

# TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR CONSTRUCTION OF DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER

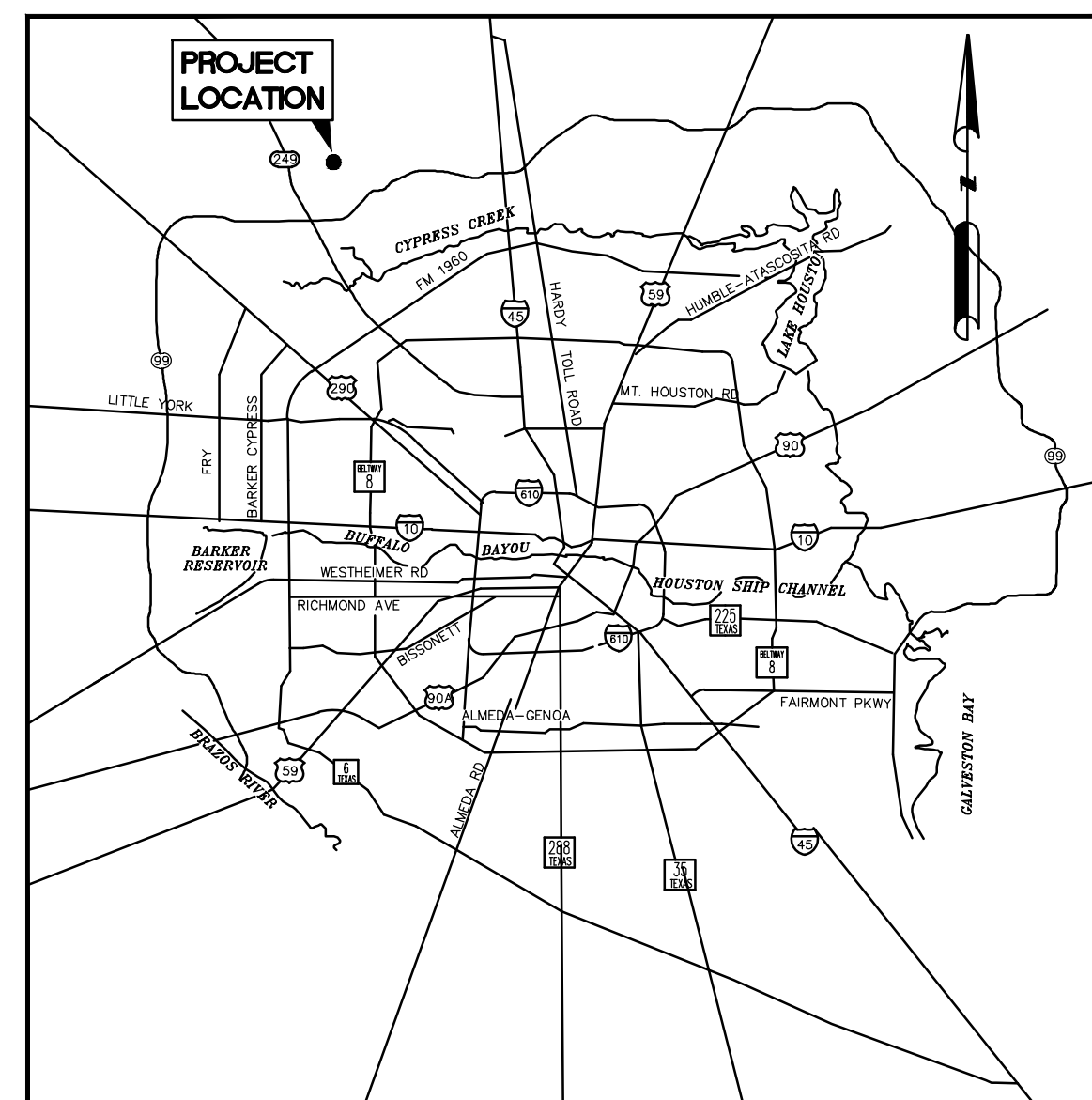
JANUARY 2024  
PROJECT #C23-107

HARRIS COUNTY MAY HAVE EXISTING UNDERGROUND / OVERHEAD UTILITIES WITHIN THE PROPOSED PROJECT LIMITS. PLEASE CONTACT THE CALL CENTER AT 713-881-3210, OR SUBMIT A WORK ORDER REQUESTS THROUGH [HTTP://WWW.ENG.HCTX.NET/SIGNALOUT](http://WWW.ENG.HCTX.NET/SIGNALOUT) TO OBTAIN FIELD LOCATES.

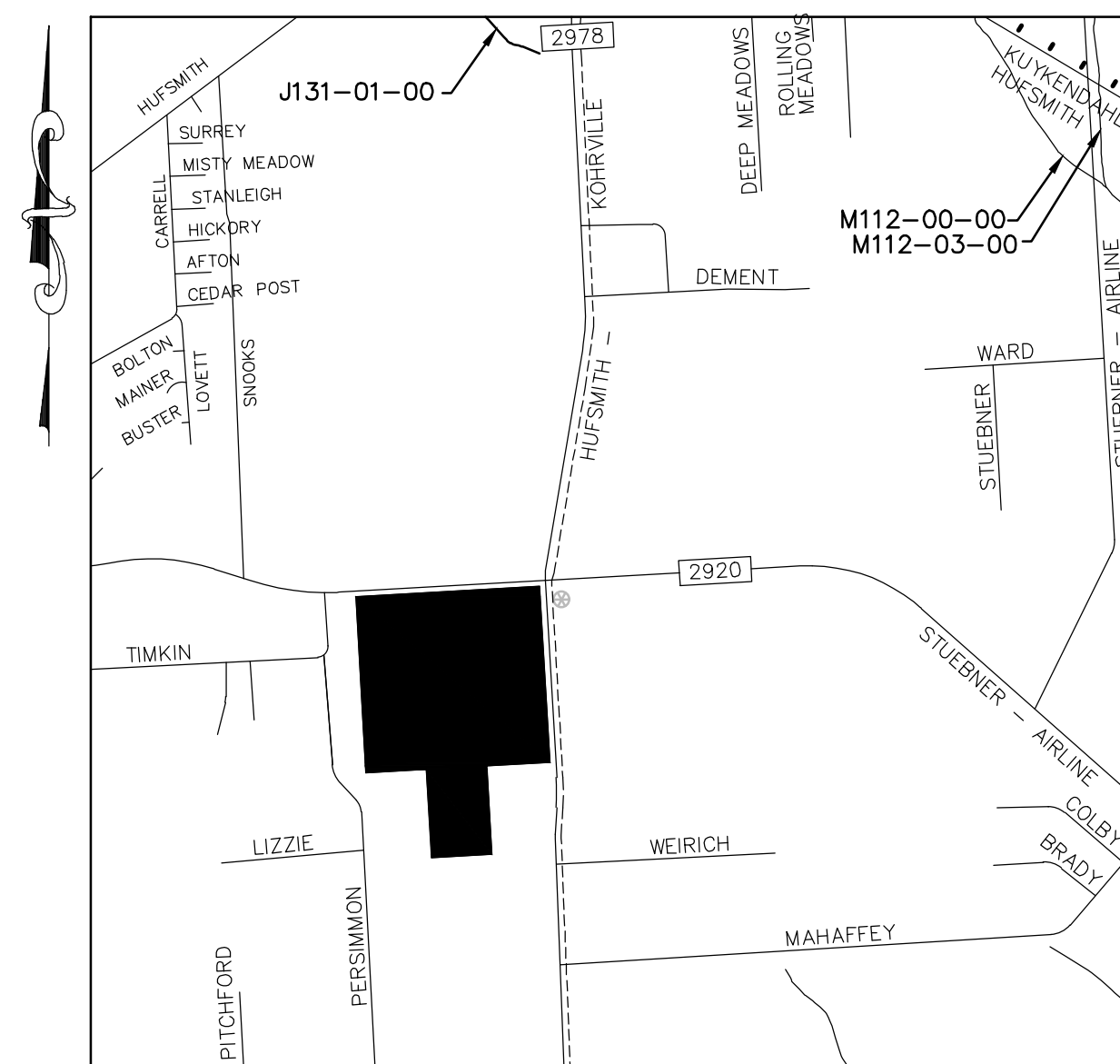
**48 HOUR NOTICE:**  
CONTRACTOR SHALL NOTIFY HARRIS COUNTY PRIOR TO COMMENCING CONSTRUCTION AND/OR BACKFILLING ANY UTILITIES. CONTRACTOR(S) TO CONTACT PUBLIC REVIEW DEPARTMENT @ (713-274-3931) OR ([public.review@cpid.org](mailto:public.review@cpid.org)).

NOTIFICATIONS (PERMIT) ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT - PERMITS OFFICE - IS REQUIRED FOR PROPOSED WORK WITHIN HARRIS COUNTY RIGHT-OF-WAY. THE PROJECT MUST BE APPROVED PRIOR TO OBTAINING THE REQUIRED NOTIFICATION. BE ADVISED THAT A NOTIFICATION MUST BE OBTAINED SEPARATELY FROM SITE DEVELOPMENT PERMIT PACKAGE. FOR ADDITIONAL INFORMATION, PLEASE VISIT [http://hcpid.org/permits/pr\\_notification\\_of\\_construction.html](http://hcpid.org/permits/pr_notification_of_construction.html) OR CONTACT PUBLIC REVIEW INSPECTIONS DEPARTMENT @ (713-274-3931 OR [public.review@cpid.org](mailto:public.review@cpid.org))

**ISSUED  
FOR BID**

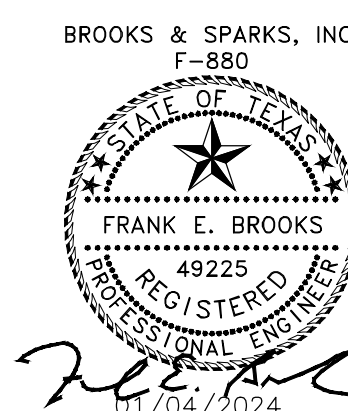


LOCATION MAP  
N.T.S.



KEY MAP 289E  
ZIP CODE: 77433, 77375  
SCALE N.T.S.

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SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	HC REVIEW SHEET
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39.	BLACK CHAIN LINK FENCE DETAILS



**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880

1. PAVING

(FOR H.C. PUBLIC R.O.W. ONLY)

Table with columns: DESIGN THICKNESS OF PAVING (IN.), STABILIZED SUBGRADE DEPTH (IN.), DESIGN STRENGTH OF CONCRETE (PSI), STEEL SPACING LONG (IN.), TRANS. (IN.), REINFORCEMENT STEEL SIZE (#) (IN.).

Table with columns: DESIGN SURFACE COURSE THICKNESS (IN.), DESIGN SURFACE COURSE TYPE (MATERIAL), DESIGN BASE COURSE THICKNESS (IN.), DESIGN BASE COURSE TYPE (MATERIAL), STABILIZED SUBGRADE THICKNESS (IN.), STABILIZED SUBGRADE TYPE (MATERIAL).

DRIVEWAYS (in H.C. ROW only)

I. NUMBER OF DRIVEWAY APPROVED FOR PROPOSED INCLUDE WIDENING OR REPAVING EXISTING DRIVEWAYS AS WELL AS NEW DRIVEWAYS

Table with columns: DRWY, WIDTH, MATERIAL, CURBTYPE, CULVERT LENGTH, NEAREST X-STREET, DIST. TO X-STREET.

II. HARRIS COUNTY STANDARD DRIVEWAY DETAIL APPLIES ON SHEET

FIRE APPARATUS ACCESS ROAD

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED DUE TO

CURBING

ISLANDS, MEDIANS AND ALL AREAS NOT TAKING DIRECT DRIVEWAY ACCESS REQUIRES STANDARD 6" CURBING

- STANDARD 6" CURBING PROPOSED
4" x 12" CURBING PROPOSED EXCEPT AT MEDIANS AND ISLANDS

TRAFFIC CONSIDERATIONS

- MEDIAN CUTS
LEFT / RIGHT TURN LANE
TRAFFIC CONTROL PLAN
TRAFFIC SIGNAL
TRAFFIC IMPACT ANALYSIS

5. DESCRIPTION OF PROPERTY

A. LEGAL DESCRIPTION

- ACREAGE:
SUBDIVISION:
SURVEY & ABSTRACT: J. PRUITT, ABSTRACT# 629
ADJACENT ROADS: FM 2920 & HUFSMITH-KOHRVILLE RD

II. PLATTING

- SUBDIVISION PLAT
STREETS PROPOSED
PROPOSED PLAT / REPLAT
RECORDED PLAT / REPLAT
PLAT NAME:

III. JURISDICTIONS

- CITY OF TOMBALL
ETJ, CITY OF HOUSTON
ETJ, CITY OF
NO ETJ

IV. HCAD ACCOUNT NOS. (ALL) KEY MAP PAGE 289E
1335950010001, 1335950010003 & 1335950010006

V. UNOBSTRUCTED VISIBILITY EASEMENT (U.V.E.)

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED

NOTE: ALL APPROVED, FINAL PLATS AND ASSOCIATED CPC101 FORMS MUST BE INCLUDED WITH PLAN SUBMITTAL

- CONFORMING SUBDIVISION
NON-CONFORMING SUBDIVISION
PARTIALLY NON-CONFORMING SUBDIVISION

2. RESIDENTIAL / SUBDIVISION DRAINAGE

- PROPOSED DRAINAGE SYSTEM TYPE
DESIGN METHOD USED
DRAINAGE SYSTEM OUTFALLS DIRECTLY TO EXISTING

- H.C. OUTFALL CALCULATIONS
DETENTION DICH OUTFALL
STORM SEWER OUTFALL
DETENTION PROVIDED BY
PROPOSED STORM SEWER IS SUBMERGED (AGREEMENT MUST BE PROVIDED)

OFFSITE SHEET FLOW: (100 YEAR)
OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMMODATIONS ARE SHOWN ON SHEET OR, AS PRESENTED IN THE APPROVED DRAINAGE STUDY ENTITLED
TOTAL ACREAGE =
TOTAL DISCHARGE =
NOTE: ALL OFFSITE SHEET FLOW FROM ADJACENT PROPERTIES MUST BE IDENTIFIED AND PROPERLY ACCOUNTED FOR IN THE PROJECT. THE SIGNING ENGINEER HEREBY CERTIFIES THAT THESE AREAS HAVE BEEN ADDRESSED.

6. STORMWATER QUALITY

- SWPPP: CONSTRUCTION MEASURES. (Complete for ALL projects)
APPLICABILITY FOR PERMANENT FEATURES. (must be completed on all projects)
EXEMPT NEW DEVELOPMENT
EXEMPT REDEVELOPMENT
GENERAL

- STORMWATER QUALITY PERMIT REQUIREMENT IS COVERED BY AN EXISTING SWQMP WITHIN PROJECT TITLE:
HARRIS COUNTY PROJECT NO. & SWQ PERMIT NO.
STORMWATER QUALITY MANAGEMENT PLAN:
PERMANENT SWQ FEATURES. (COMPLETE IF NOT EXEMPT)

3. COMMERCIAL / OTHER SITE DRAINAGE

- PROPOSED DRAINAGE AREA
NEW DEVELOPMENT AREA
RE-DEVELOPMENT AREA (NET NEW DEVELOPED AREA): 10.56
LOW IMPACT DEVELOPMENT (LID)
DETENTION VOLUME
NEW AREA 70.05 x \* = 52.54 ACRE FEET
DETENTION REQUIRED

- OUTFALL
ROADSIDE DICH OUTFALL
STORM SEWER OUTFALL
PUMPED DETENTION FACILITIES
VOLUME THAT GRAVITY FLOWS: 34.88 ACRE FEET
VOLUME THAT IS PUMPED: 28.63 ACRE FEET
ENTRANCE VELOCITY INTO ROADSIDE DITCH OR STORM SEWER: 7 CFS
PUMP SPECIFICATIONS AND AUTOMATIC SHUTOFF PLAN FOR ROADSIDE DITCH & STORM SEWER OUTFALLS APPEAR ON SHEET

- FLOW RESTRICTOR SIZE
OUTFALL PIPE SIZE: 24"
RESTRICTOR PIPE SIZE: 24"
NOTE: ALL ROADSIDE DITCH OUTFALLS REQUIRE EROSION CONTROL MEASURES RIPRAP IS NOT ALLOWED AS AN EROSION CONTROL MEASURE IN HARRIS COUNTY ROW. ALL PUMPED DETENTION OUTFALLS TO ROADSIDE DITCHES REQUIRE MANHOLE W/ LEADS

7. FLOOD PLAIN STATUS

- GENERAL INFORMATION
FIRM PANEL(S) FOR PROPERTY: 48201C0230L
FIRM PANEL(S) DATE: JUNE 18, 2007
STATUS OF PROPERTY ON MAP
SITE REMOVED FROM FLOODPLAIN BY LOMR, LOMR-F, LOMA
ELEVATION INFORMATION
BENCHMARK USED
FLOODPLAIN DETERMINATION BASED ON GROUND ELEVATION
FLOODPLAIN STORAGE SUMMARY

8. CURB RAMPS

- ARE CURB RAMPS THAT CONNECT TO PUBLIC STREETS PROPOSED IN THIS SET OF PLANS? [ ] YES [X] NO

9. LANDSCAPING

- REQUIRED AND SHOWN ON SHEET(S)
NOT REQUIRED

4. WATER AND WASTEWATER

- COMMERCIAL PROJECTS
PROPERTY HAVE EXISTING AND/OR PROPOSED UTILITIES?
IF YES, CHECK THE BOX THAT APPLIES TO THIS PROJECT
PUBLIC WATER & SANITARY
PRIVATE WATER WELL & SEPTIC SYSTEM
PUBLIC WATER & PRIVATE SEPTIC SYSTEM
PRIVATE WATER WELL & PUBLIC SANITARY
NOTE: PUBLIC UTILITIES REQUIRE A LETTER FROM THE DISTRICT/ MUNICIPAL AUTHORIZING SERVICE & CONNECTION. THIS IS REQUIRED FOR PLAN APPROVAL.

- SUBDIVISION PROJECTS
UTILITY DISTRICT/MUNICIPALITY NAME:
PRIVATE WATER & WASTE WATER SYSTEMS
PRIVATE WATER & INDIVIDUAL OSSF
INDIVIDUAL WATER WELLS & OSSF

NOTE: A COPY OF TCEQ APPROVAL FOR PRIVATE WATER & WASTE WATER SYSTEMS IS REQUIRED FOR PLAN APPROVAL.
NOTE: DEDICATED UNDERGROUND FIRE LINES MUST BE SUBMITTED TO THE HARRIS COUNTY FIRE PROTECTION GROUP FOR REVIEW AND PERMITTING BY THE UNDERGROUND FIRE LINE CONTRACTOR. CIVIL REVIEW DOES NOT REVIEW OR APPROVE UNDERGROUND FIRE LINES FOR THE FIRE PROTECTION SYSTEMS.

WASTEWATER TREATMENT PLANTS

- H.C. WWTP REVIEW:
IS THE PROPOSED PROJECT A NEW WWTP SITE OR A REHAB/EXPANSION OF AN EXISTING WWTP SITE?
IF YES IS A HARRIS COUNTY DOMESTIC WASTEWATER TREATMENT PLANT EXPRES REVIEW SHEET ATTACHED AND COMPLETED ACCORDING TO INSTRUCTIONS?
REFER TO: WWW.ENGHCTX.NET/PERMITS/WASTEWATER/REGULATIONS-STANDARDS-DETAILS FOR DOMESTIC WWTP ERS FORM

10. PERMITS REQUIRED

- DOES THE PROPERTY HAVE ANY VIOLATIONS? IF SO PLEASE PROVIDE ALL VIOLATION NUMBERS.
STORM WATER QUALITY
SEPTIC (EXISTING) SEPTIC (PROPOSED)
CIVIL SITE WORK (PHASE II PERMIT CLASS I (non-floodplain))
CIVIL SITE WORK (PHASE II PERMIT CLASS II (floodplain))
DRIVEWAY WITH CULVERT CURB AND GUTTER
BUILDING PERMITS (NO. OF BUILDINGS = ) CRITICAL FACILITY
SUBDIVISION INFRASTRUCTURE PHASE II (NO. OF LOTS = )
NOTICE OF DETENTION AFFIDAVIT REQUIRED
MUD MAINTENANCE AGREEMENT REQUIRED
NOTES:
WORK IN HARRIS COUNTY R.O.W.
UTILITY WORK PROP. 30" STM. SWR. & PROP. 12" W.L.
TURN LANE
OTHER CONSTRUCTION

NOTE: A PERMIT IS REQUIRED FOR EACH SCOPE OF WORK ON SITE. A R.O.W. NOTIFICATION IS REQUIRED FOR EACH SCOPE OF WORK IN HC OR HC/FCD ROW. REFER TO WWW.ENGHCTX.NET/PERMITS FOR EACH SCOPE OF WORK IN HC OR IN HC/FCD ROW.

BENCHMARK REQUIREMENTS FOR PROPOSED BRIDGES AND/OR NEW RESIDENTIAL SUBDIVISIONS

When the County Engineer has determined that a new benchmark will be required to be established for the proposed project, the developer shall be required to install a benchmark per section 8.0, part 2 of the Harris County Infrastructure Regulations.
Is a new Benchmark required for this project? (to be determined by Harris County) [ ] yes [ ] no
If a new Benchmark is required, the proposed benchmark information is shown on sheets

FOR PROJECTS LOCATED IN ANY FLOODPLAIN

Development constructed or placed in accordance with these plans will comply with all provisions of the Regulations of Harris County, Texas for Floodplain Management.
No net fill is allowed in the flood plain and no fill is allowed in the floodway.
FOUNDATION NOTES: (Applies to only buildings or building additions requiring a class II permit)
All water heaters, furnaces, air conditioning units, electrical distribution panels, and any other mechanical or electrical equipment must be elevated in accordance with Section 4.05 of Harris County Floodplain regulations.
Any electrical circuit serving a light switch or outlet located below the base (100-year) flood elevation shall be dropped from above and be on a separate breaker.
All materials used below the (100-year) base flood elevation are on approved FEMA Technical Bulletin 2-08 as Class 5 water-resistant, and approved in accordance with FEMA Technical Bulletin 1-08 for foundation openings.
Critical facilities located in the 0.2% or 500yr floodplain or 1% or 100yr floodplain shall have the lowest floor elevated to 3 feet or more above the 0.2% flood elevation, or 24 inches above the crown of the adjacent road, which ever results in a higher elevation.
Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
Access routes elevated to or above the level of the base flood shall be provided to all critical facilities to the extent possible.
A completed as-built certificate must be submitted after the structure is complete and before it is occupied.
The County Engineer's Office will post a final inspection notice on the structure once all requirements have been met.
No fill may be used to elevate structures in the 1% or 100yr flood plain. Structures may be constructed on an open foundation, such as piers, or on continuous foundation walls with properly sized and located openings. All foundations are required to be designed by a registered professional engineer.
All structures shall be designed to withstand a three second gust basic wind speed of 120mph.
Completed "Elevation Certificates to be submitted: one at permitting, a second after the slab is poured or sub-floor is installed and before the framing starts, and a third is required once construction is finished. \*(PER CURRENT FIRM PANEL) to the Harris County Engineering Department, 10555 Northwest Freeway, Suite 120, Houston, TX 77092

HARRIS COUNTY ENGINEERING DEPARTMENT - PERMIT OFFICE NOTE:
THE PERMIT MANAGER SIGNATURE REPRESENTS THE FOLLOWING:
THE COMPLETION OF REVIEW OF THESE PLANS
INTERPOSE NO OBJECTION TO THE PROPOSED DESIGN ON PRIVATE PROPERTY
APPROVAL OF WORK IN HARRIS COUNTY MAINTAINED RIGHT OF WAY
APPROVAL OF WORK IN PROPOSED HARRIS COUNTY RIGHT OF WAY THAT IS TO BE ACCEPTED BY THE COUNTY

THE PROJECT WAS REVIEWED, HOWEVER, THIS DOES NOT MEAN THE ENTIRE PROJECT, INCLUDING ALL SUPPORTING DATA AND CALCULATIONS HAVE BEEN COMPLETELY CHECKED AND VERIFIED. THESE DRAWINGS ARE SIGNED, DATED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS, WHICH THEREFORE CONVEYS THE ENGINEER'S RESPONSIBILITY AND ACCOUNTABILITY. THIS DOES NOT RELIEVE ANY PARTY FROM COMPLYING WITH APPROPRIATE FEDERAL, STATE AND LOCAL ENVIRONMENTAL RULES, LAWS, AND REGULATIONS AND ANY OTHER LEGALLY ADOPTED REGULATION OR ORDINANCE RELATED TO LAND DEVELOPMENT. IF THE CITY SIGNATURES ARE REQUIRED BY ORDINANCE, COUNTY PERMITS WILL NOT BE ISSUED UNTIL SUCH SIGNATURES ARE OBTAINED. PLAN APPROVAL EXPIRATION TO BE IN ACCORDANCE WITH LOCAL GOVERNMENT CODE CH. 245.

ENGINEER'S CERTIFICATION

I, Frank E. Brooks, a LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THE INFORMATION PRESENTED ON THIS SHEET IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT I AM NOT VIOLATING ANY PROVISION OF THE CURRENT TEXAS ENGINEERING PRACTICE ACT AND RULES CONCERNING THE PRACTICE OF ENGINEERING AND PROFESSIONAL ENGINEERING LICENSURE. I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE PLANS IN THEIR ENTIRETY ARE DESIGNED PER THE HARRIS COUNTY ENGINEERING STANDARDS, REGULATIONS, AND GUIDELINES UNLESS PROVIDED A VARIANCE BY THE COUNTY ENGINEER OR HIS DESIGNEE. SHOULD IT BE DEEMED BY HCED STAFF THAT THE PLANS DO NOT MEET THE COUNTY'S STANDARDS, REGULATIONS AND GUIDELINES AND DID NOT RECEIVE AN APPROVED VARIANCE, THE APPROVAL OF SAID PLANS BECOMES NULL AND VOID AND THE DESIGN PLANS MUST BE CORRECTED AT NO CHARGE TO THE COUNTY.

THE COMPLETED PROJECT CONSISTS OF DRAWING SHEETS 1 THRU 39
SIGNATURE: Frank E. Brooks DATE: 01/04/2024
REVISIONS
NOTE: REVISION BLOCK IS TO BE USED ONLY FOR CHANGES MADE AFTER PLANS HAVE BEEN APPROVED BY HARRIS COUNTY.

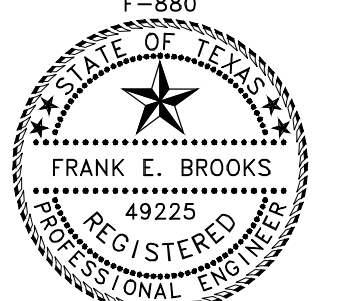


Table with columns: DATE, SHEET NO., DESCRIPTION, P.E. INITIAL, H.C. APPROVED DATE.

HARRIS COUNTY ENGINEERING DEPARTMENT REVIEW SHEET

1. PROPERTY DESCRIPTION

I. LOCATION INFORMATION

A. HARRIS COUNTY COMMISSIONER'S PRECINCT:
1 2 3 4
B. KEY MAP: 289E
C. ADDRESS: 11211 FM 2920 RD (#1)
TOMBALL, TX 77375

II. LEGAL DESCRIPTION

A. ACREAGE: 70.05
B. SUBDIVISION:
C. ADJACENT ROADS: FM 2920 & HUFSMITH-KOHRVILLE RD

III. PLATTING

A. SUBDIVISION PLAT
B. STREETS PROPOSED
C. PLAT NAME

IV. JURISDICTIONS

CITY OF TOMBALL
ETJ, CITY OF HOUSTON
ETJ, CITY OF
NO ETJ
UTILITY DISTRICT (NAME)

V. HCAD ACCOUNT NOS. (ALL)

1335950010001, 1335950010003 & 1335950010006

2. SITE DETENTION DRAINAGE

I. PROPOSED DRAINAGE AREA

NEW DEVELOPMENT AREA
RE-DEVELOPMENT AREA (AMOUNT INCREASED IMPERVIOUS AREA)
LOW IMPACT DEVELOPMENT (LID) METHOD/DESCRIPTION

II. METHODOLOGY

HCFCO PCPM DETENTION METHOD USED:
METHOD 1 (LESS THAN 20 ACRES)
METHOD 2 (20 ACRES TO 640 ACRES)
METHOD 3 (GREATER THAN 640 ACRES)
OTHER

III. DETENTION VOLUME & OUTFALL

OUTFALL TO:
.65, H.C.F.C.D. CHANNEL, (H.C.F.C.D. UNIT NO.)
.75, EXISTING STORM SEWER (OWNER & OPERATOR)
1.00, ROADSIDE DITCH, (OWNER & ROAD NAME)
OTHER (OWNER & OPERATOR)

IV. STORMWATER DETENTION BASIN INFORMATION

A. HCFCO PCPM SUMMARY TABLE SEE SHEET OF THESE PLANS.

Table with columns: DETENTION BASIN SERVICE AREA, STORM EVENT, 50% EXCEEDANCE (2-YEAR), 10% EXCEEDANCE (10-YEAR), 1% EXCEEDANCE (100-YEAR), MAXIMUM ALLOWABLE OUTFLOW (PRE-DEVELOPMENT PEAK FLOW), MAXIMUM OUTFLOW PROVIDED (PEAK FLOW FROM BASIN), LOWEST NATURAL/FINISHED GROUND OR FINISHED FLOOR ELEVATION ESTIMATE, DESIGN WATER SURFACE ELEVATION, MINIMUM STORAGE REQUIRED (ac-ft), DETENTION STORAGE PROVIDED (ac-ft), STORAGE RATE PROVIDED (ac-ft/ac), OUTFLOW VELOCITY INTO CHANNEL (ft/sec), DRAIN TIME - 1% ONLY (hours), EMERGENCY OVERFLOW (TYPE, SIZE, ELEVATION, ETC.)

B. DETENTION BASIN TO BE MAINTAINED BY TOMBALL ISD
C. DETENTION SERVICE AREA MAP ON SHEET 15
D. ADDITIONAL CRITERIA FOR PUMPED DETENTION BASINS
VOLUME OF PUMPED 1% EXCEEDANCE STORAGE VOLUME = ACFT % OF TOTAL VOLUME
MAXIMUM DESIGN OUTFLOW VELOCITY INTO HCFCO CHANNEL = FT/SEC
DRAIN TIME FOR BASIN = HOURS BASED ON HEAD CONDITIONS

V. DETENTION PROVIDED IN OTHER PLANS:

HCFCO PROJECT No. DATE SIGNED BY HCFCO:
PLAN TITLE
DETENTION POND SERVICE AREA MAP IS PROVIDED ON SHEET
ENGINEERING FIRM
DETENTION BASIN MAINTAINED BY:

VI. FLOW RESTRICTOR SIZE

OUTFALL PIPE SIZE: 24"
RESTRICTOR PIPE SIZE: 24"
RESTRICTOR PLATE DIMENSION:

VII. DETENTION PROVIDED BY

REGIONAL DETENTION BASIN BY APPROVED REC. PROJ. NO.:

FOR PROJECTS LOCATED IN ANY FLOODPLAIN
Development constructed or placed in accordance with these plans will comply with all provisions of the designated Floodplain Administrator.
No net fill is allowed in the flood plain and no fill is allowed in the floodway.

OFFSITE SHEET FLOW: (100 YEAR)

OFFSITE SHEET FLOW MAPPING, TOTAL DISCHARGE CALCULATIONS, AND DESIGN ACCOMODATIONS ARE SHOWN ON SHEET OR, AS PRESENTED IN THE APPROVED DRAINAGE STUDY ENTITLED

TOTAL ACREAGE =
TOTAL DISCHARGE =

NOTE: ALL OFFSITE SHEET FLOW FROM ADJACENT PROPERTIES MUST BE IDENTIFIED AND PROPERLY ACCOUNTED FOR IN THE PROJECT. THE SIGNING ENGINEER HEREBY CERTIFIES THAT THESE AREAS HAVE BEEN ADDRESSED.

NOTES:
I. - III. REQUIRED ON PROJECTS WITH WORK IN A HCFCO CHANNEL. PLEASE REFERENCE SECTION 17 OF THE FLOOD CONTROL DISTRICT POLICY, CRITERIA, AND PROCEDURE MANUAL FOR MORE INFORMATION.

IV. HCFCO STANDARD NOTES: SEE SHEET N/A OF THESE PLANS.

V. HCFCO STANDARD DETAILS: SEE SHEET N/A OF THESE PLANS.

VI. HCFCO ACCESS PLAN: SEE SHEET N/A OF THESE PLANS.

VII. REFER TO THE FOLLOWING PLAN SHEETS: N/A
FOR EXISTING AND PROPOSED RIGHT(S) OF WAY INCLUDING DELINEATION AND RECORDING INFORMATION PER HCFCO POLICY, CRITERIA, & PROCEDURE MANUAL (i.e., DRAINAGE EASEMENT, FEE STRIP, ETC.) AND GRANTEE (e.g. COH, HCFCO, PUBLIC, TXDOT, ETC.)

3. SWQ DISCHARGE INTO FCD FACILITY

I. SWPPP: CONSTRUCTION MEASURES. (Must complete)

DISTURBS >1AC. SITE PLAN & DETAILS ON SHEET(S)
32
DISTURBS <1AC. N/A

II. APPLICABILITY FOR PERMANENT FEATURES. (Must complete)

EXEMPT NEW DEVELOPMENT:
PROJECT IS ON A PARCEL (A COMMON PLAN OF DEVELOPMENT) LESS THAN 5 ACRES. (Must be verified with plat)
EXEMPT REDEVELOPMENT:
PROJECT DOES NOT MEET THE DEFINITION OF SIGNIFICANT REDEVELOPMENT (Part A,Sec. 2.39 of Regulations of Harris County, Texas for Stormwater Quality Management)
EXEMPT GRANDFATHERED:
PROJECT'S DRAINAGE TIES DIRECTLY INTO AN EXISTING DRAINAGE SYSTEM PRIOR TO OCTOBER 1, 2001. (FOR VERIFICATION: PROVIDE ORIGINAL DRAINAGE AREA MAP INCLUDING CALCULATIONS)

GENERAL:

PROJECT'S SWQ REQUIREMENTS FALL WITHIN THE JURISDICTION OF:
STORMWATER QUALITY PERMIT REQUIREMENT IS COVERED BY AN EXISTING SWQMP WITHIN PROJECT TITLE:

HARRIS COUNTY PROJECT No. & SWQ PERMIT No.

STORMWATER QUALITY MANAGEMENT PLAN:

SITE PLAN ON SHEET(S)

III. PERMANENT SWQ FEATURES. (COMPLETE IF NOT EXEMPT)

VEGETATIVE CONTROLS USED: (FILTER STRIP, GRASSY SWALE, URBAN FORESTRY DETAILS AND CALCULATIONS APPEAR ON SHEET(S))
POND STRUCTURE USED (WET, DRY, WETLANDS) DETAILS AND CALCULATIONS APPEAR ON SHEET(S)
HYDRODYNAMIC TYPE SEPARATOR MODEL:
OTHER(S):

6. REPORTS/AGREEMENTS

I. HCFCO ACCEPTED REPORTS (ALL)

STORMWATER DRAINAGE DESIGN REPORT
HCFCO PROJECT #
ENGINEERING FIRM
REPORT ACCEPTANCE DATE
GEOTECHNICAL INVESTIGATION REPORT
HCFCO PROJECT #
ENGINEERING FIRM
REPORT ACCEPTANCE DATE
DESCRIPTION OF VARIANCE
DOCUMENT ID #
VARIANCE ACCEPTANCE DATE

II. AGREEMENT TYPE & No.:

INTERLOCAL (ILA):
HCFCO MAINTENANCE
TURF ESTABLISHMENT
OTHER

4. FLOOD PLAIN STATUS

I. GENERAL INFORMATION

FIRM PANEL(S) FOR PROPERTY: 48201C0230L
FIRM PANEL(S) DATE: JUNE 18, 2007
STATUS OF PROPERTY ON MAP
ENTIRELY LOCATED IN UNSHADED ZONE "X"
LOCATED PARTIALLY OR ENTIRELY IN ANY "A" ZONE OR SHADED ZONE "X", DELINEATE FLOODPLAIN BOUNDARY ON CONSTRUCTION DRAWINGS (DRAINAGE LAYOUT PG. NO. (1% BASE FLOOD LEVEL) (0.2% BASE FLOOD LEVEL)
SITE REMOVED FROM FLOODPLAIN BY LOMR, LOMR-F, LOMA CASE NO. REVISED FLOODPLAIN IS SHOWN ON SHEET
BENCHMARK USED
HARRIS COUNTY FLOODPLAIN REFERENCE MARK
HARRIS-GALVESTON COASTAL SUBSIDENCE DISTRICT BENCHMARK (FOR COASTAL AREAS)
DESCRIPTION OF BENCHMARK INCLUDING ELEVATION, DATUM AND YEAR OF ADJUSTMENT (WITH ADJ.) SM/SITES - ALUMINUM ROD WITH LOGO CAP STAMPED "120165" LOCATED ON THE WEST SIDE OF TUNA ROAD ±120' NORTH OF THE CENTERLINE OF THE DRIVEWAY FOR 22803 TUNA ROAD IN KEY MAP 289H IN THE MILLAW CREEK WATERSHED. ELEVATION = 140.89' (NAVD 88, 2001 ADJ.)

II. FLOOD PLAIN DETERMINATION BASED ON GROUND ELEVATION

PROPERTY LIES ENTIRELY ABOVE THE BASE FLOOD LEVEL AND IN SHADED ZONE "X"
PROPERTY LIES PARTIALLY OR ENTIRELY BELOW THE BASE FLOOD LEVEL

III. FLOODPLAIN STORAGE SUMMARY

(APPLIES ONLY TO PORTION OF LAND LOCATED WITHIN FEMA REGULATORY FLOODPLAIN).
TOTAL VOLUME OF MATERIAL PROPOSED TO BE MOVED OR PLACED WITHIN THE FIRM DELINEATED FLOODPLAIN (FILL, BASE, CONCRETE, ASPHALT, ETC.): BELOW 0.2% BASE FLOOD ELEVATION (2001 ADJ.) CUBIC YARDS
TOTAL VOLUME OF MATERIAL PROPOSED TO BE REMOVED FROM THE FIRM DELINEATED FLOODPLAIN: BELOW 0.2% BASE FLOOD ELEVATION (2001 ADJ.) CUBIC YARDS INCLUDING CALCULATIONS
FILL AREA & VOLUME CALCULATIONS ARE SHOWN ON SHEET

HCFCO SIGNATURE BLOCK

TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR
PROJECT NAME: DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER
ADDRESS: 11211 FM 2920, TOMBALL, TX 77375
WAS ACCEPTED BY HARRIS COUNTY FLOOD CONTROL DISTRICT FOR THE PURPOSES LISTED BELOW:

HARRIS COUNTY FLOOD CONTROL DISTRICT

NO REVIEW REQUIRED
FOR ITEMS LOCATED OUTSIDE OF HCFCO RIGHT-OF-WAY
FOR ITEMS LOCATED WITHIN EXISTING HCFCO RIGHT-OF-WAY
FOR ITEMS LOCATED WITHIN PROPOSED HCFCO RIGHT-OF-WAY
Chris Bennett
Digitally signed by Chris Bennett
Date: 2023.12.19 12:14:11 -0600
FINAL PERMITTING BY OTHERS

ADDITIONAL COMMENTS:

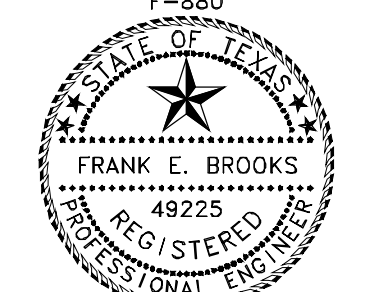
THE PROJECT WAS REVIEWED, HOWEVER, THIS DOES NOT MEAN THE ENTIRE PROJECT, INCLUDING ALL SUPPORTING DATA AND CALCULATIONS HAVE BEEN COMPLETELY CHECKED AND VERIFIED. THESE DRAWINGS ARE SIGNED, DATED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS, WHICH THEREFORE CONVEYS THE ENGINEER'S RESPONSIBILITY AND ACCOUNTABILITY. THIS DOES NOT RELIEVE ANY PARTY FROM COMPLYING WITH APPROPRIATE FEDERAL, STATE AND LOCAL ENVIRONMENTAL RULES, LAWS, AND REGULATIONS AND ANY OTHER LEGALLY ADOPTED REGULATION OR ORDINANCE RELATED TO LAND DEVELOPMENT. IF THE CITY SIGNATURES ARE REQUIRED BY ORDINANCE, COUNTY PERMITS WILL NOT BE ISSUED UNTIL SUCH SIGNATURES ARE OBTAINED. PLAN APPROVAL EXPIRATION TO BE IN ACCORDANCE WITH LOCAL GOVERNMENT CODE CH. 245.

ENGINEER'S CERTIFICATION

I, Frank E. Brooks, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THE INFORMATION PRESENTED ON THIS SHEET IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT I AM NOT VIOLATING ANY PROVISION OF THE CURRENT TEXAS ENGINEERING PRACTICE ACT AND RULES CONCERNING THE PRACTICE OF ENGINEERING AND PROFESSIONAL ENGINEERING LICENSURE.

ANY VIOLATIONS WILL BE FORWARDED TO THE HARRIS COUNTY DISTRICT ATTORNEY'S OFFICE FOR PROSECUTION. BROOKS & SPARKS, INC. P-880

THE COMPLETED PROJECT CONSISTS OF DRAWING SHEETS 1 THRU 39.
SIGNATURE DATE 01/04/2024



REVISIONS

NOTE: REVISION BLOCK IS TO BE USED ONLY FOR CHANGES MADE AFTER PLANS HAVE BEEN APPROVED BY HARRIS COUNTY FLOOD CONTROL.

Table with columns: DATE, SHEET NO., DESCRIPTION, P.E. INITIAL, H.C.F.C.D APPROVED DATE

HARRIS COUNTY FLOOD CONTROL DISTRICT REVIEW SHEET



GENERAL CONSTRUCTION NOTES

- 1. CONTRACTOR SHALL CONTACT THE CITY OF TOMBALL A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK.
2. CONTRACTOR SHALL ADEQUATELY PROTECT EXISTING STRUCTURES, UTILITIES, TREES, SHRUBS AND OTHER PERMANENT OBJECTS.
3. TREES WITHIN THE STREET RIGHT-OF-WAY SHALL NOT BE REMOVED OR DISTURBED, EXCEPT WHERE CALLED OUT TO BE REMOVED.
4. 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.
5. ANY AREA OF GRASS, WHICH IS DISTURBED OR DUG UP DURING CONSTRUCTION, SHALL BE REPLACED WITH SEED OR SOO.
6. ALL NON ACTIVE EXPOSED AREAS OF EXCAVATION SHALL BE COVERED WITH STEEL SHEETING WHEN IN PAVED AREAS.
7. EXISTING PAVEMENTS, CURBS, SIDEWALKS, DRIVEWAYS AND LANDSCAPING DAMAGED OR REMOVED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITION BY THE CONTRACTOR AT THEIR EXPENSE.
8. 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.
9. CONTRACTOR SHALL PROVIDE THE CITY OF TOMBALL ONE SET OF (RECORD) DRAWINGS AS PER SPECIFICATIONS.
10. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENDING WORK.
11. IN ACCORDANCE WITH TEXAS STATE LAW THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING TEXAS 811 AT LEAST 48 HOURS PRIOR TO COMMENDING CLEARING OR EXCAVATION.
12. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITION.
13. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING EXCAVATION, TRENCHING AND SHORING AS SPECIFIED.
14. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITION.
15. CONDITION OF THE FACILITIES, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.
16. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY CONSTRUCTION BY MEANS OF ANCHORED STEEL PLATES, BY BACKFILLING IMMEDIATELY AFTER CONSTRUCTION AND/OR BY PLACING SHELL OR LIMESTONE SURFACES FOR TEMPORARY DRIVEWAY PURPOSES.
17. ALL EXCESS DIRT FROM EXCAVATION SHALL BE DISPOSED OF OFFSITE BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
18. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS INCLUDING HARRIS COUNTY, TxDOT AND CITY OF TOMBALL.
19. CONTRACTOR TO REMOVE ALL TRASH, EXCESS MATERIAL, DEBRIS, ETC. FROM THE SITE UPON COMPLETION OF THE PROJECT PRIOR TO INSPECTION AND APPROVAL BY THE APPROVING AGENCIES.
20. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN 6 FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATION, TITLE 29, PART 1910.190(L) AND PART 1926.440(A)(15) REQUIRE A MINIMUM CLEARANCE OF 10 FEET FROM THESE FACILITIES.
21. CONTRACTOR IS RESPONSIBLE FOR HORIZONTAL AND VERTICAL CONTROL, REFERENCE POINTS AND CONSTRUCTION STAKING IS INCIDENTAL TO THE PROJECT.
22. SIDEWALKS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 40, SECTION 40-65(I), THE COMPREHENSIVE PLAN, AND THE LIVABLE CENTERS STUDY.
23. EACH CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION OPERATIONS WITH THOSE OF OTHER CONTRACTORS AND ENTITIES TO ENSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE PROPOSED WORK.
24. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF ALL POWER/TELEPHONE POLES AND CORRESPONDING GUY WIRES WITHIN FIFTEEN (15) FEET OF PROPOSED WORK.
25. CITY OF TOMBALL NORMAL WORKING HOURS ARE MONDAY THROUGH FRIDAY FROM 7 AM TO 5 PM, EXCEPT CITY OBSERVED HOLIDAYS. THE CONTRACTOR SHALL NOT BE PERMITTED TO CLOSE LANES OR DO ANY WORK THAT REQUIRES THE SERVICE OR INSPECTION OF THE CITY OUTSIDE OF THE NORMAL WORKING HOURS UNLESS LISTED IN THE PERMIT. TOMBALL MAY BE PERMITTED TO WORK OUTSIDE OF THE NORMAL WORK HOURS FOR CLEAN-UP ACTIVITIES OR OTHER SUCH ITEMS THAT DO NOT ADVERSELY IMPACT TRAFFIC, RESIDENTS, BUSINESSES OR CITY SERVICES.

WASTEWATER NOTES

- 1. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED, RECORDED SUBDIVISION PLAT OR ROAD RIGHT-OF-WAY.
2. SEWER MAINS, MANHOLES AND LIFT STATIONS ARE TO BE DESIGNED, TO BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH CITY OF TOMBALL STANDARDS AND TCEQ TITLE 30 CHAPTER 217 OF THE TEXAS ADMINISTRATIVE CODE.
3. MAINTAIN 12 INCH MINIMUM CLEARANCE AT CROSSINGS BETWEEN ALL OTHER UTILITY LINES, STORM SEWERS, AND CULVERTS UNLESS OTHERWISE NOTED.
4. SEWER TRENCHES UNDER OR WITHIN ONE (1) 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 AAA WHERE CEMENT-SAND BACKFILL IS USED FOR SANITARY SEWERS.
5. UNLESS OTHERWISE NOTED ALL PROPOSED GRAVITY WASTEWATER MAINS 8" TO 15" SHALL BE PVC PIPE (ASTM D3034 OR D2241 SDR 26).
6. FOR PVC PIPE, USE MANHOLE WATERSTOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS (NO SEPARATE PAY).
7. SANITARY SEWER MANHOLES SHALL BE PRECAST OR POURED IN PLACE MOUNDING CONCRETE, AND BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER YARD) AS SPECIFIED (NO SEPARATE PAY).
8. ALL PVE PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS.
9. ALL PVE PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS.
10. ALL PVE PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS.
11. ALL PVE PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS.
12. ALL PVE PIPE SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS.
13. CONTRACTOR TO FURNISH CITY WITH RECORD DRAWINGS UPON COMPLETION OF PROJECT (CERTIFIED BY ENGINEER).
14. ALL MANHOLES SHALL BE LINED WITH RAVEN LINING 405 EPOXY LINER OR APPROVED EQUAL WITH 100 MILS MINIMUM THICKNESS.
15. THE CONTRACTOR SHALL BE ENSURE THAT NO OVERFLOWS OR SPILLAGE OF SEWAGE OCCURS.
16. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND MARKING ALL STACKS AND SERVICE LEADS BEFORE THE PAVING IS COMPLETE.
17. EACH CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION OPERATIONS WITH THOSE OF OTHER CONTRACTORS AND ENTITIES TO ENSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE PROPOSED WORK.
18. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF ALL POWER/TELEPHONE POLES AND CORRESPONDING GUY WIRES WITHIN FIFTEEN (15) FEET OF PROPOSED WORK.
19. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT OF ALL POWER/TELEPHONE POLES AND CORRESPONDING GUY WIRES WITHIN FIFTEEN (15) FEET OF PROPOSED WORK.

CURVE NOTES

- 1. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED AND/OR RECORDED SUBDIVISION OR ROAD RIGHT-OF-WAY PLAT.
2. ALL WATER LINE CONSTRUCTION TO BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS.
3. ALL WATER LINES TO BE LOCATED INSIDE PUBLIC ROAD RIGHT-OF-WAYS OR PUBLIC EASEMENTS.
4. ALL WATER MAINS LESS THAN OR EQUAL TO 12" IN DIAMETER SHALL BE PVC C-900 (DR-18).
5. WATER MAINS TO HAVE A MINIMUM COVER OF FOUR (4) FEET.
6. WATER LINE FITTINGS TO BE DUCTILE IRON WITH POLYETHYLENE WRAP AS SPECIFIED UNLESS OTHERWISE NOTED.
7. MAINTAIN 12-INCH MINIMUM CLEARANCE AT CROSSINGS BETWEEN ALL WATER LINES AND ALL UTILITIES INCLUDING STORM SEWERS AND CULVERTS UNLESS OTHERWISE NOTED.
8. WATER LINES SHALL BE SAND-BEDED AS SHOWN IN THE CITY OF TOMBALL DETAILS.
9. WATERLINE TRENCHES UNDER OR WITHIN ONE (1) FOOT OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED PER THE CITY OF TOMBALL DETAILS.
10. ALL 2" THRU 12" GATE VALVES FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH AWWA C509 DOUBLE SEATED RESILIENT SEAT GATE VALVES AND SHALL OPEN IN A COUNTER CLOCKWISE DIRECTION ONLY.
11. VALVES TO BE LOCATED OPPOSITE PROPERTY CORNER WHERE APPROPRIATE.
12. ALL VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PAVING/GRADING IS COMPLETE.
13. ALL FIRE HYDRANTS SHALL BE MUELLER CENTURION OR AMERICAN DARLING.
14. CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURES SPECIFIED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE CITY OF TOMBALL.
15. ALL WATER LINE TESTING SHALL BE WITNESSED AND APPROVED BY THE CITY OF TOMBALL.
16. TWELVE (12) GAUGE LOCATOR WIRE TO BE INSTALLED ON ALL WATER LINES, GAS LINES AND FORCE MAINS.
17. ALL TS&V SHALL BE FULL BODY - CAST IRON OR APPROVED STAINLESS STEEL OR DUCTILE IRON.
18. ONE (1) WATER SAMPLE PER 1000 FEET SHALL BE SUBMITTED TO A TEXAS DEPARTMENT OF HEALTH APPROVED LABORATORY AND SHALL BE FREE OF ANY CONTAMINATES.
19. DISINFECTATION OF NEW AND REPAIRED WATER MAINS SHALL BE IN CONFORMANCE WITH AWWA C651.
20. ALL WATER AND WASTEWATER CROSSINGS SHALL CONFORM TO TCEQ CHAPTER 217 AND 290 SEPARATION REQUIREMENTS.
21. ALL VALVE BOXES SHALL BE ERRECTED PLUMBED & BE FREE OF DEBRIS.
22. PROVIDE BACKFLOW PREVENTOR BASED ON APPROPRIATE APPLICATIONS (I.E. IRRIGATION, DOMESTIC, FIRE)
23. ALL DUCTILE IRON FITTINGS SHALL BE WRAPPED IN MINIMUM 8 MIL POLYETHYLENE WRAP.

PAVEMENT NOTES

- 1. ALL INTERSECTIONS WHERE A STOP SIGN IS LOCATED SHALL HAVE A STOP BAR.
2. STOP BARS SHALL BE 24" WIDE, AND CONSIST OF SOLID WHITE LINES EXTENDING ACROSS APPROACH LANES TO INDICATE THE POINT AT WHICH THE STOP IS INTENDED OR REQUIRED TO BE MADE.
3. ON APPROACH - BEGINNING WITH STOP BAR, INSTALL A 4" WIDE SOLID WHITE LINE FOR 50 FT BACK FROM STOP BAR SKIP 25' AND BEGIN NORMAL LANE LINES.
4. ON EXIT - BEGINNING WITH CROSSWALK OR 12' FROM CURB LINE OF INTERSECTING STREET, INSTALL A 4" WIDE SOLID WHITE LINE FOR 50 FT., AND BEGIN NORMAL LANE LINE.
5. CROSSWALKS SHALL BE A MINIMUM INSIDE WIDTH OF 5' (FT.).
6. ALL PAVEMENT MARKINGS AT INTERSECTIONS SHALL BE THERMOPLASTIC IN ACCORDANCE WITH COT APPROVED PRODUCT LIST.
7. PAVEMENT MARKINGS MUST BE SHOWN ON THE APPROVED CONSTRUCTION PLANS.
8. THE COLOR OF RAISED PAVEMENT MARKERS UNDER BOTH DAYLIGHT AND NIGHTTIME CONDITIONS SHALL CONFORM TO THE COLOR OF THE MARKING FOR WHICH THEY SERVE AS A POSITIONING GUIDE OR FOR WHICH THEY SUPPLEMENT OR SUBSTITUTE.
9. ALL TRAFFIC BUTTONS AND MARKERS SHALL BE INSTALLED ADJACENT TO STRIPES (APPROX. 2").
10. ALL BUTTONS SHALL BE INSTALLED WITH AN APPROVED EXPOXY.
11. A BLUE REFLECTORIZED BUTTON SET 6" OFF CENTERLINE OF ROADWAY SHALL BE INSTALLED ADJACENT TO ALL FIRE HYDRANTS.
12. PAVEMENT SURFACE AREAS PRIOR TO PLACEMENT OF PAVEMENT MARKINGS, AND/OR RAISED PAVEMENT MARKERS SHALL BE CLEANED IN ACCORDANCE WITH C.O.M.C. STANDARDS.
13. ALL ESPLANADE NOSES, AND CURBS IN LEFT TURN BAY'S SHALL BE STAMPED OR PAVED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC DEVICES.
14. ALL ROADWAYS WITHOUT CURB SHALL HAVE A SOLID 4" WHITE REFLECTORIZED STRIPE 12" INSIDE THE EDGE OF PAVEMENT.
15. WITHIN A TANGENT SECTION THE TYPE I-C PAVEMENT MARKERS CAN BE PLACED AT 40'-0" ON ROADWAYS WITHOUT CURB AND GUTTERS.
16. ALL STREET CROSSINGS SHALL COMPLY WITH T.A.S. AND A.D.A., SEE HANDICAP CROSS DETAIL.
17. ALL PAVEMENT MARKINGS, AND/OR RAISED PAVEMENT MARKERS SHALL COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC DEVICES, A.D.A., T.A.S., AND C.O.M.C. STANDARDS AND ALL REVISIONS THEREOF.
18. ALL MARKINGS SHALL HAVE A UNIFORM CROSS-SECTION, AND THE DENSITY AND QUALITY OF THE MARKING'S SHALL BE UNIFORM THROUGHOUT THEIR THICKNESS.
19. PAVEMENT MARKING'S PLACED THAT ARE NOT IN ALIGNMENT OR SEQUENCE AS SHOWN ON THE PLANS OR STATED IN THE PROJECT SPECIFICATIONS SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
20. FOR SKEW INTERSECTIONS AND STREET WIDTHS NOT SHOWN, COORDINATE WITH THE COT DEPARTMENT OF ENGINEERING & PLANNING.
21. ALL VALVE BOXES SHALL BE ERRECTED PLUMBED & BE FREE OF DEBRIS.
22. PROVIDE BACKFLOW PREVENTOR BASED ON APPROPRIATE APPLICATIONS (I.E. IRRIGATION, DOMESTIC, FIRE)
23. ALL DUCTILE IRON FITTINGS SHALL BE WRAPPED IN MINIMUM 8 MIL POLYETHYLENE WRAP.

STORM SEWER NOTES

- 1. STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CITY OF TOMBALL SPECIFICATIONS FOR STORM SEWER CONSTRUCTION.
2. ALL STORM SEWER TO BE ASTM C-76, CLASS II REINFORCED CONCRETE PIPE WITH RUBBER GASKETED JOINTS CONFORMING TO ASTM C443.
3. ALL STORM SEWER INLETS SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON).
4. ALL STORM SEWER TRENCHES UNDER PROPOSED AND FUTURE PAVEMENT OR WITHIN ONE FOOT (1') FROM BACK OF CURB TO BE BACKFILLED WITH CEMENT STABILIZED SAND (1.5 SACKS PER TON) TO A POINT OF ONE FOOT (1') BELOW PAVEMENT SUBGRADE.
5. HIGH DENSITY POLYETHYLENE PIPE MAY BE SUBSTITUTED ON PRIVATE PROPERTY FOR REINFORCED CONCRETE PIPE SUBJECT TO THE FOLLOWING:
5.1. FOR PIPES 36" AND SMALLER - CEMENT STABILIZED SAND PLACED BEFORE PIPE IS LAID, TO 7" MIN. BEDDING DEPTH.
5.2. CEMENT STABILIZED SAND SHALL BE THOROUGHLY RODDED, PLACED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY 1'-0" ABOVE THE TOP OF PIPE, AFTER PIPE IS LAID.
5.3. PIPE AND FITTINGS: THE TYPES OF PIPE WILL BE INDICATED ON THE DRAWINGS BY THE FOLLOWING DESCRIPTION CONFORMING TO AASHTO M 252, AASHTO M 294, AND/OR AASHTO M 69-95, LATEST EDITION.
5.4. TYPE S (THIS PIPE SHALL HAVE A FULL CIRCULAR CROSS-SECTION, WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINE).

SIDEWALK NOTES

- 1. EXISTING CURB AND GUTTER TO BE SAW CUT, REMOVED AND REPLACED.
2. IF SIDEWALKS ARE NEITHER EXISTING NOR PROPOSED WHERE CURB RAMP ACCESS IS REQUIRED, CONCRETE SIDEWALKS SURFACE 4 1/2" THICK SHALL BE INSTALLED TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTONS.
3. DETECTABLE WARNINGS REQUIRED BY T.A.S. SECTIONS 4.1 AND 4.7 SHALL COMPLY WITH T.A.S. SECTION 4.29
4. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
5. DETECTABLE WARNING SURFACE SHALL COVER THE ENTIRE WIDTH AND DEPTH OF RAMP.
6. DETECTABLE WARNINGS SHALL BE INSTALLED WITH PAVERS IN ACCORDANCE WITH MANUFACTURE'S REQUIREMENTS.
7. CONCRETE PAVER UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-935, C-33, AND SHALL BE PLACED IN A TWO BY TWO UNIT BASKET WEAVE PATTERN.
8. CONCRETE PAVER UNITS SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNINGS TO PEDESTRIANS.
9. CONCRETE PAVER UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR THAT PROVIDES A LIGHT REFLECTIVE THAT SIGNIFICANTLY CONTRASTS WITH THE ADJACENT SURFACES.
10. CONCRETE PAVER UNITS SHALL BE SAW CUT ONLY, AND ANY CUT UNIT SHALL NOT BE LESS THAN 25% OF A FULL UNIT.
11. THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
12. EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
13. SCORED CONTRACTION JOINTS SHALL BE EVERY 4' OR EQUAL TO WIDTH OF SIDEWALK.
14. ALL ADJACENT EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS AND APPROVED BY CITY ENGINEER.
15. 6 INCH, 5 SACK CEMENT PER CUBIC YARD CONCRETE, 3000 PSI, REINFORCED CONCRETE WITH #3 BARS, 18 INCHES O.C.E.W., FOR SIDEWALKS.
16. USE RADIUS TOOL ON ALL EXPOSED EDGES.
17. MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN COT STANDARD SPECIFICATION 02775.
18. REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
19. SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.

