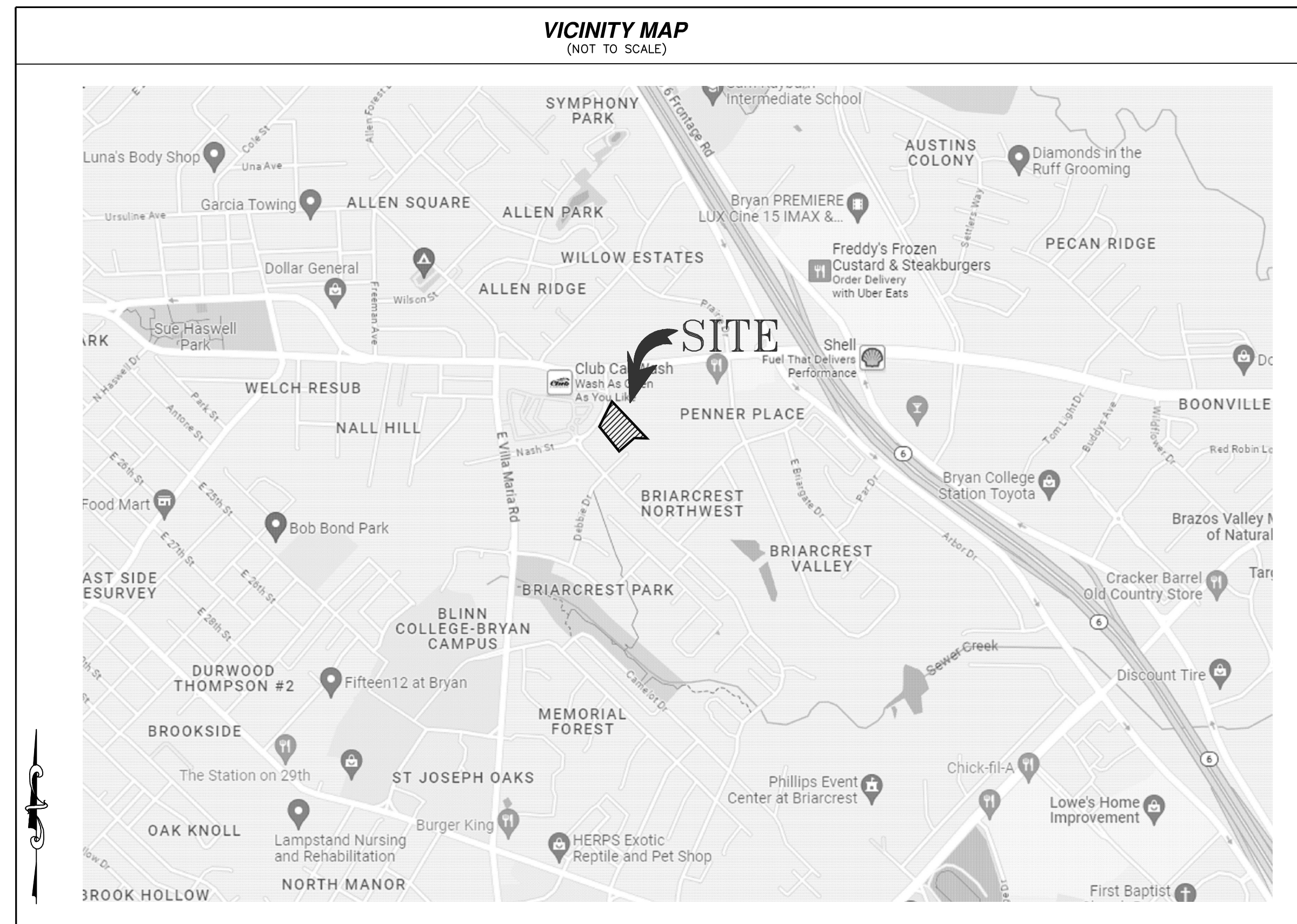


PROPOSED DRAINAGE, GRADING, PAVING AND UTILITIES CONSTRUCTION PLANS

TO SERVE NASH ST RETAIL CENTER

AT
2735 NASH ST,
BRYAN, TEXAS 77802

OCTOBER, 2023



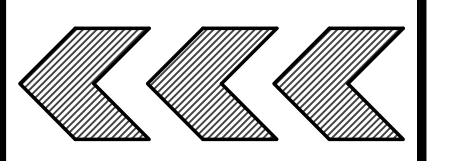
NOTE
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NOTE
THE SCOPE OF THESE PLANS IS STRICTLY LIMITED TO CIVIL SITE WORK AND INFRASTRUCTURE DESIGN. COMPLIANCE WITH CODES AND REGULATIONS RELATED TO THE DESIGN OF IMPROVEMENTS INSIDE THE BUILDING ENVELOPE ARE NOT WITHIN THE SCOPE OF RSG ENGINEERING. BUILDING CODE COMPLIANCE IS NOT THE RESPONSIBILITY OF RSG ENGINEERING.

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EXISTING CONDITIONS SURVEY	R2.0

RSG ENGINEERING

13501 KATY FREEWAY
SUITE 3160
HOUSTON, TEXAS 77079
PH. 713-765-7777



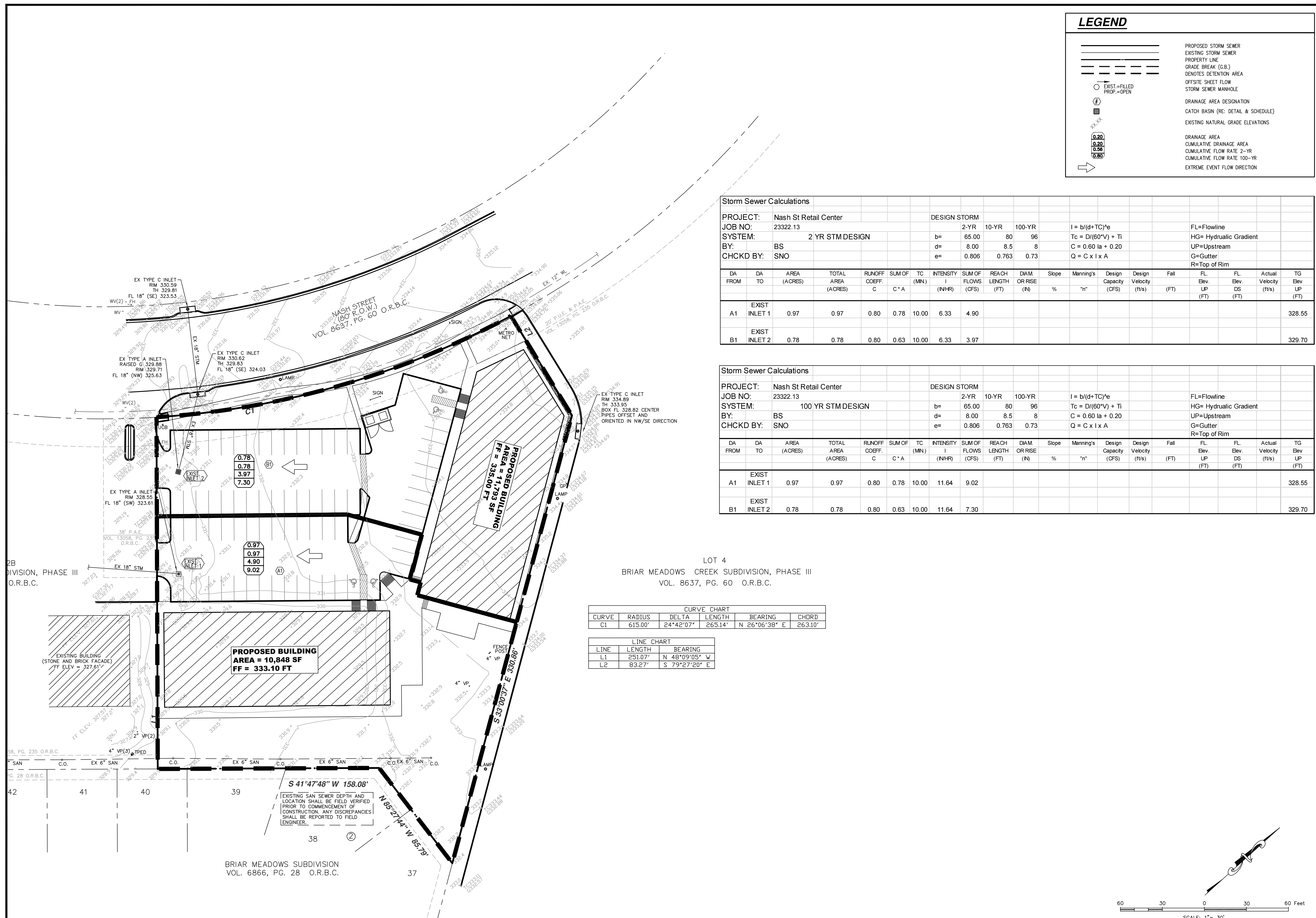
project
NASH ST RETAIL CENTER
at
2735 NASH ST
BRYAN, TEXAS 77802

REVISIONS	DATE	DESCRIPTION

12.05.2023

COVER SHEET

DRAWN BY: BSS	CHECKED BY: SNO
PROJECT No: 23322.13	SHEET No: C1.0



LEGEND

- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPERTY LINE
- GRADE BREAK (G.B.)
- DENOTES DETENTION AREA
- OFFSITE SHEET FLOW
- STORM SEWER MANHOLE
- DRAINAGE AREA DESIGNATION
- CATCH BASIN (RE: DETAIL & SCHEDULE)
- EXISTING NATURAL GRADE ELEVATIONS
- DRAINAGE AREA
- CUMULATIVE DRAINAGE AREA
- CUMULATIVE FLOW RATE 2-YR
- CUMULATIVE FLOW RATE 100-YR
- EXTREME EVENT FLOW DIRECTION

Storm Sewer Calculations

PROJECT:	Nash St Retail Center	DESIGN STORM																		
JOB NO:	23322.13	2-YR	10-YR	100-YR																
SYSTEM:	2 YR STM DESIGN	b=	65.00	80	96															
BY:	BS	d=	8.00	8.5	8															
CHCKD BY:	SNO	e=	0.806	0.763	0.73															

DA FROM	DA TO	AREA (ACRES)	TOTAL AREA (ACRES)	RUNOFF COEFF. C	SUM OF C * A	TC (MIN)	INTENSITY I (IN/HR)	SUM OF FLOWS (CFS)	REACH LENGTH (FT)	DIAM OR RISE (IN)	Slope %	Manning's "n"	Design Capacity (CFS)	Design Velocity (ft/s)	Fall (FT)	FL Elev. UP (FT)	FL Elev. DS (FT)	Actual Velocity (ft/s)	TG Elev. UP (FT)
A1	EXIST INLET 1	0.97	0.97	0.80	0.78	10.00	6.33	4.90											328.55
B1	EXIST INLET 2	0.78	0.78	0.80	0.63	10.00	6.33	3.97											329.70

Storm Sewer Calculations

PROJECT:	Nash St Retail Center	DESIGN STORM																		
JOB NO:	23322.13	2-YR	10-YR	100-YR																
SYSTEM:	100 YR STM DESIGN	b=	65.00	80	96															
BY:	BS	d=	8.00	8.5	8															
CHCKD BY:	SNO	e=	0.806	0.763	0.73															

DA FROM	DA TO	AREA (ACRES)	TOTAL AREA (ACRES)	RUNOFF COEFF. C	SUM OF C * A	TC (MIN)	INTENSITY I (IN/HR)	SUM OF FLOWS (CFS)	REACH LENGTH (FT)	DIAM OR RISE (IN)	Slope %	Manning's "n"	Design Capacity (CFS)	Design Velocity (ft/s)	Fall (FT)	FL Elev. UP (FT)	FL Elev. DS (FT)	Actual Velocity (ft/s)	TG Elev. UP (FT)
A1	EXIST INLET 1	0.97	0.97	0.80	0.78	10.00	11.64	9.02											328.55
B1	EXIST INLET 2	0.78	0.78	0.80	0.63	10.00	11.64	7.30											329.70

LOT 4
BRIAR MEADOWS CREEK SUBDIVISION, PHASE III
VOL. 8637, PG. 60 O.R.B.C.

CURVE	RADIUS	DELTA	LENGTH	BEARING	CHORD
CI	615.00'	24°42'07"	265.14'	N 26°06'38" E	263.10'

LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
L2	83.27'	S 79°27'20" E

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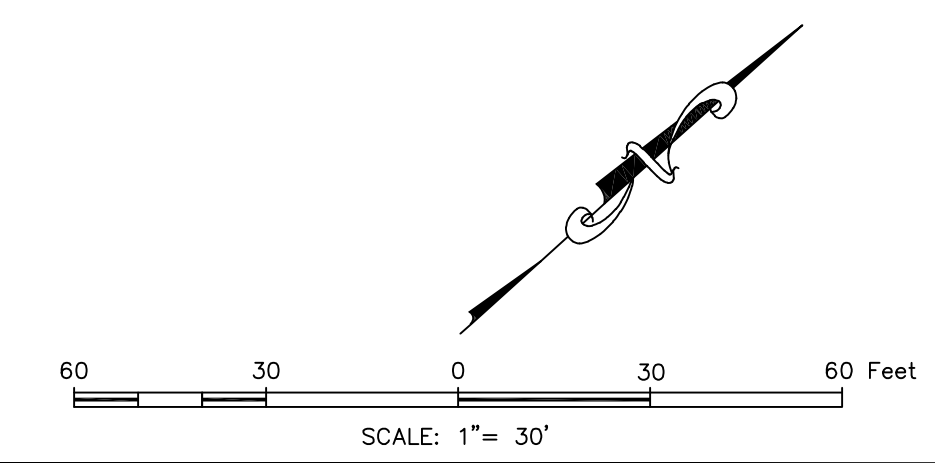
STATE OF TEXAS
SALIM NAZIH OBEID
118969
LICENSED PROFESSIONAL ENGINEER

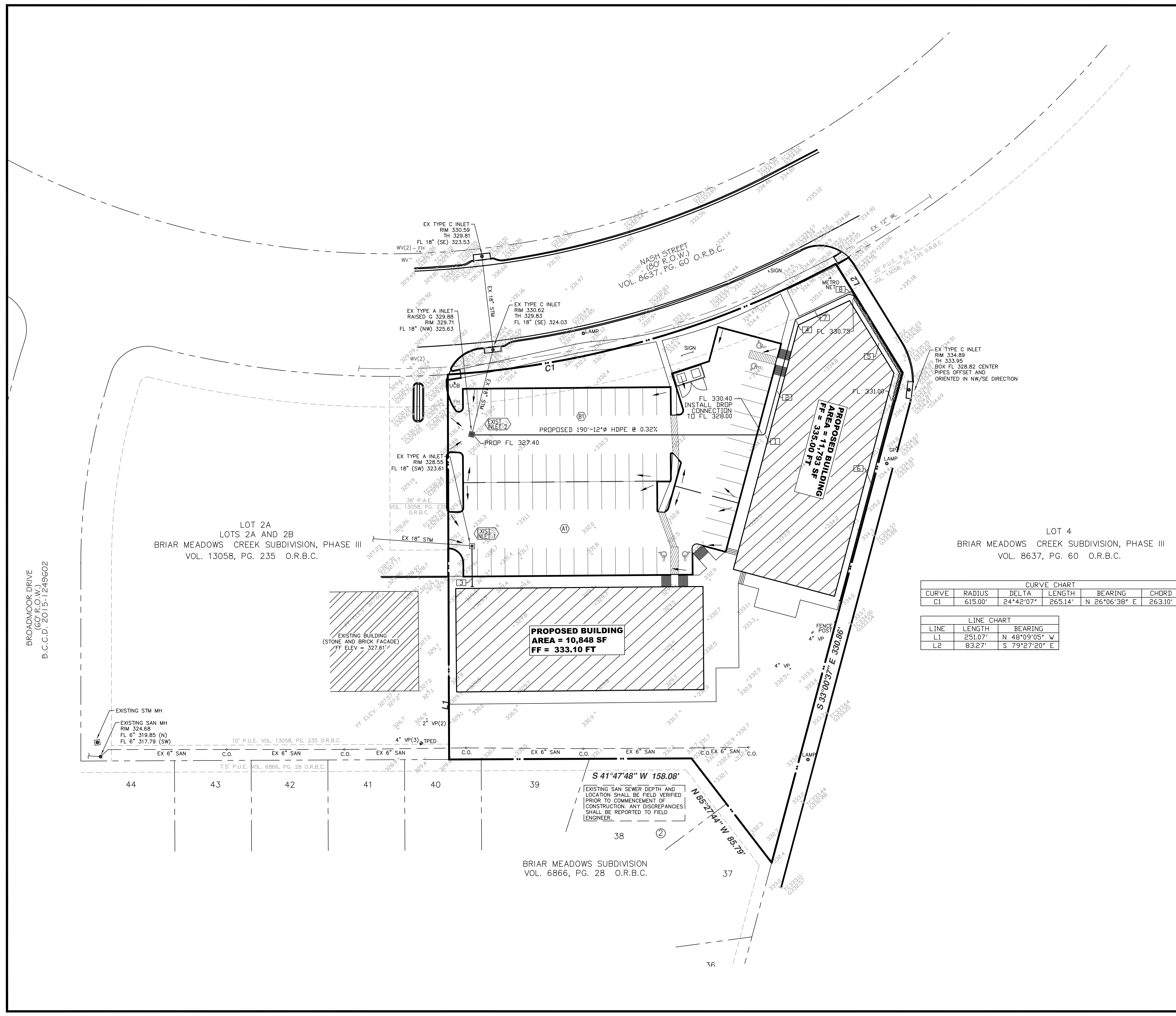
12.05.2023

DRAINAGE AREA MAP AND CALCULATIONS

DRAWN BY: BSS
CHECKED BY: SNO

PROJECT No: 23322.13
SHEET No: C3.0





LEGEND

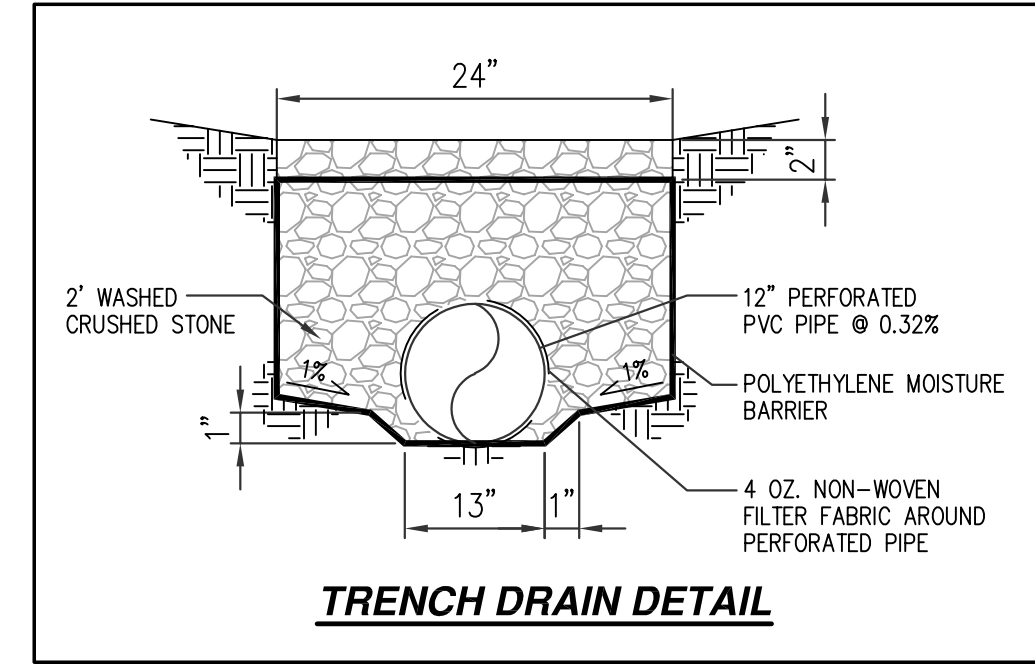
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	PROPERTY LINE
	GRADE BREAK (G.B.)
	DENOTES DETENTION AREA
	SLOPE OF PAVEMENT OR FINISH GRADE
	STORM SEWER MANHOLE
	DRAINAGE AREA DESIGNATION
	CATCH BASIN (RE: DETAIL & SCHEDULE)
	EXISTING NATURAL GRADE ELEVATIONS
	PROPOSED 0.25' CONTOURS
	DENOTES FLOW LINE ELEVATION
	DENOTES TOP OF PAVEMENT ELEVATION
	DENOTES TOP OF SIDEWALK ELEVATION
	DENOTES FINISH GRADE ELEVATION
	DENOTES HIGH BANK ELEVATION

