OR REIMBURSING THE PROPERTY OWNER DUE TO REMOVAL OR RELOCATION OF ANY OBSTRUCTIONS IN THE PUBLIC EASEMENTS.
- ANY UNPAVED AREA DISTURBED BY CONTRACTOR SHALL BE GRADED, SHAPED AND SEEDED PER TECHNICAL SPECIFICATION 32 92 19.
- EROSION CONTROL MEASURES SHALL CONFORM TO ALL STATE AND FEDERAL REQUIREMENTS, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION OF THE PROJECT.
- CONTRACTOR SHALL PROVIDE CONTINUOUS ACCESS OR ALTERNATIVES TO RESIDENTS.
- THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING OPERATIONS REQUIRED TO INSTALL THE IMPROVEMENTS COVERED UNDER THIS PROJECT (NO SEPARATE PAY). NO CLEARING OR GRUBBING SHALL TAKE PLACE OUTSIDE ANY EASEMENT OR RIGHT-OF-WAY. TREES WITHIN PERMANENT UTILITY EASEMENTS SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR UNLESS SHOWN TO BE BORED. CONTRACTOR MAY BORE THESE TREES IN LIEU OF REMOVING THEM AT NO EXTRA COST TO THE OWNER. TREES DESIGNATED TO BE PRESERVED SHALL BE BORED FROM DRIP LINE TO DRIP LINE. CONTACT ENGINEER IF PLANS DO NOT CALL FOR BORING A DESIGNATED TREE TO BE PRESERVED.
- THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD POWER AND TELEPHONE LINES EXIST WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT MAINTAINS A MINIMUM SAFE CLEARANCE FROM ALL ENERGIZED POWER LINES.
- AS PART OF THIS PROJECT, THE CONTRACTOR WILL MAINTAIN RESPONSIBILITY FOR MAINTAINING FENCES NECESSARY TO SECURE PRIVATE PROPERTY, SUCH AS PUBLIC SAFETY, CATTLE, HORSES, PETS, ETC. WHERE PRACTICAL, THE CONTRACTOR WILL PLACE PREVIOUSLY REMOVED EXISTING FENCE SECTIONS THAT CROSS THE EASEMENTS, BUT IS NOT RESPONSIBLE FOR REPLACING LENGTHS OF FENCING THAT IS WITHIN THE EASEMENT. PLANTINGS (I.E. FLOWER BEDS, GARDENS, ETC.) AND OTHER PRIVATE IMPROVEMENTS (I.E. CONCRETE, BRICK) WITHIN THE EASEMENTS ARE NOT THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE OR RESTORE.
- THE CONTRACTOR SHALL DISPOSE OF ALL SURPLUS MATERIALS FROM THE PROJECT IN A MANNER ACCEPTABLE TO THE OWNER AND THE ENGINEER AND IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
- AREAS DISTURBED BY CONSTRUCTION SHALL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH SECTION 32 92 19 OF THE TECHNICAL SPECIFICATIONS.
- CONTRACTOR SHALL REPAIR ALL PAVEMENT AS DETAILED ON THE PLANS. ALL PAVEMENT REPAIR AND REPLACEMENT SHALL BE EQUAL TO OR BETTER THAN EXISTING PAVEMENT. ALL ASPHALT REPAIR SHALL INCLUDE A MINIMUM OF 1 1/2" OF COMPACTED HMA. BACKFILL UNDER PAVEMENT SHALL BE AS SHOWN ON THE PLANS. WHERE A LINE IS TO BE INSTALLED UNDERNEATH PAVEMENT, THE PAVEMENT SHALL BE CUT BY SAW OR OTHER APPROVED MEANS BEFORE EXCAVATION. INCLUDE SAWCUT OF PAVEMENT AND BACKFILL IN UNIT PRICE FOR PAVEMENT REPAIR. CONTRACTOR MAY CHOOSE TO BORE ROADS IN LIEU OF OPEN CUTTING. PAYMENT WILL BE MADE BASED ON OPEN CUT ASPHALT REPAIR.
- WHERE SEWER LINES CROSS UNDER EXISTING CURB AND GUTTER, THERE WILL BE NO SEPARATE PAY FOR REPAIR OR REPLACEMENT OF CURB AND GUTTER EXCEPT WHERE SHOWN OTHERWISE ON PLANS.
- NO SEPARATE PAYMENT SHALL BE PROVIDED FOR REPLACING EXISTING GRAVEL OR ROAD BASE IN UNPAVED AREAS TO CONDITION EQUAL TO, OR BETTER THAN, PRE-EXISTING.
- ALL TRENCHES AND AREAS INSIDE TxDOT RIGHT-OF-WAY DISTURBED BY CONSTRUCTION SHALL BE SEEDED IN ACCORDANCE WITH TxDOT PERMIT REQUIREMENTS. COMPENSATION FOR SEEDING IN TxDOT RIGHT-OF-WAY WILL BE PROVIDED ON A LUMP SUM BASIS.
- WHERE TUNNELING IS CALLED FOR UNDER SIDEWALKS, CULVERTS, ETC., BACKFILL WITH CEMENT STABILIZED SAND, COMPACT TO 92% STD. PROCTOR.
- IN AREAS WHERE SEWER LINE IS TO BE INSTALLED NEAR AN EXISTING POWER POLE, NOTIFY THE ELECTRIC PROVIDER 48 HOURS IN ADVANCE OF DIGGING SO THAT THEY CAN BRACE THE POLE DURING EXCAVATION AND BACKFILLING OF LINE. A MINIMUM OF 3' FROM EDGE OF POLE TO EDGE OF TRENCH SHOULD BE MAINTAINED DURING CONSTRUCTION OF ALL UTILITY LINES IN THIS PROJECT. CONSULT ELECTRIC PROVIDER WHENEVER THIS MINIMUM CLEARANCE CANNOT BE MAINTAINED.
- SEWER LINES WHICH RUN PARALLEL WITH A POWER LINE AND ARE TO BE INSTALLED CLOSER THAN SIX FEET TO A POWER POLE SHALL BE INSTALLED BY BORE FROM A POINT FIVE FEET BEFORE THE POWER POLE TO A POINT FIVE FEET PAST THE POWER POLE (TEN FOOT BORE LENGTH). WHERE IT IS NECESSARY TO OPEN CUT CLOSER THAN THIS DISTANCE TO A POWER POLE IN ORDER TO INSTALL FITTINGS, VALVES, ETC., THE CONTRACTOR SHALL RESTRAIN THE POLE DURING CONSTRUCTION, OR SHALL CAUSE THE POWER COMPANY TO RESTRAIN THE POLE, AND ALL BACKFILL WITHIN FIVE FEET LONGITUDINALLY OF THE POWER POLE SHALL BE COMPACTED TO NOT LESS THAN 95% STD. PROCTOR BEFORE RELEASING THE POLE. NO SEPARATE PAYMENT WILL BE MADE FOR RESTRAINING THE POLE DURING CONSTRUCTION.
- UTILITY CONTRACTOR SHALL ADJUST GRADE OF MANHOLES AND CLEANOUTS TO MATCH FINISHED GRADE AFTER FINAL GRADING.
- EXISTING SEWERS WILL BE REPLACED IN APPROXIMATELY SAME LOCATION, EXCEPT WHERE NOTED OTHERWISE. COST OF SEWER SHALL INCLUDE ALL BYPASS PUMPING TO PROVIDE CONTINUOUS FLOW AROUND CONSTRUCTION AREA. LOCATIONS OF SERVICE LINES ARE UNKNOWN. EXISTING SERVICE WYES OR TEES SHALL BE LOCATED IN FIELD.
- REPLACE ALL 4" SERVICE SERVICE LINES BETWEEN MAIN SEWER AND PROPERTY LINE AND INSTALL SERVICE CLEANOUT WITH BOX (SEE DETAILS) AT TIE-IN TO EXISTING SERVICE. VERIFY ELEVATION OF SERVICE LINE AT PROPERTY LINE BEFORE MAKING CONNECTION TO MAIN SEWER TO ENSURE ADEQUATE FALL IN SERVICE LINES. WHERE NEW SERVICES ARE SHOWN ON PLANS, INSTALL AT LOCATION ACCEPTABLE TO PROPERTY OWNER AND TIE-IN TO EXISTING SERVICE OR CAP FOR FUTURE CONNECTION BY OTHERS.
- EXISTING SANITARY SEWER MANHOLES WILL BE REPLACED IN THE SAME LOCATION, EXCEPT WHERE OTHERWISE SHOWN ON PLANS.
- ABANDONMENT OF MANHOLE TO CONSIST OF PLUGGING ALL LINES WITH 1" CONCRETE PLUG, REMOVING RING AND COVER, BREAK CONE OR REMOVE TO 3' BELOW FINISHED GROUND AND FILL WITH COMPACTED BANK SAND TO FINISHED GROUND OR TO BOTTOM OF PAVEMENT BASE.
- BYPASSING (DISCHARGING) OF RAW SEWAGE ON THE SURFACE OR TO ADJOINING WATERWAYS IS STRICTLY PROHIBITED.
- CONTRACTOR SHALL PERFORM BYPASS PUMPING AS REQUIRED.
- TIE-IN TO EXISTING MANHOLES SHALL INCLUDE BREAKING OUT FOR NEW PIPE, INSTALLATION OF WATER STOP GASKET ON PIPE AND EXTERNAL AND INTERNAL GROUTING TO PROVIDE WATERIGHT CONNECTION AND SMOOTH MANHOLE BOTTOM. REGROUT MANHOLE BOTTOM TO PROVIDE UNIFORM INVERT THROUGH MANHOLE AND SLOPE SHELF TO DRAIN. REGROUT PRECAST MANHOLE JOINTS USING NON-SHRINKING GROUT.
- CONTRACTOR TO VERIFY LOCATIONS OF EXISTING WATERLINES DURING CONSTRUCTION. IF THE REQUIRED SEPARATION DISTANCE BETWEEN PARALLEL WATER AND SEWER LINES, AS DETAILED IN TECHNICAL SPECIFICATION SECTION 33 31 13, CANNOT BE MAINTAINED, CONTRACTOR TO RELOCATE WATERLINE AS DIRECTED BY THE ENGINEER.
- ALL SANITARY SEWER FORCE MAIN PIPE SHALL BE INSTALLED WITH TRACE WIRE AND PER TECHNICAL SPECIFICATION SECTION 33 11 13.19.
- THE COST OF ALL FITTINGS REQUIRED IN CONNECTION WITH THE PVC SANITARY SEWER FORCE MAINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR LINE. NO SEPARATE PAYMENT WILL BE MADE FOR FITTINGS ON SANITARY SEWER FORCE MAINS.
- CONTRACTOR SHALL MAINTAIN POSITIVE GRADE IN FORCE MAIN PIPE TO POINTS OF AIR RELEASE TO PREVENT AIR POCKETS.
- CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AT ALL FORCE MAIN BENDS IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. NO SEPARATE PAYMENT WILL BE MADE FOR THRUST BLOCKING AND THE COST OF SAME SHALL BE INCLUDED IN THE UNIT PRICE FOR LINE WORK. CONTRACTOR SHALL EXERCISE CARE NOT TO GET CONCRETE USED FOR THRUST BLOCKING ON BOLTS AND GLANDS OF FITTINGS.
- ALL MANHOLES CONSTRUCTED IN DRAINAGE DITCHES OR LOW AREAS SHALL HAVE A SELF SEALING TYPE MANHOLE FRAME AND COVER, PER DETAIL SHEET (NO SEPARATE PAY).
- CONTRACTOR SHALL INSTALL SEWER SERVICE LINES BETWEEN MAIN SEWER AND TO LOCATE 5' OF EXISTING STRUCTURE BEING SERVED AND INSTALL SERVICE CLEANOUT (SEE DETAILS) AT TIE-IN TO EXISTING SERVICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL CONNECTIONS INCLUDING OUT BUILDINGS OR REMOTE SERVICES AND TIE INTO THE NEW SERVICE LINE. SERVICE LINES SHOWN ON PLANS ARE FOR ESTIMATING PURPOSES ONLY AND MAY NOT REFLECT THE EXISTING LOCATIONS OR LENGTH. CONTRACTOR TO VERIFY ELEVATION OF SERVICE LINE AT PROPERTY LINE BEFORE MAKING CONNECTION TO MAIN SEWER TO ENSURE ADEQUATE SLOPE IN SERVICE LINES.
- THE COST FOR RECONNECTING THE PROPOSED SERVICE LINE TO THE SERVICE LINE AT THE HOUSE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SERVICE WYES. NO SEPARATE PAYMENT WILL BE MADE FOR SERVICE LINE RECONNECTION. A SEPARATE BID ITEM FOR CLEANOUTS IS PROVIDED.
- THE CONTRACTOR SHALL HAVE ON-SITE A STEEL PLATE OR OTHER DEVICE OF SUFFICIENT STRENGTH TO PLACE ACROSS AN EXCAVATED TRENCH TO ALLOW VEHICLES TO CROSS IN AN EMERGENCY OR AT A DEAD-END STREET. THE CONTRACTOR SHALL PLACE THE PLATE (DEVICE) ACROSS THE TRENCH IMMEDIATELY WHEN NEEDED.
- THE CONTRACTOR SHALL REFERENCE THE CITY OF HUNTSVILLE'S DETAILS LOCATED ON THE CITY'S WEBSITE.
- CONTRACTOR TO COORDINATE WITH PUBLIC WORKS DEPARTMENT AND SEPARATE CONTRACTOR FOR TIE-IN TO ELKINS LIFT STATION #1. LIFT STATION #1 IS BEING RECONSTRUCTED UNDER PROJECT #20-10-05 AND SEPARATE CONTRACTOR. TIMING OF TIE-IN SHOULD BE COORDINATED BETWEEN BOTH CONTRACTORS AND CITY OF HUNTSVILLE.
- THERE SHALL BE NO SEPARATE PAYMENT FOR FURNISHING, PLACING, AND RELOCATING THE PROJECT SIGN.