DRIVEWAY NOTES

- 1. SIDEWALK, DRIVEWAY, CURB AND GUTTER AND GRADE SHALL BE APPROVED BY ENGINEERING & PLANNING DIRECTOR.
2. SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, 5.5 SACK CEMENT PER CUBIC YARD (MIN. 3000 PSI), 4 1/2" THICK, 4'-0" MINIMUM WIDTH, AND BE REINFORCED WITH # 3 @ 18" O.C.E.W.
3. DRIVEWAYS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE, 5.5 SACK CEMENT PER CUBIC YARD (MIN. 3000 PSI), 6" THICK, FROM CURB TO PROPERTY LINE AND BE REINFORCED WITH MINIMUM # 3 @ 18" O.C.E.W. (16" MIN. LENGTH OF LAP) OR # 4 @ 24" O.C.E.W. (22" MIN. LENGTH OF LAP).
4. ONE-INCH BOARD EXPANSION OR 1/2" NON-EXTRUDING PREFORMED JOINT; AT INTERVALS OF 20 FT. (MAXIMUM) THROUGHOUT ENTIRE LENGTH OF SIDEWALKS, WHERE NEW WALK MEETS OLD WALK AND/OR NEW DRIVEWAY.
5. ONE-INCH BOARD EXPANSION OR 1/2" NON-EXTRUDING PREFORMED JOINT, BETWEEN SIDEWALK AND CURB, AROUND FIRE HYDRANTS AND UTILITY POLES.
6. NO WORK PRIOR TO OBTAINING A CITY OF TOMBALL DRIVEWAY PERMIT

NATURAL GAS NOTES

- 1. CONSTRUCTION OF NATURAL GAS PIPING SYSTEM MUST BE PERFORMED BY AN APPROVED CITY OF TOMBALL CONTRACTOR IN GOOD STANDING WITH THE CITY.
2. CONTRACTOR MUST BE IN COMPLIANCE WITH CITY OF TOMBALL ANTI-DRUG AND ALCOHOL MISUSE PLAN BY PARTICIPATING IN AN APPROVED DRUG TESTING PROGRAM.
3. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL NATURAL GAS FACILITIES AS PROPOSED IN THIS PLAN SET.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE MEANS, METHODS, SEQUENCE, PROCEDURES, TECHNIQUES AND/OR SCHEDULING OF ALL PORTIONS OF THE GAS WORK ARE PERFORMED SAFELY AND IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS.
5. SHUT-INS AND/OR SYSTEM TIES ARE THE RESPONSIBILITY OF THE CITY OF TOMBALL.
6. THE CITY OF TOMBALL GAS REPRESENTATIVE MUST BE CONTACTED AS FOLLOWS:
6.1. GAS CONSTRUCTION START. CONTRACTOR MUST NOTIFY GAS REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO THE INITIAL START OF ANY NATURAL GAS CONSTRUCTION TO SCHEDULE AN ON SITE MEETING.
6.2. BACKFILL. CONTRACTOR MUST NOTIFY GAS REPRESENTATIVE TO COORDINATE A TRENCH INSPECTION PRIOR TO BACKFILLING.
6.3. ENCASEMENT. CONTRACTOR MUST ALLOW GAS REPRESENTATIVE TO OBSERVE THE INSTALLATION OF THE CARRIER PIPE AND TO INSPECT ALL CASING END POINTS.
6.4. PRESSURE TEST. CONTRACTOR MUST COORDINATE WITH GAS REPRESENTATIVE PRIOR TO PERFORMING ANY PRESSURE TESTS.
7. DRIVEWAYS WILL BE BORED, UNLESS OTHERWISE SPECIFIED IN PLANS OR AS DIRECTED BY GAS REPRESENTATIVE.
8. TREES IN OR ADJACENT TO PUBLIC RIGHTS OF WAY WHICH HAVE DRIP LINES EXTENDING INTO PUBLIC RIGHTS OF WAY AND A TRUNK CALIPER OF SIX (6) INCHES OR MORE DETERMINED BY THE CITY OF TOMBALL TO HAVE ENVIRONMENTAL OR AESTHETIC VALUE MUST BE BORED FROM DRIP LINE TO DRIP LINE.
9. EXISTING UTILITIES EXPOSED DURING TRENCHING OPERATIONS MUST BE SUPPORTED; CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES.
10. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES SHOWN IN THE PLANS.
11. CONTRACTOR MUST VISUALLY INSPECT ALL MATERIAL FOR DAMAGE BEFORE CONSTRUCTION AND PRIOR TO BACKFILLING.
12. ALL POLYFUSION MUST BE PERFORMED BY A CERTIFIED OPERATOR.
13. CONTRACTOR IS REQUIRED TO RECORD ALL POLYETHYLENE MATERIAL SPECIFICATIONS ON POLYETHYLENE PIPE LINE DATA CHART (AS SHOWN BELOW).
14. CONTRACTOR MUST COMPLETE THE POLYETHYLENE PIPE LINE DATA CHART FOR ALL POLYETHYLENE PIPE INSTALLED IN EACH APPLICABLE SHEET (SEE THE FOLLOWING EXAMPLE):

Table with columns: POINT SPAN, LINE DATA, CONTRACTOR, FUSED BY, DATE INSTALLED. Example entry: 1 to 2, GAS PE2406/PE100 CEE ASTM D2513 WT015 R NR 0356 A1-043 072706 COIL 0192, COMPANY X, JOHN DOE, X/X/20XX

- 15. CONTRACTOR IS RESPONSIBLE FOR TESTING ALL NEW FACILITIES IN ACCORDANCE WITH CITY OF TOMBALL STANDARDS.
16. MAGNETIC WARNING TAPE AND #12 TRACER WIRE MUST BE INSTALLED ABOVE PIPE INSTALLATIONS ALONG THE TRENCH IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS.
17. ALL VALVES ARE TO BE INSTALLED WITH VALVE BOXES IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS.
18. PIPELINE MARKERS ARE TO BE INSTALLED IN ACCORDANCE WITH CITY OF TOMBALL REQUIREMENTS.
19. TEST STATIONS ARE TO BE INSTALLED AT 1000' INTERVALS OR AS OTHERWISE DIRECTED BY THE PLANS OR THE GAS REPRESENTATIVE.

REVISION NO. DATE



CITY OF TOMBALL GENERAL CONSTRUCTION NOTES

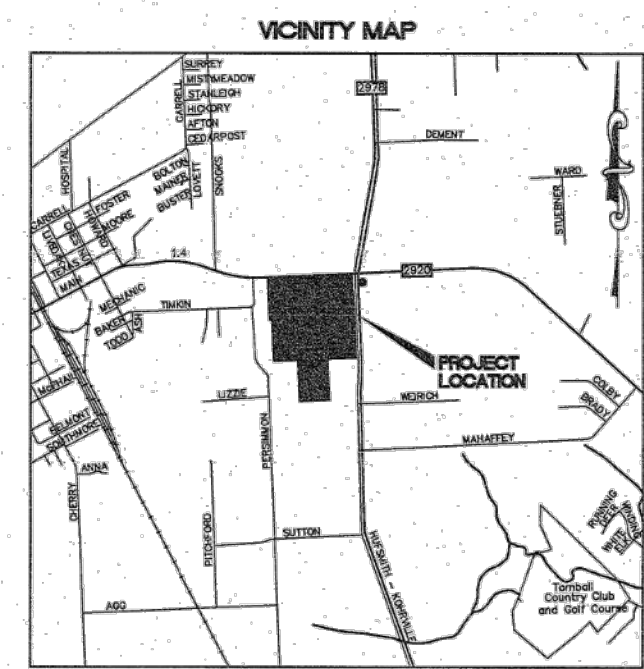
APPROVED BY CITY OF TOMBALL ENGINEERING DEPARTMENT

City Engineer signature and name, EFFECTIVE MARCH 8, 2021

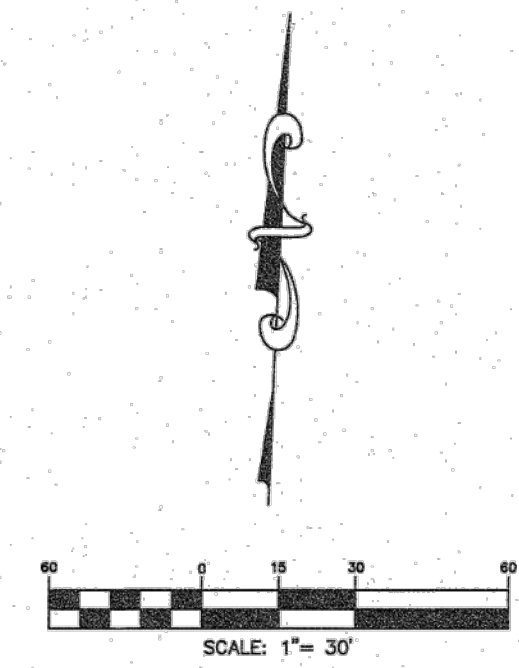
15 Aug. 2023 3:07PM markl  
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**UNDERGROUND SEWER DETAILS**

- DETAIL 1**  
GRATE INLET  
TO=175.93  
FL 10" HDP (E) 170.05  
FL 10" HDP (W) 170.00
- DETAIL 2**  
GRATE INLET  
TO=176.00  
FL 10" HDP (E) 170.34  
FL 10" HDP (W) 169.32
- DETAIL 3**  
GRATE INLET  
TO=175.98  
FL 10" HDP (E) 170.48  
FL 10" HDP (W) 170.48
- DETAIL 4**  
GRATE INLET  
TO=174.73  
FL 12" HDP (N) 169.60  
FL 48" HDP (E) 169.26  
FL 48" HDP (W) 169.08  
UNABLE TO SEE PIPE (S)
- DETAIL 5**  
GRATE INLET  
TO=173.65  
FL 8" PVC (N) 171.75  
FL 8" PVC (S) 172.44



KEY MAP 289E  
SCALE 1" = 3000'



**LEGEND**

- BOLLARD
- "CI" INLET
- CLEANOUT
- COMMUNICATIONS MANHOLE
- "E" INLET
- ELECTRIC JUNCTION BOX
- FIRE HYDRANT
- GAS VALVE
- GATE POST
- GREASE TRAP
- GUY WIRE
- HOSE BIB
- INLET
- IRRIGATION CONTROL VALVE
- LIGHT STANDARD
- MAILBOX
- MANHOLE
- PEDESTAL
- PIPELINE MARKER
- POWER POLE
- SAMPLE WELL
- SHRUB
- SIGN
- WATER METER
- WATER STOP
- WHEEL VALVE
- YARD LIGHT

**SURVEYOR'S NOTES:**

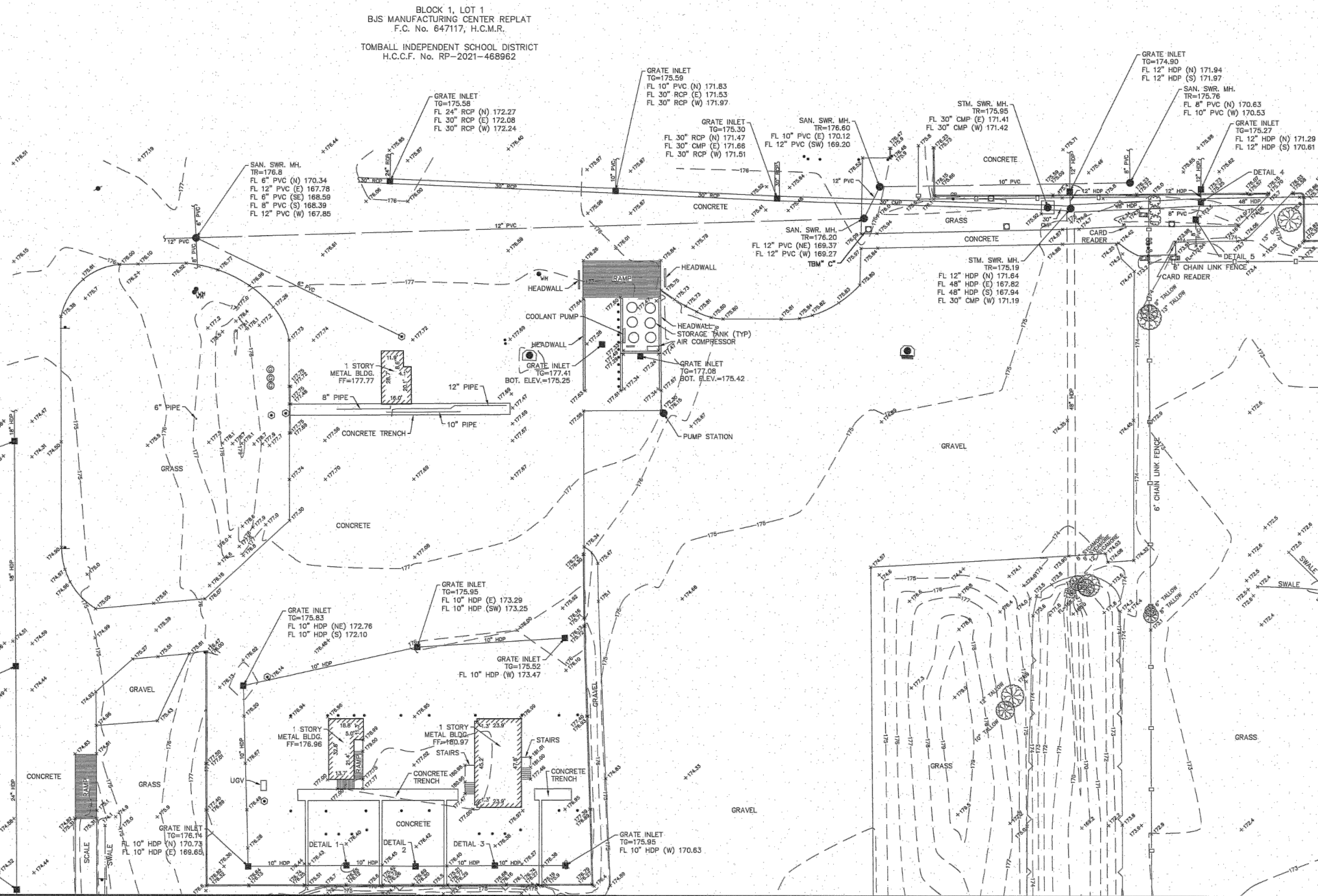
- THE BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83.
- THE CAD FILE OF THE DRAWING SHOWN HEREIN IS BASED ON TEXAS SOUTH CENTRAL ZONE NO. 4204, STATE PLANE SURFACE VALUE (NAD83) AND MAY BE CONVERTED TO GRID BY SCALING THE DRAWING BY THE FOLLOWING COMBINED SCALE FACTOR OF 0.999947290105.
- ACCORDING TO F.I.R.M. MAP NO. 48201c0230i (COMMUNITY-PANEL NO. 4803150230i), MAP REVISED DATE: JUNE 18, 2007, THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED, DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

THIS STATEMENT IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE ABOVE REFERENCED MAP. THIS INFORMATION IS TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS.

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- THE SUBJECT TRACT IS AFFECTED BY THE SHORT FORM BLANKET EASEMENT RECORDED UNDER H.C.C.F. No. RP-2017-436787.
- INDICATES AN UNDERGROUND SEWER LINE WITH UNKNOWN DIRECTION, SIZE OR LOCATION OR A POSSIBLE STUB-OUT.

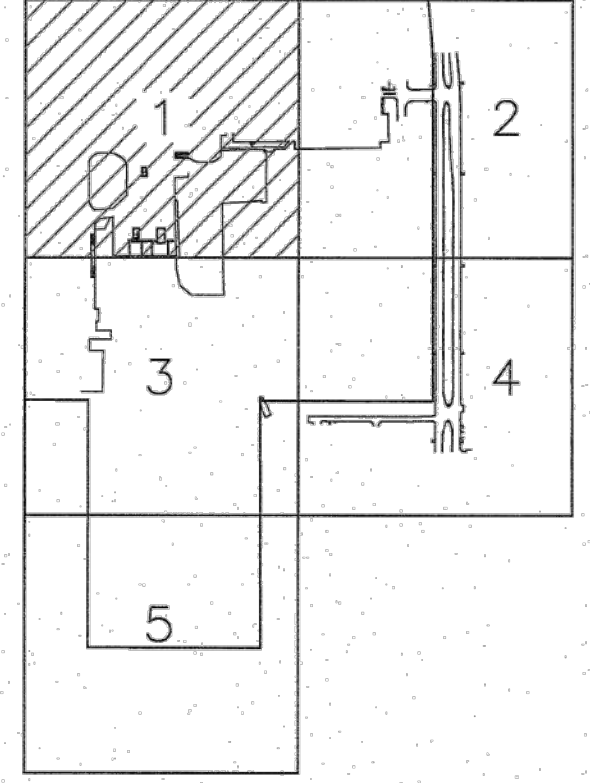
**REFERENCE BENCHMARK:**  
RM120165 - ALUMINUM ROD WITH LOGO CAP STAMPED "120165" LOCATED ON THE WEST SIDE OF TUWA ROAD ±120' NORTH OF THE CENTERLINE OF THE DRIVEWAY FOR 22803 TUWA ROAD IN KEY MAP 289H IN THE WILLOW CREEK WATERSHED.  
ELEVATION = 140.69' (NAVD 88, 2001 ADJ.)

**TEMPORARY BENCHMARKS:**  
TBM "A" - BOX CUT ON "CI" INLET LOCATED ON THE EAST SIDE OF HUFSMITH-KOHRVILLE ROAD ±575' SOUTH OF F.M. 2920 AND ACROSS FROM THE EAST DRIVEWAY TO THE SUBJECT TRACT.  
ELEVATION = 176.42'  
TBM "B" - BOX CUT ON "CI" INLET LOCATED ON THE EAST SIDE OF HUFSMITH-KOHRVILLE ROAD ±1,175' SOUTH OF F.M. 2920 AND ±450' NORTH OF THE MOST EASTERLY SOUTHEAST CORNER OF THE SUBJECT TRACT.  
ELEVATION = 174.74'  
TBM "C" - BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ±40' SOUTHWEST OF THE SOUTHWEST CORNER OF THE SOUTHEAST PARKING LOT.  
ELEVATION = 176.71'  
TBM "D" - BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ON THE NORTH SIDE OF THE DIESEL FUELING STATION.  
ELEVATION = 177.49'

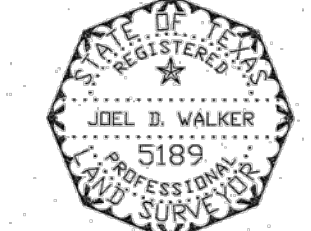


MATCH LINE SHEET # 2

MATCH LINE SHEET # 3



SHEET 1 OF 5



TO: TOMBALL INDEPENDENT SCHOOL DISTRICT  
THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

8/15/23  
DATE

*Joel D. Walker*  
JOEL D. WALKER, R.P.L.S.  
TEXAS REGISTRATION NO. 5189

TOMBALL INDEPENDENT SCHOOL DISTRICT  
TOPOGRAPHIC SURVEY  
BUS MANUFACTURING CENTER  
OUT OF THE JESSE PRUETT SURVEY  
ABSTRACT NO. 629  
CITY OF TOMBALL  
HARRIS COUNTY, TEXAS

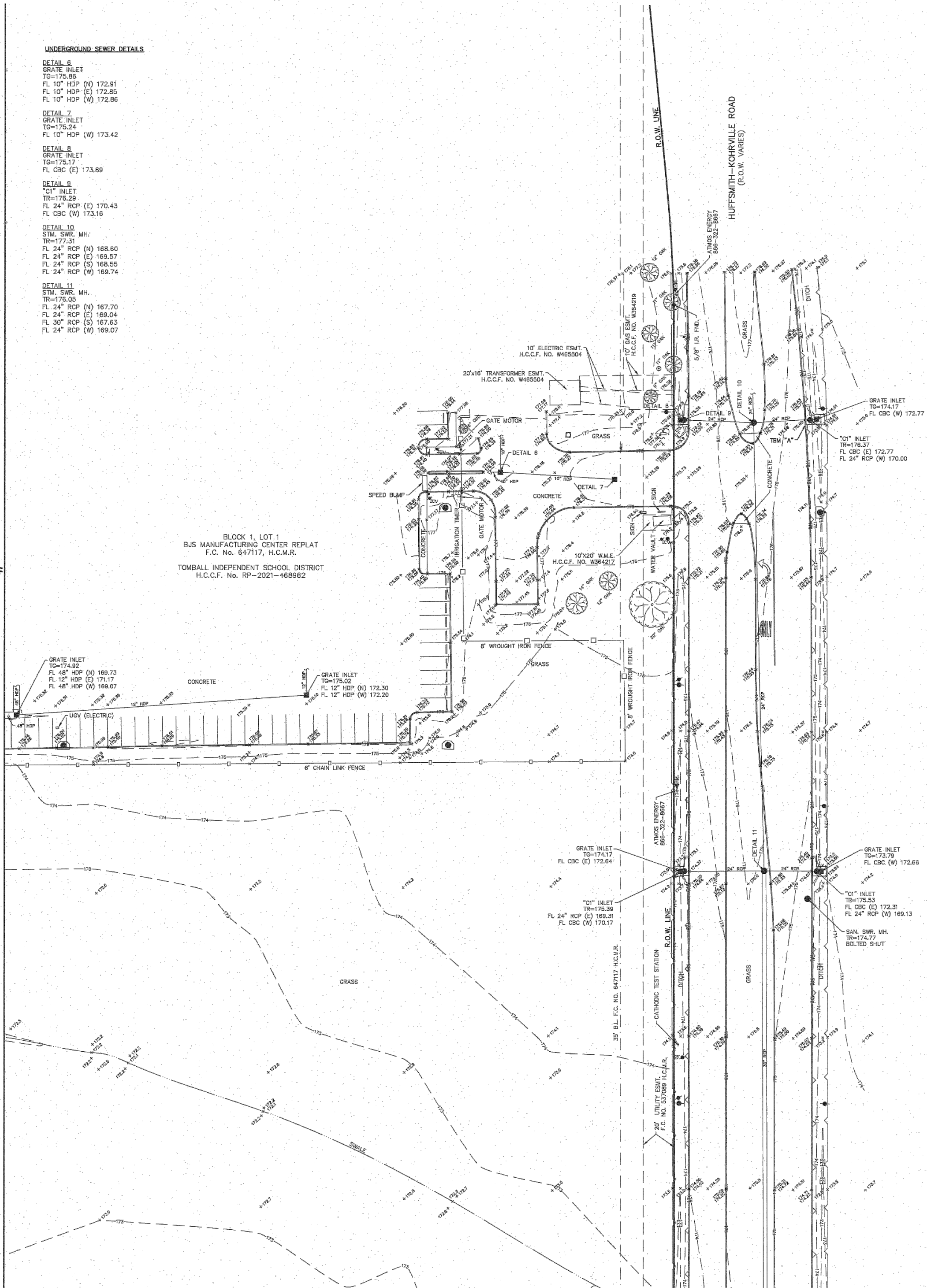
<b>WEST BELT SURVEYING, INC.</b>			
21000 PARK ROW KATY, TX. 77449	PHONE (281) 599-9288 FAX (281) 492-0200 CREATED/REVISED FROM NO. 10073800		
NO.	DATE	REVISIONS	BY
1	8/15/23	REVISED TMIN ROAD R.O.W.	MDL
		DRAWN BY: MDL	CHECKED BY: KMH
		SCALE: 1"=30'	APPROVED BY: JDW
		PROJECT NO. 5866-0037A	DATE: JULY 14, 2023

**UNDERGROUND SEWER DETAILS**

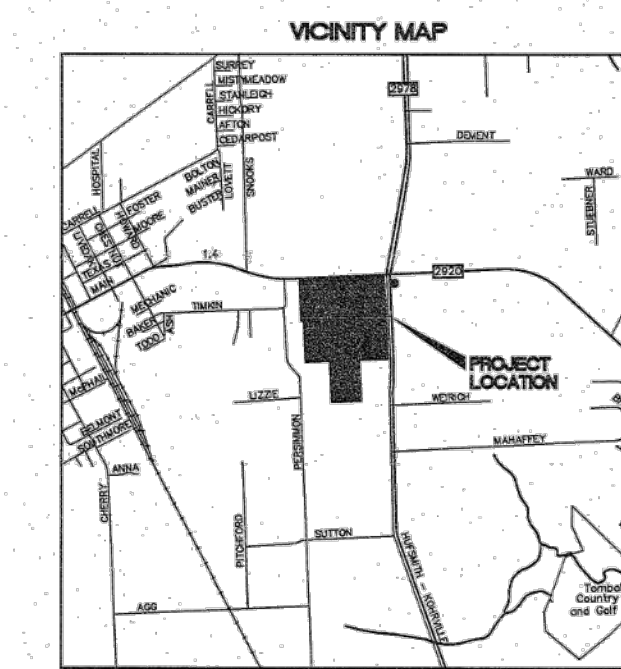
- DETAIL 6**  
 GRATE INLET  
 TO=175.86  
 FL 10" HDP (N) 172.91  
 FL 10" HDP (E) 172.85  
 FL 10" HDP (W) 172.86
- DETAIL 7**  
 GRATE INLET  
 TO=175.24  
 FL 10" HDP (W) 173.42
- DETAIL 8**  
 GRATE INLET  
 TO=175.17  
 FL CBC (E) 173.89
- DETAIL 9**  
 "C1" INLET  
 TR=176.29  
 FL 24" RCP (E) 170.43  
 FL CBC (W) 173.16
- DETAIL 10**  
 STM. SWR. MH.  
 TR=177.31  
 FL 24" RCP (N) 168.60  
 FL 24" RCP (E) 169.57  
 FL 24" RCP (S) 168.55  
 FL 24" RCP (W) 169.74
- DETAIL 11**  
 STM. SWR. MH.  
 TR=176.05  
 FL 24" RCP (N) 167.70  
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 FL 30" RCP (S) 167.63  
 FL 24" RCP (W) 169.07

MATCH LINE SHEET # 1

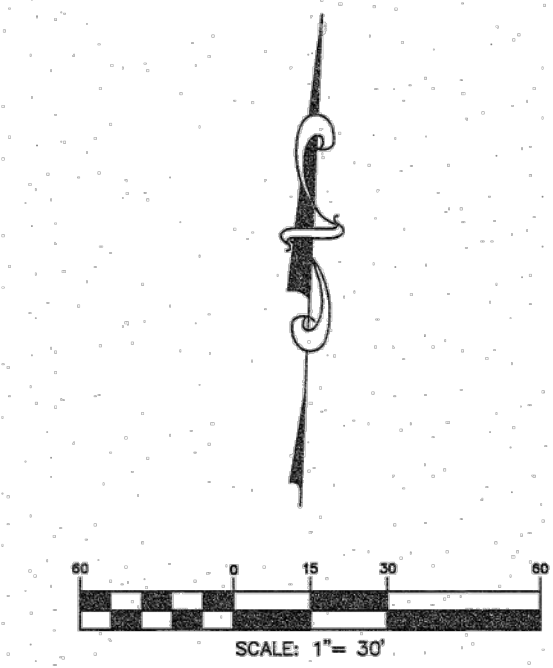
BLOCK 1, LOT 1  
 BJS MANUFACTURING CENTER REPLAT  
 F.C. No. 647117, H.C.M.R.  
 TOMBALL INDEPENDENT SCHOOL DISTRICT  
 H.C.C.F. No. RP-2021-468962



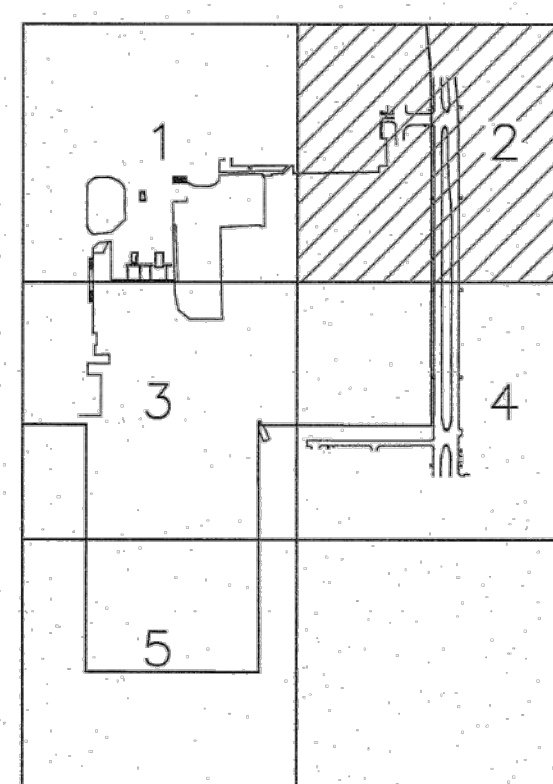
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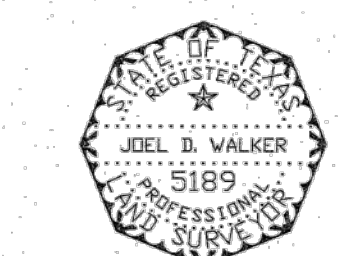
KEY MAP 289E  
 SCALE 1" = 3000'



- LEGEND**
- BOLLARD
  - "C1" INLET
  - CLEANOUT
  - COMMUNICATIONS MANHOLE
  - "E" INLET
  - ELECTRIC JUNCTION BOX
  - FIRE HYDRANT
  - GAS VALVE
  - GATE POST
  - GREASE TRAP
  - GUY WIRE
  - HOSE BIB
  - INLET
  - IRRIGATION CONTROL VALVE
  - LIGHT STANDARD
  - MAILBOX
  - MANHOLE
  - PEDESTAL
  - PIPELINE MARKER
  - POWER POLE
  - SAMPLE WELL
  - SHRUB
  - SIGN
  - WATER METER
  - WATER VALVE
  - WHEEL STOP
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SHEET 2 OF 5



TO: TOMBALL INDEPENDENT SCHOOL DISTRICT  
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8/15/23  
 DATE

*Joel B. Walker*  
 JOEL B. WALKER, R.P.L.S.  
 TEXAS REGISTRATION NO. 5189

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  - FND.—FOUND
  - H.C.C.F.—HARRIS COUNTY CLERK'S FILE
  - H.C.M.R.—HARRIS COUNTY MAP RECORDS
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 ELEVATION = 177.49'

TOMBALL INDEPENDENT SCHOOL DISTRICT

TOPOGRAPHIC SURVEY

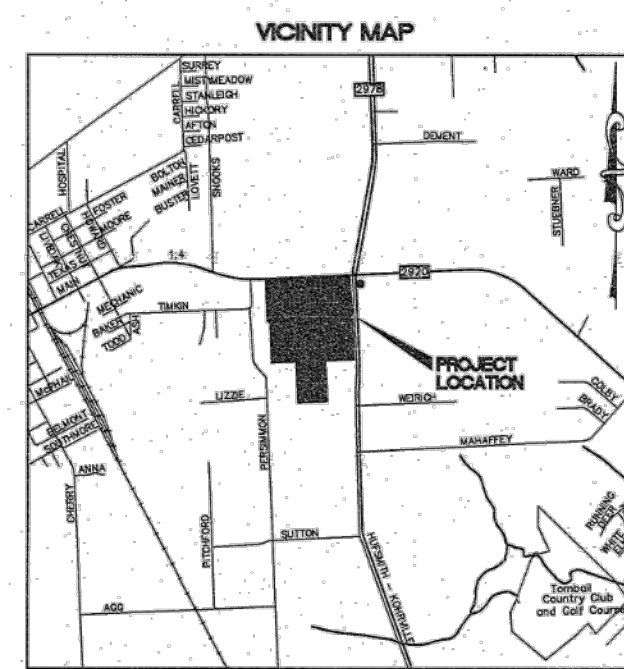
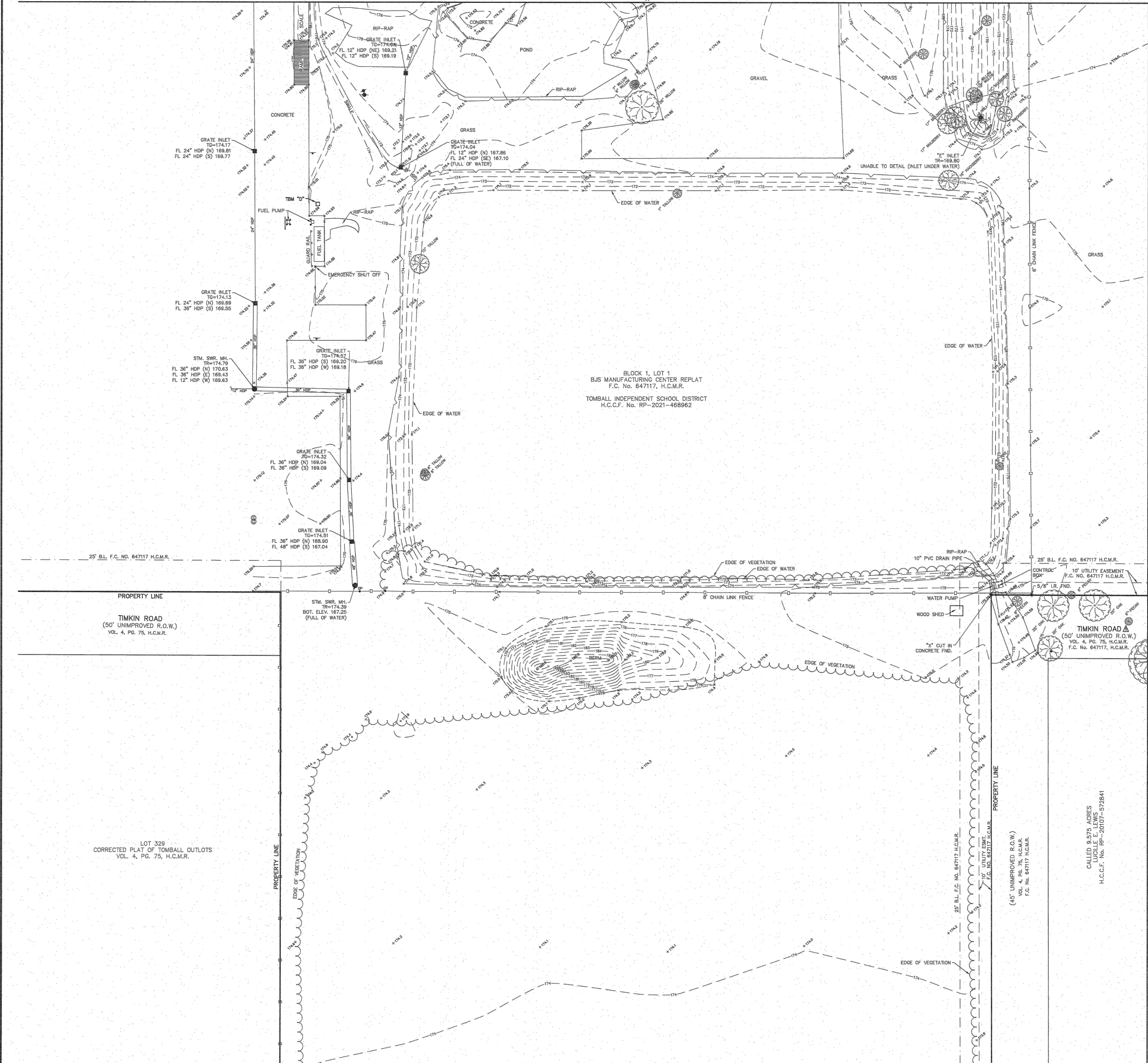
BJS MANUFACTURING CENTER  
 OUT OF THE  
 JESSE PRUETT SURVEY  
 ABSTRACT NO. 629  
 CITY OF TOMBALL  
 HARRIS COUNTY, TEXAS



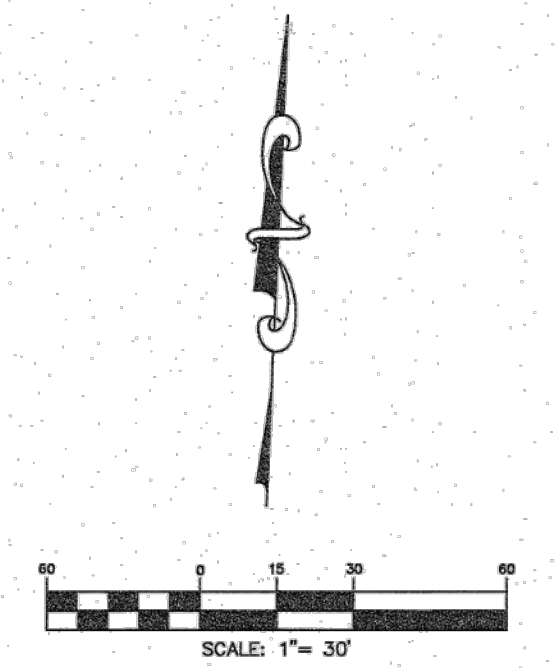
WEST BELT SURVEYING, INC.  
 21200 PARK ROW KATY, TX 77449  
 PHONE (281) 569-8988 FAX (281) 492-0202  
 CERTIFIED FIRM NO. 10078800

NO.	DATE	REVISIONS	BY
1	8/15/23	REVISED TIMON ROAD R.O.W.	MDL
2			
3			

DRAWN BY: MDL CHECKED BY: KMH  
 SCALE: 1"=30' APPROVED BY: JDW  
 PROJECT NO. S866-0037A DATE: JULY 14, 2023

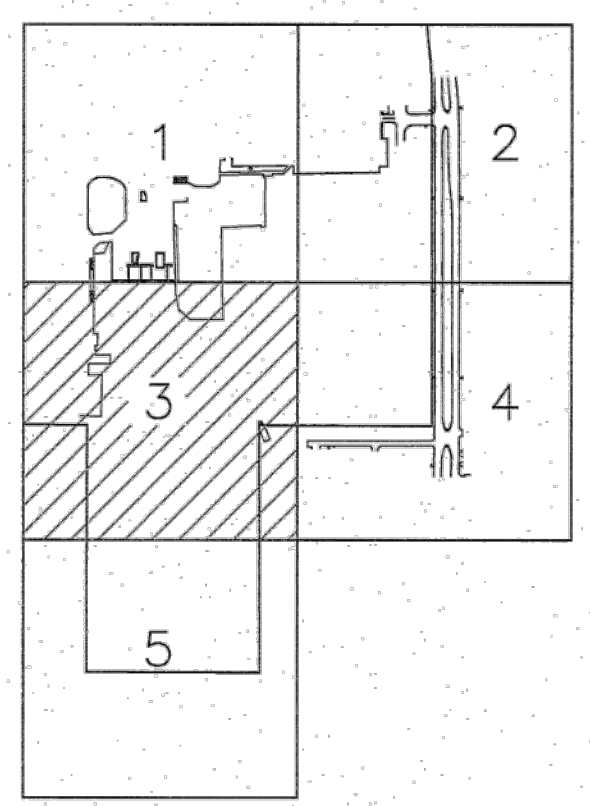


KEY MAP 289E SCALE 1" = 3000'

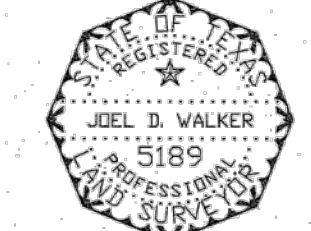


LEGEND

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- FIRE HYDRANT
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SHEET 3 OF 5



TO: TOMBALL INDEPENDENT SCHOOL DISTRICT

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DATE

*Joel D. Walker*  
JOEL D. WALKER, P.E., L.S.  
TEXAS REGISTRATION NO. 5189

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ELEVATION = 176.71'
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TOMBALL INDEPENDENT SCHOOL DISTRICT

TOPOGRAPHIC SURVEY

BUS MANUFACTURING CENTER  
OUT OF THE  
JESSE PRUETT SURVEY  
ABSTRACT NO. 629  
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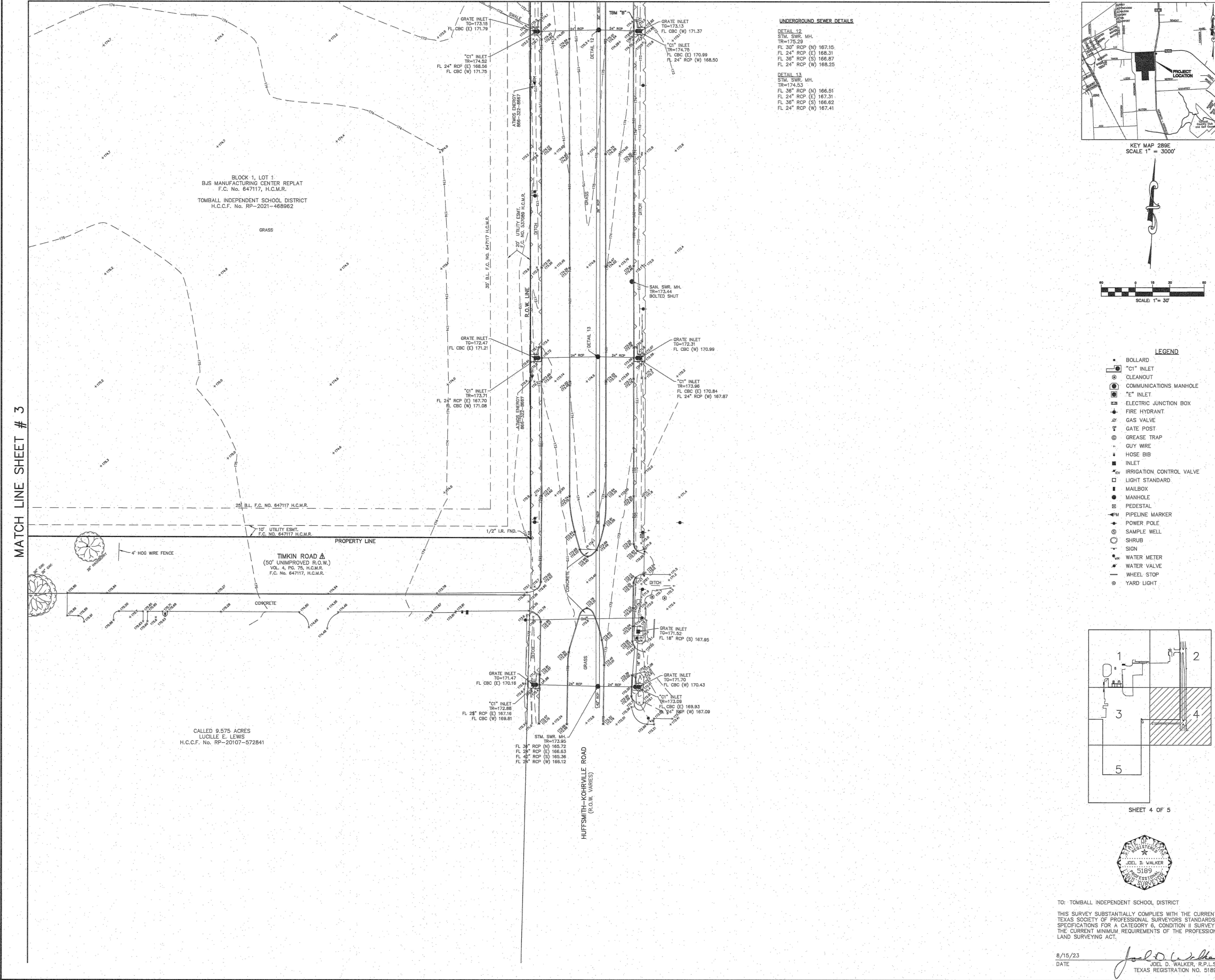
21000 PARK ROW KATY, TX 77449  
PHONE: (281) 589-5888 FAX: (281) 498-0020  
CERTIFIED FIRM NO. 10078800

NO.	DATE	REVISIONS	BY
1	8/15/23	REVISED TIMKIN ROAD R.O.W.	MDL
DRAWN BY: MDL		CHECKED BY: KMH	
SCALE: 1"=30'		APPROVED BY: JDW	
PROJECT NO. SB66-0037A		DATE: JULY 14, 2023	

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MATCH LINE SHEET # 2

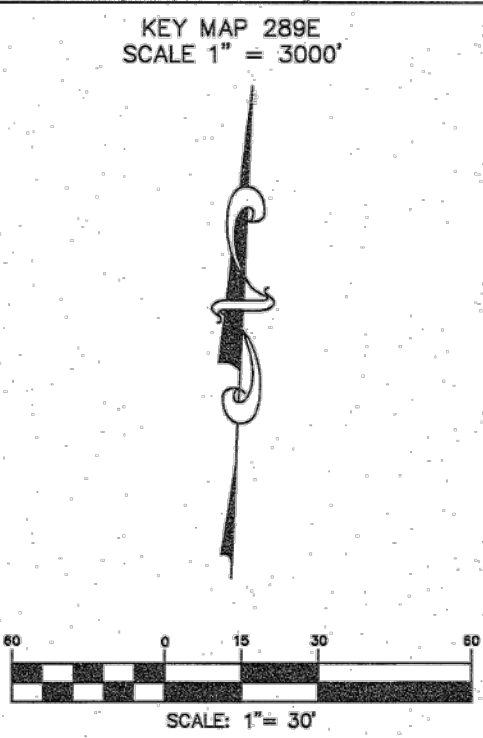
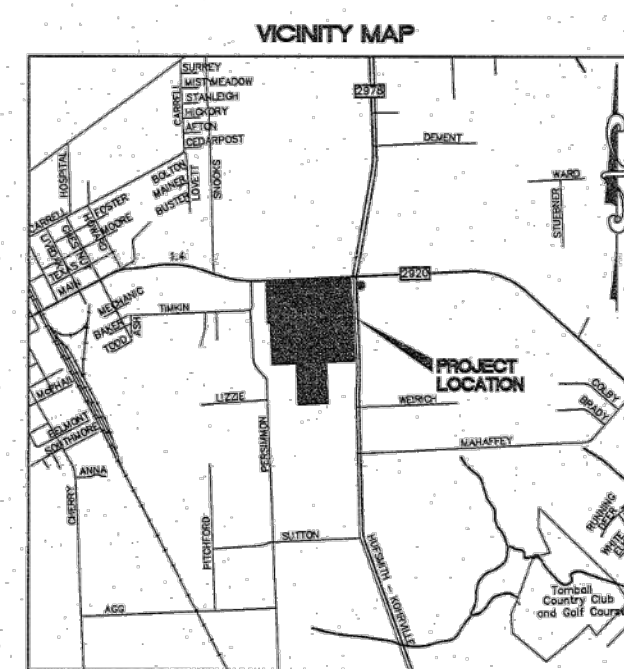


MATCH LINE SHEET # 3

**UNDERGROUND SEWER DETAILS**

**DETAIL 12**  
 STM. SWR. MH.  
 TR=175.29  
 FL 30" RCP (N) 167.15  
 FL 24" RCP (E) 168.31  
 FL 36" RCP (S) 166.87  
 FL 24" RCP (W) 168.25

**DETAIL 13**  
 STM. SWR. MH.  
 TR=174.53  
 FL 36" RCP (N) 166.51  
 FL 24" RCP (E) 167.31  
 FL 36" RCP (S) 166.62  
 FL 24" RCP (W) 167.41



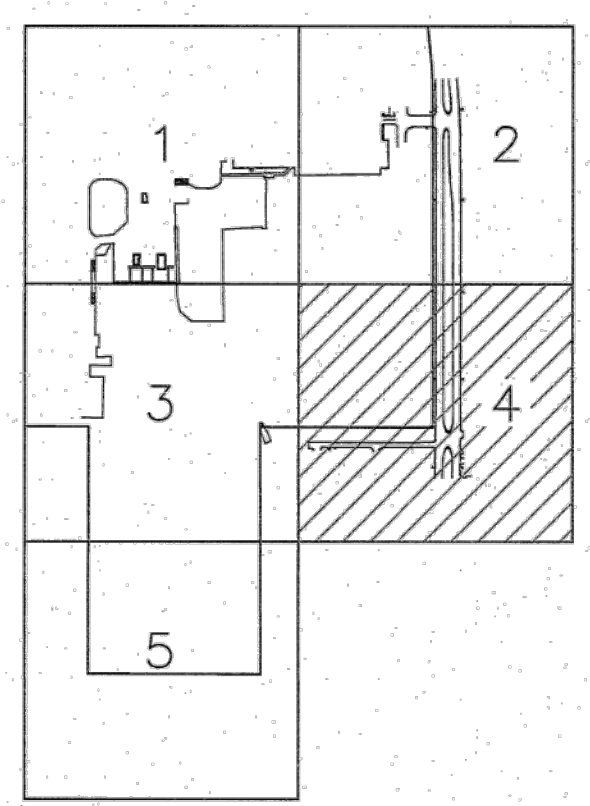
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  - BOT.—BOTTOM
  - CBC—CONCRETE BOX CULVERT
  - CMC—CREPE MYRTLE CLUSTER
  - CMP—CORRUGATED METAL PIPE
  - ELEV.—ELEVATION
  - ESMT.—EASEMENT
  - FC—FILM CODE
  - FF—FINISH FLOOR
  - FL—FLOW LINE
  - FND.—FOUND
  - H.C.C.F.—HARRIS COUNTY CLERK'S FILE
  - H.C.M.R.—HARRIS COUNTY MAP RECORDS
  - HDP—HIGH DENSITY POLYETHYLENE PIPE
  - I.R.—IRON ROD
  - MH—MANHOLE
  - OHE—OVERHEAD ELECTRIC
  - PG.—PAGE
  - PVC—POLYVINYL CHLORIDE PIPE
  - RCP—REINFORCED CONCRETE PIPE
  - R.O.W.—RIGHT-OF-WAY
  - SAN.—SANITARY
  - STM.—STORM
  - SWR.—SEWER
  - TG—TOP OF GRATE
  - TR—TOP OF RIM
  - TYP.—TYPICAL
  - UGV—UNDERGROUND VAULT
  - VOL.—VOLUME
  - W.M.E.—WATER METER EASEMENT

- SURVEYOR'S NOTES:**
- THE BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83.
  - THE CAD FILE OF THE DRAWING SHOWN HEREIN IS BASED ON TEXAS SOUTH CENTRAL ZONE NO. 4204, STATE PLANE SURFACE VALUE (NAD83) AND MAY BE CONVERTED TO GRID BY SCALING THE DRAWING BY THE FOLLOWING COMBINED SCALE FACTOR OF 0.999947290105.
  - ACCORDING TO F.I.R.M. MAP NO. 48201c0239 (COMMUNITY—PANEL NO. 4803150230), MAP REVISED DATE: JUNE 18, 2007, THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED, DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

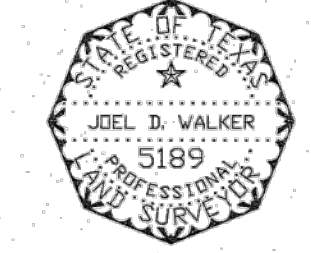
- THIS STATEMENT IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE ABOVE REFERENCED MAP. THIS INFORMATION IS TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS.
- ALL UTILITIES SHOWN HEREON ARE LOCATED USING "APPARENT & VISIBLE" EVIDENCE BY ON-SITE OBSERVATION UNLESS OTHERWISE NOTED.
  - THE SUBJECT TRACT IS AFFECTED BY THE CITY ORDINANCES AND ZONING REGULATIONS OF THE CITY OF TOMBALL FOR ZONE "LI" (LIGHT INDUSTRIAL).
  - THE SUBJECT TRACT IS AFFECTED BY THE SHORT FORM BLANKET EASEMENT RECORDED UNDER H.C.C.F. No. RP-2017-438187.
  - INDICATES AN UNDERGROUND SEWER LINE WITH UNKNOWN DIRECTION, SIZE OR LOCATION OR A POSSIBLE STUB-OUT.

- REFERENCE BENCHMARK:**  
 RM120165 — ALUMINUM ROD WITH LOGO CAP STAMPED "120165" LOCATED ON THE WEST SIDE OF TUWA ROAD ±120' NORTH OF THE CENTERLINE OF THE DRIVEWAY FOR 22803 TUWA ROAD IN KEY MAP 289H IN THE WILLOW CREEK WATERSHED.  
 ELEVATION = 146.69' (NAVD 88, 2001 ADJ.)
- TEMPORARY BENCHMARKS:**  
 TBM "A" — BOX CUT ON "CI" INLET LOCATED ON THE EAST SIDE OF HUFFSMITH-KOHRVILLE ROAD ±575' SOUTH OF F.M. 2920 AND ACROSS FROM THE EAST DRIVEWAY TO THE SUBJECT TRACT.  
 ELEVATION = 176.42'  
 TBM "B" — BOX CUT ON "CI" INLET LOCATED ON THE EAST SIDE OF HUFFSMITH-KOHRVILLE ROAD ±1,175' SOUTH OF F.M. 2920 AND ±450' NORTH OF THE MOST EASTERLY SOUTHEAST CORNER OF THE SUBJECT TRACT.  
 ELEVATION = 174.74'  
 TBM "C" — BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ±40' SOUTHWEST OF THE SOUTHWEST CORNER OF THE SOUTHEAST PARKING LOT.  
 ELEVATION = 176.71'  
 TBM "D" — BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ON THE NORTH SIDE OF THE DIESEL FUELING STATION.  
 ELEVATION = 177.49'

- LEGEND**
- BOLLARD
  - "CI" INLET
  - CLEANOUT
  - COMMUNICATIONS MANHOLE
  - "E" INLET
  - ⊕ ELECTRIC JUNCTION BOX
  - ⊕ FIRE HYDRANT
  - ⊕ GAS VALVE
  - ⊕ GATE POST
  - ⊕ GREASE TRAP
  - ⊕ HOSE BIB
  - ⊕ INLET
  - ⊕ IRRIGATION CONTROL VALVE
  - ⊕ LIGHT STANDARD
  - ⊕ MAILBOX
  - ⊕ MANHOLE
  - ⊕ PEDESTAL
  - ⊕ PIPELINE MARKER
  - ⊕ POWER POLE
  - ⊕ SAMPLE WELL
  - ⊕ SHRUB
  - ⊕ SIGN
  - ⊕ WATER METER
  - ⊕ WATER VALVE
  - ⊕ WHEEL STOP
  - ⊕ YARD LIGHT



SHEET 4 OF 5



TO: TOMBALL INDEPENDENT SCHOOL DISTRICT

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

8/15/23  
 DATE

*Joel D. Walker*  
 JOEL D. WALKER, R.P.L.S.  
 TEXAS REGISTRATION NO. 5189

TOMBALL INDEPENDENT SCHOOL DISTRICT

TOPOGRAPHIC SURVEY

BUS MANUFACTURING CENTER  
 OUT OF THE  
 JESSE PRUETT SURVEY  
 ABSTRACT NO. 629  
 CITY OF TOMBALL  
 HARRIS COUNTY, TEXAS

**WEST BELT**  
 SURVEYING, INC.

2100 PARK ROW KATY, TX. 77440 PHONE (281) 290-6288 FAX (281) 492-0021  
 CERTIFIED FIRM NO. 10075800

NO.	DATE	REVISIONS	BY
A	8/15/23	REVISED TIMKIN ROAD R.O.W.	MDL

DRAWN BY: MDL CHECKED BY: KMH  
 SCALE: 1"=30' APPROVED BY: JDW  
 PROJECT NO. SB66-0037A DATE: JULY 14, 2023

**ABBREVIATIONS**

- B.L.—BUILDING LINE
- BOT.—BOTTOM
- CCB—CONCRETE BOX CULVERT
- CMC—CREPE MYRTLE CLUSTER
- CMP—CORRUGATED METAL PIPE
- ELEV.—ELEVATION
- ESMT.—EASEMENT
- FC—FILM CODE
- FF—FINISH FLOOR
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- SAN.—SANITARY
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- SWR.—SEWER
- TG—TOP OF GRATE
- TR—TOP OF RIM
- TYP.—TYPICAL
- UVV—UNDERGROUND VAULT
- VOL.—VOLUME
- W.M.E.—WATER METER EASEMENT

**SURVEYOR'S NOTES:**

1. THE BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83.
2. THE CAD FILE OF THE DRAWING SHOWN HEREIN IS BASED ON TEXAS SOUTH CENTRAL ZONE NO. 4204, STATE PLANE SURFACE VALUE (NAD83) AND MAY BE CONVERTED TO GRID BY SCALING THE DRAWING BY THE FOLLOWING COMBINED SCALE FACTOR OF 0.999947290105.
3. ACCORDING TO F.I.R.M. MAP NO. 4820100300 (COMMUNITY—PANEL NO. 4803150230), MAP REVISED DATE: JUNE 18, 2007, THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED, DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

THIS STATEMENT IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE ABOVE REFERENCED MAP. THIS INFORMATION IS TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS.

4. ALL UTILITIES SHOWN HEREON ARE LOCATED USING "APPARENT & VISIBLE" EVIDENCE BY ON-SITE OBSERVATION UNLESS OTHERWISE NOTED.

5. THE SUBJECT TRACT IS AFFECTED BY THE CITY ORDINANCES AND ZONING REGULATIONS OF THE CITY OF TOMBALL FOR ZONE "LI" (LIGHT INDUSTRIAL).

6. THE SUBJECT TRACT IS AFFECTED BY THE SHORT FORM BLANKET EASEMENT RECORDED UNDER H.C.C.F. No. RP-2017-438787.

7. → INDICATES AN UNDERGROUND SEWER LINE WITH UNKNOWN DIRECTION, SIZE OR LOCATION OR A POSSIBLE STUB-OUT.

**REFERENCE BENCHMARK:**

RM120165 — ALUMINUM ROD WITH LOGO CAP STAMPED "120165" LOCATED ON THE WEST SIDE OF TUWA ROAD ±120' NORTH OF THE CENTERLINE OF THE DRIVEWAY FOR 22803 TUWA ROAD IN KEY MAP 289H IN THE WILLOW CREEK WATERSHED.  
ELEVATION = 140.69' (NAVD 88, 2001 ADJ.)