NOTE

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KEYED PLAN NOTES

- 45° BEND
PROPOSED 1'-12" HDPE @ 0.32%
45° BEND
- PROPOSED 74'-12" HDPE @ 0.32%
- PROPOSED 26'-12" HDPE @ 0.32%
- 45° BEND
- TRENCH DRAIN
RE: DETAIL THIS SHEET
- PROPOSED 135'-12" HDPE @ 0.32%
PLUG STORM SEWER
- PROPOSED 40'-12" HDPE @ 0.32%
- PROPOSED 2'-12" HDPE @ 0.32%
45° BEND
PROPOSED 3'-12" HDPE @ 0.32%
45° BEND



CURVE CHART

CURVE	RADIUS	DELTA	LENGTH	BEARING	CHORD
C1	615.00'	24°42'07"	265.14'	N 26°06'38" E	263.10'

LINE CHART

LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
L2	83.27'	S 79°27'20" E

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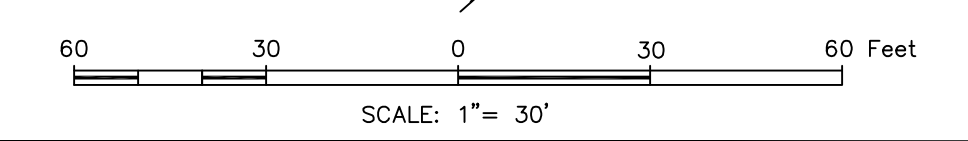
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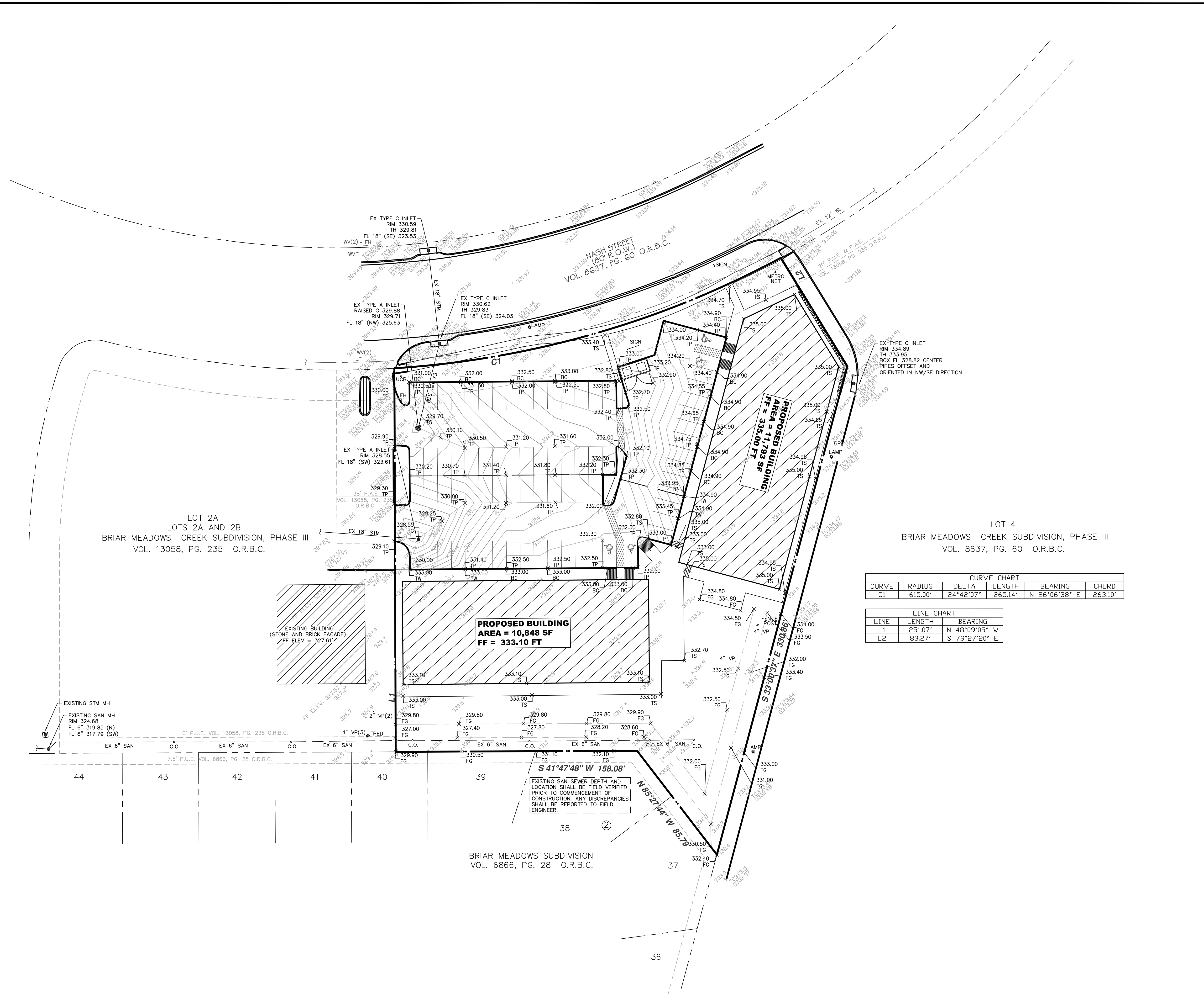
10.05.2023

SITE DRAINAGE PLAN

DRAWN BY: BSS
CHECKED: SNO

PROJECT No: 23322.13
SHEET No: C3.1





LEGEND

	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	PROPERTY LINE
	GRADE BREAK (G.B.)
	DETENTION AREA
	SLOPE OF PAVEMENT OR FINISH GRADE
	STORM SEWER MANHOLE
	DRAINAGE AREA DESIGNATION
	CATCH BASIN (RE: DETAIL & SCHEDULE)
	EXISTING NATURAL GRADE ELEVATIONS
	DRAINAGE AREA
	CUMULATIVE DRAINAGE AREA
	CUMULATIVE FLOW RATE
	PROPOSED 0.2% CONTOURS
	DENOTES FLOW LINE ELEVATION
	DENOTES TOP OF PAVEMENT ELEVATION
	DENOTES TOP OF SIDEWALK ELEVATION
	DENOTES FINISH GRADE ELEVATION
	DENOTES HIGH BANK ELEVATION
	DENOTES TOP OF GRATE ELEVATION
	DENOTES GUTTER ELEVATION
	DENOTES TOP OF WALL ELEVATION
	DENOTES TOP OF CURB ELEVATION
	DENOTES TOE ELEVATION
	DENOTES BACK OF CURB ELEVATION
	DENOTES TOP OF BEAM ELEVATION

BENCHMARK DATA

BENCHMARK NOTES

002-025-33
BRASS DISK STAMPED 025-33 LOCATED ON NORTH SIDE OF W.J. BRYAN PKWY, APPROX. 74' NORTHEAST OF CENTER TO DRIVE ENTRANCE OF CHURCH WITH PROPERTY ADDRESS 2122 W.J. BRYAN PKWY, APPROX. 25' NORTH OF W.J. BRYAN BLVD., 31.7' EAST OF CONC. POWER POLE, AND 22.8' WEST OF POWER POLE.
ELEV. 330.65 NAVD83

101-02-142-1
BOX CUT ON WEST CORNER OF TYPE C INLET LOCATED ON SOUTH SIDE OF THE DRIVE ENTRANCE TO U.S. POSTAL SERVICE FROM NASH STREET, 340 U.S. POSTAL SERVICE HAVING THE PROPERTY ADDRESS 2121 E. W.J. BRYAN PKWY, BRYAN, TX 77801
ELEV. 334.97 NAVD83

101-02-142-2
BOX CUT ON THE EAST CORNER OF TYPE C INLET ON SOUTHEAST SIDE OF NASH ROAD, LOCATED NORTH OF THE DRIVE ENTRANCE TO PROPERTY ADDRESS 2751 NASH ST, BRYAN, TX 77802.
ELEV. 330.65 NAVD83

FLOODPLAIN DATA

SURVEYED PROPERTY LIES IN UNSHADED ZONE X ACCORDING TO FLOOD INSURANCE RATE MAP FOR BRAZOS COUNTY INCORPORATED AREAS, MAP NUMBER 480410015F, DATED EFFECTIVE 04/02/2014.

GRADING NOTE:

CROSS SLOPES SHALL NOT EXCEED 2.00% THROUGH CROSS-WALK AND ADA PARKING SPOTS.

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LINE CHART

LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
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REVISIONS

