CLEAR CREEK SUBDIVISION UNIT 1

NEW BRAUNFELS, TEXAS

STREETS, DRAINAGE, WATER AND SANITARY SEWER IMPROVEMENT PROJECT

BEING A 14.192 ACRE TRACT OF LAND OUT OF SUBDIVISION NO. 115 OF THE A.M. ESNAURIZAR ELEVEN LEAGUE GRANT, ABSTRACT NO. 98, IN COMAL COUNTY, TEXAS, BEING A PORTION OF A CALLED 10.096 ACRE TRACT OF LAND, AS CONVEYED TO RANDY HARRIS AND KELLYE HARRIS, AND RECORDED IN DOCUMENT NO. 200806016460, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, AND ALSO BEING ALL OF A CALLED 16.775 ACRE TRACT OF LAND, AS CONVEYED TO RANDY LLOYD HARRIS AND KELLYE DAWN HARRIS, AND RECORDED IN DOCUMENT NO. 202006036473, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS.

OWNER/DEVELOPER:
BRIGHTLAND HOMES, LTD.
3815 S CAPITAL OF
TEXAS HIGHWAY, SUITE #275
AUSTIN, TX 78704

ENGINEER/SURVEYOR:
INK CIVIL
JAMES INGALLS, P.E. - ENGINEER
2021 SH 46 W. STE 105.
NEW BRAUNFELS, TX. 78130
(830) 358-7127

D.A. MAWYER LAND SURVEYING, INC.
DREW MAWYER, R.P.L.S. - SURVEYOR
5151 W. SH46
NEW BRAUNFELS, TEXAS 78132
(210) 325-0858

Project Control Points				
Point #	Raw Description	Elevation	Northing	Easting
1	CP MAG	611.93	13800057.6500	2256494.0800
2	CP MAG	613.02	13800266.7400	2256697.8900
3	CP IPSC	614.13	13800525.5000	2256968.8800
10	CP MAG	630.95	13800177.3290	2257655.6480
11	CP MAG	640.03	13800373.5850	2257871.0930
50	CP 60D	643.66	13800469.8320	2257779.9810

DESIGN SPEED = 30 MPH

PERMITS OR APPROVALS:	
CITY OF NEW BRAUNFELS	PENDING
CITY OF NEW BRAUNFELS FIRE DEPARTMENT	PENDING
NEW BRAUNFELS UTILITIES	APPROVED
TCEQ	N/A
TXDOT	N/A
UNION PACIFIC RAILROAD	N/A
CENTERPOINT ENERGY	N/A

PLEASE NOTE: NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE TAKEN PRIOR TO BACKFILL DURING CONSTRUCTION.

GPS POINTS SHALL BE REQUIRED FROM THE DEVELOPER CONTRACTOR'S OR ENGINEER. A MINIMUM OF THREE COORDINATE POINTS FOR GEOREFERENCING SHALL BE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE. THE ELECTRIC GPS POINTS SHALL BE TO MAP GRADE.

WATER
VERTICAL BENDS AND EDGE OF STEEL CASING (IF APPLICABLE) PRIOR TO BACKFILL
HORIZONTAL BENDS PRIOR TO BACKFILL
TEES PRIOR TO BACKFILL
FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL
FIRE HYDRANTS (TOP OF FLANGE)
VALVES
METERS (TOP CENTER OF BOX)
BLOW OFF ASSEMBLY
CORNER SLAB OF WATER TANK & GATE VALVE ON WATER TANK

WASTEWATER
MANHOLES
CLEANOUTS CORNER
SLAB OF LIFT STATION

ELECTRIC
POLES TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK)
PULL BOXES
STREET LIGHTS

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

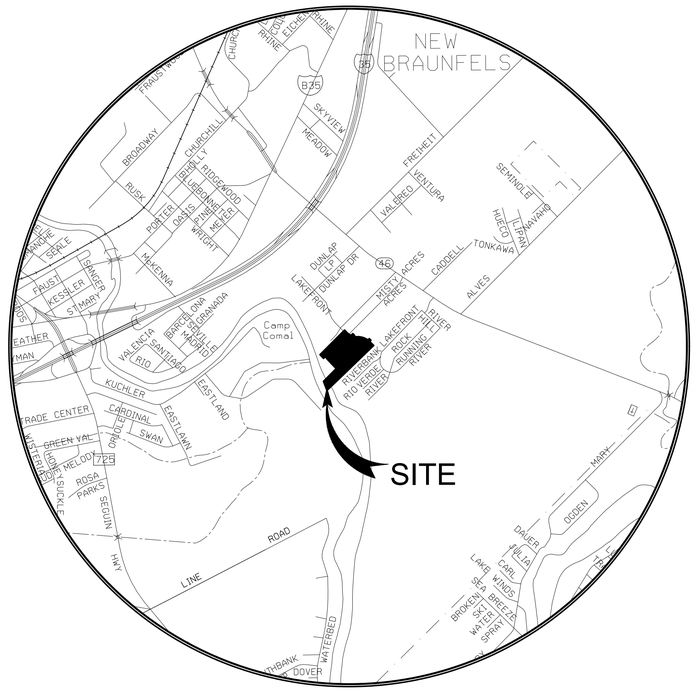
GENERAL NOTES:

1. IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF CITY OF NEW BRAUNFELS AND NEW BRAUNFELS UTILITIES (NBU) APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.
2. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE CITY OF NEW BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
3. A PORTION OF THE PROJECT IS LOCATED WITHIN THE EXISTING SPECIAL FLOOD HAZARD ZONE AE, 100-YEAR FLOOD BOUNDARY, AS DEFINED BY THE COMAL COUNTY, TEXAS MAP NUMBER 48091C0455F, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, EFFECTIVE DATE SEPTEMBER 2, 2009. BLOCK 3, LOT 100 IS LOCATED WITHIN THE FEMA REGULATORY FLOODWAY.
4. THIS PROJECT IS LOCATED WITHIN THE EAA JURISDICTIONAL BOUNDARY AND IS NOT LOCATED WITHIN ANY EDWARDS AQUIFER RECHARGE ZONES.
5. THIS PROJECT IS A RESIDENTIAL SUBDIVISION, DEVELOPMENT TYPE 3.
6. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR SHALL CONTACT THE CITY OF NEW BRAUNFELS (CONB) AND NEW BRAUNFELS UTILITIES (NBU) TO SET A PRE-CONSTRUCTION MEETING. A 48-HOUR ADVANCED NOTIFICATION IS REQUIRED.
   - 6.1. ALL CONB INSPECTIONS ARE TO BE CALLED IN AT 830-221-4068 (PHONE)
   - 6.2. FAXED IN AT 830-608-2117 (FAX)
   - 6.3. EMAILED AT inspections@nbtexas.com (EMAIL).
   - 6.4. NBU INSPECTIONS ARE TO BE CALLED AT 830-608-8971
7. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY THE CITY OF NEW BRAUNFELS STANDARD DETAILS.
8. GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE CITY FOR ANY WORK WITHIN PUBLIC RIGHT-OF-WAY.

NOTE TO CONTRACTOR:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT EACH OF THE INDIVIDUAL UTILITIES FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.



LOCATION MAP
SCALE: 1" = 1,500'

Sheet List Table	
SHEET NUMBER	SHEET TITLE
1	GENERAL NOTES
2	MASTER PLAN
3	SUBDIVISION PLAT I
4	SUBDIVISION PLAT II
5	CLEAR COVE RD PLAN & PROFILE
6	CREEK BED DR PLAN & PROFILE
7	LITTLE PEBBLE PLAN & PROFILE
8	LAKE FRONT AVE PLAN & PROFILE
9	STREET SECTIONS AND DETAILS I
10	STREET SECTION AND DETAILS II
11	STREET SECTIONS AND DETAILS III
12	TRAFFIC SIGNAGE & SIDEWALK PLAN
13	TRAFFIC SIGNAGE AND SIDEWALK DETAIL
14	TRAFFIC SIGNAGE AND SIDEWALK DETAIL II
15	TRAFFIC SIGNAGE AND SIDEWALK DETAIL III
16	EXISTING DRAINAGE AREA MAP
17	PROPOSED SCS DRAINAGE AREA MAP
18	PROPOSED DRAINAGE AREA MAP
19	DETENTION POND PLAN & NOTES
20	DETENTION POND CROSS-SECTIONS
21	DETENTION POND STRUCTURE DETAILS
22	CHANNEL A PLAN & PROFILE
23	OVERALL STORM DRAIN PLAN
24	STORM DRAIN LINE A
25	STORM DRAIN LINES B AND B3
26	STORM DRAIN LINES C AND C2
27	STORM DRAIN LINES D, E, AND D1
28	DRAINAGE DETAILS I
29	DRAINAGE DETAILS II
30	DRAINAGE DETAILS III
31	DRAINAGE DETAILS IV
32	GRADING PLAN
33	GRADING DETAIL I
34	RETAINING WALL DETAILS
35	OVERALL UTILITY PLAN
36	OVERALL SANITARY SEWER PLAN
37	SANITARY SEWER LINE A
38	SANITARY SEWER LINE B
39	SANITARY SEWER LINE C
40	SANITARY SEWER DETAILS I
41	SANITARY SEWER DETAILS II
42	SANITARY SEWER DETAILS III
43	WATER DISTRIBUTION PLAN
44	WATER DETAILS I
45	WATER DETAILS II
46	EROSION CONTROL PLAN
47	EROSION CONTROL DETAILS I
48	EROSION CONTROL DETAILS II
49	DEMOLITION PLAN

PREPARED BY:

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TBPE FIRM F-13351

SUBMITTED BY:

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INK CIVIL
TBPE FIRM #F-13351
2021 W SH46, STE 105
NEW BRAUNFELS, TX 78132

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

SUBMITTAL DATE: 2-14-2024

NO	DATE	ISSUES AND REVISIONS
1	5-16-2023	UPDATED PER CONB & NBU COMMENTS
2	9-28-2023	UPDATED PER CONB COMMENTS
3	11-17-2023	UPDATED PER CONB COMMENTS
4	1-15-2024	UPDATED PER CONB COMMENTS
5	2-1-2024	UPDATED PER CONB COMMENTS
6	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS
7		
8		

CLEAR CREEK SUBDIVISION UNIT 1
PERMIT SET

Drawing Name: K:\Projects\VA08001 Harris Tract\Civil\Construction Drawings\0 COVER.dwg User: chadfreesemann Feb 14, 2024 - 12:53pm

CITY OF NEW BRAUNFELS – CONSTRUCTION NOTES – REV 3-2020

1. IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE-YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.

2. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY THE CITY OF NEW BRAUNFELS STANDARD DETAILS.

3. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE CITY OF NEW BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY OF NEW BRAUNFELS TO SCHEDULE A PRECONSTRUCTION MEETING.

FOR PUBLIC INFRASTRUCTURE PERMIT (SC) OR SITE PREP PERMIT (SD) PROJECTS:
4.1 FOR INSPECTIONS, YOU MUST CALL BEFORE 12:00 P.M., 48 HOURS PRIOR TO YOUR INSPECTION REQUEST.
4.2 EACH INSPECTION WILL BE ALLOTTED 1 HOUR UNLESS YOU REQUEST FOR MORE TIME.
4.3 ONCE YOUR REQUEST HAS BEEN ACCEPTED, YOU WILL RECEIVE A CALL FROM THE CITY OF NEW BRAUNFELS INSPECTOR.

FOR COMMERCIAL PERMIT (CP) PROJECTS:
4.4 ALL INSPECTIONS ARE TO BE CALLED IN AT 830-221-4068 OR,
4.5 FAXED IN AT 830-608-2117 OR,
4.6 E-MAILED AT INSPECTIONS@NBTEXAS.ORG.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES ARE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PLANS AND LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. IF, IN THE OPINION OF THE ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE BARRICADES AND SIGNS DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED. IF THE NEED ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES MAY BE ORDERED BY THE ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

6. A TXDOT TYPE II B-B BLUE REFLECTIVE RAISED PAVEMENT MARKER SHALL BE INSTALLED IN THE CENTER OF THE ROADWAY ADJACENT TO ALL FIRE HYDRANTS, IN LOCATIONS WHERE HYDRANTS ARE SITUATED ON CORNERS, BLUE REFLECTIVE RAISED PAVEMENT MARKERS SHALL BE INSTALLED ON BOTH APPROACHES WHICH FRONT THE HYDRANT. THE RAISED PAVEMENT MARKER SHALL MEET TXDOT MATERIAL, EPOXY AND ADHESIVE SPECIFICATIONS.

GROUNDWATER

7. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER, CONTRACTOR, SUBCONTRACTORS, BUILDERS, GEO-TECHNICAL ENGINEER, AND PROJECT ENGINEER TO IMMEDIATELY NOTIFY THE OFFICE OF THE CITY ENGINEERAND PROJECT ENGINEER IF THE PRESENCE OF GROUNDWATER WITHIN THE SITE IS EVIDENT. UPON NOTIFICATION THE PROJECT ENGINEER SHALL RESPOND WITH PLAN REVISIONS FOR THE MITIGATION OF THE GROUNDWATER ISSUE. THE CITY ENGINEER SHALL RESPOND WITHIN TWO (2) WEEKS AND UPON RECEIPT OF THE MITIGATION PLAN. ALL CONSTRUCTION ACTIVITY, IMPACTED BY THE DISCOVERY OF GROUNDWATER, SHALL BE SUSPENDED UNTIL THE CITY ENGINEER GRANTS A WRITTEN APPROVAL OF THE GROUNDWATER MITIGATION PLAN.

RECORD DRAWINGS

8. AS PER PLATTING ORDINANCE SECTION 118-38M.: WHEN ALL OF THE IMPROVEMENTS ARE FOUND TO BE CONSTRUCTED AND COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND WITH THE CITY'S STANDARDS, AND UPON RECEIPT OF ONE SET OF "RECORD DRAWING" PLANS, AND A DIGITAL COPY OF ALL PLANS (PDF COPY) THE CITY ENGINEER SHALL ACCEPT SUCH IMPROVEMENTS FOR THE CITY OF NEW BRAUNFELS, SUBJECT TO THE GUARANTY OF MATERIAL AND WORKMANSHIP PROVISIONS IN THIS SECTION.

CONSTRUCTION NOTE

9. ENGINEER OF RECORD IS RESPONSIBLE TO ENSURE THAT EROSION CONTROL MEASURES AND STORMWATER CONTROL SUFFICIENT TO MITIGATE OFF SITE IMPACTS ARE IN PLACE AT ALL STAGES OF CONSTRUCTION.

DRAINAGE NOTE

10. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE THE IMPACT OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ADDING IMPERVIOUS COVER.

FINISHED FLOOR ELEVATIONS

11. THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE.

SOILS TESTING

12. PROCTORS SHALL BE SAMPLED FROM ON-SITE MATERIAL (ON-SITE IS DEFINED AS LIMITS OF CONSTRUCTION FOR THIS "-PLAN SET") AND A COPY OF THE PROCTOR RESULTS SHALL BE DELIVERED TO THE CITY OF NEW BRAUNFELS STREET INSPECTOR PRIOR TO ANY DENSITY TESTS.

ROADWAY

13. ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FLEXIBLE BASE OR FILL/EMBANKMENT MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED EIGHT INCHES (8") LOOSE. THE REQUIRED DENSITY FOR THE FILL/EMBANKMENT MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 132. THE REQUIRED DENSITY FOR THE FLEXIBLE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF TXDOT'S SPECIFICATION ITEM 247. EACH LAYER OF MATERIAL, INCLUSIVE OF SUBGRADE, SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER WILL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FLEXIBLE BASE, AND FILL MATERIAL, AND SUBGRADE, HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

ITEM 340

14. ASPHALTIC CONCRETE PAVEMENT SHALL BE THE TYPE OF HOT MIX ASPHALT AS DEFINED IN TXDOTS STANDARD SPECIFICATIONS FOR CURRENT TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREET AND BRIDGES.

15. THE CITY OF NEW BRAUNFELS WILL NOT ACCEPT THE USE OF RECYCLED ASPHALT PAVEMENT (RAP) OR RECYCLED ASPHALT SHINGLES (RAS) IN ASPHALT MIXTURES FOR NEW ROADWAYS. ANY DEBRIS INCLUSIONS WITHIN NEW ASPHALT PAVEMENTS WILL RESULT IN ASPHALT REMOVAL AND REPLACEMENT FROM CURB TO CURB FOR LIMITS TO BE DETERMINED BY THE CITY OF NEW BRAUNFELS.

16. THE ASPHALTIC CONCRETE PAVEMENT SURFACE COURSE SHALL BE PLANT MIXED, HOT LAID TYPE "D" MEETING THE SPECIFICATION REQUIREMENTS OF TXDOT ITEM 340. THE ASPHALTIC CONCRETE PAVEMENT SUB-SURFACE COURSES SHALL BE PLANT MIXED, HOT LAID TYPE "B" MEETING THE SPECIFICATION REQUIREMENTS OF TXDOT ITEM 340. THE MIXTURE SHALL BE DESIGNED PER THE DESIGN REQUIREMENTS SPECIFIED IN TXDOT ITEM 340 AND SHALL BE COMPACTED TO BETWEEN 91 AND 95 PERCENT OF THE MAXIMUM THEORETICAL DENSITY AS DETERMINED BY TXDOT TEST METHOD TEX-227-F. PLACE THE MIXTURE WHEN THE ROADWAY SURFACE TEMPERATURE IS AT OR ABOVE 60°F. COMPLETE ALL COMPACTION OPERATIONS BEFORE THE PAVEMENT TEMPERATURE DROPS BELOW 160°F. THE ASPHALT CEMENT CONTENT BY PERCENT OF TOTAL MIXTURE WEIGHT SHALL FALL WITHIN A TOLERANCE OF +0.5 PERCENT FROM A SPECIFIC MIX DESIGN.

UTILITY TRENCH COMPACTION (ADDED TO THE CONSTRUCTION PLANS ON ALL UTILITY PLAN SHEETS).

17. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CURB CUT DUE TO CONSTRUCTION OF NEW RIGHT-OF-WAY CONSTRUCTION

18. CURB CUTS SHALL BE THE FOLLOWING METHODS AND INDICATED ON THE PLANS IN DETAIL WHERE APPLICABLE.
18.1 SAWCUT EXISTING STREET AND MATCH TO NEW CONSTRUCTION.
18.2 SAWCUT EXISTING CURB TO TIE INTO EXISTING CONSTRUCTION.

CONSTRUCTION STABILIZED ENTRANCE

19. SAWCUT CURB FOR CONSTRUCTION ENTRANCE.

20. STABILIZED CONSTRUCTION AREA SHALL BE CONSTRUCTED OF 3"X5" ROCK TO BE PLACED A MINIMUM LENGTH OF 25-FT. AND MAINTAINED SO THAT CONSTRUCTION DEBRIS DOES NOT FALL WITHIN THE CITY RIGHT-OF-WAY. RIGHT-OF-WAY MUST BE CLEARED FROM MUD, ROCKS, ETC. AT ALL TIMES.

SIGNING AND PAVEMENT MARKING PLAN NOTES

21. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.

22. THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS.

23. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.

SEEDING AND ESTABLISHMENT OF VEGETATION WITHIN EARTHEN CHANNELS, STORMWATER BASINS AND DISTURBED AREAS

1. SEEDING FOR THE PURPOSE OF ESTABLISHING VEGETATION WITHIN CONSTRUCTED EARTHEN CHANNELS, BASINS AND DISTURBED AREAS SHALL BE CONDUCTED IN ACCORDANCE WITH ITEM 164 (SEEDING FOR EROSION CONTROL) OF TXDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES MANUAL. ONLY SEED TYPES AND MIXES SPECIFIED FOR THE SAN ANTONIO DISTRICT (DISTRICT 15) IN TABLES 1 AND 2 UNDER ITEM 164 SHALL BE UTILIZED, DURING THE COOL SEASON (SEPT 1-NOV 30), CEREAL RYE AND SEED SPECIES SPECIFIED FOR THE SAN ANTONIO DISTRICT IN TABLE 3 MAY BE USED. FOR COOL SEASON SEEDING APPLICATIONS, COOL SEASON SEED MIXES SHALL BE USED IN CONJUNCTION WITH SEED MIXES FOR THE SAN ANTONIO DISTRICT AS SPECIFIED IN TABLE 1 AND 2 UNDER ITEM 164.