GENERAL CONSTRUCTION NOTES (ISSUE DATE: 06-19-18)
(THESE NOTES ARE CONSIDERED SUPPLEMENTAL TO THE WATER, SANITARY SEWER, AND STORM SEWER CONSTRUCTION NOTES)

LOCATES AND PERMITTING

- THE LOCATION OF AT&T (COMMUNICATIONS), CENTERPOINT ENERGY (GAS), ENERGY (AKA GULF STATE UTILITIES - ELECTRIC), MIDSOUTH SYNERGY (ELECTRIC), WALKER COUNTY GAS SERVICES, SIBDEN LINK CABLE, PHELPS WATER, WALKER COUNTY SUD, AND OTHER UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL REQUEST THE EXACT LOCATION OF THESE FACILITIES BY CALLING THE UTILITY COORDINATING COMMITTEE AT PHONE NUMBER 800-545-6005 OR 811, AT LEAST 48-HOURS BEFORE COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO REQUEST THE LOCATION AND PRESERVATION OF THESE UNDERGROUND FACILITIES.
- CONTRACTOR SHALL CONTACT THE CITY OF HUNTSVILLE UTILITIES AT 936-294-5733 AND ENGINEERING DEPARTMENT AT 936-294-5789 A MINIMUM OF 48-HOURS PRIOR TO BEGINNING ANY WORK. WHEN APPLICABLE, CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF TRANSPORTATION AREA ENGINEER 48-HOURS PRIOR TO CONSTRUCTION IN THE STATE'S RIGHTS-OF-WAY AT 936-295-3462.
- CONTRACTOR TO BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS INCLUDING WALKER COUNTY, TxDOT AND CITY OF HUNTSVILLE.

ENERGIZED OVERHEAD POWER LINE

- CHAPTER 752 OF THE TEXAS HEALTH AND SAFETY CODE PROHIBITS ALL ACTIVITIES IN WHICH IT IS POSSIBLE FOR PERSONS, EQUIPMENT, OR MATERIALS TO COME WITHIN SIX FEET OF AN ENERGIZED OVERHEAD POWER LINE. FEDERAL REGULATION, TITLE 29, PART 1910.190(L) AND PART 1926.40(A)(15), ALSO CONTAIN MINIMUM CLEARANCE REQUIREMENTS FROM ANY ENERGIZED POWER LINE. INDIVIDUALS ARE RESPONSIBLE FOR THEIR OWN SAFETY AND CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF THEIR WORKERS UNDER THESE LAWS. IF YOU OR YOUR COMPANY MUST WORK NEAR OVERHEAD POWER LINES, CALL 1-800-ENERGY TO BEGIN THE PROCESS OF DE-ENERGIZING OR RELOCATING THE POWER LINES AT YOUR EXPENSE. FAILURE TO DO SO COULD LEAD TO THE DEATH OR SERIOUS INJURY TO YOU OR SOMEONE ELSE AS WELL AS BE A VIOLATION OF THE ABOVE LAWS POTENTIALLY SUBJECTING YOU TO CRIMINAL AND CIVIL PENALTIES.

SURVEYING AND DIMENSIONAL CONTROL

- ALL SURVEY CONTROL POINTS AND BENCHMARKS ARE REPORTED AS FOLLOWS: HORIZONTAL COORDINATES (EXPRESSED IN U.S. SURVEY FEET UNITS) AND BEARINGS HEREON ARE REFERRING TO THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE AND BASED ON THE POSITION OF THE NATIONAL GEODETIC SURVEY (NGS) PRIMARY AIRPORT CONTROL STATION "139 A" HAVING PUBLISHED NAD 83 (1993) COORDINATES OF N=3,128,437.762 METERS AND E=1,154,269.433 METERS. LINEAR DIMENSIONS (EXPRESSED IN U.S. SURVEY FEET) ARE "NAD83 GRID" UNIT AND MAY BE CONVERTED TO "GEOIDIC HORIZONTAL" UNITS BY DIVIDING BY A COMBINED SCALE FACTOR OF 0.99985. ELEVATIONS ARE EXPRESSED IN U.S. SURVEY FEET AND REFERRED TO THE (NGS) NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO DETERMINE POTENTIAL CONFLICTS AND VERIFY THAT THE BORING OPERATION AND PIPE INSTALLATION CAN BE ACCOMPLISHED WITHOUT CONFLICTING WITH EXISTING UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR HIS OWN HORIZONTAL AND VERTICAL CONTROL. REFERENCE POINTS AND CONSTRUCTION STAKING IS INCIDENTAL TO THE PROJECT.
- ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED AND/OR RECORDED SUBDIVISION OR ROAD RIGHT-OF-WAY PLAT.
- PUBLIC EASEMENTS DENOTED ON THIS PLAN ARE HEREBY DEDICATED TO THE PUBLIC FOREVER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT AT ALL TIMES, OF INGRESS AND EGRESS TO AND FROM AND UPON SAID EASEMENTS FOR THE PURPOSE OF CONSTRUCTION, RECONSTRUCTION, INSPECTION, PATROLLING, MAINTAINING AND ADDING TO OR REMOVING ALL OR PART OF ITS RESPECTIVE SYSTEMS WITHOUT THE NECESSITY OF ANY TIME OF GETTING THE PERMISSION OF THE PROPERTY OWNER. ANY PUBLIC UTILITY, INCLUDING THE CITY OF HUNTSVILLE, SHALL HAVE THE RIGHT TO MOVE AND KEEP MOVED ALL OR PART OF ANY BUILDING, FENCES, TREES, SHRUBS, OTHER GROUNDS OR IMPROVEMENTS THAT IN ANY WAY ENDANGER OR INTERFERE WITH THE CONSTRUCTION, MAINTENANCE OR EFFICIENCY OF ITS RESPECTIVE SYSTEMS ON ANY OF THE EASEMENTS SHOWN ON THIS PLAN. NEITHER THE CITY OF HUNTSVILLE OR ANY PUBLIC UTILITY SHALL BE RESPONSIBLE FOR THE REPLACING OR REIMBURSING THE PROPERTY OWNER DUE TO REMOVAL OR RELOCATION OF ANY OBSTRUCTION ON THE PUBLIC EASEMENTS.
- ALL DIMENSIONS SHOWN ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR. HORIZONTAL AND VERTICAL ALIGNMENT CHANGES ARE TO BE APPROVED BY THE CITY.
- ALL EXISTING UNDERGROUND UTILITIES ARE NOT GUARANTEED TO BE COMPLETED OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL EXISTING FACILITIES SHOWN ON DRAWINGS. CONTRACTOR SHALL COORDINATE ALL CONFLICTS WITH THE APPROPRIATE GOVERNING AGENCY.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES
NAME: CONSTRUCTION NOTES CATEGORY: GENERAL FACILITY DRAWN DATE: 11/22/2016 DRAWN BY: WLSIII SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV# 0 ISSUER MAM DATE 07/10/2018 APPROVER SHEET 1 OF 3 GF-01

- ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED, RECORDED SUBDIVISION PLAT OR ROAD RIGHT-OF-WAY.
- SEWER MAINS, MANHOLES AND LIFT STATIONS ARE TO BE DESIGNED, TO BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH CITY OF HUNTSVILLE STANDARDS AND T&E TITLE 30 CHAPTER 317 OF THE TEXAS ADMINISTRATIVE CODE.
- TAC 3172 REQUIRES LOW-PRESSURE AIR TESTS TO CONFORM TO THE PROCEDURE DESCRIBED IN ASTM C828, C924, F-1417 OR OTHER APPROPRIATE PROCEDURES. FOR SAFETY REASONS, AIR TESTING OF SECTIONS OF PIPE SHALL BE LIMITED TO LINES LESS THAN 36-INCH AVERAGE INSIDE DIAMETER. LINES 36-INCH IN DIAMETER OR LARGER MAY BE AIR TESTED AT EACH JOINT.
- DEFLECTION TESTING OF ALL FLEXIBLE AND SEMI-RIGID PIPE SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF .5%. THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDREL AND SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES. ALL TESTS TO BE WITNESSED AND APPROVED BY THE CITY OF HUNTSVILLE.
- MAINTAIN 12-INCH MINIMUM CLEARANCE AT CROSSINGS BETWEEN ALL OTHER UTILITY LINES, STORM SEWERS, AND CULVERTS UNLESS OTHERWISE NOTED.
- SEWER TRENCHES UNDER OR WITHIN THREE (3) FOOT OF PROPOSED OR FUTURE PAVEMENT TO BE BACKFILLED WITH CEMENT SAND (1.5 SACKS PER TON) BACKFILL AS SPECIFIED, TO WITHIN ONE (1) FOOT OF SUBGRADE. BEDDING WILL BE CLASS AA, WHERE CEMENT-SAND BACKFILL IS USED FOR SANITARY SEWERS. INCLUDE COST OF BACKFILL IN UNIT PRICE BID PER LINEAR FOOT OF PIPE.
- ALL PROPOSED GRAVITY SANITARY SEWER LINES WILL BE SDR 26 PVC PIPE AND EIGHT (8) INCH MINIMUM ID, UNLESS APPROVED OTHERWISE. DUCTILE IRON MAY BE USED, BUT MUST BE APPROVED BY THE CITY ENGINEER ON A CASE BY CASE BASIS.
- BIDDING FOR ALL TYPES OF SANITARY SEWER PIPE SHALL BE BELOW, AROUND & ABOVE PIPE. ALL SEWER LINES TO BE INSPECTED BY THE CITY OF HUNTSVILLE PRIOR TO BACKFILL. ADDITIONAL BACKFILL SHALL BE SELECT BACKFILL COMPACTED IN 6" LIFTS.
- FOR PVC PIPE, USE MANHOLE WATERSTOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS (NO SEPARATE PAY).
- SANITARY SEWER MANHOLES SHALL BE PRECAST OR Poured IN PLACE MONOLITHIC CONCRETE AND BACKFILLED WITH CEMENT-SAND AS SPECIFIED (NO SEPARATE PAY). MANHOLES WILL BE EXFILTRATION TESTED AS SPECIFIED BY THE CITY OF HUNTSVILLE.
- ALL FAR-SIDE LEADS SHALL BE FOUR (4) INCHES OR SIX (6) INCHES AT 10% MIN. SLOPE. SIX (6) INCH ABS WILL NOT BE ACCEPTABLE. ALL FAR-SIDE LEADS (OPEN-CUT OR BORED AND JACKED) SHALL BE 150 PSI THICKNESS CLASS 50, PVC, DR-18, SDR 26, OR SCHEDULE 40 (PLUMBING REQUIRES SCHEDULE 40).
- ALL PRECAST CONCRETE AND Poured-IN-PLACE CONCRETE MANHOLES SHALL HAVE THE TOP EIGHTEEN (18) INCHES CONSTRUCTED OF PRECAST RINGS AND TO EXTEND THREE (3) TO SIX (6) ABOVE NATURAL GRADE.
- THE INTERIOR OF ALL MANHOLES SHALL HAVE A PROTECTIVE COATING. THIS COATING SHALL BE AS DESCRIBED BELOW OR BE AN ALTERNATE COATING PROVIDING THE SAME OR BETTER LEVEL OF PROTECTION, AS APPROVED BY THE CITY ENGINEER. THE INTERIOR MANHOLE COATING SYSTEM SHALL CONSIST OF A HEAVY COAT OF A MODIFIED POLYAMINE EPOXY (TMEC SERIES 435 FEM-GLAZE OR ACCEPTED EQUIVALENT) APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM TOTAL DRY FILM THICKNESS SHALL BE 15 MILS. THE EXTERNAL MANHOLE COATING SHALL CONSIST OF A BITUMINOUS COATING.
- STUBS OR LEADS SERVING TWO LOTS SHALL HAVE A MINIMUM 6" SERVICE WYE AND CLEANOUT WITH PLUGS (NO SEPARATE PAY). THE WYE SHALL BE LOCATED WITHIN THE STREET RIGHT-OF-WAY OR AN ADJOINING UTILITY EASEMENT. THE 6" SERVICE LINE WITH A 6" DUAL 4" WYE SHALL HAVE A 6" CLEANOUT.
- STACKS SERVING NEAR-SIDE AND FAR-SIDE LOTS SHALL HAVE A SERVICE WYE AND CLEANOUTS WITH PLUGS FOR THE NEAR-SIDE LOT (NO SEPARATE PAY).
- ALL DUCTILE IRON PIPE & FITTINGS SHALL BE 150 PSI THICKNESS CLASS 50 WITH EIGHT (8) MIL BLACK VIRGIN POLYETHYLENE WRAPE AS SPECIFIED. ALL PVC PIPE SHALL HAVE RUBBER GASKET JOINTS.
- MANHOLE RIMS IN NONPAVED AREAS ARE TO BE SET AT THE ELEVATIONS SHOWN ON THE PLANS INITIALLY. AFTER PAVING AND GRADING IS COMPLETED, RIMS ARE TO BE ADJUSTED TO THREE (3) TO SIX (6) INCHES ABOVE FINAL GRADE AND BLACK DRESS DIRT TO PROVIDE DRAINAGE AWAY FROM MANHOLE.
- ALL PVC PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS. SOLVENT WELDED JOINTS WILL NOT BE APPROVED FOR THIS PROJECT.
- ALL GRADE CHANGES AT MANHOLES IN EXCESS OF 2-Feet SHALL BE ACCOMPLISHED WITH DROP MANHOLE CONNECTIONS, REFERENCE CITY DETAILS.
- THE UTILITY CONTRACTOR IS RESPONSIBLE FOR LOCATING AND MARKING -ALL STACKS AND FAR-SIDE LEADS AFTER THE PAVING IN THIS SECTION IS COMPLETE.
- A 1/4-INCH DEEP NOTCH SHALL BE CUT IN THE CURB AND PAINTED WITH A RED LINE ADJACENT TO THE STACK OR LEAD.
- IF STACKS ARE LEFT IN THE GROUND AT THE STACKS AND LEADS AFTER CONSTRUCTION OF UTILITIES, THEN AN EFFORT WILL BE MADE TO PRESERVE THEM DURING PAVING CONSTRUCTION. HOWEVER, IF THESE STACKS ARE KNOCKED OUT FOR ANY REASON, THE UTILITY CONTRACTOR REMAINS RESPONSIBLE FOR LOCATING AND MARKING THE FACILITIES AS DESCRIBED ABOVE.
- CONTRACTOR SHALL PROVIDE THE CITY OF HUNTSVILLE ONE SET OF (RECORD) DRAWINGS.