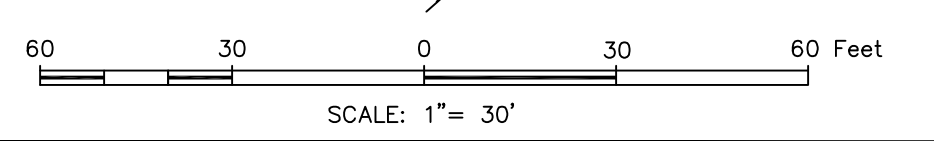
NO.	DATE	DESCRIPTION

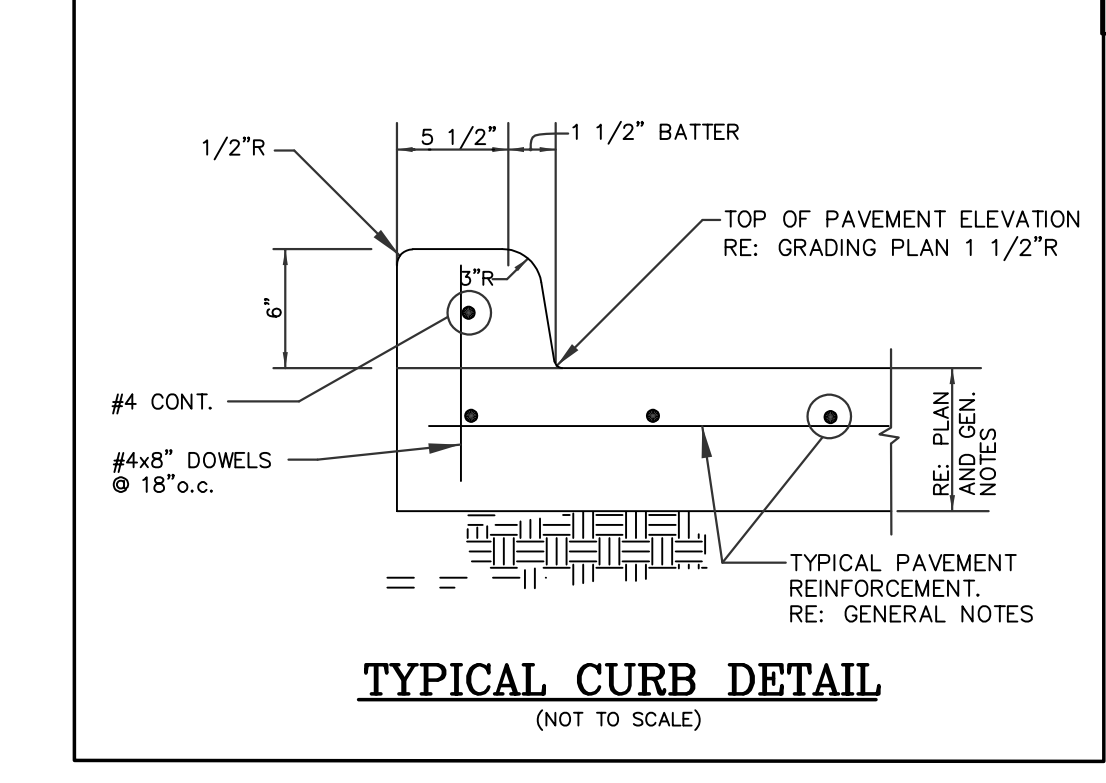
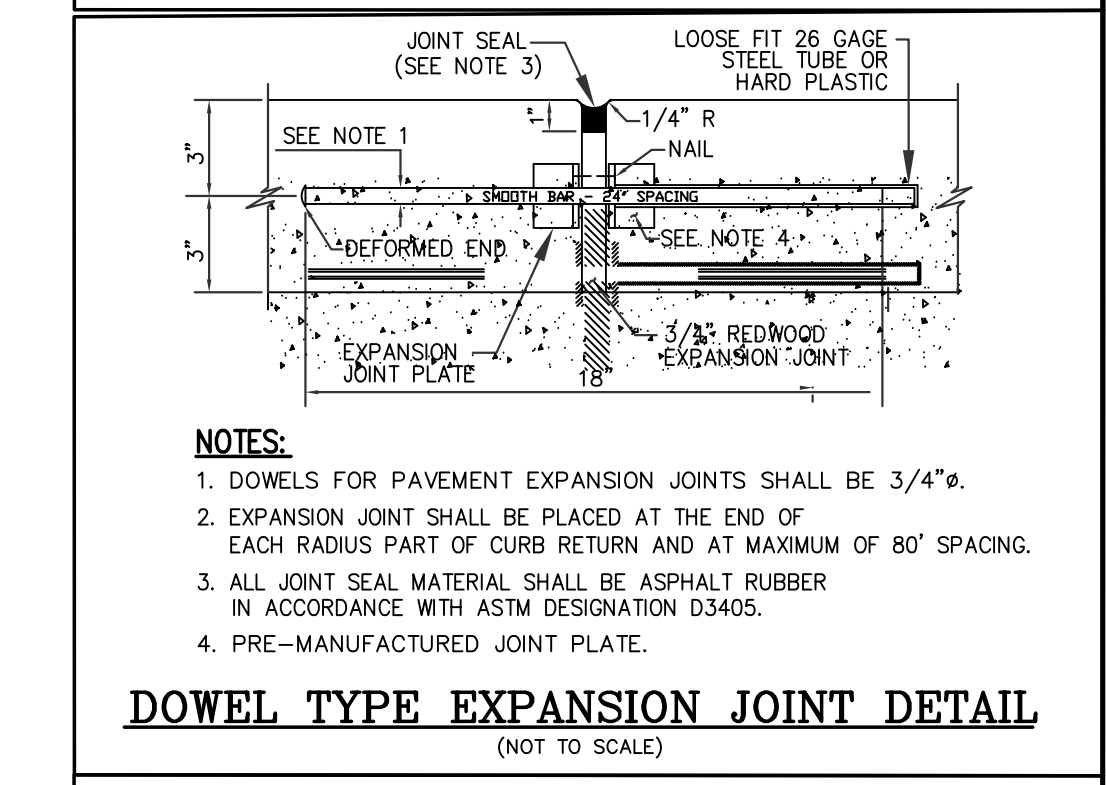
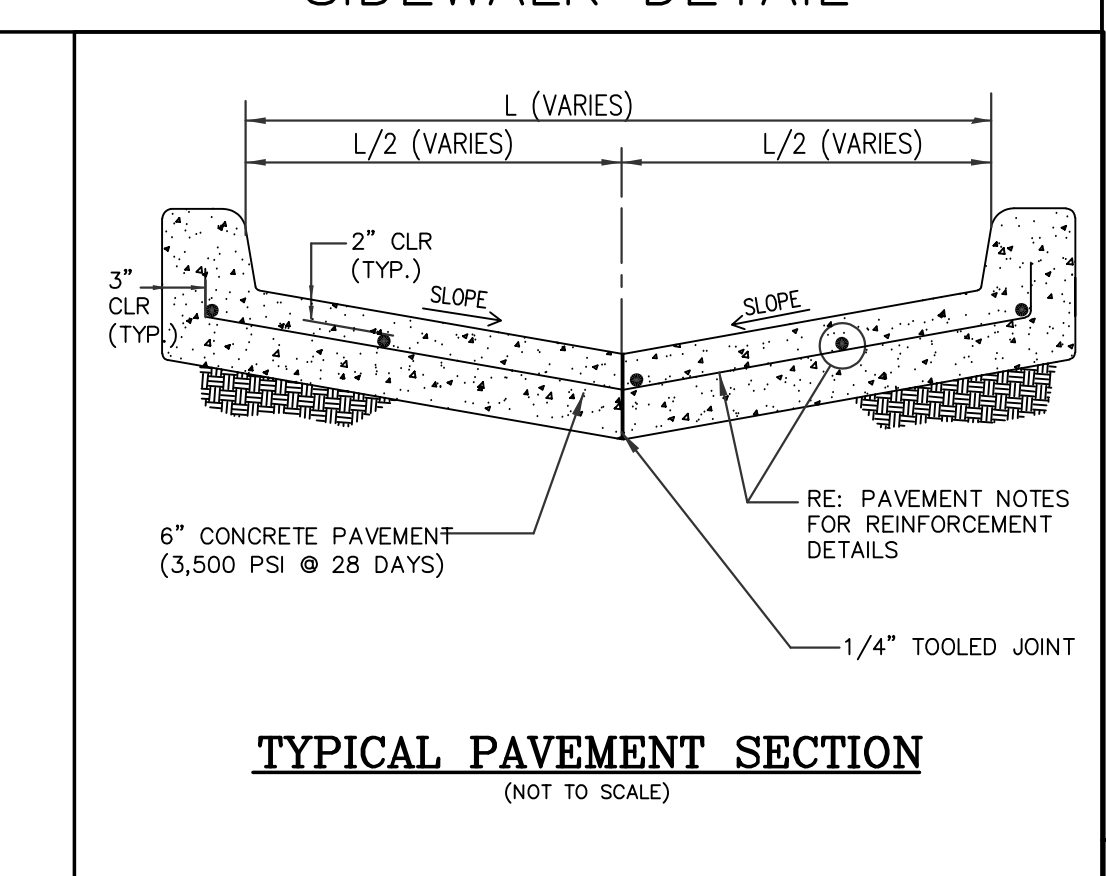
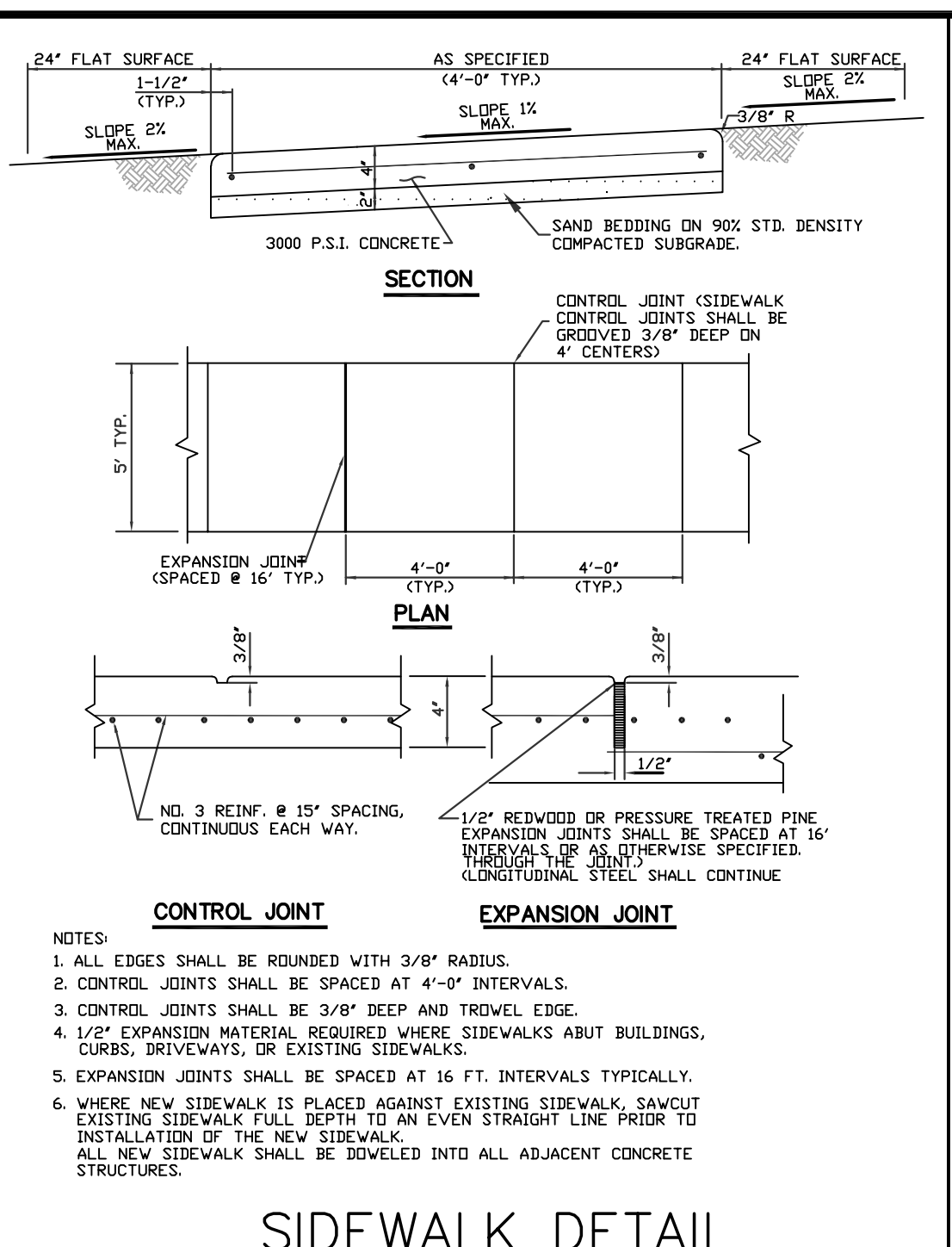
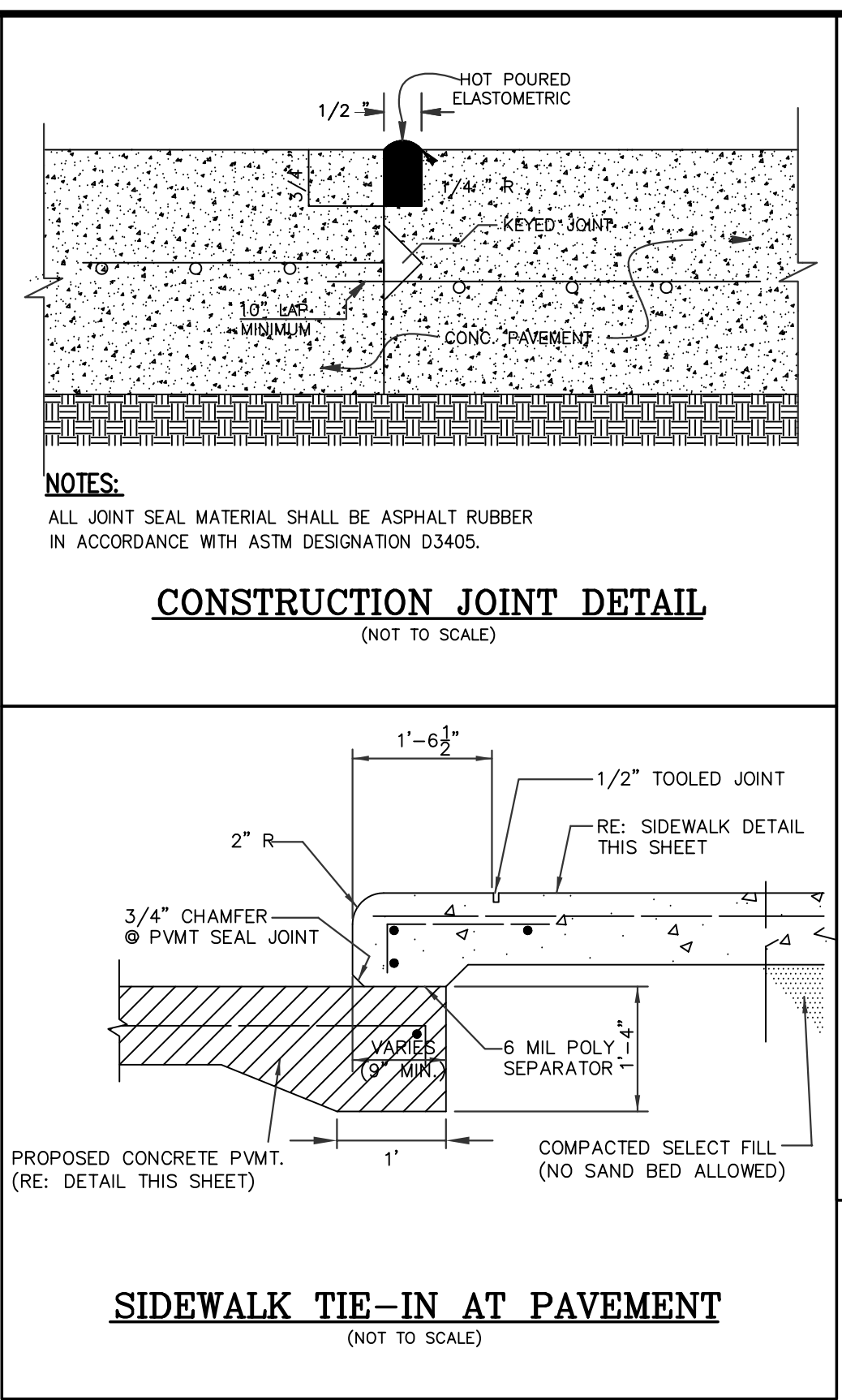
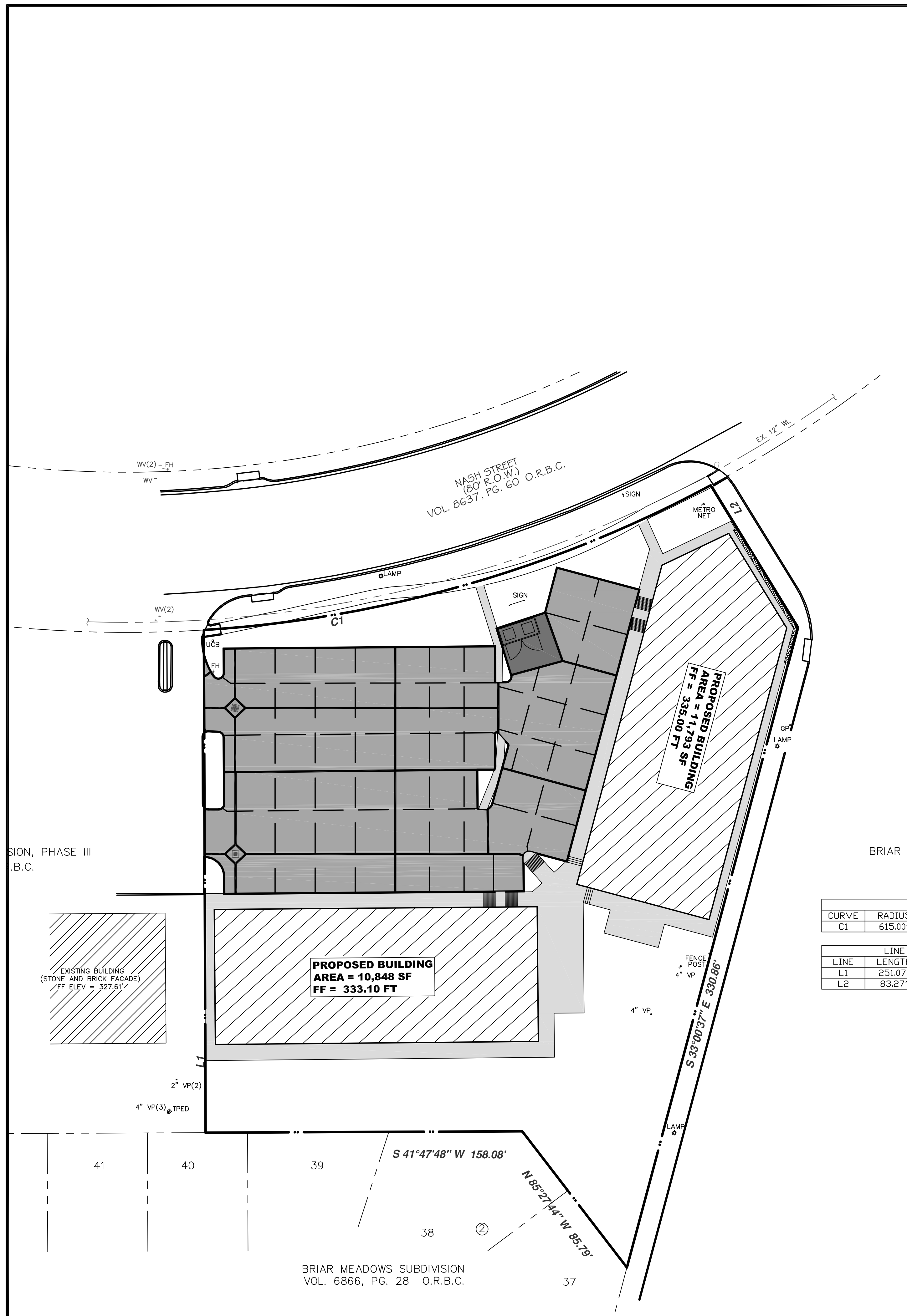
12.05.2023

SITE GRADING PLAN

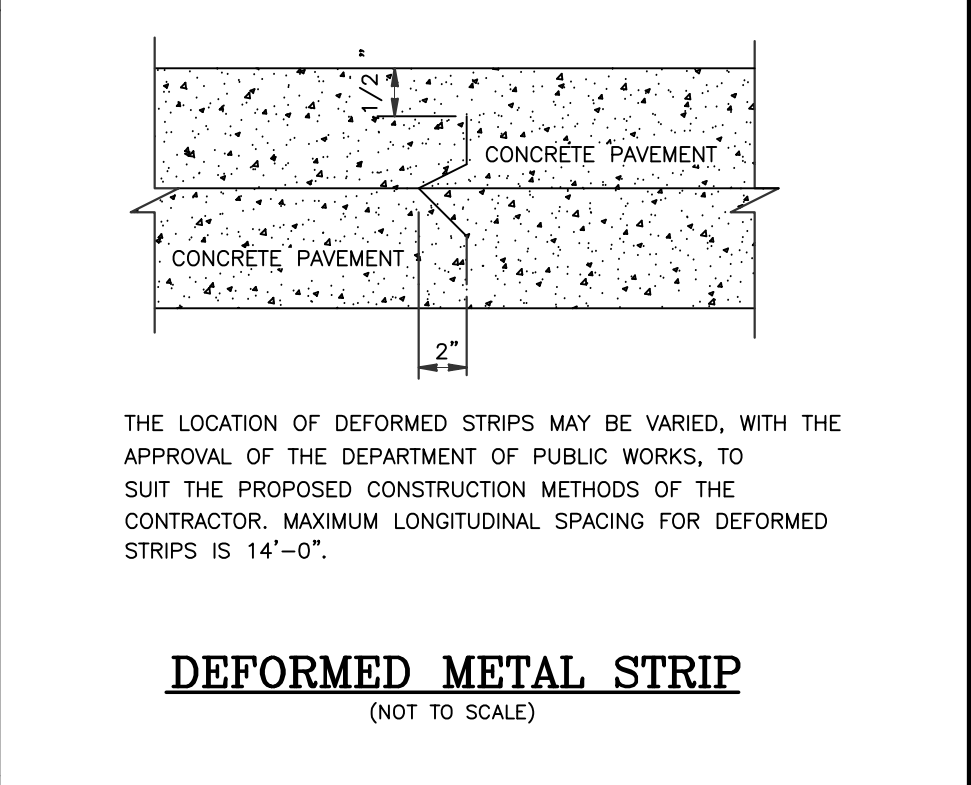
DRAWN BY: BSS
CHECKED BY: SNO

PROJECT No: 23322.13
SHEET No: C3.2





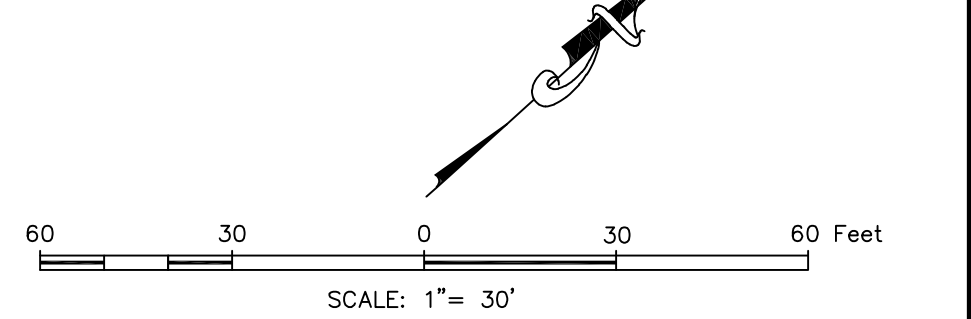
- LEGEND**
- EXPANSION JOINT
 - CONTROL JOINT
 - PROPOSED 4-1/2" CONCRETE SIDEWALK
 - PROPOSED 6" CONCRETE PAVEMENT
 - PROPOSED 7" CONCRETE PAVEMENT
 - PROPOSED ASPHALT PAVEMENT
- PAVING & GRADING CONSTRUCTION NOTES**
- SUBGRADE PREPARATION:
*STRIP PAVEMENT AREAS TO REMOVE ALL TOP SOIL, DEBRIS AND VEGETATION. REMOVE TREE STUMPS AND ROOTS.
*OVER-EXCAVATE SOFT AREAS AND REPLACE WITH SELECT FILL, FREE OF ORGANIC MATTER, WITH PLASTICITY INDEX OF 7 TO 20 AND A MINIMUM LIQUID LIMIT OF 28 PERCENT. FILL SHALL BE PLACED IN SIX(6) TO EIGHT(8) INCH LOOSE LIFTS AND COMPACTED TO 95% OF STD. PROCTOR (ASTM D698-78) MAX. DRY DENSITY.
*STABILIZE SUBGRADE PER SOILS REPORT OR GEOTECHNICAL ENGINEERS RECOMMENDATION.
*PROOF-ROLL TO 95% OF STD. PROCTOR (ASTM D698-78) MAX. DRY DENSITY.
*COMPACT TO 95% OF STD. PROCTOR (ASTM D698-78) MAX. DRY DENSITY.
 - PROVIDE 6" THICK CONCRETE PAVEMENT, UNLESS NOTED OTHERWISE ON PLANS.
 - CONCRETE COMPRESSIVE STRENGTH = 3,500 PSI (5 SACK) @ 28 DAYS.
 - REINFORCEMENT: 5": #4 @ 24" EA. WAY. ASTM A615 GRADE 60.
6": #4 @ 18" EA. WAY. ASTM A615 GRADE 60.
7": #4 @ 18" EA. WAY. ASTM A615 GRADE 60.
 - REINFORCEMENT SHALL BE SUPPORTED ON METAL OR PLASTIC CHAIRS, SPACED AT A MAXIMUM OF THREE (3) FEET EACH WAY.
 - PROVIDE EXPANSION JOINTS @ A MAXIMUM SPACING OF EIGHTY (80) FEET EACH WAY WITH CONSTRUCTION JOINT @ EVERY TWENTY (20) FEET. FORM JOINTS WITH METAL KEY WAYS AND PROVIDE 3/4" SMOOTH DOWELS x 2'-0" @ 24" O.C., GREASE & WRAP ONE END.
 - RECOMMENDED PAVEMENT SLOPE TO DRAIN IS 0.50%, BUT IN NO INSTANCE LESS THAN 0.35% OR GREATER THAN 5% U.N.O. ON PLANS.
 - EXCESS SOIL MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR & IS TO BE DISPOSED OFFSITE RESPONSIBLY AT NO EXTRA COST TO OWNER.
- PLAN NOTES:**
- JOINTING LAYOUTS INDICATED ARE APPROXIMATE IN NATURE AND ARE INTENDED TO INDICATE THE ENGINEER'S RECOMMENDATION TO THE JOINTING OF THE PROPOSED PAVEMENT. THE JOINTING LAYOUT MAY BE REVISED BY CONTRACTOR TO SUIT HIS VARIED CONSTRUCTION NEEDS WITH THE APPROVAL OF THE ENGINEER AND OWNER.
 - EXPANSION JOINTS, CONTROL JOINTS AND CONSTRUCTION JOINTS ADJACENT TO A CURB SHOULD EXTEND INTO THE CURB.
 - JOINTS SHOULD TIE RADIALLY TO ALL CURVES. THIS DRAWING MAY NOT INDICATE SUCH RADIAL TIES DUE TO THE SCALE OF THE DRAWING.
 - CONTRACTOR SHALL MATCH AND CONTINUE ANY EXPANSION JOINTS ALREADY EXISTING AT LOCATIONS WHERE PROPOSED PAVEMENT CONNECTS TO EXISTING PAVEMENT.
 - ALL CONTROL JOINTS MUST BE SAWCUT AND SEALED AS PER SPECIFICATIONS.
 - BLOCKOUTS ARE INDICATED LARGER THAN REQUIRED FOR CLARITY.