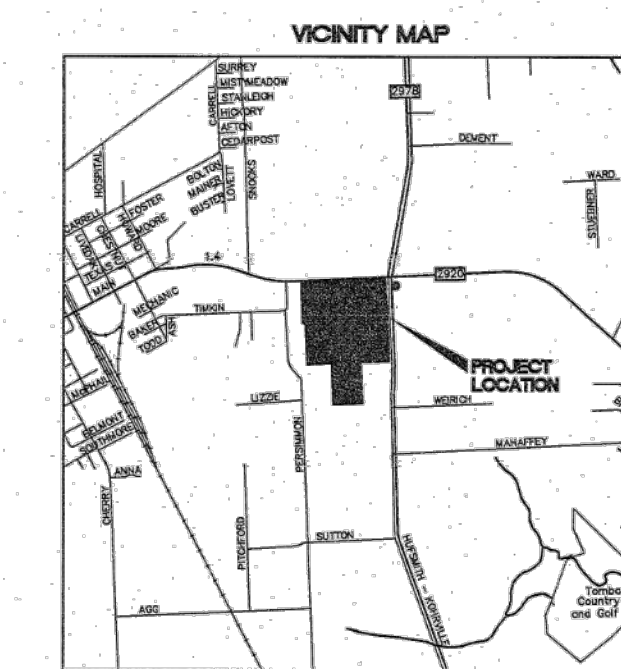
**TEMPORARY BENCHMARKS:**

TBM "A" — BOX CUT ON "C1" INLET LOCATED ON THE EAST SIDE OF HUFSMITH-KOHRVILLE ROAD ±575' SOUTH OF F.M. 2920 AND ACROSS FROM THE EAST DRIVEWAY TO THE SUBJECT TRACT.  
ELEVATION = 176.42'

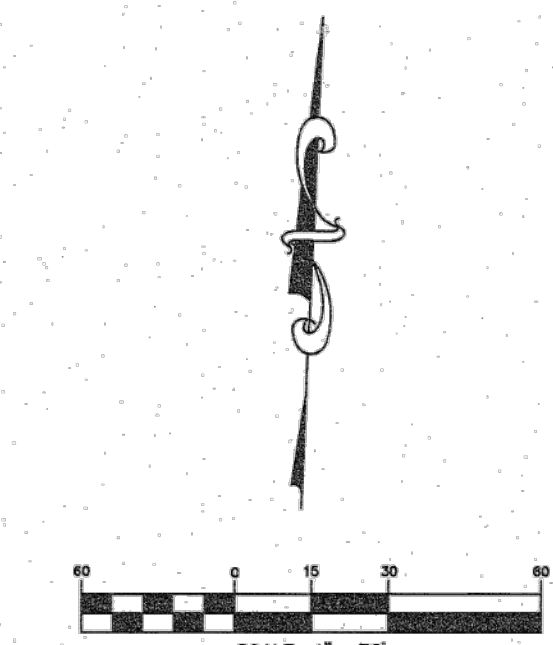
TBM "B" — BOX CUT ON "C1" INLET LOCATED ON THE EAST SIDE OF HUFSMITH-KOHRVILLE ROAD ±1,175' SOUTH OF F.M. 2920 AND ±450' NORTH OF THE MOST EASTERLY SOUTHEAST CORNER OF THE SUBJECT TRACT.  
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TBM "C" — BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ±40' SOUTHWEST OF THE SOUTHWEST CORNER OF THE SOUTHEAST PARKING LOT.  
ELEVATION = 176.71'

TBM "D" — BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ON THE NORTH SIDE OF THE DIESEL FUELING STATION.  
ELEVATION = 177.49'

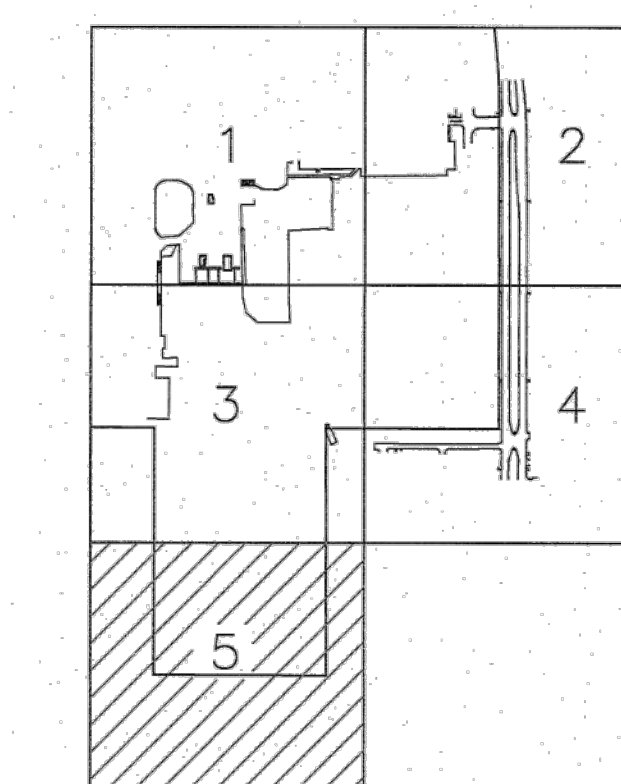


KEY MAP 289E  
SCALE 1" = 3000'

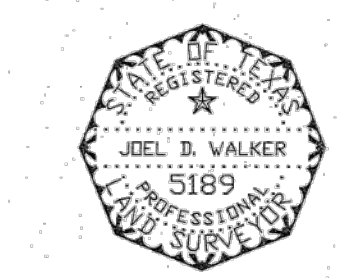


**LEGEND**

- BOLLARD
- "C1" INLET
- CLEANOUT
- COMMUNICATIONS MANHOLE
- "E" INLET
- ⊕ ELECTRIC JUNCTION BOX
- ⊕ FIRE HYDRANT
- ⊕ GAS VALVE
- ⊕ GATE POST
- ⊕ GREASE TRAP
- GUY WIRE
- ⊕ HOSE BIB
- ⊕ INLET
- ⊕ IRRIGATION CONTROL VALVE
- ⊕ LIGHT STANDARD
- ⊕ MAILBOX
- ⊕ MANHOLE
- ⊕ PEDESTAL
- ⊕ PIPELINE MARKER
- ⊕ POWER POLE
- ⊕ SAMPLE WELL
- ⊕ SHRUB
- ⊕ SIGN
- ⊕ WATER METER
- ⊕ WATER VALVE
- ⊕ WHEEL STOP
- ⊕ YARD LIGHT



SHEET 5 OF 5



TO: TOMBALL INDEPENDENT SCHOOL DISTRICT  
 THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.  
 8/15/23  
 DATE  
 JOEL D. WALKER, R.P.L.S.  
 TEXAS REGISTRATION NO. 5189

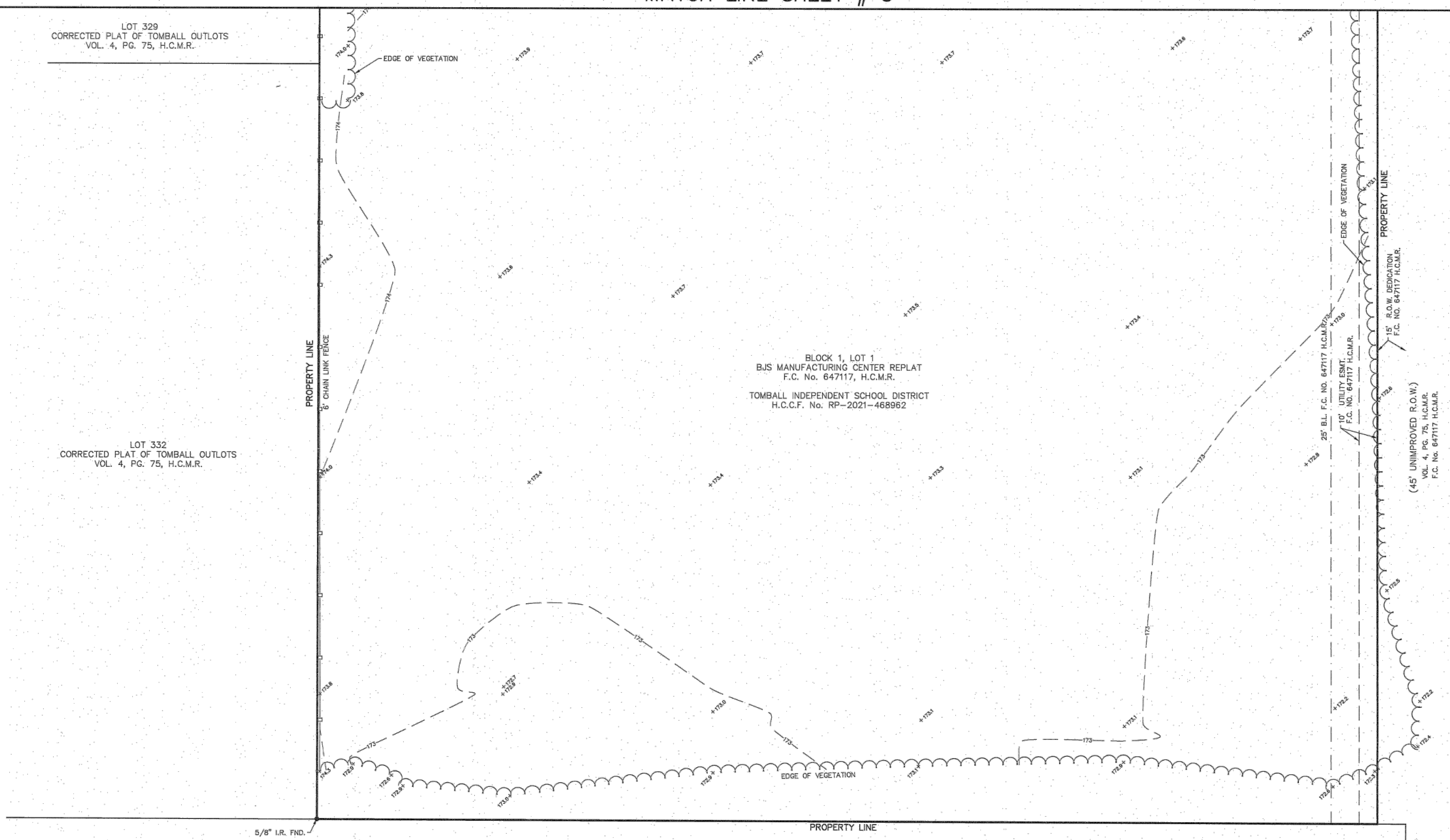
**TOMBALL INDEPENDENT SCHOOL DISTRICT**  
**TOPOGRAPHIC SURVEY**  
**BJS MANUFACTURING CENTER**  
**OUT OF THE**  
**JESSE PRUETT SURVEY**  
**ABSTRACT NO. 629**  
**CITY OF TOMBALL**  
**HARRIS COUNTY, TEXAS**

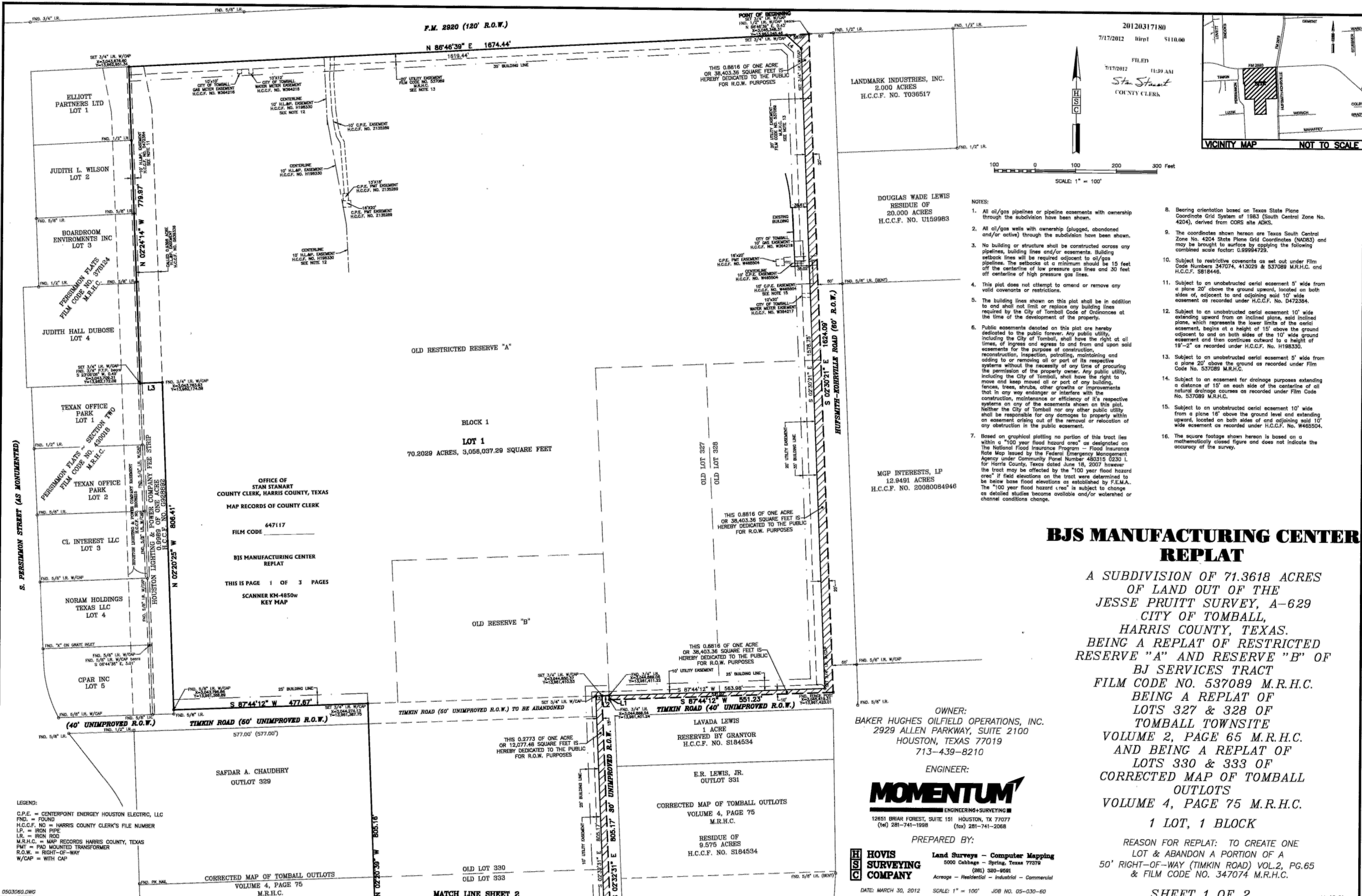
**WEST BELT SURVEYING, INC.**  
 21000 PARK HAVEN KATY, TX 77449  
 PHONE: (281) 599-5288 FAX: (281) 498-0020  
 CERTIFIED FIRM NO. 10078800

NO.	DATE	REVISIONS	BY
A	8/15/23	REVISED TIMKIN ROAD R.O.W.	MDL

DRAWN BY: MDL CHECKED BY: JMW  
 SCALE: 1"=30' APPROVED BY: JDW  
 PROJECT NO. S866-0037A DATE: JULY 14, 2023

**MATCH LINE SHEET # 3**

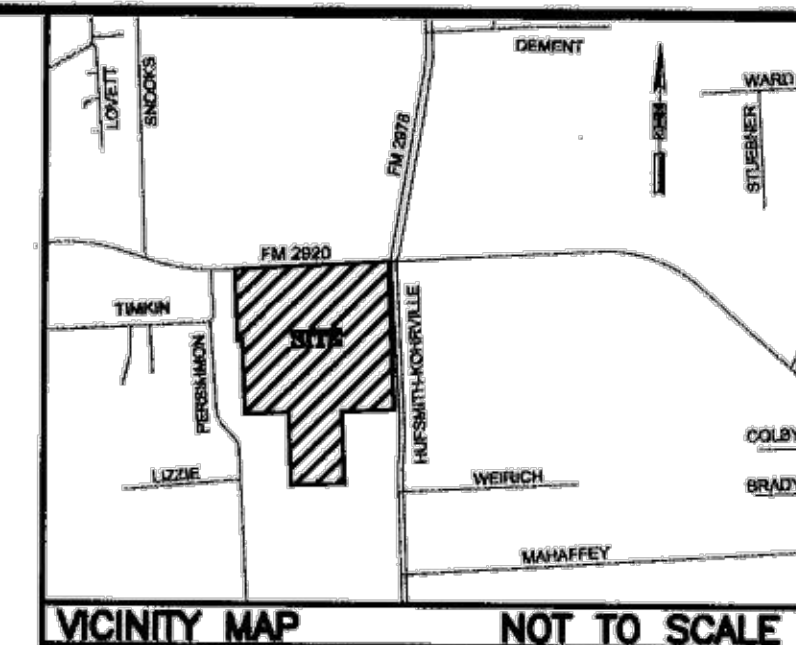




20120317180

7/17/2012 11:39 AM

FILED  
7/17/2012 11:39 AM  
Stan Street  
COUNTY CLERK



SCALE: 1" = 100'

NOTES:

- All oil/gas pipelines or pipeline easements with ownership through the subdivision have been shown.
- All oil/gas wells with ownership (plugged, abandoned and/or active) through the subdivision have been shown.
- No building or structure shall be constructed across any pipelines, building lines and/or easements. Building setback lines will be required adjacent to oil/gas pipelines. The setbacks at a minimum should be 15 feet off the centerline of low pressure gas lines and 30 feet off centerline of high pressure gas lines.
- This plot does not attempt to amend or remove any valid covenants or restrictions.
- The building lines shown on this plat shall be in addition to and shall not limit or replace any building lines required by the City of Tomball Code of Ordinances at the time of the development of the property.
- Public easements denoted on this plat are hereby dedicated to the public forever. Any public utility, including the City of Tomball, 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 line of procuring the permission of the property owner. Any public utility, including the City of Tomball, shall have the right to move and keep moved all or part of any building, fences, trees, shrubs, other growths 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 plat. Neither the City of Tomball nor any other public utility shall be responsible for any damages to property within an easement arising out of the removal or relocation of any obstruction in the public easement.
- Based on graphical plotting no portion of this tract lies within a "100 year flood hazard area" as designated on The National Flood Insurance Program - Flood Insurance Rate Map issued by the Federal Emergency Management Agency under Community Panel Number 480315 0230 L for Harris County, Texas dated June 18, 2007 however the tract may be affected by the "100 year flood hazard area" if field elevations on the tract were determined to be below base flood elevations as established by F.E.M.A. The "100 year flood hazard area" is subject to change as detailed studies become available and/or watershed or channel conditions change.
- Bearing orientation based on Texas State Plane Coordinate Grid System of 1983 (South Central Zone No. 4204), derived from CORS site ADKS.
- The coordinates shown hereon are Texas South Central Zone No. 4204 State Plane Grid Coordinates (NAD83) and may be brought to surface by applying the following combined scale factor: 0.99994729.
- Subject to restrictive covenants as set out under Film Code Numbers 347074, 413029 & 537089 M.R.H.C. and H.C.C.F. 5818446.
- Subject to an unobstructed aerial easement 5' wide from a plane 20' above the ground upward, located on both sides of, adjacent to and adjoining said 10' wide easement as recorded under H.C.C.F. No. D472384.
- Subject to an unobstructed aerial easement 10' wide extending upward from an inclined plane, said inclined plane, which represents the lower limits of the aerial easement, begins at a height of 15' above the ground adjacent to and on both sides of the 10' wide ground easement and then continues outward to a height of 19'-2" as recorded under H.C.C.F. No. H198330.
- Subject to an unobstructed aerial easement 5' wide from a plane 20' above the ground as recorded under Film Code No. 537089 M.R.H.C.
- Subject to an easement for drainage purposes extending a distance of 15' on each side of the centerline of all natural drainage courses as recorded under Film Code No. 537089 M.R.H.C.
- Subject to an unobstructed aerial easement 10' wide from a plane 15' above the ground level and extending upward, located on both sides of and adjoining said 10' wide easement as recorded under H.C.C.F. No. W465504.

**BJS MANUFACTURING CENTER REPLAT**

A SUBDIVISION OF 71.3618 ACRES OF LAND OUT OF THE JESSE PRUITT SURVEY, A-629 CITY OF TOMBALL, HARRIS COUNTY, TEXAS. BEING A REPLAT OF RESTRICTED RESERVE "A" AND RESERVE "B" OF BJ SERVICES TRACT FILM CODE NO. 537089 M.R.H.C. BEING A REPLAT OF LOTS 327 & 328 OF TOMBALL TOWNSITE VOLUME 2, PAGE 65 M.R.H.C. AND BEING A REPLAT OF LOTS 330 & 333 OF CORRECTED MAP OF TOMBALL OUTLOTS VOLUME 4, PAGE 75 M.R.H.C. 1 LOT, 1 BLOCK

OWNER:  
BAKER HUGHES OILFIELD OPERATIONS, INC.  
2929 ALLEN PARKWAY, SUITE 2100  
HOUSTON, TEXAS 77019  
713-439-8210

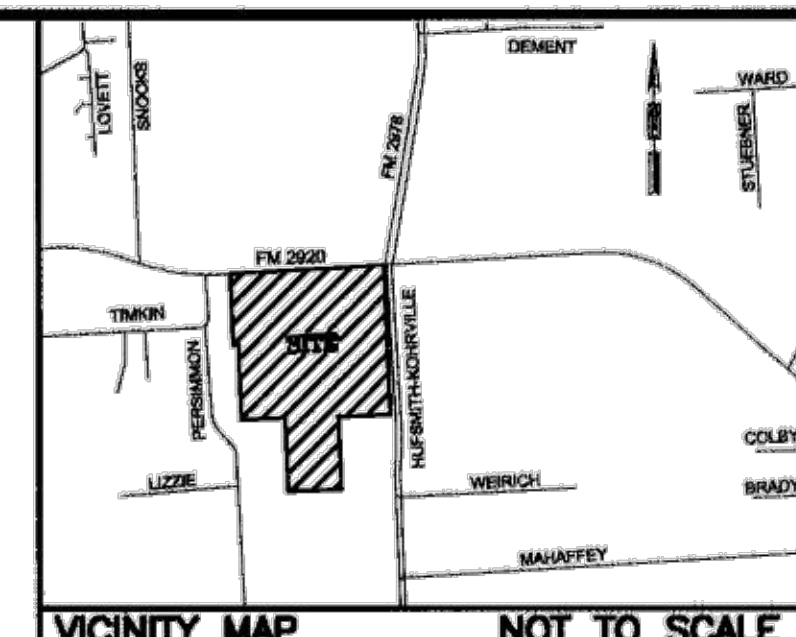
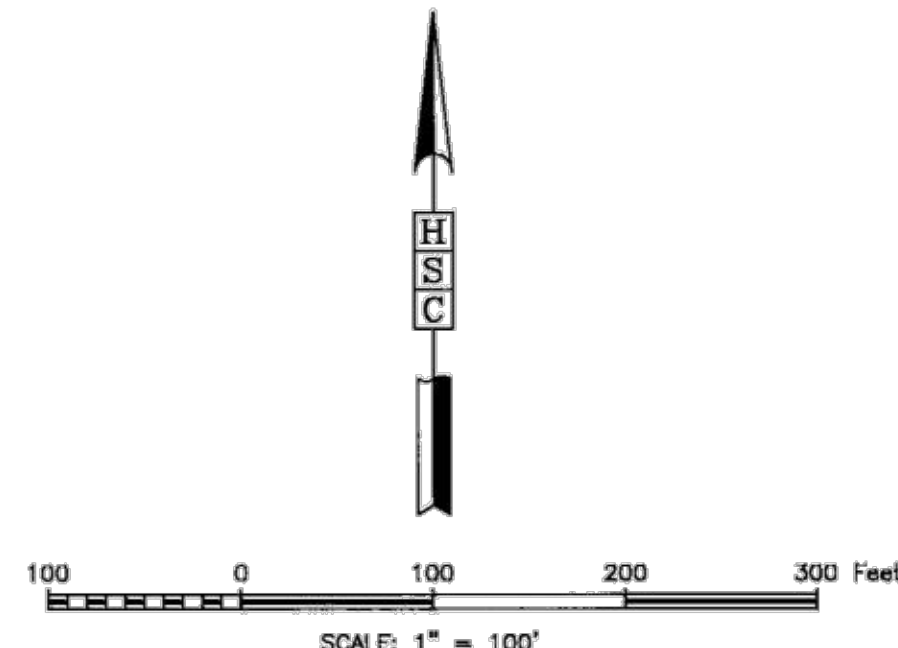
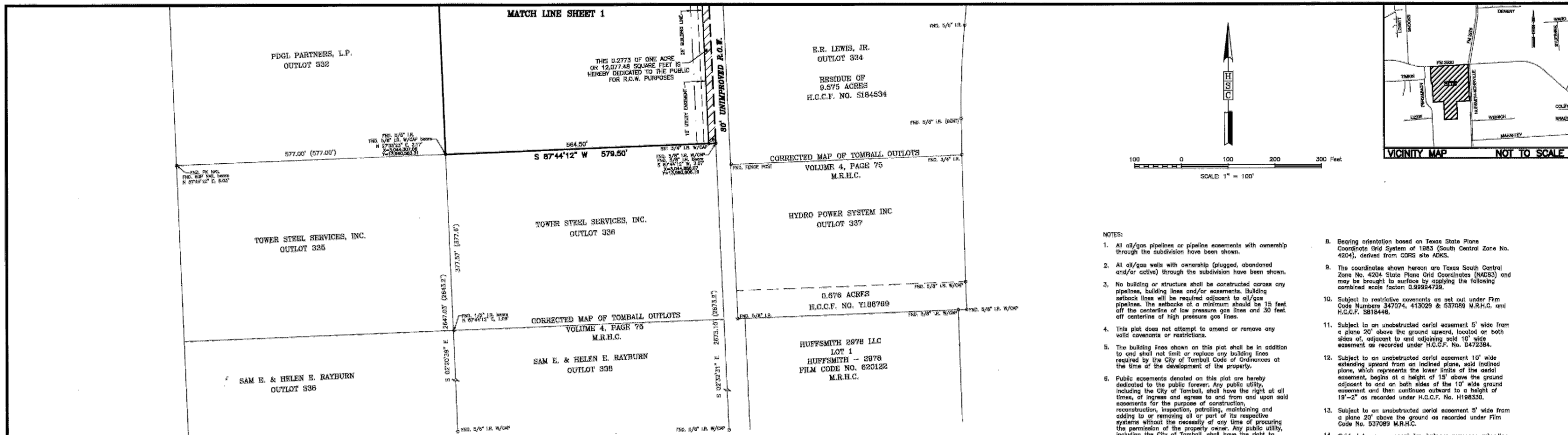
ENGINEER:  
**MOMENTUM**  
ENGINEERING+SURVEYING  
12651 BRIAR FOREST, SUITE 151 HOUSTON, TX 77077  
(tel) 281-741-1998 (fax) 281-741-2068

PREPARED BY:  
**H S HOVIS SURVEYING COMPANY**  
Land Surveys - Computer Mapping  
5000 Cabbage - Spring, Texas 77079  
(281) 320-8991  
Acres - Residential - Industrial - Commercial

REASON FOR REPLAT: TO CREATE ONE LOT & ABANDON A PORTION OF A 50' RIGHT-OF-WAY (TIMKIN ROAD) VOL.2, PG.65 & FILM CODE NO. 347074 M.R.H.C.

SHEET 1 OF 2

DATE: MARCH 30, 2012 SCALE: 1" = 100' JOB NO. 05-030-60



- NOTES:
- All oil/gas pipelines or pipeline easements with ownership through the subdivision have been shown.
  - All oil/gas wells with ownership (plugged, abandoned and/or active) through the subdivision have been shown.
  - No building or structure shall be constructed across any pipelines, building lines and/or easements. Building setback lines will be required adjacent to oil/gas pipelines. The setbacks at a minimum should be 15 feet off the centerline of low pressure gas lines and 30 feet off centerline of high pressure gas lines.
  - This plat does not attempt to amend or remove any valid covenants or restrictions.
  - The building lines shown on this plat shall be in addition to and shall not limit or replace any building lines required by the City of Tomball Code of Ordinances at the time of the development of the property.
  - Public easements denoted on this plat are hereby dedicated to the public forever. Any public utility, including the City of Tomball, 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 procuring the permission of the property owner. Any public utility, including the City of Tomball, shall have the right to move and keep moved all or part of any building, fences, trees, shrubs, other growths 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 plat. Neither the City of Tomball nor any other public utility shall be responsible for any damages to property within an easement arising out of the removal or relocation of any obstruction in the public easement.
  - Based on graphical plotting no portion of this tract lies within a "100 year flood hazard area" as designated on The National Flood Insurance Program - Flood Insurance Rate Map issued by the Federal Emergency Management Agency under Community Panel Number 480315 0280 L for Harris County, Texas dated June 18, 2007 however the tract may be affected by the "100 year flood hazard area" if field elevations on the tract were determined to be below base flood elevations as established by F.E.M.A. The "100 year flood hazard area" is subject to change as detailed studies become available and/or watershed or channel conditions change.
  - Bearing orientation based on Texas State Plane Coordinate Grid System of 1983 (South Central Zone No. 4204), derived from CORS site ADKS.
  - The coordinates shown hereon are Texas South Central Zone No. 4204 State Plane Grid Coordinates (NAD83) and may be brought to surface by applying the following combined scale factor: 0.99984729.
  - Subject to restrictive covenants as set out under Film Code Numbers 347074, 413029 & 537089 M.R.H.C. and H.C.C.F. 5818446.
  - Subject to an unobstructed aerial easement 5' wide from a plane 20' above the ground upward, located on both sides of, adjacent to and adjoining said 10' wide easement as recorded under H.C.C.F. No. D472384.
  - Subject to an unobstructed aerial easement 10' wide extending upward from an inclined plane, said inclined plane, which represents the lower limits of the aerial easement, begins at a height of 15' above the ground adjacent to and on both sides of the 10' wide ground easement and then continues outward to a height of 19'-2" as recorded under H.C.C.F. No. H198330.
  - Subject to an unobstructed aerial easement 5' wide from a plane 20' above the ground as recorded under Film Code No. 537089 M.R.H.C.
  - Subject to an easement for drainage purposes extending a distance of 15' on each side of the centerline of all natural drainage courses as recorded under Film Code No. 537089 M.R.H.C.
  - Subject to an unobstructed aerial easement 10' wide from a plane 16' above the ground level and extending upward, located on both sides of and adjoining said 10' wide easement as recorded under H.C.C.F. No. W465504.
  - The square footage shown hereon is based on a mathematically closed figure and does not indicate the accuracy of the survey.

STATE OF TEXAS  
COUNTY OF HARRIS

We, Baker Hughes Oilfield Operations, Inc., acting by and through David E. Emerson, Vice President and Susan Diane Koontz, Assistant Secretary, being officers of Baker Hughes Oilfield Operations, Inc., owner, hereinafter referred to as Owner of the 71.3618 acre tract described in the above and foregoing map of BJS MANUFACTURING CENTER REPLAT, do hereby make and establish said subdivision said property according to all liens, dedications, restrictions, and notations on said plat and hereby dedicate to the use of the public forever, all streets, alleys, parks, watercourses, drains, easements and public places shown thereon for the purposes and considerations therein expressed; and do hereby bind ourselves, our heirs, successors and assigns to warrant and forever defend the title to the land so dedicated.

FURTHER, Owner has dedicated and by these presents does dedicate to the use of the public for public utility purposes forever an unobstructed aerial easement five feet in width from a plane twenty feet (20') above the ground level upward, located adjacent to all public utility easements shown hereon.

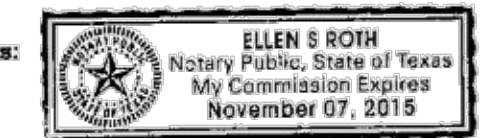
IN TESTIMONY WHEREOF, Baker Hughes Oilfield Operations, Inc. has caused these presents to be signed by David E. Emerson, its Vice President, thereunto authorized, attested by its Assistant Secretary, Susan Diane Koontz, this 20th day of JUNE, 2012.

Baker Hughes Oilfield Operations, Inc.  
By: David E. Emerson  
David E. Emerson, Vice President  
Attest: Susan Diane Koontz  
Susan Diane Koontz, Assistant Secretary

STATE OF TEXAS  
COUNTY OF HARRIS

BEFORE ME, the undersigned authority, on this day personally appeared, David E. Emerson, Vice President of Baker Hughes Oilfield Operations, Inc., known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that she executed the same for the purposes and considerations therein expressed and in the capacity therein and herein stated and as the act and deed of said corporation.

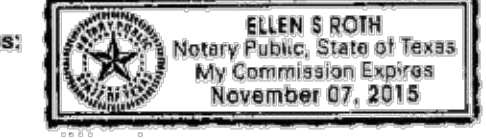
GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 20th day of JUNE, 2012  
Ellen S. Roth  
Notary Public in and for the State of Texas



STATE OF TEXAS  
COUNTY OF HARRIS

BEFORE ME, the undersigned authority, on this day personally appeared, Susan Diane Koontz, Assistant Secretary of Baker Hughes Oilfield Operations, Inc., known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that she executed the same for the purposes and considerations therein expressed and in the capacity therein and herein stated and as the act and deed of said corporation.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 20th day of JUNE, 2012  
Ellen S. Roth  
Notary Public in and for the State of Texas



I, Mary M. McKenzie, am registered under the laws of the State of Texas to practice the profession of surveying and hereby certify that the above subdivision is true and correct, was prepared from an actual survey of the property made under my supervision on the ground; that all boundary corners, angle points, points of curvatures and other points of reference have been marked with iron (or other suitable permanent metal) pipes or rods having an outside diameter of not less than three quarter (3/4) inch and a length of not less than three (3) feet, except where corners were found; and that the plot boundary corners have been tied to the Texas South Central Zone No. 4204 State Plane Grid Coordinates (NAD83).



Mary M. McKenzie  
Mary M. McKenzie  
Texas Registration No. 6123

This is to certify that the Planning & Zoning Commission of the City of Tomball, Texas, has approved this plat and the subdivision of BJS MANUFACTURING CENTER REPLAT in conformance with the laws of the State of Texas and the ordinances of the City of Tomball as shown hereon and authorized the recording of this plat this 20th day of JUNE, 2012.

Lori Wallace  
Lori Wallace  
Chairman  
Evelyn Cherwenak  
Evelyn Cherwenak  
Vice Chairman

We, the City Manager and the City Engineer for the City of Tomball, do hereby certify that this plat complies with the City of Tomball ordinances.

George Shokellford  
George Shokellford  
City Manager  
Lori Lakatos, P.E.  
Lori Lakatos, P.E.  
Acting City Engineer

This is to certify that the City accepts the Planning & Zoning Commission's authorized approval and acceptance of all of the dedicated public easements in conformance with the laws of the State of Texas and the ordinances of the City of Tomball as shown hereon and authorizes the recording of this plat, this 20th day of JUNE, 2012.

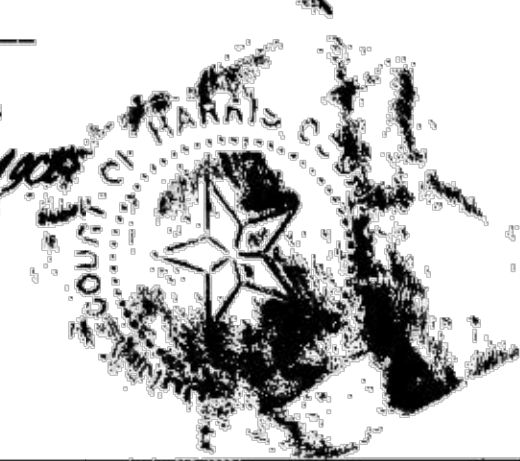
Gretchen Fagan  
Gretchen Fagan  
Mayor  
Doris Spear  
Doris Spear  
City Secretary

I, Stan Stanart, County Clerk of Harris County, do hereby certify that the within instrument with its certificate of authentication was filed for registration in my office on July 17, 2012, at 1:00 o'clock P.M., and duly recorded on July 17, 2012, at 1:00 o'clock P.M., and at Film Code Number 647118 of the Map Records of Harris County for said county.

Witness my hand and seal of office, at Houston, the day and date last above written.

Stan Stanart  
Stan Stanart  
County Clerk  
of Harris County, Texas

By: Edwina V. Mack  
Edwina V. Mack  
Deputy



LINE	DISTANCE	BEARING
L1	10.00'	N 02°45'28" W
L2	17.71'	S 87°44'12" W
L3	54.68'	S 87°23'14" W
L4	49.19'	S 47°51'51" E
L5	15.00'	S 87°44'12" W
L6	15.00'	S 87°44'12" W

OFFICE OF  
STAN STANART  
COUNTY CLERK, HARRIS COUNTY, TEXAS  
MAP RECORDS OF COUNTY CLERK

FILM CODE 647118

BJS MANUFACTURING CENTER  
REPLAT

THIS IS PAGE 2 OF 3 PAGES  
SCANNER KM-4850W  
KEY MAP

OWNER:  
BAKER HUGHES OILFIELD OPERATIONS, INC.  
2929 ALLEN PARKWAY, SUITE 2100  
HOUSTON, TEXAS 77019  
713-439-8210

ENGINEER:  
**MOMENTUM**  
ENGINEERING+SURVEYING  
12851 BRIAR FOREST, SUITE 151 HOUSTON, TX 77077  
(tel) 281-741-1998 (fax) 281-741-2068

PREPARED BY:  
**H S HOVIS SURVEYING COMPANY**  
Land Surveys - Computer Mapping  
6000 Cabbage - Spring, Texas 77378  
(281) 382-9561  
Acreage - Residential - Industrial - Commercial  
DATE: MARCH 30, 2012 SCALE: 1" = 100' JOB NO. 05-030-80

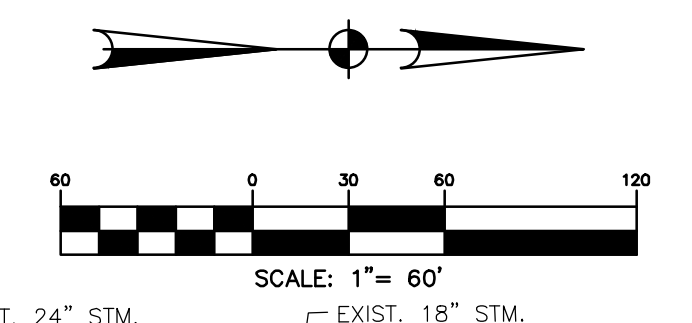
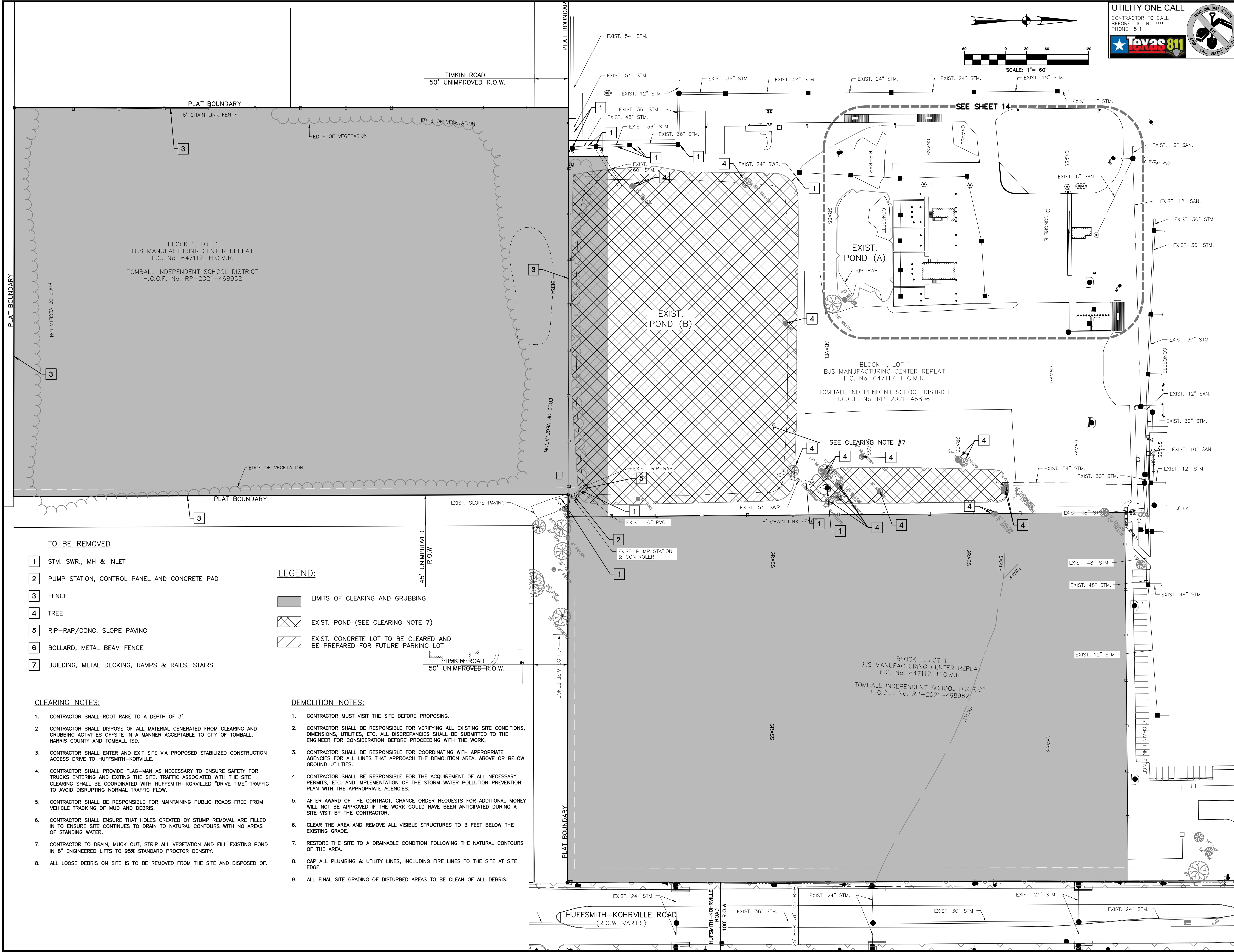
# BJS MANUFACTURING CENTER REPLAT

A SUBDIVISION OF 71.3618 ACRES  
OF LAND OUT OF THE  
JESSE PRUITT SURVEY, A-629  
CITY OF TOMBALL,  
HARRIS COUNTY, TEXAS.  
BEING A REPLAT OF RESTRICTED  
RESERVE "A" AND RESERVE "B" OF  
BJ SERVICES TRACT  
FILM CODE NO. 537089 M.R.H.C.  
BEING A REPLAT OF  
LOTS 327 & 328 OF  
TOMBALL TOWNSITE  
VOLUME 2, PAGE 65 M.R.H.C.  
AND BEING A REPLAT OF  
LOTS 330 & 333 OF  
CORRECTED MAP OF TOMBALL  
OUTLOTS  
VOLUME 4, PAGE 75 M.R.H.C.  
1 LOT, 1 BLOCK

REASON FOR REPLAT: TO CREATE ONE  
LOT & ABANDON A PORTION OF A  
50' RIGHT-OF-WAY (TIMKIN ROAD) VOL.2, PG.65  
& FILM CODE NO. 347074 M.R.H.C.

SHEET 2 OF 2

04 Jan 2024 12:05PM RobertV  
\\hou-srv05\cadd\project\BR00K\_SP\tomball\isd\8660020-02-lic.detection and pump station\Civil\8660020-DEM0.dwg  
Includes Xref(s): 866020-X--BRD.dwg; 866020-X--SEAL.dwg; 866020-X--TEXT.dwg; 866020-X--TOPO.dwg



**UTILITY ONE CALL**  
CONTRACTOR TO CALL BEFORE DIGGING !!!  
PHONE: 811

**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW KATY, TX 77449 PHONE: (281) 578-8595 FAX: (281) 578-9686

- GENERAL NOTES:
- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quidley Engineering.
  - This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
  - According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).  
This flood statement does not imply that the property or structures thereon will be free from flooding or flood damage. On rare occasions floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.
  - Research for Adjoiner Tracts was performed by Quidley Engineering on June 1, 2022.
  - The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
  - Elevations shown hereon are based on Harris County Floodplain Reference Mark No. 120170 located along the northeast right-of-way of FM 2920 approximately 110 feet from its intersection with Stuebner Airline Road with a published elevation of 154.74 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark A being a 1000 nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark B being a MAG nail and shiner set in a wheelchair ramp at the southwest corner of the intersection of FM 2920 and Hufsmith-Kohrville Road and further shown hereon.  
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Elevation = 175.67 feet, NAVD 88, 2001 Adjustment.
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NOTE: THE LOCATIONS OF THE PRIVATE UTILITY LINES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE ALSO ACCEPTS FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UTILITIES.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222

NOTICE:  
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VERIFICATION OF PRIVATE UTILITY LINES	
Date:	
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Date:	
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Date:	
APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. Signature valid for one year.	

BROOKS & SPARKS, INC.

TOMBALL INDEPENDENT SCHOOL DISTRICT  
PLANS FOR  
DETENTION BASIN  
TO SERVE  
TOMBALL INNOVATION CENTER

**CLEARING AND DEMOLITION PLAN**  
(SHEET 1 OF 2)

NO.	DATE	REVISIONS	BY

DRAWN BY: RV	CHECKED BY: CSM, JAE
DESIGNED BY: CSM	APPROVED BY: FEB
PROJECT NO. 866-0018	DATE: 01/04/2024
SCALE: 1"=60'	SHEET 13 OF 39

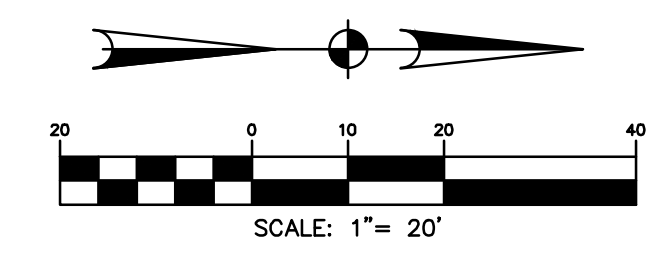
- TO BE REMOVED**
- 1 STM. SWR., MH & INLET
  - 2 PUMP STATION, CONTROL PANEL AND CONCRETE PAD
  - 3 FENCE
  - 4 TREE
  - 5 RIP-RAP/CONC. SLOPE PAVING
  - 6 BOLLARD, METAL BEAM FENCE
  - 7 BUILDING, METAL DECKING, RAMPS & RAILS, STAIRS

- LEGEND:**
- [Hatched Box] LIMITS OF CLEARING AND GRUBBING
  - [Cross-hatched Box] EXIST. POND (SEE CLEARING NOTE 7)
  - [Diagonal Lines Box] EXIST. CONCRETE LOT TO BE CLEARED AND BE PREPARED FOR FUTURE PARKING LOT

- CLEARING NOTES:**
- CONTRACTOR SHALL ROOT RAKE TO A DEPTH OF 3'.
  - CONTRACTOR SHALL DISPOSE OF ALL MATERIAL GENERATED FROM CLEARING AND GRUBBING ACTIVITIES OFFSITE IN A MANNER ACCEPTABLE TO CITY OF TOMBALL, HARRIS COUNTY AND TOMBALL ISD.
  - CONTRACTOR SHALL ENTER AND EXIT SITE VIA PROPOSED STABILIZED CONSTRUCTION ACCESS DRIVE TO HUFFSMITH-KOHRVILLE.
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  - CONTRACTOR TO DRAIN, MUCK OUT, STRIP ALL VEGETATION AND FILL EXISTING POND IN 8" ENGINEERED LIFTS TO 95% STANDARD PROCTOR DENSITY.
  - ALL LOOSE DEBRIS ON SITE IS TO BE REMOVED FROM THE SITE AND DISPOSED OF.

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04 Jan 2024 12:05PM RobertV  
 \\hou-srv05\cadd\project\BROOK\_SP\tomball\_isd\8660020-02-tic detention and pump\_station\Civil\8660020-DEMO.dwg  
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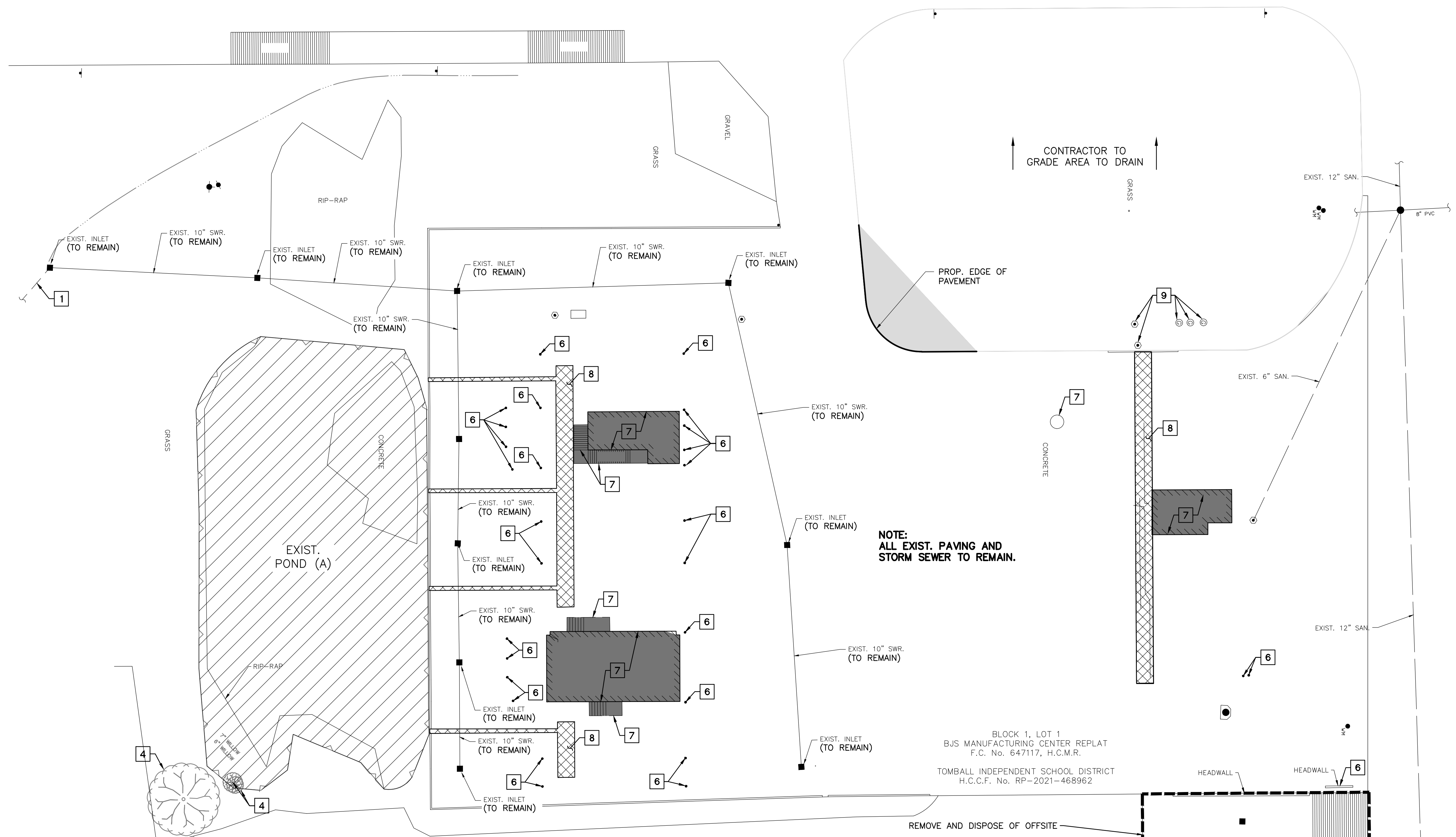
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**VERIFICATION OF PRIVATE UTILITY LINES**

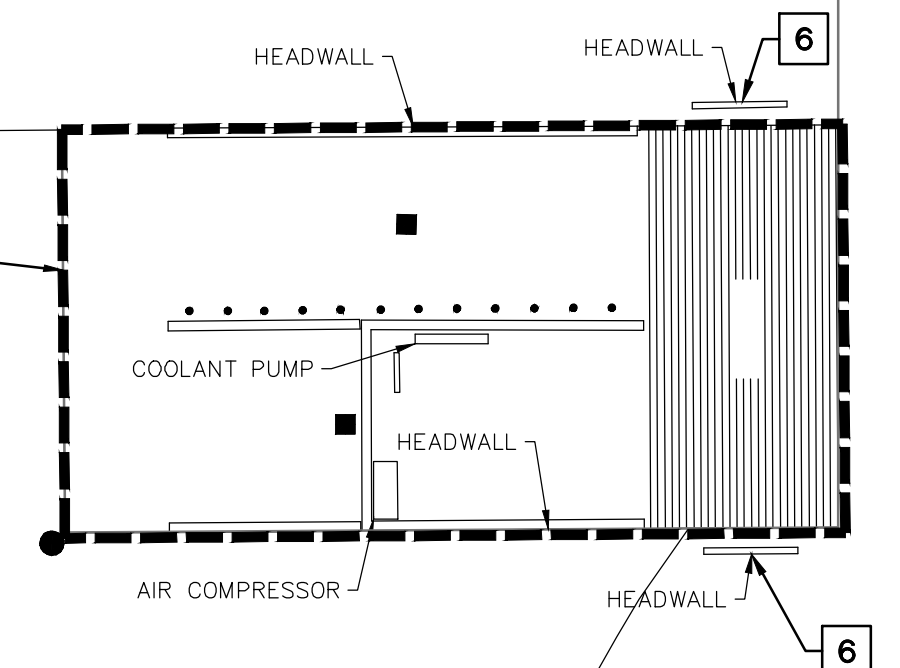
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Date:	
APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. Signature valid for one year.	



**NOTE:**  
 ALL EXIST. PAVING AND STORM SEWER TO REMAIN.

BLOCK 1, LOT 1  
 BJS MANUFACTURING CENTER REPLAT  
 F.C. No. 647117, H.C.M.R.  
 TOMBALL INDEPENDENT SCHOOL DISTRICT  
 H.C.C.F. No. RP-2021-468962

REMOVE AND DISPOSE OF OFFSITE



**TO BE REMOVED**

- 1 STM. SWR., MH & INLET
- 2 PUMP STATION, CONTROL PANEL AND CONCRETE PAD
- 3 FENCE
- 4 TREE
- 5 RIP-RAP/CONC. SLOPE PAVING
- 6 BOLLARD, METAL BEAM FENCE, HEADWALL
- 7 BUILDINGS, SLABS, METAL DECKING, RAMPS & RAILS, STAIRS
- 8 METAL GRATE, STEEL PIPE
- 9 GREASE TRAP

**LEGEND:**

- EXIST. CONC. PAVEMENT TO BE REMOVED
- EXIST. POND A (SEE CLEARING NOTE 9)
- EXIST. TROUGHS TO BE FILLED WITH CONCRETE TO MATCH TOP OF PAVEMENT, USE #4 BARS @ 24" C-C EACH WAY & DOWEL INTO EXIST. CONCRETE.
- EXIST. BUILDING AREAS TO BE FILLED WITH CONCRETE TO MATCH TOP OF PAVEMENT, USE #4 BARS @ 18" C-C EACH WAY & DOWEL INTO EXIST. CONCRETE.

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**DEMOLITION NOTES:**

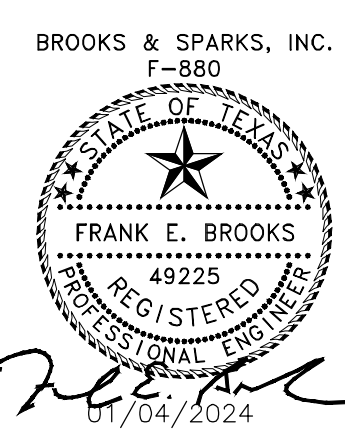
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TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER

**CLEARING AND DEMOLITION PLAN  
 (SHEET 2 OF 2)**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: 1"=20'      SHEET 14 OF 39



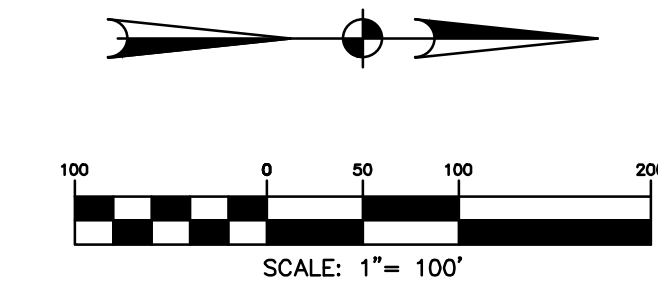
DETENTION SUMMARY

- TOTAL AREA OF SITE 70.05 ACRES
- DETENTION STORAGE RATE 0.75 AC.FT./AC.
- DETENTION STORAGE VOLUME REQUIRED 52.54 AC.FT.
- 100-YR DESIGN WATER SURFACE ELEVATION= 173.50 FT.
- TOTAL STORAGE VOLUME PROVIDED  
WATER SURFACE ELEVATION 172.50 = 63.51 AC.FT.
- MAXIMUM OUTFALL RATE ALLOWED 7 CFS
- PROP. RESTRICTOR SIZE 24 INCHES
- TOTAL OUTFALL RATE = 7 CFS
- DISCHARGE FLOW RATE =
- \* EL. 160.50 TO EL. 167.72 PUMPED DETENTION (28.63 AC.FT.)  
DISCHARGE FLOW RATE 7 CFS. (ALL PUMPS OFF AT 167.72)
- \* EL. 167.72 TO EL. 172.50 GRAVITY FLOW (34.88 AC.FT.) (24" @ 0.10%)  
DISCHARGE FLOW RATE 7 CFS.

DETENTION BASIN SHALL BE PROPERLY OPERATED AND MAINTAINED BY PROPERTY OWNER

LEGEND:

 SERVICE AREA (70.05 AC)



**UTILITY ONE CALL**  
CONTRACTOR TO CALL BEFORE DIGGING !!!  
PHONE: 811




**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW KATY, TX 77449  
PHONE: (281) 578-9595  
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NOTICE:  
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VERIFICATION OF PRIVATE UTILITY LINES

Date: \_\_\_\_\_

CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown the Natural Gas lines correctly, but to be used for conflict verification. (See service lines are not shown.) Signature valid for six months.

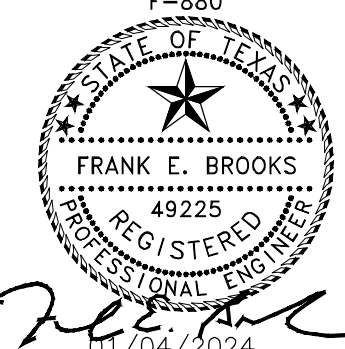
Date: \_\_\_\_\_

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This Signature verifies that existing underground facilities, but to be used for conflict verification. Signature valid for six months.

Date: \_\_\_\_\_

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY.  
Signature valid for one year.