2. IT MAY BE DEEMED NECESSARY TO INCORPORATE TOPSOIL AND SOIL AMENDMENTS (I.E. COMPOST/FERTILIZER) INTO EXISTING SOIL IN ORDER TO FACILITATE VEGETATION GROWTH. TOPSOIL, COMPOST AND FERTILIZER ADDITIONS SHALL BE CONDUCTED ACCORDING TO ITEMS 160, 161 AND 166 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL, RESPECTIVELY.

3. AREAS REQUIRING PERMANENT VEGETATION (EARTHEN CHANNELS, PONDS, ETC.) ARE REQUIRED TO MEET TXDOT SPECIFICATIONS FOR ITEM 160 TOPSOIL. TESTING PER TEX-128-E WILL BE REQUIRED AT THE CITY'S REQUEST.

4. WATERING MAY ALSO BE NECESSARY TO FACILITATE AND EXPEDITE THE SPROUTING AND GROWTH OF VEGETATION. ITEM 168 OF TXDOT'S STANDARD SPECIFICATIONS MANUAL SHALL BE ADHERED TO FOR VEGETATIVE WATERING.

5. IF EXTENDED DROUGHT CONDITIONS EXIST THAT HINDER OR PROHIBIT THE GROWTH AND ESTABLISHMENT OF VEGETATION, THE CONTRACT/ DEVELOPER SHALL PROVIDE A PLAN TO THE CITY OF NEW BRAUNFELS DESCRIBING THE MEASURES THAT WILL BE TAKEN TO STABILIZE EARTHEN DRAINAGE INFRASTRUCTURE UNTIL A TIME WHEN GROWING CONDITIONS BECOME MORE FAVORABLE.

NEW BRAUNFELS UTILITIES – GENERAL NOTES – REV 4-2020

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICY".

2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST TWO (2) WORKING DAYS (48 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED FROM NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR

3. THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE CONTRACTOR AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN PLATTED UTILITY EASEMENTS OR PUBLIC ROW OF PROPOSED DEVELOPMENTS. (AS APPLICABLE).

4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.

5. CONTRACTOR TO CONTACT THE ENGINEER OF RECORD (EOR) FOR ANY FIELD CHANGES. NAY REVISIONS OR CHANGES TO THE APPROVED CONSTRUCTION PLANS WILL REQUIRE ADDITIONAL APPROVAL BY NBU IN WRITING.

6. CONTRACTOR AND / OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATIONS, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.

8. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.

9. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

10. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.

11. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.

12. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.

13. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.

14. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.

15. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.

16. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.

17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. UTILITY COMPANIES ARE ALSO PREVIOUSLY MENTIONED IN "UTILITY COMPACTION NOTIFICATION".

18. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

19. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORKDAY.

20. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS:

20.1. WATER MAINS AND SERVICES

20.2. SEWER MAINS AND SERVICES

21. THRUST BLOCKS WILL NOT BE ALLOWED SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTHSHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.

22. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. WASTEWATER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION AND CONSTRUCTION POLICY MANUAL. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES IN DRIVEWAYS WILL BE RELOCCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

23. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN WASTEWATER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ.

24. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN./GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

25. UTILITY TRENCH COMPACTION WITH STREET R.O.W.
   a. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER.
   b. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE.
   c. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXT METHODS TEX-113-E, TEX- 114-E, TEX-115-E.
   d. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.
   e. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS

26. WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE LOCAL RESOURCE. NBU'S CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES ARE PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED THE CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.

27. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, NEW BRAUNFELS UTILITIES MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

28. THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER OR WASTEWATER IMPROVEMENTS MUST COMPLY WITH TCEQ, CITY OF NEW BRAUNFELS, W&WW DESIGN CRITERIA, SOUND ENGINEERING JUDGMENT , AND ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES.

NBU WATER NOTES – REV 5-2019

1. ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR GREATER).

2. WATER SERVICES SHALL BE SINGLE 1" COPPER TUBING.

3. WATER LINE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.

4. WATER MAIN SHALL HAVE A MINIMUM OF 42 INCHES OF COVER, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.

5. EACH UNIT IN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.

6. CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.

7. INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.

8. SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 6" INCHES AT THE LARGEST DIMENSION.

9. HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE.

10. NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

11. METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.

12. ACCEPTABLE METER BOXES ARE D13-BAMR AND D15-BAMR. NEW RESIDENTIAL LOTS ARE REQUIRED TO USE THE D15-BAMR METER BOXES (DOUBLE AMR). COMMERCIAL LOTS SHOULD CHOOSE WHICH BOX APPLIES TO THE DOMESTIC AND/OR IRRIGATION METER LAYOUT.

13. THRUST BLOCKS WILL NOT BE ALLOWED ON THE SYSTEM WITHOUT SPECIAL APPROVAL. JOINTS WILL BE RESTRAINED WITH RESTRAINING SYSTEMS APPROVED BY NBU AND RESTRAINT LENGTH SHALL BE SUBMITTED TO NBU AT THE TIME OF PLAN SUBMITTAL.

14. CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE PLACED WITHIN LID OF COVER.

15. WATER QUALITY SHALL BE PROTECTED WITH APPROPRIATE BACKFLOW PREVENTION ASSEMBLIES INSTALLED ON ALL IRRIGATION SYSTEMS, FIRE SUPPRESSION SYSTEMS AND MULTI-UNIT COMPLEXES ALONG WITH MULTI-LEVEL PROPERTIES ON DOMESTIC METER CONTAINMENT. NBU CAN ASSIST WITH THE DECISION ON APPROPRIATE BACKFLOW ASSEMBLIES ON A CASE BY CASE BASIS. CONTACT NBU BACKFLOW PREVENTION SPECIALIST FOR MORE DETAILS. EMAIL QUESTIONS TO CROSSCONNECTION@NBTEXAS.COM.

16. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL BE TESTED UPON INSTALLATION AND REPORT SENT TO NBU VIA THE ONLINE TRACKING SYSTEM. CONTACT NBU B

NOTES:
1. THE PROPOSED USE OF THE SUBDIVISION IS FOR SINGLE FAMILY RESIDENTIAL.
2. THE PROPERTY IS INSIDE THE CITY LIMITS OF NEW BRAUNFELS.
3. THE UNIT NUMBERS SHOWN REPRESENT THE ORDER IN WHICH THE UNITS WILL BE DEVELOPED AND PLATTED. THE ACTUAL AREA OF EACH UNIT AND THE LENGTH OF STREETS MAY VARY. IN NO EVENT SHALL THE NUMBER OF TOTAL RESIDENTIAL LOTS OF ALL UNITS EXCEED 115. UNITS MAY BE PLATTED AND DEVELOPED OUT OF THE NUMBERED SEQUENCE.
4. SIDEWALKS WILL BE CONSTRUCTED FOR THIS DEVELOPMENT PER CITY OF NEW BRAUNFELS STANDARDS.
5. ALL STREETS WILL BE DEDICATED AS PUBLIC RIGHT OF WAYS.
6. THE LOTS DESIGNATED AS H.O.A., O.S., C.A.L, D.L. OR U.L. LOTS WILL NOT BE AVAILABLE FOR RESIDENTIAL DEVELOPMENT. THESE LOTS WILL BE MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION.
7. A PORTION OF THE SUBDIVISION IS LOCATED WITHIN THE EXISTING SPECIAL FLOOD HAZARD ZONE A, 100-YEAR FLOOD BOUNDARY, AS DEFINED BY THE COMAL COUNTY COUNTY, TEXAS COMMUNITY PANEL NUMBER 48091C0455F, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, EFFECTIVE DATE SEPTEMBER 2, 2009.
8. THIS PROPERTY IS NOT LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE.
9. ALL LOTS WITHIN THE SUBDIVISION WILL BE SERVED BY NEW BRAUNFELS UTILITIES (NBU) FOR WATER, SEWER, AND ELECTRIC SERVICE.
10. ALL DRAINAGE LOTS CAN BE USED FOR DRAINAGE CONVEYANCE. ALL DRAINAGE LOTS SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION.
11. ALL UTILITY LOTS CAN BE USED FOR UTILITY ACCESS, INSPECTION AND MAINTENANCE. ALL UTILITY LOTS SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION.
12. ALL STANDARD CURB AND GUTTER STREET SECTIONS WILL PROVIDE STORM WATER CAPACITY PER CITY OF NEW BRAUNFELS DRAINAGE REQUIREMENTS.
13. THE ENTIRE SUBDIVISION FALLS WITHIN COMAL INDEPENDENT SCHOOL DISTRICT.
14. THIS SUBDIVISION IS SUBJECT TO THE 2018 CITY OF NEW BRAUNFELS PARK LAND DEDICATION AND DEVELOPMENT ORDINANCE. THIS PLAT IS APPROVED FOR 1 DWELLING UNIT PER BUILDABLE LOT WITH A MAXIMUM OF 114 BUILDABLE LOTS. AT SUCH TIME THAT ADDITIONAL DWELLING UNITS ARE CONSTRUCTED; THE OWNER OF THE LOT SHALL CONTACT THE CITY AND COMPLY WITH THE ORDINANCE FOR EACH DWELLING UNIT.
15. ELECTRIC AND UTILITY EASEMENT LOCATIONS WILL BE DETERMINED DURING THE ENGINEERING DESIGN PHASE OF THE PROJECT. EASEMENTS WILL BE RECORDED WITH THE FINAL PLAT FOR EACH LOT.
16. EXACT DIMENSIONS AND LOCATION OF DRAINAGE EASEMENTS AND DETENTION POND LOCATIONS WILL BE DETERMINED DURING THE ENGINEERING DESIGN PHASE OF THE PROJECT.
17. CONTOURS SHOWN ARE BASED ON THE CITY OF NEW BRAUNFELS LIDAR GIS DATABASE..
18. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE IN GRID BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM 1983. DISTANCES SHOWN HEREON ARE SURFACE USING COMBINED SCALE FACTOR OF 1.00015.

LOT SUMMARY									
UNIT	RESIDENTIAL		DRAINAGE		C.A.L.		U.L.		TOTAL
UNIT 1	49	LOTS	2	LOTS	1	LOTS	1	LOTS	53
UNIT 2	65	LOTS	1	LOTS	2	LOTS	0	LOTS	68
TOTAL	114	LOTS	3	LOTS	3	LOTS	1	LOTS	121

ACREAGE SUMMARY (APPROX.)

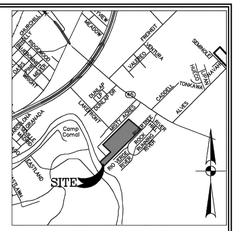
RESIDENTIAL LOTS AND STREETS	21.87 ACRES
COMMON AREA LOT (C.O.A.)	2.05 ACRES
DRAINAGE LOT (D.L.)	2.91 ACRES
UTILITY LOT (U.L.	0.06 ACRES
TOTAL ACREAGE:	26.89 ACRES
RESIDENTIAL LOT DENSITY (114 MAX/26.9):	4.24 LOTS/ACRE

*ALL LOTS SHALL BE OWNED & MAINTAINED BY THE PROPERTY OWNERS ASSOCIATION.

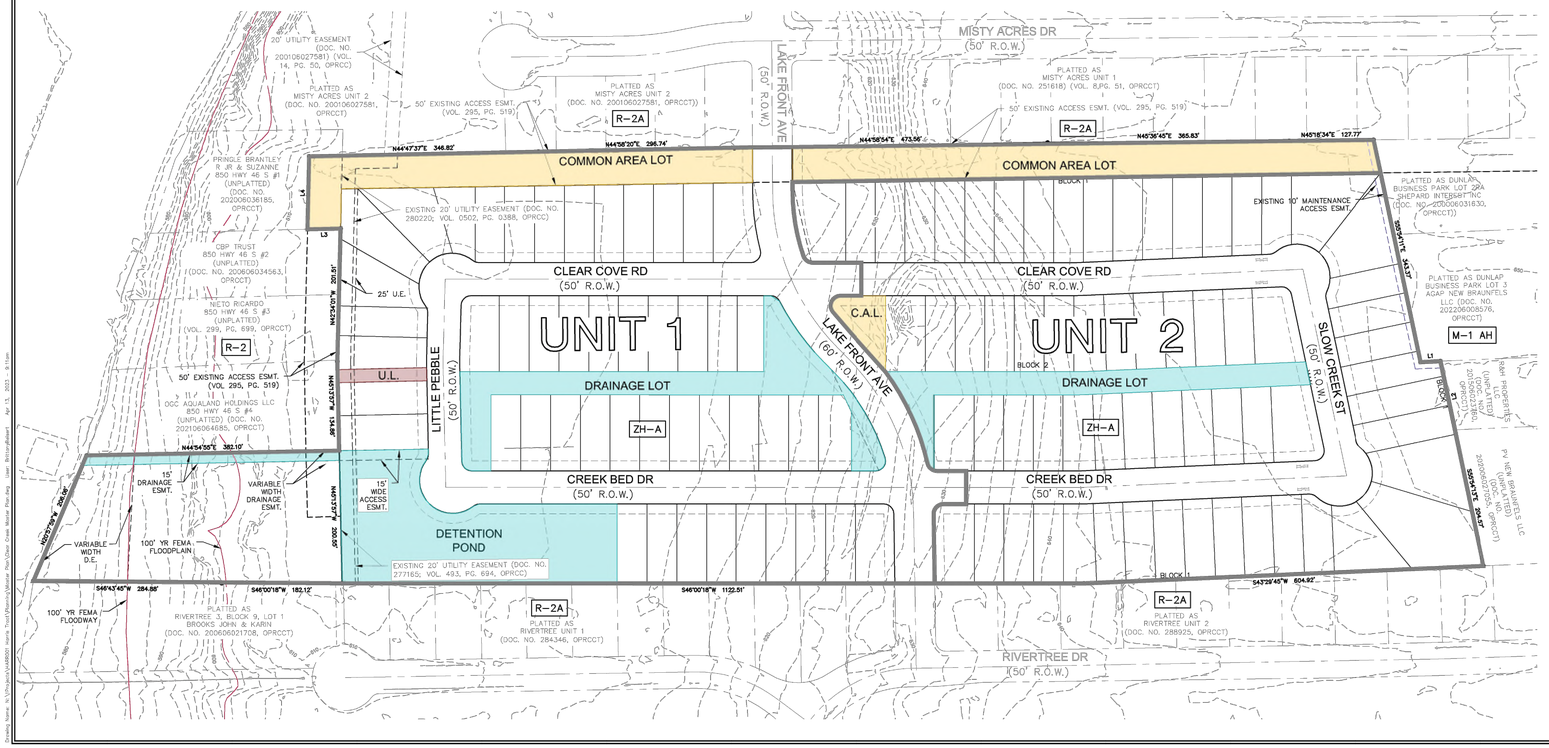
OWNER/DEVELOPER:
GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600
SAN ANTONIO, TEXAS 78216
(210) 491-0236

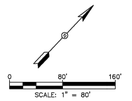
ENGINEER/SURVEYOR:
INK CIVIL
JAMES INGALLS, P.E. - ENGINEER
2021 SH 46W, STE 105
NEW BRAUNFELS, TX. 78132
(830) 358-7127

D.A. MAWYER LAND SURVEYING, INC.
DREW MAWYER, R.P.L.S. - SURVEYOR
5151 SH 46W
NEW BRAUNFELS, TEXAS 78132
(210) 325-0858



LOCATION MAP
SCALE: 1"=2,000'





LEGEND

- UNIT BOUNDARY
- DRAINAGE LOT
- COMMON AREA LOT (C.O.L MAINTAINED BY HOA)
- UTILITY LOT (U.L.)
- PARCELS
- FEMA FLOOD MAP

GEHAN HOMES
9061 MCALLISTER FREEWAY, STE 600
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION

MASTER PLAN

SHEET MP-1 OF 1

NO	DATE	ISSUES AND REVISIONS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

MASTER PLAN

SHEET 2 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
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Drawing Name: N:\Projects\HA68001 Harris Tract\Civil\Construction Drawings\2 MASTER PLAN.dwg User: dbolt\rawynhan Feb 14, 2024 - 12:53pm
Drawing Name: N:\Projects\HA68001 Harris Tract\Civil\Misc\Xref Data\Clear Creek Master Plan.dwg User: BritneyBlack Apr 13, 2023 - 9:11am

FINAL PLAT ESTABLISHING

CLEAR CREEK SUBDIVISION-UNIT 1

BEING A 14.313 ACRE TRACT OF LAND OUT OF SUBDIVISION NO. 115 OF THE A.M. ESNAURIZAR ELEVEN LEAGUE GRANT, ABSTRACT NO. 98, IN COMAL COUNTY, TEXAS, BEING A PORTION OF A CALLED 10.096 ACRE TRACT OF LAND, AS CONVEYED TO RANDY HARRIS AND KELLYE HARRIS, AND RECORDED IN DOCUMENT NO. 200806016460, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, AND ALSO BEING ALL OF A CALLED 16.775 ACRE TRACT OF LAND, AS CONVEYED TO RANDY LLOYD HARRIS AND KELLYE DAWN HARRIS, AND RECORDED IN DOCUMENT NO. 202006036473, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS.

STATE OF TEXAS
COUNTY OF COMAL

I, THE UNDERSIGNED OWNER OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE CLEAR CREEK SUBDIVISION-UNIT 1 TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____,
OWNER:
RANDY HARRIS
850 S HWY 46, #5
NEW BRAUNFELS, TX 78130

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS ___DAY OF_____20___,

BY _____,

_____,
NOTARY PUBLIC, STATE OF TEXAS
MY COMMISSION EXPIRES: _____.

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, DREW A. MAWYER, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

_____
DREW A. MAWYER
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5348
D.A. MAWYER LAND SURVEYING, INC.
5151 W. SH46
NEW BRAUNFELS, TEXAS 78132
FIRM #10191500

GENERAL CITY OF NEW BRAUNFELS NOTES:

1. ALL LOTS WITHIN THE SUBDIVISION WILL BE PROVIDED WATER AND SEWER BY NEW BRAUNFELS UTILITIES. ELECTRIC SERVICE WILL BE PROVIDED BY NEW BRAUNFELS UTILITIES.

2. ALL STREETS ARE PROPOSED TO BE OF A LOCAL TYPE FUNCTIONAL CLASSIFICATION WITH 50 FOOT RIGHT-OF-WAYS UNLESS NOTED OTHERWISE. LAKE FRONT AVE IS A MINOR COLLECTORS AND HAS A 60 FOOT RIGHT-OF-WAY.

3. SIDEWALK NOTES:
   - 3.1. FOUR (4) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY THE HOME BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE PLAT, ALONG:
     - CLEAR COVE RD, CREEK BED DR, AND LITTLE PEBBLE
   - 3.2. FOUR (4) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY THE DEVELOPER PER CITY STANDARDS AT THE TIME OF SUBDIVISION STREET CONSTRUCTION ALONG:
     - CREEK BED DR – LOT 903, BLOCK 3; LOT 901 BLOCK 4;
     - LITTLE PEBBLE – LOT 903, BLOCK 3; LOT 902, BLOCK 3; 20' UTILITY EASEMENT.
   - 3.3 SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY THE DEVELOPER PER CITY STANDARDS AT THE TIME OF SUBDIVISION STREET CONSTRUCTION ALONG:
     - LAKE FRONT AVE – LOT 901 BLOCK 4; LOT 904 BLOCK 3; LOT 900 BLOCK 2
   - 3.4 SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY THE HOME BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION, UNLESS OTHERWISE NOTED ON THE PLAT, ALONG:
     - LAKE FRONT AVE.

4. LOT 900 BLOCK 2, LOT 903 BLOCK 3, AND LOT 901 BLOCK 4 ARE DRAINAGE LOTS AND ARE NON-BUILDABLE LOTS. THESE LOTS WILL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION, THEIR SUCCESSOR'S OR ASSIGNS, AND SHALL NOT BE THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY.

5. LOT 904 BLOCK 3 IS A COMMON AREA LOTS AND ARE NON-BUILDABLE LOTS. THESE LOTS WILL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER'S ASSOCIATION, THEIR SUCCESSOR'S OR ASSIGNS, AND SHALL NOT BE THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY. THESE LOTS CAN BE USED FOR ACCESS.

6. THE SUBDIVISION IS WITHIN THE NEW BRAUNFELS INDEPENDENT SCHOOL DISTRICT.

7. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE IN GRID BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM 1983. DISTANCES SHOWN HEREON ARE SURFACE USING COMBINED SCALE FACTOR OF 1.00015.

8. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION. MONUMENTS AND MARKERS WILL BE SET WITH 1/2" IRON PIN WITH PLASTIC CAP STAMPED "DAM #5348 PROP. COR." IMMEDIATELY AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.