LOT 4
BRIAR MEADOWS CREEK SUBDIVISION, PHASE III
VOL. 8637, PG. 60 O.R.B.C.

CURVE CHART					
CURVE	RADIUS	DELTA	LENGTH	BEARING	CHORD
C1	615.00'	24°42'07"	265.14'	N 26°06'38" E	263.10'

LINE CHART		
LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
L2	83.27'	S 79°27'20" E



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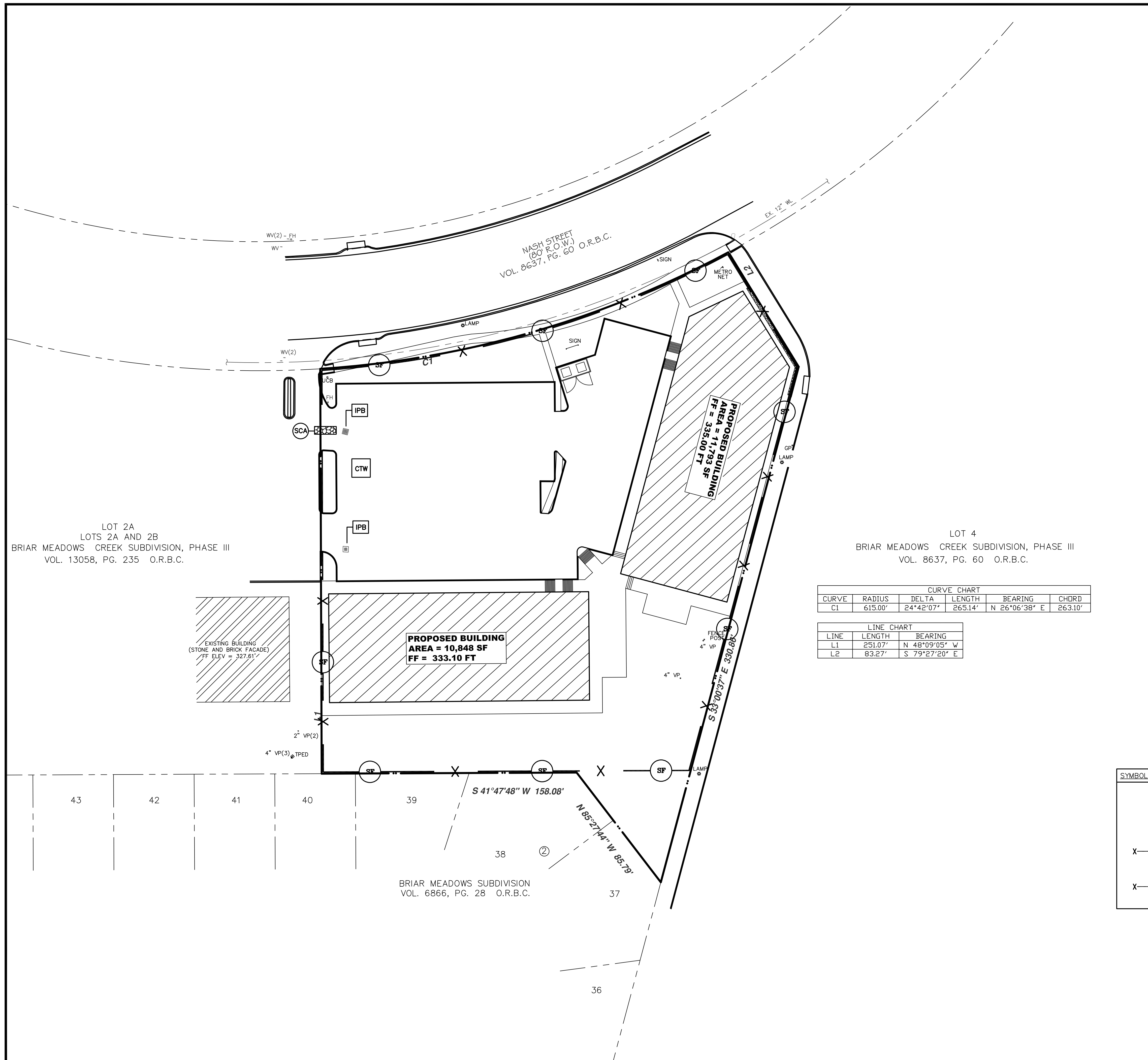
10.05.2023

SITE PAVING PLAN

DRAWN BY: BSS
CHECKED BY: SNO

PROJECT No: 23322.13
SHEET No: C3.3

STATE OF TEXAS
SALIM NAZIH OBEID
118989
LICENSED PROFESSIONAL ENGINEER



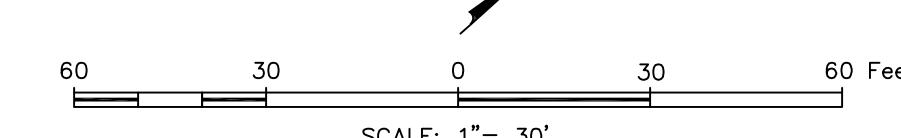
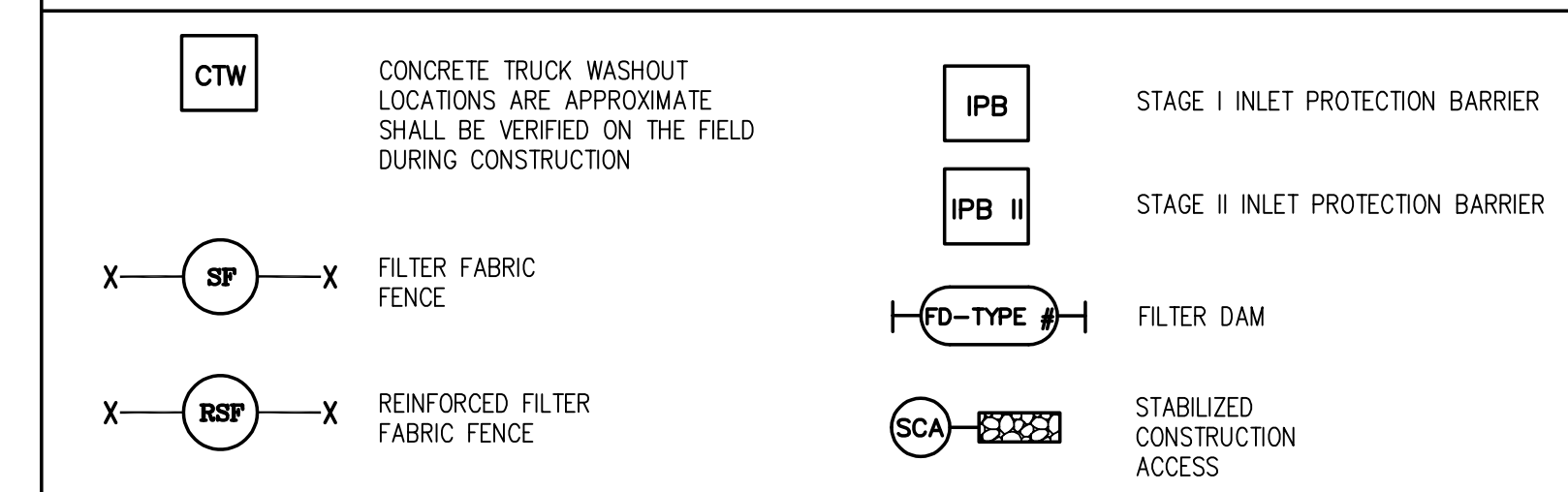
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LINE CHART		
LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
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EROSION CONTROL SYSTEM NOTES :

- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING BERMS, SILT FENCES, STRAW BALES, OR OTHER MEANS TO PREVENT EROSION FROM REACHING ADJACENT PROPERTY. IN THE EVENT THE PREVENTION MEASURES ARE NOT EFFECTIVE, THE CONTRACTOR SHALL REMOVE ANY EROSION DEBRIS AND RESTORE ADJACENT PROPERTY AND/ OR THE RIGHT-OF-WAY TO ORIGINAL OR BETTER CONDITION.
 - EROSION CONTROL FEATURES SHOWN ARE THE MINIMUM REQUIREMENTS ACCEPTABLE. PLACE ADDITIONAL EROSION CONTROL DEVICES AS RUNOFF AND DRAINAGE PATTERNS CHANGE DURING CONSTRUCTION TO PROHIBIT LOSS OF SOIL FROM THE SITE.
A RERECORD OF REVISION FORM MUST BE COMPLETED WHEN EROSION CONTROL FEATURES ARE MODIFIED. RED-LINED REVISIONS OF SWPPP/ECP WILL BE NEEDED WITHIN 7 DAYS OF WHEN MODIFICATION NEEDS ARE IDENTIFIED.
 - MINIMIZE THE AMOUNT OF SURFACE AREA EXPOSED TO THE EXTENT PRACTICABLE.
 - LEAVE GRADED AREAS WITH A ROUGH TEXTURE TO PROMOTE INFILTRATION.
 - LIMIT UNNECESSARY TRAFFIC ON GRADED AREAS.
 - INSTALL SILT FENCES OR STRAW BALE DIKES ON DOWNSTREAM SLOPES FOR THE EXTENT OF THE CONSTRUCTION LIMITS PRIOR TO BEGINNING ANY GRADING OPERATIONS.
 - SILT FENCES:
A. INSTALL SILT FENCES AT LOCATIONS SHOWN GENERALLY ALONG THE CONTOUR OF DOWNSTREAM SLOPES.
B. INSTALL POSTS ANGLING SLIGHTLY UPSTREAM. SPACE POSTS AT 10 FEET IF WIRE FENCING IS TO BE USED TO SUPPORT FABRIC, OTHERWISE SPACE POSTS AT 6 FEET.
C. EXCAVATE 4 INCH BY 4 INCH TRENCH ON UPSTREAM SIDE, EMBED FABRIC 8 INCHES, BACKFILL TRENCH AND COMPACT.
D. FASTEN FABRIC (AND WIRE FENCE, IF USED) SECURELY TO POSTS.
- STRAW BALE DIKES:
A. INSTALL STRAW BALE DIKES AT LOCATION SHOWN GENERALLY ALONG THE CONTOUR OF DOWNSTREAM SLOPES.
B. INSTALL STRAW BALE DIKES AND DITCH CHECKS AS SHOWN.
C. EXCAVATE TO 4 INCH DEPTH, PLACE BALES FIRMLY AGAINST DOWNSTREAM FACE OF EXCAVATION AND BACKFILL UPSTREAM SIDE OF TRENCH TO 4 INCHES ABOVE EXISTING GROUND.
D. PLACE BALES FIRMLY ABUTTING DOWNSTREAM FACE OF EXCAVATION AND EACH OTHER.
E. ANCHOR EACH BALE WITH TWO STAKES. ANGLE FIRST STAKE TOWARDS PREVIOUSLY ANCHORED BALE TO FORCE BALES TOGETHER.
F. CHINK SPACES BETWEEN BALES WITH LOOSE STRAW.
G. STRAW BALES SHOULD BE REPLACED EVERY TWO MONTHS OR WHEN REQUIRED BY WET WEATHER.
 - MAINTAIN EROSION CONTROL DEVICES IN GOOD CONDITION AT ALL TIMES. INSPECT FREQUENTLY AND AFTER EACH RAINFALL.
 - REDISTRIBUTE ACCUMULATED SEDIMENT UPSTREAM OF DEVICES.
 - EROSION CONTROL DEVICES SHALL BE REMOVED AFTER FINAL STABILIZATION IS ACHIEVED.
 - PROPERLY DISPOSE OF SOLID WASTE, PAINTS, SOLVENTS, CLEANING COMPOUNDS, ETC.
 - STORE CONSTRUCTION MATERIALS AWAY FROM LOW AREAS AND DRAINAGEWAYS.
 - PROVIDE PORTABLE TOILETS AND PROPERLY DISPOSE OF SANITARY SEWAGE.
PROVIDE MINIMUM 2 ADJACENT TO OFFICE TRAILER.
CONSTRUCT CONTAINMENT BERMS AND USE DRIP PANS AT FUEL AND LIQUID STORAGE TANKS.
 - LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. USE A LINER UNDER ABOVE GROUND STORAGE TANKS. USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY)
 - FUEL AND MATERIAL STORAGE AREAS SHALL BE LOCATED AT LEAST 100 FEET AWAY FROM STREAM BANKS AND WETLANDS. MATERIAL STORAGE AREAS SHALL BE LOCATED UNDER ROOF OR OTHER ENCLOSURE STRUCTURE. FUELING MUST BE ATTENDED BY PERSONNEL AT ALL TIMES TO REPORT ANY SPILLS.
 - CONTRACTOR WILL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL SPILLS ONTO THE PROJECT/ CONSTRUCTION AREA AND THE ACTIONS TAKEN TO REMEDY THE PROBLEM.
 - CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL ENVIRONMENTAL LAWS.
 - CONTRACTOR IS RESPONSIBLE FOR DISPOSING FUELS, MATERIALS, AND EXCAVATIONS IN A LEGALLY APPROVED MANNER.
 - CONTRACTOR IS TO INSPECT ALL STRUCTURAL CONTROLS SPECIFIED HEREIN, AT A MINIMUM, ONCE EVERY 7 CALENDAR DAYS OR WITHIN 24 HOURS AFTER EVERY STORM EVENT THAT MEETS OR EXCEEDS 0.5 INCHES/24 HOUR PERIOD.
 - CONTRACTOR WILL PROVIDE STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
 - FILTER FABRIC (SILT FENCE) FLOWRATE WILL BE 30 GALLONS PER SQUARE FOOT PER MINUTE.
 - FILTER FABRIC WILL BE STAPLED OVER BOARDS ON ALL STAGE ONE STORM SEWER INLETS.

SYMBOLS:



RSG ENGINEERING

13501 KATY FREEWAY
SUITE 3160
HOUSTON, TEXAS 77079
PH. 713-765-7777

project
NASH ST RETAIL CENTER
at
2735 NASH ST
BRYAN, TEXAS 77802

REVISIONS

12.05.2023

**STORM WATER
POLLUTION
PREVENTION PLAN**

DRAWN BY: **BSS** CHECKED: **SNO**

PROJECT No: **23322.13** SHEET No: **C4.1**

TBPE FIRM #: 15498

GENERAL

- 1. ALL WATER LINES, WASTEWATER COLLECTION SYSTEMS, PAVING, TRAFFIC SIGNALS AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BRYAN ENGINEERING STANDARDS WITH ALL SUBSEQUENT AMENDMENTS ADDED THERETO UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE LATEST EDITIONS OF DESIGN RULES, SPECIFICATIONS, STANDARD DETAILS AND MANUALS SHALL GOVERN AS OF THE DATES FOR RESINING.
- 2. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO PAVING, WATER LINES, WASTEWATER COLLECTION SYSTEMS, STORM SEWER AND TRAFFIC SIGNALS DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CURRENT EDITIONS OF CITY OF BRYAN STANDARD CONSTRUCTION SPECIFICATIONS, DESIGN DETAILS AND DESIGN MANUALS. REPAIRS SHALL BE AT NO COST TO THE DISTRICT.
- 3. CONTRACTOR SHALL COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS AND ANY OTHER FEDERAL, STATE AND LOCAL REGULATIONS REGARDING TRENCH SAFETY SYSTEMS FOR TRENCH EXCAVATION.
- 4. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY CITY OF BRYAN, IN COMPLIANCE WITH THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) REQUIREMENTS.
- 5. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN CONDITION PRIOR TO STARTING WORK.
- 6. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINE SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE DRAWINGS. EXISTING UTILITIES ARE LOCATED ON THE PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS ARE NOT SHOWN ON THE PLANS AND CONTRACTOR IS ADVISED TO CALL THE APPLICABLE UTILITIES/AGENCIES BEFORE DIGGING.
- 7. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED TO THE SATISFACTION OF THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
- 8. THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. IF A UTILITY IS SHOWN ON THESE PLANS AND WHAT EXISTS IN THE FIELD, CONTRACTOR IS TO NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY. CONTRACTOR SHALL VERIFY THE INVERT AND/OR FLOW LINE ELEVATIONS OF POINTS OF CONNECTIONS PRIOR TO THE COMMENCEMENT OF WORK AND SHALL IMMEDIATELY REPORT ANY DEVIATIONS TO THE ENGINEER.

PRIVATE UTILITY NOTES

CAUTION: SBC CABLES

THE LOCATION OF SBC FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.

WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF SBC FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING THE CONTRACTOR SHALL EXPOSE THE SBC FACILITIES.

WHEN SBC FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATION OF CENTERPOINT/ENTEX MAIN LINES (TO INCLUDE UNIT GAS TRANSMISSION AND/OR INDUSTRIAL GAS SUPPLY CORPORATION WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 223-4567 OR 1-800-669-8344 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

WHEN CENTERPOINT/ENTEX PIPE LINE MARKINGS AR NOT VISIBLE, CALL 713-967-8037 (7:00 am to 4:30 pm) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

WHEN EXCAVATION WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT/ENTEX FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

WHEN CENTERPOINT/ENTEX FACILITIES ARE EXPOSED SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

ANY UTILITY OUTAGES CAUSED BY CONTRACTOR SHALL BE RESTORED WITHIN 4 HOURS OF NOTICE BY TENANT OR OWNER.

CAUTION: OVERHEAD POWER LINES

OVERHEAD LINES EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL RELIANT ENERGY/H&P AT 713-207-7777.