BROOKS & SPARKS, INC.  
F-880



01/04/2024

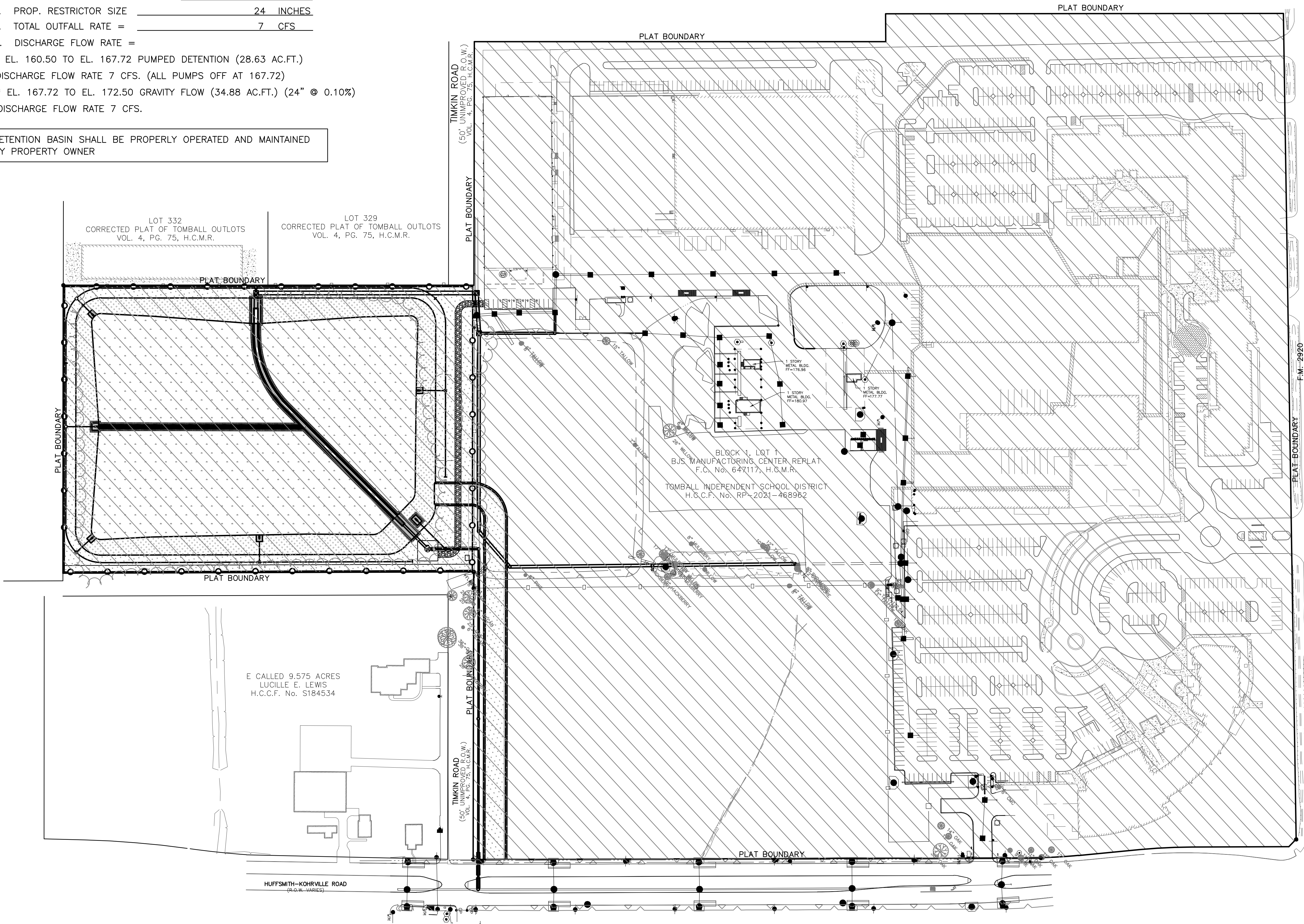
TOMBALL INDEPENDENT SCHOOL DISTRICT  
PLANS FOR  
DETENTION BASIN  
TO SERVE  
TOMBALL INNOVATION CENTER

SERVICE AREA MAP

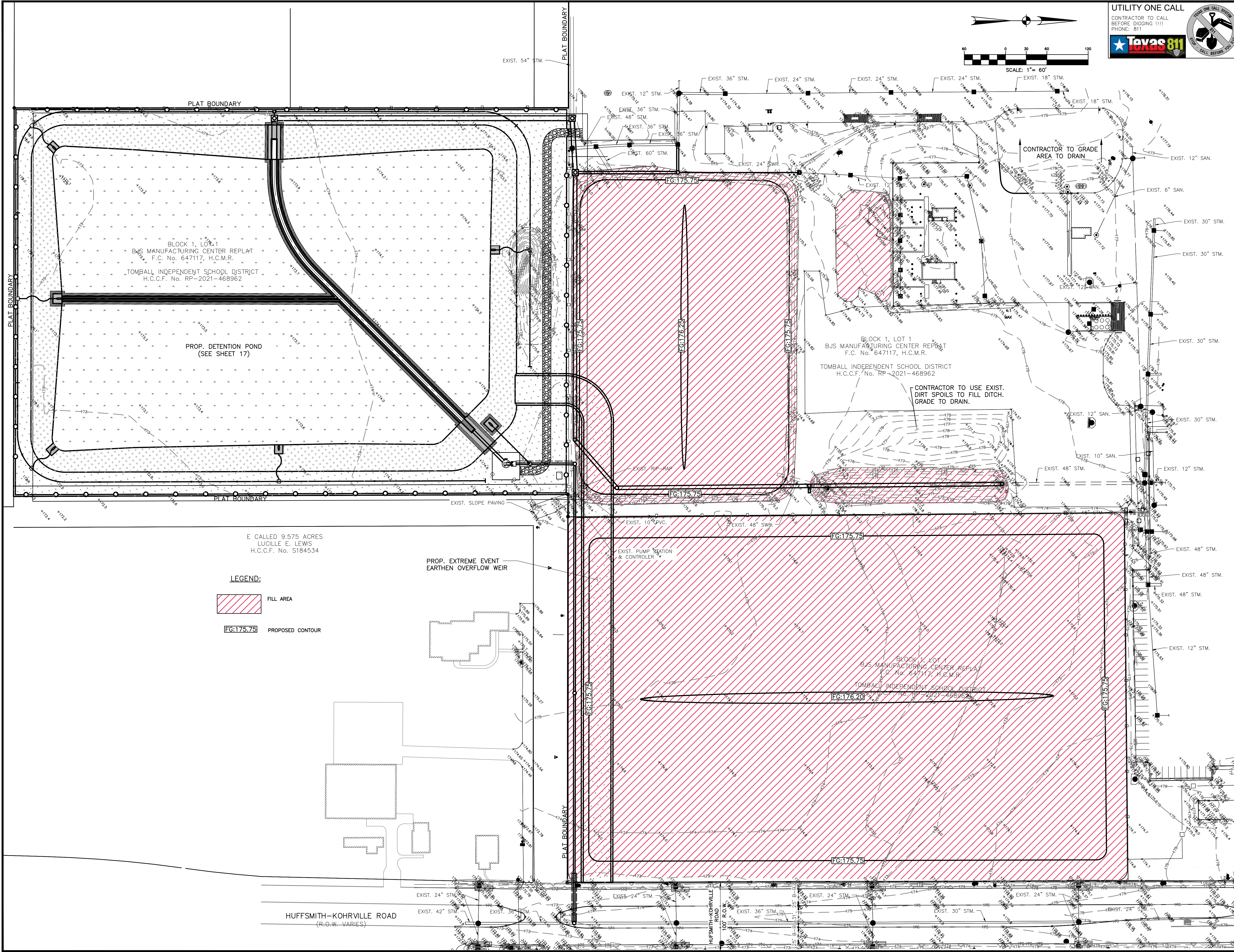
NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
DESIGNED BY: CSM      APPROVED BY: FEB  
PROJECT NO. 866-0018      DATE: 01/04/2024  
SCALE: 1"=100'      SHEET 15 OF 39

04 Jan 2024 12:05PM RobertV  
\\hou-srv05\cadd\project\BROOK\_SP\tomball\isd\8660020-02-lic detention and pump station\Civil\8660020-SAM.dwg  
Includes Xref(s): 866020-X--POND.dwg; 866020-X--BRD.dwg; 866020-X--SEAL.dwg; 866020-X--TEXT.dwg; 866020-X--TOPO.dwg



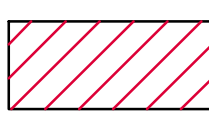
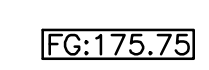
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 Includes Xref(s): 866020-X-POND.dwg; 866020-X-BRD.dwg; 866020-X-SEAL.dwg; 866020-X-TEXT.dwg; 1081523.dwg; 866020-X-TOPO.dwg



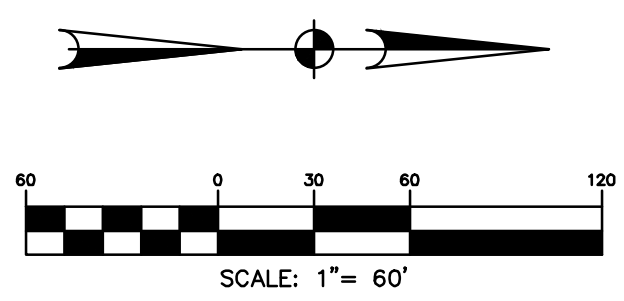
BLOCK 1, LOT 1  
 BJS MANUFACTURING CENTER REPLAT  
 F.C. No. 647117, H.C.M.R.  
 TOMBALL INDEPENDENT SCHOOL DISTRICT  
 H.C.C.F. No. RP-2021-468962

BLOCK 1, LOT 1  
 BJS MANUFACTURING CENTER REPLAT  
 F.C. No. 647117, H.C.M.R.  
 TOMBALL INDEPENDENT SCHOOL DISTRICT  
 H.C.C.F. No. RP-2021-468962

E CALLED 9.575 ACRES  
 LUCILLE E. LEWIS  
 H.C.C.F. No. S184534

**LEGEND:**  
 FILL AREA  
 PROPOSED CONTOUR

HUFFSMITH-KOHRVILLE ROAD  
 (R.O.W. VARIES)



**UTILITY ONE CALL**  
 CONTRACTOR TO CALL BEFORE DIGGING !!!  
 PHONE: 811




**BROOKS & SPARKS, INC.**  
 CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW KATY, TX 77449  
 PHONE: (281) 578-9595  
 FAX: (281) 578-9686

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Date: \_\_\_\_\_  
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BROOKS & SPARKS, INC.  
 F-880  
  
 01/04/2024

TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER

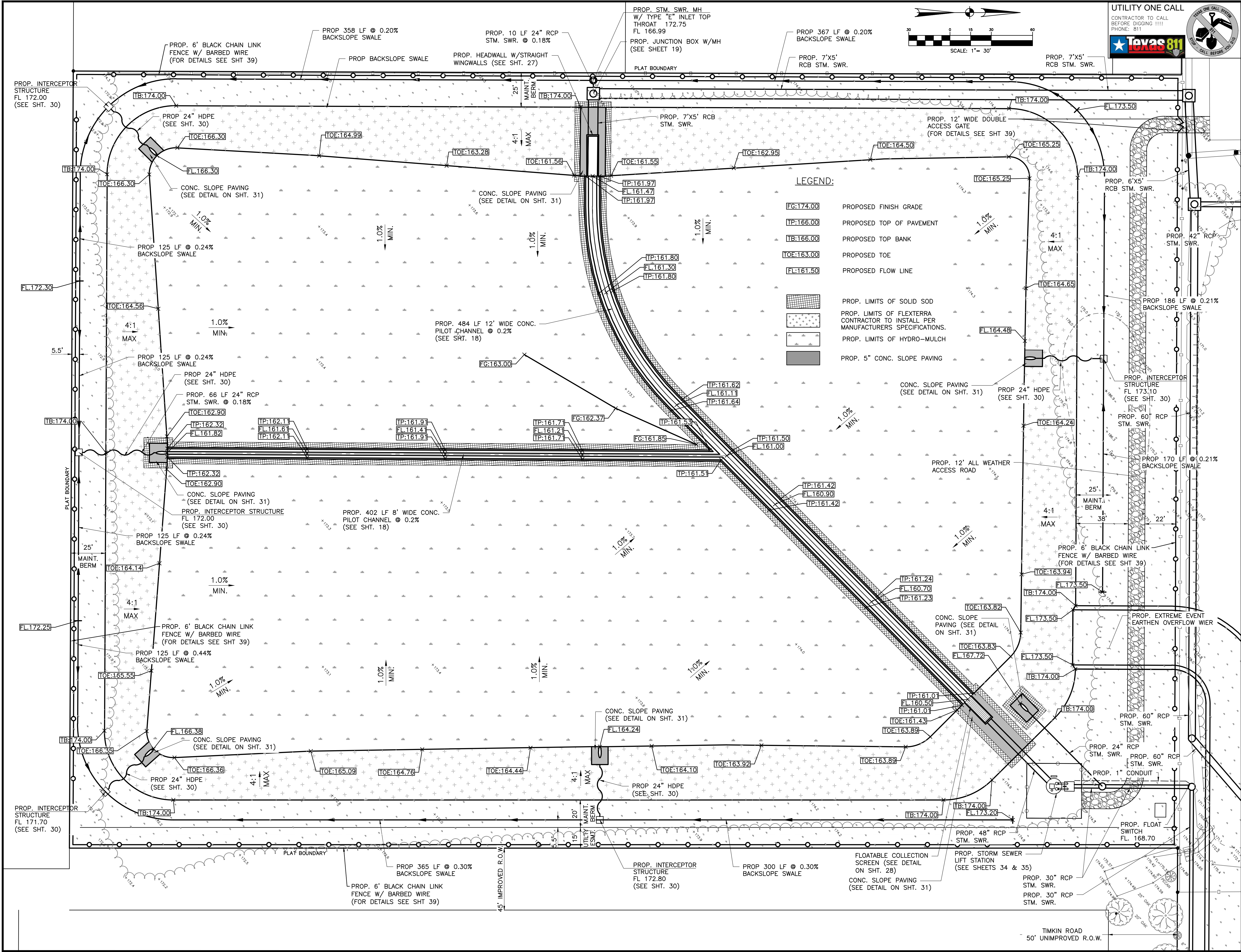
**GRADING PLAN**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: 1"=60'      SHEET 16 OF 39

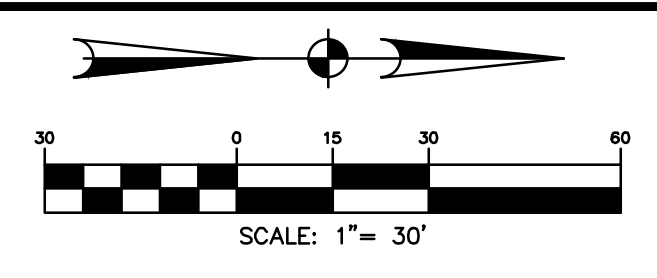


04 Jan 2024 3:57PM RobertV  
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 Includes Xref(s): 866020-X-SEAL.dwg; 866020-X-BRD.dwg; 866020-X-TOP.dwg; 866020-X-TOPO.dwg



**LEGEND:**

- FG:174.00 PROPOSED FINISH GRADE
- TP:166.00 PROPOSED TOP OF PAVEMENT
- TB:166.00 PROPOSED TOP BANK
- TOE:163.00 PROPOSED TOE
- FL:161.50 PROPOSED FLOW LINE
- [Pattern] PROP. LIMITS OF SOLID SOD
- [Pattern] PROP. LIMITS OF FLEXTERRA CONTRACTOR TO INSTALL PER MANUFACTURERS SPECIFICATIONS.
- [Pattern] PROP. LIMITS OF HYDRO-MULCH
- [Pattern] PROP. 5\"/>



**UTILITY ONE CALL**  
 CONTRACTOR TO CALL BEFORE DIGGING !!!  
 PHONE: 811

**BROOKS & SPARKS, INC.**  
 CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW KATY, TX 77449  
 PHONE: (281) 578-8595  
 FAX: (281) 578-9686

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Date:

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 Signature valid for one year.

BROOKS & SPARKS, INC.

**TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER**

**DETENTION BASIN LAYOUT**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: 1"=30'      SHEET 17 OF 39

UTILITY ONE CALL

CONTRACTOR TO CALL BEFORE DIGGING !!!!  
PHONE: 811



**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW  
KATY, TX 77449  
PHONE: (281) 578-9595  
FAX: (281) 578-9686

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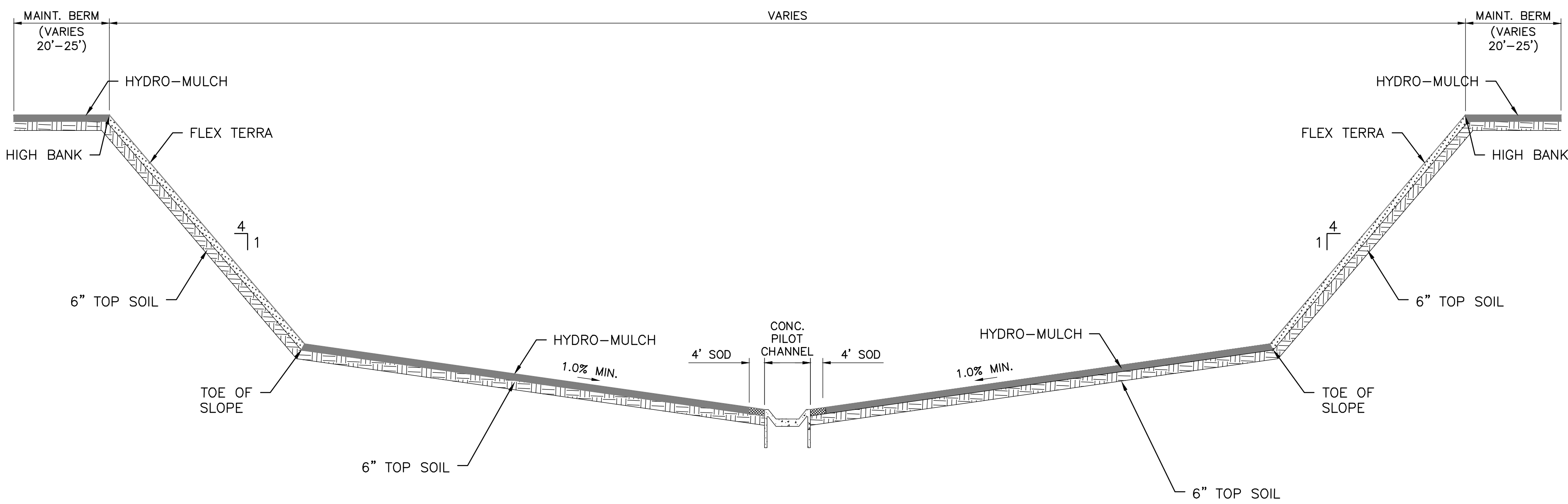
VERIFICATION OF PRIVATE UTILITY LINES

Table with 2 columns: Description and Date. Rows include verification for Gas/Natural Gas Facilities, Electrical Facilities, and AT&T Texas/SWB Underground Conduit Facilities.

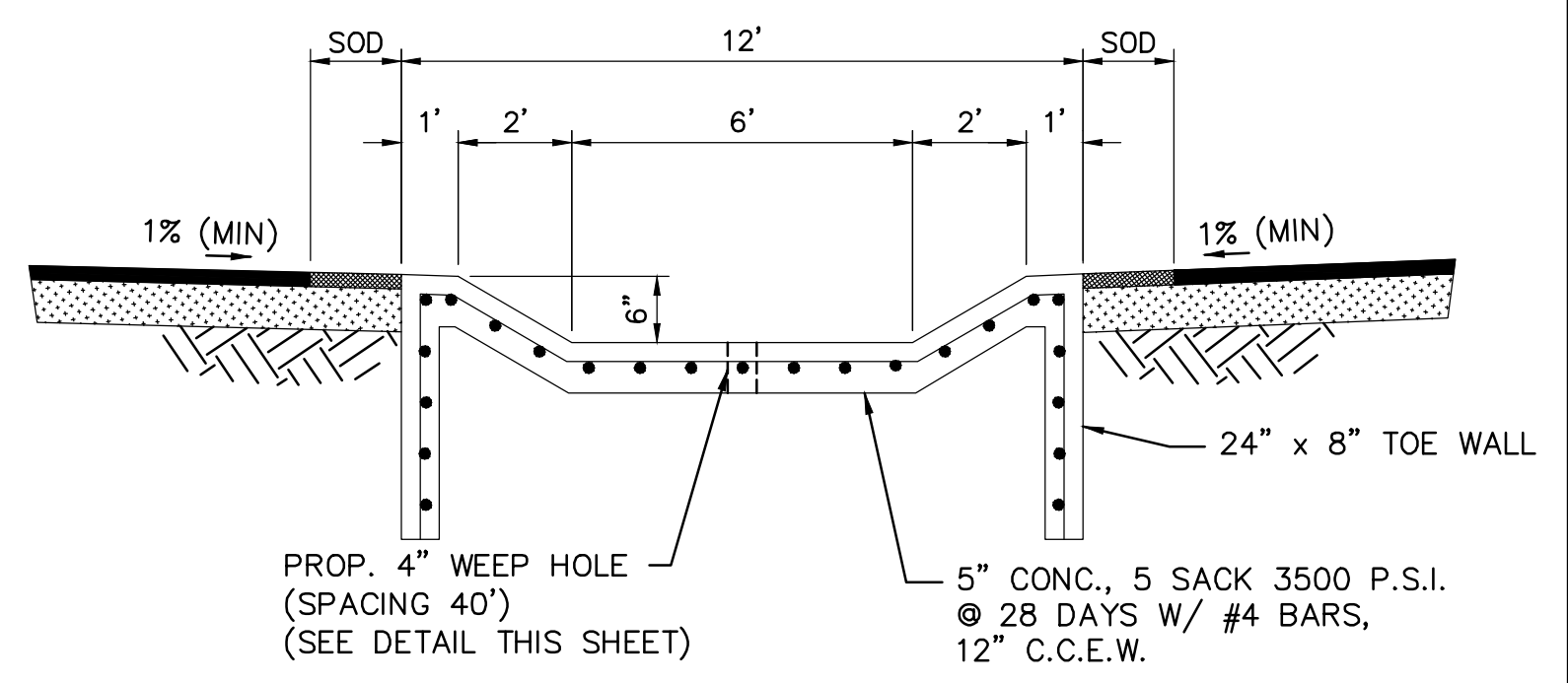
Professional seal for Frank E. Brooks, Registered Professional Engineer, State of Texas, License No. 48225. Signature dated 01/04/2024.

TOMBALL INDEPENDENT SCHOOL DISTRICT  
PLANS FOR  
DETENTION BASIN  
TO SERVE  
TOMBALL INNOVATION CENTER

Table with 4 columns: NO., DATE, REVISIONS, BY. Includes drawing and approval information.

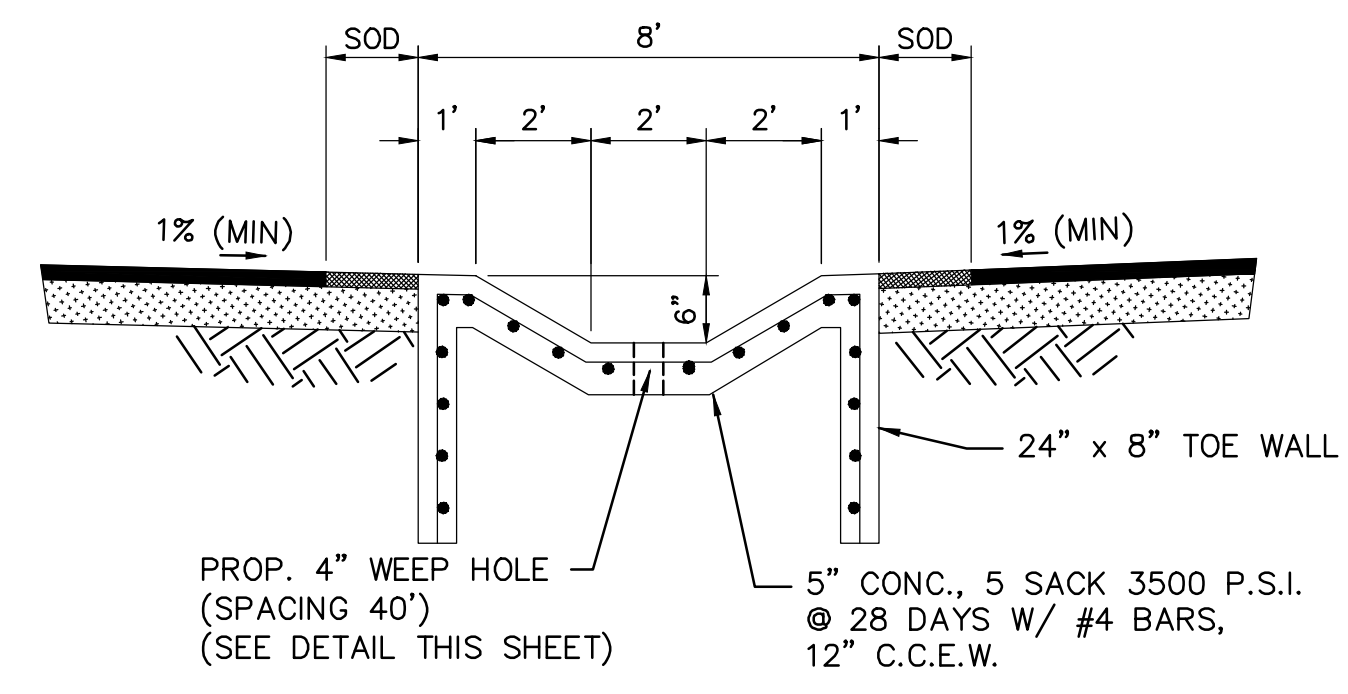


DETENTION BASIN TYPICAL SECTION  
(SECTION A-A)  
N.T.S.



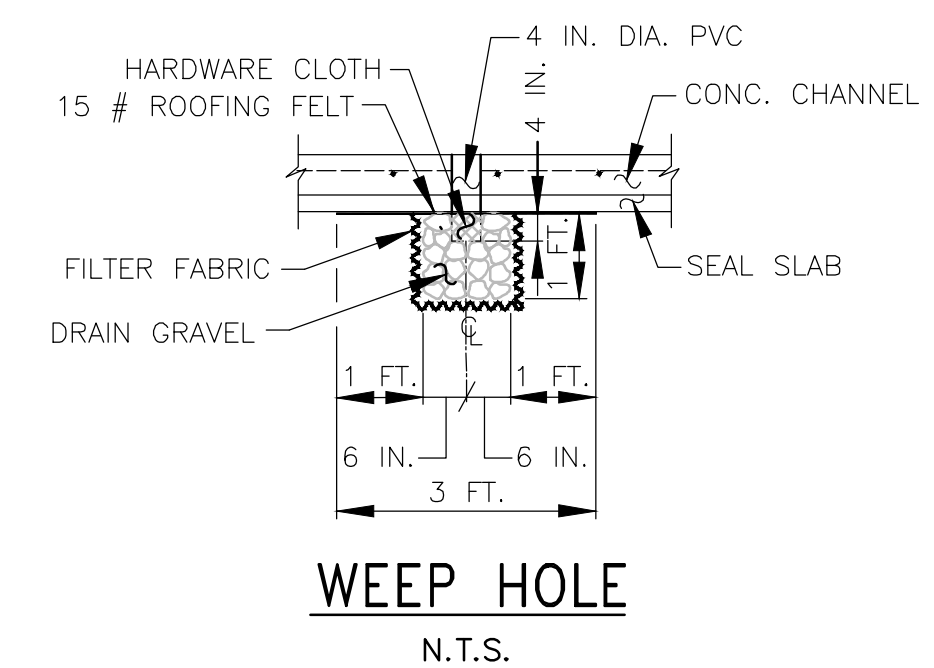
12' PILOT CHANNEL  
N.T.S.

- 1. PROVIDE REDWOOD EXPANSION JOINTS EVERY 40'
- 2. PROVIDE WEEP HOLES EVERY 40'
- 3. PROVIDE CONTROL JOINTS EVERY 10'.



8' PILOT CHANNEL  
N.T.S.

- 1. PROVIDE REDWOOD EXPANSION JOINTS EVERY 40'
- 2. PROVIDE WEEP HOLES EVERY 40'
- 3. PROVIDE CONTROL JOINTS EVERY 10'.



04 Jan 2024 12:07PM RobertV  
\\hou-srv05\CADD\project\BROOK\_SP\tomball\_isd\866020-02-tic detention and pump station\866020-X-SECT\_POND.dwg  
Includes Xref(s): 866020-X- BRD.dwg; 866020-X- SEAL.dwg



04 Jan 2024 12:10PM RobertV  
 \\hou-srv05\cadd\project\BR00K\_SP\tomball\isd\8660020-02-tic detention and pump station\Civil\8660020-PP01.dwg  
 Includes Xref(s): 866020-X-SEAL.dwg; 866020-X-BRD.dwg; 866020-X-TEXT.dwg; 866020-X-TOPO.dwg


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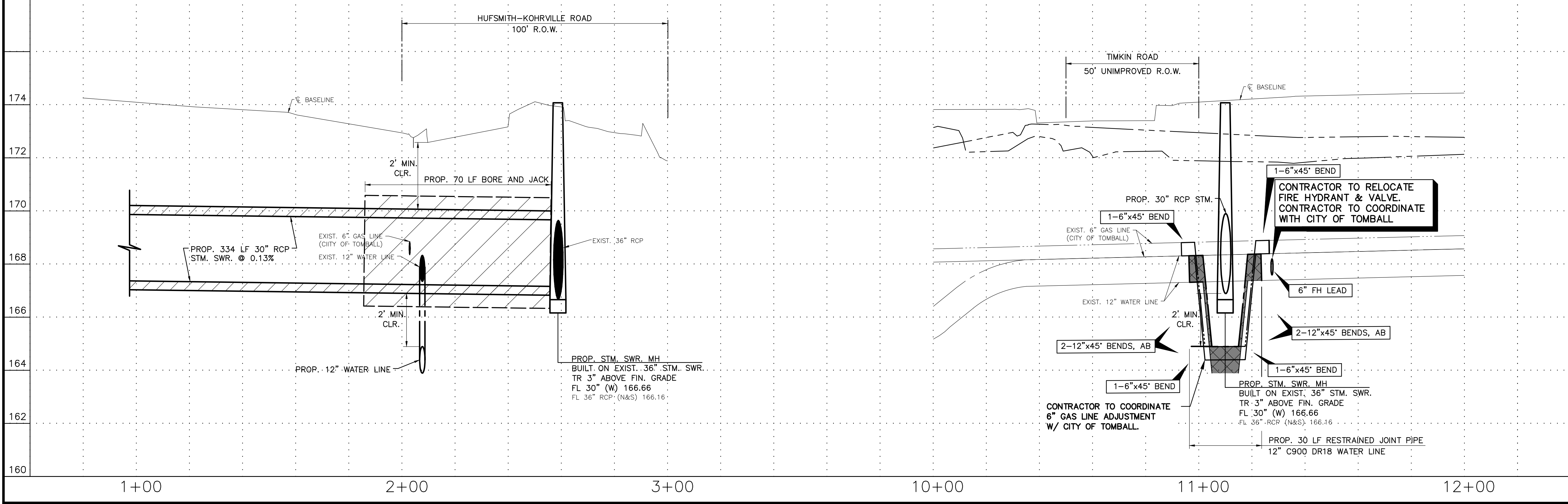
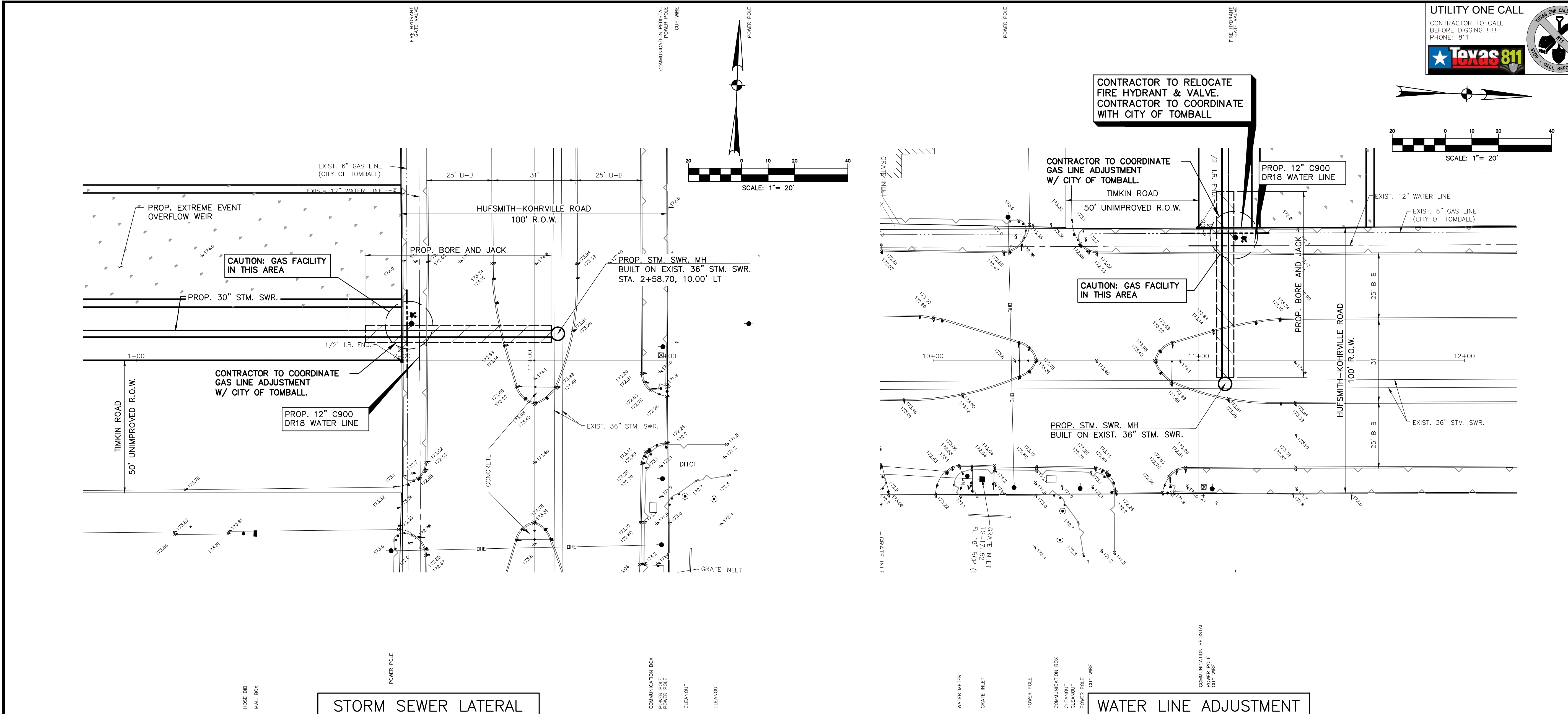
**BROOKS & SPARKS, INC.**  
 F-880  
  
 FRANK E. BROOKS  
 48225  
 REGISTERED PROFESSIONAL ENGINEER  
 01/04/2024

**TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER**

**STORM SEWER LATERAL &  
 WATER LINE ADJUSTMENT  
 PLAN AND PROFILE**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: 1"=20'      SHEET 20 OF 39



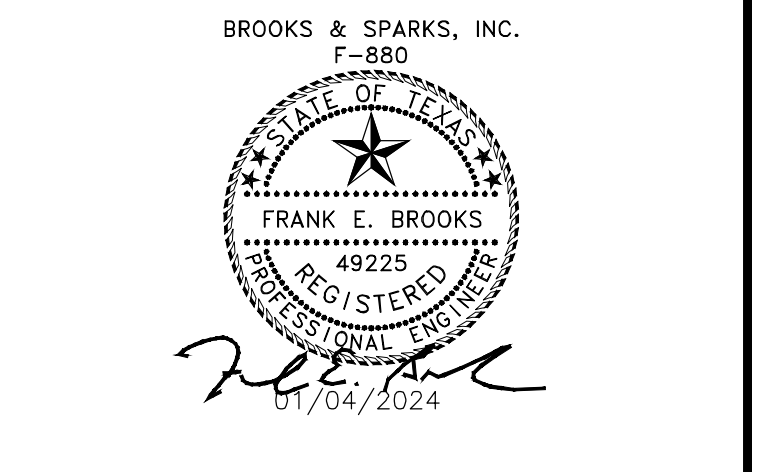
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This flood statement does not imply that the property or structures thereon will be free from flooding or flood damage. On rare occasions floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.
- Research for Adjoiner Tracts was performed by Quidity Engineering on June 1, 2022.
- The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
- Elevations shown hereon are based on Harris County Floodplain Reference Mark No. 120170 located along the northeast right-of-way of FM 2920 approximately 110 feet from its intersection with Stuebner Airline Road with a published elevation of 154.74 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark A being a 1000 nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark B being a MAG nail and shiner set in a wheelchair ramp at the southwest corner of the intersection of FM 2920 and Hufsmith-Kohrville Road and further shown hereon.  
Elevation = 177.95 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark C being a MAG nail set at the bulnose of a median along the centerline of Hufsmith-Kohrville Road and further shown hereon.  
Elevation = 174.29 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark D being a 1000 nail set in concrete at the southwest corner of the subject tract and further shown hereon.  
Elevation = 175.67 feet, NAVD 88, 2001 Adjustment.
- Visible improvements/utilities were located with this survey; no subsurface probing, excavation or exploration was performed for this survey.

NOTE: THE LOCATIONS OF THE PRIVATE UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE ALSO ACCEPTS FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UTILITIES.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.  
 NOTICE:  
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DO SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

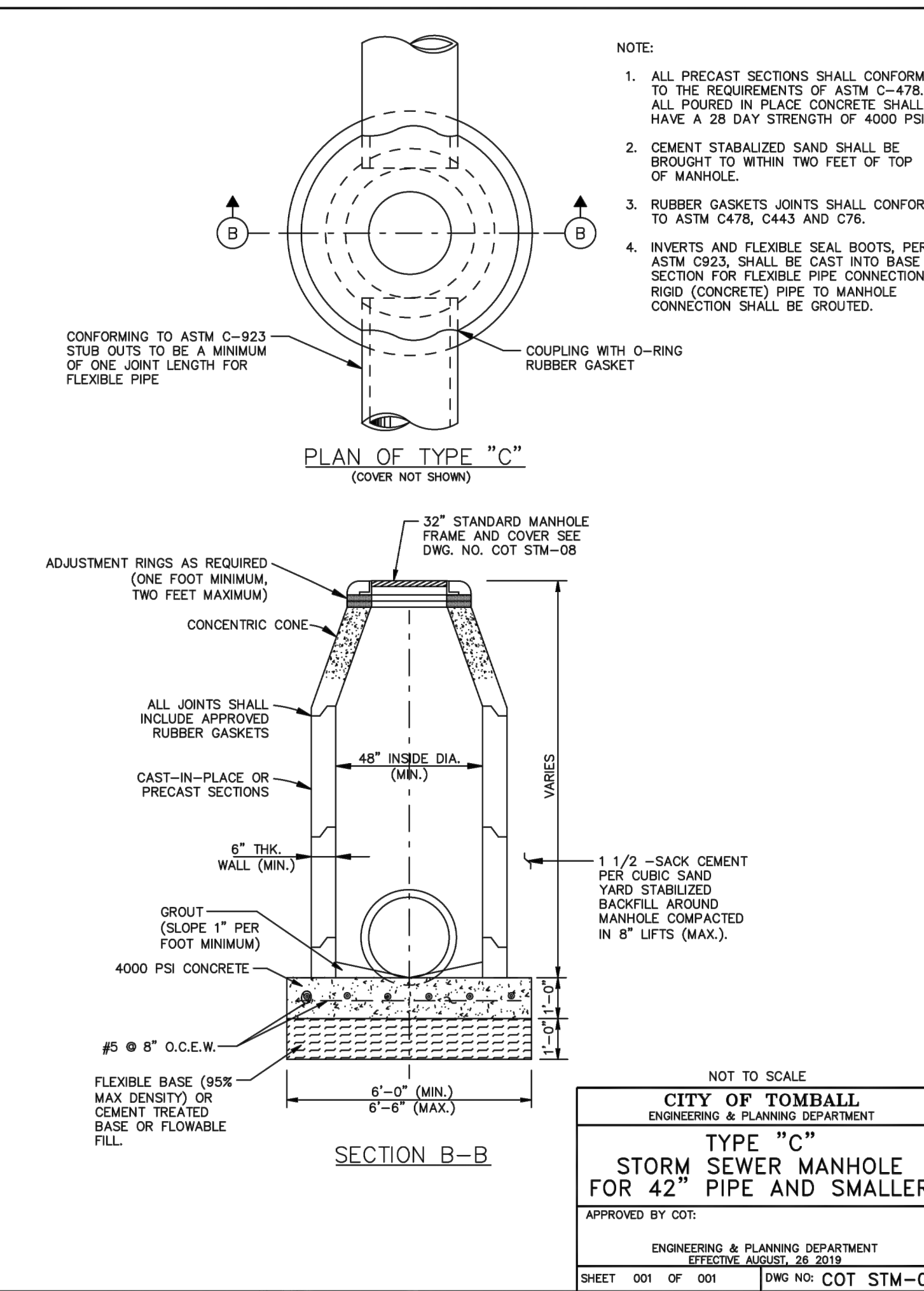
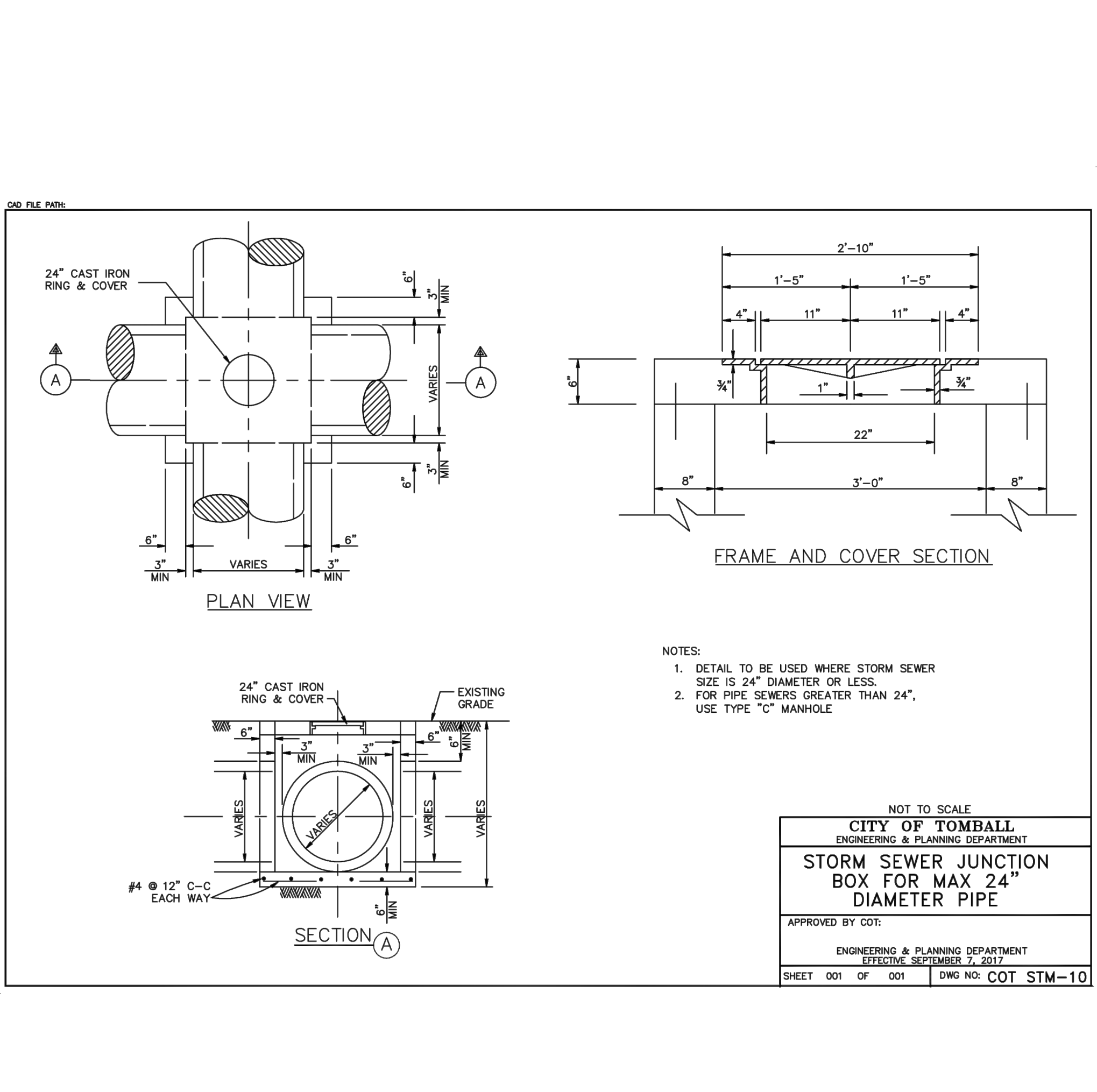
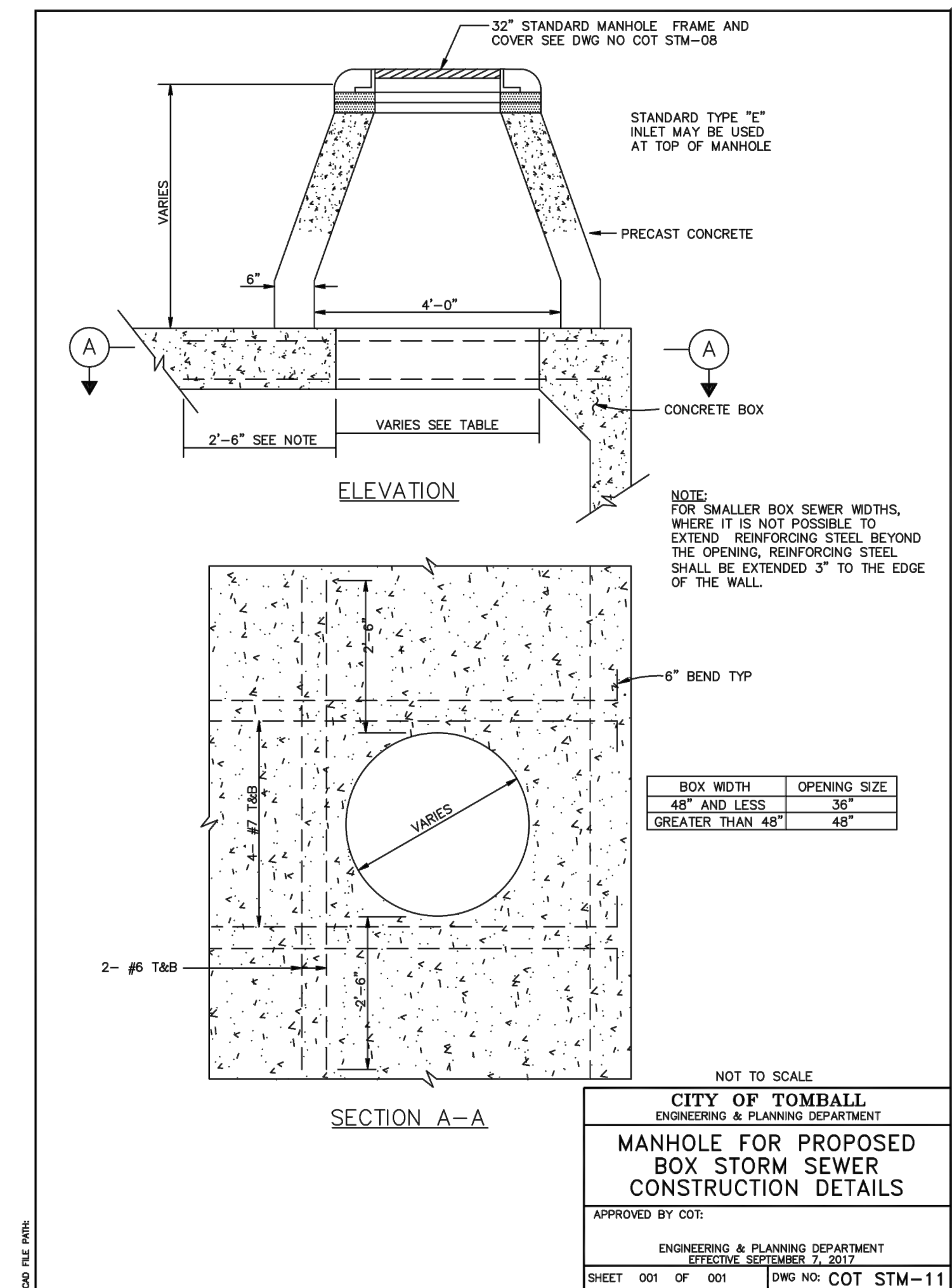
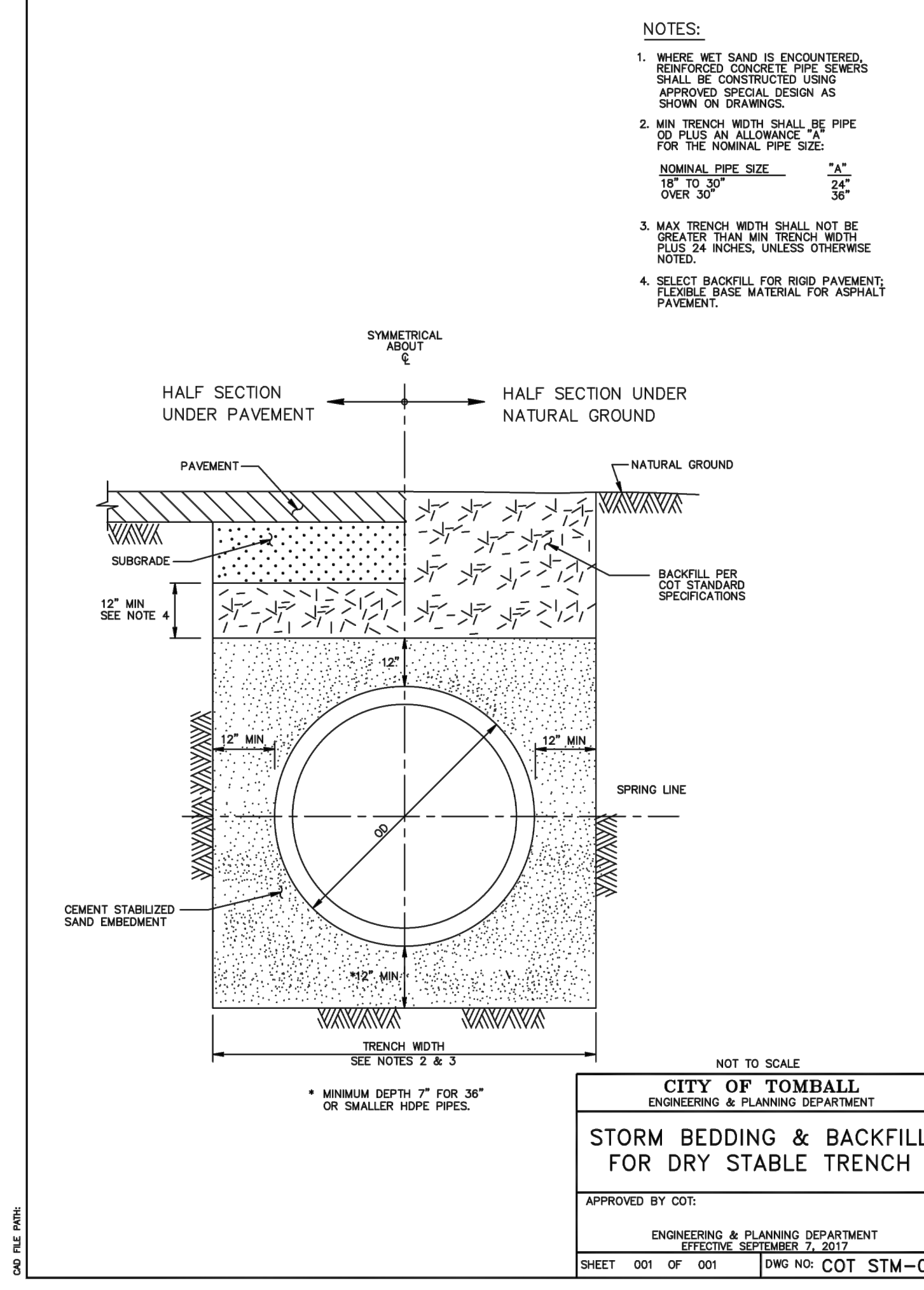
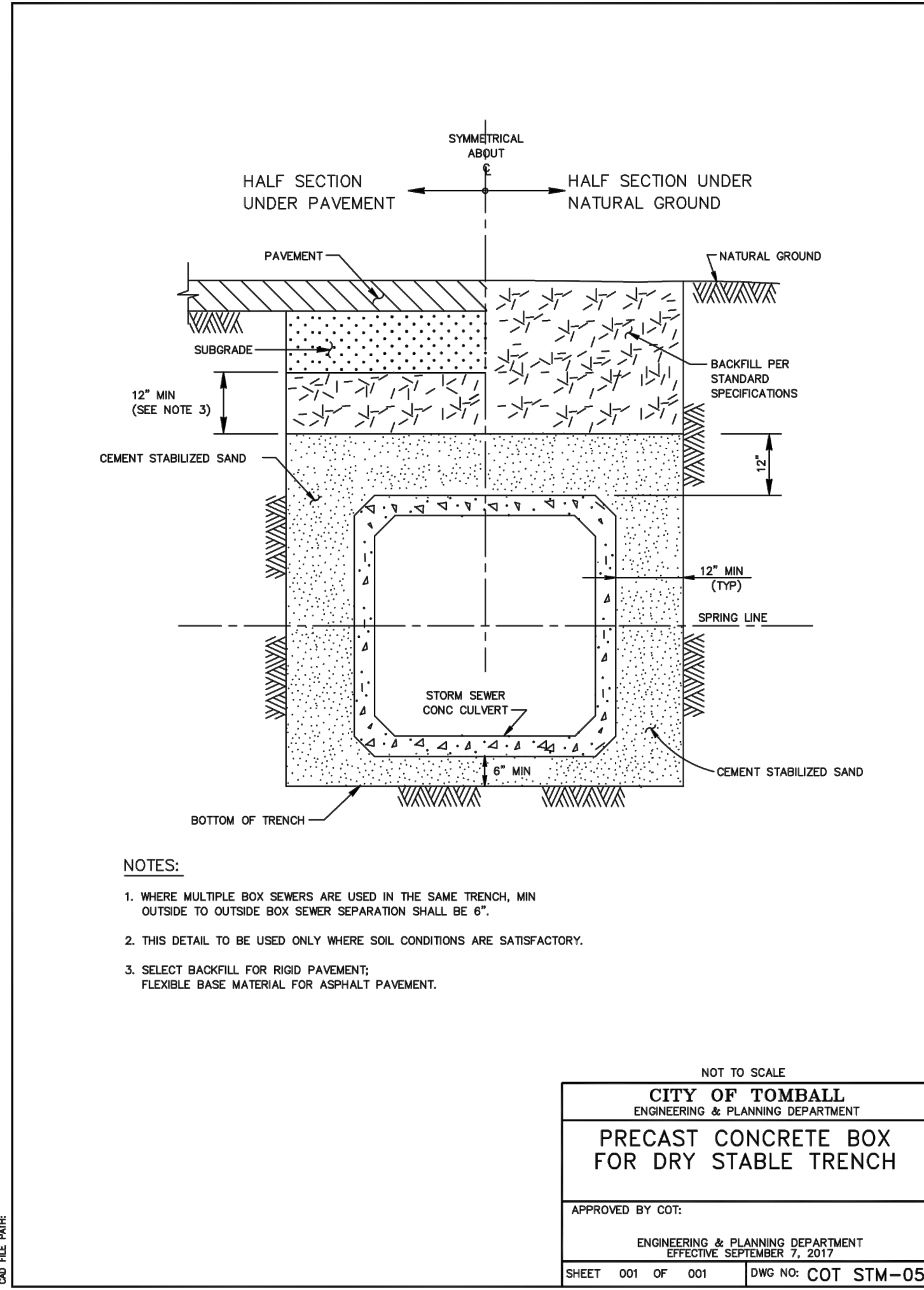
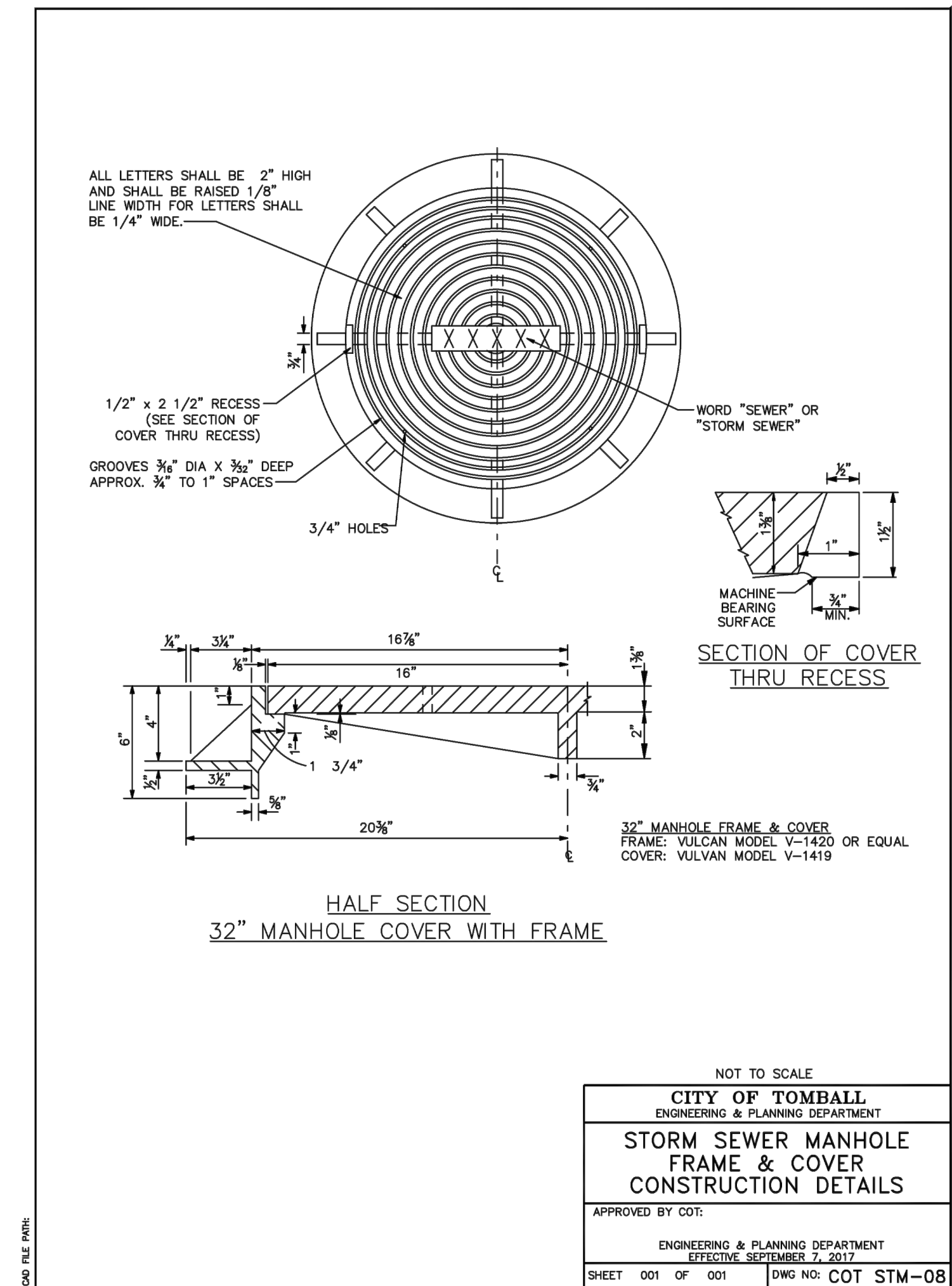
VERIFICATION OF PRIVATE UTILITY LINES	
DATE	BY
CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown CAP Natural Gas lines correctly, but to be used for contract verification! Gas service lines are not shown.) Signature valid for six months.	
CenterPoint Energy/AIRGROUND Electric Facilities Verification ONLY. (This Signature verifies that existing underground facilities, but to be used for contract verification! Signature valid for six months.)	
APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. Signature valid for one year.	



**TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER**

**STORM SEWER DETAILS  
 (SHEET 1 OF 2)**

NO.	DATE	REVISIONS	BY
DRAWN BY: RV	CHECKED BY: CSM, JAE		
DESIGNED BY: CSM	APPROVED BY: FEB		
PROJECT NO. 866-0018	DATE: 01/04/2024		
SCALE: N/A	SHEET 21 OF 39		



04 Jun 2024 12:10PM RobertV  
 \\hou-srv05\cadd\project\BROOK\_SP\tomball\_isd\8660020-02-tic detention and pump station\Civil\8660020-COT-STM SWR DETAILS.dwg  
 Includes Xref(s): 866020-X-BRD.dwg; 866020-X-SEAL.dwg

- GENERAL NOTES:**
- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quiditty Engineering.
  - This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
  - According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).
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VERIFICATION OF PRIVATE UTILITY LINES	
Date:	Signature:

BROOKS & SPARKS, INC.  
 F-880

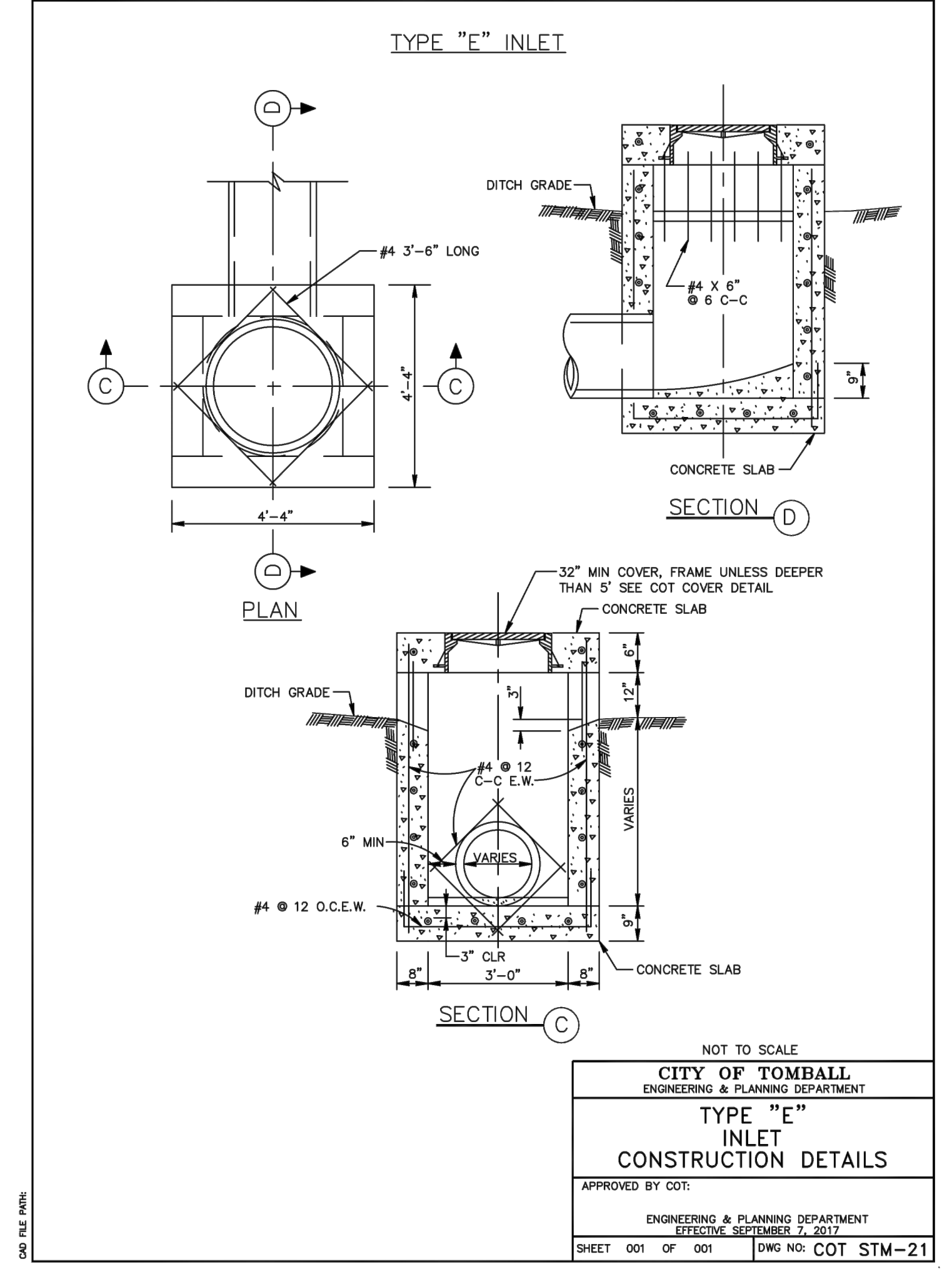
STATE OF TEXAS  
 FRANK E. BROOKS  
 49225  
 REGISTERED PROFESSIONAL ENGINEER  
 01/04/2024

TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER

STORM SEWER DETAILS  
 (SHEET 2 OF 2)

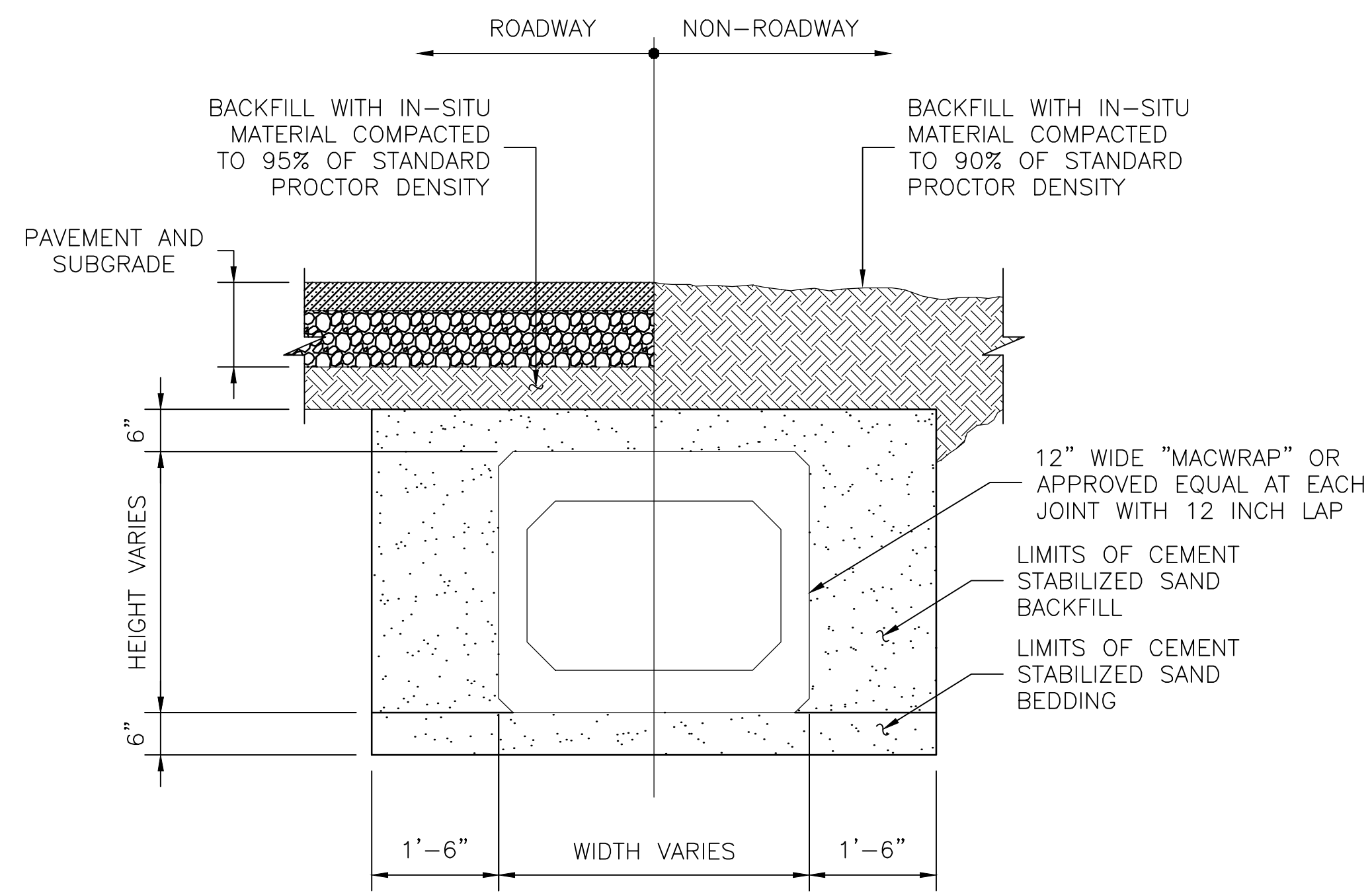
NO.	DATE	REVISIONS	BY

DRAWN BY: RV	CHECKED BY: CSM, JAE
DESIGNED BY: CSM	APPROVED BY: FEB
PROJECT NO. 866-0018	DATE: 01/04/2024
SCALE: N/A	SHEET 22 OF 39

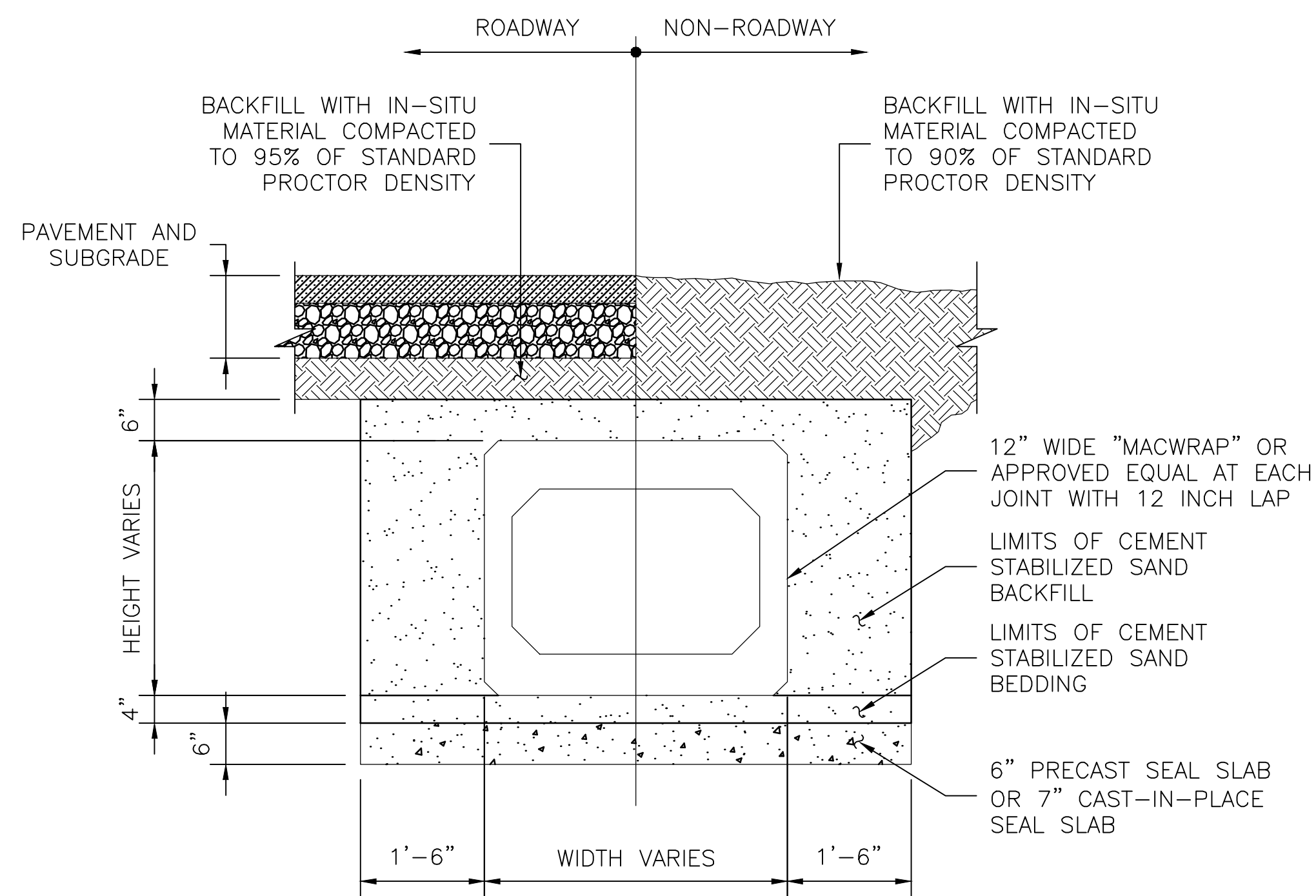


04 Jan 2024 12:10PM RobertV  
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 Includes Xref(s): 866020-X- BRD.dwg; 866020-X-SEAL.dwg

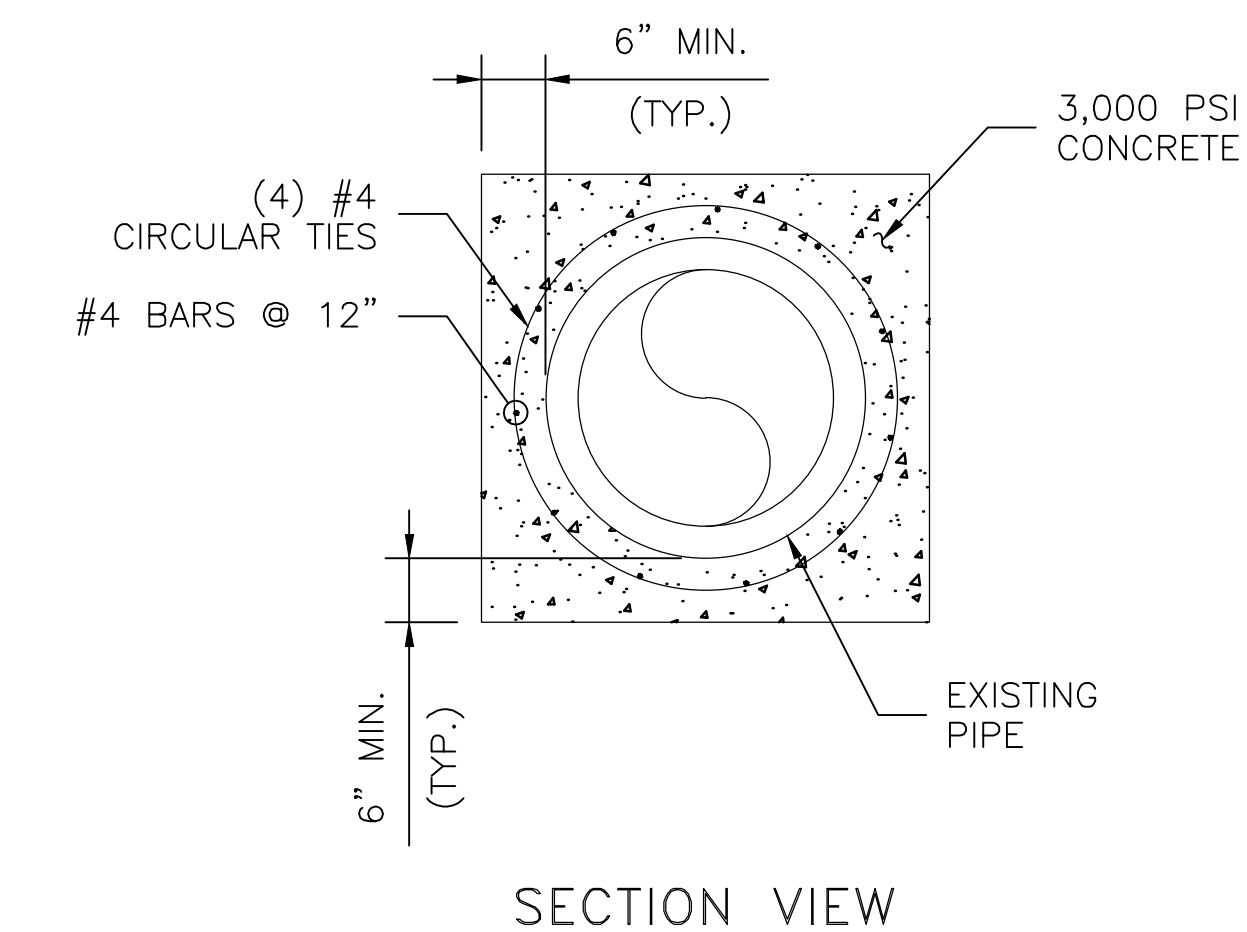
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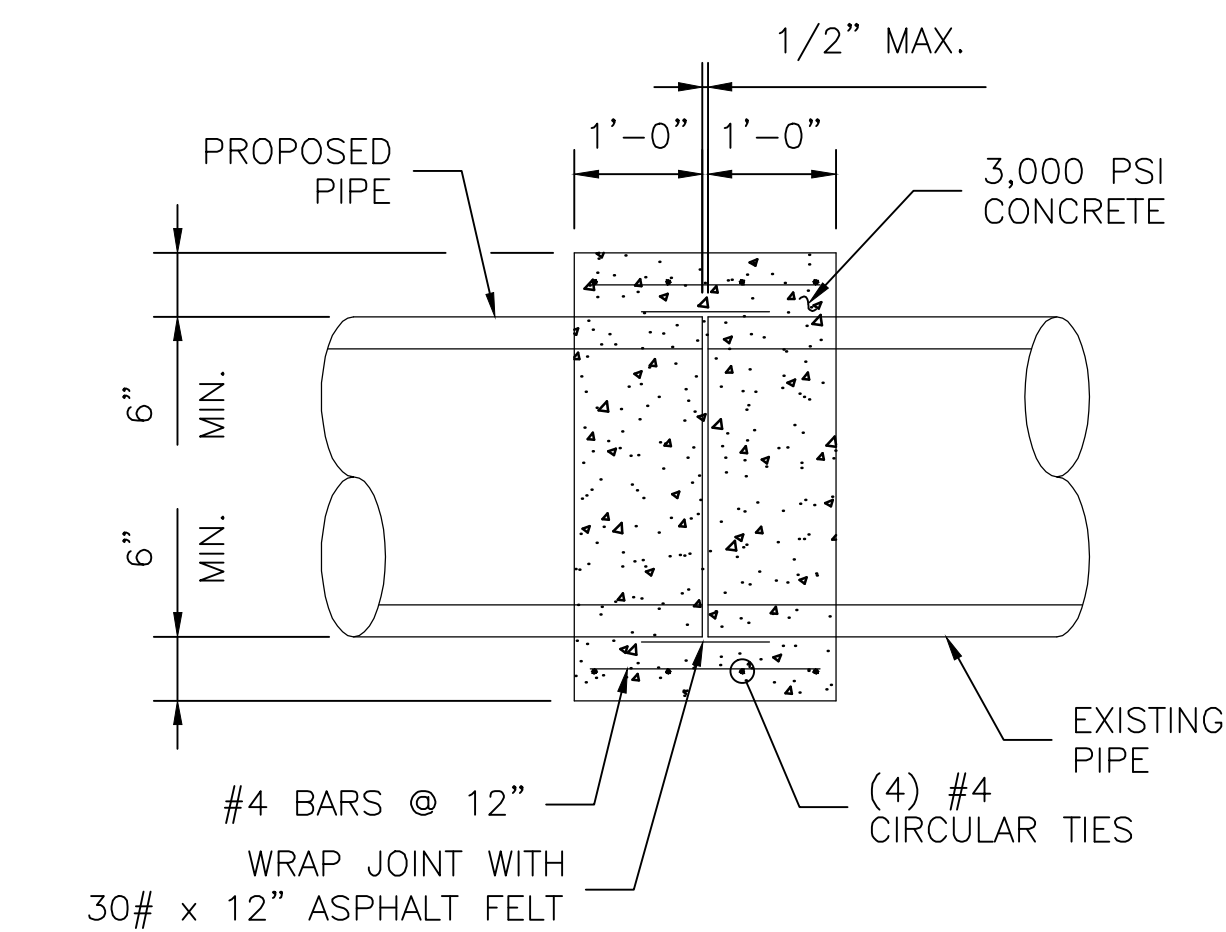
PRECAST REINFORCED CONCRETE BOX



PRECAST REINFORCED CONCRETE BOX WITH SEAL SLAB



SECTION VIEW

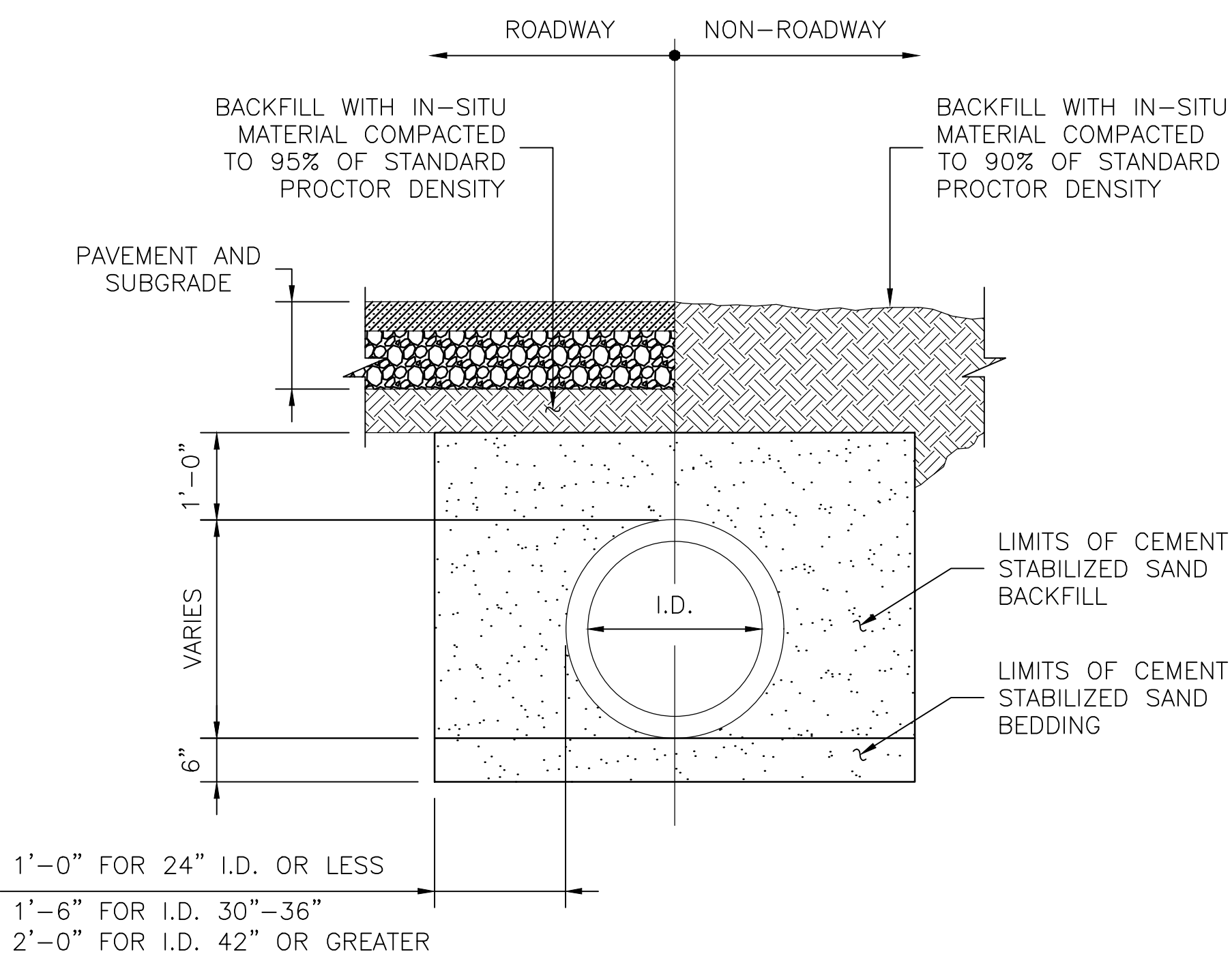


ELEVATION VIEW

TYPICAL CONCRETE COLLAR FOR 36" & SMALLER RCP

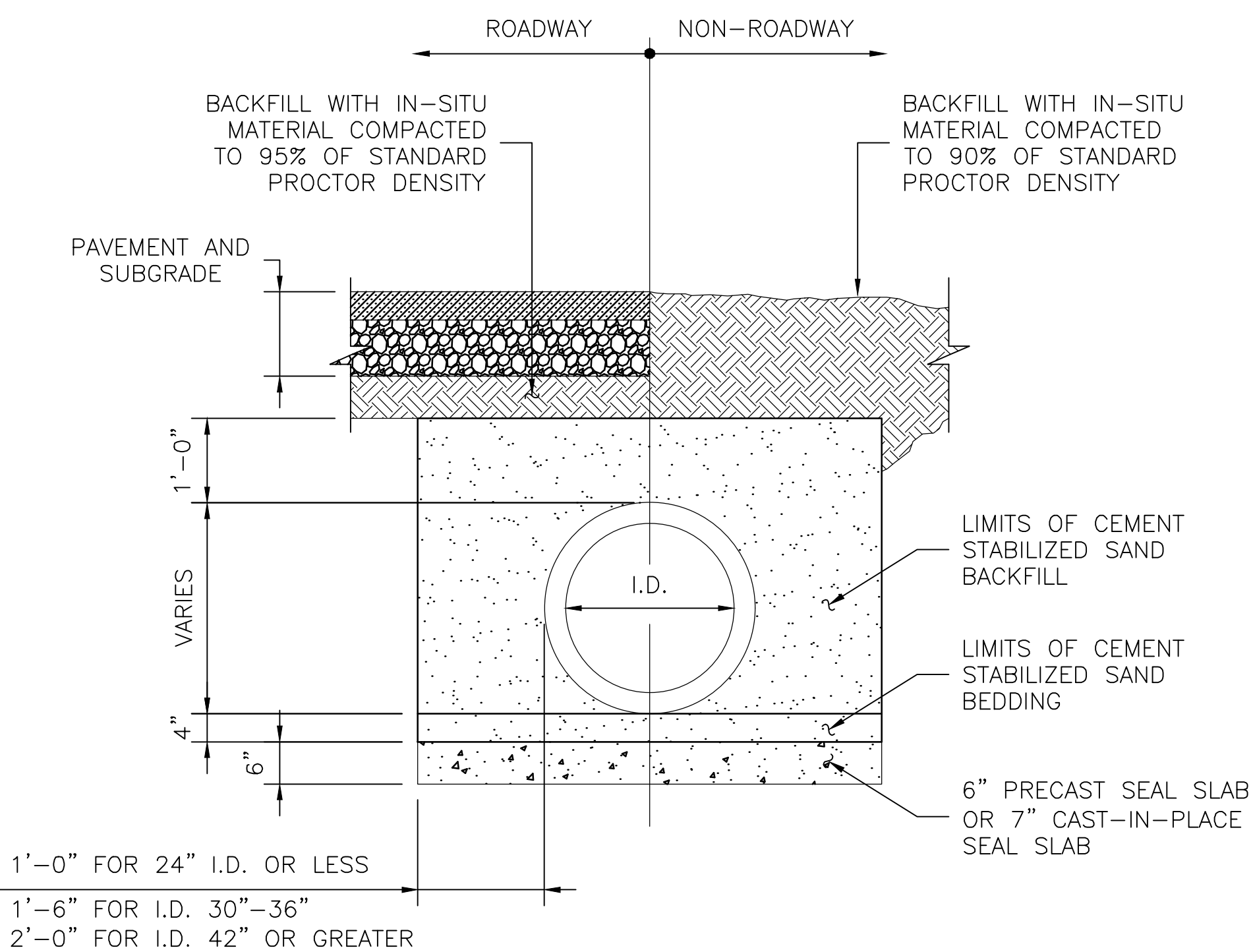
GENERAL NOTES:

- FOR RCP LARGER THAN 36" DIAMETER, CONCRETE COLLARS MUST BE DESIGNED BY THE ENGINEER OF RECORD.



REINFORCED CONCRETE PIPE

- 1'-0" FOR 24" I.D. OR LESS
- 1'-6" FOR I.D. 30"-36"
- 2'-0" FOR I.D. 42" OR GREATER

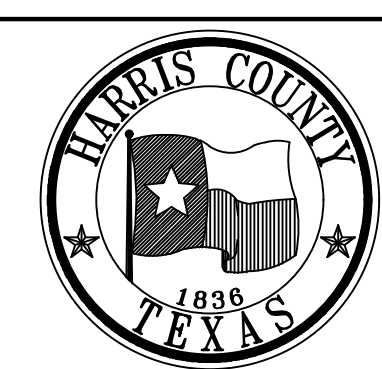


REINFORCED CONCRETE PIPE WITH SEAL SLAB

- 1'-0" FOR 24" I.D. OR LESS
- 1'-6" FOR I.D. 30"-36"
- 2'-0" FOR I.D. 42" OR GREATER

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY  
ENGINEERING DEPARTMENT

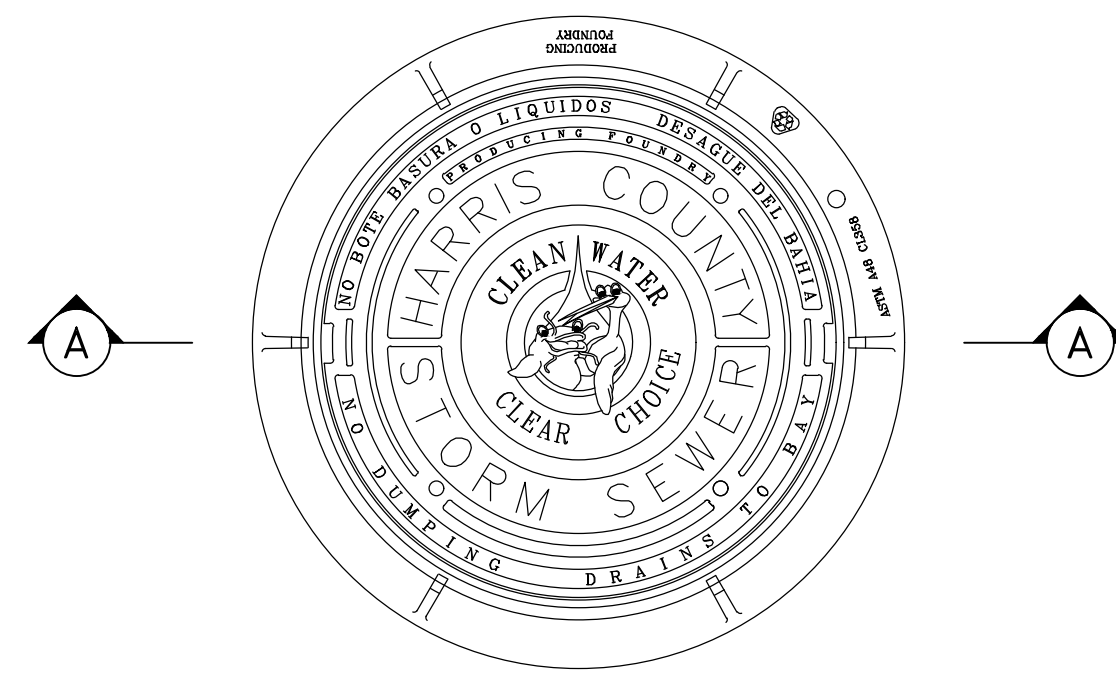


**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW  
KATY, TX 77449  
PHONE: (281) 578-9595  
FAX: (281) 578-9686

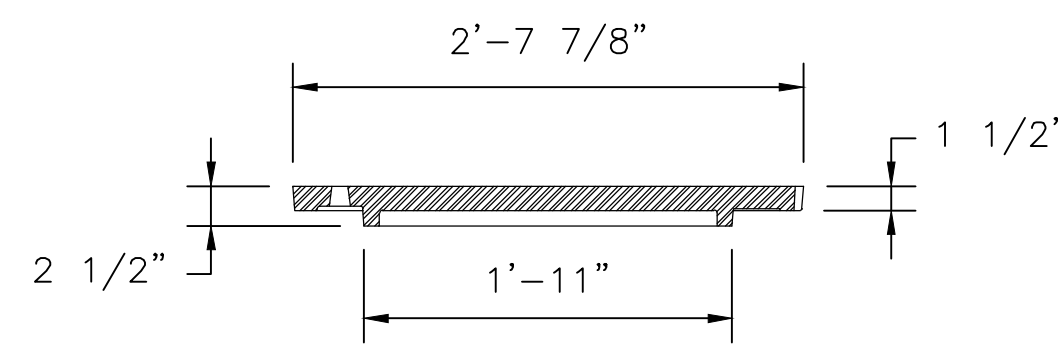


PROJECT TITLE:		TOMBALL I.S.D.	
SHEET DESCRIPTION:		TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER	
DRAWN BY:		DATE:	
JDZ		8/15/17	
CK'D BY:		SHEET NO.:	
PDG		23 / 39	
SCALE:		1" = 1'-6"	

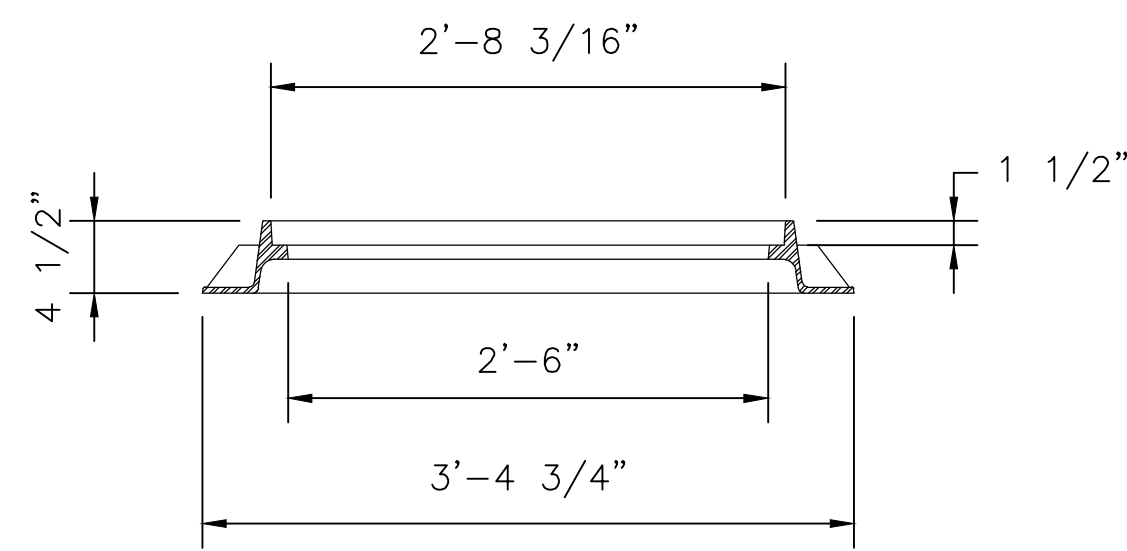
5/16/2024



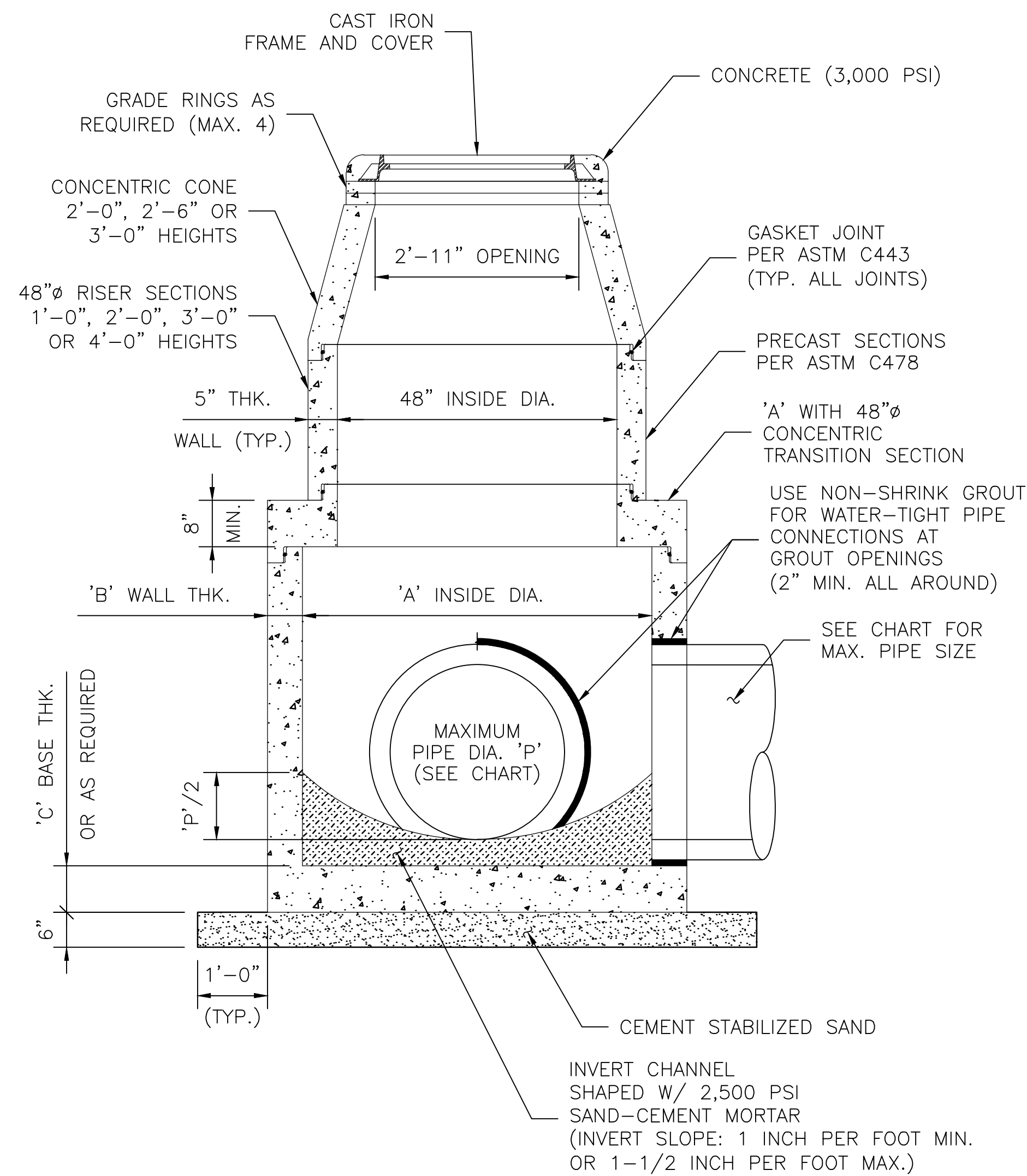
PLAN VIEW  
FRAME AND COVER  
SCALE: 1" = 1'-0"



COVER SECTION A-A  
SCALE: 1" = 1'-0"

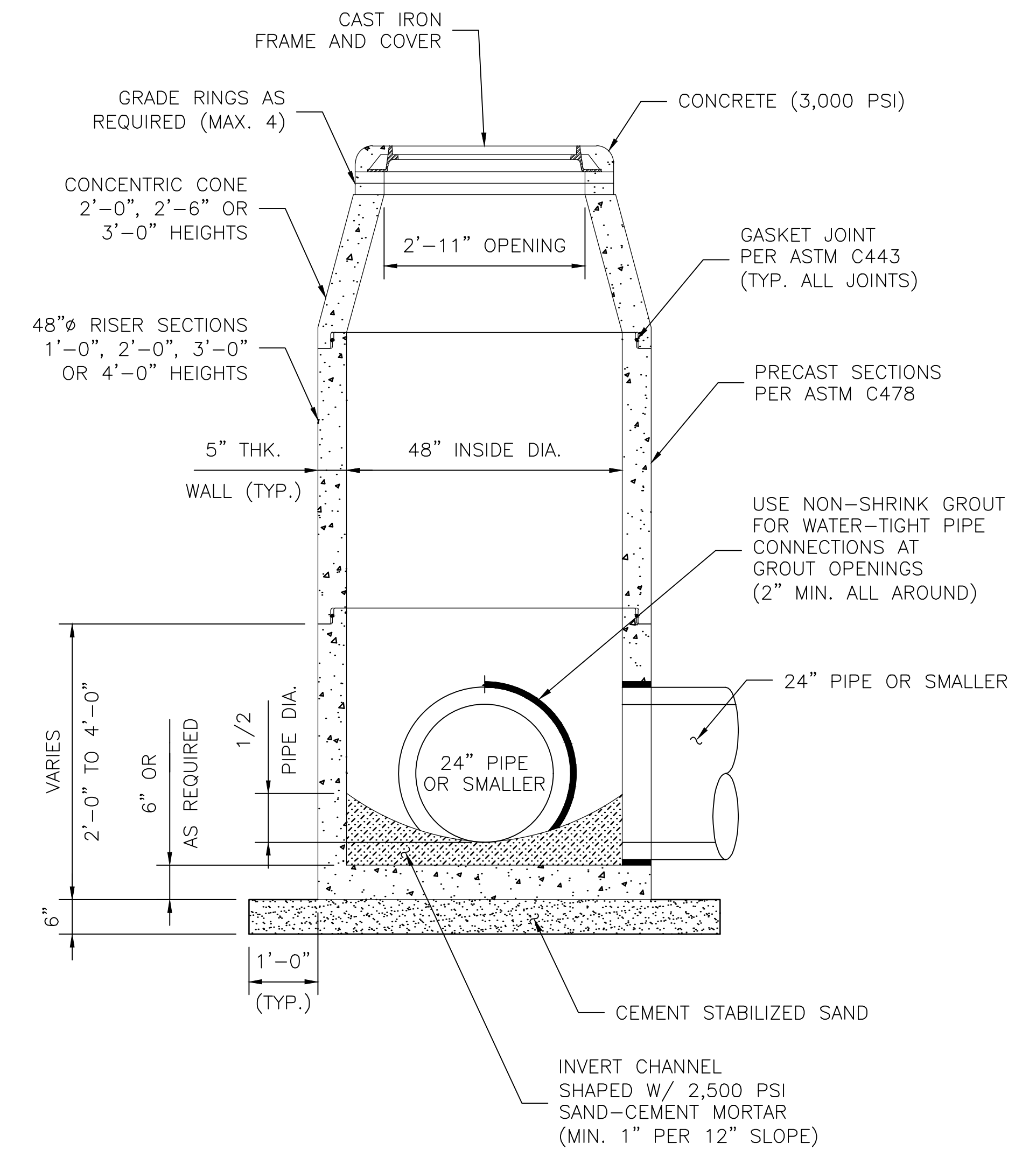


FRAME SECTION A-A  
SCALE: 1" = 1'-0"



PRECAST CONCENTRIC MANHOLE  
FOR PIPE SIZES GREATER THAN 24"  
SCALE: 1" = 1'-6"

MAXIMUM PIPE DIA. 'P'	INSIDE DIA. 'A'	MIN. WALL THICKNESS 'B'	MIN. BASE THICKNESS 'C'
30"	60"	6"	8"
42"	72"	7"	8"
54"	84"	8"	10"
60"	96"	9"	10"



48"Ø PRECAST CONCENTRIC MANHOLE  
FOR PIPE SIZES 24" OR SMALLER  
SCALE: 1" = 1'-6"

GENERAL NOTES:

- CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 471 "PRECAST CONCRETE MANHOLES".
- CONCRETE FOR MANHOLE: MINIMUM 4,000 PSI IN 28 DAYS.
- HL-93 LOADING; MANHOLE DESIGN SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.
- GASKET JOINT: PER ASTM C443
- FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1420 OR APPROVED EQUAL.
- SHOP DRAWINGS WITH MANUFACTURER'S CERTIFICATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.

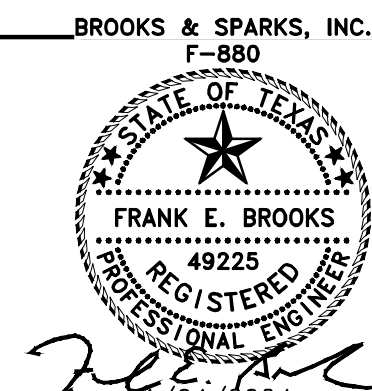
\\hou-srv05\cadd\project\BROOK\_SP\tomball\_isd\8660020-02-fic detention and pump station\Civil\866-0020-DT-PMH.dwg

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY  
ENGINEERING DEPARTMENT



**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW  
KATY, TX 77449  
PHONE: (281) 578-9595  
FAX: (281) 578-9686



PROJECT TITLE:		TOMBALL I.S.D.	
TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR		CIVIL STANDARD	
DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER		PMH	
SHEET DESCRIPTION:		PRECAST CONCRETE STORM SEWER	
DRAWN BY:	JDZ	DATE:	8/15/17
CK'D BY:	PDG	SHEET NO.:	24 / 39
SCALE:	AS NOTED		

01/04/2024



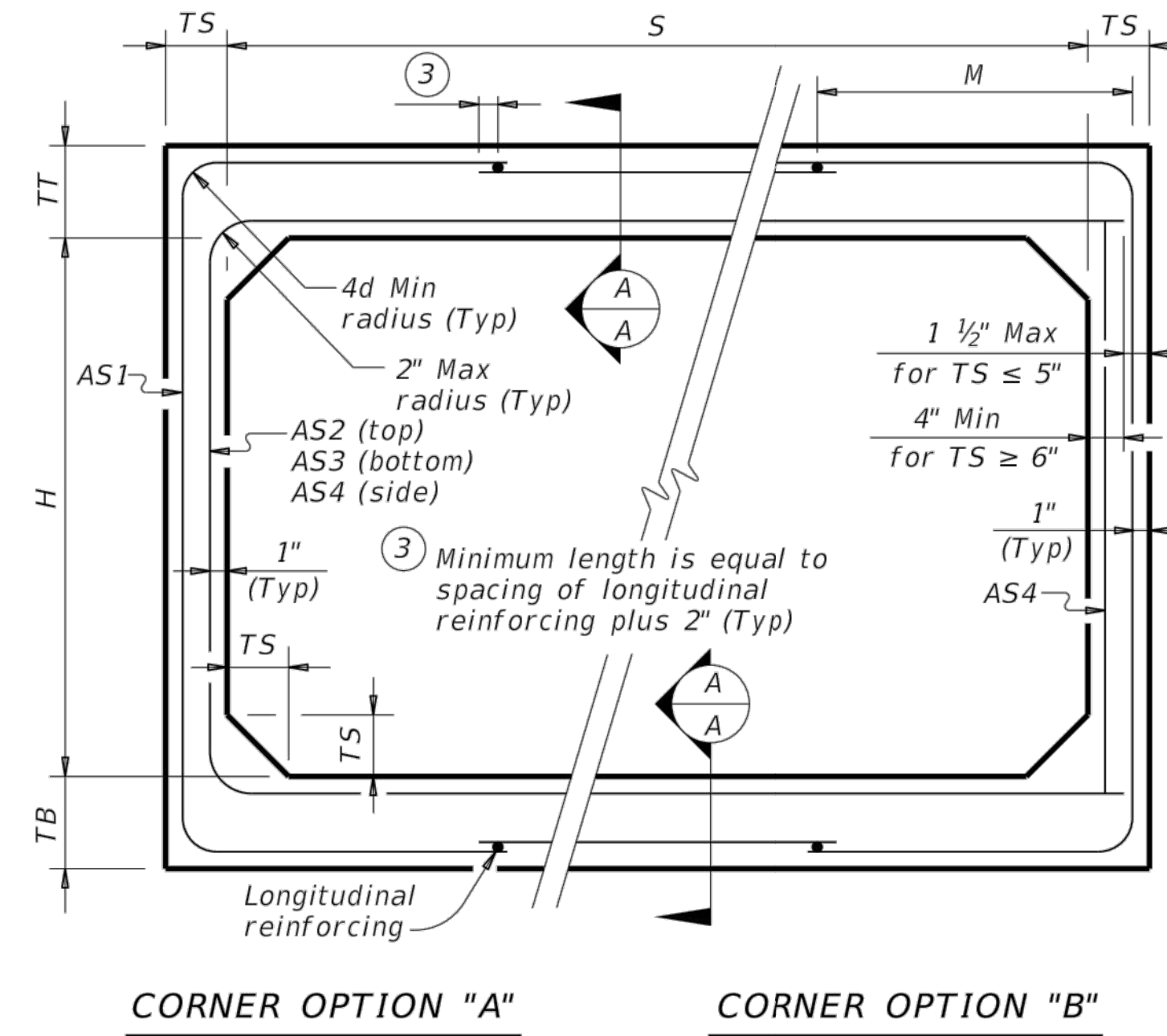
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**BOX DATA**

SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) <sup>②</sup>								① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8		
6	2	8	7	7	< 2	-	0.23	0.27	0.19	0.17	0.19	0.19	0.17	7.2	
6	2	7	7	7	2 < 3	43	0.25	0.21	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	3 - 5	43	0.20	0.17	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	10	39	0.20	0.17	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	15	39	0.26	0.20	0.20	0.17	-	-	-	6.8	
6	2	7	7	7	20	39	0.34	0.26	0.26	0.17	-	-	-	6.8	
6	2	7	7	7	25	39	0.43	0.32	0.32	0.17	-	-	-	6.8	
6	2	7	7	7	30	39	0.52	0.38	0.39	0.17	-	-	-	6.8	
6	3	8	7	7	< 2	-	0.20	0.31	0.22	0.17	0.19	0.19	0.17	7.9	
6	3	7	7	7	2 < 3	43	0.21	0.24	0.19	0.17	-	-	-	7.5	
6	3	7	7	7	3 - 5	39	0.17	0.18	0.17	0.17	-	-	-	7.5	
6	3	7	7	7	10	39	0.17	0.18	0.19	0.17	-	-	-	7.5	
6	3	7	7	7	15	38	0.22	0.24	0.24	0.17	-	-	-	7.5	
6	3	7	7	7	20	38	0.28	0.31	0.31	0.17	-	-	-	7.5	
6	3	7	7	7	25	38	0.35	0.38	0.39	0.17	-	-	-	7.5	
6	3	7	7	7	30	38	0.42	0.46	0.46	0.17	-	-	-	7.5	
6	4	8	7	7	< 2	-	0.19	0.34	0.25	0.17	0.19	0.19	0.17	8.6	
6	4	7	7	7	2 < 3	43	0.19	0.27	0.21	0.17	-	-	-	8.2	
6	4	7	7	7	3 - 5	39	0.17	0.21	0.19	0.17	-	-	-	8.2	
6	4	7	7	7	10	39	0.17	0.20	0.21	0.17	-	-	-	8.2	
6	4	7	7	7	15	38	0.18	0.27	0.27	0.17	-	-	-	8.2	
6	4	7	7	7	20	38	0.24	0.34	0.35	0.17	-	-	-	8.2	
6	4	7	7	7	25	38	0.29	0.43	0.42	0.17	-	-	-	8.2	
6	4	7	7	7	30	38	0.35	0.51	0.52	0.17	-	-	-	8.2	
6	5	8	7	7	< 2	-	0.19	0.37	0.28	0.17	0.19	0.19	0.17	9.3	
6	5	7	7	7	2 < 3	43	0.17	0.30	0.24	0.17	-	-	-	8.9	
6	5	7	7	7	3 - 5	43	0.17	0.23	0.21	0.17	-	-	-	8.9	
6	5	7	7	7	10	39	0.17	0.22	0.23	0.17	-	-	-	8.9	
6	5	7	7	7	15	38	0.17	0.28	0.29	0.17	-	-	-	8.9	
6	5	7	7	7	20	38	0.20	0.37	0.38	0.17	-	-	-	8.9	
6	5	7	7	7	25	38	0.25	0.45	0.46	0.17	-	-	-	8.9	
6	5	7	7	7	30	38	0.30	0.54	0.55	0.17	-	-	-	8.9	
6	6	8	7	7	< 2	-	0.19	0.38	0.30	0.17	0.19	0.19	0.17	10	
6	6	7	7	7	2 < 3	52	0.17	0.32	0.26	0.17	-	-	-	9.6	
6	6	7	7	7	3 - 5	52	0.17	0.24	0.22	0.17	-	-	-	9.6	
6	6	7	7	7	10	43	0.17	0.23	0.24	0.17	-	-	-	9.6	
6	6	7	7	7	15	39	0.17	0.29	0.31	0.17	-	-	-	9.6	
6	6	7	7	7	20	39	0.18	0.38	0.39	0.17	-	-	-	9.6	
6	6	7	7	7	25	38	0.23	0.46	0.48	0.17	-	-	-	9.6	
6	6	7	7	7	30	38	0.27	0.55	0.57	0.17	-	-	-	9.6	

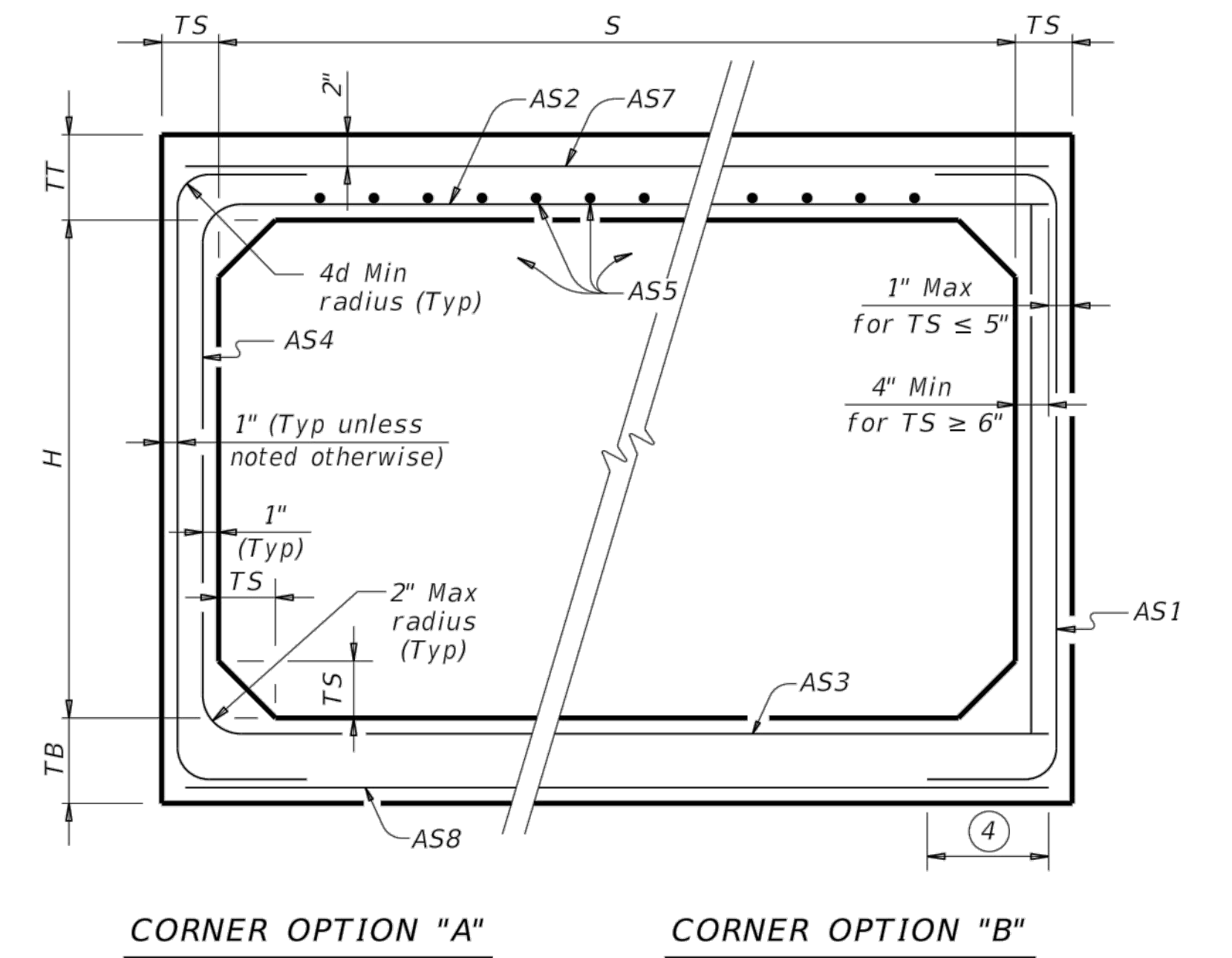
① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

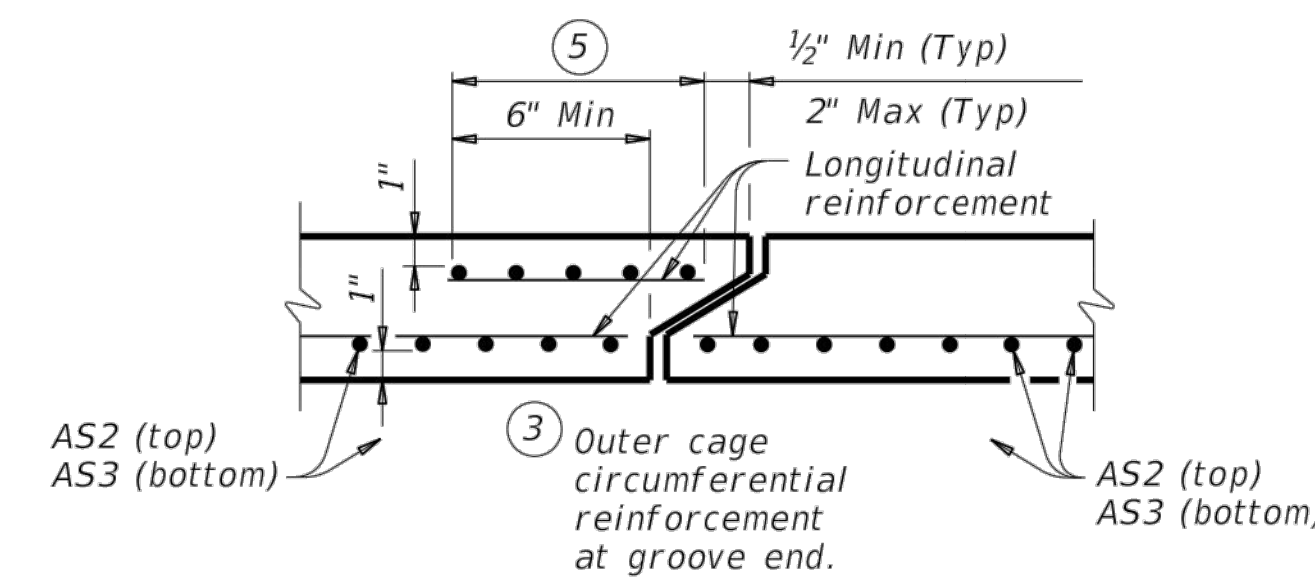
**FILL HEIGHT 2 FT AND GREATER**



CORNER OPTION "A" CORNER OPTION "B"

**FILL HEIGHT LESS THAN 2 FT**

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



**SECTION A-A**

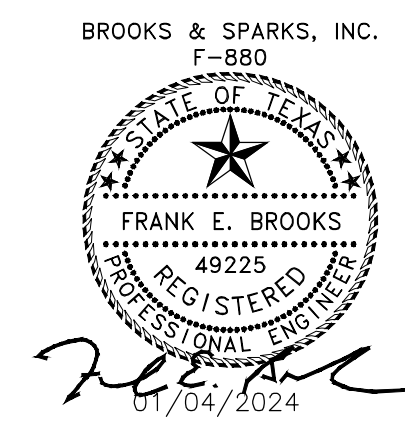
(Showing top and bottom slab joint reinforcement.)