ENGINEERING DEPARTMENT CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS SANITARY SEWER CONSTRUCTION NOTES
NAME: SS CONSTRUCTION NOTES CATEGORY: SEWER DRAWN DATE: 11/07/2016 DRAWN BY: WLSIII SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV# 0 ISSUER MAM DATE 07/10/2018 APPROVER SHEET 1 OF 1 SS-01

GENERAL CONSTRUCTION NOTES (CONTINUED)

OSHA - TRENCH SAFETY

- CONTRACTOR SHALL IMPLEMENT THE TRENCH SAFETY SYSTEM REQUIREMENTS OF THE FEDERAL, STATE, AND LOCAL SAFETY AND HEALTH REGULATIONS AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), 29 CFR, PART 1926 SUBPART F, EXCAVATION AND THE TEXAS HEALTH AND SAFETY CODE, CHAPTER 756. MISCELLANEOUS HAZARDOUS CONDITIONS.
- NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT. ALL EXCAVATIONS WHICH CANNOT BE BACKFILLED OVERNIGHT FOR THE INSTALLATION OF MANHOLES, SANITARY SEWER LINES, AND OTHER UTILITIES SHALL BE COVERED WITH STEEL SHEETING, WHEN IN PAVED AREAS, 3/4" PLYWOOD, WOOD PLANKING OR SOME OTHER MATERIAL APPROVED BY THE CITY IN OTHER AREAS. THE EXCAVATION AREA MUST BE WELL PROTECTED WITH TRAFFIC BARRICADES EQUIPPED WITH FLASHING YELLOW LIGHTS.
- ALL EXCAVATION AREAS MUST BE COMPLETELY CORDONED OFF WITH A MINIMUM OF TWO STRANDS OF YELLOW PLASTIC CONSTRUCTION TAPE, ACCEPTABLE TO THE CITY, THE TAPE SHALL BE SUPPORTED WITH ENOUGH INTERMEDIATE SUPPORTS TO AVOID EXCESSIVE SAGGING. THE TAPE MAY BE TIED TO TRAFFIC BARRICADES WITH FLASHING YELLOW LIGHTS AND WOODEN LATH FOR SUPPORT. WHERE EXCAVATIONS EXTEND BEYOND THE EXISTING GRAD OF CURB OR EDGE OF PAVEMENT, ADEQUATE BARRICADES WITH FLASHING YELLOW LIGHTS SHALL BE INSTALLED TO PROTECT PEDESTRIAN TRAFFIC.

STREETS, TRAFFIC CONTROL

- WHEN ANY STREET OR ANY SECTION OF A STREET IS CLOSED, THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE BARRICADES, WARNING AND DIRECTING SIGNS, RED FLAGS AND LIGHTS AT THE END OF EACH STREET AND AT ALL INTERSECTIONS ALONG THE STREET WITHIN THE LIMIT OF THE WORK AREA. ALL EXPENSE INCURRED FOR THE ABOVE REQUIREMENTS SHALL BE BORNE BY THE CONTRACTOR. ALL WARNING SIGNS AND BARRICADES SHALL CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. CONTRACTOR TO NOTIFY PROPER AUTHORITIES PRIOR TO ANY STREET OR PARTIAL STREET CLOSING.
- CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS.
- OFF-DUTY UNIFORMED POLICE OFFICERS ARE REQUIRED TO DIRECT TRAFFIC WHERE TRAFFIC LANES ARE BLOCKED.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY THIS CONSTRUCTION BY MEANS OF ANCHORED STEEL PLATES, BY BACKFILLING IMMEDIATELY AFTER CONSTRUCTION, AND/OR BY PLACING SHELL OR LIMESTONE SURFACES FOR TEMPORARY DRIVEWAY PURPOSES. CONTRACTORS ATTENTION IS DIRECTED TO HS-20 LOAD RATED ACCESS REQUIREMENTS FOR ALL SUCH AREA.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING BARRICADES, FLAGMEN, ETC. TO CONFORM TO SAFETY REQUIREMENTS FOR THE CITY OF HUNTSVILLE AND TEXAS DEPARTMENT OF TRANSPORTATION.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES
NAME: CONSTRUCTION NOTES CATEGORY: GENERAL FACILITY DRAWN DATE: 11/22/2016 DRAWN BY: WLSIII SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV# 0 ISSUER MAM DATE 07/10/2018 APPROVER SHEET 2 OF 3 GF-01

GENERAL CONSTRUCTION NOTES (CONTINUED)

CONTRACTOR ADDITIONAL RESPONSIBILITIES

- EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE ORIGINAL OR BETTER CONDITIONS.
- CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL EXISTING FENCES AND REPAIRING THEM EQUAL TO OR BETTER THAN THEIR EXISTING CONDITION. THE COST FOR REPAIRING OR RESETTING EXISTING FENCES AND FENCE POST SHALL BE INCLUDED IN THE OTHER ITEMS OF WORK IN THE PROJECT.
- CONTRACTOR SHALL CLEAN AND DRESS UP EACH DAY'S WORK AREA PRIOR TO PROCEEDING WITH THE NEXT DAY'S WORK. ADEQUATE POSITIVE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR SHALL ADEQUATELY PROTECT EXISTING STRUCTURES, UTILITIES, TREES, SHRUBS AND OTHER PERMANENT OBJECTS.
- TREES WITHIN THE STREET RIGHT-OF-WAY SHALL NOT BE REMOVED OR DISTURBED, EXCEPT WHERE CALLED OUT TO BE REMOVED. WHERE TREE ROOTS MUST BE CUT, FOLLOW THE REPAIR METHODS DESCRIBED IN THE SPECIFICATIONS AND/OR DETAILED ON PLAN SHEETS.
- THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN A MANNER SUCH THAT TRUCKS AND OTHER VEHICLES DO NOT CREATE A DIRT NUISANCE OR SAFETY HAZARD IN ANY STREETS, PUBLIC OR PRIVATE. CLEAN UP OF STREETS SHALL BE PERFORMED DAILY.
- ANY AREA OF GRASS, WHICH IS DISTURBED OR DUG UP DURING THE CONSTRUCTION, SHALL BE REPLACED WITH ST. AUGUSTINE SOD OR GRASS THAT MATCHES THE GRASS REMOVED, REFERENCE SPECIFICATIONS AND/OR PLANS.
- EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS AND LANDSCAPING DAMAGED OR REMOVED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.
- ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE SWP3 DEVELOPED FOR THE SITE AND IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
- EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE ORIGINAL OR BETTER CONDITIONS.
- CONDITION OF THE FACILITIES, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK. THE CONTRACTOR SHALL RESTORE ALL GRADES AND LANDSCAPING TO PRECONSTRUCTION CONDITIONS AND RE-ESTABLISH TURF AREAS DAMAGED BY THE CONSTRUCTION ACTIVITIES.
- ALL EXCESS DIRT FROM EXCAVATION SHALL BE DISPOSED OFFSITE BY CONTRACTOR AT NO EXTRA PAY.
- CONTRACTOR SHALL REMOVE ALL TRASH, EXCESS MATERIAL, DEBRIS, ETC. FROM THE SITE UPON COMPLETION OF THE PROJECT PRIOR TO INSPECTION AND APPROVAL BY THE APPROVING AGENCIES.
- CONTRACTOR SHALL PROVIDE THE CITY OF HUNTSVILLE ONE SET OF (RECORD) DRAWINGS.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS CONSTRUCTION NOTES
NAME: CONSTRUCTION NOTES CATEGORY: GENERAL FACILITY DRAWN DATE: 11/22/2016 DRAWN BY: WLSIII SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV# 0 ISSUER MAM DATE 07/10/2018 APPROVER SHEET 3 OF 3 GF-01

STATE OF TEXAS
COUNTY OF WALKER
103580
11/13/22

DATE: _____

REVISIONS

NO.	DATE	DESCRIPTION

GENERAL NOTES

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405

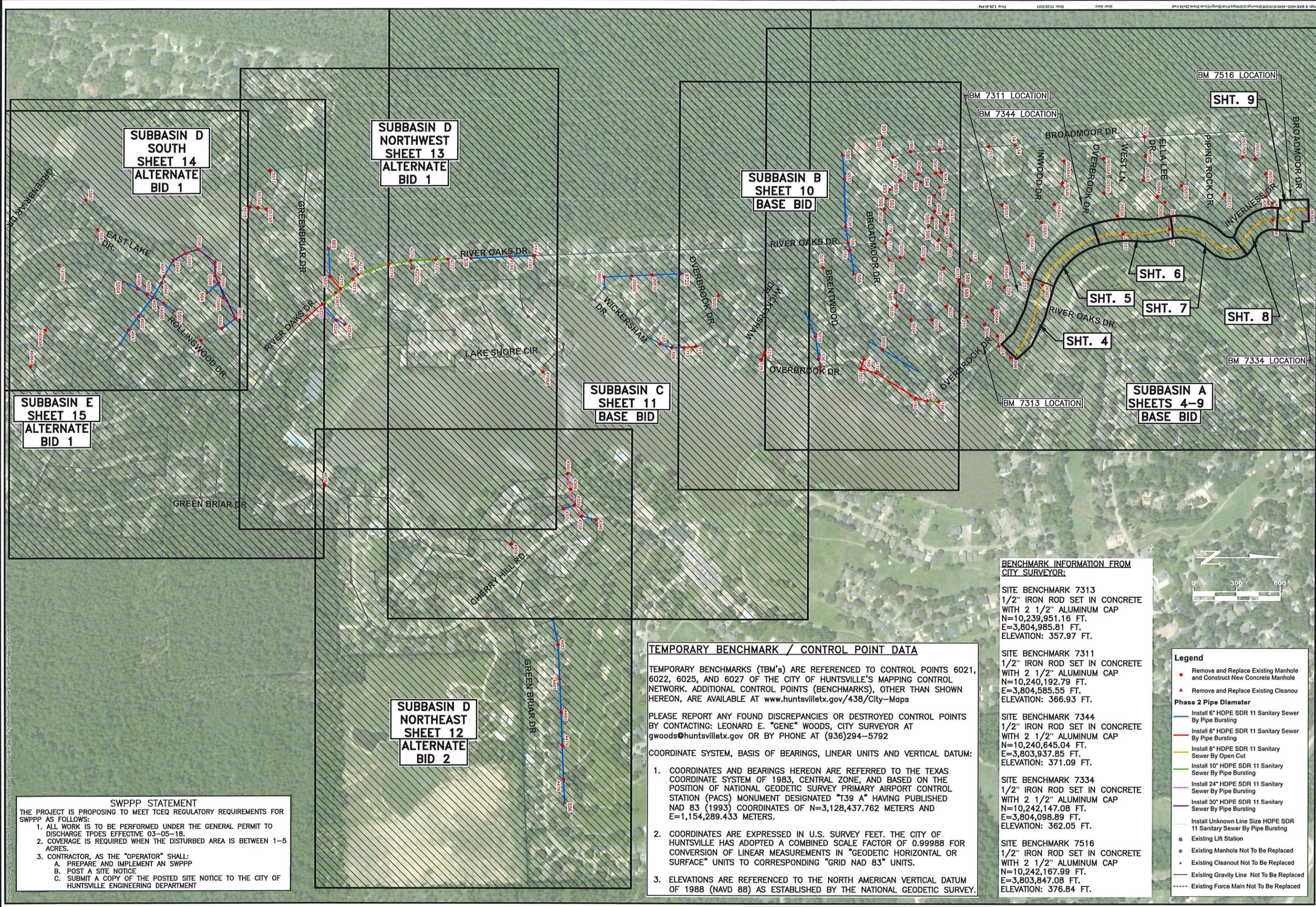
STRAND ASSOCIATES®

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DATE:	
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REVISIONS	