CONTRACTOR TO NOTIFY THE "UNDERGROUND UTILITY COORDINATING COMMITTEE" (TELEPHONE: 713-223-4567) AND CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS (TELEPHONE: 713-754-0787) 48 HOURS BEFORE STARTING WORK IN STREET RIGHT-OF-WAY OR EASEMENTS.

CONTRACTOR TO NOTIFY THE MUD OPERATOR AND IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL NECESSARY INSPECTIONS, REVIEWS OF WORK AND APPROVAL.

PAVING

- 1. GUIDELINES SET FORTH IN THE TxDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
- 2. EXISTING PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF BRYAN STANDARDS WITH LATEST ADDENDA AND AMENDMENTS THERETO.
- 3. PAVING CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF BRYAN ENGINEERING STANDARDS.
- 4. CONTRACTOR SHALL BLOCK OUT (SQUARE) AROUND ALL INLETS AND MANHOLES IN PROPOSED PAVING AS SHOWN ON TYPE "A" INLET AND TYPE "C" MANHOLE DETAILS.
- 5. EXPANSION JOINT SHALL BE PLACED AT THE END OF EACH CURB RETURN AND A MAXIMUM 80' SPACING.
- 6. PROPOSED DRIVEWAYS TO BE CONSTRUCTED PER CITY OF BRYAN DRIVEWAY DETAIL.
- 7. CONTRACTOR SHALL CONSULT THE SOILS OR GEOTECHNICAL REPOR.
- 8. CONTRACTOR SHALL SUBMIT JOINT PLAN TO ENGINEER FOR APPROVAL.

STORM SEWERS

- 1. STORM SEWER PIPE USED FOR CONNECTION TO STORM SEWER IN PUBLIC RIGHT-OF-WAY SHALL BE REINFORCED CONCRETE PIPE ASTM C-76, CLASS III, AND SHALL EXTEND TO FIRST INLET OR MANHOLE. ALL OTHER PRIVATE STORM SEWERS SHALL BE HDPE AND BEDDED PER CITY OF BRYAN STANDARDS. PIPE GRADES ARE BASED ON CONCRETE PIPE TO PRODUCE THREE (3) FPS MINIMUM VELOCITY.
- 2. STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN ACCORDANCE WITH CITY OF BRYAN STANDARD DRAWINGS.
- 3. STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BRYAN ENGINEERING STANDARDS.
- 4. ALL SEWERS UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1 1/2 SACK CEMENT/C.Y. STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL IN 8 INCH LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS ON EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM DESIGNATION D-698/AAASHO T99). MOISTURE CONTENT OF BACKFILL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CEMENT- STABILIZED SAND SPECIFICATION ASTM C33, LATEST EDITION.
- 5. CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINTS ONLY CONFORMING TO ASTM C443.
- 6. "STM. S.E." INDICATES "STORM SEWER EASEMENT."
- 7. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.

SANITARY SEWERS

- 1. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BRYAN ENGINEERING STANDARDS AND BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 317, "DESIGN CRITERIA FOR SEWERAGE SYSTEMS" SHALL GOVERN WHERE CONFLICTS EXIST EXCEPT WHERE CITY REQUIREMENTS ARE OF HIGHER STANDARDS.
- 2. SANITARY SEWER PIPE TO BE SDR 26 P.V.C. PIPE MEETING ASTM SPECIFICATION D2241 WITH RUBBER GASKET JOINTS, UNLESS OTHERWISE NOTED.
- 3. SANITARY SEWERS MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF BRYAN STANDARDS UNLESS OTHERWISE NOTED.
- 4. ALL SANITARY SEWER LINES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL HAVE BEDDING PER CITY OF BRYAN STANDARDS AS APPLICABLE, WITH 1 1/2 SACK CEMENT/C.Y. STABILIZED SAND BACKFILL UP TO THE BOTTOM OF THE PAVEMENT SUBGRADE. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.
- 5. ALL MANHOLES ARE TO BE PER CITY OF BRYAN STANDARDS.
- 6. ALL SANITARY SEWERS CROSSING WATER LINES WITH A CLEARANCE BETWEEN 6 INCHES AND 9 FEET SHALL HAVE A MINIMUM OF ONE 18" JOINT OF 150 P.S.I. DUCTILE IRON OR C900 PVC PIPE MEETING ASTM SPECIFICATION D2241 CENTERED ON WATER LINE. WHEN WATER LINE IS BELOW SANITARY SEWER PROVIDE MINIMUM 2 FOOT SEPARATION.
- 7. CONTRACTOR SHALL PROVIDE FOR A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
- 8. SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" - 6" ABOVE THE SURROUNDING GRADE. FINISHED GRADE AFTER PAVING WITH SLOPED BACKFILL ADDED FOR STORMWATER DRAINAGE AWAY FROM MANHOLE RIM.
- 9. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"
- 10. IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF BRYAN STANDARDS.
- 11. ALL SDR P.V.C. PIPE IS TO HAVE D.I.P. SIZE O.D. AND RUBBER GASKET BELL-AND- SPIGOT TYPE JOINT ENDS.
- 12. SDR 26 P.V.C. PIPE USES "FULL BODIED" SDR 26 P.V.C. FITTINGS WITH APPROPRIATE ADAPTERS. AWWA C-900 DR-18 P.V.C. PIPE USES EITHER AWWA C900 DR-18 P.V.C. FITTINGS OR D.I.P. FITTINGS. SDR-26 P.V.C. PIPE SHALL HAVE A CELL CLASSIFICATION OF 12364-B AS DEFINED IN ASTM D-1784.
- 13. DEFLECTION TEST: DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIGID SEWER PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE TEST SHALL BE PERFORMED AS PER 30 TAC 317.2 LATEST AMENDMENT AND WITHOUT MECHANICAL PULLING DEVICES.
- 14. INFILTRATION, EXFILTRATION OR LOW-PRESSURE AIR TEST: EITHER OF THE FOLLOWING TESTS SHALL BE PERFORMED AS PER TAC, TITLE 30 317.2 WITHIN THE SPECIFIED TOLERANCES ON ALL GRAVITY SEWERS. A. INFILTRATION OR EXFILTRATION TEST: TOTAL LEAKAGE AS DETERMINED BY A HYDROSTATIC HEAD TEST SHALL NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO (2) FEET. B. LOW-PRESSURE AIR TEST: PERFORM TEST ACCORDING TO UNI-B-6-90 OR OTHER APPROPRIATE PROCEDURES. FOR SECTIONS OF PIPE LESS THAN 36"(NCH) AVERAGE INSIDE DIAMETER, THE MINIMUM ALLOWABLE TIME FOR PRESSURE DROP FROM 3.5 PSIG TO 2.5 PSIG SHALL BE AS FOLLOWS:
6" 340 SECONDS OR 0.855(L) FOR TEST LENGTHS GREATER THAN 398'
8" 454 SECONDS OR 1.520(L) FOR TEST LENGTHS GREATER THAN 298'
10" 567 SECONDS OR 2.374(L) FOR TEST LENGTHS GREATER THAN 239'
12" 680 SECONDS OR 3.419(L) FOR TEST LENGTHS GREATER THAN 199'
15" 850 SECONDS OR 5.342(L) FOR TEST LENGTHS GREATER THAN 159'
18" 1020 SECONDS OR 7.693(L) FOR TEST LENGTHS GREATER THAN 133'
WHERE L = LENGTH OF LINE OF SAME PIPE SIZE IN FEET.

BACKFILL/COMPACTION OF FILL

- 1. ALL GRADING/BACKFILL/COMPACTION SHALL BE IN ACCORDANCE WITH THE SOILS REPORT AND ANY ADDENDUMS THERETO.
- 2. ALL AREAS TO BE FILLED ARE TO BE FREE OF VEGETATION, DEBRIS, PONDING WATER, LOOSE SOILS, MUD & MUCK (STRIP 4").
- 3. ALL FILL OR DISPOSAL OF EXCESS MATERIAL SHALL BE COMPACTED IN 8" LIFTS, 95% STANDARD PROCTOR DENSITY.
- 4. THE BUILDING AND PAVEMENT AREAS SHOULD BE STRIPPED OF ANY REMAINING TREES AND STUMPS, VEGETATION, ORGANICS, LOOSE TOPSOIL, AND/OR OTHER DEBRIS. CARE SHOULD BE TAKEN TO REPLACE OR RECOMPACT ALL SOIL REMOVED OR LOOSENED BY REMOVAL OF TREE ROOTS AND STUMPS. THE LOOSENED SOILS SHOULD BE MOISTURE CONDITIONED IF NECESSARY AND COMPACTED TO AT LEAST 95 PERCENT MAXIMUM DRY DENSITY TO WITHIN 1% DRY TO 3% WET OF THE OPTIMUM MOISTURE CONTENT AS OUTLINED BELOW.
- 5. FOLLOWING A PERIOD OF RAIN, THE MOISTURE SENSITIVE SILTY SAND SUBGRADE WILL BE OBVIOUSLY WEAK AND NOT CAPABLE OF SUPPORTING CONSTRUCTION EQUIPMENT. THE SOIL WILL THEN REQUIRE IMPROVEMENT AS OUTLINED IN THE GEOTECHNICAL REPORT. IF THE SUBGRADE IS REASONABLY DRY AND STABLE, THE EXPOSED SOIL SUBGRADE AREA SHOULD BE PROOF ROLLED TO DETECT WEAK AREAS ONCE FINAL SUBGRADE ELEVATIONS HAVE BEEN ACHIEVED THROUGHOUT THE SITE. WEAK AREAS DETECTED DURING PROOF ROLLING, AS WELL AS ZONES OF DEBRIS AND ORGANICS SHOULD BE REMOVED AND REPLACED WITH SOILS EXHIBITING SIMILAR CLASSIFICATION, MOISTURE CONTENT, AND DENSITY AS THE ADJACENT IN-SITU SOILS. SUBSEQUENT TO PROOF ROLLING, AND JUST PRIOR TO PLACEMENT OF FILL, THE EXPOSED SUBGRADE SHOULD BE MOISTURE CONDITIONED AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DENSITY (ASTM D 698) AT 1% DRY TO 3% WET OF THE OPTIMUM MOISTURE CONTENT. THE PURPOSE IS TO PROVIDE SUPPORT FOR COMPACTION OF THE INITIAL FILL LIFT IN THE BUILDING AREA OR FOR CHEMICAL STABILIZATION IN THE PAVEMENT AREAS. FOR WET WEATHER CONSIDERATIONS, SEE GEOTECH REPORT.
- 6. GRADE ADJUSTMENTS WITHIN THE BUILDING LIMITS SHOULD BE ACCOMPLISHED WITH SELECT, STRUCTURAL FILL COMPOSED OF CLEAN, INACTIVE SANDY CLAY (NOT A SILT) WITH A PLASTICITY INDEX RANGING BETWEEN 10 AND 20. ALL FILL SHOULD BE FREE OF ORGANIC AND DEBRIS. ALL STRUCTURAL FILL SHOULD BE PLACED ON REPAIRED SURFACES IN LIFTS NOT TO EXCEED EIGHT INCHES LOOSE MEASURE, WITH COMPACTED THICKNESS NOT TO EXCEED SIX INCHES. ALL FILL SHOULD BE COMPACTED TO AT LEAST 95 PERCENT (ASTM D 698) MAXIMUM DRY DENSITY AT AT MOISTURE CONTENT WITHIN 1% DRY TO 3% WET OF OPTIMUM MOISTURE CONTENT.

WATERLINE CONSTRUCTION NOTES:

- 1. WATER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BRYAN ENGINEERING STANDARDS.
- 2. 4" THRU 12" WATER LINES SHALL BE AWWA C-900 AND 1" THRU 3" WATER LINES SHALL BE SCHEDULE 40 PVC.
- 3. ALL WATER LINES SHALL BE BEDDED AND BACKFILLED IN ACCORDANCE WITH LIERTY COUNTY STANDARD DRAWINGS.
- 4. ALL WATER LINES UNDER PROPOSED OR FUTURE PAVING AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE ENCASED IN BANK SAND TO 12" OVER PIPE AND BACKFILLED WITH BANK SAND TO THE BOTTOM OF THE PAVEMENT SUBGRADE.
- 5. CONTRACTOR SHALL PROVIDE FOR A MINIMUM HORIZONTAL CLEARANCE OF 9' (NINE FEET) BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
- 6. "W.L.E." INDICATES "WATER LINE EASEMENT"
- 7. ALL WATER LINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651. A MINIMUM OF ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EACH 1,000 FEET OF COMPLETED WATER LINE, OR FRACTION THEREOF, TO CHECK EFFICIENCY OF DISINFECTION PROCEDURES AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
- 8. ALL WATER PIPE AND RELATED PRODUCTS MUST CONFORM TO ANS/NSF STANDARD 61.
- 9. 4" THRU 12" FITTINGS SHALL BE CEMENT MORTAR LINED COMPACT DUCTILE IRON PRESSURE FITTINGS PER ANSI A21.53 OR PUSH ON FITTINGS PER ANSI A21.10 PRESSURE RATED AT 250 PSIG CONFORMING TO THE REQUIREMENTS OF CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02501-DUCTILE IRON PIPE AND FITTINGS.
- 10. HYDROSTATIC TESTING: ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH AWWA STANDARDS. LEAKAGE SHALL BE DEFINED AS THE QUANTITY OF WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE OR ANY VALVED SECTION THEREOF, TO MAINTAIN PRESSURE WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR HAS BEEN EXPELLED. THE TEST PRESSURE SHALL BE EITHER A MINIMUM OF 125 PSIG OR 1.5 TIMES THE MAXIMUM DESIGN PRESSURE WHICHEVER IS LARGER. THE MAXIMUM LEAKAGE SHALL BE CALCULATED USING THE FORMULA AS FOLLOWS:
WHERE L = (S)(D)(P^1/2)/133,200
L = ALLOWABLE LEAKAGE IN GAL./HR.
S = LENGTH OF PIPE TESTED IN FEET
D = INSIDE DIAMETER OF PIPE IN INCHES S
P = PRESSURE IN POUNDS PER SQUARE INCH (GAUGE)
- 11. ALL WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE AND MINIMUM 12" CLEAR TO OTHER UTILITIES AT CROSSINGS UNLESS OTHERWISE NOTED ON PLANS.
- 12. ALL FLANGES BELOW GRADE SHALL BE INSULATED.
- 13. ALL WATERLINES SHALL BE ENCASED IN BANK SAND AT LEAST 12" ABOVE THE PIPE. COST OF BANK SAND TO BE INCLUDED IN THE UNIT PRICE OF WATERLINE.
- 14. CENTER OF FIRE HYDRANT TO BE LOCATED 3'-0" FROM BACK OF CURB.
- 15. UTILITY CONTRACTOR TO TURN FIRE HYDRANTS AND MAKE ALL FINAL ADJUSTMENTS AFTER COMPLETION OF PAVING. NO SEPARATE PAY.
- 16. SANITARY PRECAUTIONS MUST BE TAKEN DURING WATER LINE CONSTRUCTION, AS CALLED FOR BY AWWA STANDARDS. PRECAUTIONS INCLUDE KEEPING PIPE CLEAN AND CAPPING OR OTHERWISE EFFECTIVELY SEALING OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.

RS&G ENGINEERING



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2785 NASH ST
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REVISIONS