**MATERIAL NOTES:**

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.  
Provide Class H concrete (f'c = 5,000 psi).

**GENERAL NOTES:**

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.  
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.  
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."



**HL93 LOADING**

		<b>Bridge Division Standard</b>	
<b>SINGLE BOX CULVERTS PRECAST</b> <b>6'-0" SPAN</b> <b>SCP-6</b>			
FILE: CD-SCP06-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT February 2020	CONT SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY
		SHEET NO. 25 OF 39	

DATE:  
FILE:

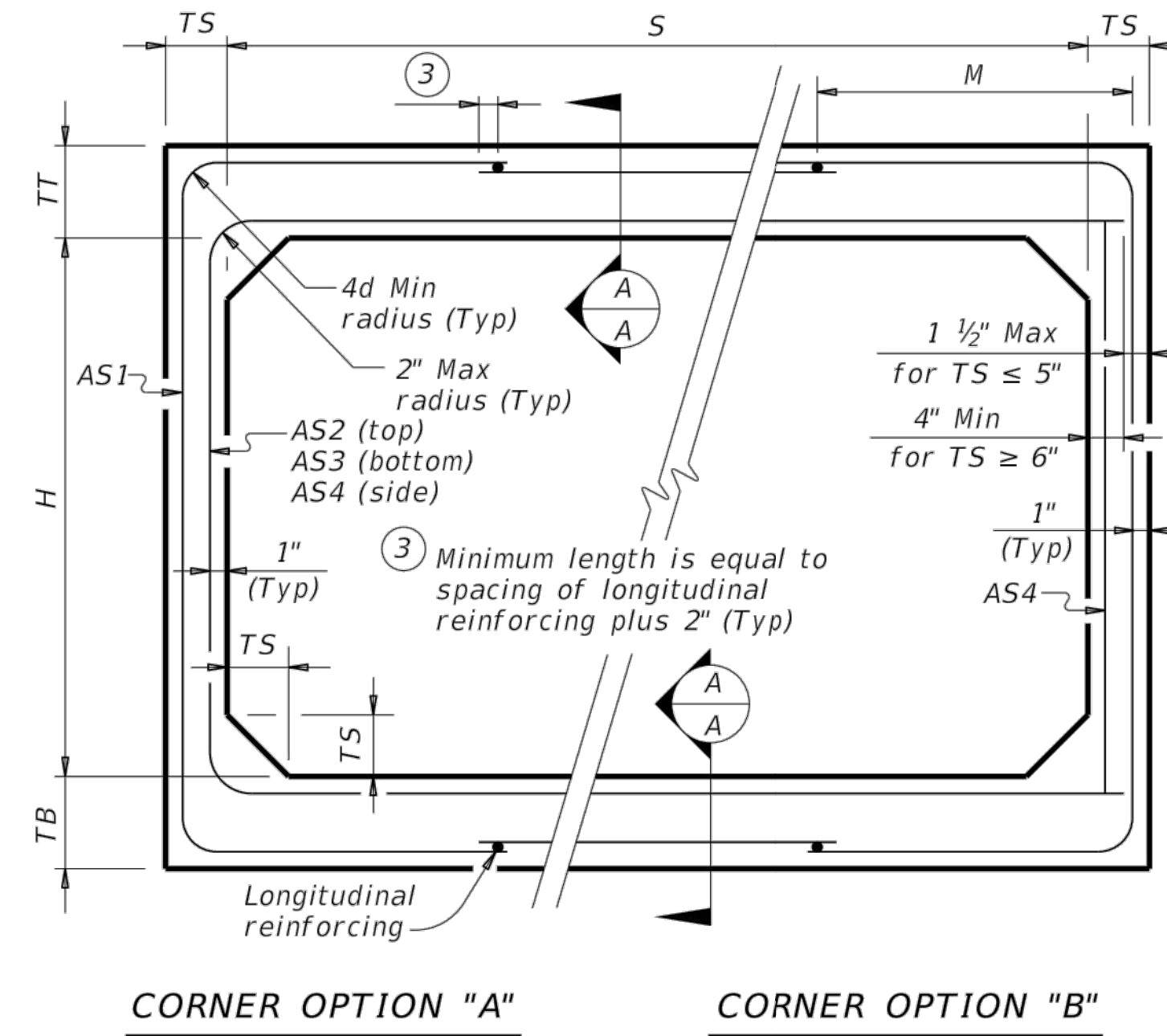
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**BOX DATA**

SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) <sup>②</sup>								① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8		
7	3	8	8	8	< 2	-	0.23	0.31	0.22	0.19	0.19	0.19	0.19	9.6	
7	3	8	8	8	2 < 3	47	0.27	0.25	0.24	0.19	-	-	-	9.6	
7	3	8	8	8	3 - 5	43	0.19	0.19	0.19	0.19	-	-	-	9.6	
7	3	8	8	8	10	43	0.21	0.20	0.21	0.19	-	-	-	9.6	
7	3	8	8	8	15	43	0.28	0.26	0.27	0.19	-	-	-	9.6	
7	3	8	8	8	20	43	0.36	0.34	0.35	0.19	-	-	-	9.6	
7	3	8	8	8	25	43	0.45	0.42	0.43	0.19	-	-	-	9.6	
7	3	8	8	8	30	43	0.54	0.50	0.51	0.19	-	-	-	9.6	
7	4	8	8	8	< 2	-	0.21	0.34	0.25	0.19	0.19	0.19	0.19	10.4	
7	4	8	8	8	2 < 3	43	0.23	0.28	0.28	0.19	-	-	-	10.4	
7	4	8	8	8	3 - 5	43	0.19	0.22	0.19	0.19	-	-	-	10.4	
7	4	8	8	8	10	43	0.19	0.23	0.23	0.19	-	-	-	10.4	
7	4	8	8	8	15	41	0.24	0.30	0.30	0.19	-	-	-	10.4	
7	4	8	8	8	20	41	0.31	0.38	0.39	0.19	-	-	-	10.4	
7	4	8	8	8	25	41	0.38	0.47	0.48	0.19	-	-	-	10.4	
7	4	8	8	8	30	41	0.46	0.57	0.57	0.19	-	-	-	10.4	
7	5	8	8	8	< 2	-	0.19	0.36	0.27	0.19	0.19	0.19	0.19	11.2	
7	5	8	8	8	2 < 3	47	0.21	0.31	0.31	0.19	-	-	-	11.2	
7	5	8	8	8	3 - 5	43	0.19	0.24	0.21	0.19	-	-	-	11.2	
7	5	8	8	8	10	43	0.19	0.25	0.26	0.19	-	-	-	11.2	
7	5	8	8	8	15	41	0.21	0.32	0.33	0.19	-	-	-	11.2	
7	5	8	8	8	20	41	0.27	0.41	0.42	0.19	-	-	-	11.2	
7	5	8	8	8	25	41	0.33	0.51	0.52	0.19	-	-	-	11.2	
7	5	8	8	8	30	41	0.40	0.61	0.62	0.19	-	-	-	11.2	
7	6	8	8	8	< 2	-	0.19	0.38	0.30	0.19	0.19	0.19	0.19	12.0	
7	6	8	8	8	2 < 3	59	0.19	0.33	0.34	0.19	-	-	-	12.0	
7	6	8	8	8	3 - 5	47	0.19	0.25	0.23	0.19	-	-	-	12.0	
7	6	8	8	8	10	43	0.19	0.26	0.27	0.19	-	-	-	12.0	
7	6	8	8	8	15	41	0.19	0.34	0.35	0.19	-	-	-	12.0	
7	6	8	8	8	20	41	0.24	0.43	0.45	0.19	-	-	-	12.0	
7	6	8	8	8	25	41	0.29	0.53	0.55	0.19	-	-	-	12.0	
7	6	8	8	8	30	41	0.35	0.64	0.65	0.19	-	-	-	12.0	
7	7	8	8	8	< 2	-	0.19	0.40	0.33	0.19	0.19	0.19	0.19	12.8	
7	7	8	8	8	2 < 3	59	0.19	0.36	0.37	0.19	-	-	-	12.8	
7	7	8	8	8	3 - 5	59	0.19	0.27	0.25	0.19	-	-	-	12.8	
7	7	8	8	8	10	47	0.19	0.27	0.29	0.19	-	-	-	12.8	
7	7	8	8	8	15	43	0.19	0.35	0.37	0.19	-	-	-	12.8	
7	7	8	8	8	20	43	0.22	0.44	0.46	0.19	-	-	-	12.8	
7	7	8	8	8	25	43	0.27	0.54	0.57	0.19	-	-	-	12.8	
7	7	8	8	8	30	41	0.32	0.65	0.67	0.19	-	-	-	12.8	

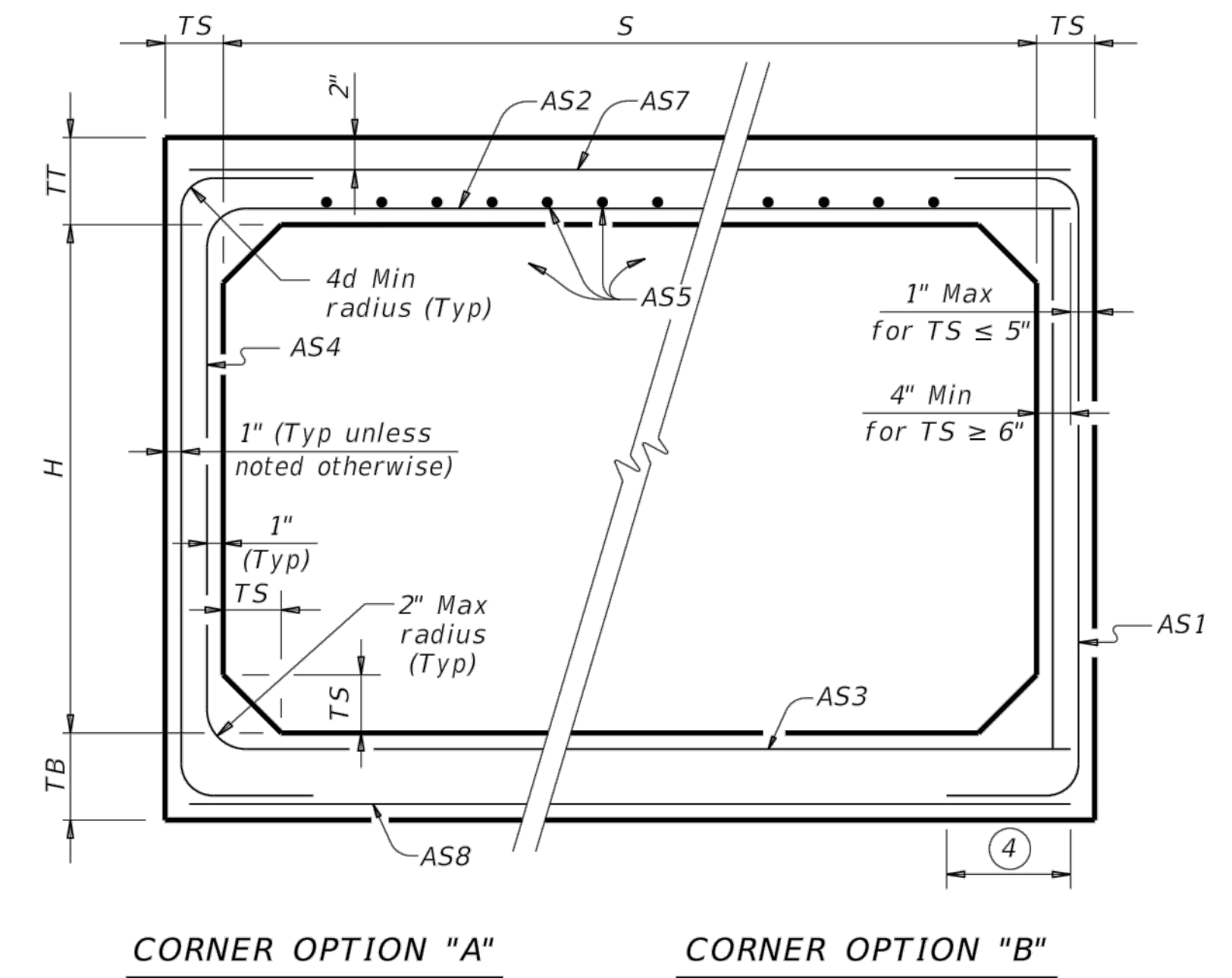
① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

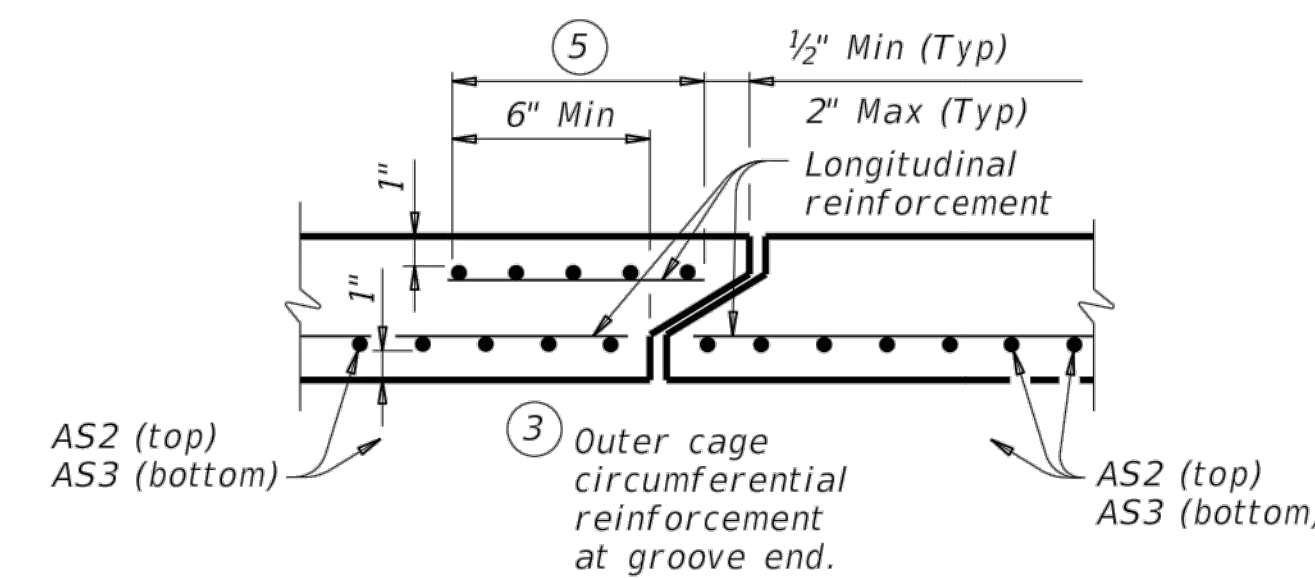
**FILL HEIGHT 2 FT AND GREATER**



CORNER OPTION "A" CORNER OPTION "B"

**FILL HEIGHT LESS THAN 2 FT**

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)

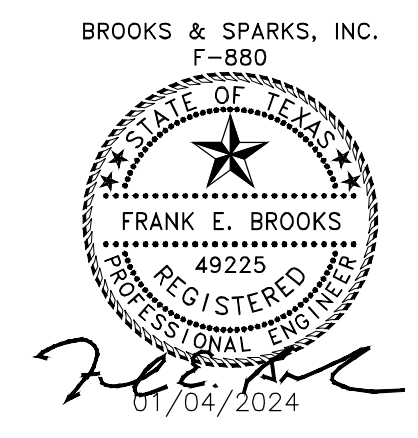


**SECTION A-A**

(Showing top and bottom slab joint reinforcement.)

**MATERIAL NOTES:**  
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.  
 Provide Class H concrete (f'c = 5,000 psi).

**GENERAL NOTES:**  
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.  
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.  
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)."



**HL93 LOADING**

**Texas Department of Transportation** **Bridge Division Standard**

**SINGLE BOX CULVERTS  
 PRECAST  
 7'-0" SPAN**

**SCP-7**

FILE: CD-SCP07-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY		SHEET NO.	
			26 OF 39	

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DATE: FILE:

**TABLE OF DIMENSIONS AND REINFORCING STEEL**  
(Wings for one structure end)

Maximum Wingwall Height Hw	Dimensions				Variable Reinforcing				Estimated Quantities per ft of wing length (2-wings)	
	W	X	Y	Z	Bars J1		Bars J2		Reinf Lb/Ft	Conc (CY/Ft)
					Size	Spa	Size	Spa		
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

**TABLE OF WINGWALL REINFORCING**  
(2-wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

**TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES**

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

**WING DIMENSION FORMULAS:**

(All values are in feet.)

$Hw = H + T + C - 0.250'$   
 $Lw = (Hw - 0.333') (SL)$

For cast-in-place culverts:  
 $Ltw = (N) (S) + (N + 1) (U)$

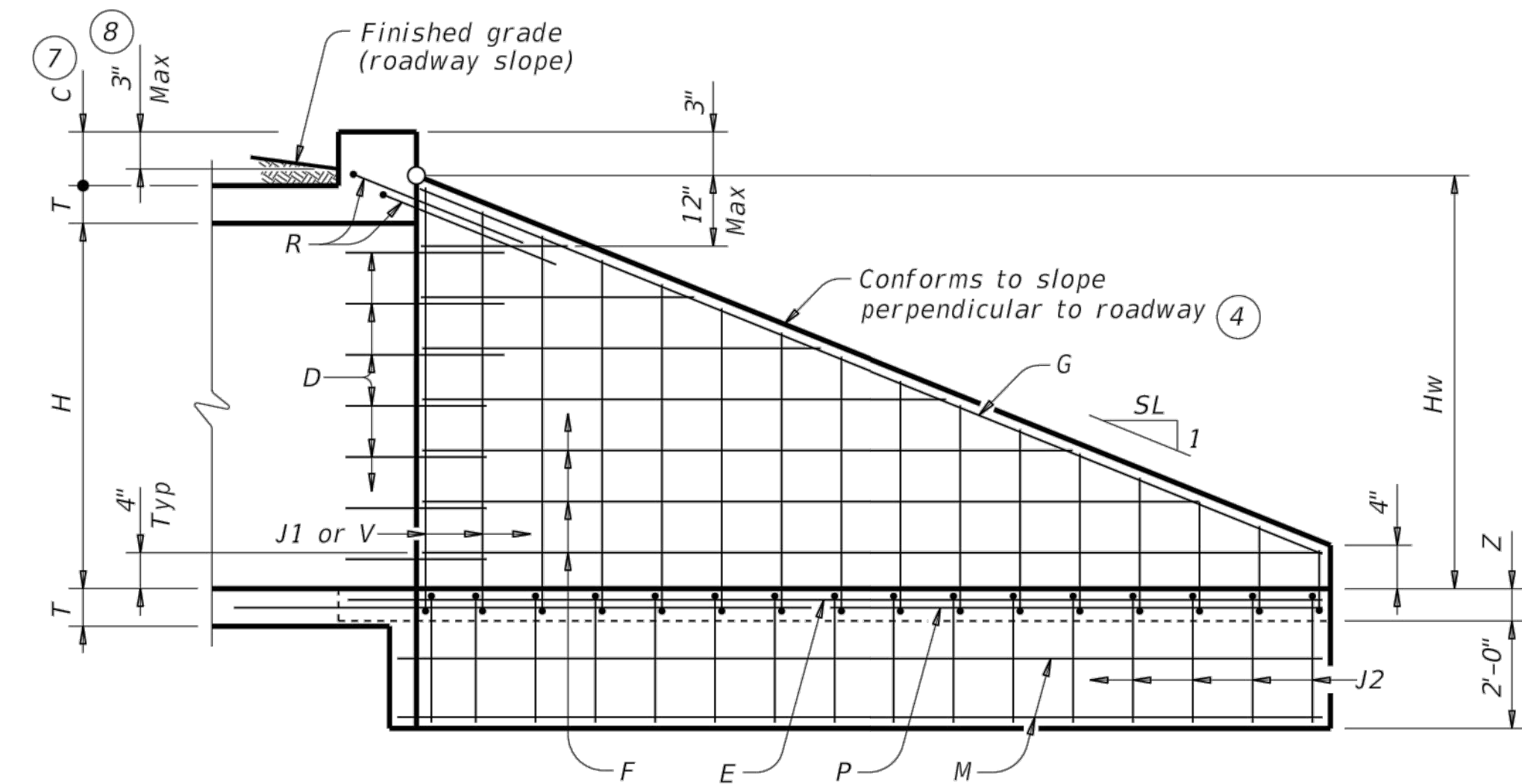
For precast culverts:  
 $Ltw = (N) (2U + S) + (N - 1) (0.5')$

Total Wingwall Area (two wings ~ SF) =  $(Hw + 0.333') (Lw)$

Hw = Height of wingwall  
 SL:1 = Side slope ratio (horizontal:1 vertical)  
 Lw = Length of wingwall  
 Ltw = Culvert toewall length  
 N = Number of culvert spans

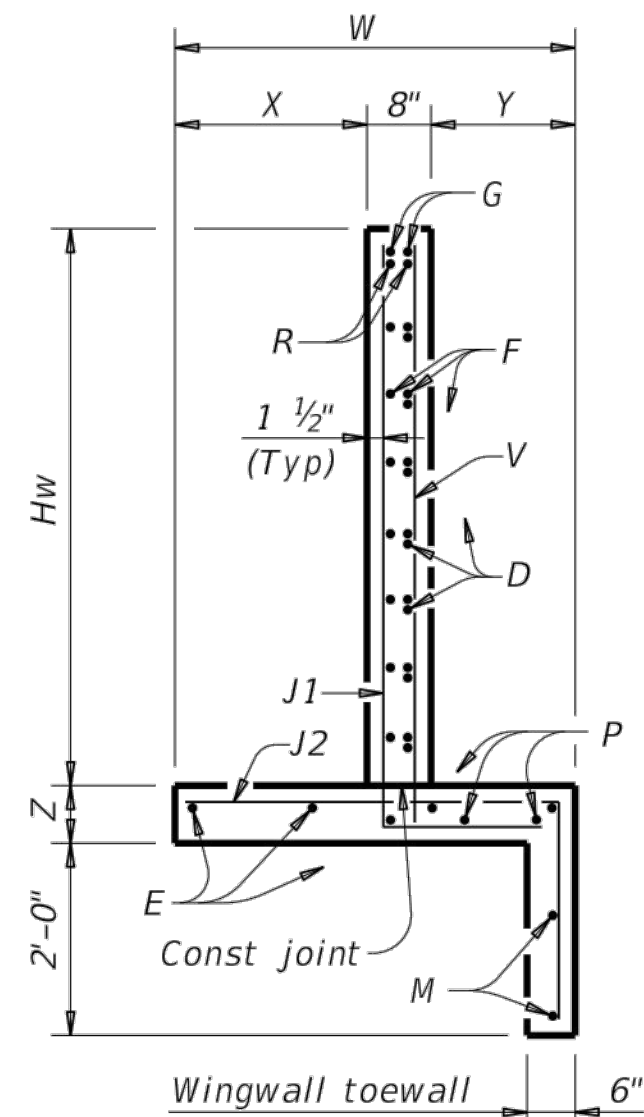
See applicable box culvert standard sheet for H, S, T, and U values.

- Extend Bars P 3'-0" minimum into bottom slab of box culvert.
- Adjust as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
- Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
- When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap." Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
- At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
- 0' Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For vehicle safety, the following requirements must be met:
  - For structures without bridge rail, construct curbs no more than 3" above finished grade.
  - For structures with bridge rail, construct curbs flush with finished grade.
 Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

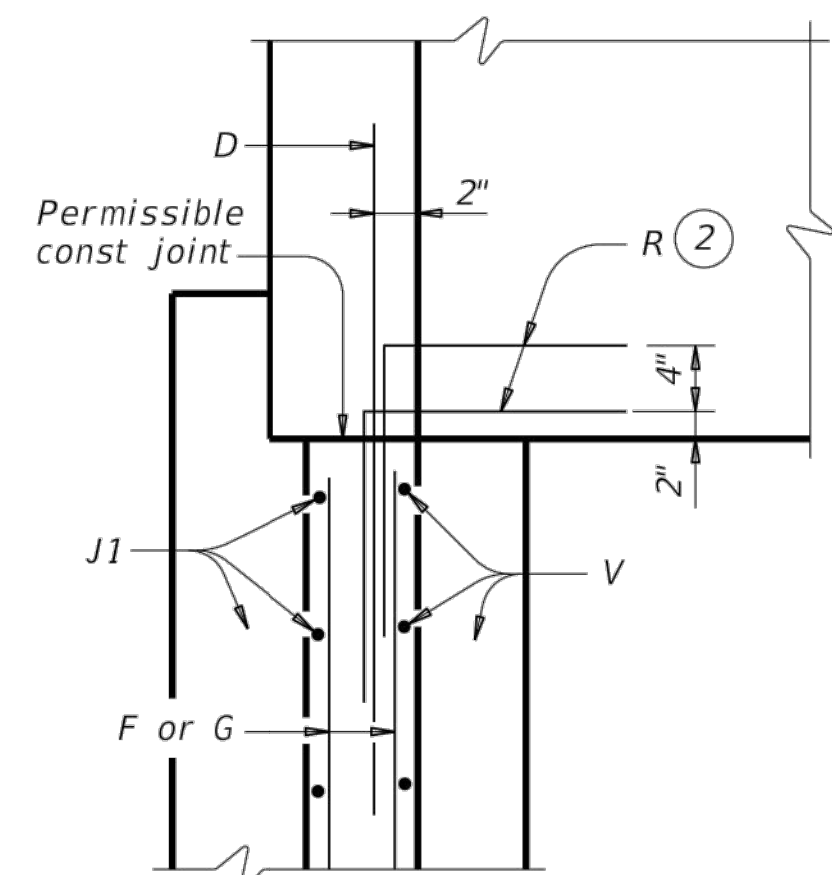


**INSIDE ELEVATION**

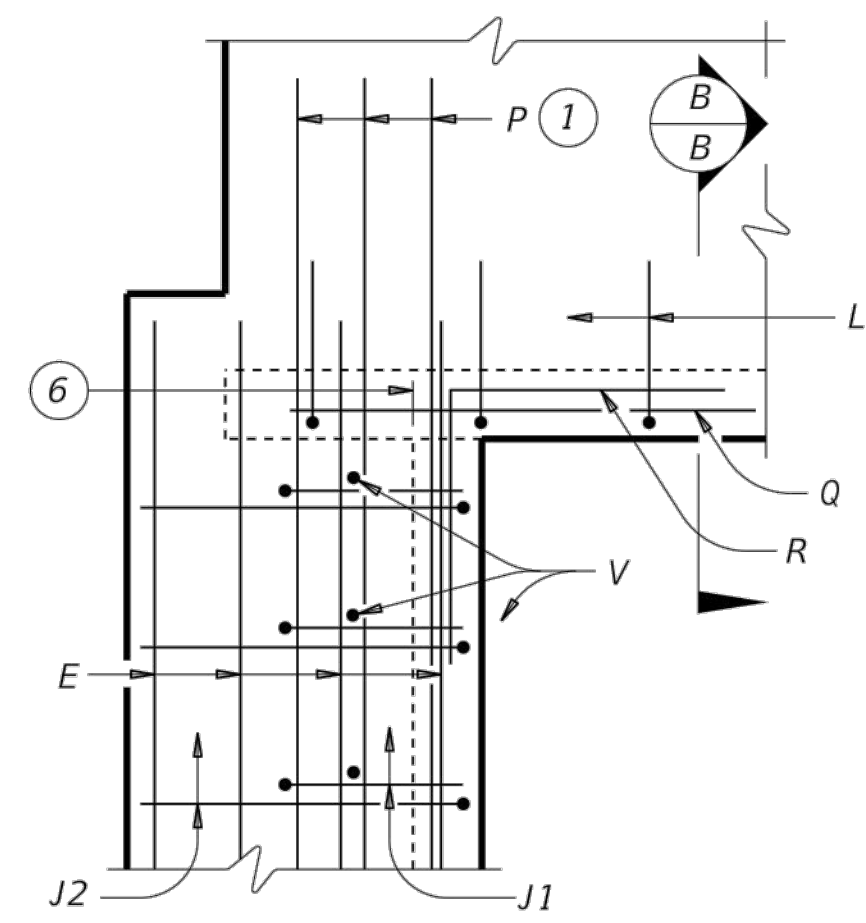
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)



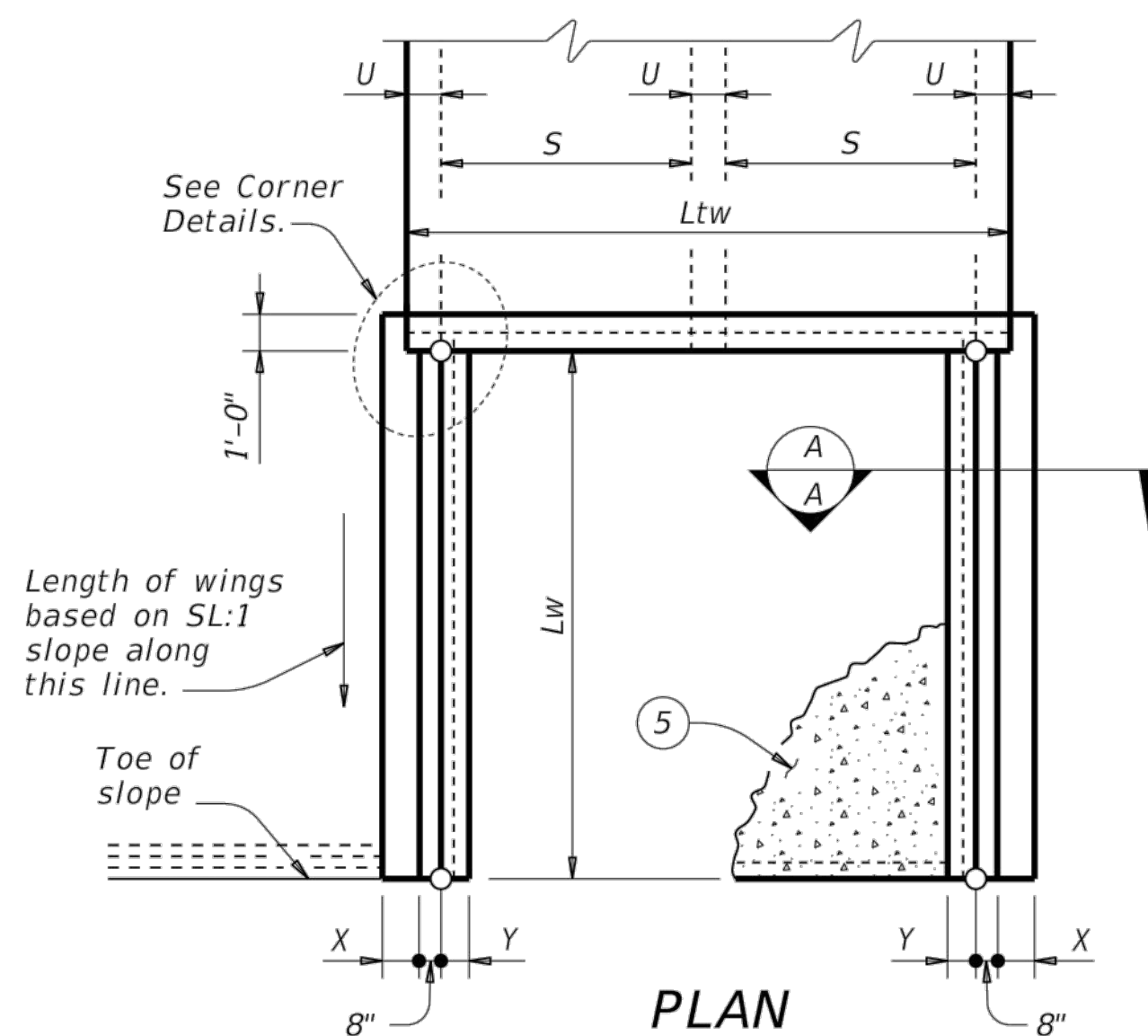
**SECTION A-A**



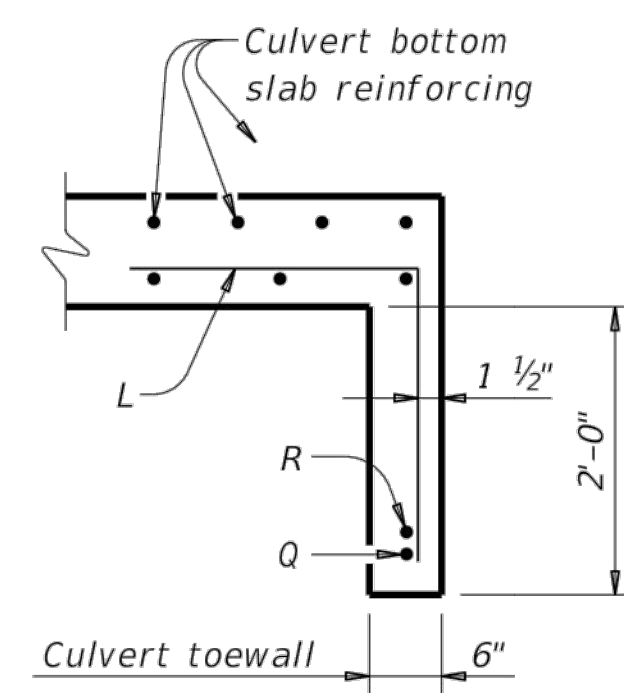
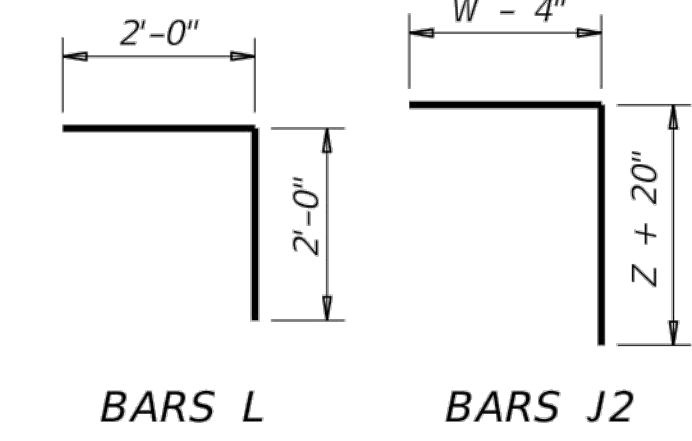
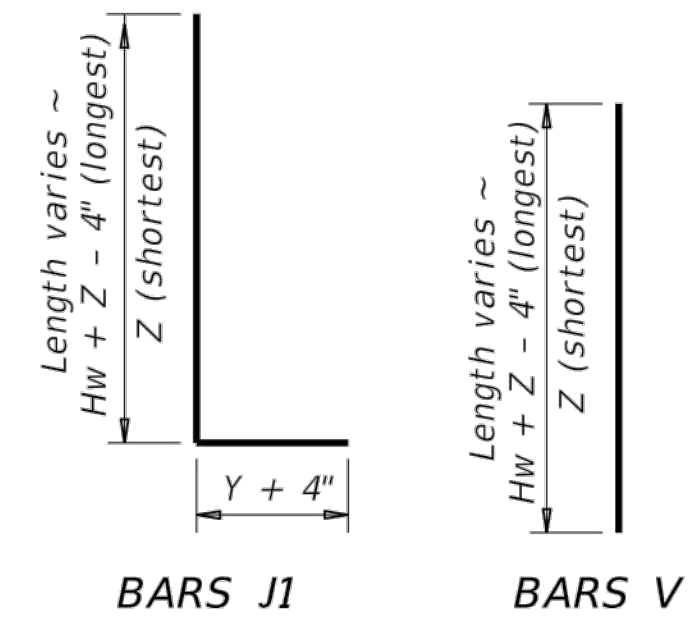
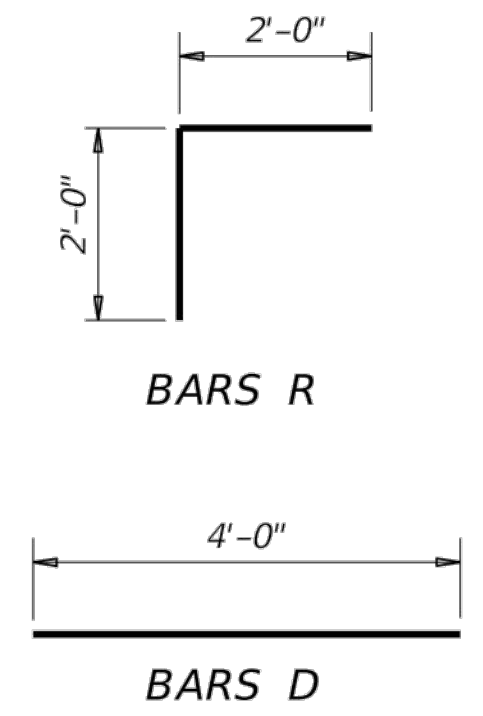
**CORNER DETAILS**



**FOOTING AND TOEWALL**



**PLAN**  
(Showing dimensions.)

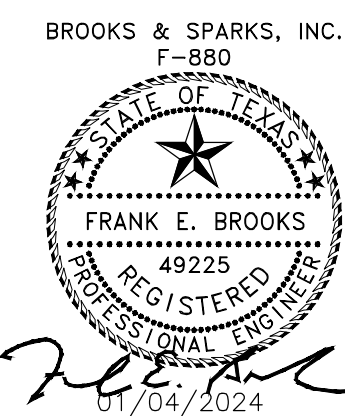


**SECTION B-B**

**MATERIAL NOTES:**  
 Provide Class C concrete ( $f'c=3,600$  psi).  
 Provide Grade 60 reinforcing steel.  
 Provide galvanized reinforcing steel if required elsewhere in the plans.  
 In riprap concrete, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

**GENERAL NOTES:**  
 Designed according to AASHTO LRFD Bridge Design Specifications.  
 When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.  
 See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.  
 The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing dimensions are out-to-out of bars.

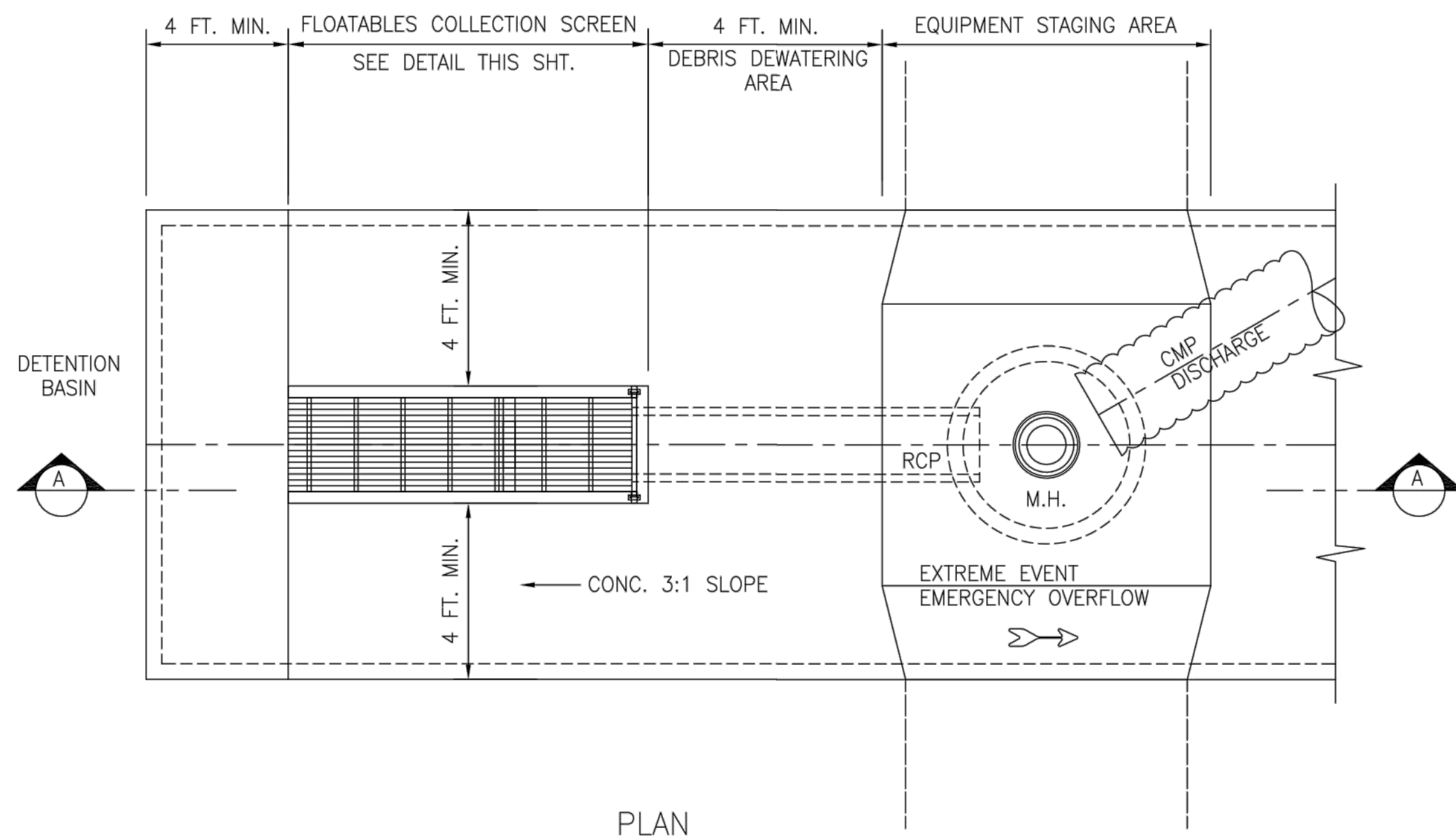


Texas Department of Transportation  
 Bridge Division Standard

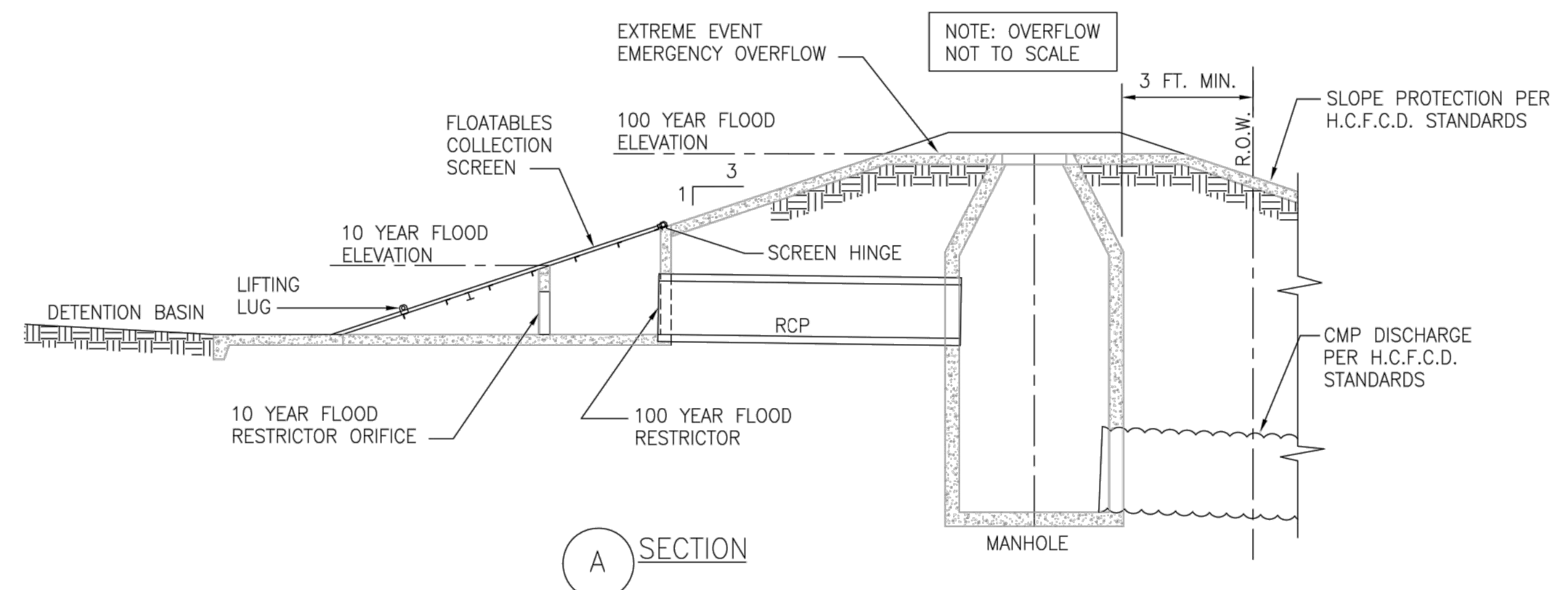
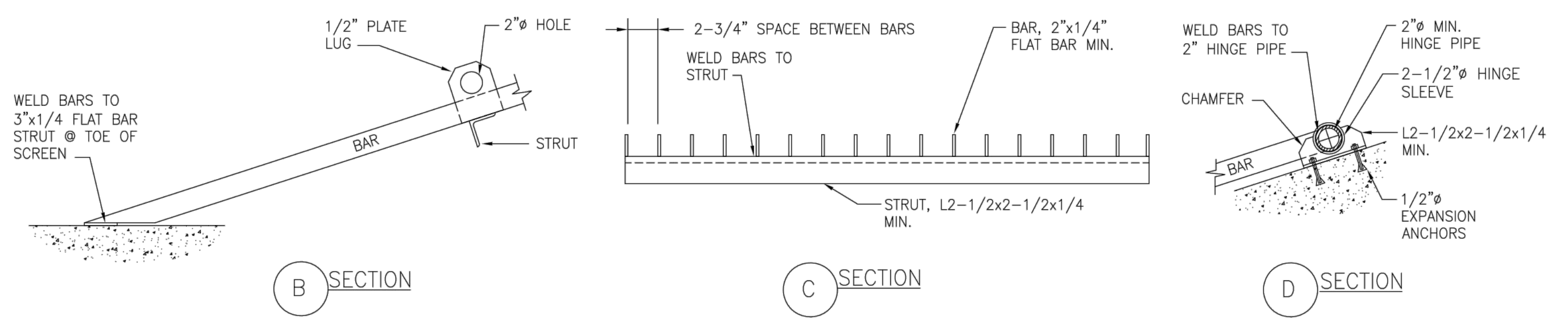
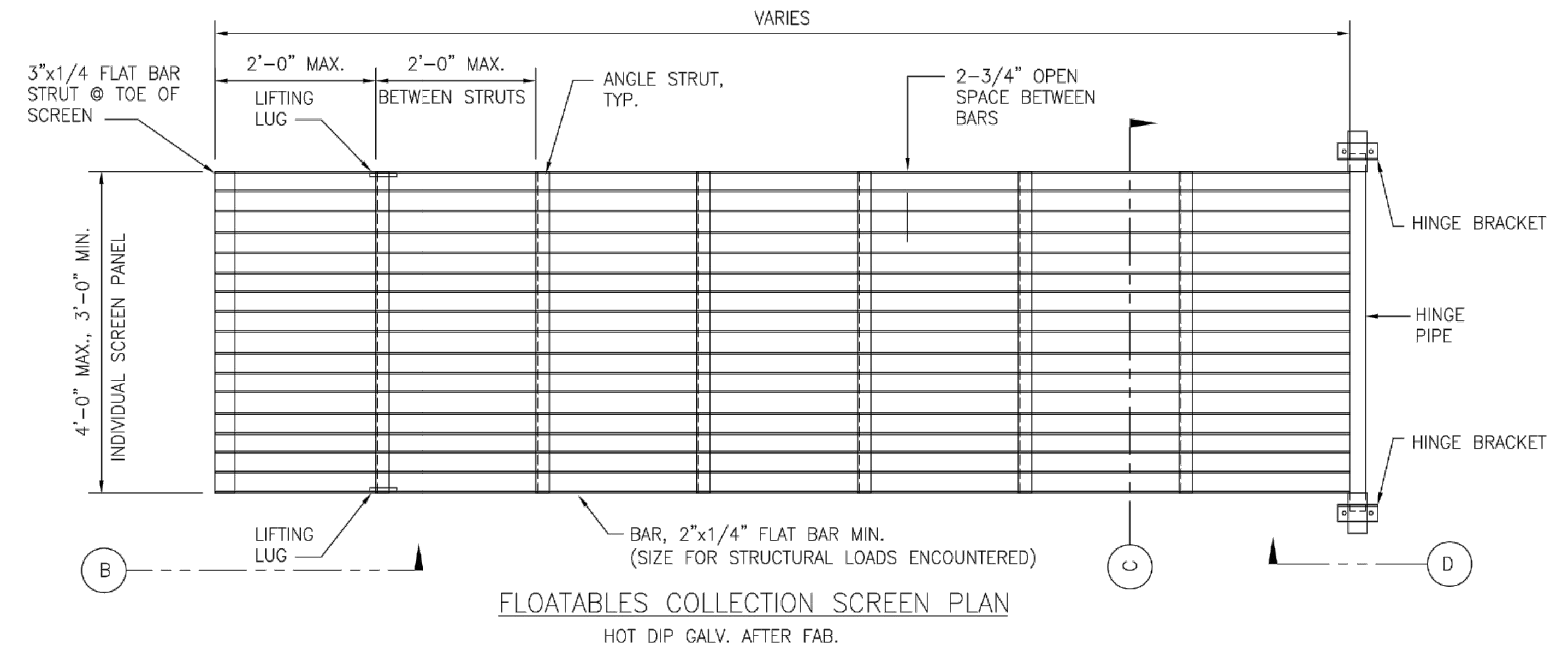
**CONCRETE WINGWALLS WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS**

**SW-0**

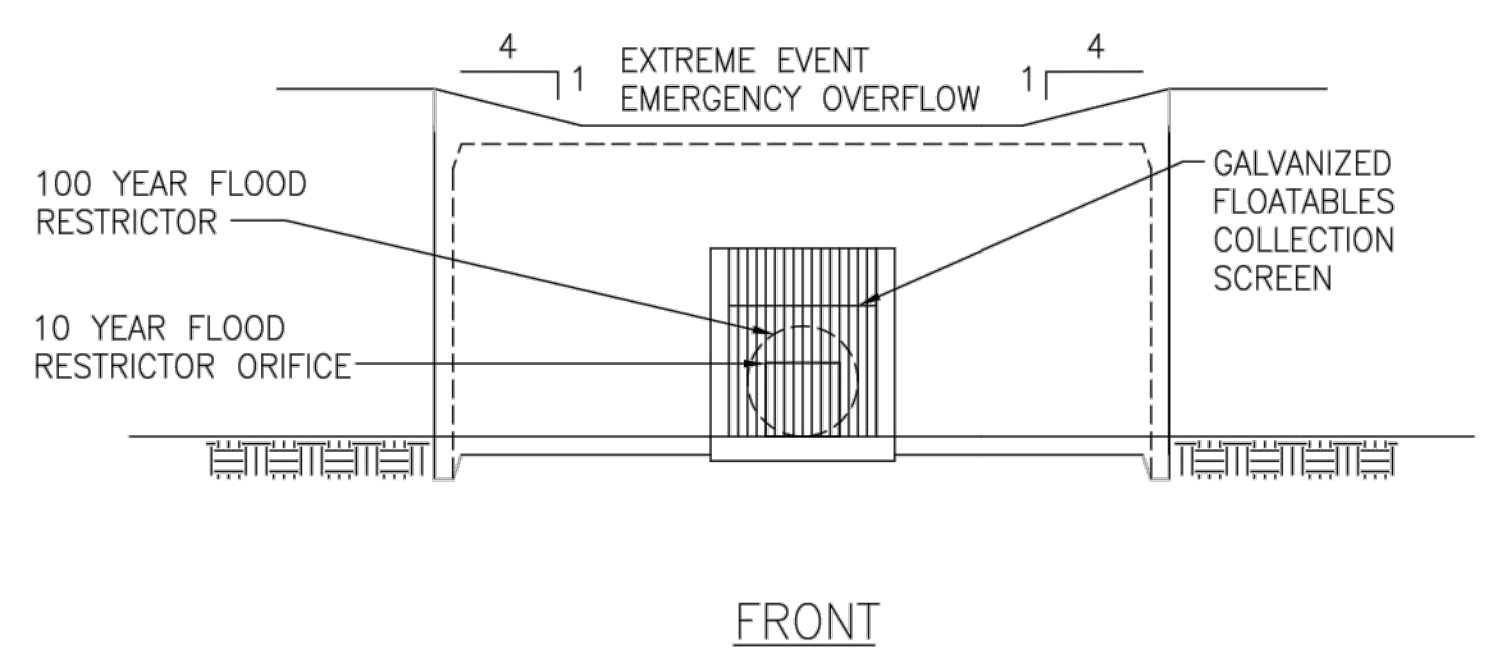
FILE: CD-SW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY	SHEET NO.	
			27 OF 39	



PLAN



A SECTION



FRONT

DESIGN CONSIDERATIONS FOR ENGINEER

- DESIGN FOR ACCESSIBILITY BY H.C.F.C.D. MAINTENANCE PERSONNEL.
- SCREEN TO BE DESIGNED FOR HAND RAKING OF DEBRIS TO TOP OF STRUCTURE FOR DEWATERING AND TRUCK PICK UP.
- 4' MINIMUM CONCRETE PAVED ACCESS ON ALL SIDES FOR MAINTENANCE PERSONNEL.
- 3:1 MAXIMUM SLOPE FOR TRASH COLLECTION SCREEN AND CONCRETE PAVING.
- PROVIDE ALL-WEATHER ACCESS ROAD TO SCREEN AND DEBRIS REMOVAL SITE.
- SCREEN SIZE AND NET OPENING AREA TO ALLOW FLOW RATE OF 1.0 CFS THROUGH SCREEN, ASSUMING NO BLINDING. SIZE AREA BELOW RESTRICTOR WALL FOR 10 YEAR FLOW RATE AND OVERALL SCREEN AREA FOR 100 YEAR FLOW RATE.
- SCREEN DESIGN MAY REQUIRE MULTIPLE 4' WIDE SCREEN PANELS.

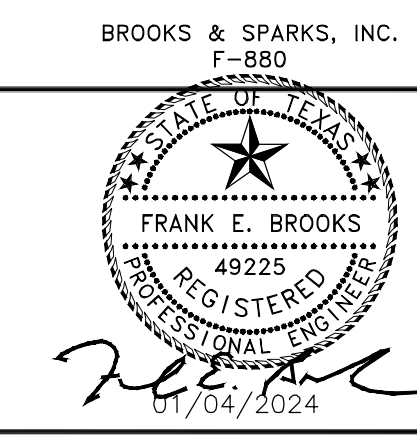
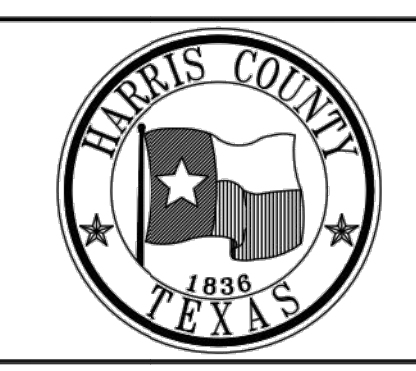
SCREEN SIZE USED IS EQUAL TO A 48" RCP. ACTUAL FLOW IS RESTRICTED TO 7 CFS.

MINIMUM SCREEN AREA  $49.45 \text{ SQ. FT.} = \frac{45.5 \text{ (CFS)}}{0.92}$

4 PANELS REQUIRED, SEE SHEET 29 FOR COLLECTION SCREEN DETAILS.

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY ENGINEERING DEPARTMENT



PROJECT TITLE: FLOATABLES COLLECTION SCREEN		JOB NO.
DRAWN BY: CADDOP	SHEET DESCRIPTION: TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR	JOB_NO.
CHK BY: DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER	FILE NAME:	FILENAME
SCALE: N.T.S.	FILE NO.:	FILE_NO.
DATE:	APPROVED BY:	SHT NO. 28 OF 39



BROOKS & SPARKS, INC. F-880

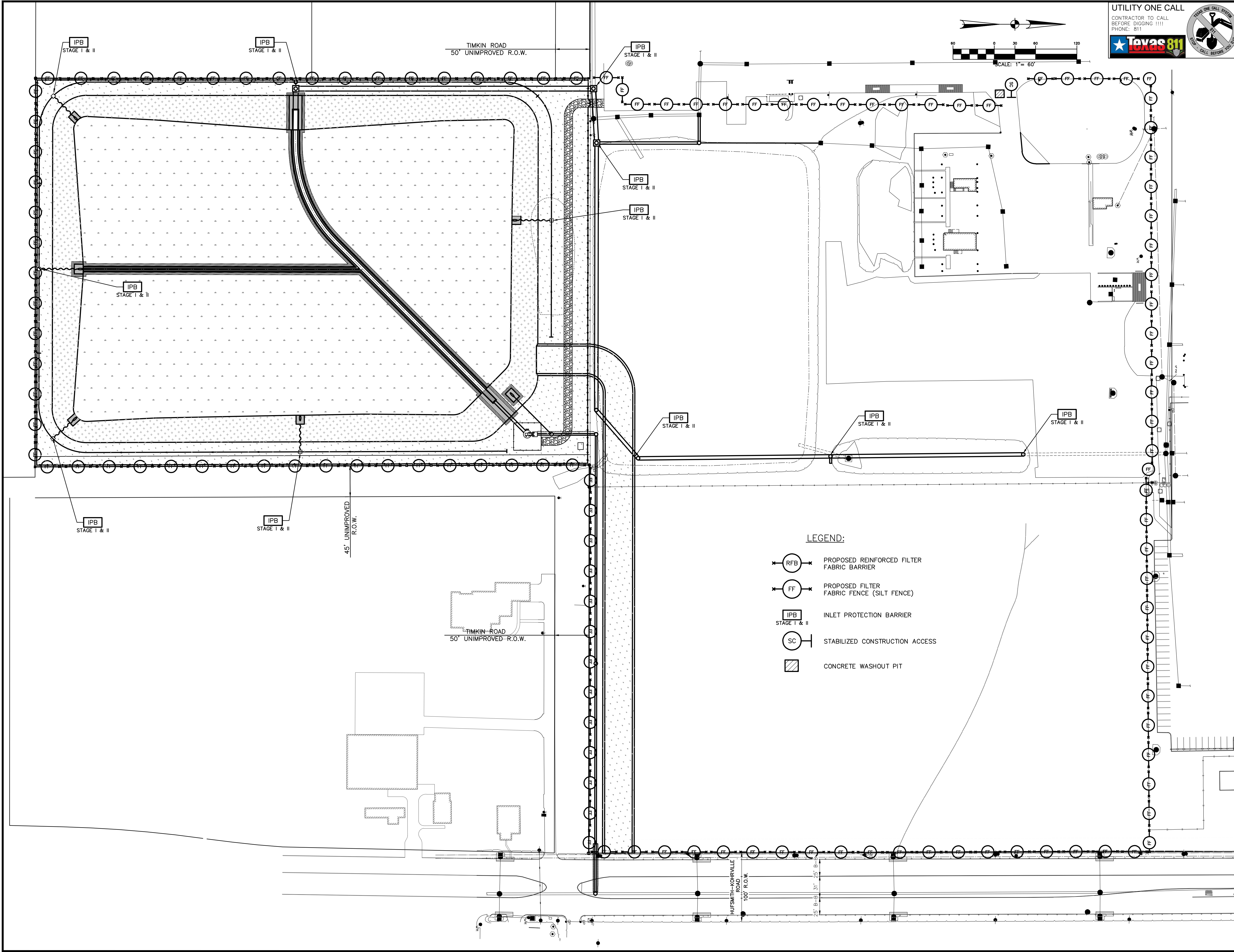
01/04/2024







04 Jan 2024 12:13PM RobertV  
 \\hou-srv05\cadd\project\BR00K\_SP\tomball\_isd\8660020-02-tic detention and pump\_station\Civil\8660020-SW3P.dwg  
 Includes Xref(s): 866020-X-SEAL.dwg; 866020-X-TOPO.dwg; 866020-X-POND.dwg



- LEGEND:**
- PROPOSED REINFORCED FILTER FABRIC BARRIER
  - PROPOSED FILTER FABRIC FENCE (SILT FENCE)
  - INLET PROTECTION BARRIER
  - STABILIZED CONSTRUCTION ACCESS
  - CONCRETE WASHOUT PIT

**UTILITY ONE CALL**  
 CONTRACTOR TO CALL BEFORE DIGGING !!!  
 PHONE: 811

**BROOKS & SPARKS, INC.**  
 CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW KATY, TX 77449  
 PHONE: (281) 578-8595  
 FAX: (281) 578-9686

- GENERAL NOTES:**
- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quidley Engineering.
  - This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
  - According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).  
 This flood statement does not imply that the property or structures thereon will be free from flooding or flood damage. On rare occasions floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.
  - Research for Adjoiner Tracts was performed by Quidley Engineering on June 1, 2022.
  - The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
  - Elevations shown hereon are based on Harris County Floodplain Reference Mark No. 120170 located along the northeast right-of-way of FM 2920 approximately 110 feet from its intersection with Stuebner Airline Road with a published elevation of 154.74 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark A being a 1000 nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
 Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark B being a MAG nail and shiner set in a wheelchair ramp at the southwest corner of the intersection of FM 2920 and Hufsmith-Kohrville Road and further shown hereon.  
 Elevation = 177.95 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark C being a MAG nail set at the bullnose of a median along the centerline of Hufsmith-Kohrville Road and further shown hereon.  
 Elevation = 174.29 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark D being a 1000 nail set in concrete at the southwest corner of the subject tract and further shown hereon.  
 Elevation = 175.67 feet, NAVD 88, 2001 Adjustment.
  - Visible improvements/utilities were located with this survey, no subsurface probing, excavation or exploration was performed for this survey.