PROJECT LOCATION MAP
CITY OF HUNTSVILLE
NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405

STRAND ASSOCIATES

SHEET
3

SUBBASIN D SOUTH SHEET 14 ALTERNATE BID 1

SUBBASIN D NORTHWEST SHEET 13 ALTERNATE BID 1

SUBBASIN B SHEET 10 BASE BID

SUBBASIN C SHEET 11 BASE BID

SUBBASIN A SHEETS 4-9 BASE BID

SUBBASIN E SHEET 15 ALTERNATE BID 1

SUBBASIN D NORTHEAST SHEET 12 ALTERNATE BID 2

TEMPORARY BENCHMARK / CONTROL POINT DATA

TEMPORARY BENCHMARKS (TBM'S) ARE REFERENCED TO CONTROL POINTS 6021, 6022, 6025, AND 6027 OF THE CITY OF HUNTSVILLE'S MAPPING CONTROL NETWORK. ADDITIONAL CONTROL POINTS (BENCHMARKS), OTHER THAN SHOWN HEREON, ARE AVAILABLE AT www.huntsvilletx.gov/438/City-Maps

PLEASE REPORT ANY FOUND DISCREPANCIES OR DESTROYED CONTROL POINTS BY CONTACTING: LEONARD E. "GENE" WOODS, CITY SURVEYOR AT gwoods@huntsvilletx.gov OR BY PHONE AT (936)294-5792

COORDINATE SYSTEM, BASIS OF BEARINGS, LINEAR UNITS AND VERTICAL DATUM:

- COORDINATES AND BEARINGS HEREON ARE REFERRED TO THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE, AND BASED ON THE POSITION OF NATIONAL GEODETIC SURVEY PRIMARY AIRPORT CONTROL STATION (PACS) MONUMENT DESIGNATED "T39 A" HAVING PUBLISHED NAD 83 (1993) COORDINATES OF N=3,128,437.762 METERS AND E=1,154,289.433 METERS.
- COORDINATES ARE EXPRESSED IN U.S. SURVEY FEET. THE CITY OF HUNTSVILLE HAS ADOPTED A COMBINED SCALE FACTOR OF 0.99988 FOR CONVERSION OF LINEAR MEASUREMENTS IN "GEODETIC HORIZONTAL OR SURFACE" UNITS TO CORRESPONDING "GRID NAD 83" UNITS.
- ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AS ESTABLISHED BY THE NATIONAL GEODETIC SURVEY.

BENCHMARK INFORMATION FROM CITY SURVEYOR:

SITE BENCHMARK 7313
 1/2" IRON ROD SET IN CONCRETE WITH 2 1/2" ALUMINUM CAP
 N=10,239,951.16 FT.
 E=3,804,985.81 FT.
 ELEVATION: 357.97 FT.

SITE BENCHMARK 7311
 1/2" IRON ROD SET IN CONCRETE WITH 2 1/2" ALUMINUM CAP
 N=10,240,192.79 FT.
 E=3,804,585.55 FT.
 ELEVATION: 366.93 FT.

SITE BENCHMARK 7344
 1/2" IRON ROD SET IN CONCRETE WITH 2 1/2" ALUMINUM CAP
 N=10,240,645.04 FT.
 E=3,803,937.85 FT.
 ELEVATION: 371.09 FT.

SITE BENCHMARK 7334
 1/2" IRON ROD SET IN CONCRETE WITH 2 1/2" ALUMINUM CAP
 N=10,242,147.08 FT.
 E=3,804,098.89 FT.
 ELEVATION: 362.05 FT.

SITE BENCHMARK 7516
 1/2" IRON ROD SET IN CONCRETE WITH 2 1/2" ALUMINUM CAP
 N=10,242,167.99 FT.
 E=3,803,847.08 FT.
 ELEVATION: 376.84 FT.

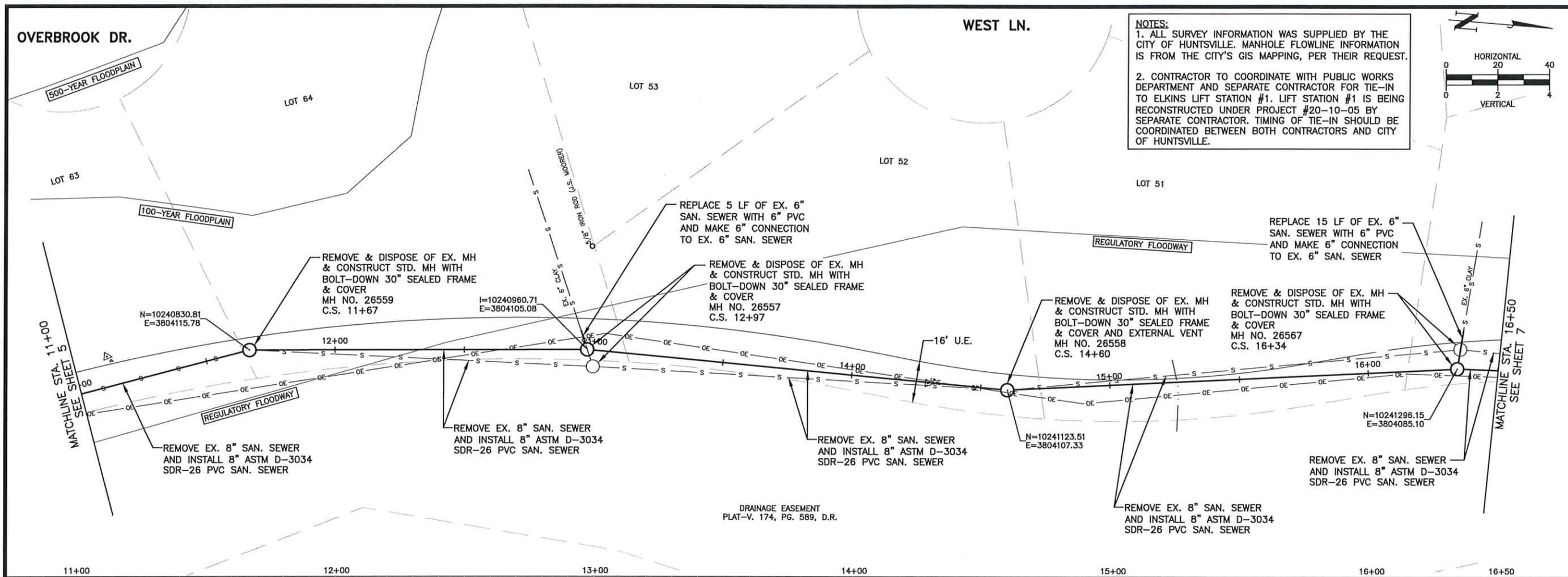


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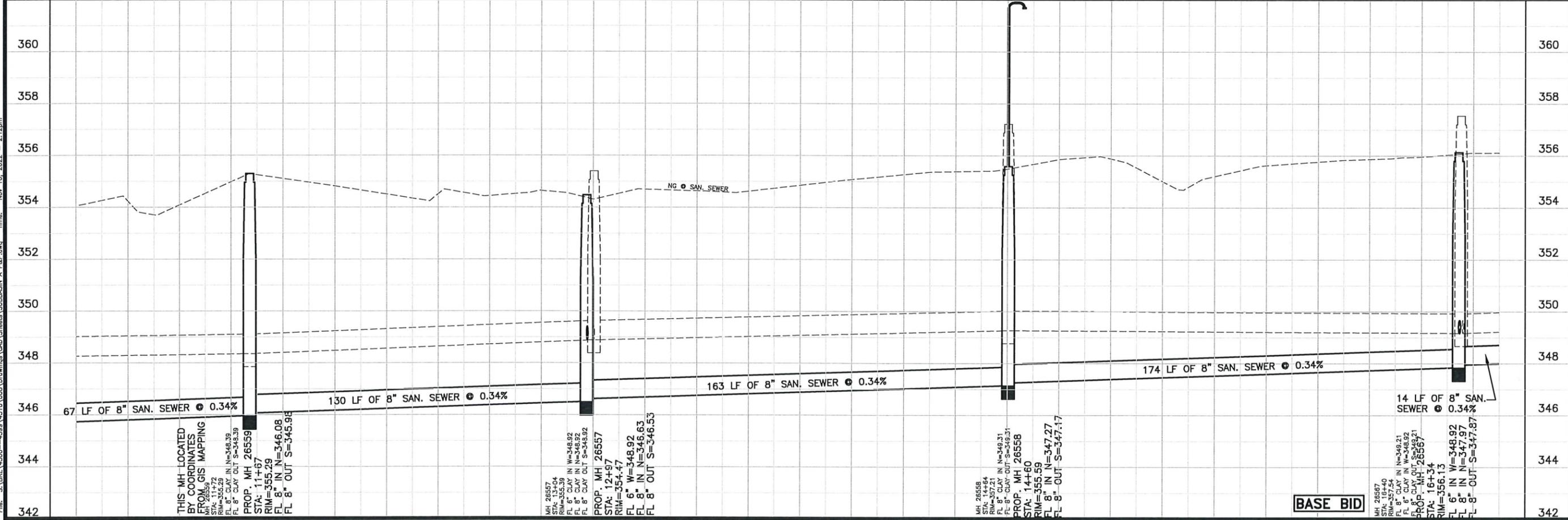
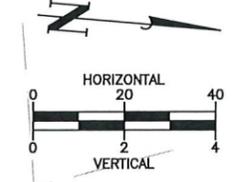
- Remove and Replace Existing Manhole and Construct New Concrete Manhole
- Remove and Replace Existing Cleanout
- Phase 2 Pipe Diameter**
 - Install 6" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 8" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 8" HDPE SDR 11 Sanitary Sewer By Open Cut
 - Install 10" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 24" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 30" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install Unknown Line Size HDPE SDR 11 Sanitary Sewer By Pipe Bursting
- Existing Lift Station
- Existing Manhole Not To Be Replaced
- Existing Cleanout Not To Be Replaced
- Existing Gravity Line Not To Be Replaced
- Existing Force Main Not To Be Replaced

SWPPP STATEMENT
 THE PROJECT IS PROPOSING TO MEET TCEQ REGULATORY REQUIREMENTS FOR SWPPP AS FOLLOWS:
 1. ALL WORK IS TO BE PERFORMED UNDER THE GENERAL PERMIT TO DISCHARGE TPDES EFFECTIVE 03-05-18.
 2. COVERAGE IS REQUIRED WHEN THE DISTURBED AREA IS BETWEEN 1-5 ACRES.
 3. CONTRACTOR, AS THE "OPERATOR" SHALL:
 A. PREPARE AND IMPLEMENT AN SWPPP
 B. POST A SITE NOTICE
 C. SUBMIT A COPY OF THE POSTED SITE NOTICE TO THE CITY OF HUNTSVILLE ENGINEERING DEPARTMENT

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NOTES:
 1. ALL SURVEY INFORMATION WAS SUPPLIED BY THE CITY OF HUNTSVILLE. MANHOLE FLOWLINE INFORMATION IS FROM THE CITY'S GIS MAPPING, PER THEIR REQUEST.
 2. CONTRACTOR TO COORDINATE WITH PUBLIC WORKS DEPARTMENT AND SEPARATE CONTRACTOR FOR TIE-IN TO ELKINS LIFT STATION #1. LIFT STATION #1 IS BEING RECONSTRUCTED UNDER PROJECT #20-10-05 BY SEPARATE CONTRACTOR. TIMING OF TIE-IN SHOULD BE COORDINATED BETWEEN BOTH CONTRACTORS AND CITY OF HUNTSVILLE.



DATE:	NO.	REVISIONS

SUBBASIN A PLAN & PROFILE STA. 11+00-STA. 16+50 (BASE BID)

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405

STRAND ASSOCIATES

SHEET
6

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PIPING ROCK DR.