9. CLEAR CREEK SUBDIVISION-UNIT 1, IS WITHIN THE CITY LIMITS OF THE CITY OF NEW BRAUNFELS.

10. THE PROPOSED USE OF THE SUBDIVISION IS FOR SINGLE FAMILY RESIDENTIAL.

11. CLEAR CREEK SUBDIVISION-UNIT 1, ESTABLISHING A TOTAL OF 53 LOTS, WITH 49 BEING BUILDABLE.

12. THIS SUBDIVISION IS SUBJECT TO THE 2018 CITY OF NEW BRAUNFELS PARK LAND AND DEDICATION ORDINANCE. THIS PLAT IS APPROVED FOR 1 DWELLING UNIT PER BUILDABLE LOT WITH A MAXIMUM OF 114 BUILDABLE LOTS. AT SUCH TIME THAT ADDITIONAL DWELLING UNITS ARE CONSTRUCTED; THE OWNER OF THE LOT SHALL CONTACT THE CITY AND COMPLY WITH THE ORDINANCE FOR EACH DWELLING UNIT.

13. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENTS SHOWN ON THIS PLAT, NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS AND GUADALUPE COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.

14. THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE A FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100-YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE AND SHALL PREVENT WATER FROM LEAVING THE STREET.

15. NO STRUCTURES IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO A PUBLIC WATER AND SEWER SYSTEM WHICH HAS BEEN APPROVED BY NEW BRAUNFELS UTILITIES.

16. MAINTENANCE OF DRAINAGE EASEMENT DESIGNATED WITHIN A LOT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS ASSOCIATION.

17. A PORTION OF THE SUBDIVISION IS LOCATED WITHIN THE EXISTING SPECIAL FLOOD HAZARD ZONE A, 100-YEAR FLOOD BOUNDARY, AS DEFINED BY THE COMAL COUNTY, TEXAS COMMUNITY PANEL NUMBER 48091C0455F, REVISED SEPTEMBER 02, 2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

18. EACH LOT OWNER SHALL BE RESPONSIBLE FOR VERIFYING THE DEPTH OF THE SEWER SERVICE STUB OUT AND DETERMINING THE MINIMUM SERVICEABLE FINISH FLOOR ELEVATION.

19. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS, AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.

20. ANY DRIVEWAY CONSTRUCTION ON COUNTY ROADS WITHIN THE UNINCORPORATED AREAS OF COMAL COUNTY MUST BE PERMITTED BY THE COMAL COUNTY ROAD DEPARTMENT.

21. NO PORTION OF THIS PROPERTY IS WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.

22. NO VEGETATION OR STRUCTURE (INCLUDING BUILDINGS, FENCES, ETC.) SHALL BE LOCATED WITHIN THE CLEAR SITE DISTANCE EASEMENT.

23. THIS PROJECT IS SUBJECT TO THE AIRPORT HAZARD ZONING DISTRICT STANDARDS AND REGULATIONS OF THE CITY OF NEW BRAUNFELS ZONING ORDINANCE (SEC. 114-50.2).

24. ALL NEW CONSTRUCTIONS OF SUBSTANTIAL IMPROVEMENTS IN AREA OF SPECIAL FLOOD HAZARDS SHALL BE CONSTRUCTED 2 FEET ABOVE THE BASE FLOOD ELEVATION PER SEC. 58-30(1.)(4.).

25. SIGHT DISTANCE EASEMENTS SHALL BE MAINTAINED FREE AND CLEAR OF VISUAL OBSTRUCTIONS. NO LANDSCAPE MATERIAL, WALL, OR OTHER OBSTRUCTIONS SHALL EB PERMITTED BETWEEN THE TWO AND ONE-HALF FEET AND SEVEN FEET ABOVE THE ADJACENT STREET ELEVATION.

26. THE 15' WIDE ACCESS EASEMENT FROM LOT 100, BLOCK 3 TO LITTLE PEBBLE DRIVE SHALL BE OWNED AND MAINTAINED BY THE OWNER OF LOT 100, BLOCK 3.

27. BLOCK 3, LOTS 12-17 AND BLOCK 3, LOT 903 D.L. WILL REQUIRE GATE PANELS ALONG BACK FENCES LOCATED IN THE PROPOSED 25' UTILITY EASEMENT.

NEW BRAUNFELS UTILITIES NOTES:

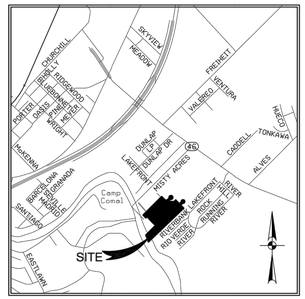
1. MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.

2. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.

3. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.

4. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER'S/DEVELOPER'S EXPENSE.

5. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (U.E.) WITH DRAINAGE EASEMENTS (D.E.) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS (U.E.) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.



LOCATION MAP
SCALE: 1"=2,000'

APPROVED THIS THE _____ DAY OF _____, 20____ BY THE PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

_____,
CHAIRMAN

APPROVED FOR ACCEPTANCE

_____ _____
DATE PLANNING DIRECTOR

_____ _____
DATE CITY ENGINEER

_____ _____
DATE NEW BRAUNFELS UTILITIES

STATE OF TEXAS
COUNTY OF COMAL

I, _____, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS, DOC# _____ OF COMAL COUNTY ON THE ____ DAY OF _____, 20____, AT _____ M. WITNESS MY HAND OFFICIAL SEAL, THIS THE ____ DAY OF_____, A.D. 20____.

COUNTY CLERK, COMAL COUNTY, TEXAS

_____,
DEPUTY

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

SUBDIVISION PLAT I

SHEET 3 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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PRELIMINARY PLAT HAS CONDITIONAL APPROVAL ON 1-5-2022

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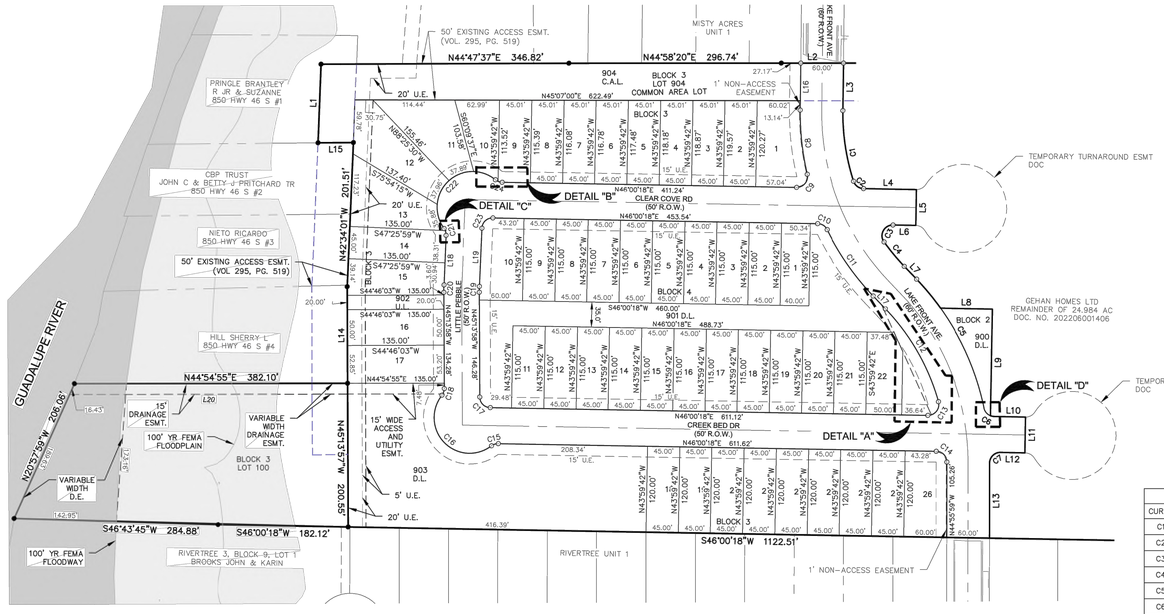
PREPARED: February 2, 2024

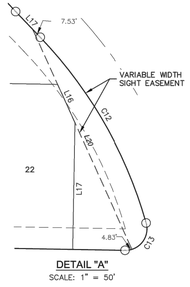
Drawing Name: N:\Projects\VAR001 Harris Tract\Civil\Construction Drawings\3 SUBDIVISION PLAT 1.dwg User: chuckwere Feb 02, 2024 - 11:35am
Drawing Name: N:\Projects\VAR001 Harris Tract\Planning\Platting Unit 1\VAR001 FINAL PLAT - UNIT 1.dwg User: chadhespenheide Feb 14, 2024 - 12:53pm

FINAL PLAT ESTABLISHING

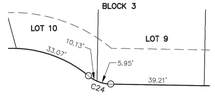
CLEAR CREEK SUBDIVISION-UNIT 1

BEING A 14.313 ACRE TRACT OF LAND OUT OF SUBDIVISION NO. 115 OF THE A.M. ESNAURIZAR ELEVEN LEAGUE GRANT, ABSTRACT NO. 98, IN COMAL COUNTY, TEXAS, BEING A PORTION OF A CALLED 10.096 ACRE TRACT OF LAND, AS CONVEYED TO RANDY HARRIS AND KELLYE HARRIS, AND RECORDED IN DOCUMENT NO. 200806016460, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, AND ALSO BEING ALL OF A CALLED 16.775 ACRE TRACT OF LAND, AS CONVEYED TO RANDY LLOYD HARRIS AND KELLYE DAWN HARRIS, AND RECORDED IN DOCUMENT NO. 202006036473, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS.

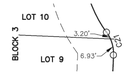




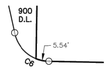
DETAIL "A"
SCALE: 1" = 50'



DETAIL "B"
SCALE: 1" = 30'



DETAIL "C"
SCALE: 1" = 30'



DETAIL "D"
SCALE: 1" = 30'

LEGEND:
- P.O.B. = POINT OF BEGINNING
- B.L. = BUILDING SETBACK LINE
- D.E. = DRAINAGE EASEMENT
- D.L. = DRAINAGE LOT
- U.E. = UTILITY EASEMENT
- R.O.W. = RIGHT-OF-WAY
- O.S. = OPEN SPACE LOT
- = PAGE MATCH LINE
- ○ = 1/2" IRON PIN SET
- ● = IRON PIN FOUND
- ⊡ = TXDOT MONUMENT FOUND

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0 100' 200'

SCALE 1"=100'

LINE TABLE		
LINE	LENGTH	BEARING
L1	110.00'	N42°45'19"W
L2	87.17'	S44°58'54"W
L3	66.35'	N44°19'39"W
L4	68.54'	S46°00'18"W
L5	50.00'	N43°59'44"W
L6	31.67'	N46°00'18"E
L7	24.72'	N88°37'18"W
L8	72.64'	S46°00'18"W
L9	148.99'	N43°59'42"W
L10	33.95'	S46°00'18"W
L11	50.00'	N43°59'36"W
L12	33.95'	N46°00'18"E
L13	104.77'	N44°55'43"W
L14	134.86'	N45°13'57"W
L15	49.84'	S44°35'07"W
L16	29.32'	N69°16'19"W
L17	88.49'	N43°59'42"W
L18	69.25'	N42°34'01"W
L19	81.34'	N42°34'01"W

LINE TABLE EASEMENTS		
LINE	LENGTH	BEARING
L20	168.38'	N69°16'19"W

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD LENGTH	CHORD BEARING
C1	100.07'	310.00'	18°29'45"	50.47'	99.64'	N53°34'17"W
C2	18.63'	15.00'	71°10'33"	10.73'	17.46'	N81°35'34"E
C3	33.10'	15.00'	126°25'51"	29.71'	26.78'	N17°12'38"W
C4	44.34'	310.00'	8°11'45"	22.21'	44.31'	N84°31'26"W
C5	205.73'	370.00'	31°51'27"	105.60'	203.09'	N72°41'35"W
C6	20.22'	15.00'	77°13'51"	11.98'	18.72'	N84°37'13"E
C7	23.81'	15.00'	90°56'01"	15.25'	21.39'	N00°32'17"E
C8	90.32'	370.00'	13°59'08"	45.38'	90.09'	N51°18'59"W
C9	27.31'	15.00'	104°18'51"	19.31'	23.69'	N06°09'07"W
C10	16.48'	15.00'	62°56'00"	9.18'	15.66'	N77°28'18"E
C11	113.40'	370.00'	17°33'36"	57.15'	112.95'	N79°50'30"W
C12	150.74'	310.00'	27°51'40"	76.89'	149.26'	N74°41'28"W
C13	27.95'	15.00'	106°45'56"	20.18'	24.08'	N07°22'40"W
C14	23.32'	15.00'	89°03'43"	14.76'	21.04'	N89°27'51"W
C15	10.13'	15.00'	38°42'38"	5.27'	9.94'	N26°38'59"E
C16	145.02'	50.00'	166°11'00"	412.67'	99.27'	N89°36'50"W
C17	23.24'	15.00'	88°45'45"	14.68'	20.98'	N89°36'50"W
C18	10.13'	15.00'	38°42'38"	5.27'	9.94'	N25°52'39"W
C19	8.14'	175.00'	2°39'57"	4.07'	8.14'	N43°53'59"W
C20	10.47'	225.00'	2°39'57"	5.24'	10.47'	N43°53'59"W
C21	10.13'	15.00'	38°41'09"	5.27'	9.94'	N61°54'36"W
C22	144.81'	50.00'	165°56'38"	405.57'	99.25'	N01°43'08"E
C23	23.19'	15.00'	88°34'19"	14.63'	20.95'	N01°43'08"E
C24	10.13'	15.00'	38°41'09"	5.27'	9.94'	N65°20'52"E

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

SUBDIVISION PLAT II

SHEET 4 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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NEW BRAUNFELS, TX. 78132
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PRELIMINARY PLAT HAS CONDITIONAL APPROVAL ON 1-5-2022

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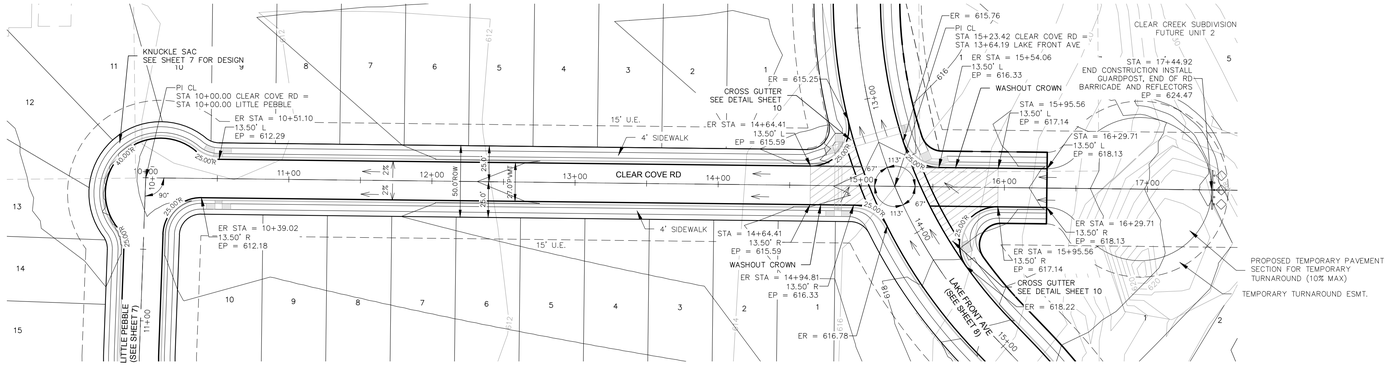
PREPARED: February 2, 2024

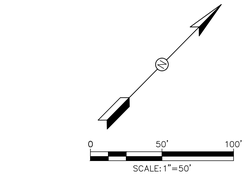
Drawing Name: N:\Projects\HARRI001 Harris Tract\Planning\Platting Unit 1\HARRI001 FINAL PLAT - UNIT 1.dwg User: chuckwarne Feb 02, 2024 - 11:36am

Drawing Name: N:\Projects\HARRI001 Harris Tract\Civil\Construction Drawings\4 SUBDIVISION PLAT II.dwg User: chadfreeshahn Feb 14, 2024 - 12:53pm

CONSTRUCTION NOTES:

1. DIMENSIONS SHOWN ARE TYPICALLY TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. SEE STREET SECTIONS AND CURB DETAILS FOR ADDITIONAL DETAIL.
2. SEE SHEET 9 FOR STREET SECTIONS AND DETAILS.
3. SEE SHEET 12 FOR STREET SIGNAGE.
4. SEE SHEET 9 & 10 FOR SIDEWALK RAMP DETAILS.
5. SIDEWALKS AND SIDEWALK RAMPS SHOWN SHALL BE CONSTRUCTED WITH STREET CONSTRUCTION.
6. ALL CURB & GUTTER IS CATCH CURB UNLESS OTHERWISE NOTED.
7. ALL RAMPS AND ANY SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION.



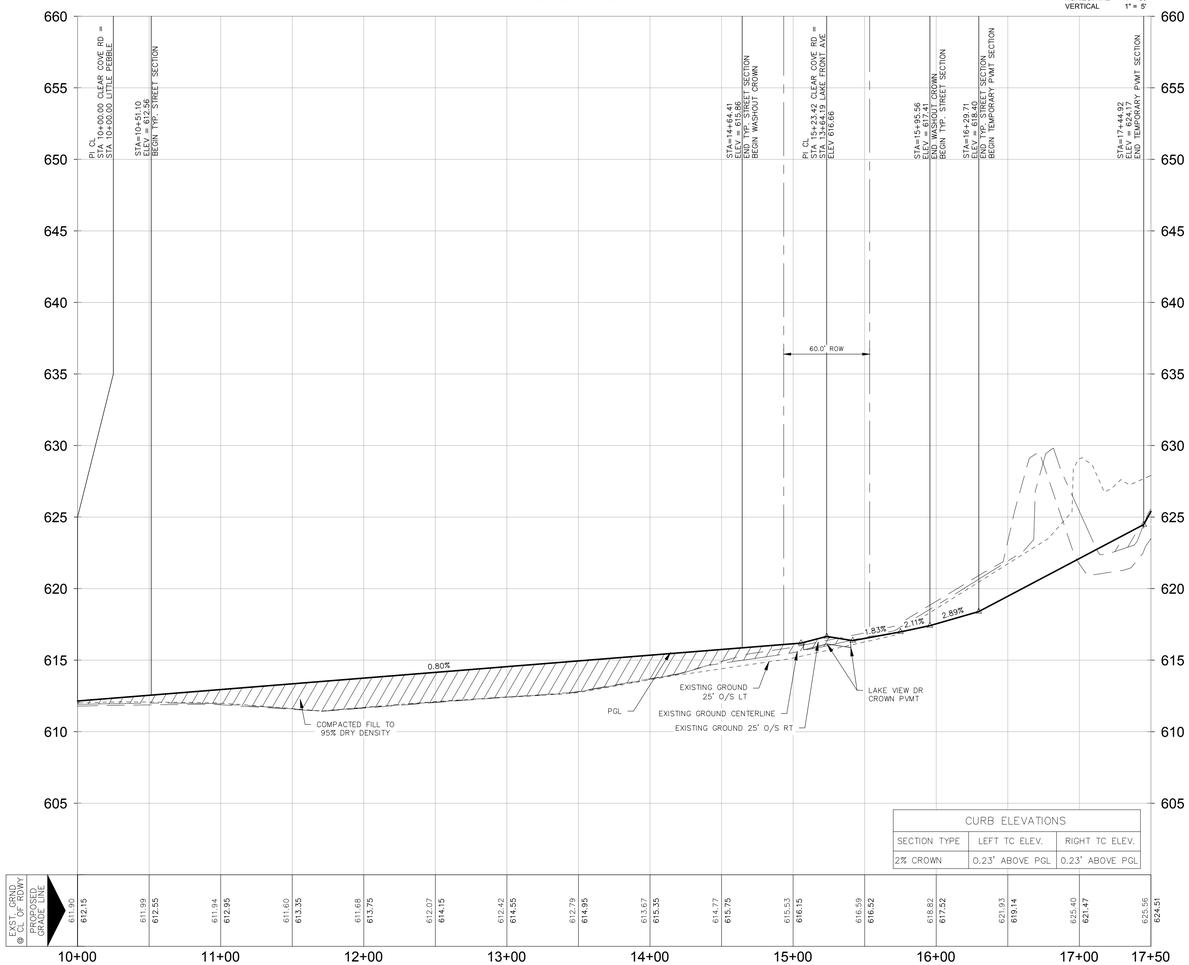


LEGEND

VERTICAL PAVEMENT TRANSITION (WASHOUT CROWN)