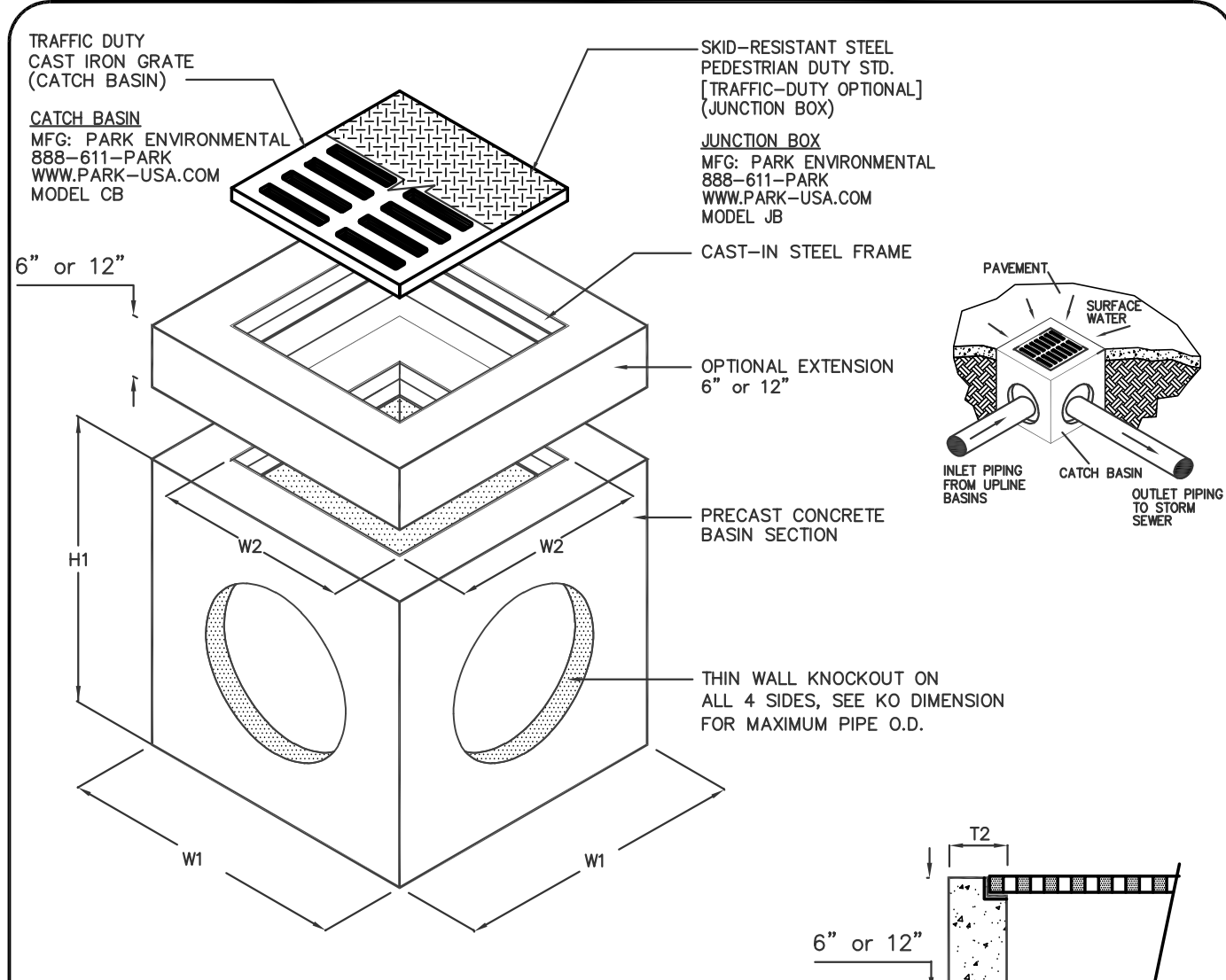


10.02.2023

CONSTRUCTION NOTES

DRAWN BY: BSS	CHECKED: SNO
PROJECT No: 23322.13	SHEET No: C6.0

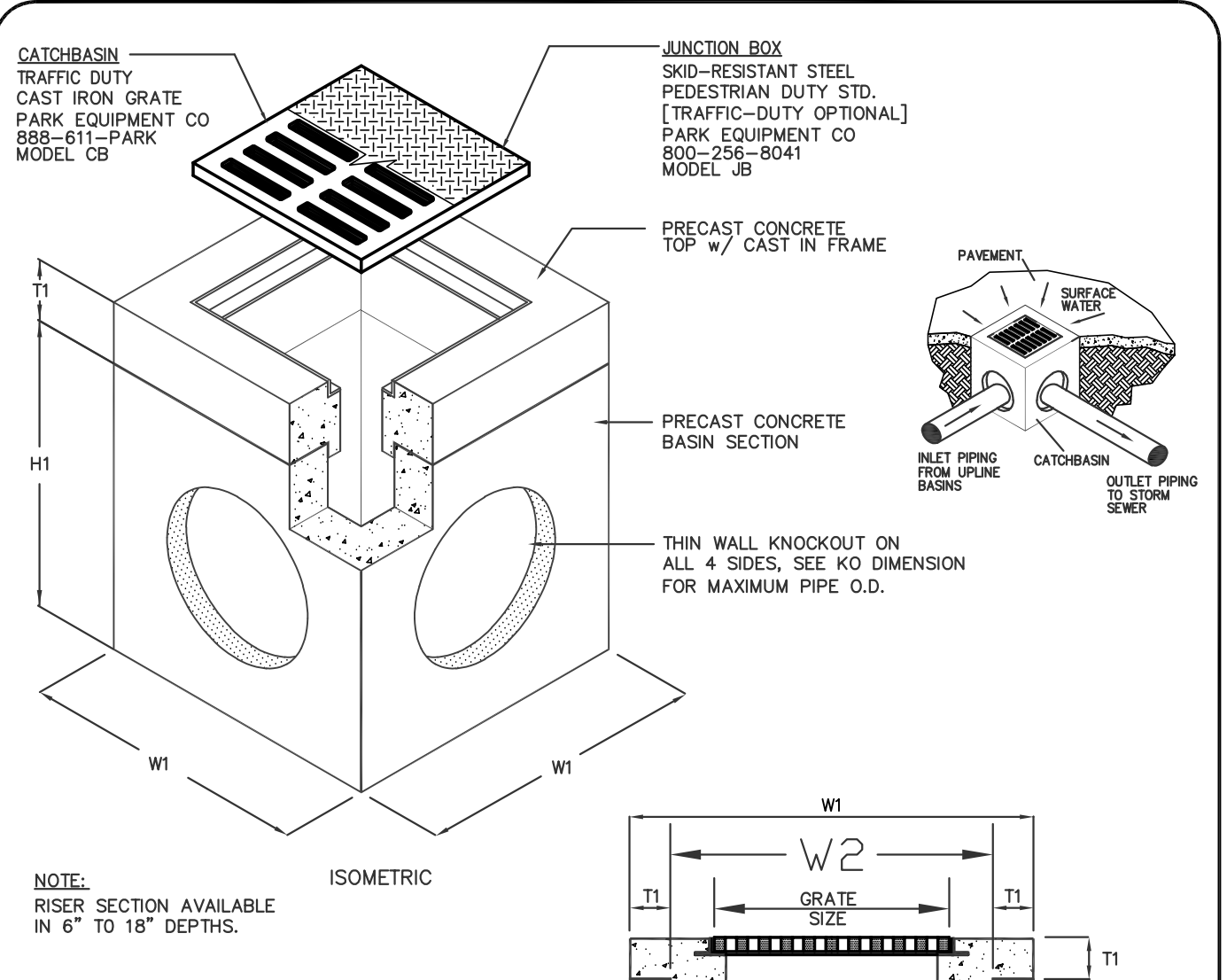
TPPE FIRM #: 15498



MODEL #	CATCH BASIN	JUNCTION BOX	W1	W2	H1	H2	T1	T2	KO	GRATE SIZE	WEIGHT
CB-12	JB-12	15"	10"	21"	18"	3"	2"	10"	10"	12"x12"x1"	150
CB-14	JB-14	20"	14"	28"	24"	4"	3"	12"	12"	14"x14"x1"	500
CB-18	JB-18	24"	18"	34"	30"	4"	4"	15"	15"	18"x18"x1"	750
CB-20	JB-20	28"	18"	34"	30"	4"	4"	17"	20"	20"x20"x1"	850
CB-24	JB-24	32"	22"	41"	36"	5"	5"	22"	24"	24"x24"x2"	1,950
CB-27	JB-27	37"	25"	42"	36"	6"	6"	24"	27"	27"x27"x2"	2,300
CB-30	JB-30	42"	30"	42"	36"	6"	6"	30"	32"	32"x32"x2"	2,650
CB-36	JB-36	48"	36"	42"	36"	6"	6"	32"	38"	38"x38"x2"	3,300

1. CB12 CATCHBASIN IS RATED FOR PEDESTRIAN LOADING. ALL OTHERS ARE TRAFFIC DUTY.
 2. ALL JUNCTION BOXES ARE STANDARD PEDESTRIAN DUTY OR OPTIONAL TRAFFIC DUTY.

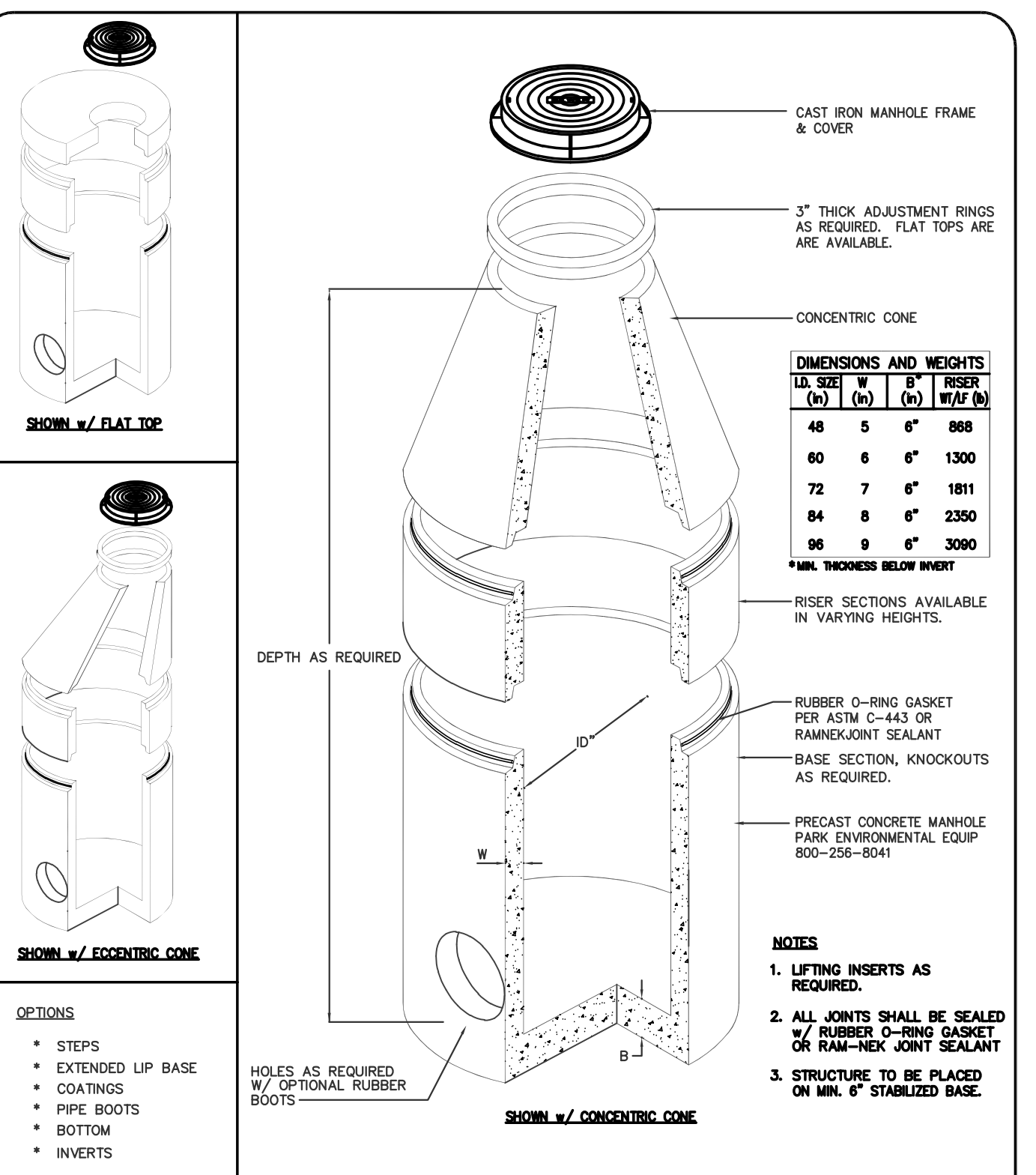
PARK ENVIRONMENTAL EQUIPMENT 888-611-PARK
 www.park-usa.com
 "Expect the Best"
 CATCH BASIN MODEL CB - 12" THRU 36"
 JUNCTION BOX MODEL JB - 12" THRU 36"
 SCALE: NONE DWG. NO.: CBJB36
 DATE: 2010 REV. A



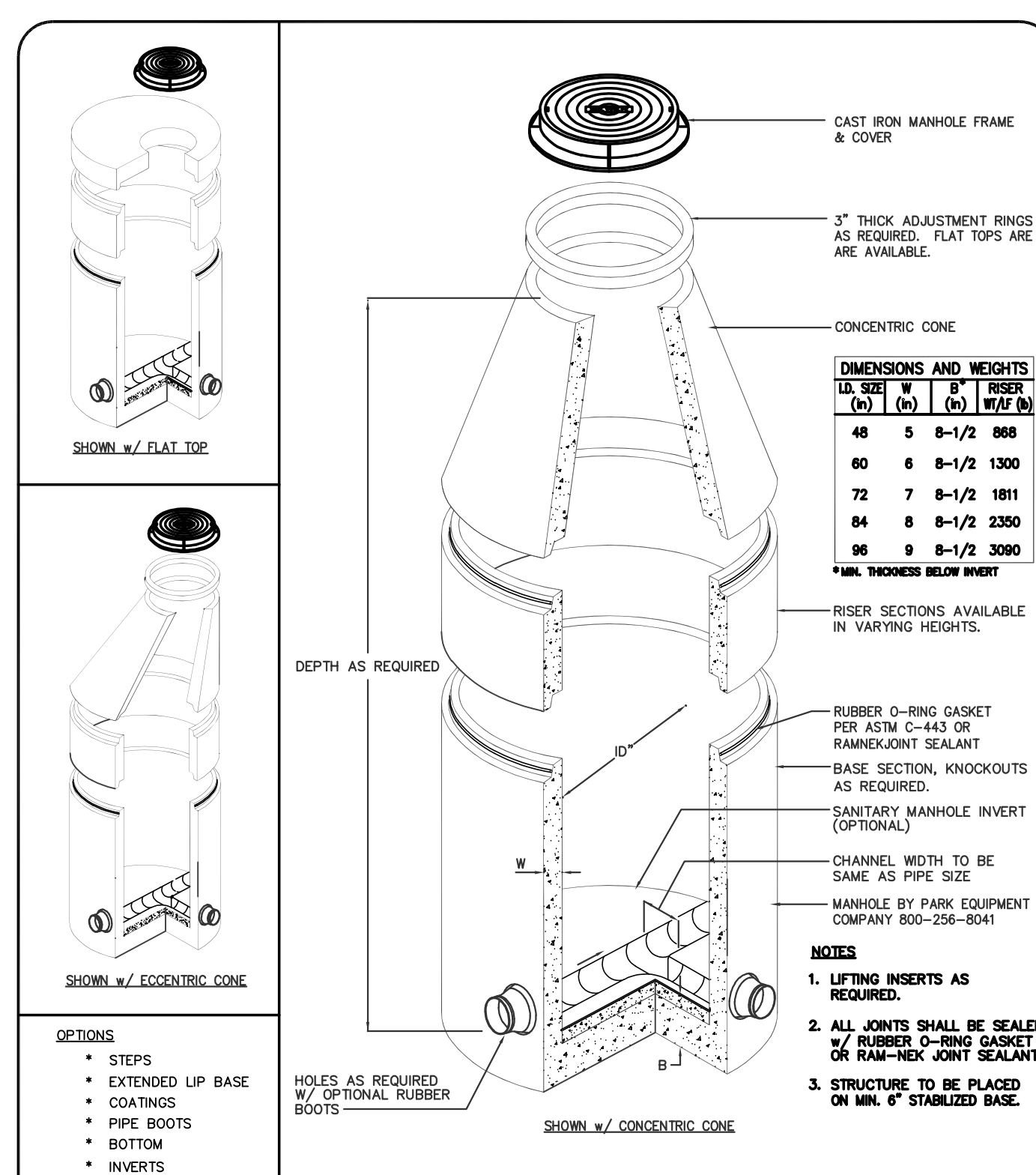
MODEL #	CATCH BASIN	JUNCTION BOX	W1	W2	H1	H2	T1	T2	KO	GRATE SIZE	WEIGHT
CB48	JB48	60"	48"	54"	48"	6"	48"	38"	38"	38"x38"x2"	8,900
CB60	JB60	72"	60"	66"	60"	6"	60"	38"	38"	38"x38"x2"	13,800
CB72	JB72	84"	72"	78"	72"	6"	72"	38"	38"	38"x38"x2"	19,000
CB84	JB84	96"	83"	78"	72"	6"	84"	38"	38"	38"x38"x2"	23,000