100-YEAR FLOODPLAIN

REGULATORY FLOODWAY

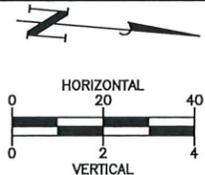
LOT 29

LOT 7

LOT 6

LOT 5

NOTES:
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LOT 30

REMOVE & DISPOSE OF EX. MH & CONSTRUCT STD. MH WITH BOLT-DOWN 30" SEALED FRAME & COVER
 MH NO. 26574
 C.S. 17+60

REMOVE & DISPOSE OF EX. MH & CONSTRUCT STD. MH WITH BOLT-DOWN 30" SEALED FRAME & COVER
 MH NO. 26573
 C.S. 18+51

REMOVE EX. 8" SAN. SEWER AND INSTALL 8" ASTM D-3034 SDR-26 PVC SAN. SEWER

REPLACE 5 LF OF EX. 6" SAN. SEWER WITH 6" PVC AND MAKE 6" CONNECTION TO EX. 6" SAN. SEWER

REMOVE EX. 8" SAN. SEWER AND INSTALL 8" ASTM D-3034 SDR-26 PVC SAN. SEWER

REMOVE EX. 8" SAN. SEWER AND INSTALL 8" ASTM D-3034 SDR-26 PVC SAN. SEWER

REMOVE EX. 8" SAN. SEWER AND INSTALL 8" ASTM D-3034 SDR-26 PVC SAN. SEWER

REMOVE & DISPOSE OF EX. MH & CONSTRUCT STD. MH WITH BOLT-DOWN 30" SEALED FRAME & COVER
 MH NO. 26583
 C.S. 21+83

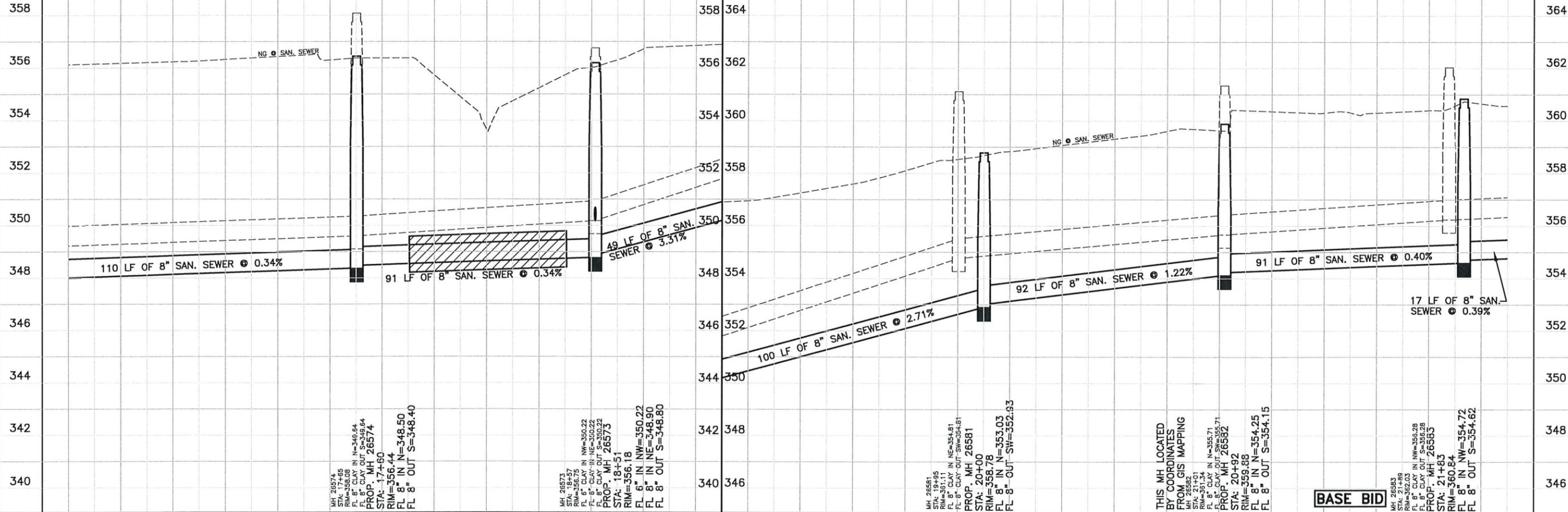
REMOVE EX. 8" SAN. SEWER AND INSTALL 8" ASTM D-3034 SDR-26 PVC SAN. SEWER

REMOVE EX. 6" SAN. SEWER AND INSTALL 60' OF 8" ASTM D-3034 SDR-26 PVC SAN. SEWER IN 14" HDPE DR 13.5 CASING

REMOVE & DISPOSE OF EX. MH & CONSTRUCT STD. MH WITH BOLT-DOWN 30" SEALED FRAME & COVER
 MH NO. 26581
 C.S. 20+00

REMOVE & DISPOSE OF EX. MH & CONSTRUCT STD. MH WITH BOLT-DOWN 30" SEALED FRAME & COVER
 MH NO. 26582
 C.S. 20+92

16+50 17+00 18+00 19+00 20+00 21+00 22+00



MH 26574
 STA: 17+60
 RIM=356.06
 FL 8" CLAY IN N=346.64
 FL 8" CLAY OUT S=349.64
 PROP. MH 26574
 STA: 17+60
 RIM=356.44
 FL 8" IN N=348.50
 FL 8" OUT S=348.40

MH 26573
 STA: 18+51
 RIM=356.75
 FL 6" CLAY IN NW=350.22
 FL 6" CLAY IN NE=350.22
 FL 6" CLAY OUT S=350.22
 PROP. MH 26573
 STA: 18+51
 RIM=356.18
 FL 6" IN NW=350.22
 FL 6" IN NE=348.90
 FL 6" OUT S=348.80

MH 26581
 STA: 20+00
 RIM=358.11
 FL 8" CLAY IN NE=354.81
 FL 8" CLAY OUT SW=354.81
 PROP. MH 26581
 STA: 20+00
 RIM=358.78
 FL 8" IN N=353.03
 FL 8" OUT SW=352.93

THIS MH LOCATED BY COORDINATES FROM GIS MAPPING
 MH 26582
 STA: 20+92
 RIM=355.71
 FL 8" CLAY IN N=355.71
 FL 8" CLAY OUT SW=355.71
 PROP. MH 26582
 STA: 20+92
 RIM=359.88
 FL 8" IN N=354.25
 FL 8" OUT S=354.15

BASE BID

MH 26583
 STA: 21+83
 RIM=360.03
 FL 8" CLAY IN NW=365.28
 FL 8" CLAY OUT S=354.28
 PROP. MH 26583
 STA: 21+83
 RIM=360.84
 FL 8" IN NW=354.72
 FL 8" OUT S=354.62

NO.	REVISIONS	DATE

SUBBASIN A PLAN & PROFILE STA. 16+50-STA. 22+00
 (BASE BID)
 CITY OF HUNTSVILLE
 NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO. 20-10-06
 JOB NO. 4516.008
 PROJECT MGR. WJH
 TBPE No. F-8405

 SHEET 7



NO.	REVISIONS	DATE:

**SUBBASIN D NORTHEAST
(ALT. BID 2)**

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405



SHEET
12



REMOVE & DISPOSE OF 5 LF OF EX. 30" SANITARY SEWER AND INSTALL 5 LF OF 30" ASTM D-3034 SDR-26 SANITARY SEWER LINE (1 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (1 EACH)

TIE-IN NEW 6" HDPE SDR 11 SANITARY SEWER TO EXISTING MANHOLE (1 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (2 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 30" SANITARY SEWER AND INSTALL 5 LF OF 30" ASTM D-3034 SDR-26 SANITARY SEWER LINE (2 EACH)

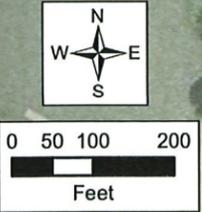
Legend

- Remove and Replace Existing Manhole and Construct New Concrete Manhole
- ▲ Remove and Replace Existing Cleanout
- - - Easement

Phase 2 Pipe Diameter

- Install 6" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
- Install 24" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
- Existing Lift Station
- Existing Manhole Not To Be Replaced
- ▲ Existing Cleanout Not To Be Replaced
- - - Existing Force Main Not To Be Replaced
- Existing Gravity Line Not To Be Replaced

MANHOLES TO BE REPLACED	
4338	
4339	
4340	
4366	
4374	
4478	
4479	
4480	
4481	
4482	
4500	
4508	
4519	



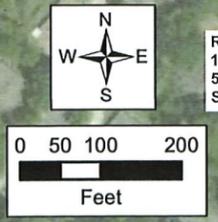
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors

ALT. BID 2

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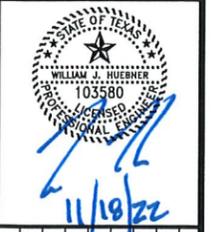
- Legend**
- Remove and Replace Existing Manhole and Construct New Concrete Manhole
 - ▲ Remove and Replace Existing Cleanout
 - - - Easement
- Phase 2 Pipe Diameter**
- Install 6" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 8" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 10" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install Unknown Line Size HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Existing Lift Station
 - Existing Manhole Not To Be Replaced
 - ▲ Existing Cleanout Not To Be Replaced
 - - - Existing Force Main Not To Be Replaced
 - Existing Gravity Line Not To Be Replaced

- MANHOLES TO BE REPLACED**
- 56
 - 4215
 - 4216
 - 4217
 - 4219
 - 4220
 - 4221
 - 4222
 - 4223
 - 4224
 - 4262
 - 4516
 - 4519
 - 5515
 - 5517
 - 5603
 - 5515B
 - 5515A
 - 4217A
 - 4224A



See Subbasin D - Northeast Map

See Subbasin D - South Map



NO.	REVISIONS	DATE:

**SUBBASIN D NORTHWEST
(ALT. BID 1)**

**CITY OF HUNTSVILLE
NB-06 SANITARY SEWER REHABILITATION PROJECT**

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405



SHEET
13

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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, © OpenStreetMap contributors

ALT. BID 1



11/18/22

DATE:

REVISIONS

NO.

CITY JOB NO.

JOB NO.

PROJECT MGR.

WJH

SBPE No. F-8405



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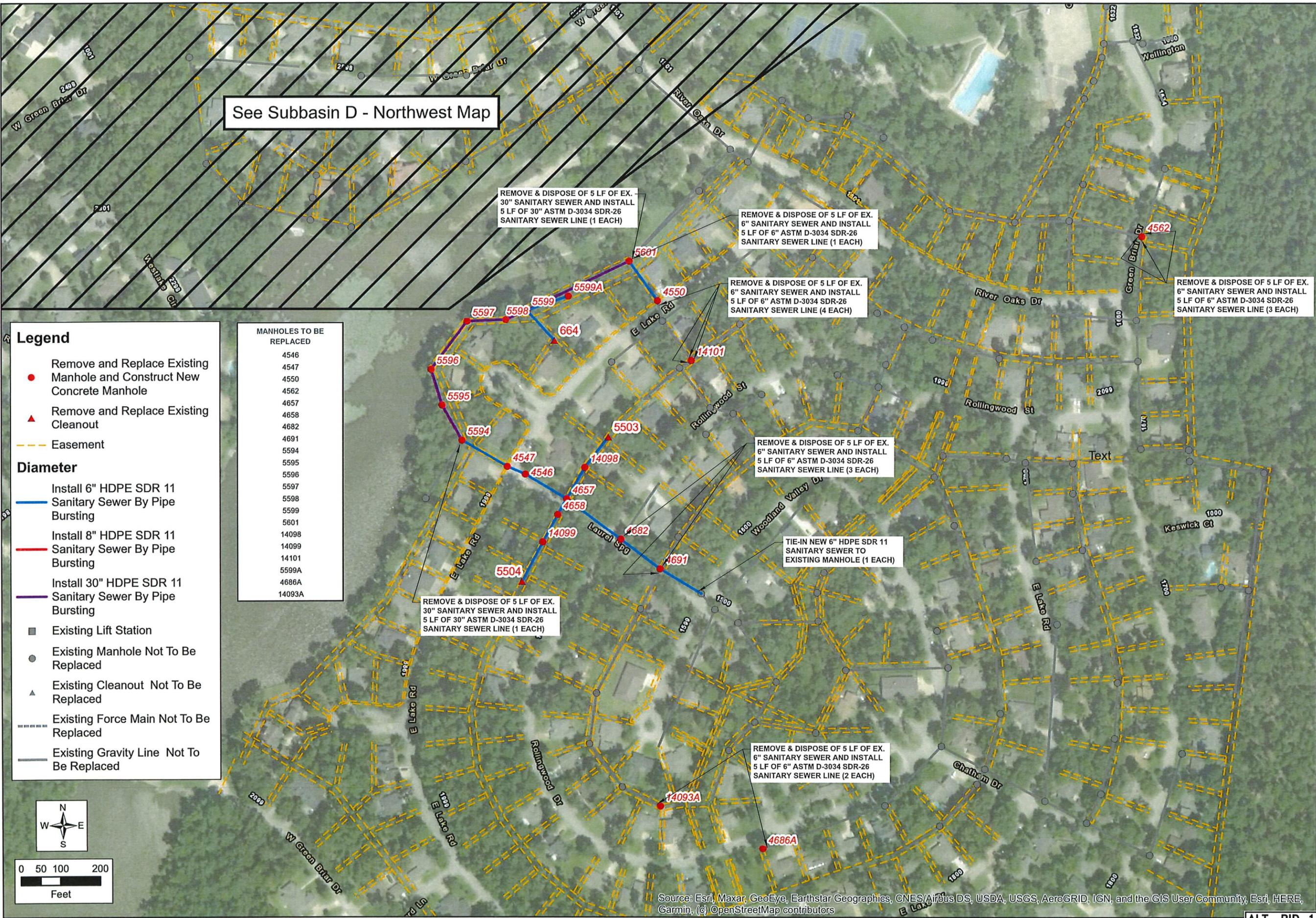
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ALT. BID 1

SUBBASIN D SOUTH (ALT. BID 1)

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT



See Subbasin D - Northwest Map

REMOVE & DISPOSE OF 5 LF OF EX. 30" SANITARY SEWER AND INSTALL 5 LF OF 30" ASTM D-3034 SDR-26 SANITARY SEWER LINE (1 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (1 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (4 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (3 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (3 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 30" SANITARY SEWER AND INSTALL 5 LF OF 30" ASTM D-3034 SDR-26 SANITARY SEWER LINE (1 EACH)

REMOVE & DISPOSE OF 5 LF OF EX. 6" SANITARY SEWER AND INSTALL 5 LF OF 6" ASTM D-3034 SDR-26 SANITARY SEWER LINE (2 EACH)