CLEAR COVE RD

SCALE:
HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



CURB ELEVATIONS

SECTION TYPE	LEFT TC ELEV.	RIGHT TC ELEV.
2% CROWN	0.23' ABOVE PGL	0.23' ABOVE PGL

STATE OF TEXAS
JAMES INGALLS
107419
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

CLEAR COVE RD
PLAN & PROFILE

SHEET 5 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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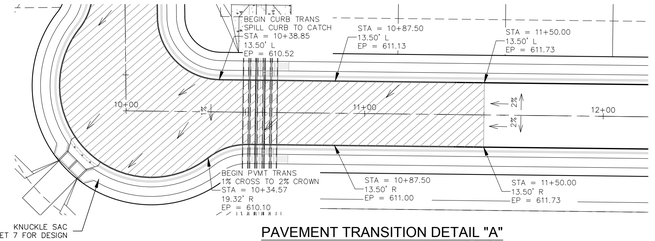
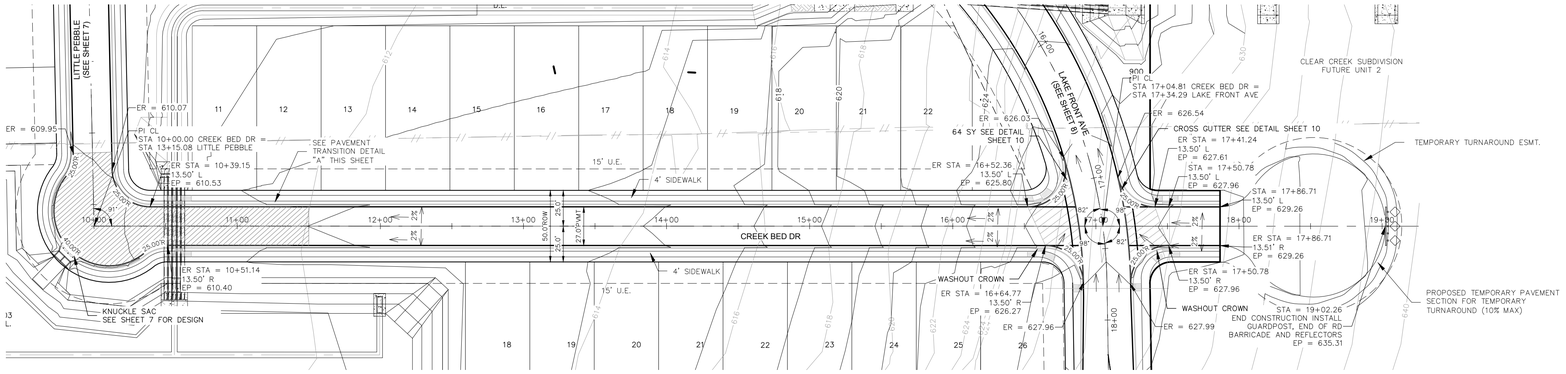
CONSTRUCTION NOTES:

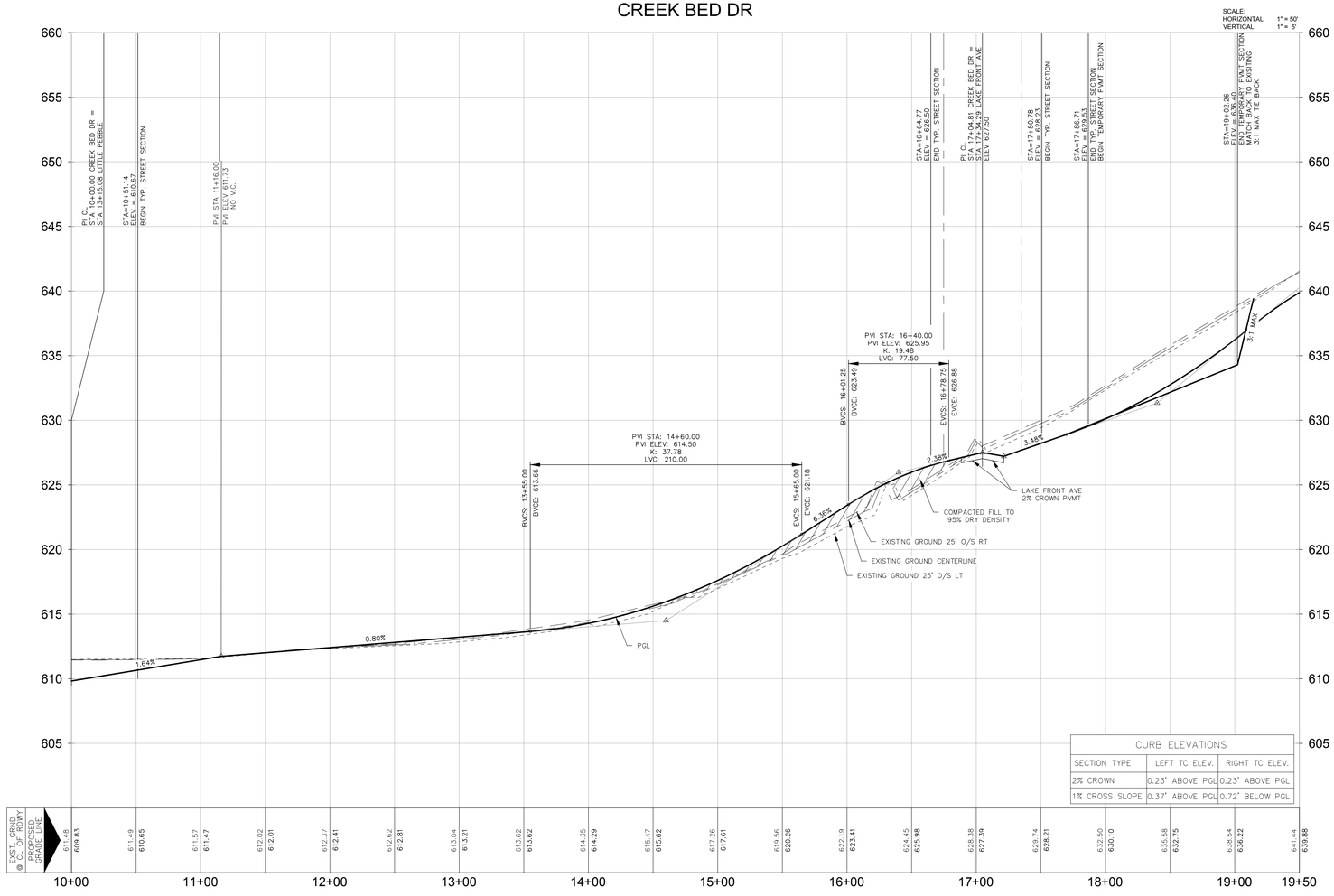
1. DIMENSIONS SHOWN ARE TYPICALLY TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. SEE STREET SECTIONS AND CURB DETAILS FOR ADDITIONAL DETAIL.
2. SEE SHEET 9 FOR STREET SECTIONS AND DETAILS.
3. SEE SHEET 12 FOR STREET SIGNAGE.
4. SEE SHEET 9 & 10 FOR SIDEWALK RAMP DETAILS.
5. SIDEWALKS AND SIDEWALK RAMPS SHOWN SHALL BE CONSTRUCTED WITH STREET CONSTRUCTION.
6. ALL CURB & GUTTER IS CATCH CURB UNLESS OTHERWISE NOTED.
7. ALL RAMPS AND ANY SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION.



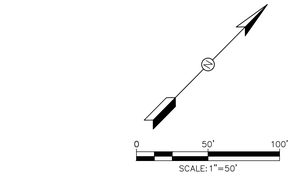
PAVEMENT TRANSITION DETAIL "A"
SCALE: 1"=30'



CREEK BED DR



CURB ELEVATIONS		
SECTION TYPE	LEFT TC ELEV.	RIGHT TC ELEV.
2% CROWN	0.23' ABOVE PGL	0.23' ABOVE PGL
1% CROSS SLOPE	0.37' ABOVE PGL	0.72' BELOW PGL



LEGEND

VERTICAL PAVEMENT TRANSITION (WASHOUT CROWN)

STATE OF TEXAS
JAMES INGALLS
107419
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

CREEK BED DR
PLAN & PROFILE

SHEET 6 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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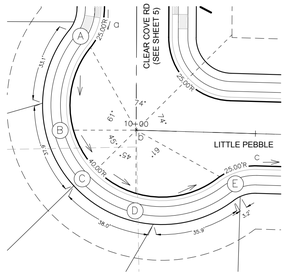
CONSTRUCTION NOTES:

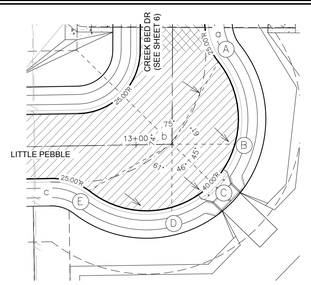
1. DIMENSIONS SHOWN ARE TYPICALLY TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. SEE STREET SECTIONS AND CURB DETAILS FOR ADDITIONAL DETAIL.
2. SEE SHEET 9 FOR STREET SECTIONS AND DETAILS.
3. SEE SHEET 12 FOR STREET SIGNAGE.
4. SEE SHEET 9 & 10 FOR SIDEWALK RAMP DETAILS.
5. SIDEWALKS AND SIDEWALK RAMPS SHOWN SHALL BE CONSTRUCTED WITH STREET CONSTRUCTION.
6. ALL CURB & GUTTER IS CATCH CURB UNLESS OTHERWISE NOTED.
7. ALL RAMPS AND ANY SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION.

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	200.00	9.305	2°39'57"	4.65'	9.30'	S43° 53' 59.40"E



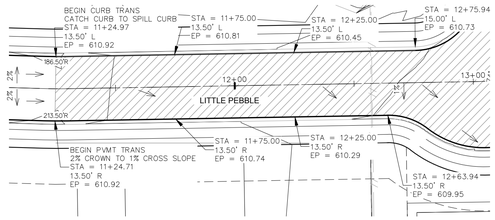
KNUCKLE SAC HUB ELEV	
HUB	EP
A	612.19
B	612.00
C	611.89
D	611.79
E	611.60
a	612.29
b	612.06
c	611.52

KNUCKLE SAC
CLEAR COVE AT LITTLE PEBBLE
SCALE: 1"=30'

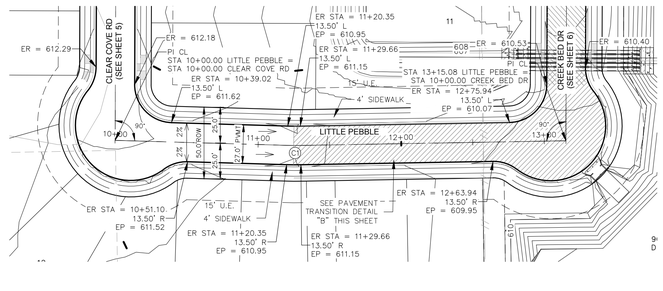


KNUCKLE SAC HUB ELEV	
HUB	EP
A	610.12
B	609.60
C	609.36
D	609.50
E	609.81
a	610.32
b	609.58
c	610.45

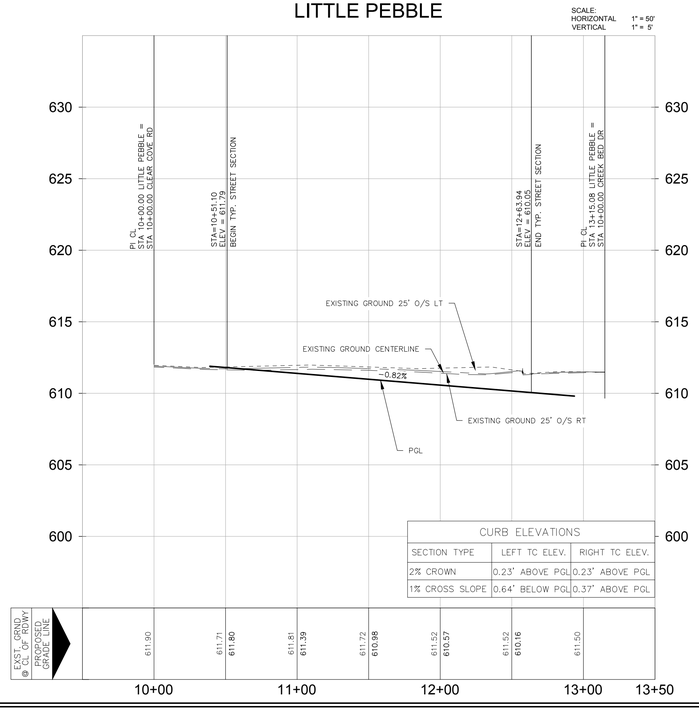
KNUCKLE SAC
CREEK BED AT LITTLE PEBBLE
SCALE: 1"=30'

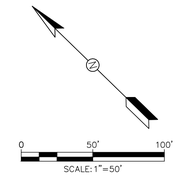


PAVEMENT TRANSITION DETAIL "B"
SCALE: 1"=30'



LITTLE PEBBLE





LEGEND

VERTICAL PAVEMENT TRANSITION (WASHOUT CROWN)

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

LITTLE PEBBLE PLAN & PROFILE

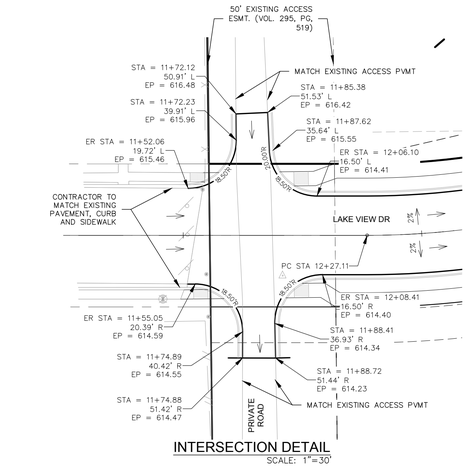
SHEET 7 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

© COPYRIGHT 2022

Drawing Name: N:\Projects\HARROD1 Harris Tract\Civil\Construction Drawings\7 LITTLE PEBBLE PLAN & PROFILE.dwg User: chadfreeman Feb 14, 2024 - 12:54pm



INTERSECTION DETAIL

SCALE: 1"=30'

Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	340.00	262.872	44°17'54"	138.40'	256.37'	S66° 28' 21.42"E
C2	340.00	259.254	43°41'19"	136.30'	253.02'	S66° 46' 38.84"E

CONSTRUCTION NOTES:

1. DIMENSIONS SHOWN ARE TYPICALLY TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. SEE STREET SECTIONS AND CURB DETAILS FOR ADDITIONAL DETAIL.
2. SEE SHEET 9 FOR STREET SECTIONS AND DETAILS.
3. SEE SHEET 12 FOR STREET SIGNAGE.
4. SEE SHEET 9 & 10 FOR SIDEWALK RAMP DETAILS.
5. SIDEWALKS AND SIDEWALK RAMPS SHOWN SHALL BE CONSTRUCTED WITH STREET CONSTRUCTION.
6. ALL CURB & GUTTER IS CATCH CURB UNLESS OTHERWISE NOTED.
7. ALL RAMPS AND ANY SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH STREET CONSTRUCTION.

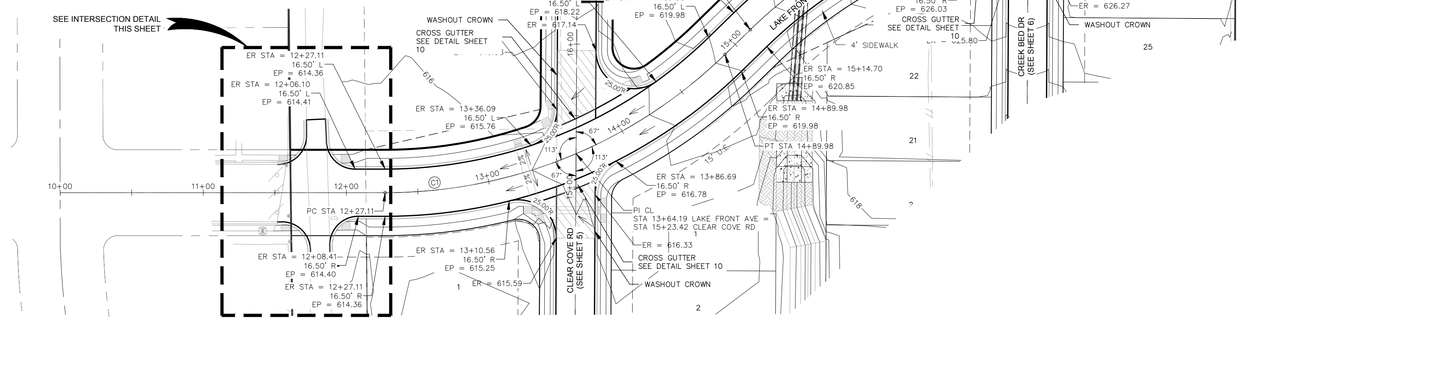
LEGEND

VERTICAL PAVEMENT TRANSITION (WASHOUT CROWN)

CROSS GUTTER

0 50' 100'

SCALE:1"=50'


SEE INTERSECTION DETAIL THIS SHEET
WASHOUT CROWN
CROSS GUTTER SEE DETAIL SHEET 10
CLEAR CREEK SUBDIVISION FUTURE UNIT 2
4' SIDEWALK
LAKE FRONT AVE
CREEK BED DR (SEE SHEET 6)
CLEAR COVE RD (SEE SHEET 5)
PC STA 15+14.70
ER STA = 15+14.70
16.50' L
EP = 620.85
ER STA = 14+89.98
16.50' L
EP = 619.98
ER STA = 14+39.66
16.50' L
EP = 618.22
ER = 617.14
ER STA = 16+80.72
16.50' R
EP = 626.03
ER STA = 15+14.70
16.50' R
EP = 620.85
ER STA = 14+89.98
16.50' R
EP = 619.98
PT STA 14+89.98
ER STA = 13+86.69
16.50' R
EP = 616.78
PI CL
STA 13+64.19 LAKE FRONT AVE =
STA 15+23.42 CLEAR COVE RD
ER = 616.33
ER STA = 13+36.09
16.50' L
EP = 615.76
ER STA = 12+27.11
16.50' L
EP = 614.36
ER STA = 12+06.10
16.50' L
EP = 614.41
PC STA 12+27.11
ER STA = 12+08.41
16.50' R
EP = 614.40
ER STA = 12+27.11
16.50' R
EP = 614.36
ER STA = 13+10.56
16.50' R
EP = 615.25
ER = 615.59
WASHOUT CROWN
CROSS GUTTER SEE DETAIL SHEET 10
WASHOUT CROWN
ER = 627.63
CROSS GUTTER SEE DETAIL SHEET 10
ER STA = 17+03.34
16.50' L
EP = 626.54
900 D.L.
PI CL
STA 17+34.29 LAKE FRONT AVE =
STA 17+04.81 CREEK BED DR
ER STA = 17+75.13
16.50' L
EP = 627.99
ER = 627.96
STA = 17+83.66
16.50' L
EP = 628.18
PI STA 18+83.93
CONTRACTOR TO MATCH EXISTING PAVEMENT, CURB AND SIDEWALK
RIVERTREE DR.
PT STA 17+73.95
STA = 18+83.72
18.41' L
EP = 630.31
STA = 18+82.68
19.08' R
EP = 630.16
STA = 17+83.66
16.50' R
EP = 628.18
ER STA = 17+73.71
16.50' R
EP = 627.96
ER = 626.27
WASHOUT CROWN
EP = 625.80
EP = 626.54
EP = 626.36
EP = 626.27
EP = 626.03
EP = 625.80
EP = 625.58
EP = 625.36
EP = 625.14
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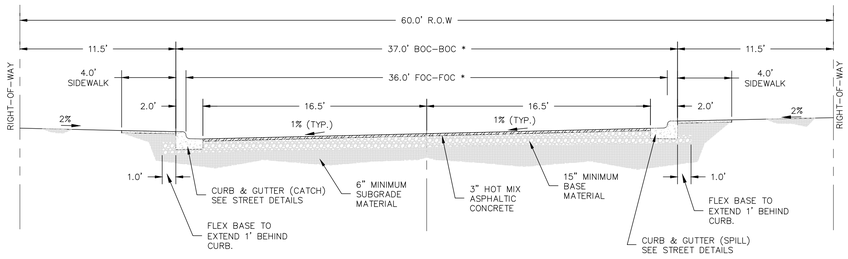
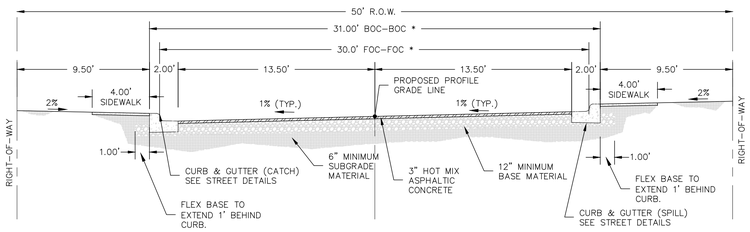
EP =



CROSS SLOPE SECTION 60' R.O.W.