1. ALL JUNCTION BOXES ARE STANDARD PEDESTRIAN DUTY OR OPTIONAL TRAFFIC DUTY.

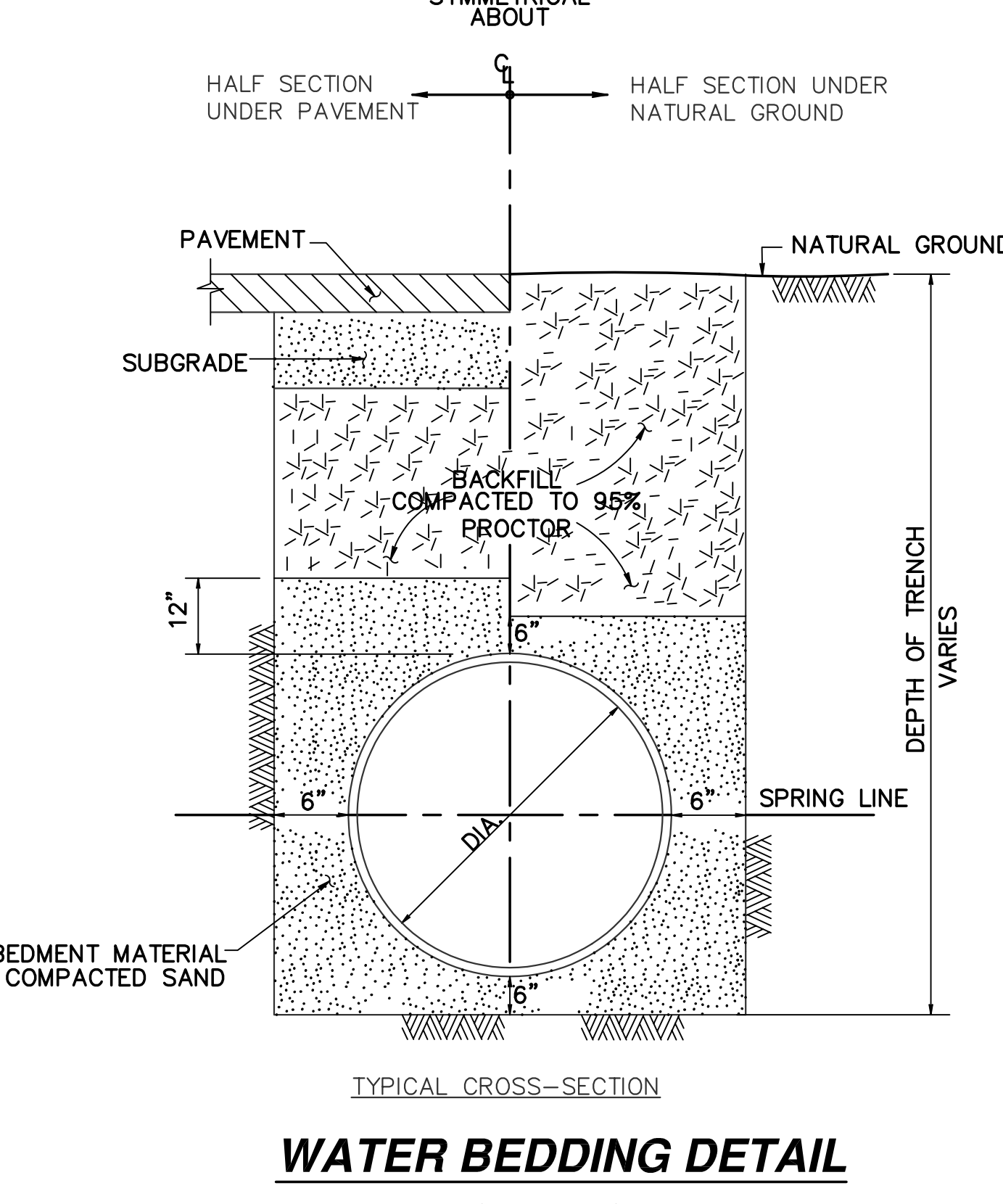
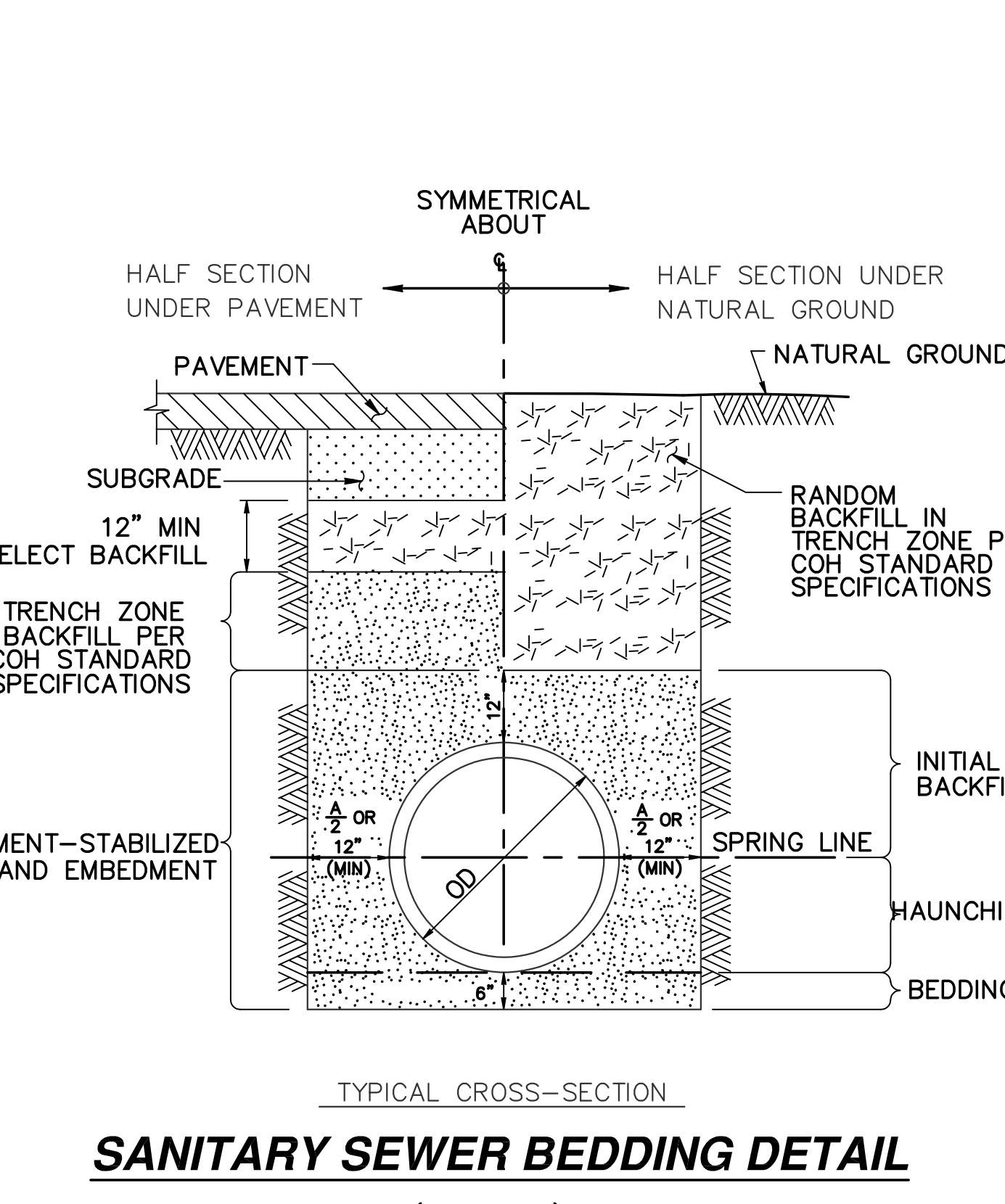
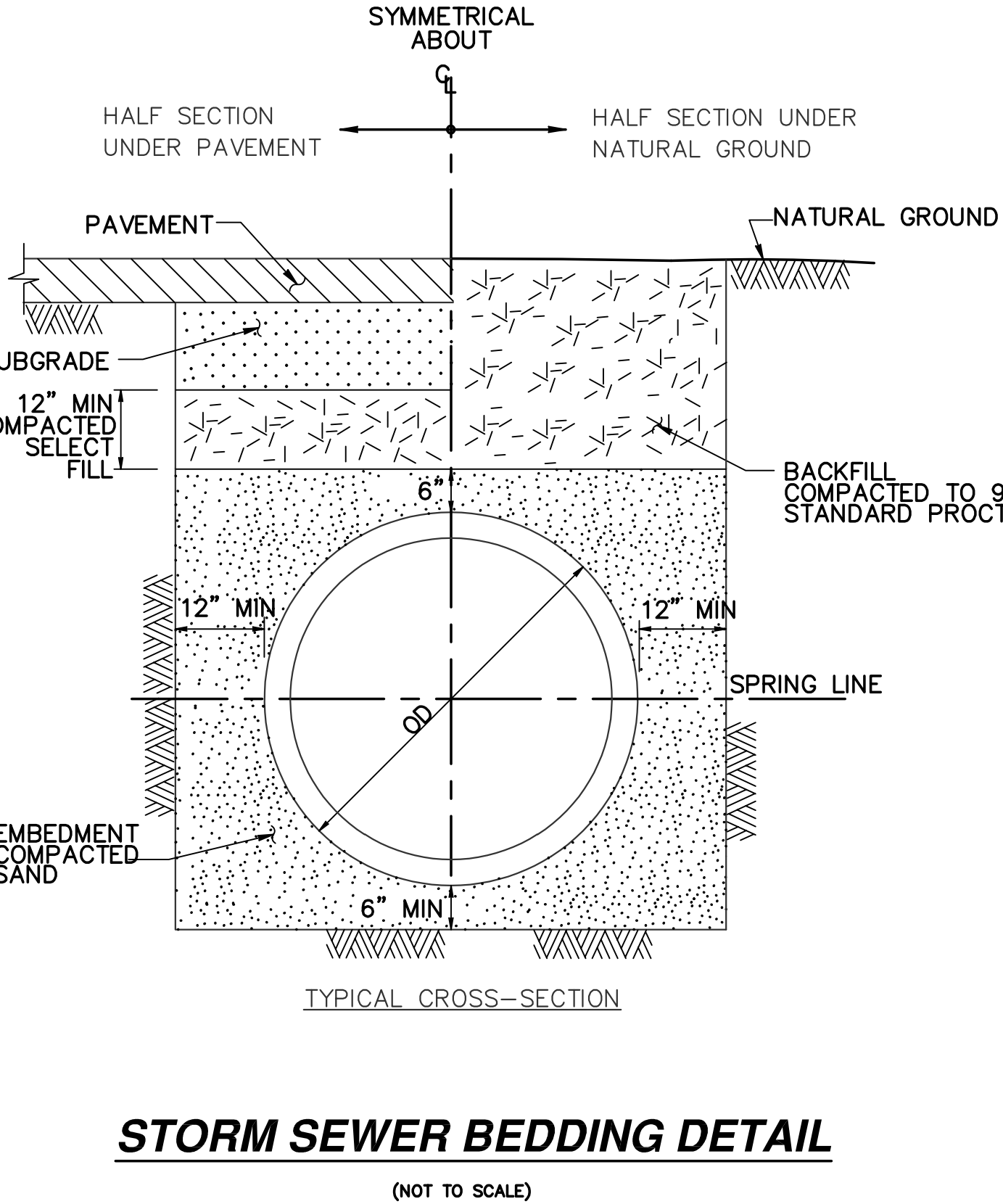
PARK ENVIRONMENTAL EQUIPMENT 888-611-PARK
 www.park-usa.com
 "Expect the Best"
 CATCHBASIN MODEL CB - 48" THRU 84"
 JUNCTION BOX MODEL JB - 48" THRU 84"
 SCALE: NONE DWG. NO.: CB4884
 DATE: 01/02 REV. A



PARK ENVIRONMENTAL EQUIPMENT 888-611-PARK
 www.park-usa.com
 "Expect the Best"
 PRECAST CONCRETE MANHOLE FOR STORM SEWER
 SCALE: NONE DWG. NO.: PCMHST-1
 DATE: 10/06 REV. A



PARK ENVIRONMENTAL EQUIPMENT 888-611-PARK
 www.park-usa.com
 "Expect the Best"
 PRECAST CONCRETE MANHOLE FOR SANITARY SEWER
 SCALE: NONE DWG. NO.: PCMHIN-6
 DATE: 10/06 REV. A



RSG ENGINEERING
 13501 KATY FREEWAY
 SUITE 3180
 HOUSTON, TEXAS 77079
 PH. 713-765-7777

Project at
NASH ST RETAIL CENTER
 2735 NASH ST
 BRYAN, TEXAS 77802

REVISIONS

10.02.2023

CONSTRUCTION DETAILS

DRAWN BY: BSS
 CHECKED BY: SNO

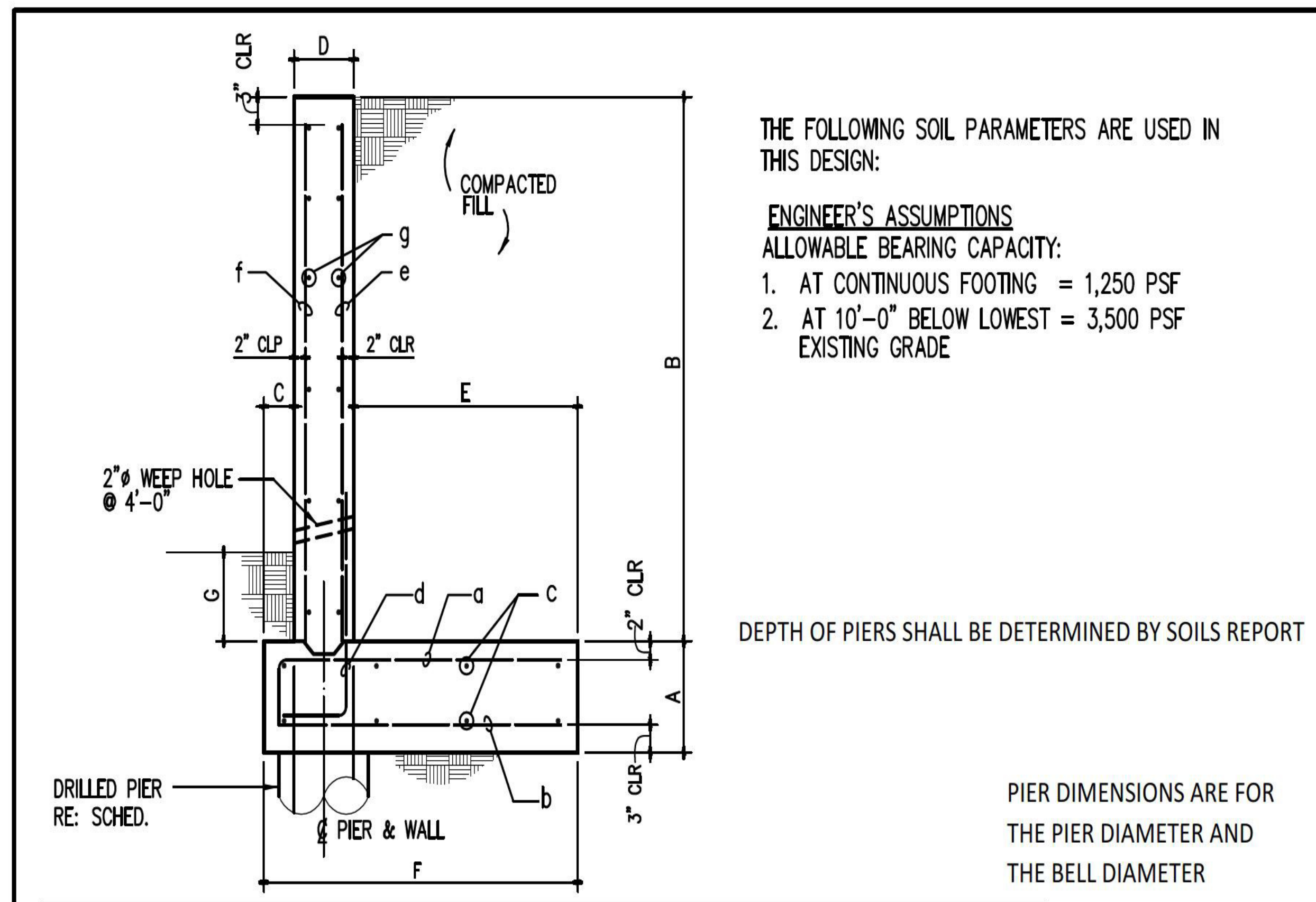
PROJECT No: 23322.13
 SHEET No: C6.1

STATE OF TEXAS
 SALIM NAZIH OBEID
 118989
 LICENSED PROFESSIONAL ENGINEER

REVISIONS

STATE OF TEXAS
 SALIM NAZIH OBEID
 118969
 LICENSED PROFESSIONAL ENGINEER
 10.02.2023

CONSTRUCTION DETAILS
 DRAWN BY: BSS
 CHECKED BY: SNO
 PROJECT No: 23322.13
 SHEET No: C6.2



THE FOLLOWING SOIL PARAMETERS ARE USED IN THIS DESIGN:
ENGINEER'S ASSUMPTIONS
 ALLOWABLE BEARING CAPACITY:
 1. AT CONTINUOUS FOOTING = 1,250 PSF
 2. AT 10'-0" BELOW LOWEST = 3,500 PSF EXISTING GRADE

DEPTH OF PIERS SHALL BE DETERMINED BY SOILS REPORT

PIER DIMENSIONS ARE FOR THE PIER DIAMETER AND THE BELL DIAMETER

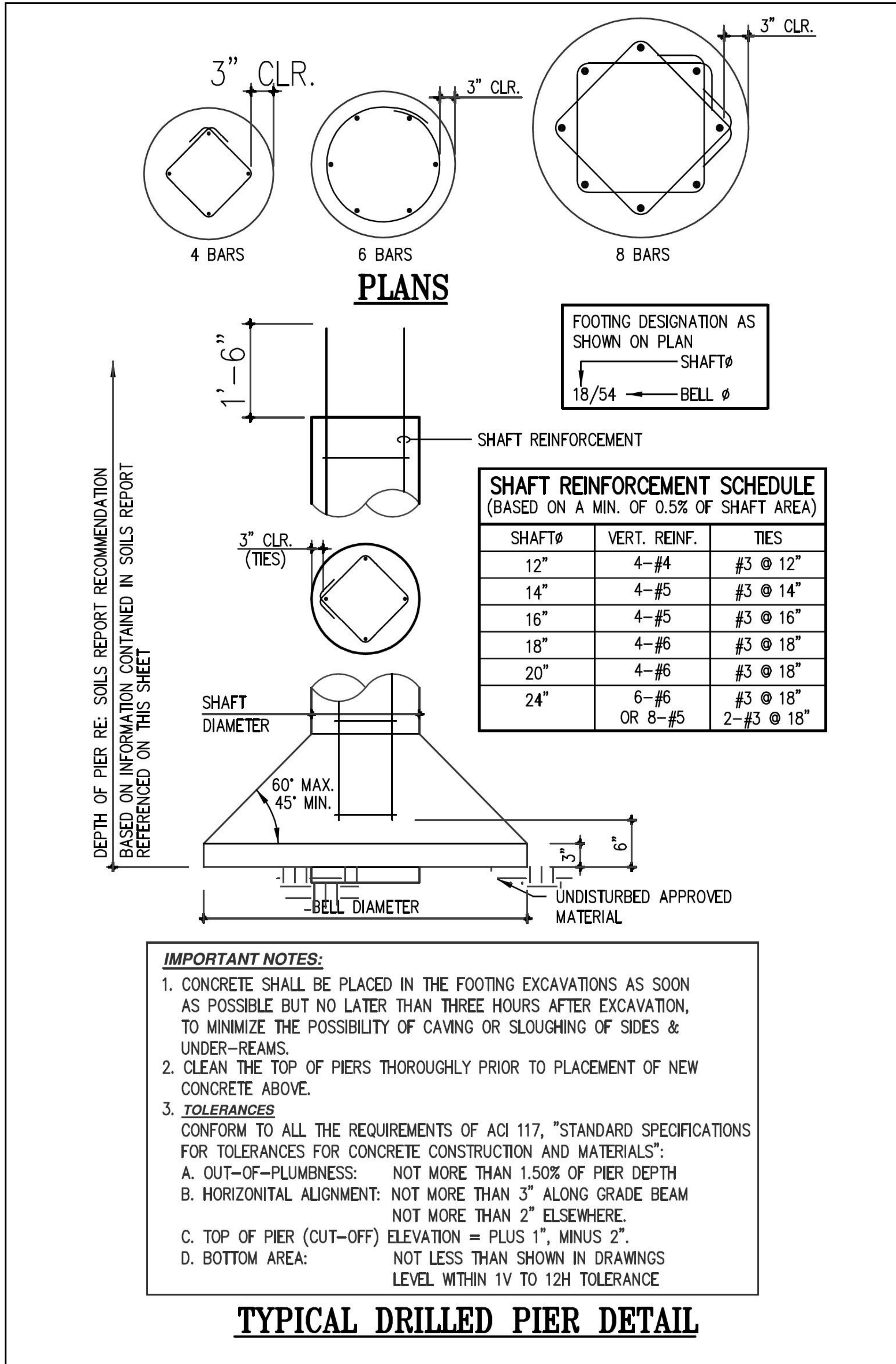
RETAINING WALL DIMENSION SCHEDULE

DEPTH	A	B	C	D	E	F	G	PIERS
3' TO 5'	1'-0"	2'-4"	0'-4"	0'-7"	2'-5"	3'-4"	0'-6"	NOT REQ'D
5' TO 7'	1'-0"	4'-6"	0'-6"	0'-10"	3'-4"	4'-8"	0'-8"	12/36 @ 12" O.C.
7' TO 9'	1'-0"	6'-8"	0'-6"	1'-0"	4'-4"	5'-10"	1'-0"	14/42 @ 12" O.C.
9' TO 11'	1'-3"	8'-10"	0'-10"	1'-2"	5'-3"	7'-3"	1'-0"	18/54 @ 12" O.C.
11' TO 13'	1'-4"	10'-12"	1'-0"	1'-3"	6'-3"	8'-6"	1'-3"	21/63 @ 12" O.C.