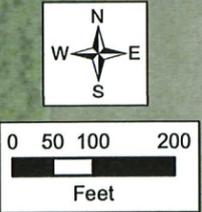
TIE-IN NEW 6" HDPE SDR 11 SANITARY SEWER TO EXISTING MANHOLE (1 EACH)

Legend

- Remove and Replace Existing Manhole and Construct New Concrete Manhole
- Remove and Replace Existing Cleanout
- Easement
- Diameter
 - Install 6" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 8" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
 - Install 30" HDPE SDR 11 Sanitary Sewer By Pipe Bursting
- Existing Lift Station
- Existing Manhole Not To Be Replaced
- Existing Cleanout Not To Be Replaced
- Existing Force Main Not To Be Replaced
- Existing Gravity Line Not To Be Replaced

MANHOLES TO BE REPLACED

4546
4547
4550
4562
4657
4658
4682
4691
5594
5595
5596
5597
5598
5599
5601
14098
14099
14101
5599A
4686A
14093A



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors

Legend

- Remove and Replace Existing Manhole and Construct New Concrete Manhole
- ▲ Remove and Replace Existing Cleanout
- Easement
- Existing Lift Station
- Existing Manhole Not To Be Replaced
- ▲ Existing Cleanout Not To Be Replaced
- Existing Gravity Line Not To Be Replaced
- Existing Force Main Not To Be Replaced

MANHOLES TO BE REPLACED	
5587	
5591	
14106	



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NO.	REVISIONS	DATE:

**SUBBASIN E
(ALT. BID 1)**

CITY OF HUNTSVILLE

NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
20-10-06

JOB NO.
4516.008

PROJECT MGR.
WJH

TBPE No. F-8405



SHEET
15

ALT. BID 1

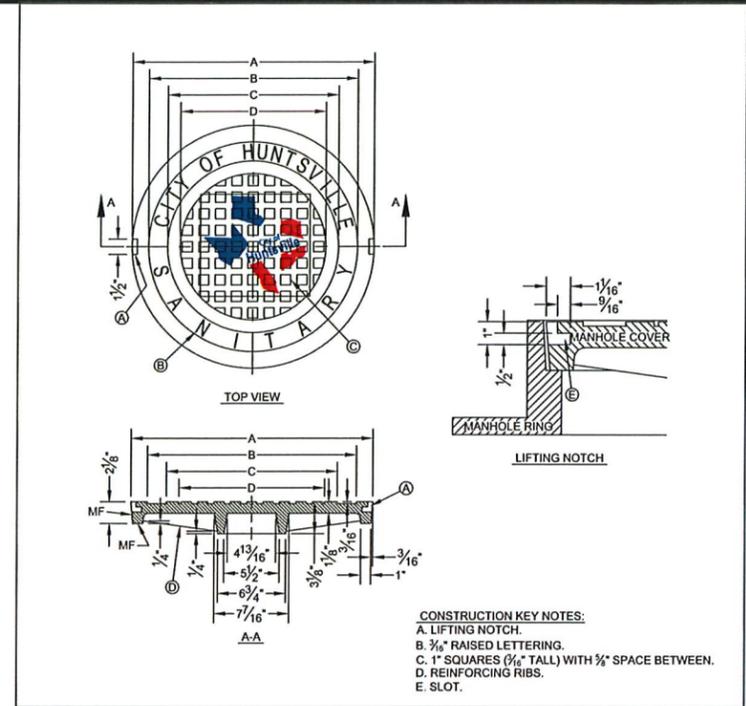
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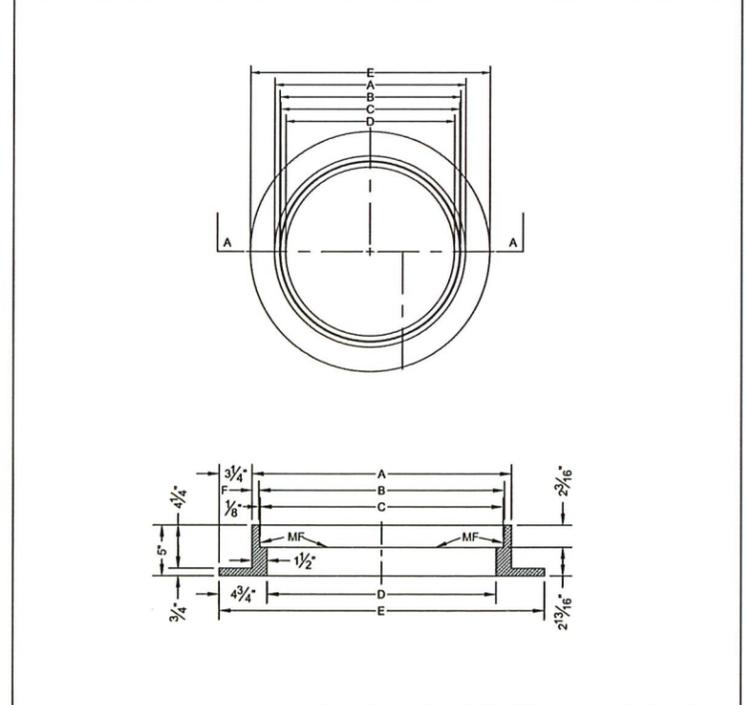
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SANITARY SEWER DETAILS I
 CITY OF HUNTSVILLE
 NB-06 SANITARY SEWER REHABILITATION PROJECT

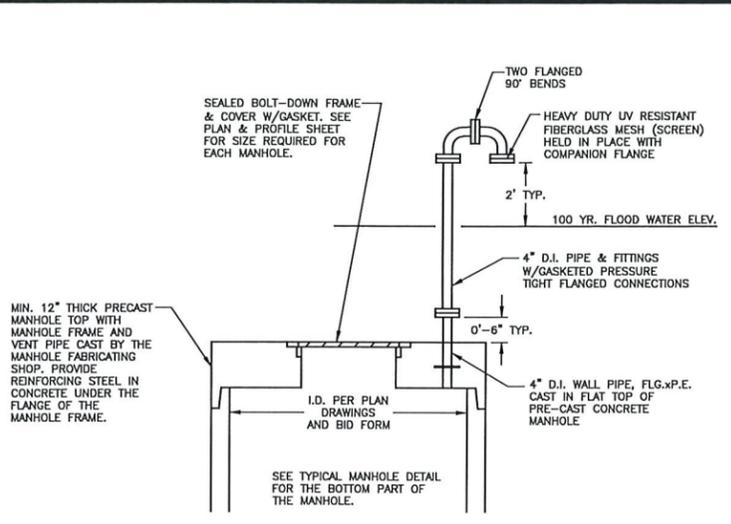
CITY JOB NO.	20-10-06
JOB NO.	4516.008
PROJECT MGR.	WJH
TBPE No. F-8405	
STRAND ASSOCIATES	
SHEET	16



DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS SEWER MANHOLE COVER		
NAME: MANHOLE COVER CATEGORY: SEWER DRAWN DATE: 11/02/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR		REV#	ISSUER	DATE
	City Service Center 448 State Highway 75 Huntsville, TX 77320	0	MAM	08/10/2018
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				RAM
				SHEET 1 OF 1
				SS-10

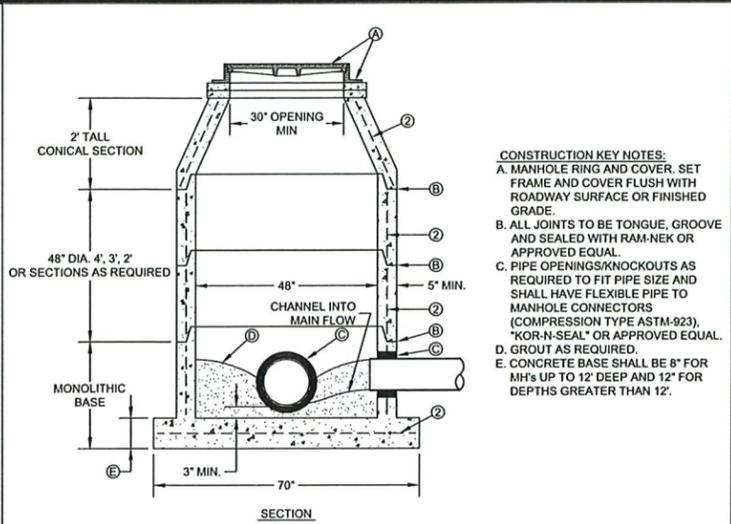


DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS MANHOLE RING		
NAME: MANHOLE RING CATEGORY: SEWER DRAWN DATE: 11/02/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR		REV#	ISSUER	DATE
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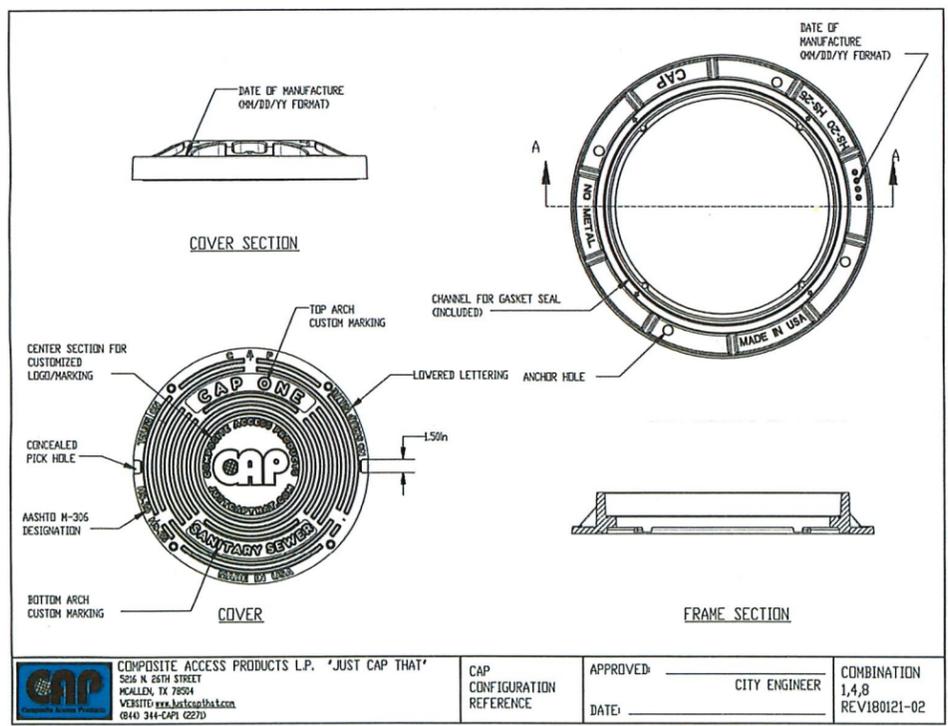
PRECAST CONCRETE MANHOLE WITH FLAT TOP & DETAIL FOR EXTERNAL VENT (ELEV.)

NOTE: SEE DRAWINGS FOR MANHOLES TO RECEIVE AN EXTERNAL VENT



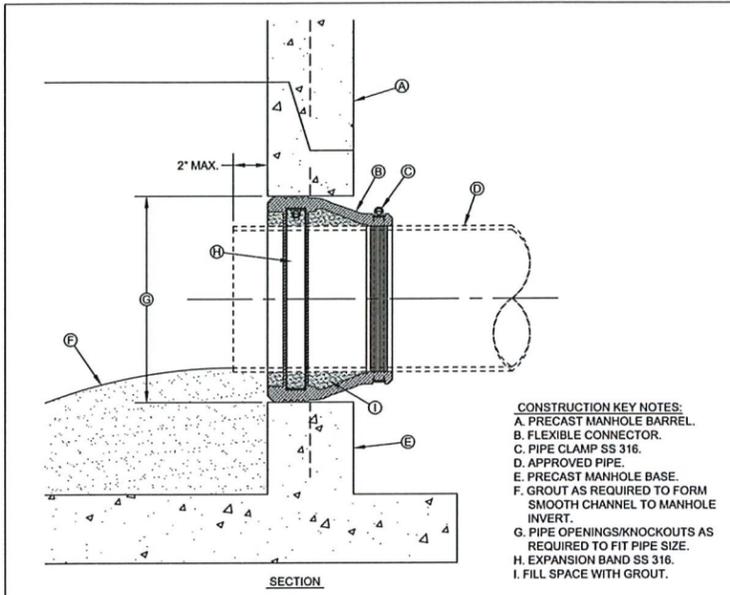
- NOTES:**
 1. MANHOLE TYPE "A" SHALL BE USED FOR LINES 21" AND SMALLER.
 2. PRE-CAST MANHOLE SECTIONS SHALL BE OF REINFORCED CONCRETE CONFORMING TO ASTM C-478 AND SHALL MEET HS-20 LOADING. PROVIDE REINFORCEMENT WITHIN 3" @ OPENINGS OR KNOCKOUTS, OPENINGS (UP TO 8") MADE IN FIELD SHALL BE CORE DRILLED.
 3. CEMENT SHALL BE TYPE HI, PER ASTM C-150, AND MUST CONTAIN A MINIMUM OF 4% FLY ASH OF THE TOTAL MANHOLE WEIGHT.
 4. THE BASE & RISER SHALL BE INTEGRALLY CAST. CONCRETE SHALL BE MIN. 28 DAY COMPRESSIVE STRENGTH 4000psi.
 5. MANUFACTURER TO PROVIDE LIFTERS OF ADEQUATE SIZE AS NEEDED.
 6. THE SUBGRADE UNDER THE BASE SHALL BE COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D-1557.
 7. THE INTERIOR MANHOLE COATING SHALL CONSIST OF A HEAVY COAT MODIFIED POLYAMINE EPOXY (TNE/EC SERIES 435 PERMA-GLAZE OR ACCEPTED EQUIVALENT) APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MINIMUM TOTAL DRY FILM THICKNESS FOR 4" DIAMETER MANHOLE SHALL BE 15 MILS. MINIMUM TOTAL DRY FILM THICKNESS FOR WET WELLS SHALL BE 60 MILS. THE EXTERNAL MANHOLE COATING SHALL CONSIST OF A BITUMINOUS COATING.