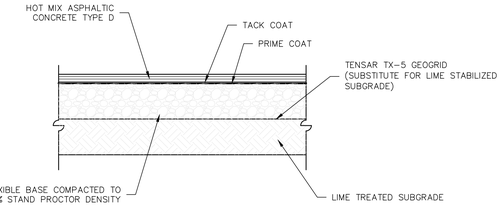
Scale: 1" = 5'

*FOC – FACE OF CURB
*BOC– BACK OF CURB



CROSS SLOPE SECTION 50' R.O.W.

Scale: 1" = 5'



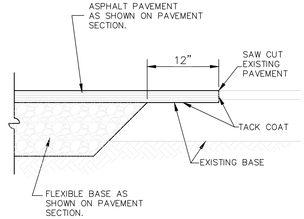
"ONE AND TWO FAMILY RESIDENTIAL" (Required AASHTO 18-KIP ESAL = 58,000)		
Hot Mix Asphaltic Concrete	3"	2"
Crushed Limestone Base Material (TxDOT Item 247 Type A; Gr. 1-2)	12"	9"
TENSAR Geogrid	TX-5 or HX5.5	---
Lime Stabilized Subgrade	---	5"
Moisture Conditioned Subgrade	6"	---
Calculated AASHTO 18-kip ESAL	100,000	85,000

"RESIDENTIAL COLLECTOR" (Required AASHTO 18-KIP ESAL = 279,000)		
Hot Mix Asphaltic Concrete	3"	2.5"
Crushed Limestone Base Material (TxDOT Item 247 Type A; Gr. 1-2)	15"	12"
TENSAR Geogrid	TX-5 or HX5.5	---
Lime Stabilized Subgrade	---	5"
Moisture Conditioned Subgrade	6"	---
Calculated AASHTO 18-kip ESAL	343,000	356,000

TYPICAL PAVEMENT SECTION - LOCAL TYPE A

NOTE: PAVEMENT SECTION MEETS THE MINIMUM REQUIREMENTS AS PER CITY OF NEW BRAUNFELS

Scale: NTS



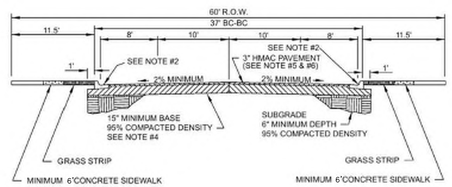
NEW PAVEMENT TO EXISTING

SCALE: NTS

STREET SECTION NOTES:

1. ALL CONCRETE CURBING SHALL BE CONCRETE CURB AND GUTTER, (I.E. CATCH OR SPILL) UNLESS OTHERWISE SPECIFIED ON THE PLANS (I.E. RIBBON CURB)
2. CROSS SLOPE VARIES WITHIN VERTICAL TRANSITIONS. THE TYPICAL CROSS SLOPE SHALL BE 1% UNLESS OTHERWISE SPECIFIED ON PLANS.
3. BASE MATERIAL SHALL EXTEND 12" BEHIND BACK OF CURB.
4. SEE GRADING PLAN FOR LOT GRADING BEYOND RIGHT OF WAY LINE.

RESIDENTIAL COLLECTOR PARKING BOTH SIDES

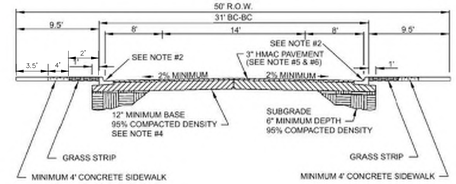


NOTES:

1. STRUCTURAL SECTION REQUIRES DETAILED ENGINEERING DESIGN, SUBJECT TO THE APPROVAL OF THE CITY ENGINEER. CITY WILL ACCEPT DESIGNS THAT INCORPORATE BIAXIAL GEOGRID.
2. CITY WILL ACCEPT CURB AND GUTTER OR STAND-ALONE GUTTER. SEE CURB DETAIL ST-013 (CURB & GUTTER) & ST-013a (STAND-ALONE GUTTER).
3. ROADWAY MEASUREMENT SHOWN FROM BACK OF CURB (BC).
4. FLEXIBLE BASE MATERIAL SHALL BE TYPE "A" GRADE 2 PER TXDOT STD.
5. ASPHALT CONCRETE PAVEMENT SHALL BE TYPE "D" HOT MIX PER TxDOT ITEM 340 (2004).
6. IN NO CASE SHALL THE HMAC SECTION BE LESS THAN THAT SHOWN.
7. BASE MUST EXTEND 1' BEYOND BACK OF CURB, 12" MINIMUM THICKNESS.

City of New Braunfels ENGINEERING DIVISION	STANDARD CONSTRUCTION DETAIL	SCALE: N.T.S.
		APPROVED DATE:
		STANDARD NO. ST-007

ONE & TWO FAMILY RESIDENTIAL LOCAL PARKING BOTH SIDES



NOTES:

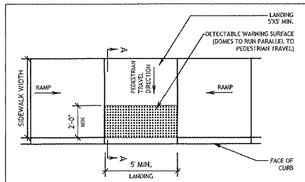
1. STRUCTURAL SECTION REQUIRES DETAILED ENGINEERING DESIGN, SUBJECT TO THE APPROVAL OF THE CITY ENGINEER. CITY WILL ACCEPT DESIGNS THAT INCORPORATE BIAXIAL GEOGRID.
2. CITY WILL ACCEPT CURB AND GUTTER OR STAND-ALONE CURB. SEE CURB DETAIL ST-013 (CURB & GUTTER) & ST-013a (STAND-ALONE CURB).
3. ROADWAY MEASUREMENT SHOWN FROM BACK OF CURB (BC).
4. FLEXIBLE BASE MATERIAL SHALL BE TYPE "A" GRADE 2 PER TXDOT STD.
5. ASPHALT CONCRETE PAVEMENT SHALL BE TYPE "D" HOT MIX PER TXDOT ITEM 340 (2004).
6. IN NO CASE SHALL THE HMAC SECTION BE LESS THAN THAT SHOWN.
7. BASE MUST EXTEND 1' BEYOND BACK OF CURB, 9" MINIMUM THICKNESS

City of New Braunfels ENGINEERING DIVISION	STANDARD CONSTRUCTION DETAIL	SCALE: N.T.S.
		APPROVED DATE:
		STANDARD NO. ST-011

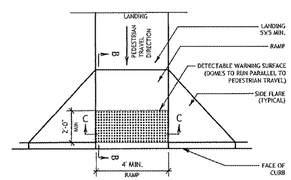
NOTE:

1. RESIDENTIAL LOCAL ONE & TWO FAMILY RESIDENTIAL PAVEMENT SECTION LIMITS
   – LITTLE PEBBLE, CLEAR COVE RD, CREEK BED DR, SLOW CREEK ST
2. RESIDENTIAL COLLECTOR PAVEMENT SECTION
   – LAKE FRONT AVE
3. CONTRACTOR TO REFERENCE PRELIMINARY GEOTECHNICAL ENGINEERING STUDY "CLEAR CREEK SUBDIVISION ROADWAY" PREPARED BY ROCK ENGINEERING & TESTING LABORATORY, INC. PROJECT NO.: 6222239 DATED APRIL 27, 2022.
4. SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULFATE CONTENT PRIOR TO TREATMENT.

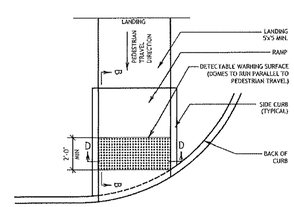
TYPICAL STREET CROSS SECTIONS



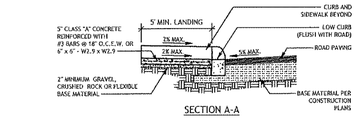
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING FOR PARALLEL CURB RAMP.



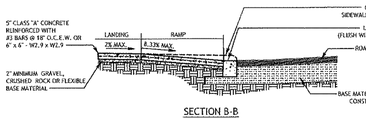
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE FOR PERPENDICULAR CURB RAMP.



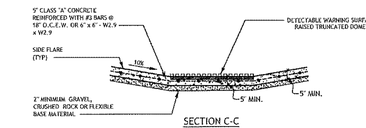
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN FOR DIRECTIONAL CURB RAMP.



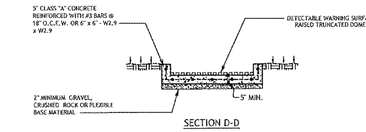
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

CURB RAMP NOTES

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF CURB RAMPS ARE TO BE SHOWN ON THE CONSTRUCTION PLANS. ALL ACCESSIBLE WALK WAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE AMERICANS WITH DISABILITIES ACT (ADA) AND TEXAS ACCESSIBILITY STANDARDS (TAS). CITY ENGINEER OR BUILDING OFFICIAL MAY ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
3. THE MINIMUM STANDARD SIDEWALKS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 118-49 OF THE NEW BRAUNFELS CODE OF ORDINANCES.
4. ALL LANDINGS WHERE REQUIRED SHALL BE 5'X 5' (60"X60") MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION.
5. RAMP LENGTHS SHALL BE SUFFICIENT TO MAINTAIN A MAXIMUM SLOPE OF 8.33% (1V:12H). MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2% (1V:50H).
6. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE GRADE OF THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS, AND LANDINGS IN ACCORDANCE WITH CURRENT ADA AND TAS REQUIREMENTS.
7. PROVIDE FLARED RAMP SIDES WITH A MAXIMUM SLOPE OF 10% (1V:10H) MEASURED ALONG THE CURB LINE. CURB RETURNS MAY BE USED IN LIEU OF SIDE FLARES IN AREAS NOT NORMALLY WALKED ACROSS BY PEDESTRIANS, BECAUSE THE ADJACENT SURFACE IS VEGETATION OR OTHER NON-WALKING SURFACE OR WHERE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
8. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X 4' (48"X48") WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
9. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE CITY ENGINEER OR BUILDING OFFICIAL.
10. EXISTING FEATURES THAT COMPLY WITH CURRENT TAS REQUIREMENTS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
11. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. PROVIDE CURB RAMPS WHEREVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
12. SEPARATE CURB RAMP AND LANDINGS FROM ADJACENT SIDEWALK AND ANY OTHER ELEMENTS WITH PRE-MOLD OR BOARD JOINT OF 1/2" UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER OR BUILDING OFFICIAL.
13. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
14. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33% (-8.67%)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
15. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
16. ADA RAMP SHALL BE CONSTRUCTED WITH 5" CLASS "A" CONCRETE WITH 2" MINIMUM GRAVEL CRUSHED ROCK OR FLEXIBLE BASE MATERIAL. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6"x6" - W2.9 X W2.9 WIRE MESH.
17. THE EXTENTS OF ADA COMPLIANCE IN ALTERATIONS SHALL BE WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT AND AS DETERMINED BY THE CITY BUILDING OFFICIAL.

DETECTABLE WARNING NOTES

1. CURB RAMPS OR LANDINGS ABUTTING THE CROSSWALK MUST HAVE A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
4. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
5. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT THE BACK OF CURB. ALIGN THE ROWS OF DOMES TO BE PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
6. DETECTABLE WARNING MATERIALS MUST MEET TXDOT DEPARTMENTAL MATERIALS SPECIFICATION DMS 4350 AND BE LISTED ON THE MATERIAL PRODUCER LIST. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
7. DETECTABLE WARNING PAVERS SHALL NOT BE PERMITTED WITHOUT THE APPROVAL BY THE PUBLIC WORKS DEPARTMENT.

City of New Braunfels ENGINEERING DIVISION	CURB RAMP STANDARDS		
550 LANDA STREET NEW BRAUNFELS, TEXAS 78130 PHONE: 830 221 4020 FAX: 830 608 3500	APPROVED DATE: 05/18/2017	DWG. NO.: ST-019	SCALE: AS NOTED
	DRAWN BY: RC	CONTACT: GF	SHEET: 1 OF 1

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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

STREET SECTIONS AND DETAILS I

SHEET 9 OF 49

NO	DATE	ISSUES AND REVISIONS
7	9-28-2023	UPDATED PER CONB COMMENTS
6	11-17-2023	UPDATED PER CONB COMMENTS
5	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
3	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
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Drawing Name: N:\Projects\HARROD Harris Tract\Civil\Construction Drawings\11 STREET SECTIONS AND DETAILS III.dwg User: chadhaspenpon Feb 14, 2024 - 12:55pm

SIDEWALK
(RESIDENTIAL)

PLAN VIEW

EXPANSION JOINT

WEAKENED PLANE JOINT

TYPICAL SECTION

NOTES:

1. EXPANSION JOINTS ARE TO BE USED BETWEEN CONCRETE DRIVEWAY AND SIDEWALK.
2. SCORED JOINTS DENOTE SIDEWALK ACROSS THE DRIVEWAY AND ARE TO BE PLACED AT LEAST 1/3 rd. THROUGH THE SLAB THICKNESS.
3. ALL SIDEWALK AND DRIVEWAY CONSTRUCTION SHALL MEET A.D.A. SPECIFICATIONS.

DATE APPROVED: 7/08	DWG. NO: ST-016	SCALE: N.T.S.	City of New Braunfels — ENGINEERING DEPARTMENT
DRAWN BY: RAS	SHEET: 1 OF 1		
FILENAME: SIDEWALK (Residential)			
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CURB AND GUTTER

LONGITUDINAL SECTION THRU CURB AND GUTTER SHOWING TYPICAL EXPANSION JOINT DETAILS.
REINFORCING STEEL SHALL NOT CROSS EXPANSION JOINTS.
STEEL SHALL BE TERMINATED 3" (+ OR -) 1" FROM FACE OF THE JOINT.

NOTES:

1. REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 18".
2. CURB AND GUTTER SHALL HAVE FORMED TOOLED OR SAWED CONTRACTION JOINTS AT ± 10'. THE DEPTH OF THESE JOINTS SHALL BE SUFFICIENT TO ENSURE CRACKING AT THE JOINTS.
3. CURB OR CURB AND GUTTER SHALL HAVE EXPANSION JOINTS AT POINTS OF CURVATURE, AT INTERVALS NO GREATER THAN 100' AND AT ALL ADJACENT STRUCTURES.
4. UNLESS OTHERWISE SHOWN, TRANSITIONS BETWEEN CURBS OR CURBS AND GUTTER OF DIFFERING CROSS SECTION SHALL BE ACCOMPLISHED OVER A 10' LENGTH OR AS APPROVED BY THE CITY ENGINEER.
5. ALL CONCRETE TO BE CLASS "A" 3000 PSI CONCRETE.
6. ALL EXPOSED CONCRETE SURFACES TO BE BRUSHED SMOOTH AND UNIFORM.

DATE APPROVED: 7/08	DWG. NO: ST-013	SCALE: N.T.S.	City of New Braunfels — ENGINEERING DEPARTMENT
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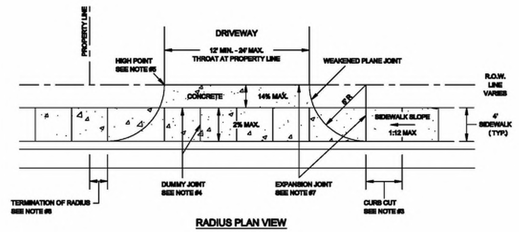
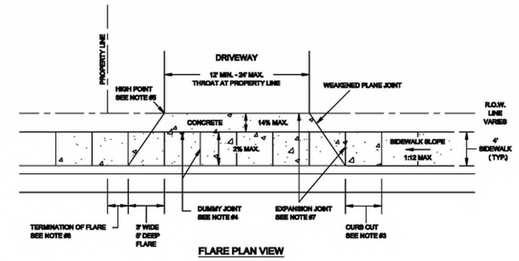
FILENAME: Curb & Gutter			
P:\CURRENT NEW BRAUNFELS DETAILS\2009\			

DRIVEWAY APRON
(RESIDENTIAL - RADIAL/FLARED)



RADIUS PLAN VIEW



FLARE PLAN VIEW

DATE APPROVED: 7/08	DWG. NO: ST-014.1	SCALE: N.T.S.	City of New Braunfels — ENGINEERING DEPARTMENT
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FILENAME: DRIVEWAY (Residential - Radial/Flared)			
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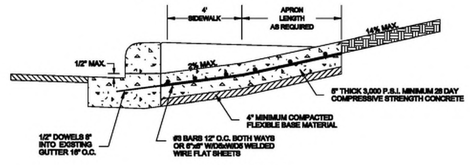
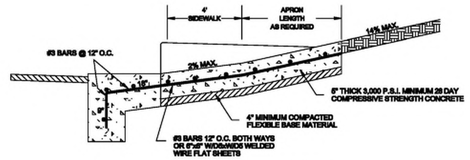
DRIVEWAY APRON
(ONE OR TWO FAMILY RESIDENTIAL)



STRUCTURAL SECTION



NO EXISTING CURB STRUCTURAL SECTION

NOTES:

1. WHERE GUTTER DOES NOT EXIST DRIVEWAY APRON SHALL EXTEND TO EDGE OF ASPHALT AND SHALL HAVE A MINIMUM 6" WIDE 1' DEEP GRADE BEAM MONOLITHIC AND REINFORCED SIMILAR TO APRON.
2. PLACEMENT OF SIDEWALK SHOWN IS TYPICAL; HOWEVER, ALTERNATIVE SIDEWALK PLACEMENT COMMON TO DRIVEWAY APRON WILL BE CONSIDERED PROVIDED CROSS SLOPE OF SIDEWALK IS NO GREATER THAN 2%.
3. CURB CUT LENGTH NO GREATER THAN AS REQUIRED TO MATCH SLOPE OF ADJACENT SIDEWALK.
4. DUMMY JOINTS TO BE PROVIDED AT MINIMUM 4-FT. INTERVALS PERPENDICULAR TO THE CURB LINE WITHIN THE SIDEWALK AREA AND PARALLEL TO THE SIDEWALK AREA.
5. PROVIDE A MINIMUM 7" HIGH POINT. HIGH POINT HEIGHT SHALL BE MEASURED FROM THE GUTTER FLOW LINE TO THE DRIVEWAY APRON. NOTE HIGH POINT MAY OCCUR OUTSIDE OF ROW.
6. DRIVEWAY THROAT TRANSITION MAY OCCUR OUTSIDE OF ROW.
7. PROVIDE EXPANSION JOINTS AT ALL SIDEWALK AND DRIVEWAY THROAT JOINTS. EXPANSION JOINTS SHALL BE PLACED USING 1/2" ASPHALTIC MATERIAL WITH 1/2" DOWELS 18" O.C.
8. THE TANGENT POINT OF THE DRIVEWAY CURB RETURN AT THE PUBLIC ROADWAY LINE OR FLARE SHALL BE A MINIMUM DISTANCE OF 1' OFF THE PROPERTY PROJECTED PERPENDICULAR TO THE STREET CENTERLINE, EXCEPT SINGLE FAMILY OR ZERO LOT LINE LOTS. ON SINGLE FAMILY ZERO LOT LINE LOTS WHERE THE DRIVE IS ON THE ZERO LOT LINE, THE TANGENT POINT OR FLARE SHALL BE NO GREATER THAN 3' BEYOND THE ADJOINING PROPERTY LINE PROJECTED PERPENDICULAR TO THE STREET CENTERLINE.
9. ALL SIDEWALK AND DRIVEWAY CONSTRUCTION SHALL MEET A.D.A. SPECIFICATIONS.