**NOTE:** THE LOCATIONS OF THE PRIVATE UTILITY LINES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE ALSO ACCEPTS FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UTILITIES.

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Date:
CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown the location of gas lines correctly. Not to be used for conflict verification.) (See service lines are not shown.) Signature valid for six months.
Date:
CenterPoint Energy/Underground Electrical Facilities Verification ONLY. (This Signature verifies that existing underground facilities. Not to be used for conflict verification.) Signature valid for six months.
Date:
APPROVED FOR AT&T TEXAS/SBT UNDERGROUND CONDUIT FACILITIES ONLY. Signature valid for one year.

BROOKS & SPARKS, INC.  
 F-880

**TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER**

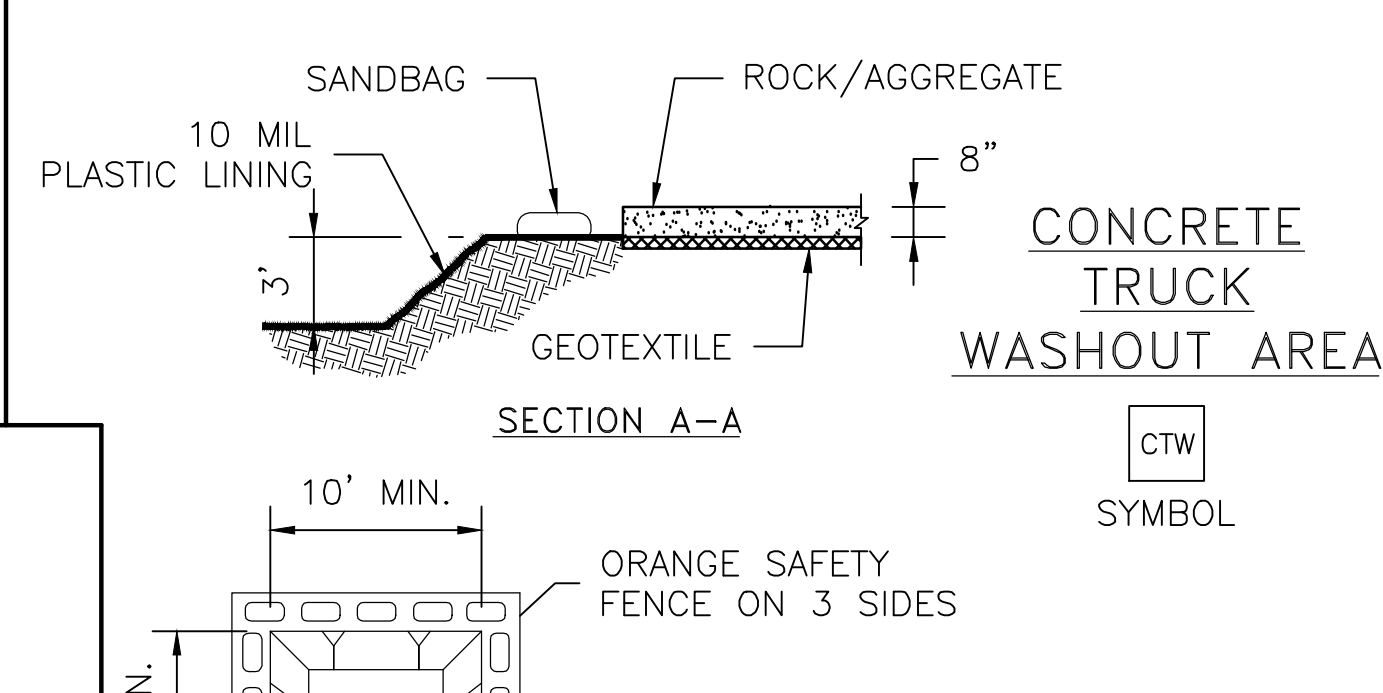
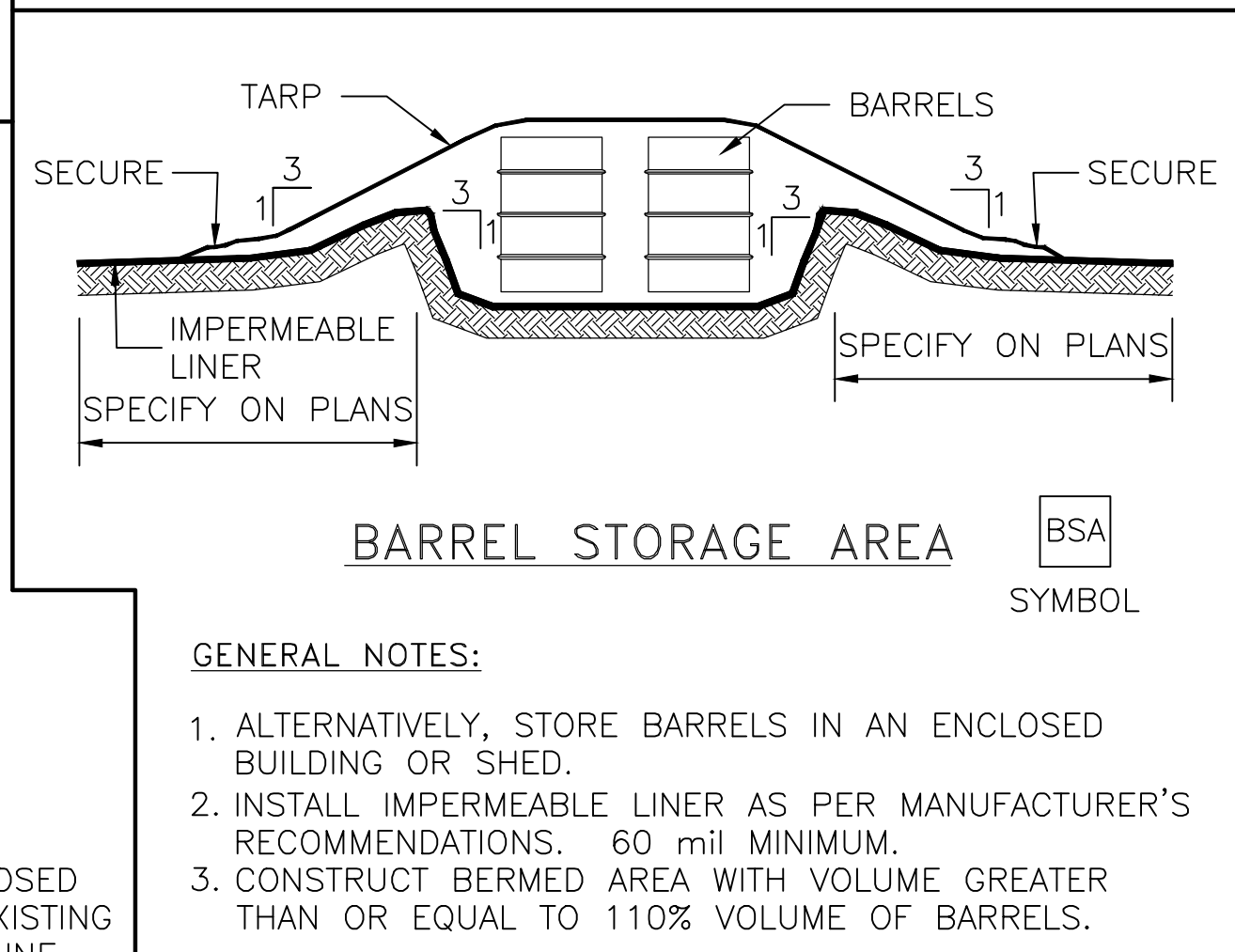
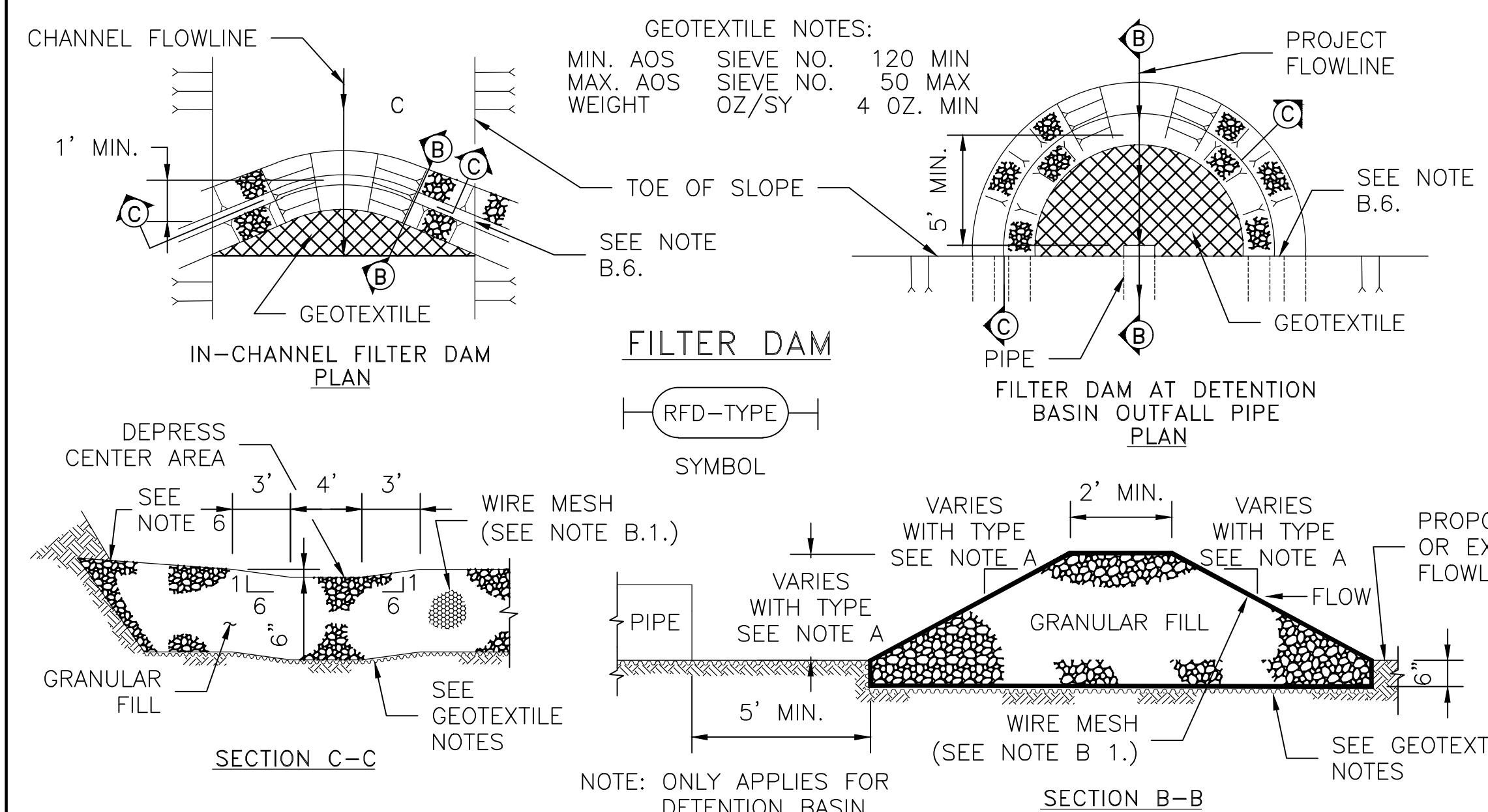
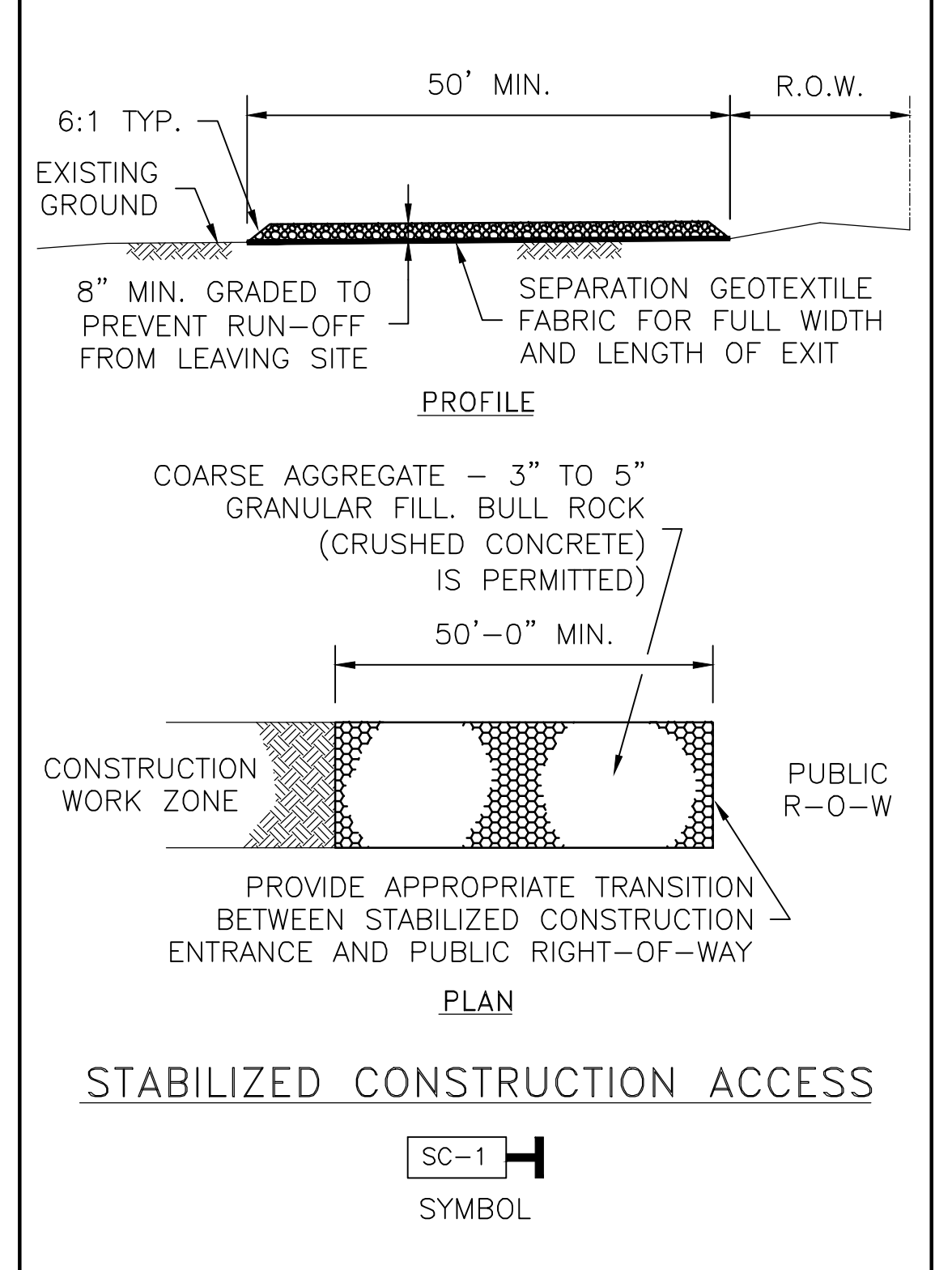
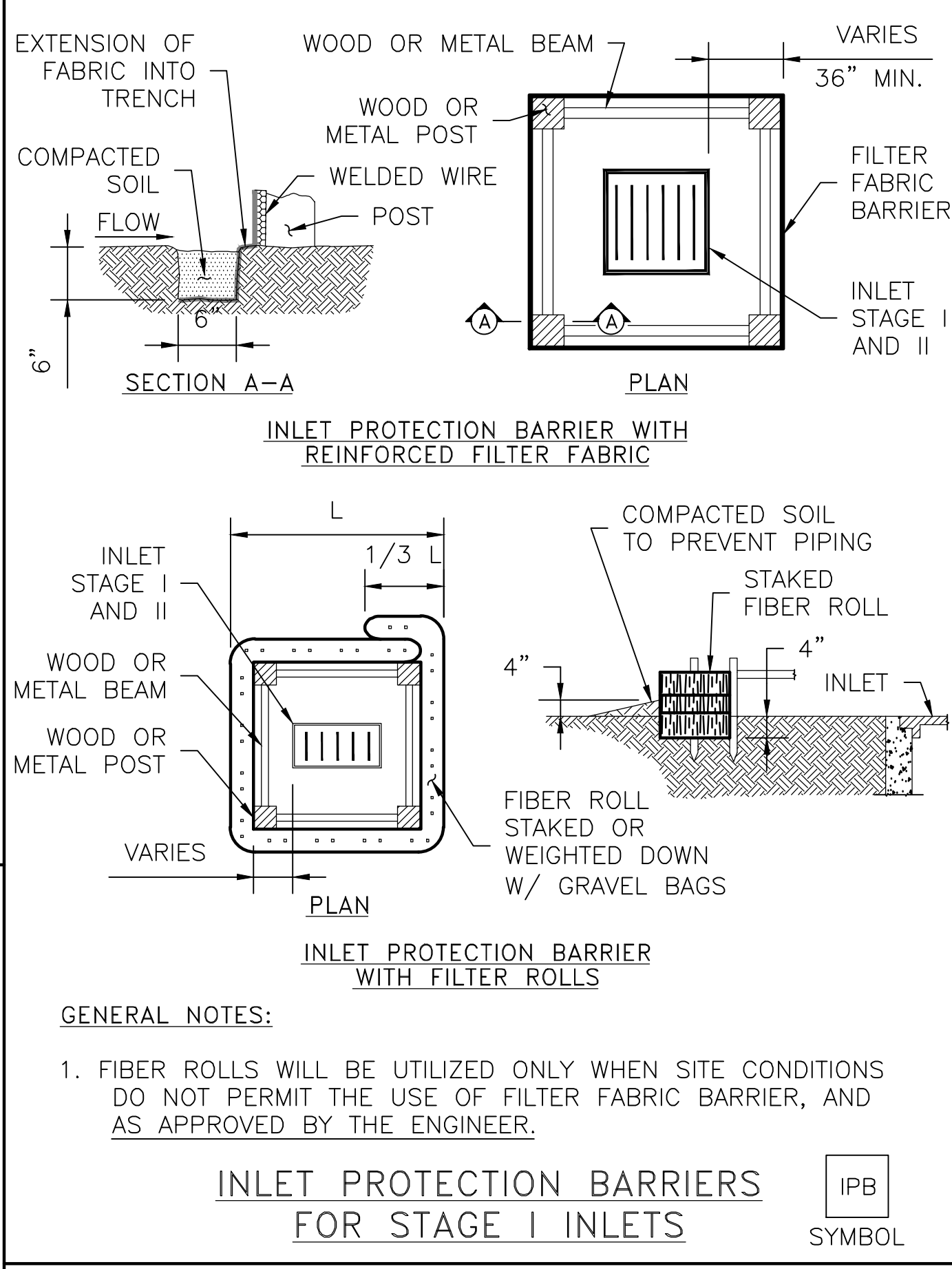
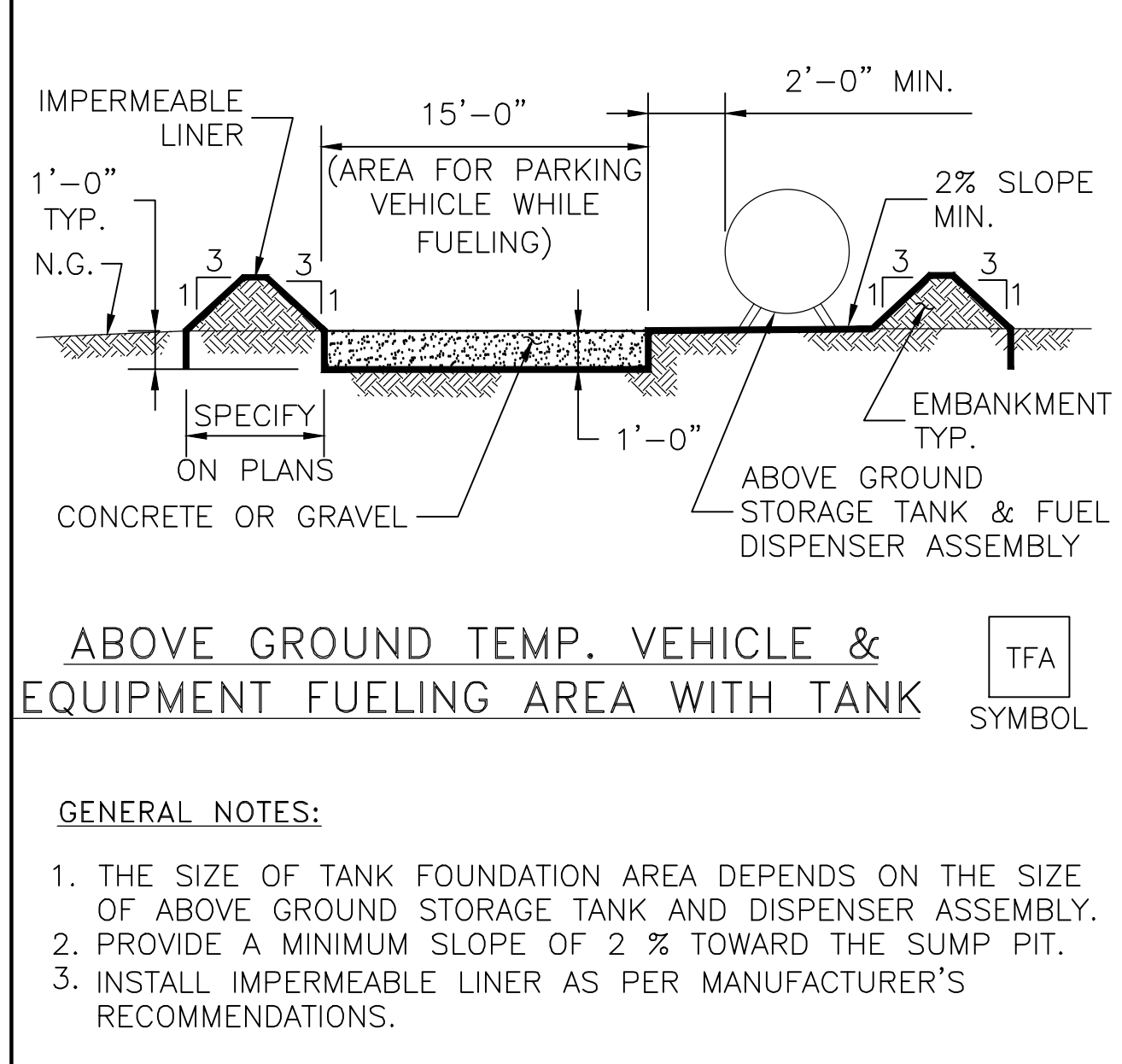
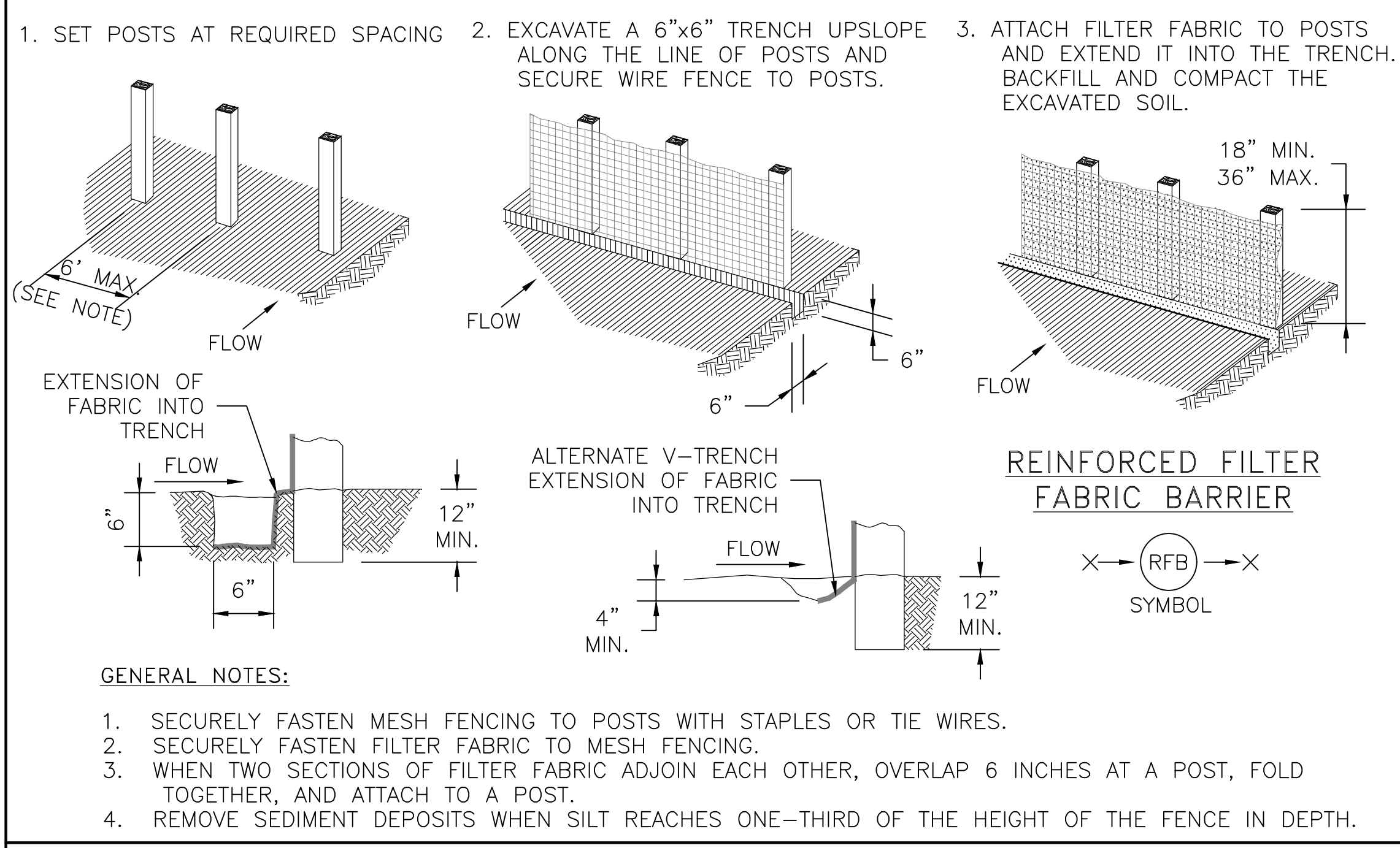
**STORM WATER POLLUTION  
 PREVENTION PLAN**

NO.	DATE	REVISIONS	BY

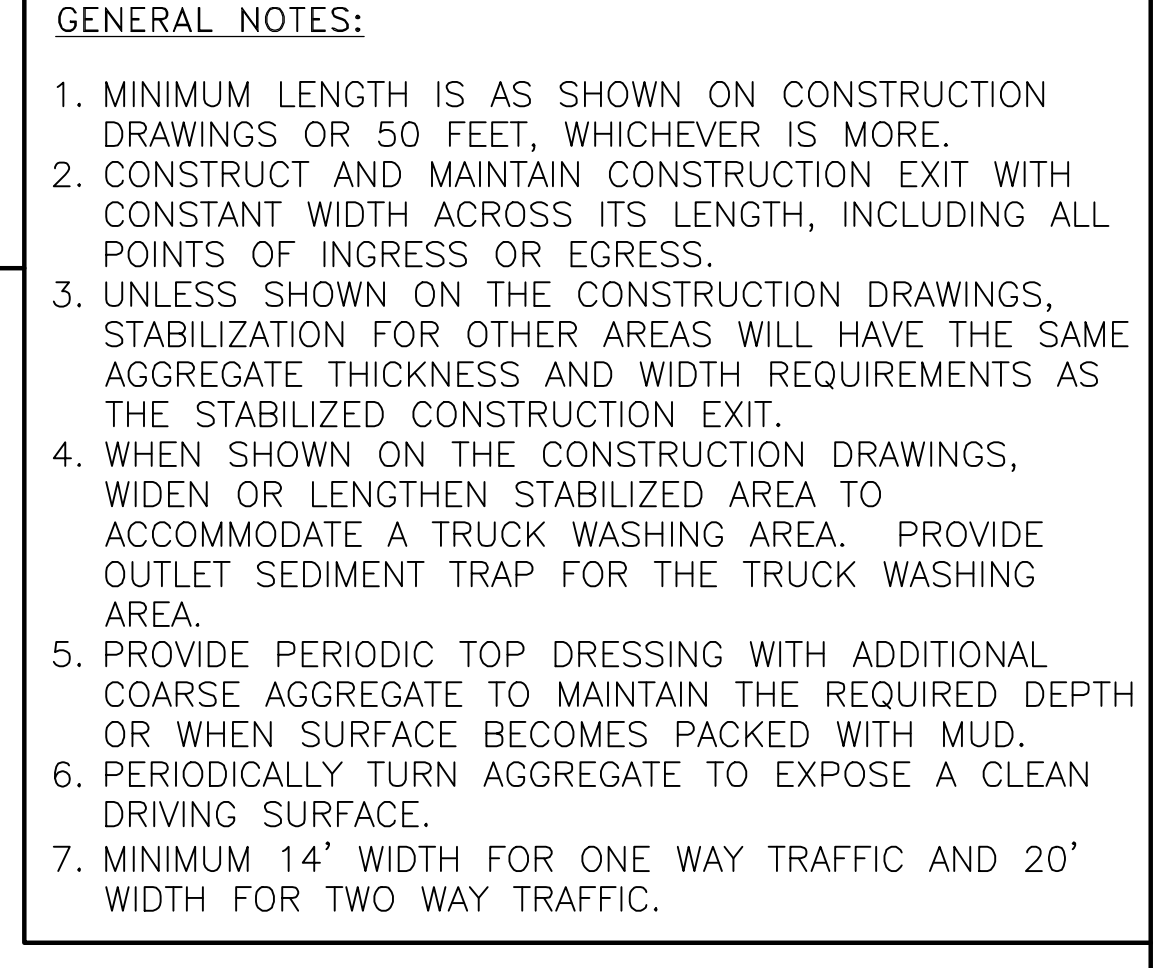
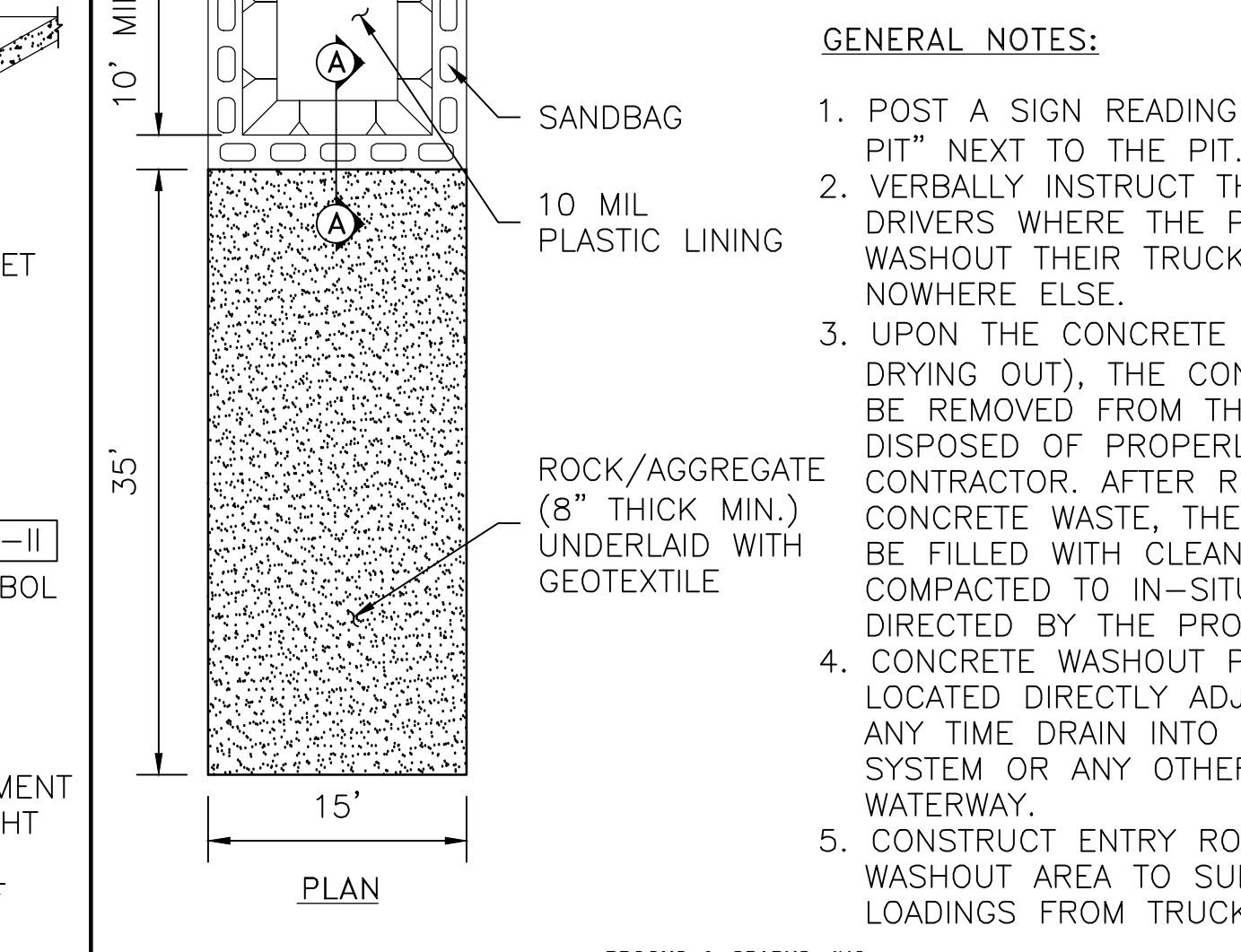
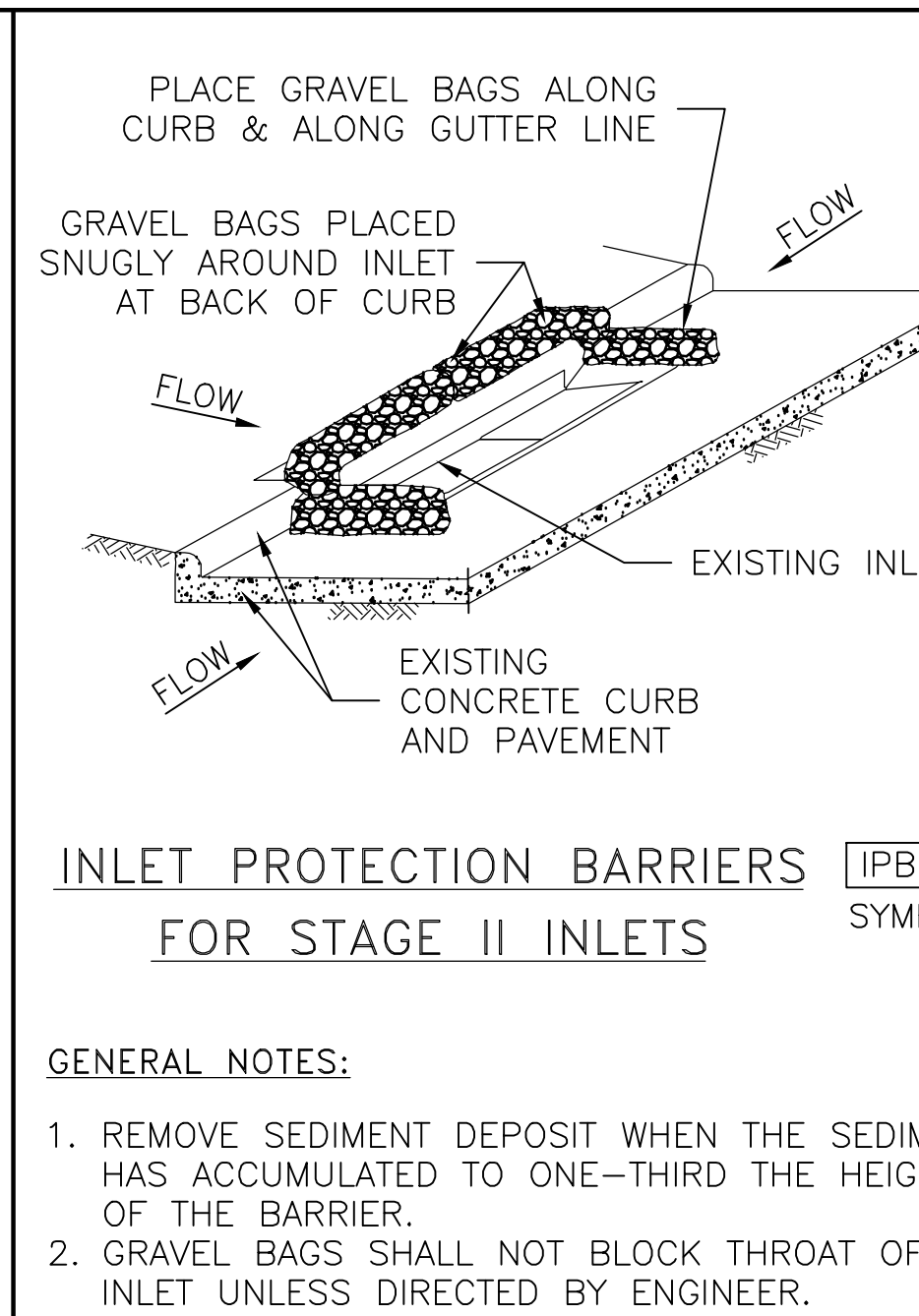
DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: 1"=60'      SHEET 32 OF 39



\\hou-srv05\cadd\project\BROOK\_SP\tomball\isd\8660020-02-tic detention and pump station\Civil\8660020-DET-SW3P.dwg



- A. TYPES OF FILTER DAMS
- TYPE 1 (NON-REINFORCED)
    - HEIGHT - 18-24 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
    - TOP WIDTH - 2 FEET (MINIMUM)
    - SLOPES - 2:1 (MAXIMUM).
  - TYPE 2 (REINFORCED)
    - HEIGHT - 18-36 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
    - TOP WIDTH - 2 FEET (MINIMUM).
    - SLOPES - 2:1 (MAXIMUM).
  - TYPE 3 (REINFORCED)
    - HEIGHT - 36-48 INCHES. MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
    - TOP WIDTH - 2 FEET (MINIMUM).
    - SLOPES - 3:1 (MAXIMUM).
  - TYPE 4 (GABION)
    - HEIGHT - 30 INCHES (MINIMUM). MEASURE VERTICALLY FROM EXISTING GROUND TO TOP OF FILTER DAM.
    - TOP WIDTH - 2 FEET (MINIMUM).
  - TYPE 5. AS SHOWN ON THE PLANS.
- B. CONSTRUCT FILTER DAMS ACCORDING TO THE FOLLOWING CRITERIA UNLESS SHOWN OTHERWISE ON THE PLANS.
- TYPE 2 AND 3 FILTER DAMS: SECURE WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1 INCH DIAMETER HEXAGONAL OPENINGS.
  - PLACE GRANULAR FILL ON THE WIRE MESH TO HEIGHT AND SLOPES SHOWN ON PLANS OR AS SPECIFIED BY THE ENGINEER.
    - 3-5 INCHES FOR ROCK FILTER DAM TYPES 1, 2 AND 4.
    - 4-8 INCHES FOR ROCK FILTER DAM TYPE REFER TO GRANULAR FILL IN SPECIFICATION SECTION No. 02378 RIPRAP AND GRANULAR FILL.
  - FOLD WIRE MESH AT UPSTREAM SIDE OVER GRANULAR FILL AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS.
  - IN STREAMS: SECURE OR STAKE MESH TO STREAM BED PRIOR TO AGGREGATE PLACEMENT.
  - SEE HCFCD SPECIFICATION SECTION NO. 02364-FILTER DAMS.
  - EMBED ONE FOOT MINIMUM INTO SLOPE AND RAISE ONE FOOT HIGHER THAN CENTER OF DEPRESSED AREA AT SLOPE.



NO.	REVISIONS	DATE	NAME

**HARRIS COUNTY ENGINEERING DEPARTMENT**

**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM F-880  
21020 PARK ROW  
KATY, TX 77449  
PHONE: (281) 578-9555  
FAX: (281) 578-9668

**FRANK E. BROOKS**  
REGISTERED PROFESSIONAL ENGINEER  
19225  
01/04/2024

PROJECT TITLE:  
**TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER**

DESCRIPTION: **DETAILS - STORM WATER**

DRAWN BY: **JDZ**  
CK'D BY: **NR**

SCALE: **NONE**

CIVIL STANDARD: **SW3P**  
DATE: **8/15/17**  
SHEET NO.: **33 / 39**

**GENERAL NOTES:**

- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quidddy Engineering.
- This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
- According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).  
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- Research for Adjoining Tracts was performed by Quidddy Engineering on June 1, 2022.
- The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
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 Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
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- Temporary Benchmark C being a MAG nail set at the bulwain of a median along the centerline of Hufsmith-Kohrville Road and further shown hereon.  
 Elevation = 174.29 feet, NAVD 88, 2001 Adjustment.
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**VERIFICATION OF PRIVATE UTILITY LINES**

Date: \_\_\_\_\_

CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown 80% lateral line accuracy. Not to be used for contact verification.) (See service area on our website.)  
 Signature Valid for six months.

Date: \_\_\_\_\_

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Date: \_\_\_\_\_

APPROVED FOR AT&T TEXAS/SBT UNDERGROUND CONDUIT FACILITIES ONLY.  
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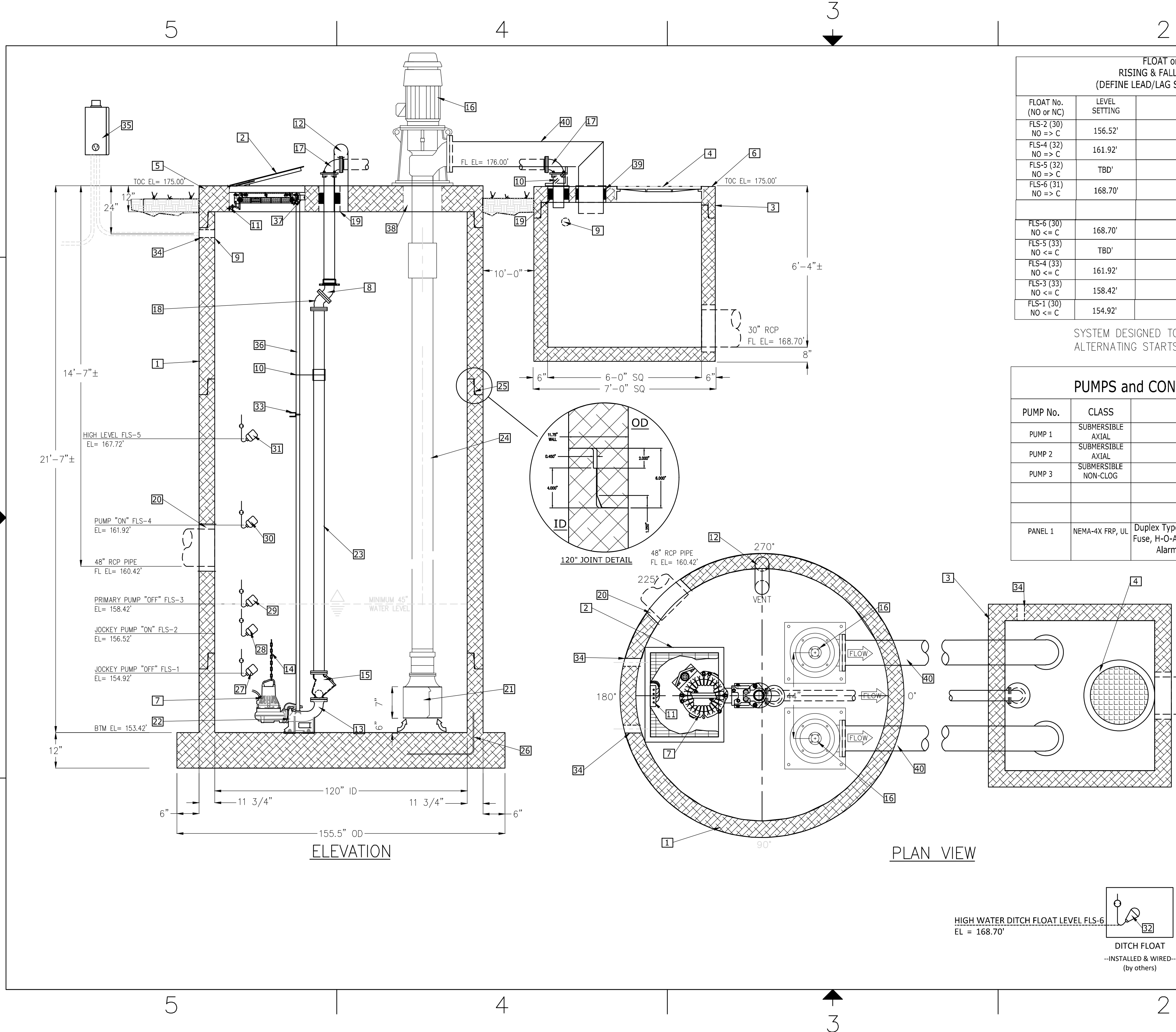
BROOKS & SPARKS, INC.  
 F-880  
 STATE OF TEXAS  
 REGISTERED PROFESSIONAL ENGINEER  
 FRANK E. BROOKS  
 48225  
 01/04/2024

**TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER**

**STORM SEWER LIFT STATION PLAN (SHEET 1 OF 2)**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-0018      DATE: 01/04/2024  
 SCALE: NTS OR AS SHOWN      SHEET 34 OF 39



**FLOAT or XDCR CYCLE  
 RISING & FALLING WATER LEVELS  
 (DEFINE LEAD/LAG SIGNAL TRIGGER POINTS)**

FLOAT No. (NO or NC)	LEVEL SETTING	RESULT OF ACTION (RISING)
FLS-2 (30) NO => C	156.52'	JOCKEY PUMP "ON"
FLS-4 (32) NO => C	161.92'	PUMP 1 & JOCKEY PUMP "ON"
FLS-5 (32) NO => C	TBD'	HIGH WATER LEVEL "ALARM"; HIGH LEVEL ALARM "ON"
FLS-6 (31) NO => C	168.70'	HIGH WATER IN DITCH; PUMPS TURN "OFF"
(FALLING)		
FLS-6 (30) NO <= C	168.70'	DITCH FLOAT HIGH WATER; PUMPS TURN "ON"
FLS-5 (33) NO <= C	TBD'	HIGH WATER ALARM; HIGH LEVEL ALARM "OFF"
FLS-4 (33) NO <= C	161.92'	JOCKEY & PUMP 1 "ON"
FLS-3 (33) NO <= C	158.42'	PUMP "OFF"; PUMP 1 SWITCHES TO PUMP 2
FLS-1 (30) NO <= C	154.92'	JOCKEY PUMP "OFF"

SYSTEM DESIGNED TO RUN ONE PUMP AT A TIME, ALTERNATING STARTS

**PUMPS and CONTROLS SCHEDULE**

PUMP No.	CLASS	PUMP SPECIFICATION
PUMP 1	SUBMERSTIBLE AXIAL	3142 USgpm @ 21.78' TDH 25 HP, 1200 RPM, 3/60/460VAC
PUMP 2	SUBMERSTIBLE AXIAL	3142 USgpm @ 21.78' TDH 25 HP, 1200 RPM, 3/60/460VAC
PUMP 3	SUBMERSTIBLE NON-CLOG	450 USgpm @ 27.48' TDH 4.7 HP, 1750 RPM, 3/60/460VAC
<b>CONTROL PANEL SPECIFICATION</b>		
PANEL 1	NEMA-4X FRP, UL	Duplex Type w/ IEC Starter, Circuit Breakers, Alarm Circuit Fuse, H-O-A, Alternator Relay, Generator Receptacle, Visual Alarm Beacon (mounted & wired by contractor)

**WET WELL BOM w/ NOTES**

BOM No.	QTY REQ.	DESCRIPTION
1	1	Ø 120" x 21'-7" RCP NET WELL (see NOTES CONCRETE GRADE)
2	1	30" x 36" MOND-SHEET ALUMINUM HATCHWAY w/ SAFETY GRATE
3	1	72" SQ x 6'-4" DEEP CONCRETE DISCHARGE BOX
4	1	32" CI RING & COVER
5	1	12" THK FLAT CONCRETE TOP
6	1	6" THK FLAT WALK VALVE LID
7	1	4" JOCKEY-3/60/460VAC SUBMERSTIBLE PUMP
8	1	4" FLG X MØ 45° ELBOW
9	3	3" CONDUIT SLEEVES
10	2	SS INTERMEDIATE GUIDE RAIL BRACKETS
11	1	SS CABLE HANGER BRACKET
12	1	6" HDG VENT PIPE
13	1	4" BASE ELBOW
14	1	SS CHAINS FOR LIFTING
15	1	4" DI BALL CHECK VALVE
16	2	12" AXIAL - 3/60/460VAC SUBMERSTIBLE PUMPS
17	2	4" DI 90° ELBOW FLG X M-JOINT w/STAR GRIPS
18	1	4" DI 45° ELL w/STAR GRIPS
19	1	8" GALV SLEEVE FOR 7 PCS LS-410 (LINK SEAL)
20	2	SEAL WITH GROUT (BY OTHERS)
21	2	BELL SUCTION w/SCREEN
22	1	4" LIFT-OUT ASSEMBLY
23	1	4" DI PIPE
24	2	12" DIA PIPE COLUMN
25	AS REQ'D	PLASTIC FLEXIBLE GASKETS FOR WATER TIGHT JOINTS
26	AS REQ'D	CONCRETE REINFORCEMENT REBAR (AS SPECIFIED)
27	1	FLS-1, LEVEL CONTROL FLOAT, JOCKEY PUMP "OFF" - 154.92' EL
28	1	FLS-2, LEVEL CONTROL FLOAT, JOCKEY PUMP "ON" - 156.52' EL
29	1	FLS-3, LEVEL CONTROL FLOAT, PRIMARY PUMPS "OFF" - 158.42' EL
30	1	FLS-4, LEVEL CONTROL FLOAT, LEAD PUMP "ON" - 161.92' EL
31	1	FLS-5, LEVEL CONTROL FLOAT, HIGH WATER ALARM - 167.72' EL
32	1	FLS-6, LEVEL DITCH FLOAT, HIGH WATER "ALARM" LEVEL - 168.70' EL
33	1	SS SUPPORT CROSSBAR
34	3	3" ELECTRICAL CONDUIT SLEEVES
35	1	CONTROL PANEL, NEMA 4X FRP w/GENERATOR RECEPTACLE
36	2	SS GUIDE RAILS
37	1	SS UPPER GUIDE RAIL BRACKETS
38	2	25" HOLE FOR PUMP SHAFT AND BASKET
39	2	16" HOLE FOR LS-360 X 21 PCS (LINK SEAL)
40	2	12" X TBD GALV DISCHARGE PIPE
41	1	SS INTERMEDIATE GUIDE RAILS
42	1	SS SUPPORT CROSSBAR
LIFT CXC		
SALES ORDER #		
MODEL NO: AXT-120-12-4		
DATE MOD:		
PHONE NO: 281-617-7283		
NOTES:		
A.	DRAWING IS REPRESENTATIVE ONLY UNTIL "CERTIFIED"	
B.	ALL DASHED LINES ARE BY OTHERS UNLESS OTHERWISE NOTED.	
C.	ALL ELEVATIONS MUST BE VERIFIED PRIOR TO FABRICATION.	
CONCRETE TYPE 1/1 CONCRETE w/ GRADE STRENGTH OF 5000 PSI @ 28 DAYS.		
GRADE: -FLOOR CONSTRUCTION IS "MONOLITHIC", -WELLS OR EXCEEDS ASTM C478 -H93 LOADING -60000 PSI REINFORCEMENT STEEL REBAR TO ASTM A-185 WWR w/ REQUIRED CENTERS. ANY WALL OPENING REQUIRES WWR. -REBAR MIN. SPLICE LENGTHS: #4 - 22", #5 - 28", #6 - 33"		
BOM No. 2	HATCHWAYS:	ALUMINUM HATCH 300 PSF RATED, 0.25" ALUMINUM ANTI-SKID FLOOR PLATE, SS TAMPERPROOF FASTENERS, HINGES, & SLAMLOCK.
BOM No. 7	PUMPS:	PUMPS, SUBMERSTIBLE CENTRIFUGAL NON-CLOG, SOLIDS HANDLING (see PUMP SCHEDULE for mechanical/electrical detail)
BOM No. 35	CONTROLS:	CONTROLS, NEMA-4X ENCLOSURE (REMOTE OPERATION) (see CONTROLS SCHEDULE for electrical detail)
SUBMITTALS: ENGINEERING SUBMITTAL TO FOLLOW AFTER RECEIPT OF AN INITIAL APPROVAL BY CLIENT'S AUTHORIZED REPRESENTATIVE.		

**LIFT CXC**

BY REVISION REVISION DESCRIPTION  
 PROJECT NAME/NUMBER:  
 TOMBALL ISD TTC  
 ENGINEER: BROOKS AND SPARKS

DATE: 11-OCT-2023

11969 FM 529  
 HOUSTON, TX 77041

PO BOX 73149  
 HOUSTON TX 77273  
 281.617.7283

DC AP'VD

STORM SEWER LIFT STATION  
 PLAT-MARK/GPS/ADDRESS:  
 CUSTOMER (contact/address):  
 TBD

1969 FM 529  
 HOUSTON, TX 77041

SIZE FSCM NO. DWG NO.  
 B XXXXXXXX AXT-120-12-4

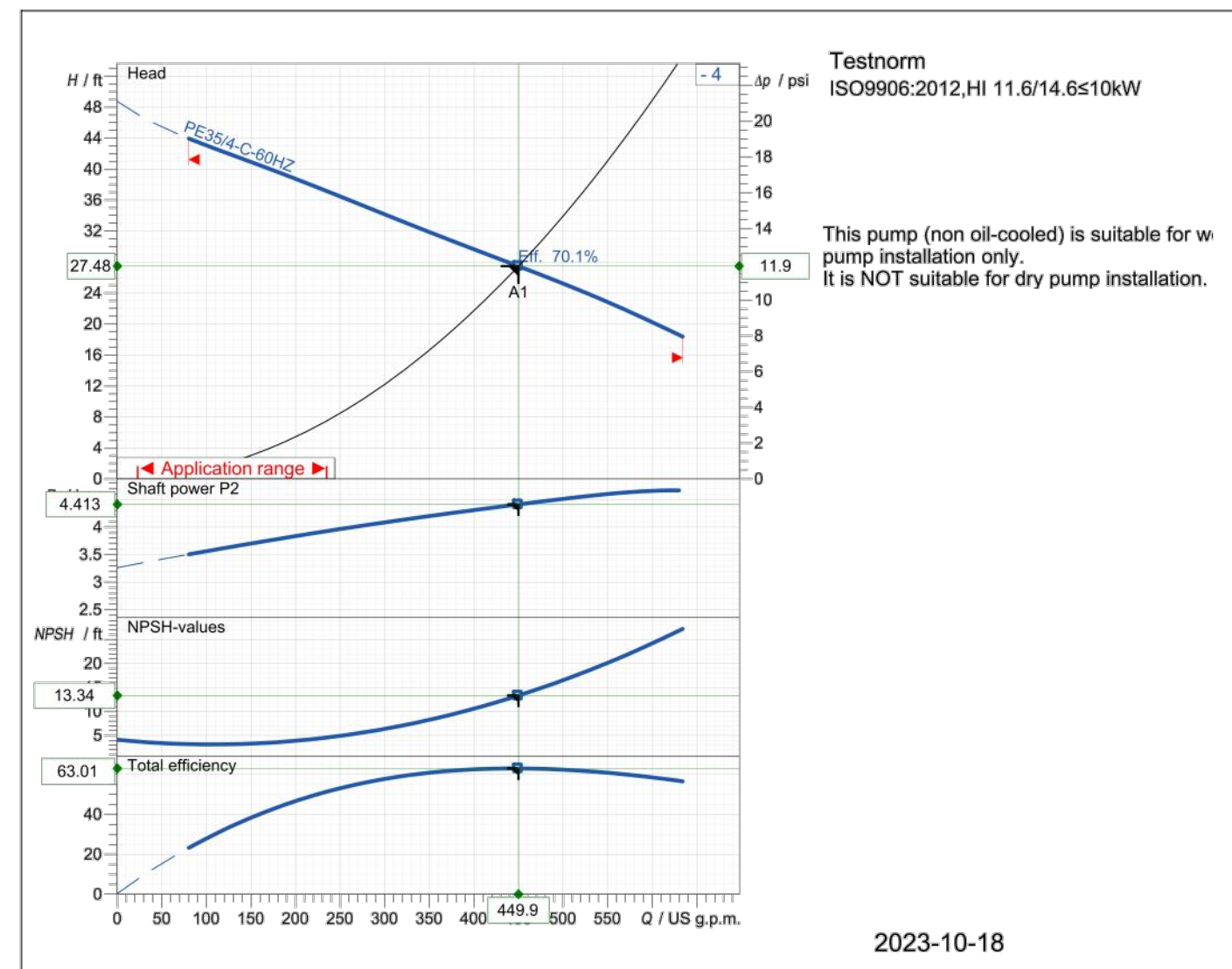
SCALE N/A ISO#: 000000 SHEET

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 Includes Xref(s): 866020-X-ROADWAY.dwg; 866020-X-SEAL.dwg; 866020-X-TPO.dwg; 866020-X-BRD.dwg

16 Feb 2024 10:03AM RobertV  
 \\hou-srv05\CADD\project\BROOK.SP\Tomball\_isd\8660020-02-tic detention and pump station\8660020-PUMP.dwg  
 Includes Xref(s): 866020-X-ROADWAY.dwg; 866020-X-POND.dwg; 866020-X-SEAL.dwg; 866020-X-BRD.dwg

**SULZER**

**XFP100C CB1 60HZ (wet pit)**



<b>Operating data specification</b>		Flow	449.9 US g.p.m.	Power input	4.91 hp
Efficiency	70.1 %	Head	27.5 ft	Rated power	4.41 hp
NPSH	13.3 ft	Fluid	Water	Nature of system	Single head pump
Temperature	68 °F				
No. of pumps	1				
<b>Pump data</b>		Type	XFP100C CB1 60HZ (wet pit)	Make	SULZER
Series	XFP PE1-PE3	Impeller	Contrablock Plus impeller, 1 vane	Impeller size	7inch
N° of vanes	1	Suction flange	DN100	Type of installation	Wet Well installation with pedestal
Free passage	3 inch				
Discharge flange	DN100				
Moment of inertia	0.318 lb ft²				
<b>Motor data</b>		Rated voltage	460 V	Frequency	60 Hz
Rated power P2	4.69 hp	Rated power P2	4.69 hp	Nominal Speed	1730 rpm
Number of poles	4	Efficiency	89.5 %	Rated current	6.2 A
Power factor	0.8	Starting torque	14.2 lbf ft	Degree of protection	IP 68
Starting current	41.5 A	Insulation class	F	No. starts per hour	15
Starting torque	20.4 lbf ft				

Sulzer reserves the right to change any data and dimensions without prior notice and can not be held responsible for the use of information contained in this software. Spaix® 4, Version 4.3.12 - 2020/05/28 (Build 328) Data version June 2020

Curve number	<b>Pump performance curves</b>		<b>SULZER</b>
Reference curve	<b>XFP100C CB1 60HZ (wet pit)</b>		
Density	62.32 lb/ft³	Testnorm	ISO9906:2012, HI 11.6/14.6510kV
Flow	449.9 US g.p.m.	Discharge	DN100
Head	27.5 ft	Rated speed	1736 rpm
Head	4.41 hp	Date	2023-10-18
Shaft power P2	4.41 hp	Rated power P2	4.69 hp
Power input	4.91 hp	Hydraulic efficiency	70.1 %
Rated power P2	4.69 hp	NPSH	13.3 ft

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**BROOKS & SPARKS, INC.**  
 CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW PHONE: (281) 578-9595  
 KATY, TX 77449 FAX: (281) 578-9686

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  - Temporary Benchmark A being a 100D nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
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APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY.  
 Signature valid for one year.