ENGINEERING DEPARTMENT CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS MANHOLE TYPE "A"			
NAME: MANHOLE TYPE "A" CATEGORY: SEWER DRAWN DATE: 11/02/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER
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		1	MAM	08/02/2019	RAM
					SHEET 1 OF 1
					SS-02



	COMPOSITE ACCESS PRODUCTS L.P. "JUST CAP THAT" 5205 N. 58TH STREET MCALLEN, TX 78504 WEBSITE: www.justcapthat.com 8140 344-CAP1 (2273)	CAP CONFIGURATION REFERENCE	APPROVED: _____ DATE: _____ CITY ENGINEER	COMBINATION 1,4,8 REV180121-02
NOTES: 1. REFERENCE DETAIL SS-10 FOR MANHOLE COVER MARKINGS. 2. MANHOLE RIM AND COVERS SHALL HAVE A CLEAR OPENING OF AT LEAST 30".				

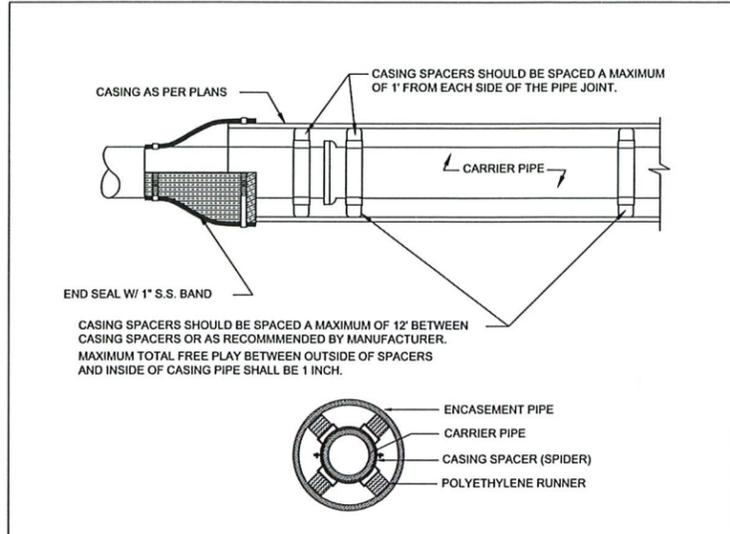
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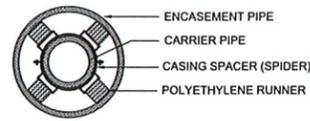
CONSTRUCTION KEY NOTES:
 A. PRECAST MANHOLE BARREL.
 B. FLEXIBLE CONNECTOR.
 C. PIPE CLAMP SS 316.
 D. APPROVED PIPE.
 E. PRECAST MANHOLE BASE.
 F. GROUT AS REQUIRED TO FORM SMOOTH CHANNEL TO MANHOLE INVERT.
 G. PIPE OPENINGS/KNOCKOUTS AS REQUIRED TO FIT PIPE SIZE.
 H. EXPANSION BAND SS 316.
 I. FILL SPACE WITH GROUT.

NOTES:
 1. MANHOLE CONNECTOR SHALL BE KOR-N-SEAL OR EQUAL MEETING THE REQUIREMENTS OF ASTM C-923. CONNECTOR SHALL BE FURNISHED BY CONTRACTOR.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS PIPE CONNECTION TO MANHOLE				
NAME: PIPE CONNECT TO MANHOLE CATEGORY: SEWER DRAWN DATE: 11/02/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
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						SS-26

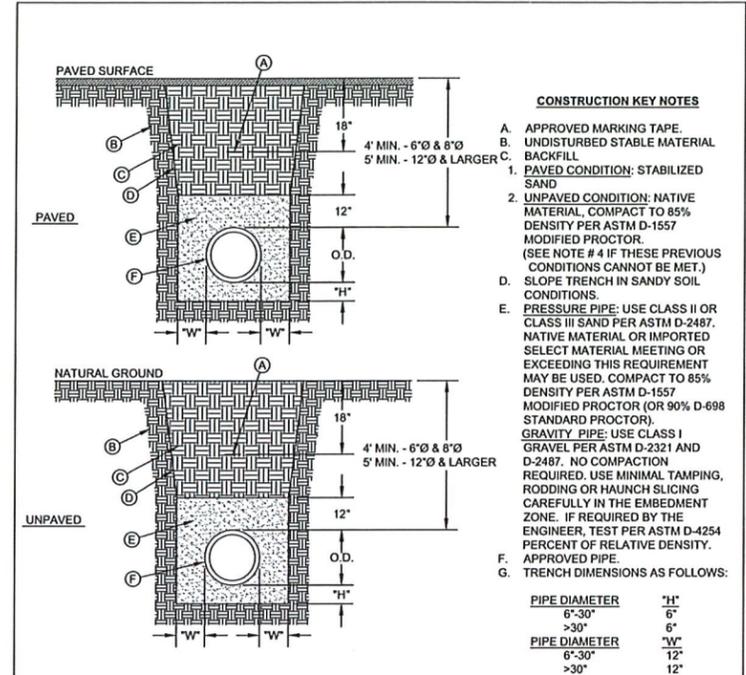


CASING SPACERS SHOULD BE SPACED A MAXIMUM OF 12' BETWEEN CASING SPACERS OR AS RECOMMENDED BY MANUFACTURER. MAXIMUM TOTAL FREE PLAY BETWEEN OUTSIDE OF SPACERS AND INSIDE OF CASING PIPE SHALL BE 1 INCH.



NOTES:
 1. A 1" DRAIN WILL BE REQUIRED ON THE LOWER END OF THE CASING IF THE CASING ENDS ARE SEALED WITH MORTAR AND BRICK.

DEPARTMENT OF ENGINEERING & MAPPING/ENGINEERING DIVISION CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS PIPE SUPPORT IN CASING PIPE				
NAME: PIPE SUPPORT IN CASING PIPE CATEGORY: SEWER DRAWN DATE: 11/07/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
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						SS-27

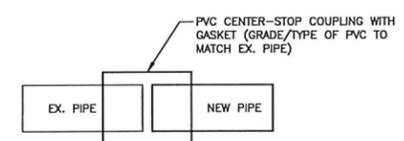


CONSTRUCTION KEY NOTES
 A. APPROVED MARKING TAPE.
 B. UNDISTURBED STABLE MATERIAL.
 C. BACKFILL.
 1. PAVED CONDITION: STABILIZED SAND.
 2. UNPAVED CONDITION: NATIVE MATERIAL, COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR. (SEE NOTE # 4 IF THESE PREVIOUS CONDITIONS CANNOT BE MET.)
 D. SLOPE TRENCH IN SANDY SOIL CONDITIONS.
 E. PRESSURE PIPE: USE CLASS II OR CLASS III SAND PER ASTM D-2487. NATIVE MATERIAL OR IMPORTED SELECT MATERIAL MEETING OR EXCEEDING THIS REQUIREMENT MAY BE USED. COMPACT TO 85% DENSITY PER ASTM D-1557 MODIFIED PROCTOR (OR 90% D-698 STANDARD PROCTOR).
 GRAVITY PIPE: USE CLASS I GRAVEL PER ASTM D-2321 AND D-2487. NO COMPACTION REQUIRED. USE MINIMAL TAMPING, RODDING OR HAUNCH SLICING CAREFULLY IN THE EMBEDMENT ZONE. IF REQUIRED BY THE ENGINEER, TEST PER ASTM D-4254 PERCENT OF RELATIVE DENSITY.
 F. APPROVED PIPE.
 G. TRENCH DIMENSIONS AS FOLLOWS:

PIPE DIAMETER	"H"
6"-30"	6"
>30"	6"
PIPE DIAMETER	"H"
6"-30"	12"
>30"	12"

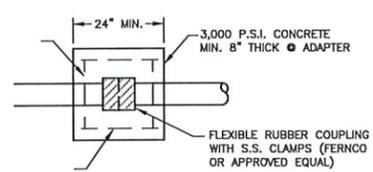
NOTES:
 1. BEDDING FOR PRESSURE AND GRAVITY PIPE IN DRY CONDITIONS.
 2. PROVIDE TRENCH SAFETY SYSTEM FOR TRENCH DEPTHS GREATER THAN 5 FEET.
 3. IF THE NATIVE MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE AS BACKFILL MATERIAL, OR THE REQUIRED COMPACTION IS UNATTAINABLE, THE CONTRACTOR SHALL, AT HIS EXPENSE, IMPORT SELECT MATERIAL TO BE MIXED WITH OR USED IN PLACE OF THE NATIVE MATERIAL. SELECT MATERIAL MUST BE APPROVED BY THE CITY OF HUNTSVILLE. SUBSTITUTE SOIL CEMENT SLURRY (1-SACK) IF REQUIRED IN SPECS.

ENGINEERING DEPARTMENT CITY OF HUNTSVILLE, TEXAS		CITY OF HUNTSVILLE STANDARD DETAILS EMBEDMENT CLASS "A" FOR PRESSURE AND GRAVITY PIPE - DRY CONDITIONS				
NAME: EMBEDMENT CLASS "A" - DRY CATEGORY: SEWER DRAWN DATE: 11/07/2016 DRAWN BY: WLS/III SCALE: N.T.S. APPROVED BY: YSR	City Service Center 448 State Highway 75 Huntsville, TX 77320	REV#	ISSUER	DATE	APPROVER	SHEET
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		1	MAM	10/16/2019	RAM	SS-28

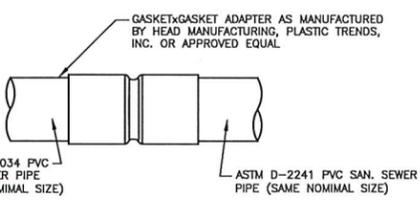


CONNECTION OF NEW PVC PLAIN END PIPE TO EXISTING PVC PIPE

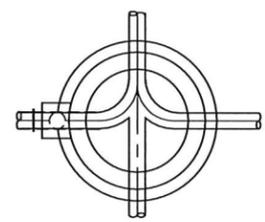
NOTE:
 IF THE EX. PIPE STUB-OUT HAS A BELL NEAR THE END OF THE STUB-OUT, CONTRACTOR SHALL CONNECT TO THE PIPE BELL.



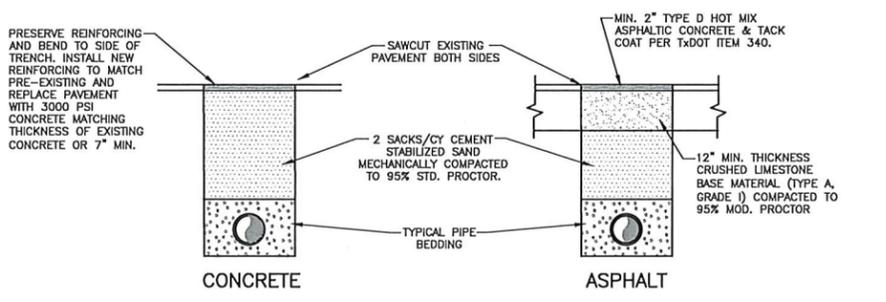
DETAIL FOR JOINING PIPES OF DIFFERENT TYPE MATERIAL



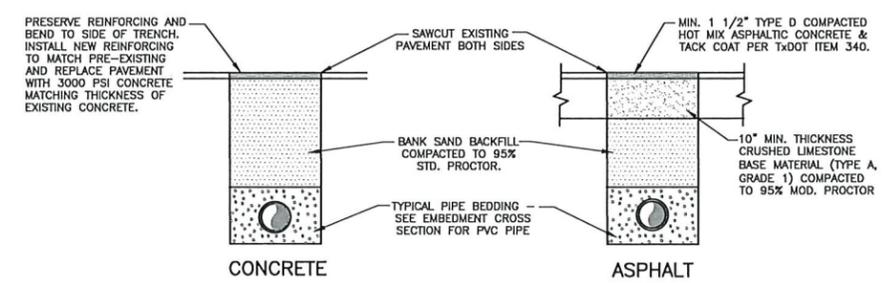
DETAIL FOR JOINING ASTM D-3034 PVC WITH ASTM D-2241 PVC PIPE
 N.T.S.



MANHOLE PLAN VIEW
 NTS
NOTE: PROVIDE HARD SMOOTH SURFACE TO MANHOLE INVERTS.