DATE APPROVED: 7/08	DWG. NO: ST-014.2	SCALE: N.T.S.	City of New Braunfels — ENGINEERING DEPARTMENT
DRAWN BY: RAS	SHEET: 2 OF 2		
FILENAME: DRIVEWAY (Residential - Radial/Flared)			
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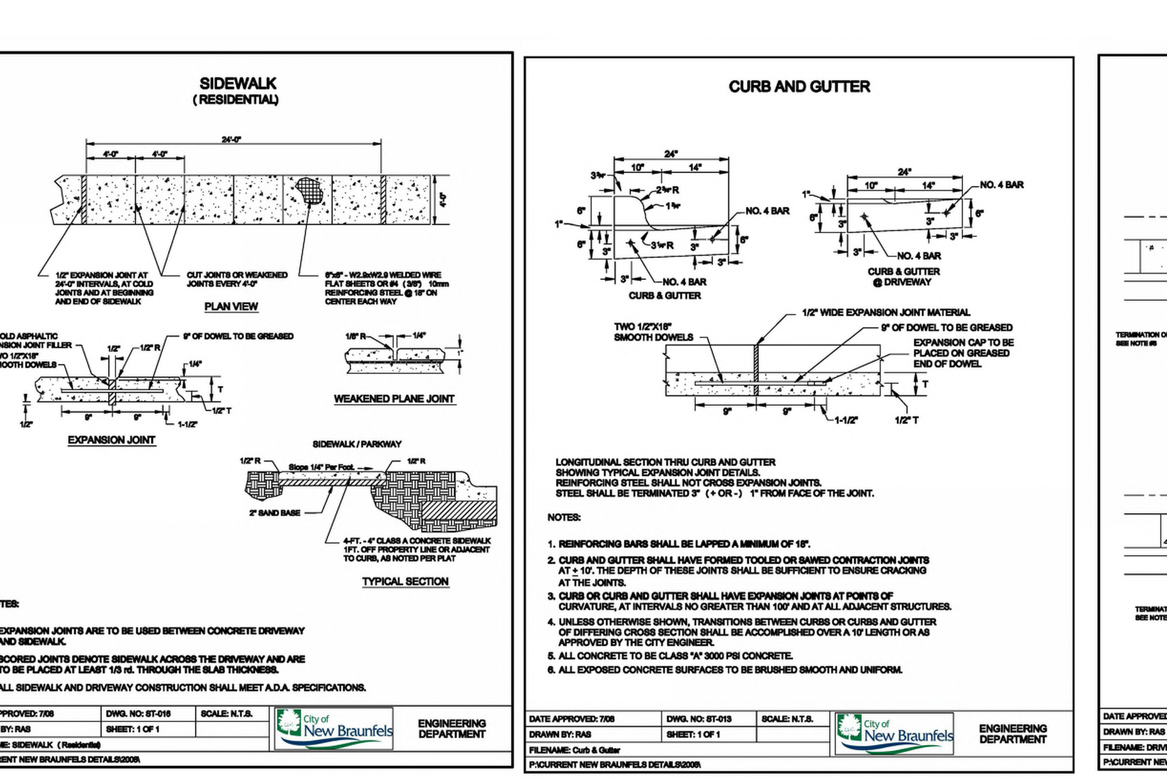


GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1'FOOT BUFFER DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4'AND BE CONSTRUCTED FROM THE CURB LINE. SIDEWALK SHALL BE LOCATED A MINIMUM OF 2' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4'AND SEPARATED A MINIMUM 12' 2' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 8' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE SLOPED LENGTHS ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB RAMPS OR LANDINGS ABUTTING TWO DRIVEWAYS SHALL HAVE A DETECTABLE WARNING 24 INCHES (610 MM) IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM) A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE DETECTABLE WARNING SURFACE SHALL BE A CAST-IN-PLACE TILE CONFORMING TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS OR PAVERS CONFORMING TO DS207 STANDARD PED-02, PEDESTRIAN FACILITIES.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE II RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEM "506 - CONCRETE CURB GUTTER, AND CONCRETE CURB AND GUTTER" AND FOR "552 - CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BROOM FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6"x 6" - W2.9 x W2.9 WWR, MIN.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJOINING PAVEMENT. ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS SLOPE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67%. (I.E.8.33-(-5.67)=11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A JOINTING STRIP, 2 FEET IN LENGTH SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.

TABLE 1
(SEE NOTE 4)

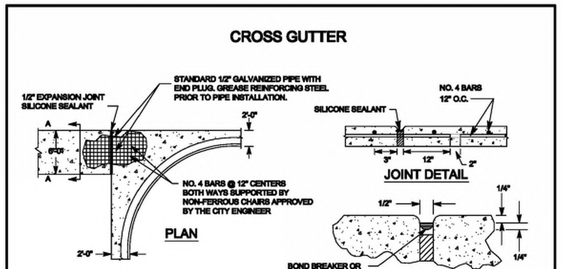
GUTTER SLOPE	SIDEWALK RAMP LENGTH (LS)	
	LOW SIDE	HIGH SIDE
1%	6'-0"	7'-0"
2%	5'-0"	6'-0"
3%	5'-6"	10'-0"
4%	6'-3"	13'-6"
5%	7'-10"	16'-0"

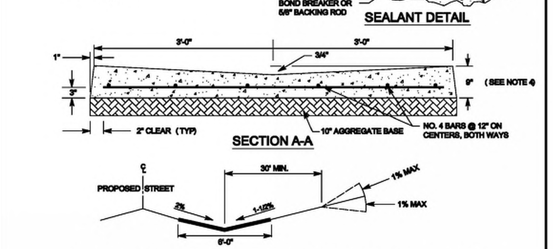
NOTE:
STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.

MAY 2009
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT
WHEELCHAIR RAMP STANDARDS

☐ SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V.VASQUEZ	DESIGN BY:	CHKD BY: R.S.HODGSON, P.E.
		SHEET NO.: OF

CROSS GUTTER





TYPICAL PROFILE AT LOCAL RESIDENTIAL STREET INTERSECTION

NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" 3,000 PSI.
2. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
3. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
4. ADJACENT SPANDREL SHALL BE 9" THICK CLASS "A" 3,000 PSI CONCRETE.

DATE APPROVED: 7/08	DWG. NO: ST-020	SCALE: N.T.S.	City of New Braunfels — ENGINEERING DEPARTMENT
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FILENAME: CROSS GUTTER			
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GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

STREET SECTION AND DETAILS II

SHEET 10 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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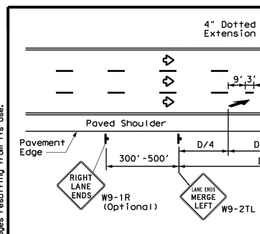
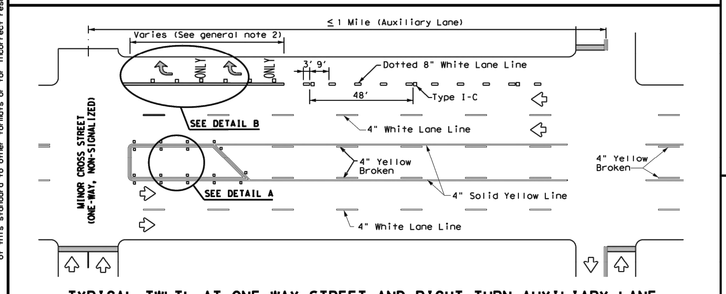


LANE REDUCTION

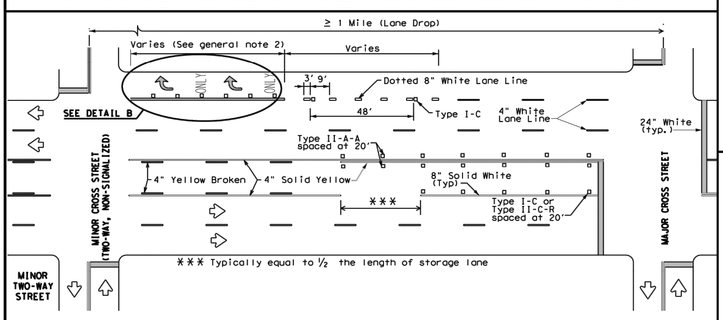
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

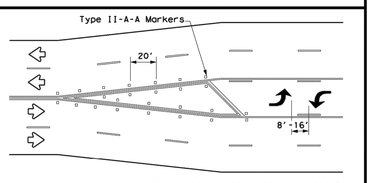
1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

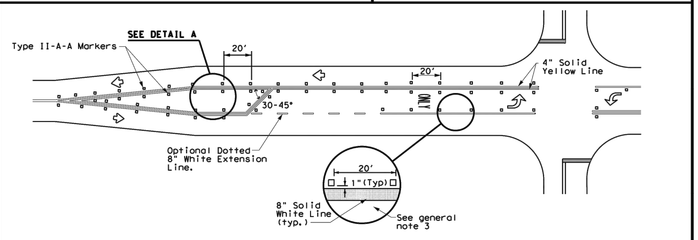
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

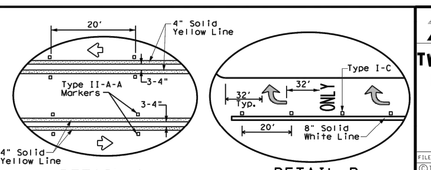
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A DETAIL B

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE:	pm3-20.dgn	DN:	CK:	DW:	CK:
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REVISIONS					
5-00 2-10		DIST	COUNTY		SHEET NO.
8-00 2-12					
5-03 6-20					

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NEW BRAUNFELS, TX. 78132
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NO	DATE	ISSUES AND REVISIONS
1	9-26-2023	UPDATED PER COMB COMMENTS
2	11-17-2023	UPDATED PER COMB COMMENTS
3	1-15-2024	UPDATED PER COMB COMMENTS
4	2-1-2024	UPDATED PER COMB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER COMB COMMENTS

SHEET 11 OF 49

STREET SECTIONS AND DETAILS III

CLEAR CREEK SUBDIVISION UNIT-1

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JAMES INGALLS 107416 LICENSED PROFESSIONAL ENGINEER 02/14/2024

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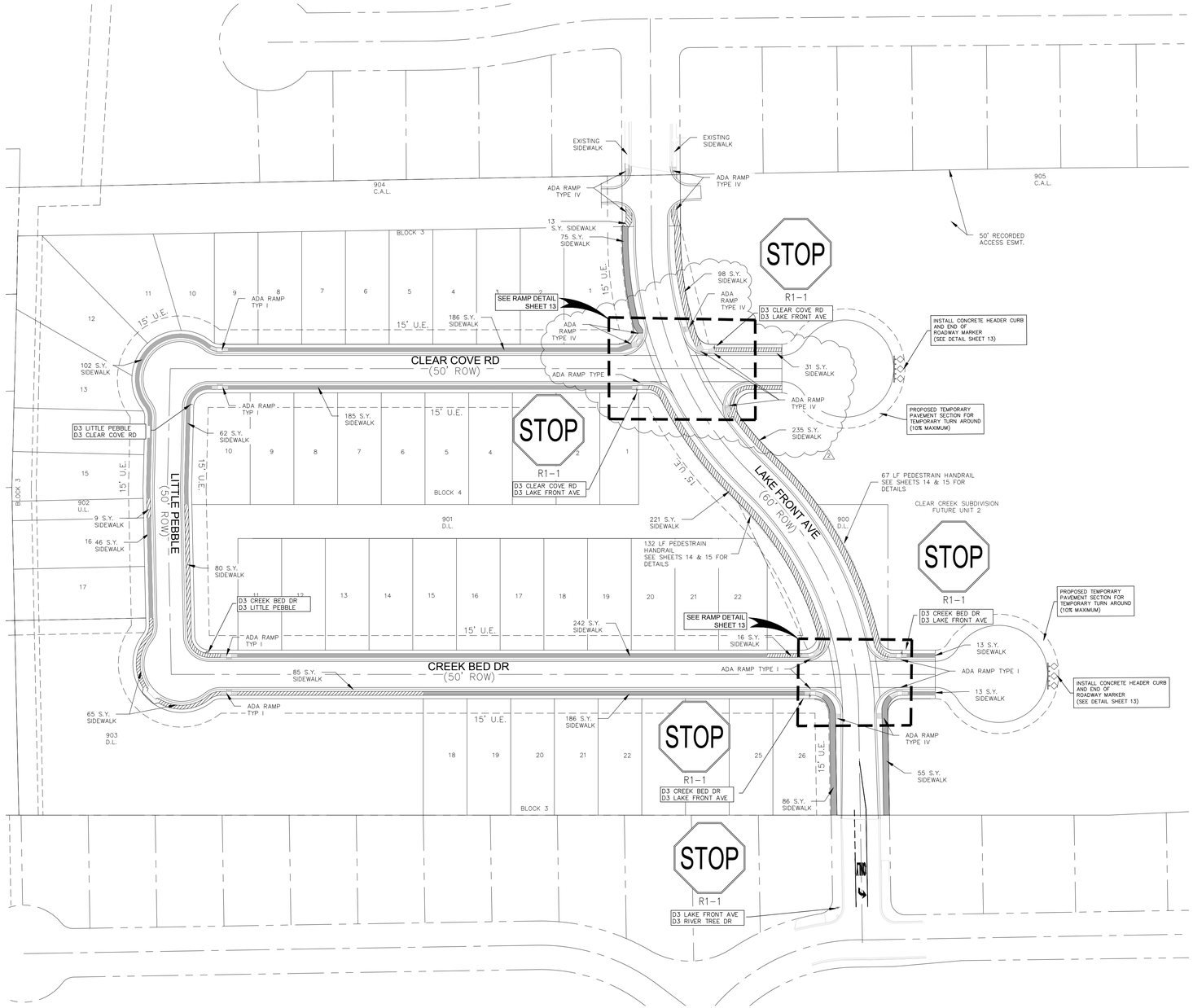

N

0 60' 120'

SCALE: 1"=60'

LEGEND

4'-6' SIDEWALK TO BE INSTALLED BY THE DEVELOPER

4'-6' SIDEWALK TO BE INSTALLED BY THE HOME BUILDER

ALL PROPOSED SIDEWALKS ARE 4' IN WIDTH UNLESS OTHERWISE SPECIFIED. SIDEWALKS ALONG LAKEFRONT AVE SHALL BE 6' WIDE.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

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CLEAR CREEK SUBDIVISION UNIT-1

TRAFFIC SIGNAGE & SIDEWALK PLAN

SHEET 12 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	12-19-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
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NEW BRAUNFELS, TX. 78132
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TBPE FIRM F-13351

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Drawing Name: N:\Projects\HA#0001 Harris Tract\Civil\Construction Drawings\12 TRAFFIC SIGNAGE & SIDEWALK PLAN.dwg User: chrisfreeman Feb 14, 2024 - 12:55pm

REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE	3" ± 1/8"	4" ± 1/8"	6" ± 1/8"	3" ± 1/8"
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (fix). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE	4" 4" 4"	3" 4"	4" 4" 4"	3" 4" 3"
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	FLX	WC	FLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXX)XXX(XX)

NUMBER OF REFLECTORS
- S - Single
- D - Double

COLOR OF REFLECTORS
- W - White
- Y - Yellow
- R - Red

REFLECTOR UNIT SIZE
- 1 or 2

TYPE OF POST OR DELINEATOR
- WC - Wing Channel Post
- FLX - Flexible Post
- BRF - Barrier Reflector

TYPE OF MOUNT
- GND - Embedded (driveable or set in concrete)
- CTB - Concrete Barrier Mount
- GF1 or GF2 - Guard Fence Attachment
- SRF - Surface Mount

DIRECTION
- (if Required)
- BI - Bi-Directional
- BRI - Bi-Directional Post with red on back

INSTL OM ASSM (OM-XX) (XXX)XXX(XX)

TYPE OF OBJECT MARKER
- 1, 2, 3, or 4

NUMBER OF REFLECTORS OR DIRECTION
- R - 1-Size 2 reflector units (Type 2 only)
- Y - 1-Size 1 reflector unit (Type 2 only)
- 2 - 2-Size 1 or 1-Size 4 reflector units (Type 2 only)
- L - Left Side (Type 3 Object Marker only)
- R - Right Side (Type 3 Object Marker only)
- C - Center (Type 3 Object Marker only)

TYPE OF POST
- WC - Wing Channel Post
- FLX - Flexible Post
- TWT - Thin Walled Tubing

TYPE OF MOUNT
- GND - Embedded (driveable)
- SRF - Surface Mount
- WAS - Wedge Anchor Steel
- WAP - Wedge Anchor Plastic

DIRECTION
- (if Required)
- BI - Bi-Directional

OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE	18" 18"	4" 4" Max 6" 12"	6" 6" Max 12"	3" 3" Max 12"	12" 45° 6" 36"	12" 36"	12" 36"	18" 18"
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_y or C_y Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_y or C_y Sheeting			Red -Type B_r or C_r Sheeting
POST TYPE	TWT	WC	WC	FLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS

FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

NOTE:
Delineator and object marker backplates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Minimum 9 square inches of reflective sheeting surface area.		

CHEVRONS

DEVICE — W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

NOTE
1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. The Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTIONAL LARGE ARROW (W1-6).

ONE DIRECTION LARGE ARROW

DEVICE — W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

Texas Department of Transportation — Traffic Operations Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION
D & OM(1)-15

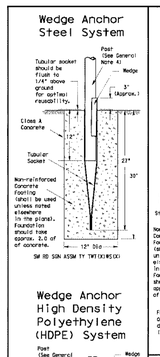
FILE: dom1-15.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.
10-09 2-15				
4-10				

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

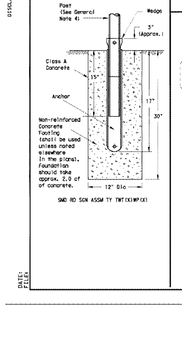
SMD(TWT)-08

© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08 REVISIONS	SMD(TWT)			
	FILE:			
	DISTRICT	COUNTY		SHEET NO.

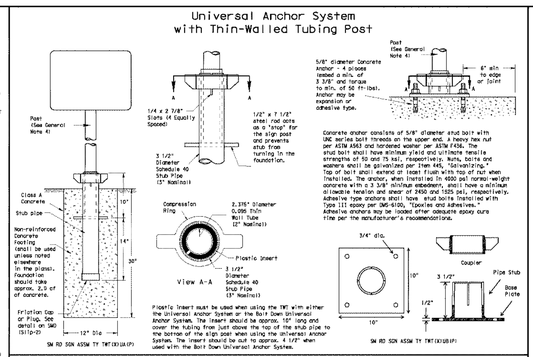
Wedge Anchor Steel System



Wedge Anchor High Density Polyethylene (HDPE) System

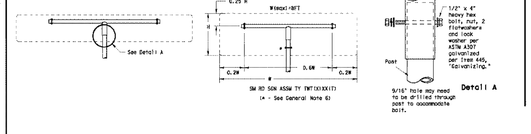


Universal Anchor System with Thin-Walled Tubing Post



Plastic Insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pile to the bottom of the slip post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



NOTE
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES
1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts 013 BWG tubings, clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer_list.htm
4. Material used on post with this system shall conform to the following specifications 13 BWG tubing (2.375" nominal diameter (NM))
   - Galvanized steel conforming to ASTM A653
   - Electric-resistance-welded steel tubing
   - Steel shall be WELAS Gr 55 per ASTM A1001 or ASTM A1008
   - Other steels may be used if they meet the followings
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - LBE minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of .083" to .099"
   - Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   - Galvanization per ASTM 123 or ASTM A653 G210, For prequoted steel tubing (ASTM A653), repaint shall be applied to weld area by metallizing with zinc wire per ASTM A633.
5. Sign fasteners shall be the sizes and shapes shown on the plans.
6. Additional sign clamps required on the T-X-socket post for 24" high signs. Place clamps at 12" above bottom of sign and 12" above bottom of sign.
7. Sign supports shall not be painted except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be free from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit patches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximately 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 1 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE
1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be free from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torqued level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install thru-bolt at bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of post when adequately installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

NOTE:
THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREETS NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.

ALL RAMPS AND ANY PROPOSED SIDEWALKS THAT DO NOT FRONT PROPOSED RESIDENTIAL LOTS ARE REQUIRED TO BE CONSTRUCTED WITH THE STREET CONSTRUCTION.

NOTE:
1. POSTS TO RECEIVE TWO COATS OF ALUMINUM PAINT.