BROOKS & SPARKS, INC.

01/04/2024

**TOMBALL INDEPENDENT SCHOOL DISTRICT**  
**PLANS FOR**  
**DETENTION BASIN**  
**TO SERVE**  
**TOMBALL INNOVATION CENTER**

**STORM SEWER LIFT STATION PLAN (SHEET 2 OF 2)**

NO.	DATE	REVISIONS	BY

DRAWN BY: RV      CHECKED BY: CSM, JAE  
 DESIGNED BY: CSM      APPROVED BY: FEB  
 PROJECT NO. 866-001B      DATE: 01/04/2024  
 SCALE: NTS OR AS SHOWN      SHEET 35 OF 39

**Motor performance curve**  
**PE35/4-C-60HZ**

**SULZER**

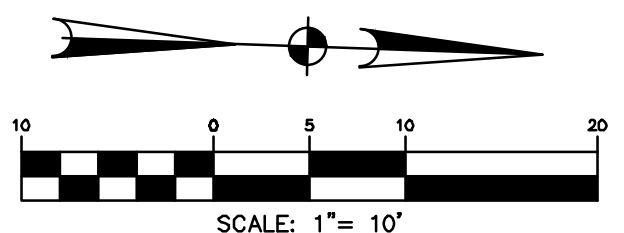
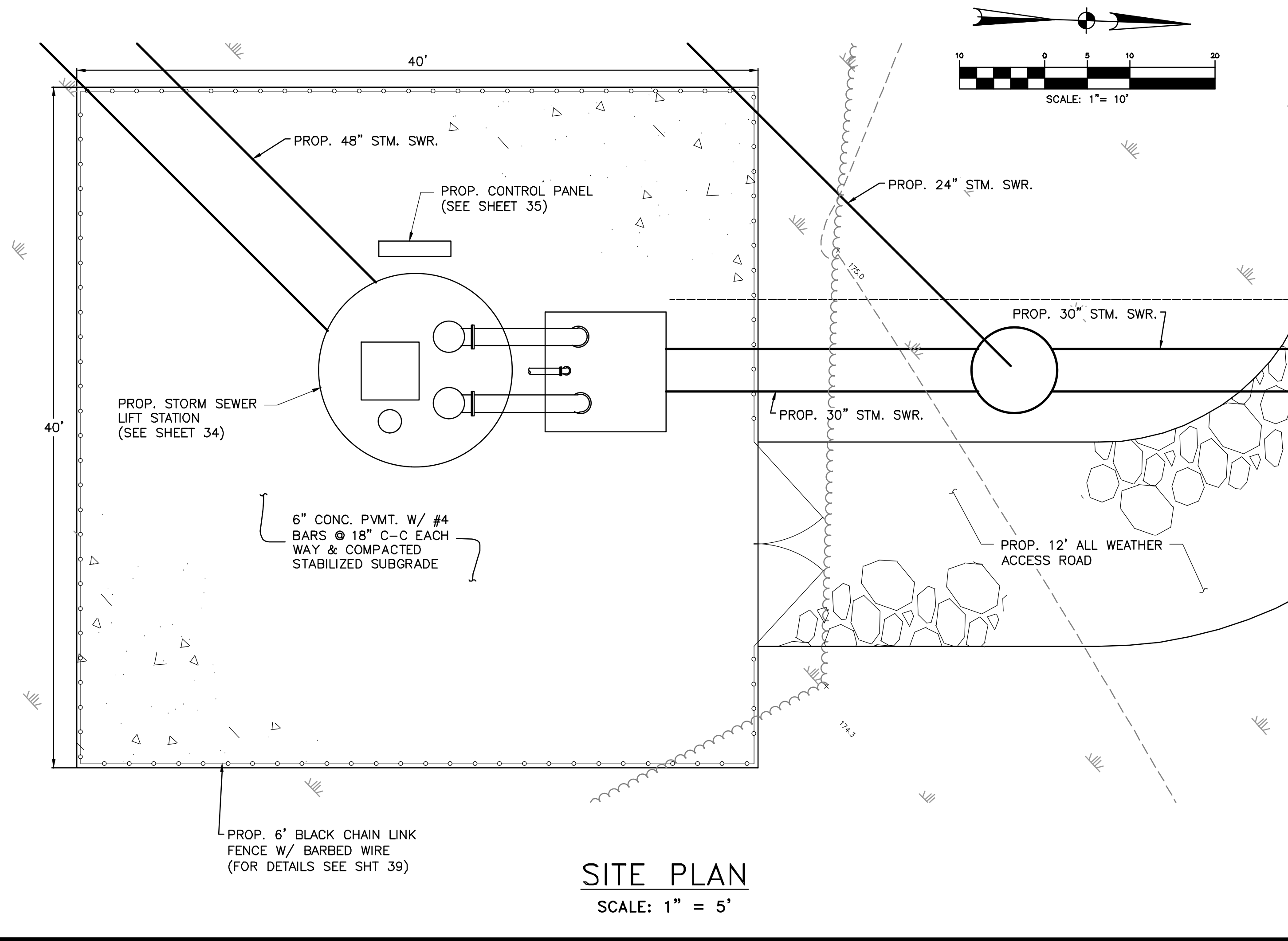
Frequency	60 Hz	Service factor	1.3	Nominal Speed	1730 rpm	Number of poles	4	Rated voltage	460 V	Date	2023-10-18
Rated power	4.69 hp										

Symbol	No load	25 %	50 %	75 %	100 %	125 %
P <sub>2</sub> / hp	0	1.173	2.347	3.52	4.694	5.867
P <sub>1</sub> / hp	0.2657	1.343	2.537	3.855	5.242	6.693
η / %	0	87.36	92.5	91.31	89.53	87.67
n / rpm	1800	1789	1772	1752	1731	1708
cos φ	0.08017	0.3618	0.5818	0.721	0.7899	0.8285
I / A	3.102	3.475	4.082	5.005	6.212	7.559
s / %	0.00233	0.6309	1.578	2.673	3.845	5.125
M / lbf ft	0	3.446	6.958	10.55	14.24	18.05

Tolerance according to IEC 60034-1 12.84 for rated power

Starting current	41.5 A	Starting torque	20.4 lbf ft	Moment of inertia	0.214 lb ft²	No. starts per hour	15
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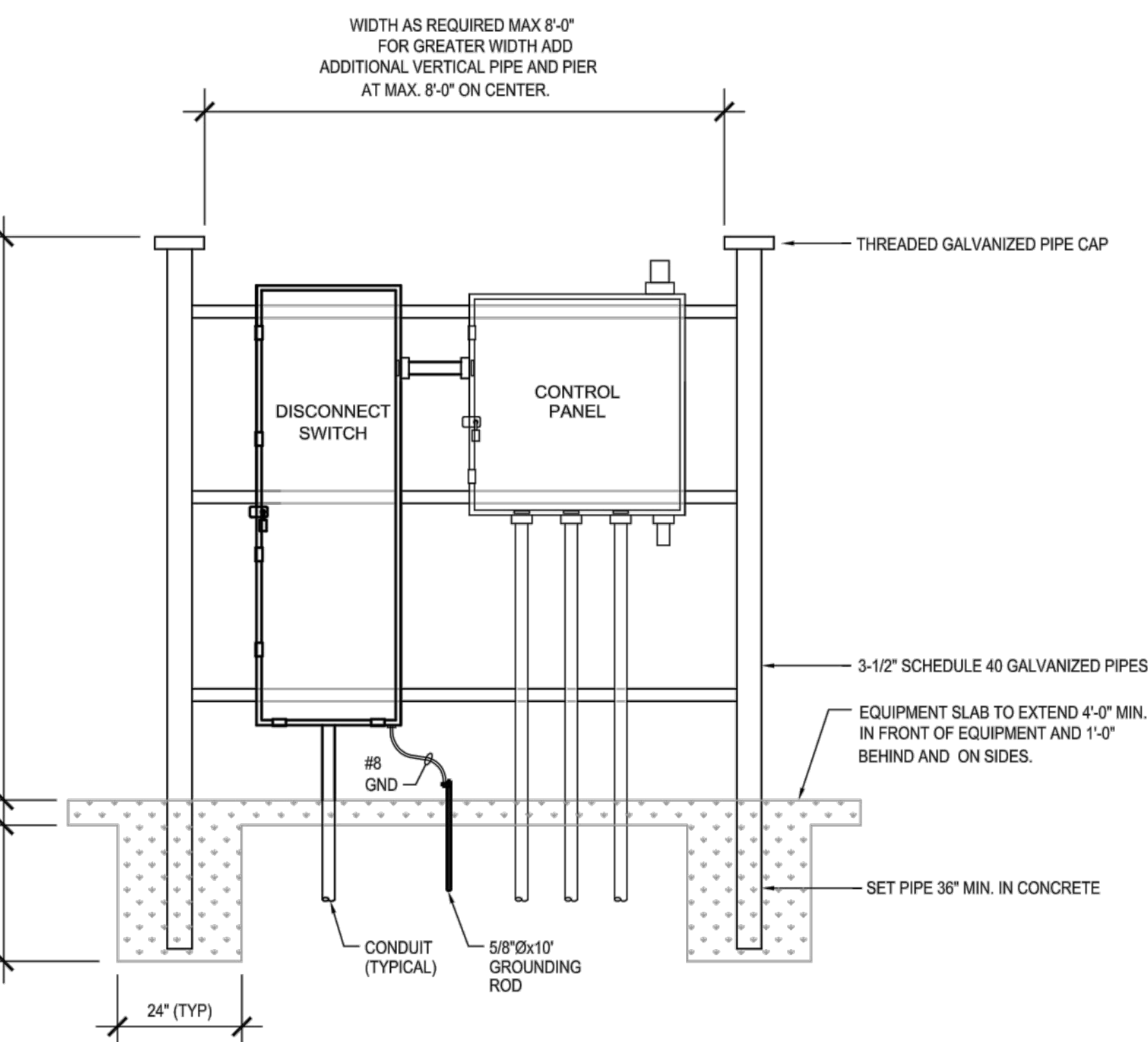
Sulzer reserves the right to change any data and dimensions without prior notice and can not be held responsible for the use of information contained in this software. Spaix® 4, Version 4.3.12 - 2020/05/28 (Build 328) Data version June 2020



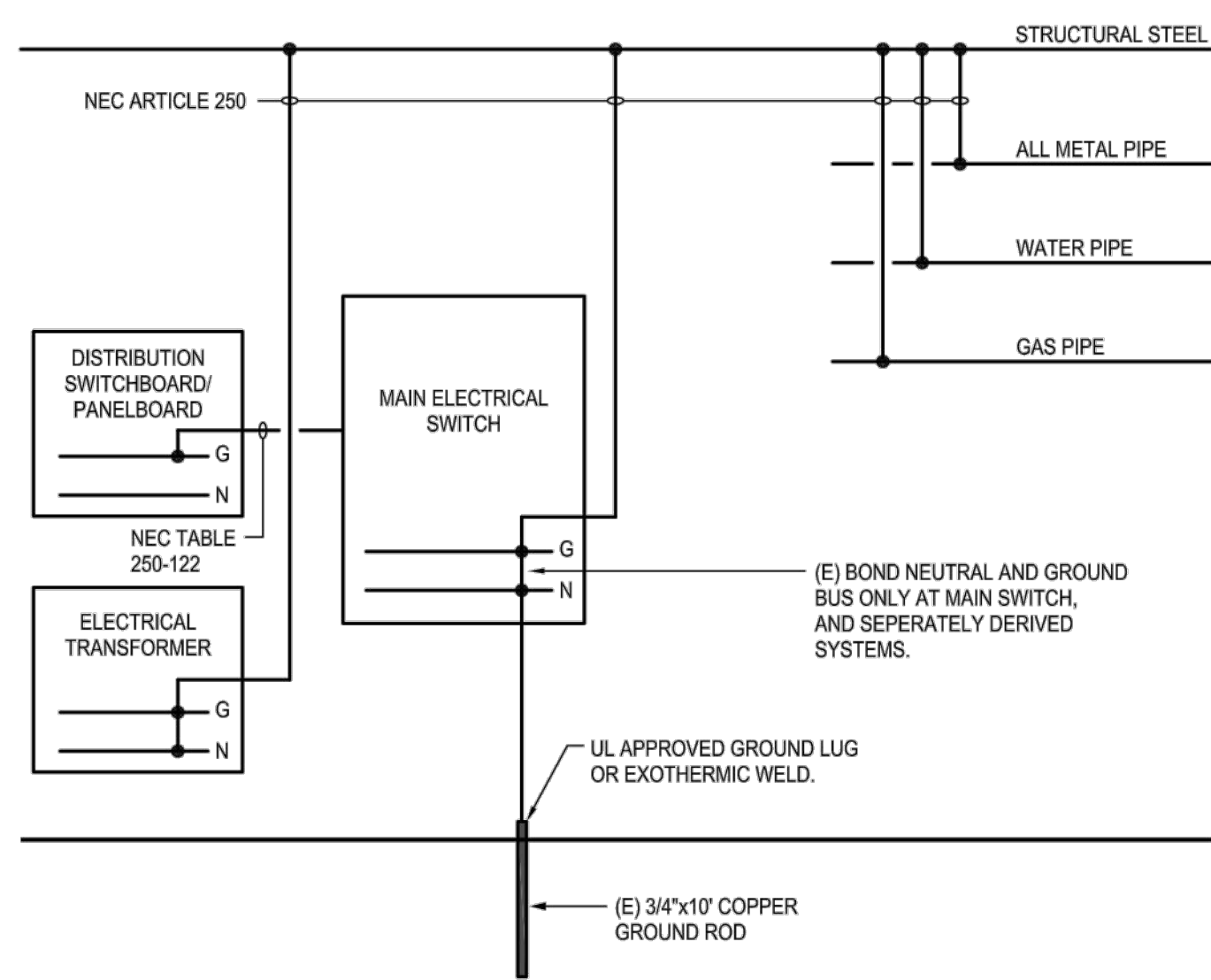
# ELECTRICAL SPECIFICATIONS

FURNISH AND INSTALL COMPLETE ELECTRICAL SYSTEM AS INDICATED ON PLANS. ELECTRICAL CONTRACTOR TO MAKE ALL FINAL CONNECTIONS TO ALL EQUIPMENT. MATERIAL SHALL BE AS FOLLOWS:

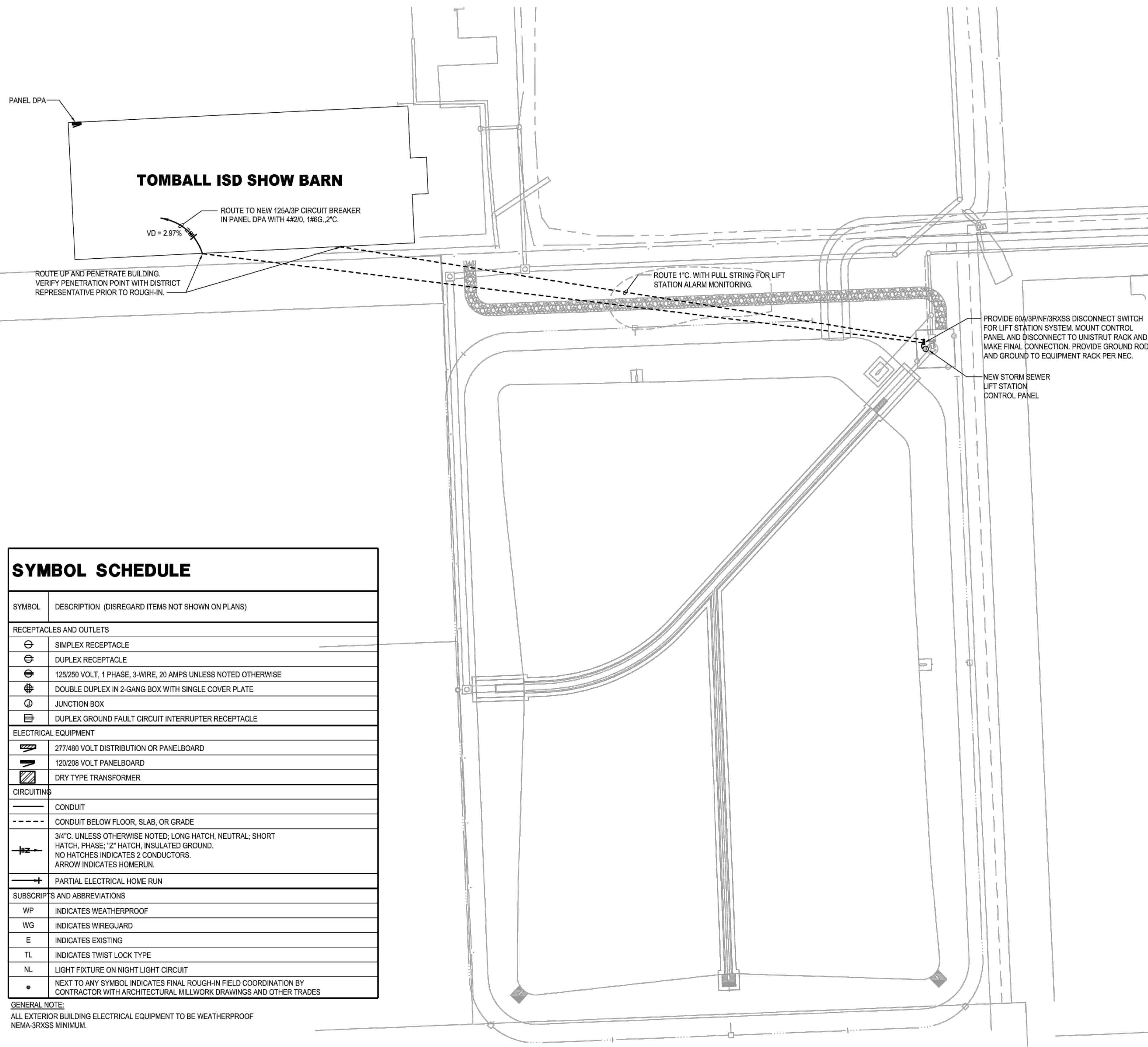
- CONDUIT: ALL ELECTRICAL CONDUCTORS SHALL BE INSTALLED IN CONDUIT COMPLYING WITH THE NATIONAL ELECTRICAL CODE. WHERE INSTALLED OUTDOORS ABOVE GROUND, IN POURED CONCRETE OR SUBJECT TO STRESS FROM COLLISION OR IMPACT, CONDUIT SHALL BE GALVANIZED RIGID STEEL. WHERE RIGID CONDUIT IS NOT REQUIRED, CONDUCTORS SHALL BE INSTALLED IN ELECTRIC METALLIC TUBING WITH ELECTRO-GALVANIZED OUTSIDE AND ENAMEL INSIDE. WHERE CONDUIT IS INSTALLED UNDERGROUND, CONDUIT SHALL BE PVC AS PERMITTED BY LOCAL AUTHORITIES.
- CONDUCTORS: ALL WIRE IN THE WORK SHALL BE COPPER. EACH CONDUCTOR SHALL BE CONTINUOUS, WITHOUT WELD, SPLICE OR JOINT THROUGHOUT ITS LENGTH AND UNIFORM IN CROSS-SECTION. WIRE SHALL HAVE DUAL RATED TYPE "THHN/THWN" INSULATION. MINIMUM WIRE SIZE, EXCEPT FOR CONTROL WIRING, SHALL BE #12 AWG.
- SAFETY SWITCHES AND FUSES: SAFETY SWITCHES SHALL BE FURNISHED AND INSTALLED AT ALL LOCATIONS INDICATED ON PLANS OR REQUIRED BY THE NATIONAL ELECTRICAL CODE. ALL SWITCHES SHALL BE HEAVY DUTY TYPE AND SHALL HAVE CLIPS FOR REJECTION TYPE FUSES AND SHALL BE BY SQUARE D, G.E., OR AN APPROVED SUBSTITUTION. FOR THE VOLTAGE AND LOAD INVOLVED. PROVIDE A COMPLETE SET OF FUSES IN ALL FUSED SWITCHES. FUSES SHALL BE CLASS AK-1 (BUSSMAN "LOW PEAK") FOR CIRCUITS UP TO 600 AMPS AND CLASS L (BUSSMAN "HI-CAP" KRP-C) FOR CIRCUITS ABOVE 600 AMPS.



**3 ELECTRICAL EQUIPMENT RACK DETAIL**  
SCALE: NONE



**2 TYPICAL GROUNDING**  
SCALE: NONE



**1 ELECTRICAL SITE PLAN**  
SCALE: 1" = 60'-0"

SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
<b>RECEPTACLES AND OUTLETS</b>	
⊖	SIMPLEX RECEPTACLE
⊖⊖	DUPLEX RECEPTACLE
⊖⊖⊖	125/250 VOLT, 1 PHASE, 3-WIRE, 20 AMPS UNLESS NOTED OTHERWISE
⊖⊖⊖⊖	DOUBLE DUPLEX IN 2-GANG BOX WITH SINGLE COVER PLATE
⊖⊖⊖⊖⊖	JUNCTION BOX
⊖⊖⊖⊖⊖⊖	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
<b>ELECTRICAL EQUIPMENT</b>	
⊖⊖⊖⊖⊖⊖⊖	277/480 VOLT DISTRIBUTION OR PANELBOARD
⊖⊖⊖⊖⊖⊖	120/208 VOLT PANELBOARD
⊖⊖⊖⊖⊖⊖⊖	DRY TYPE TRANSFORMER
<b>CIRCUITING</b>	
—	CONDUIT
- - - -	CONDUIT BELOW FLOOR, SLAB, OR GRADE
—	3/4" C, UNLESS OTHERWISE NOTED; LONG HATCH, NEUTRAL; SHORT HATCH, PHASE; "Z" HATCH, INSULATED GROUND. NO HATCHES INDICATES 2 CONDUCTORS. ARROW INDICATES HOMERUN.
—	PARTIAL ELECTRICAL HOME RUN
<b>SUBSCRIPTS AND ABBREVIATIONS</b>	
WP	INDICATES WEATHERPROOF
WG	INDICATES WIREGUARD
E	INDICATES EXISTING
TL	INDICATES TWIST LOCK TYPE
NL	LIGHT FIXTURE ON NIGHT LIGHT CIRCUIT
•	NEXT TO ANY SYMBOL INDICATES FINAL ROUGH-IN FIELD COORDINATION BY CONTRACTOR WITH ARCHITECTURAL MILLWORK DRAWINGS AND OTHER TRADES

GENERAL NOTE:  
ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-3RXSS MINIMUM.

**UTILITY ONE CALL**  
CONTRACTOR TO CALL BEFORE DIGGING !!!!  
PHONE: 811  
**Texas 811**



**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
TEXAS REGISTERED ENGINEERING FIRM #880  
21020 PARK ROW KATY, TX 77449  
PHONE: (281) 578-9595  
FAX: (281) 578-9686

- GENERAL NOTES:**
- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quiddity Engineering.
  - This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
  - According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).  
This flood statement does not imply that the property or structures thereon will be free from flooding or flood damage. On rare occasions floods can and will occur and flood heights may be increased by man-made or natural causes. This flood statement shall not create liability on the part of the surveyor.
  - Research for Adjoine Tracts was performed by Quiddity Engineering on June 1, 2022.
  - The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
  - Elevations shown hereon are based on Harris County Floodplain Reference Mark No. 120170 located along the northeast right-of-way of FM 2920 approximately 110 feet from its intersection with Stuebner Airline Road with a published elevation of 154.74 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark A being a 1000 nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark B being a MAG nail and shiner set in a wheelchair ramp at the southwest corner of the intersection of FM 2920 and Hufsmith-Kohrville Road and further shown hereon.  
Elevation = 177.95 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark C being a MAG nail set at the bulnose of a median along the centerline of Hufsmith-Kohrville Road and further shown hereon.  
Elevation = 174.29 feet, NAVD 88, 2001 Adjustment.
  - Temporary Benchmark D being a 1000 nail set in concrete at the southwest corner of the subject tract and further shown hereon.  
Elevation = 175.67 feet, NAVD 88, 2001 Adjustment.
  - Visible improvements/utilities were located with this survey; no subsurface probing, excavation or exploration was performed for this survey.

NOTE: THE LOCATIONS OF THE PRIVATE UTILITY LINES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE ALSO ACCEPTS FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UTILITIES.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.  
NOTICE:  
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DO SO THAT UNDERGROUND LINES CAN BE MARKED. THIS VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

**VERIFICATION OF PRIVATE UTILITY LINES**  
Date:  
CenterPoint Energy/Underground Electrical Facilities Verification ONLY. (This Signature verifies that you have shown CMP Mutual One Line correctly. Not to be used for conflict verification.) Signature Valid for six months.  
Date:  
CenterPoint Energy/Underground Electrical Facilities Verification ONLY. (This Signature verifies that existing underground facilities. Not to be used for conflict verification.) Signature Valid for six months.  
Date:  
APPROVED FOR AT&T TEXAS/SWT UNDERGROUND CONDUIT FACILITIES ONLY.  
Signature valid for one year.

*Bradley Kalmans*  
**BRADLEY KALMANS**  
80219  
LICENSED PROFESSIONAL ENGINEER  
11-20-2023

TOMBALL INDEPENDENT SCHOOL DISTRICT  
PLANS FOR  
DETENTION BASIN  
TO SERVE  
TOMBALL INNOVATION CENTER

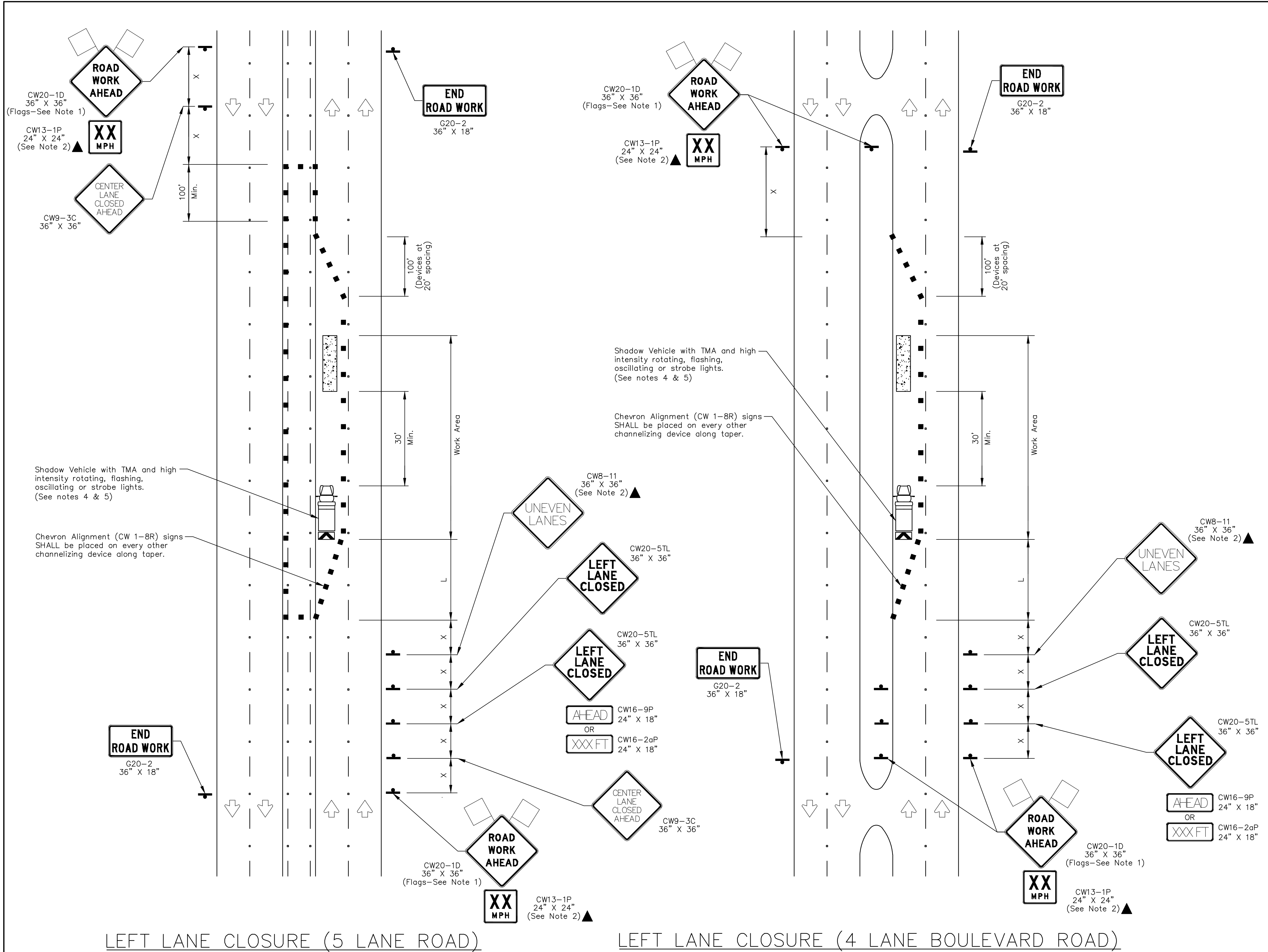
**ELECTRICAL SITE PLAN**

NO.	DATE	REVISIONS	BY

DRAWN BY: DES      CHECKED BY: JZ  
DESIGNED BY: DES      APPROVED BY: JZ  
PROJECT NO. 866-0018      DATE: 10/01/2023  
SCALE: AS SHOWN      SHEET 36 OF 39

**Salas O'Brien**  
HOUSTON  
10930 W. SAM HOUSTON PKWY NORTH SUITE 900  
HOUSTON, TX 77064  
Salas O'Brien Registration: F-4111  
Salas O'Brien Project Number: 2023-05217-00

\\hou-srv05\CADD\project\BROOK\_SP\tomball\_isd\8660020-02-fic detention and pump station\Civil\8660020-HC-TCP-LL.dwg



TRAFFIC CONTROL PLAN SECTION SHALL BE COMPLETED BY ENGINEER

ROADWAY	POSTED SPEED	TAPER LENGTH	SPACING CHANNELIZING DEVICES		SIGN SPACING	BUFFER SPACE
			TAPER	TANGENT		
KOHRVILLE RD	45'	540'	45'	90'	320'	195'

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x"	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS/2 60	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40	L=WS	265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65	650'	715'	780'	65'	130'	700'	410'	
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

GENERAL NOTES

- Flags attached to signs where shown are OPTIONAL.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol are OPTIONAL.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- Contractor shall provide and install traffic control devices in conformance with part VI of Texas Manual on Uniform Traffic Control Devices (TMUTCD - Latest edition with revisions) during construction.
- No lanes shall be blocked from 7am to 9am and 4pm to 6:30pm Monday thru Friday.
- Off duty police officers/flaggers are required to direct traffic when applicable.
- If project is within 400 feet from a signalized intersection, the Contractor shall contact Harris County Engineering Department, Traffic Signal Maintenance at (713) 881-3210 five (5) days prior to the start of construction.

NO.	REVISIONS	DATE	NAME

**HARRIS COUNTY ENGINEERING DEPARTMENT**  
  
**BROOKS & SPARKS, INC.**  
CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW HOUSTON, TX 77449  
 PHONE: (281) 578-9595 FAX: (281) 578-9686

PROJECT TITLE: TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR		TRAFFIC STANDARD
DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER		TCP-LL
SHEET DESCRIPTION: TRAFFIC CONTROL PLAN		
DRAWN BY: BSH	(LEFT LANE CLOSURE)	DATE: 8/18/17
CK'D BY: BSH	SCALE: NONE	SHEET NO.: 37 / 39

\\hou-srv05\CADD\project\BROOK\_SP\tomball\_isd\8660020-02-lic detention and pump station\Civil\8660020-HC-TCP-RL.dwg

TRAFFIC CONTROL PLAN SECTION SHALL BE COMPLETED BY ENGINEER

ROADWAY	POSTED SPEED	TAPER LENGTH	SPACING CHANNELIZING DEVICES		SIGN SPACING	BUFFER SPACE
			TAPER	TANGENT		
KOHRVILLE RD	45'	540'	45'	90'	320'	195'

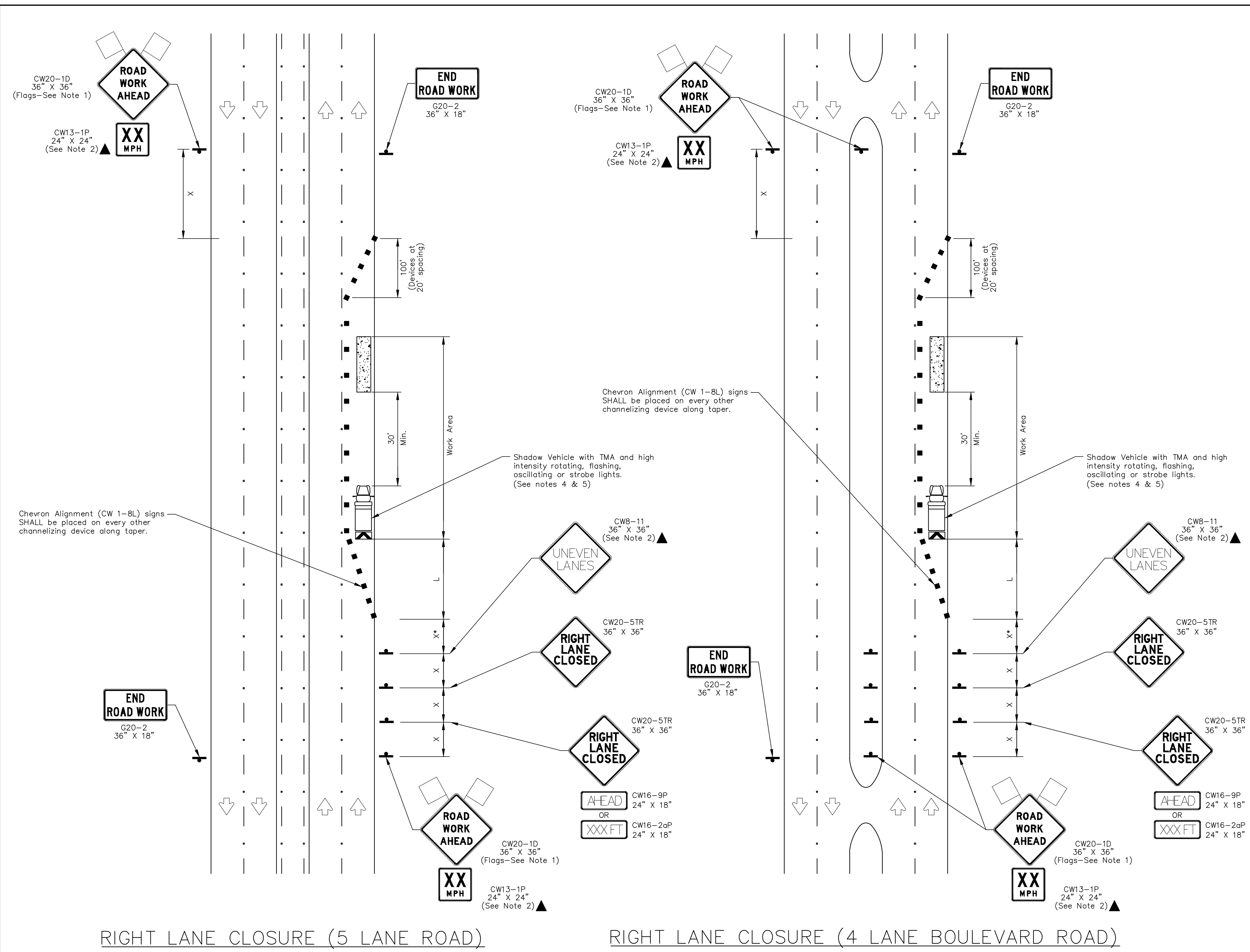
LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths "L"			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60	L=WS	600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75	L=WS	750'	825'	900'	75'	150'	900'	540'
80		800'	880'	960'	80'	160'	1000'	610'

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

- GENERAL NOTES
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  - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
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  - Off duty police officers/flaggers are required to direct traffic when applicable. If project is within 400 feet from a signalized intersection, the Contractor shall contact Harris County Engineering Department, Traffic Signal Maintenance at (713) 881-3210 five (5) days prior to the start of construction.

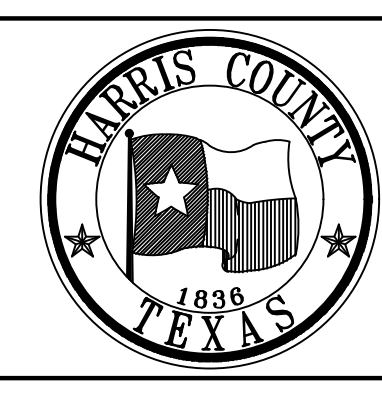


RIGHT LANE CLOSURE (5 LANE ROAD)

RIGHT LANE CLOSURE (4 LANE BOULEVARD ROAD)

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY  
ENGINEERING DEPARTMENT



**BROOKS & SPARKS, INC.**  
 CONSULTING ENGINEERING  
 TEXAS REGISTERED ENGINEERING FIRM F-880  
 21020 PARK ROW  
 KATY, TX 77449  
 PHONE: (281) 578-9595  
 FAX: (281) 578-9586



PROJECT TITLE: TOMBALL INDEPENDENT SCHOOL DISTRICT PLANS FOR		TRAFFIC STANDARD
DETENTION BASIN TO SERVE TOMBALL INNOVATION CENTER		TCP-RL
SHEET DESCRIPTION: TRAFFIC CONTROL PLAN		
DRAWN BY: BSH	(RIGHT LANE CLOSURE)	DATE: 8/18/17
CK'D BY: BSH	SCALE: NONE	SHEET NO: 38 / 39



GENERAL NOTES:

- This survey was prepared without the benefit of a current Commitment for Title Insurance or Abstractor's Certificate and therefore easements or encumbrances may exist which are not shown hereon. No research of the Public Records of Harris County, Texas regarding these easements or encumbrances was performed by Quiddity Engineering.
- This survey does not provide any determination concerning wetlands, fault lines, toxic waste or any other environmental issues. Such matters should be directed by the client or prospective purchaser to an expert consultant.
- According to Map No. 48201C0230L of the Federal Emergency Management Agency's Flood Insurance Rate Maps for Harris County, Texas and Incorporated Areas, dated June 18, 2007, the subject tract is situated within: Unshaded Zone X defined as areas determined to be outside the 0.2% annual chance floodplain (500-year flood).  
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- The surveyor has not been provided with construction plans showing the location of underground utilities. Underground utilities may exist which are not shown hereon.
- Elevations shown hereon are based on Harris County Floodplain Reference Mark No. 120170 located along the northeast right-of-way of FM 2920 approximately 110 feet from its intersection with Stuebner Airline Road with a published elevation of 154.74 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark A being a 1000 nail set in concrete at the northwest corner of the subject tract and further shown hereon.  
 Elevation = 177.70 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark B being a MAG nail and shiner set in a wheelchair ramp at the southwest corner of the intersection of FM 2920 and Hufsmith-Kohrville Road and further shown hereon.  
 Elevation = 177.95 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark C being a MAG nail set at the business end of a median along the centerline of Hufsmith-Kohrville Road and further shown hereon.  
 Elevation = 174.29 feet, NAVD 88, 2001 Adjustment.
- Temporary Benchmark D being a 1000 nail set in concrete at the southwest corner of the subject tract and further shown hereon.  
 Elevation = 175.67 feet, NAVD 88, 2001 Adjustment.
- Visible improvements/utilities were located with this survey, no subsurface probing, excavation or exploration was performed for this survey.

NOTE: THE LOCATIONS OF THE PRIVATE UTILITY LINES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE ALSO ACCEPTS FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UTILITIES.

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.  
 NOTICE:  
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL BE AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THE VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL BE.

VERIFICATION OF PRIVATE UTILITY LINES

Date: \_\_\_\_\_

CenterPoint Energy/Natural Gas Facilities Verification ONLY. (This Signature verifies that you have shown 200' around Gas lines correctly, but to be used for conflict verification) (See service area on map sheet).  
 Signature Valid for six months.

Date: \_\_\_\_\_

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This Signature verifies that existing underground facilities, but to be used for conflict verification) Signature Valid for six months.

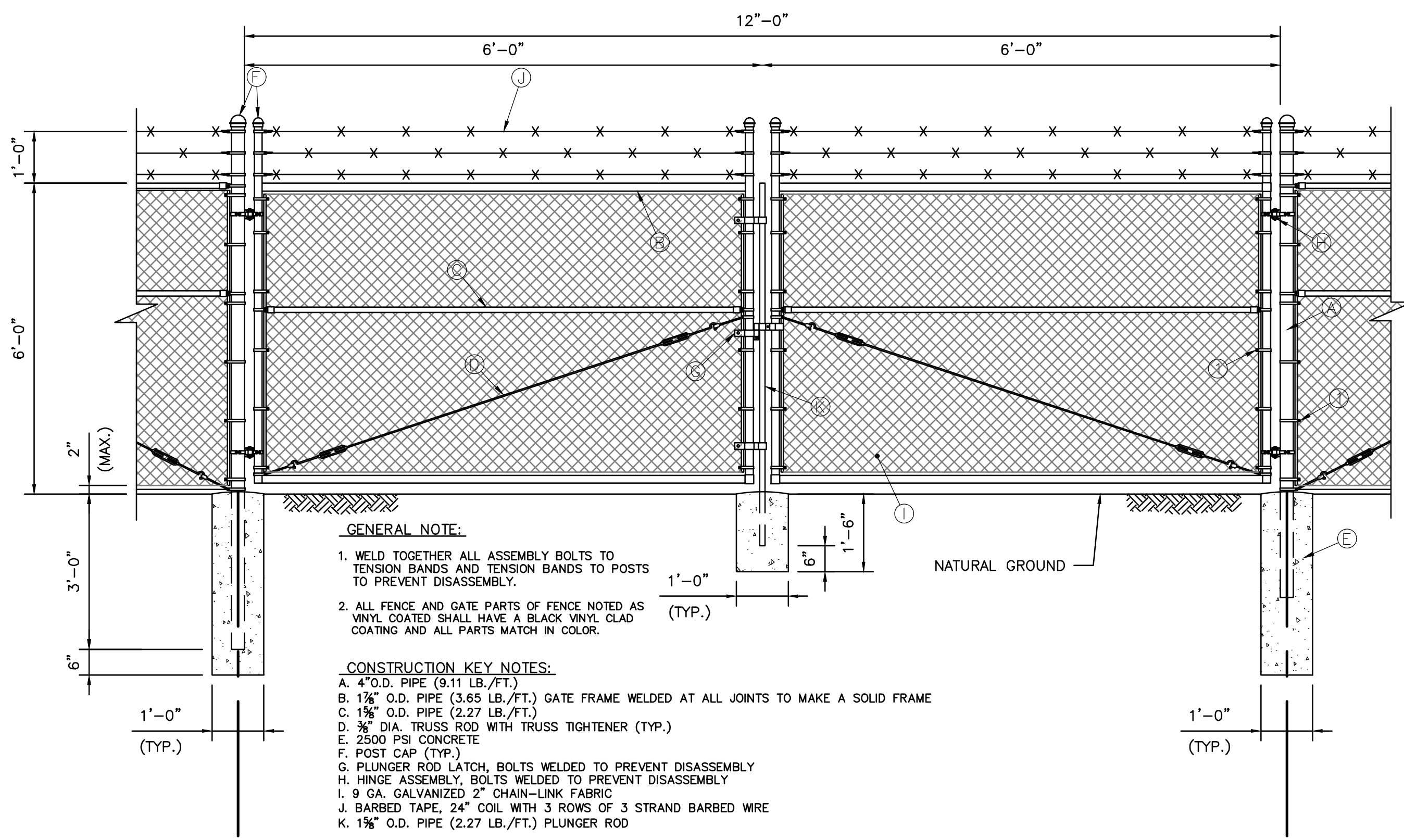
Date: \_\_\_\_\_

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY.  
 Signature valid for one year.

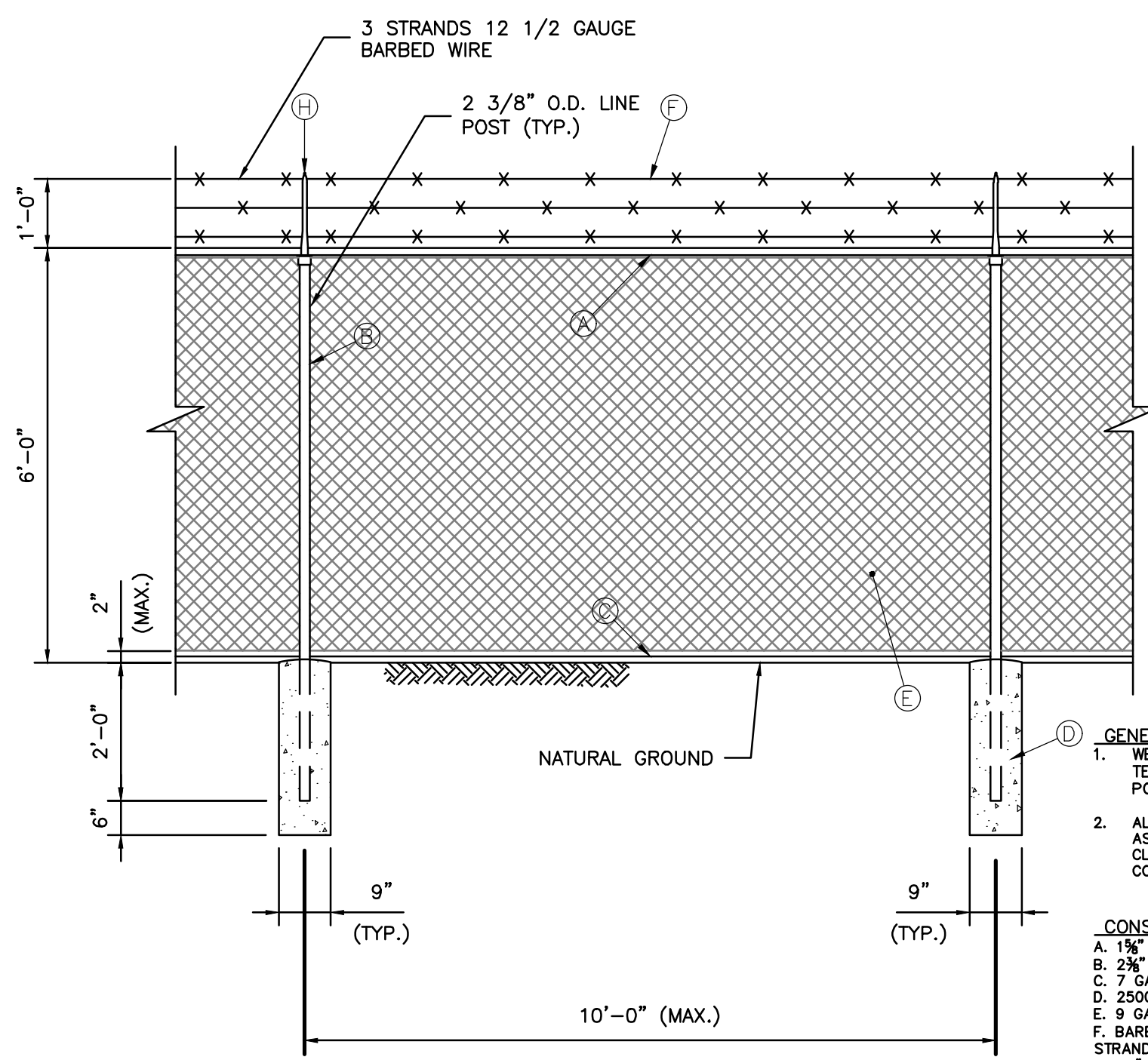
BROOKS & SPARKS, INC.  
 F-880  
  
 FRANK E. BROOKS  
 REGISTERED PROFESSIONAL ENGINEER  
 01/04/2024

TOMBALL INDEPENDENT SCHOOL DISTRICT  
 PLANS FOR  
 DETENTION BASIN  
 TO SERVE  
 TOMBALL INNOVATION CENTER

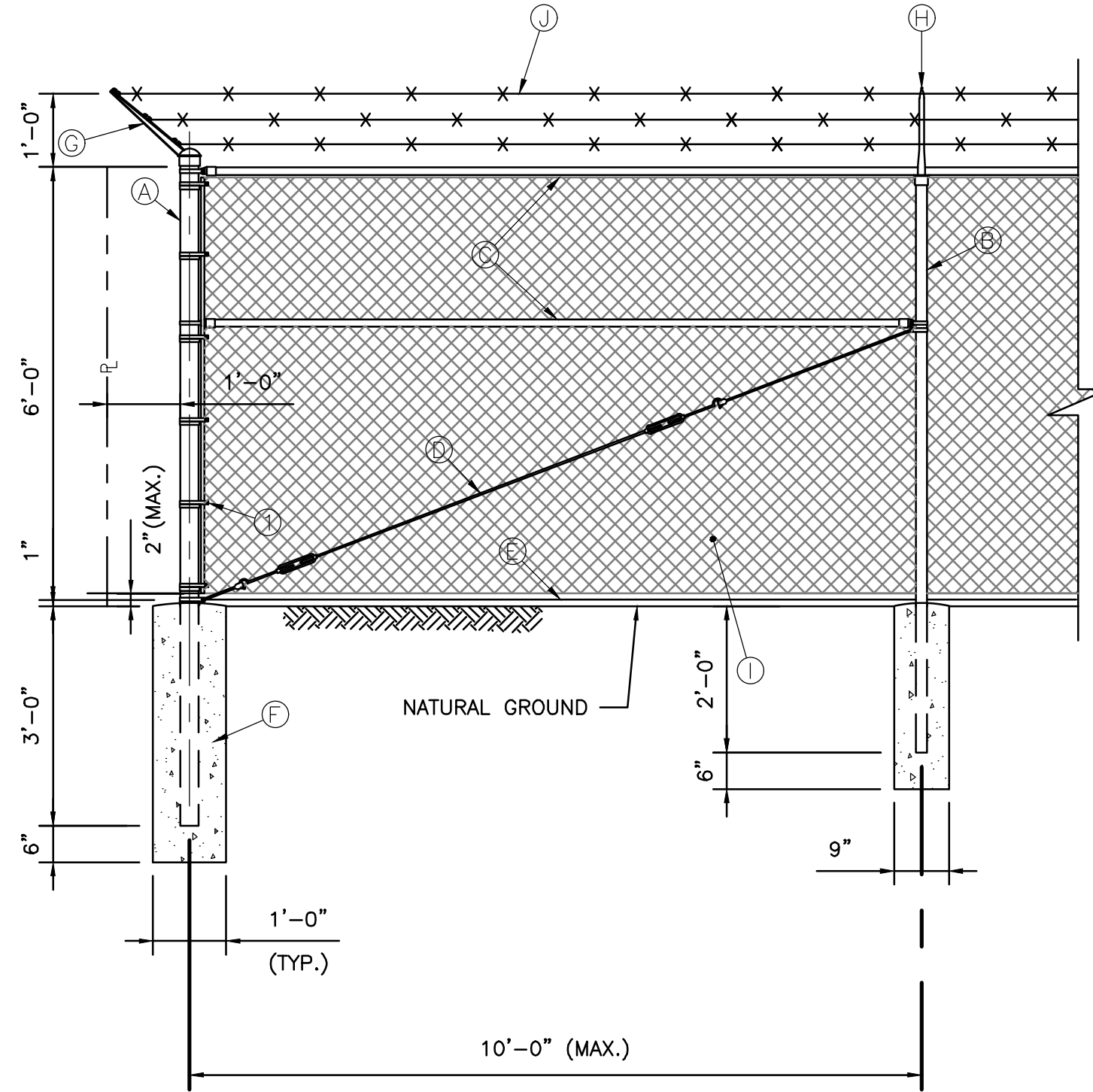
BLACK CHAIN LINK FENCE DETAILS			
NO.	DATE	REVISIONS	BY
DRAWN BY: RV		CHECKED BY: CSM, JAE	
DESIGNED BY: CSM		APPROVED BY: FEB	
PROJECT NO. 866-0018		DATE: 01/04/2024	
SCALE: N.T.S.		SHEET 39 OF 39	



**CHAINLINK FENCE DOUBLE SWING GATE**  
 (STANDARD BLACK VINYL CHAIN LINK FENCE)  
 N.T.S.



**CHAINLINK FENCE LINE POST AND SPACING**  
 (STANDARD BLACK VINYL CHAIN LINK FENCE)  
 N.T.S.



**CHAINLINK FENCE END POST & CORNER POST**  
 (STANDARD BLACK VINYL CHAIN LINK FENCE)  
 N.T.S.

**GENERAL NOTE:**

- WELD TOGETHER ALL ASSEMBLY BOLTS TO TENSION BANDS AND TENSION BANDS TO POSTS TO PREVENT DISASSEMBLY.
- ALL FENCE AND GATE PARTS OF FENCE NOTED AS VINYL COATED SHALL HAVE A BLACK VINYL CLAD COATING AND ALL PARTS MATCH IN COLOR.

**CONSTRUCTION KEY NOTES:**

- 4" O.D. PIPE (9.11 LB./FT.)
- 1 1/2" O.D. PIPE (3.65 LB./FT.) GATE FRAME WELDED AT ALL JOINTS TO MAKE A SOLID FRAME
- 1 1/2" O.D. PIPE (2.27 LB./FT.)
- 3/8" DIA. TRUSS ROD WITH TRUSS TIGHTENER (TYP.)
- 2500 PSI CONCRETE
- POST CAP (TYP.)
- PLUNGER ROD LATCH, BOLTS WELDED TO PREVENT DISASSEMBLY
- HINGE ASSEMBLY, BOLTS WELDED TO PREVENT DISASSEMBLY
- 9 GA. GALVANIZED 2" CHAIN-LINK FABRIC
- BARBED TAPE, 24" COIL WITH 3 STRAND BARBED WIRE
- 1 1/2" O.D. PIPE (2.27 LB./FT.) PLUNGER ROD

**GENERAL NOTES:**

- WELD TOGETHER ALL ASSEMBLY BOLTS TO TENSION BANDS AND TENSION BANDS TO POSTS TO PREVENT DISASSEMBLY.
- ALL FENCE AND GATE PARTS OF FENCE NOTED AS VINYL COATED SHALL HAVE A BLACK VINYL CLAD COATING AND ALL PARTS MATCH IN COLOR.

**CONSTRUCTION KEY NOTES:**

- 1 1/2" O.D. PIPE (2.27 LB./FT.)
- 2 3/8" O.D. PIPE (3.65 LB./FT.)
- 7 GA. COILED SPRING TENSION WIRE
- 2500 PSI CONCRETE
- 9 GA. GALVANIZED 2" CHAIN-LINK FABRIC
- BARBED TAPE, 24" COIL WITH 3 ROWS OF 3 STRAND BARBED WIRE
- 12" CONCRETE HEADER CURB POURED AROUND FENCE PERIMETER (SEE NOTE 1-b)
- LINE POST BARBED WIRE ARM (45°)

**GENERAL NOTES:**

- WELD TOGETHER ALL ASSEMBLY BOLTS TO TENSION BANDS AND TENSION BANDS TO POSTS TO PREVENT DISASSEMBLY.
- ALL FENCE AND GATE PARTS OF FENCE NOTED AS VINYL COATED SHALL HAVE A BLACK VINYL CLAD COATING AND ALL PARTS MATCH IN COLOR.

**CONSTRUCTION KEY NOTES:**

- 4" O.D. PIPE (9.11 LB./FT.)
- 2 3/8" O.D. PIPE (3.65 LB./FT.)
- 1 1/2" O.D. PIPE (2.27 LB./FT.)
- 3/8" DIA. TRUSS ROD WITH TRUSS TIGHTENER (TYP.)
- 7 GA. COILED SPRING TENSION WIRE
- 2500 PSI CONCRETE
- CORNER POST BARBED WIRE ARM (45°)
- LINE POST BARBED WIRE ARM (45°)
- 9 GA. GALVANIZED 2" CHAIN-LINK FABRIC
- BARBED TAPE, 24" COIL WITH 3 ROWS OF 3 STRAND BARBED WIRE

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 Includes Xref(s): 866020-X- BRD.dwg; 866020-X- SEAL.dwg