PAVEMENT REPAIR FOR SEWER & WATER LINES IN TxDOT RIGHT-OF-WAY
 NTS



PAVEMENT REPAIR FOR SEWER & WATER LINES IN CITY STREETS

DATE:	
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SANITARY SEWER DETAILS II
CITY OF HUNTSVILLE
NB-06 SANITARY SEWER REHABILITATION PROJECT

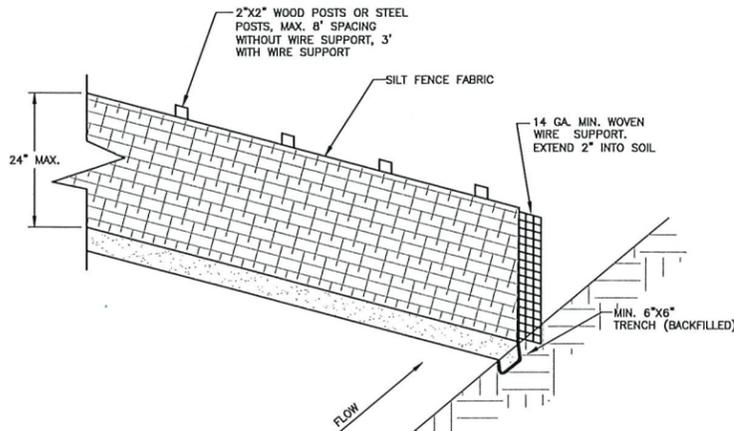
CITY JOB NO.	20-10-06
JOB NO.	4516.008
PROJECT MGR.	WJH
TBPE No. F-8405	
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SITE EROSION CONTROL NOTES:

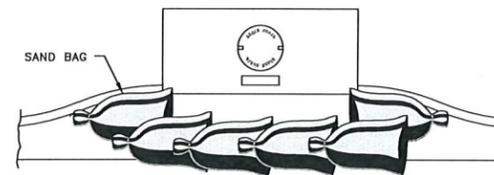
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL STORM WATER POLLUTION PREVENTION AND PLANNING IN ACCORDANCE WITH PROJECT TECHNICAL SPECIFICATION. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL INSTALL SILT FENCING, EROSION CONTROL SOCKS AND CONSTRUCTION ENTRANCE AS SHOWN ON THIS SHEET. THE SILT FENCING SHALL BE ERECTED IN ADDITION TO ANY STRUCTURAL CONTROLS THAT MAY BE STIPULATED IN A STORM WATER POLLUTION PREVENTION PLAN (SW3P) THAT IS PREPARED BY CONTRACTOR AS OPERATOR OF THE SITE. THE SILT FENCING SHALL BE MAINTAINED BY CONTRACTOR THROUGHOUT THE DURATION OF CONSTRUCTION AND THEN REMOVED BY CONTRACTOR AFTER FINAL STABILIZATION OF THE SITE.
2. CONTRACTOR SHALL INSTALL SAND BAGS OR AT ALL AREA INLETS AND CURB INLETS. SAND BAGS DETERIORATED BY SUNLIGHT SHALL BE REPLACED BEFORE RUPTURE.
3. SEDIMENT SHALL BE RETAINED ON SITE TO THE MAXIMUM EXTENT PRACTICABLE.

4. IF DAMAGED OR RENDERED INEFFECTIVE, THE EROSION AND SEDIMENT CONTROLS WILL BE REPAIRED OR REPLACED IMMEDIATELY.
5. AFTER PAVING COMPLETION, NEWLY GRADED AREAS AND ALL EXPOSED SOILS WILL BE COMPLETELY STABILIZED.
6. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE, UNLESS THEY ARE USING A PROPERLY DESIGNED AND DESIGNATED CONCRETE WASHOUT AREA.
7. EROSION AND SEDIMENT CONTROL MEASURES THAT HAVE BEEN IMPROPERLY INSTALLED OR HAVE BEEN DISABLED, RUN-OVER, REMOVED, OR OTHERWISE RENDERED INEFFECTIVE MUST BE REPLACED OR CORRECTED IMMEDIATELY.
8. MAINTENANCE AND REPAIRS SHALL BE CONDUCTED WITHIN 24 HOURS OF THE RAINFALL EVENT CAUSING DAMAGE.

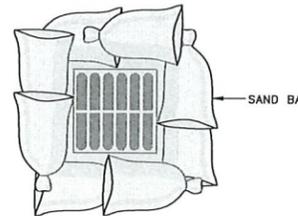


- NOTES:**
1. POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
 2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
 3. THE TRENCH SHOULD BE A MIN. OF 6" DEEP AND 6" WIDE TO ALLOW FOR THE SILT FENCE TO BE LAID IN THE GROUND AND BACKFILLED.
 4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POSTS.

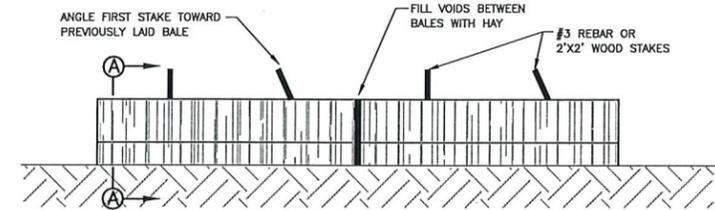
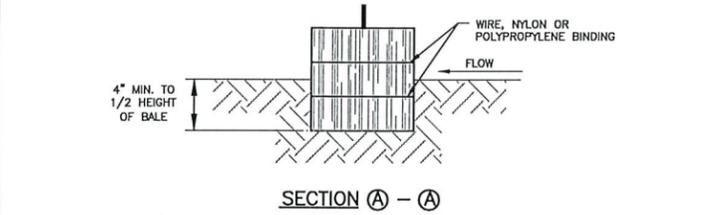
FABRIC FENCE



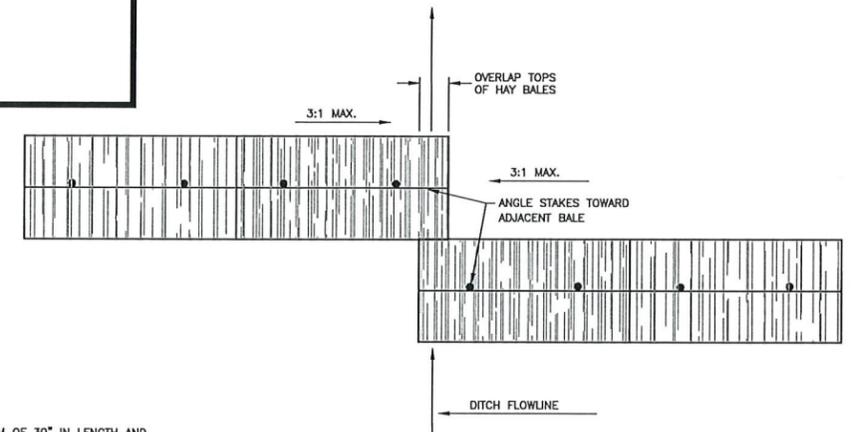
NOTE: TEMPORARY DEVICES AROUND STORM DRAINS ARE USED TO DETAIN AND/OR FILTER SEDIMENT-LADEN RUNOFF. THE PROTECTION ALLOWS SEDIMENT TO SETTLE PRIOR TO DISCHARGE INTO A STORM DRAIN INLET OR CATCH BASIN. SAND BAGS SHALL BE UV RESISTANT AND MUST NOT DEGRADE DUE TO ATMOSPHERIC CONDITIONS. SAND BAGS SHALL BE REPLACED UPON FIRST SIGN OF DETERIORATION.



3) STORM DRAIN INLET PROTECTION
NTS

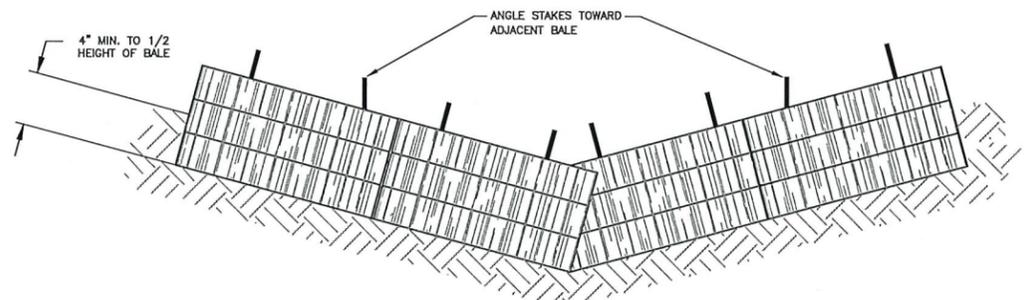


BALED HAY FOR EROSION CONTROL



PLAN VIEW INSTALLATION IN DITCH

- NOTES:**
1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
 2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
 3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND WHERE POSSIBLE 1/2 THE HEIGHT OF THE BALE.
 4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
 5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH #3 REBAR OR 2"x2" WOOD STAKES, DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
 6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.



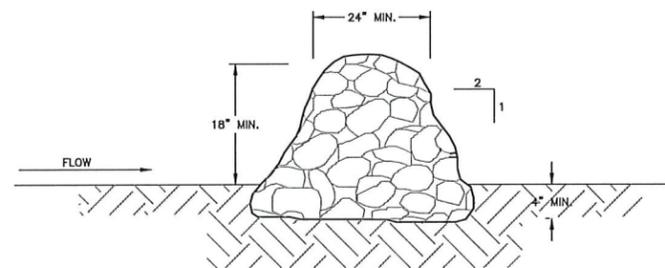
PROFILE VIEW INSTALLATION IN DITCH

NOTE: EROSION CONTROL DETAILS SHOWN ON THIS SHEET REPRESENT BASIC EROSION CONTROL MEASURES. CONTRACTOR SHALL PROVIDE AN EROSION CONTROL PLAN SHOWING LOCATIONS OF ALL NECESSARY CONTROLS.

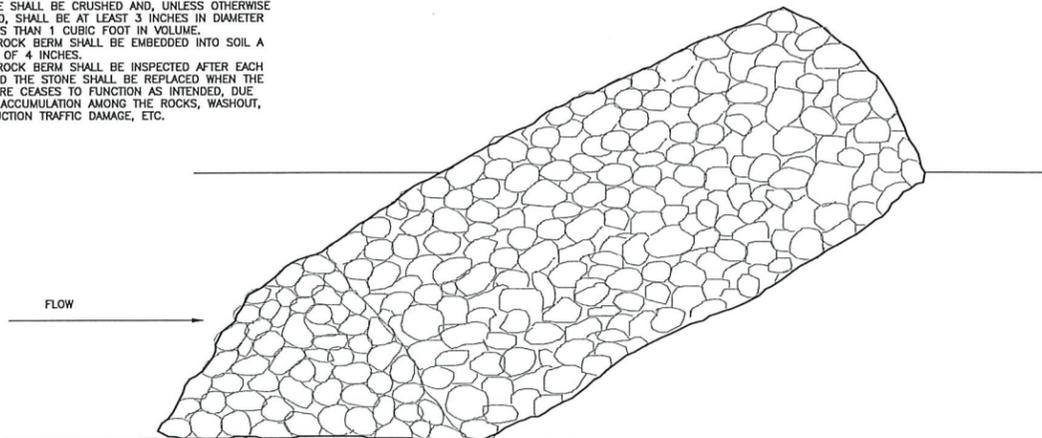
- RB — ROCK BERM
- HB — HAY BALES
- SF — SILT FENCE
- SB — SAND BAGS

PLAN SHEET LEGEND

- GENERAL NOTES:**
1. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY EROSION CONTROL DEVICES TO PREVENT EROSION ON THE PROJECT SITE OR MIGRATION OF SILT FROM THE SITE UNTIL PERMANENT STA-BILIZATION IS ACHIEVED. INSTALL DEVICES TO MINIMIZE RUNOFF WATER FROM CIRCUMVENTING THE CONTROLS.
 2. CONTRACTOR SHALL INSPECT EROSION CONTROL DEVICES AFTER EACH RAIN. WHEN SILT REACHES A DEPTH OF 1", REMOVE AND DISPOSE OF IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
 3. ALTERNATE METHODS OF EROSION CONTROL, SUCH AS INTERCEPTOR OR DIVERSION DIKES OR SWALES, SEDIMENTATION BASINS, ETC., MAY BE ALLOWED WITH PRIOR APPROVAL OF CITY ENGINEER. SUBMIT DETAILS FOR REVIEW.
 4. WHEN SITE IS COMPLETELY STABILIZED, EROSION CONTROL STRUCTURES SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.



SECTION



ROCK BERM DETAIL

- NOTES:**
1. USE ONLY OPEN-GRADED ROCK, WITH MOST OF THE FINES REMOVED.
 2. STONE SHALL BE CRUSHED AND, UNLESS OTHERWISE SPECIFIED, SHALL BE AT LEAST 3 INCHES IN DIAMETER AND LESS THAN 1 CUBIC FOOT IN VOLUME.
 3. THE ROCK BERM SHALL BE EMBEDDED INTO SOIL A MINIMUM OF 4 INCHES.
 4. THE ROCK BERM SHALL BE INSPECTED AFTER EACH RAIN, AND THE STONE SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.



DATE:	
REVISIONS:	
NO.:	

EROSION CONTROL DETAILS
CITY OF HUNTSVILLE
NB-06 SANITARY SEWER REHABILITATION PROJECT

CITY JOB NO.
 20-10-06
JOB NO.
 4516.008
PROJECT MGR.
 WJH
TBPE No. F-8405



SHEET
 18