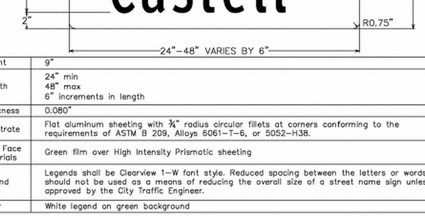
END OF ROADWAY MARKER

Scale: NTS

HEADER CURB

Scale: NTS

STREET SIGN DETAIL - GROUND MOUNT



Height	9"
Length	24" min 48" max 6" increments in length
Thickness	0.080"
Substrate	Flat aluminum sheeting with ¾" radius circular fillets at corners conforming to the requirements of ASTM B 209, Alloys 6061-T-6, or 5052-H38.
Sign Face Materials	Green film over High Intensity Prismatic sheeting
Legend	Legends shall be Clearview 1-W font style. Reduced spacing between the letters or words should not be used as a means of reducing the overall size of a street name sign unless approved by the City Traffic Engineer.
Color	White legend on green background

Notes:
1. Street name signs shall be double sided when center mounted on top of sign post. Only one street name sign should be installed on top of sign post with STOP or YIELD sign.
2. When two sets of street name signs are required (e.g. at "T" intersections), one double-sided street name sign shall be mounted on sign post. The sign assembly shall meet minimum height requirements as required in the Texas Manual on Uniform Traffic Control Devices (TMUTCD). When required, DEAD END (W14-1a) or NO OUTLET (W14-2a) signs shall also be mounted on the sign post.
3. Street name signs greater than 36' long and center mounted on top of sign post shall be mounted on post top bracket with 12' slot. All other street name signs center mounted on top of sign post shall be mounted on post top bracket with 5 ½' slot.
4. Street name signs mounted on sign post shall be mounted with double-sided round pole brackets. Two holes should be punched in the center of the 9' street name sign blank 1' from edge of the blank with 7"spacing between holes.
5. The lettering for names of streets shall be composed of a combination of lower-case letters with initial upper-case letters. Acceptable abbreviations per TMUTCD may be used except for the street name itself.
6. Red background (red film over High Intensity Prismatic) should be used for private street name signs.

Street Sign Detail - Ground Mount			ENGINEERING DIVISION
ISSUE DATE: February 2013	DWG. NO: ST-024	SCALE: N.T.S.	City of New Braunfels 624 S. CASTELL AVE. NEW BRAUNFELS, TEXAS 78130 PHONE: 830 221 4020 FAX: 830 608 3000
DRAWN BY: RAS	CONTACT: GF	SHEET: 1 OF 1	

P:\2010 ENGINEERING-AUTOCAD\DETAILS\NB-PUBLIC WORKS DETAILS\NB-UNAPPROVED DETAILS-2013\ST-2013.024 STREET SIGN DETAIL - GROUND MOUNT.DWG

SIGN REQUIREMENTS

1. TRAFFIC SIGNS SHALL BE USED IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND WHERE JUSTIFIED BY ENGINEERING JUDGMENT OR STUDY. TRAFFIC SIGNS INCLUDE REGULATOR SIGNS, WARNING SIGNS, STREET NAME SIGNS AND OBJECT MARKERS.
2. ALL SIGNS SHALL BE SHOWN IN THE ENGINEERING PLANS FOR REVIEW AND APPROVAL AS PART OF THE PLAN AND PROFILE SHEET OR SEPARATE SIGNING AND PAVEMENT MARKING LAYOUT SHEET. THE ENGINEERING PLANS SHALL INCLUDE SIGN LOCATION, NAME, DESIGNATION AND SIZE. SIGN STANDARDS SHALL BE INCLUDED IN THE ENGINEERING PLANS.

INSTALLATION

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY, WARNING AND STREET NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS.

MOUNTING

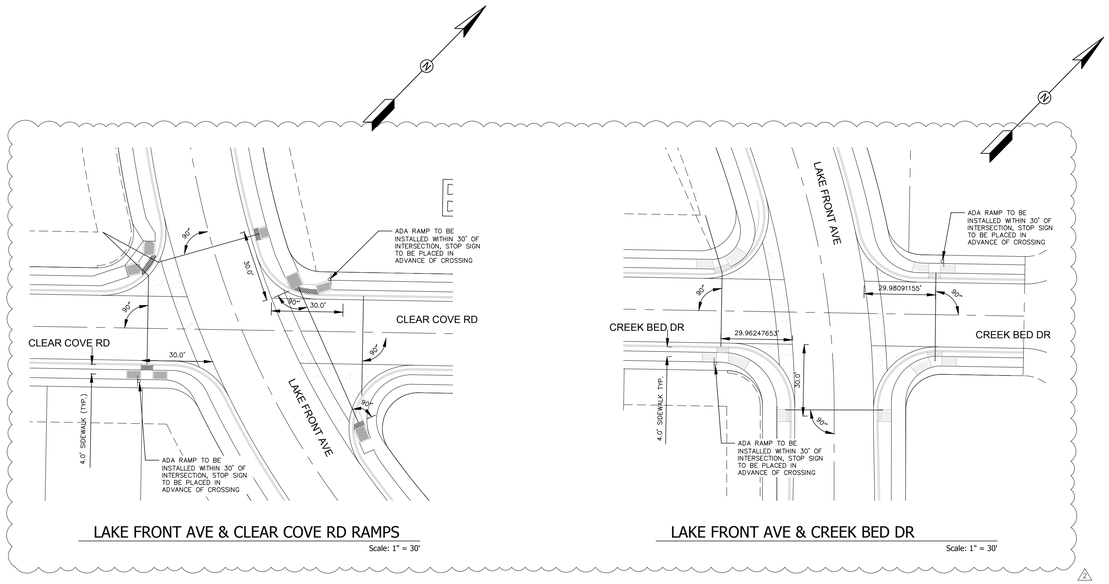
1. THE WEDGE ANCHOR STEEL SYSTEM AND THIN-WALLED TUBING POST SHALL BE USED FOR SIGNS WITH UP TO 10 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) TRAFFIC STANDARDS SMD(GEN)-08 AND SMD(TWT)-08.
2. THE TRIANGULAR SLIP BASE SYSTEM AND 10 BWG TUBING POST SHALL BE USED FOR SIGNS THAT HAVE 10 TO 16 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS SMD(GEN)-08 AND SMD(SLIP-1-3)-08.
3. OBJECT MARKERS MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS D&OM(1-5)-10.

MATERIALS

1. SIGN MATERIALS INCLUDING ALUMINUM SIGN BLANKS AND SIGN FACE MATERIALS SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS TSR(1-5)-08 AND DEPARTMENTAL MATERIAL SPECIFICATIONS DMS-7110 AND DMS-8300.
2. THE CITY OF NEW BRAUNFELS WILL INSPECT ALL SIGNS AT FINAL INSPECTION.

PAVEMENT MARKING REQUIREMENTS

1. PAVEMENT MARKINGS SHALL BE USED IN ACCORDANCE WITH THE LATEST REVISION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND WHERE JUSTIFIED BY ENGINEERING JUDGMENT OR STUDY.
2. ALL PAVEMENT MARKINGS SHALL BE SHOWN IN THE ENGINEERING PLANS FOR REVIEW AND APPROVAL AS PART OF THE PLAN AND PROFILE SHEET OR SEPARATE SIGNING AND PAVEMENT MARKING LAYOUT SHEET. DESIGN, MATERIALS AND INSTALLATION SHOULD FOLLOW TXDOT TRAFFIC STANDARDS PM(1-4)-12. CITY OF SAN ANTONIO TRAFFIC ENGINEERING STANDARDS FOR PAVEMENT MARKINGS DESIGNATING TRAFFIC LANES, LANE USAGE AND LANE REGULATIONS AND PEDESTRIAN/BICYCLIST ACCOMMODATIONS MAY BE USED FOR ADDITIONAL STANDARD DESIGN DETAILS. MARKING STANDARDS SHALL BE INCLUDED IN THE ENGINEERING PLANS.
3. ALL PAVEMENT MARKINGS SHALL BE TYPE I HOT APPLIED THERMOPLASTIC AND MEET TXDOT DEPARTMENTAL MATERIAL SPECIFICATIONS DMS-8200.
4. THE CONTRACTOR SHALL NOTIFY THE CITY OF NEW BRAUNFELS AT LEAST TWENTY-FOUR (24) HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CONTRACTOR MAY BE RESPONSIBLE FOR PLACING SPOT TABS BEFORE MARKING APPLICATION. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.



STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

TRAFFIC SIGNAGE AND SIDEWALK DETAIL

SHEET 13 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	12-19-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
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TBPE FIRM F-13351

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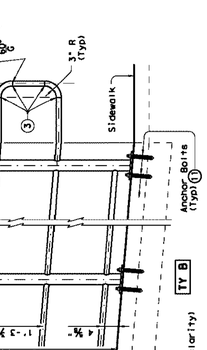
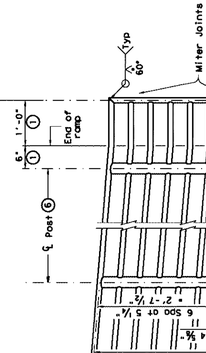
DISCLAIMER

Drawing Name: N:\Projects\HARROD1 Harris Tract\Civil\Construction Drawings\12 TRAFFIC SIGNAGE & SIDEWALK PLAN.dwg User: rhodhesspmdhm Feb 14, 2024 - 12:55pm

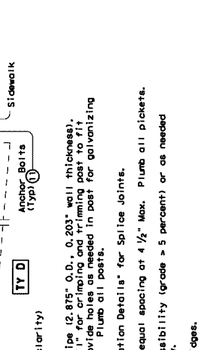
RECOMMENDED USAGE ⑨ ⑩	
Dropoff Height/ Condition	Recommended Rail Options
<30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, pedestrian area along Bike Path	TY E or TY F



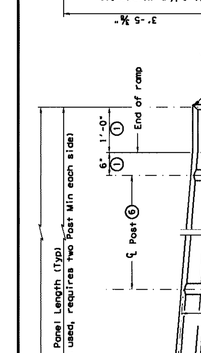
SECTION A-A (Showing Handrail TY A)



SECTION B-B (Showing Handrail TY B)



SECTION C-C (Showing Handrail TY C)



SECTION D-D (Showing Handrail TY D)

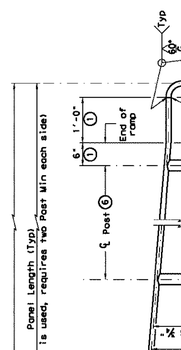
SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE:	prd13.dgn	DW: TxDOT	CK: AM	DW: JTR	CK: CG
©TxDOT	December 2006	CONT	SECT	JOB	HIGHWAY
	REVISIONS				
REVISED MAY, 2013 VPP		DIST	COUNTY		SHEET NO.



ELEVATION VIEW (Shop Splices and Splice Joints only shown on one Type for clarity)

TY A

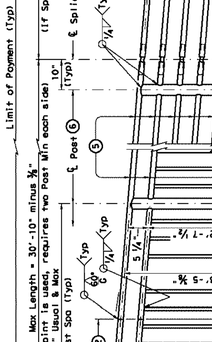
ELEVATION VIEW (Shop Splices and Splice Joints only shown on one Type for clarity)

TY D

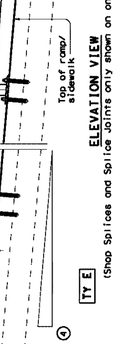
1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope is 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.
6. 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Details" for Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all pickets.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ ⅜" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
9. When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.
10. Not to be used on bridges.
11. See "General Notes" for anchor bolt information.

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

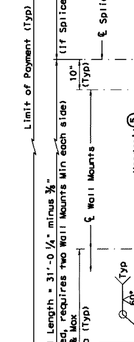
DATE:
FILE:



SECTION F-F (Showing Handrail TY F)

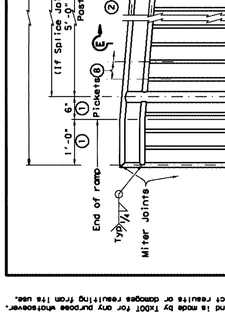


SECTION E-E (Showing Handrail TY E)



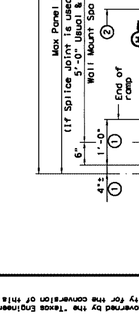
SECTION G-G (Showing Handrail Termination)

SECTION H-H (Showing Handrail TY W)



ELEVATION VIEW (Shop Splices and Splice Joints only shown on one Type for clarity)

TY E



ELEVATION VIEW

TY W

1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope is 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.
6. 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Details" for Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all pickets.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ ⅜" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

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DATE:
FILE:

SHEET 2 OF 3

Texas Department of Transportation — Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE:	prd13.dgn	DW: TxDOT	CK: AM	DW: JTR	CK: CG
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	REVISIONS				
REVISED MAY, 2013 VPP		DIST	COUNTY		SHEET NO.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

TRAFFIC SIGNAGE AND
SIDEWALK DETAIL II

SHEET 14 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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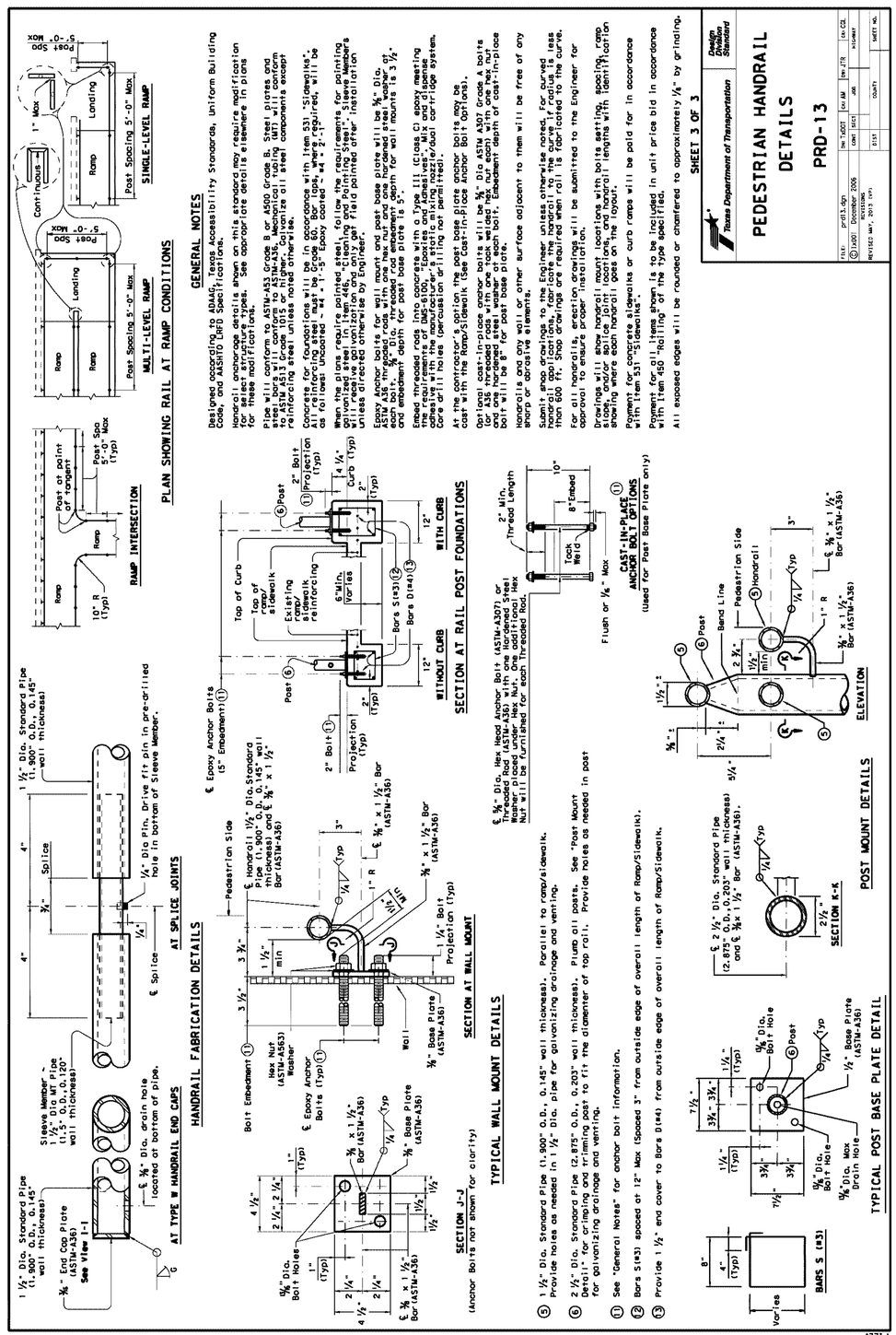

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
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CLEAR CREEK SUBDIVISION
UNIT-1

TRAFFIC SIGNAGE AND SIDEWALK DETAIL III

SHEET 15 OF 49

NO	DATE	ISSUES AND REVISIONS
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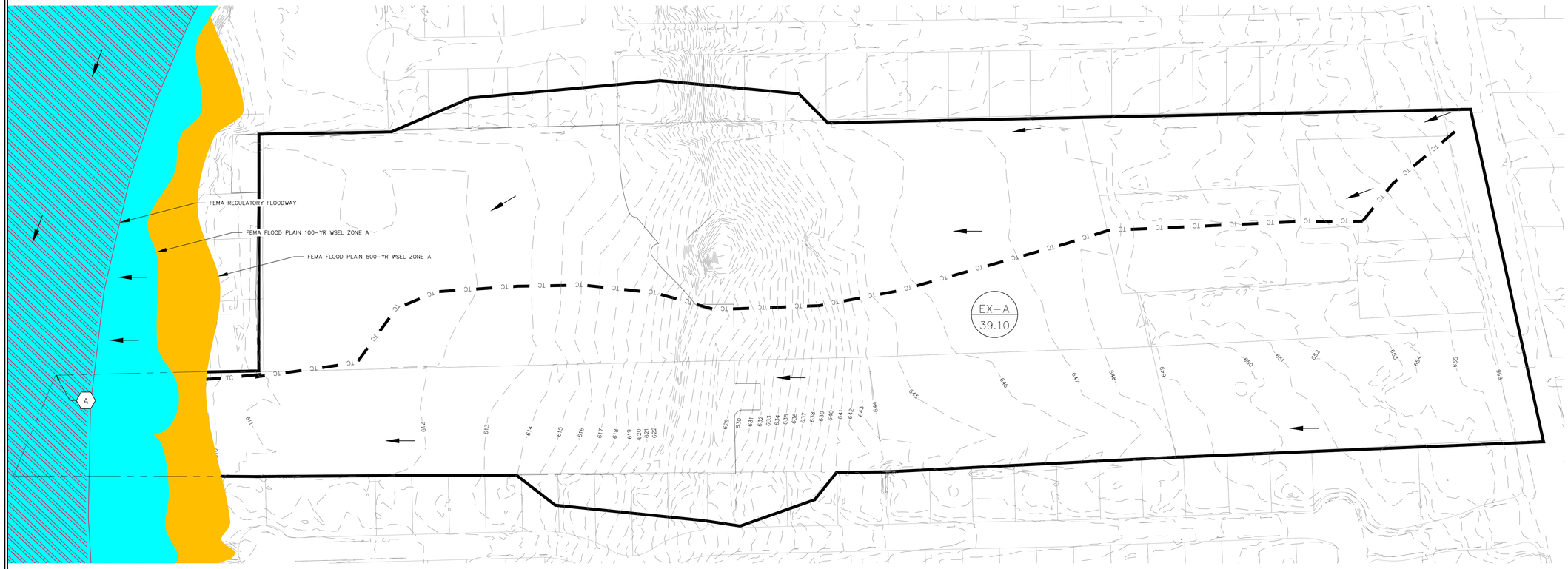

0 100' 200'
SCALE: 1"=100'

LEGEND

- LIMITS OF DRAINAGE AREA
- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- TC TC — TIME OF CONCENTRATION
- 900 — EXISTING CONTOURS
- FLOW ARROWS
- A / 9.0 — DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 — SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 — INLET LABEL
- A1 — ANALYSIS POINT LABEL

EXISTING CONDITIONS

SCALE: 1"=100'

Clear Creek Subdivision - Existing Conditions Hydrology SCS Calculations

Point	AREA ID	Area (ac)	CN	T_c (min)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
A	EX-A	39.10	76.0	33	48.25	112.19	163.67	210.22	263.81

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

02/14/2024

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CLEAR CREEK SUBDIVISION UNIT-1