RETAINING WALL REINFORCEMENT SCHEDULE

DEPTH	a	b	c	d	e	f	g
3' TO 5'	#4 @ 15"	#4 @ 15"	3#4 CONT. TOP & BOTT. FULL HEIGHT	#4 @ 15"	#4 @ 15"	NOT REQ'D	#4 @ 15"
5' TO 7'	#4 @ 15"	#4 @ 15"	4#4 CONT. TOP & BOTT. FULL HEIGHT	#4 @ 15"	#4 @ 15"	#4 @ 18"	#4 @ 18"
7' TO 9'	#4 @ 10"	#4 @ 15"	5#4 CONT. TOP & BOTT. 10"	#4 @ 10"	#4 @ 15"	#4 @ 18"	#4 @ 18"
9' TO 11'	#5 @ 10"	#4 @ 15"	7#4 CONT. TOP & BOTT. 10"	#5 @ 10"	#4 @ 10"	#4 @ 15"	#4 @ 15"
11' TO 13'	#6 @ 10"	#4 @ 14"	9#4 CONT. TOP & BOTT. 12"	#6 @ 10"	#4 @ 10"	#4 @ 15"	#4 @ 15"

TYPICAL RETAINING WALL DETAIL



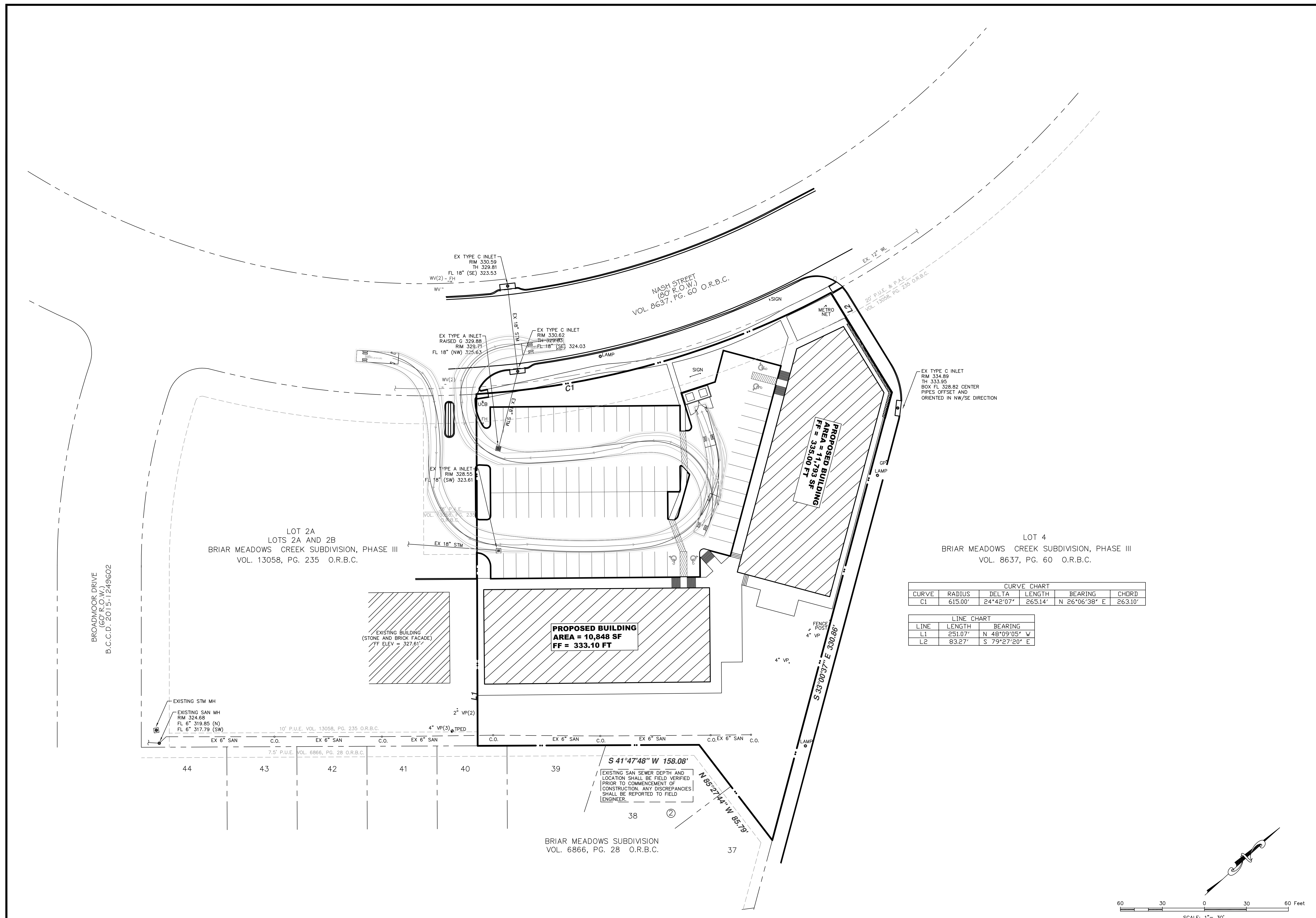
SHAFT REINFORCEMENT SCHEDULE
 (BASED ON A MIN. OF 0.5% OF SHAFT AREA)

SHAFT Ø	VERT. REINF.	TIES
12"	4-#4	#3 @ 12"
14"	4-#5	#3 @ 14"
16"	4-#5	#3 @ 16"
18"	4-#6	#3 @ 18"
20"	4-#6	#3 @ 18"
24"	6-#6 OR 8-#5	#3 @ 18" 2-#3 @ 18"

IMPORTANT NOTES:

- CONCRETE SHALL BE PLACED IN THE FOOTING EXCAVATIONS AS SOON AS POSSIBLE BUT NO LATER THAN THREE HOURS AFTER EXCAVATION, TO MINIMIZE THE POSSIBILITY OF CAVING OR SLOUGHING OF SIDES & UNDER-REAMS.
- CLEAN THE TOP OF PIERS THOROUGHLY PRIOR TO PLACEMENT OF NEW CONCRETE ABOVE.
- TOLERANCES**
 CONFORM TO ALL THE REQUIREMENTS OF ACI 117, "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS":
 A. OUT-OF-PLUMBNESS: NOT MORE THAN 1.50% OF PIER DEPTH
 B. HORIZONTAL ALIGNMENT: NOT MORE THAN 3" ALONG GRADE BEAM NOT MORE THAN 2" ELSEWHERE.
 C. TOP OF PIER (CUT-OFF) ELEVATION = PLUS 1", MINUS 2".
 D. BOTTOM AREA: NOT LESS THAN SHOWN IN DRAWINGS LEVEL WITHIN 1V TO 12H TOLERANCE

TYPICAL DRILLED PIER DETAIL



CURVE CHART

CURVE	RADIUS	DELTA	LENGTH	BEARING	CHORD
C1	615.00'	24°42'07"	265.14'	N 26°06'38" E	263.10'

LINE CHART

LINE	LENGTH	BEARING
L1	251.07'	N 48°09'05" W
L2	83.27'	S 79°27'20" E

REVISIONS

NO.	DESCRIPTION

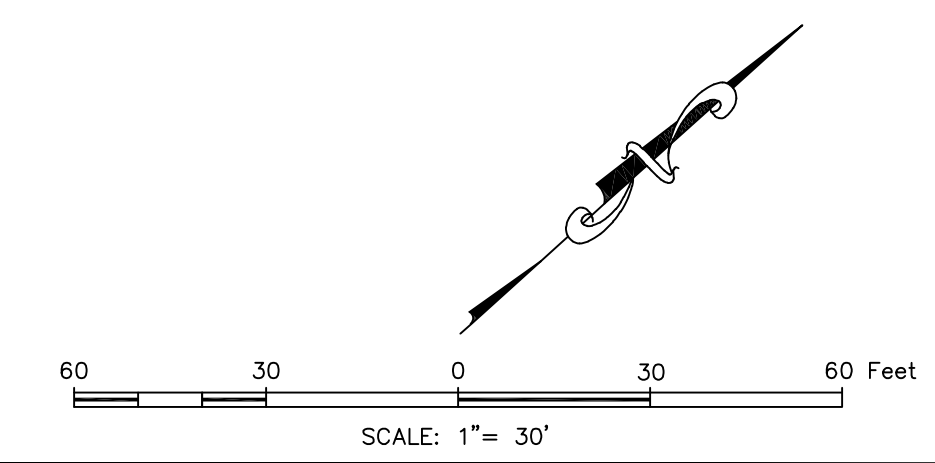
12.05.2023

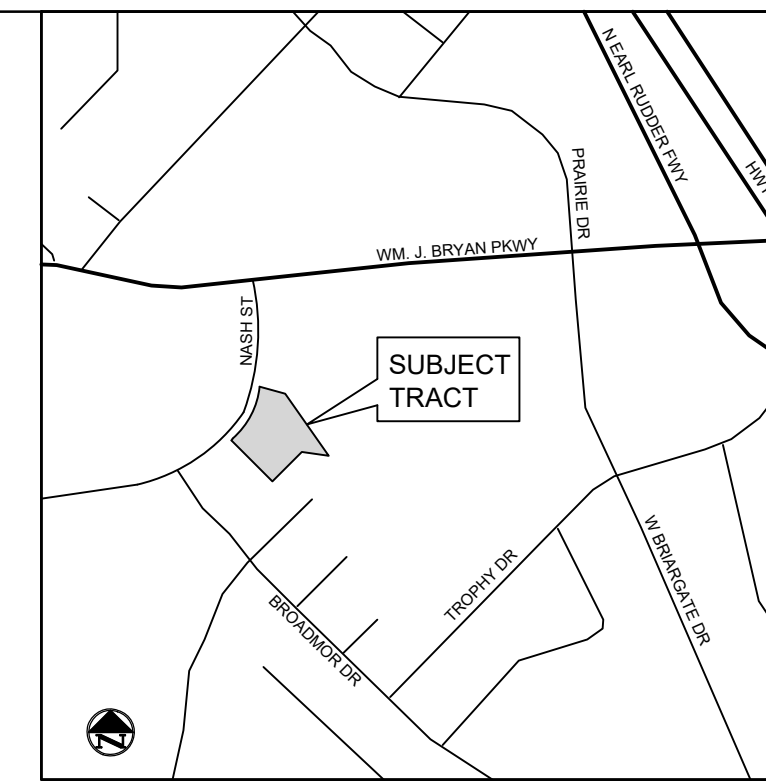
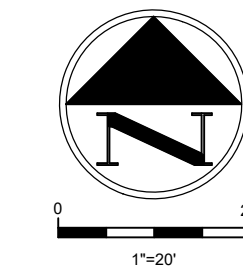
SALM NAZIH OBEID
118989
LICENSED PROFESSIONAL ENGINEER

TURN ANALYSIS

DRAWN BY: BSS
CHECKED: SNO

PROJECT No: 23322.13
SHEET No: C7.1





VICINITY MAP
NOT TO SCALE

LEGEND

- BP BRICK PAVERS
- CM CONTROLLING MONUMENT
- CONC. CONCRETE
- CS CURB STOP
- ELEV. ELEVATION
- FF FINISHED FLOOR
- FH FIRE HYDRANT
- FND. FOUND
- GP GATE POST
- GXXX.GX GUTTER ELEVATION
- I. IRON
- O.R.B.C. OFFICIAL RECORDS BRAZOS COUNTY
- P.A.E. PUBLIC ACCESS EASEMENT
- PF PIN FLAG
- PG. PAGE
- P.U.E. PUBLIC UTILITY EASEMENT
- R.O.W. RIGHT-OF-WAY
- STM STORM
- TBM TEMPORARY BENCHMARK
- TCXXX.TX TOP OF CURB ELEVATION
- TH THROAT
- TPED TELEPHONE PEDESTAL
- UCB UNDERGROUND CABLE BOX
- VOL. VOLUME
- VP VERTICAL PIPE
- WV WATER VALVE

BENCHMARK NOTES

COB GPS-33
BRASS DISK STAMPED GPS-33 LOCATED ON NORTH SIDE OF W.J. BRYAN PKWY, APPROX. 74' NORTHEAST OF CENTER TO DRIVE ENTRANCE OF CHURCH WITH PROPERTY ADDRESS 2122 W.J. BRYAN PKWY, APPROX. 25' NORTH OF W.J. BRYAN R.O.W., 51.7' EAST OF CONC. POWER POLE, AND 22.8 FEET WEST OF POWER POLE. ELEV. 339.05 NAVD88

TBM 02-142-1
BOX CUT ON WEST CORNER OF TYPE C INLET LOCATED ON SOUTH SIDE OF THE DRIVE ENTRANCE TO U.S. POSTAL SERVICE FROM NASH STREET, SAID U.S. POSTAL SERVICE HAVING THE PROPERTY ADDRESS 2121 E. W.J. BRYAN PKWY, BRYAN, TX 77801 ELEV. 334.97 NAVD88

TBM 02-142-2
BOX CUT ON THE EAST CORNER OF TYPE C INLET ON SOUTHEAST SIDE OF NASH ROAD, LOCATED NORTH OF THE DRIVE ENTRANCE TO PROPERTY ADDRESSED 2751 NASH ST, BRYAN, TX 77802. ELEV. 330.65 NAVD88

I, SEAN CONLEY, A REGISTERED PROFESSIONAL LAND SURVEYOR OF THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS MANUAL OF PRACTICE REQUIREMENTS FOR A CATEGORY 6, CONDITION II SURVEY. FIELDWORK WAS COMPLETED ON AUGUST 21, 2023.

DATE OF SURVEY: AUGUST 29, 2023.



SC
SEAN CONLEY RPLS NO. 6739
SEAN@CONLEYLAND.COM

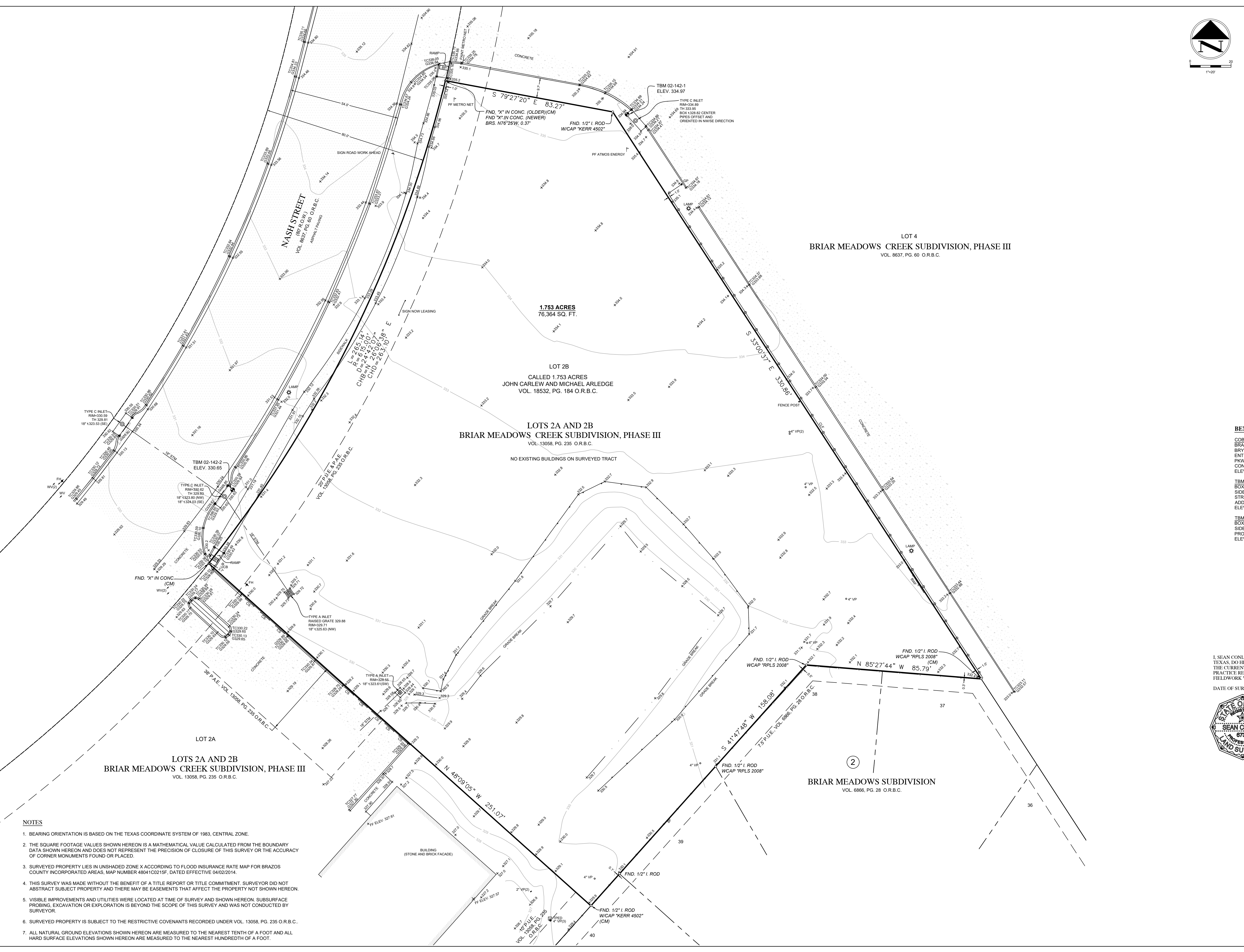
2735 NASH STREET, BRYAN TX 77802

TOPOGRAPHIC SURVEY OF
1.753 ACRES OF LAND
LOT 2B OF BRIAR MEADOWS CREEK
SUBDIVISION, PHASE III
SITUATED IN THE
JOHN AUSTIN LEAGUE, ABSTRACT 2
CITY OF BRYAN
BRAZOS COUNTY, TEXAS

CONLEY LAND SERVICES, LLC

1103 BUTTWOOD CREEK TRAIL
TOMBALL, TX 77375
TEL: 281.729.4997
CONLEYLAND.COM
TDFE15784.NOD.10104702

SCALE: 1"=20' JOB NO. 230405 DATE: 08/29/2023 FS NO. 02



NOTES

1. BEARING ORIENTATION IS BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, CENTRAL ZONE.
2. THE SQUARE FOOTAGE VALUES SHOWN HEREON IS A MATHEMATICAL VALUE CALCULATED FROM THE BOUNDARY DATA SHOWN HEREON AND DOES NOT REPRESENT THE PRECISION OF CLOSURE OF THIS SURVEY OR THE ACCURACY OF CORNER MONUMENTS FOUND OR PLACED.
3. SURVEYED PROPERTY LIES IN UNSHADED ZONE X ACCORDING TO FLOOD INSURANCE RATE MAP FOR BRAZOS COUNTY INCORPORATED AREAS, MAP NUMBER 48041C0215F, DATED EFFECTIVE 04/02/2014.
4. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT OR TITLE COMMITMENT. SURVEYOR DID NOT ABSTRACT SUBJECT PROPERTY AND THERE MAY BE EASEMENTS THAT AFFECT THE PROPERTY NOT SHOWN HEREON.
5. VISIBLE IMPROVEMENTS AND UTILITIES WERE LOCATED AT TIME OF SURVEY AND SHOWN HEREON. SUBSURFACE PROBING, EXCAVATION OR EXPLORATION IS BEYOND THE SCOPE OF THIS SURVEY AND WAS NOT CONDUCTED BY SURVEYOR.
6. SURVEYED PROPERTY IS SUBJECT TO THE RESTRICTIVE COVENANTS RECORDED UNDER VOL. 13058, PG. 235 O.R.B.C.
7. ALL NATURAL GROUND ELEVATIONS SHOWN HEREON ARE MEASURED TO THE NEAREST TENTH OF A FOOT AND ALL HARD SURFACE ELEVATIONS SHOWN HEREON ARE MEASURED TO THE NEAREST HUNDREDTH OF A FOOT.