EXISTING DRAINAGE AREA MAP

SHEET 16 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
1	11-17-2023	UPDATED PER CONB COMMENTS
1	1-15-2024	UPDATED PER CONB COMMENTS
2	2-1-2024	UPDATED PER CONB COMMENTS
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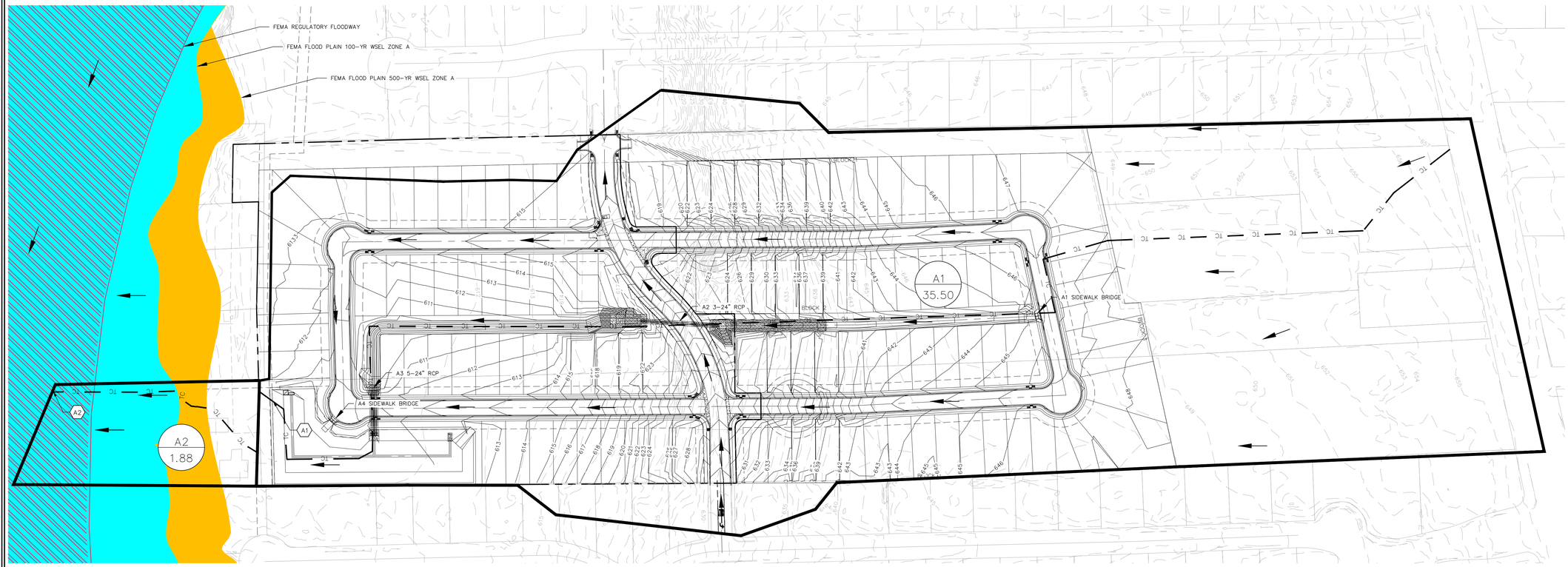

0 100' 200'
SCALE: 1"=100'

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF DRAINAGE AREA
- LIMITS OF DRAINAGE AREA
- LIMITS OF SUB-DRAINAGE AREA
- TC — TC — TIME OF CONCENTRATION
- 900 — EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- FLOW ARROWS
- A / 9.0 — DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 — SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 — INLET LABEL
- A1 — ANALYSIS POINT LABEL

PROPOSED NRCS SCS METHOD FOR ULTIMATE CONDITIONS

SCALE: 1"=100'

Clear Creek Subdivision- Proposed Conditions Hydrology SCS Calculations

Point	AREA ID	Area (ac)	CN	T_c (min)	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
A1	SCS A1	35.50	84.1	31	59.14	119.16	165.27	206.35	253.36
	DET POND A				42.26	102.22	151.03	193.10	240.44
A2	SCS A2	1.88	74.3	14	2.84	6.83	10.06	13.00	16.38
A	Pond + A2 +A3				43.05	104.69	155.21	198.86	247.97

Clear Creek - Ultimate Build Out - SCS Summary

Storm	Exist Flow	Pro Flow
2-YR	48.3	43.1
10-YR	112.2	104.7
25-YR	163.7	155.2
100-YR	263.8	248.0

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New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
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TELEPHONE LOCATOR

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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

PROPOSED SCS DRAINAGE AREA MAP

SHEET 17 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
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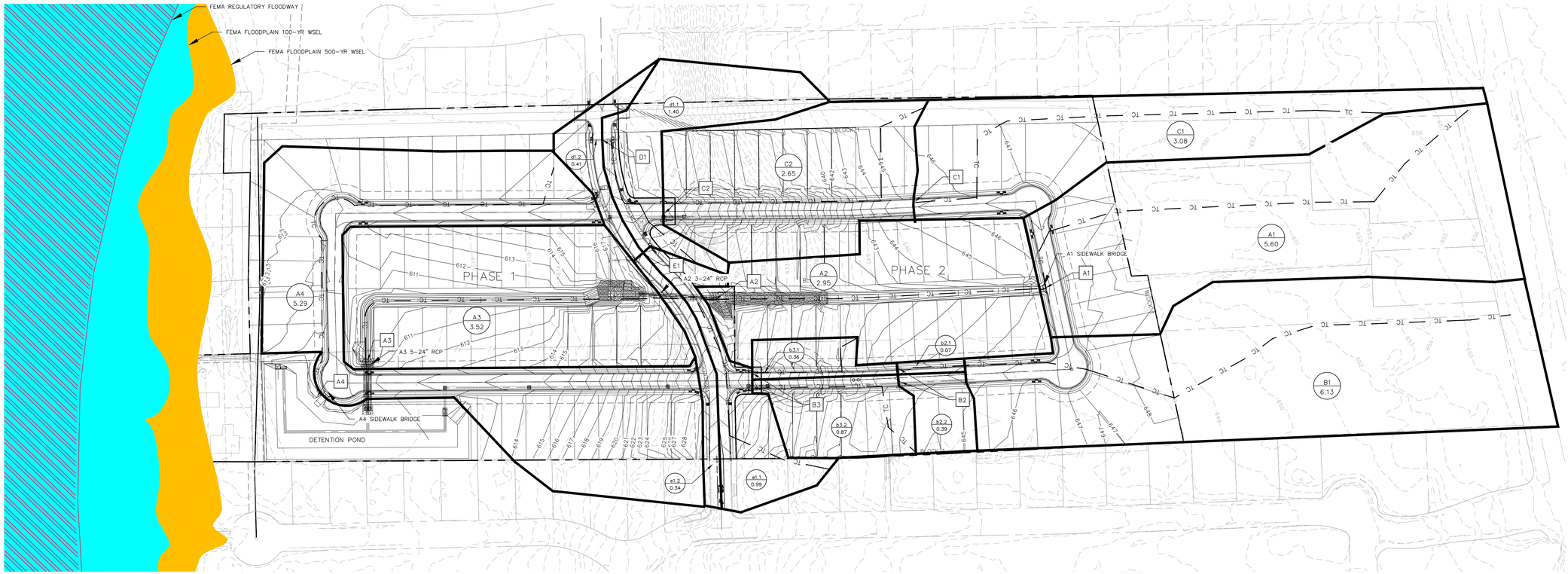

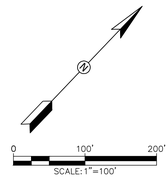

LEGEND

- PROPERTY BOUNDARY
- LIMITS OF DRAINAGE AREA
- LIMITS OF DRAINAGE AREA
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- FLOW ARROWS
- A / 9.0 DRAINAGE BASIN LABEL / BASIN AREA (AC)
- A1 / 2.0 SUB-DRAINAGE AREA LABEL / SUB-DRAINAGE AREA (AC)
- A1 INLET LABEL
- A1 ANALYSIS POINT LABEL

PROPOSED RATIONAL MAP - FOR ULTIMATE BUILDOUT CONDITIONS

SCALE: 1"=100'

Clear Creek - Ultimate Build Out - Rational Summary

Point	AREA ID	Area (ac)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{50} (cfs)	Q_{100} (cfs)	Location
A1	a1	5.60	11.83	15.69	19.47	24.95	29.69	35.49	Offsite & Sidewalk Bridge A1
A2	a1+a2	8.55	15.79	21.02	26.13	33.66	40.14	48.13	Channel A upstream
B1	b1.1+b1.2	6.13	17.61	23.53	29.38	38.08	45.56	54.57	*Street Capacity & STORM Drain Inlets b1.1 and b1.2*
	b2.1	0.07	0.23	0.30	0.38	0.49	0.58	0.70	Storm Drain Inlets B2.1
	b2.2	0.39	1.01	1.35	1.70	2.23	2.67	3.22	Storm Drain Inlets B2.2
B2	*b1.1+b1.2+b2.1+b2.2*	*6.59*	*18.84*	*25.19*	*31.45*	*40.79*	*48.82*	*58.48*	*Street Capacity*
	b3.1	0.36	1.05	1.40	1.75	2.28	2.73	3.28	Storm Drain Inlets B3.1
	b3.2	0.75	2.04	2.74	3.44	4.49	5.39	6.47	Storm Drain Inlets B3.2
C1	*c1.1+c1.2*	*3.08*	*6.22*	*8.29*	*10.31*	*13.28*	*15.88*	*19.07*	*Street Capacity & Storm Drain Inlets c1.1 and c1.2*
C2	*c2.1+c2.2*	*2.65*	*6.45*	*8.70*	*10.95*	*14.38*	*17.32*	*20.89*	*Street Capacity & Storm Drain Inlets c2.2 and c2.2*
	d1.1	1.40	3.13	4.26	5.38	7.12	8.60	10.44	Storm Drain Inlets D1.1
	d1.2	0.41	1.36	1.82	2.26	2.93	3.50	4.17	Storm Drain Inlets D1.2
	e1.1	0.99	2.42	3.27	4.11	5.40	6.50	7.84	Storm Drain Inlets E1.1
	e1.2	0.34	1.19	1.58	1.97	2.55	3.04	3.62	Storm Drain Inlets E1.2
A3	a1+a2+c1+c2+d1+e1	28.85	50.88	68.22	85.39	111.02	133.30	160.89	Channel A downstream
A4	a4	5.29	12.63	17.02	21.39	28.05	33.74	40.68	Sidewalk Bridge A4

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Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
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Scott McBrearty (Construction)	210-658-4886
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02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

PROPOSED DRAINAGE
AREA MAP

SHEET 18 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
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DETENTION POND NOTES:

EARTHFILL

1. SCOPE
THE WORK CONSISTS OF THE CONSTRUCTION OF EARTH EMBANKMENTS, OTHER EARTHFILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

EARTHFILL IS COMPOSED OF NATURAL EARTH MATERIALS THAT CAN BE PLACED AND COMPACTED BY CONSTRUCTION EQUIPMENT OPERATED IN A CONVENTIONAL MANNER.

EARTH BACKFILL IS COMPOSED OF NATURAL EARTH MATERIAL PLACED AND COMPACTED IN CONFINED SPACES OR ADJACENT TO STRUCTURES (INCLUDING PIPES) BY HAND TAMPING, MANUALLY DIRECTED POWER TAMPERS OR VIBRATING PLATES, OR THEIR EQUIVALENT.

2. MATERIAL
FILL MATERIALS SHALL CONTAIN NO FROZEN SOIL, SOD, BRUSH, ROOTS, OR OTHER PERISHABLE MATERIAL. UNLESS OTHERWISE NOTED ON THE PLANS, ROCK PARTICLES LARGER THAN 6" SHALL BE REMOVED PRIOR TO COMPACTION OF THE FILL.

THE TYPES OF MATERIAL USED IN THE VARIOUS FILLS SHALL BE AS LISTED AND DESCRIBED IN THE SPECIFICATIONS AND DRAWINGS.

3. FOUNDATION PREPARATION
FOUNDATIONS FOR EARTHFILL SHALL BE STRIPPED TO REMOVE VEGETATION AND OTHER UNSUITABLE MATERIAL OR SHALL BE EXCAVATED AS SPECIFIED.

EXCEPT AS OTHERWISE SPECIFIED, EARTH FOUNDATION SURFACES SHALL BE GRADED TO REMOVE SURFACE IRREGULARITIES AND SHALL BE SCARIFIED PARALLEL TO THE AXIS OF THE FILL OR OTHERWISE ACCEPTABLY SCORED AND LOOSENED TO A MINIMUM DEPTH OF 2 INCHES. THE MOISTURE CONTENT OF THE LOOSENED MATERIAL SHALL BE CONTROLLED AS SPECIFIED FOR THE EARTHFILL, AND THE SURFACE MATERIAL OF THE FOUNDATION SHALL BE COMPACTED AND BONDED WITH THE FIRST LAYER OF EARTHFILL AS SPECIFIED OR SUBSEQUENT LAYERS OF EARTHFILL.

EARTH ABUTMENT SURFACES SHALL BE FREE OF LOOSE, UNCOMPACTED EARTH IN EXCESS OF 2 INCHES IN DEPTH NORMAL TO THE SLOPE AND SHALL BE AT SUCH A MOISTURE CONTENT THAT THE EARTHFILL CAN BE COMPACTED AGAINST THEM TO PRODUCE A GOOD BOND BETWEEN THE FILL AND THE ABUTMENTS.

ROCK FOUNDATION AND ABUTMENT SURFACES SHALL BE CLEARED OF ALL LOOSE MATERIAL BY HAND OR OTHER EFFECTIVE MEANS AND SHALL BE FREE OF STANDING WATER WHEN FILL IS PLACED UPON THEM. OCCASIONAL ROCK OUTCROPS IN EARTH FOUNDATIONS FOR EARTHFILL, EXCEPT IN DAMS AND OTHER STRUCTURES DESIGNED TO RESTRAIN THE MOVEMENT OF WATER, SHALL NOT REQUIRE SPECIAL TREATMENT IF THEY DO NOT INTERFERE WITH COMPACTION OF THE FOUNDATION AND INITIAL LAYERS OF THE FILL OR THE BOND BETWEEN THE FOUNDATION AND THE FILL.

FOUNDATION AND ABUTMENT SURFACES SHALL BE NO STEEPER THAN ONE HORIZONTAL TO ONE VERTICAL UNLESS OTHERWISE SPECIFIED. TEST PITS OR OTHER CAVITIES SHALL BE FILLED WITH COMPACTED EARTHFILL CONFORMING TO THE SPECIFICATIONS FOR THE EARTHFILL TO BE PLACED UPON THE FOUNDATION.

4. PLACEMENT
EARTHFILL SHALL BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS. THE THICKNESS OF EACH LAYER BEFORE COMPACTION SHALL NOT EXCEED THE MAXIMUM THICKNESS SPECIFIED AS SHOWN ON THE DRAWINGS. MATERIALS PLACED BY DUMPING IN PILES OR WINDOWS SHALL BE SPREAD UNIFORMLY TO NOT MORE THAN THE SPECIFIED THICKNESS BEFORE BEING COMPACTED.

HAND COMPACTED EARTH BACKFILL SHALL BE PLACED IN LAYERS WHOSE THICKNESS BEFORE COMPACTION DOES NOT EXCEED THE MAXIMUM THICKNESS SPECIFIED FOR LAYERS OF EARTH BACKFILL COMPACTED BY MANUALLY DIRECTED POWER TAMPERS.

EARTH BACKFILL SHALL BE PLACED IN A MANNER THAT PREVENTS DAMAGE TO THE STRUCTURES AND ALLOWS THE STRUCTURES TO ASSUME THE LOADS FROM THE EARTH BACKFILL GRADUALLY AND UNIFORMLY. THE HEIGHT OF THE EARTH BACKFILL ADJACENT TO A STRUCTURE SHALL BE INCREASED AT APPROXIMATELY THE SAME RATE ON ALL SIDES OF THE STRUCTURE.

EARTHFILL AND EARTH BACKFILL IN DAMS, LEVEES, AND OTHER STRUCTURES DESIGNED TO RESTRAIN THE MOVEMENT OF WATER SHALL BE PLACED TO MEET THE FOLLOWING ADDITIONAL REQUIREMENTS:

(a) THE DISTRIBUTION OF MATERIALS THROUGHOUT EACH ZONE SHALL BE ESSENTIALLY UNIFORM, AND THE EARTHFILL SHALL BE FREE FROM LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFERING SUBSTANTIALLY IN TEXTURE, MOISTURE CONTENT, OR GRADATION FROM THE SURROUNDING MATERIAL. ZONE EARTHFILLS SHALL BE CONSTRUCTED CONCURRENTLY UNLESS OTHERWISE SPECIFIED.

(b) IF THE SURFACE OF ANY LAYER BECOMES TOO HARD AND SMOOTH FOR PROPER BOND WITH THE SUCCEEDING LAYER, IT SHALL BE SCARIFIED PARALLEL TO THE AXIS OF THE FILL TO A DEPTH OF NOT LESS THAN 2 INCHES BEFORE THE NEXT LAYER IS PLACED.

(c) THE TOP SURFACE OF EMBANKMENTS SHALL BE MAINTAINED APPROXIMATELY LEVEL DURING CONSTRUCTION WITH TWO EXCEPTIONS: A CROWN OR CROSS-SLOPE OF ABOUT 2 PERCENT SHALL BE MAINTAINED TO ENSURE EFFECTIVE DRAINAGE, OR AS OTHERWISE SPECIFIED FOR DRAINFILL OR SECTIONAL ZONES.

(d) DAM EMBANKMENTS SHALL BE CONSTRUCTED IN CONTINUOUS LAYERS FROM ABUTMENT TO ABUTMENT EXCEPT WHERE OPENINGS TO FACILITATE CONSTRUCTION OR TO ALLOW THE PASSAGE OF STREAM FLOW DURING CONSTRUCTION ARE SPECIFICALLY AUTHORIZED IN THE CONTRACT.

(e) EMBANKMENTS BUILT AT DIFFERENT LEVELS AS DESCRIBED UNDER (C) OR (D) ABOVE SHALL BE CONSTRUCTED SO THAT THE SLOPE OF THE BONDING SURFACES BETWEEN EMBANKMENT IN PLACE AND EMBANKMENT TO BE PLACED IS NOT STEEPER THAN 3 FEET HORIZONTAL TO 1 FOOT VERTICAL. THE BONDING SURFACE OF THE EMBANKMENT IN PLACE SHALL BE STRIPPED OF ALL MATERIAL NOT MEETING THE REQUIREMENTS OF THIS SPECIFICATION AND SHALL BE SCARIFIED, MOISTENED, AND RECOMPACTED WHEN THE NEW EARTHFILL IS PLACED AGAINST IT. THIS ENSURES A GOOD BOND WITH THE NEW EARTHFILL AND OBTAINS THE SPECIFIED MOISTURE CONTENT AND DENSITY AT THE CONTACT OF THE INPLACE AND NEW EARTHFILLS.

(f) THE FILL MATERIAL SHALL BE FREE OF ORGANIC MATTER AND OTHER OBJECTIONABLE MATERIAL. PLACING AND SPREADING OF FILL SHALL BEGIN ON THE LOWEST PART OF THE WORKING AREA AND CONTINUE IN HORIZONTAL LAYERS OF APPROXIMATE UNIFORM THICKNESS, NOT EXCEEDING 9 INCHES BEFORE COMPACTION. WHERE THE BORROW YIELDS MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED TOWARD THE WATERSIDE OF THE BERM. THE CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREA OF EACH LAYER IN A MANNER TO BREAK UP LARGE CLODS AND OBTAIN COMPACTION.

5. CONTROL OF MOISTURE CONTENT
DURING PLACEMENT AND COMPACTION OF EARTHFILL AND EARTH BACKFILL, THE MOISTURE CONTENT OF THE MATERIAL BEING PLACED SHALL BE MAINTAINED WITHIN THE SPECIFIED RANGE.

THE APPLICATION OF WATER TO THE EARTHFILL MATERIAL SHALL BE ACCOMPLISHED AT THE BORROW AREAS INSOFAR AS PRACTICABLE. WATER MAY BE APPLIED BY SPRINKLING THE MATERIAL AFTER PLACEMENT ON THE EARTHFILL, IF NECESSARY. UNIFORM MOISTURE DISTRIBUTION SHALL BE OBTAINED BY DISKING.

MATERIAL THAT IS TOO WET WHEN DEPOSITED ON THE EARTHFILL SHALL EITHER BE REMOVED OR BE DRIED TO THE SPECIFIED MOISTURE CONTENT PRIOR TO COMPACTION.

IF THE TOP SURFACE OF THE PRECEDING LAYER OF COMPACTED EARTHFILL OR A FOUNDATION OR ABUTMENT SURFACE IN THE ZONE OF CONTACT WITH THE EARTHFILL BECOMES TOO DRY TO PERMIT SUITABLE BOND, IT SHALL EITHER BE REMOVED OR SCARIFIED AND MOISTENED BY SPRINKLING TO AN ACCEPTABLE MOISTURE CONTENT BEFORE PLACEMENT OF THE NEXT LAYER OF EARTHFILL.

6. COMPACTION
EARTHFILL – EARTHFILL SHALL BE COMPACTED ACCORDING TO THE FOLLOWING REQUIREMENTS FOR THE CLASS OF COMPACTION SPECIFIED:

CLASS A COMPACTION – EACH LAYER OF EARTHFILL SHALL BE COMPACTED AS NECESSARY TO PROVIDE THE DENSITY OF THE EARTHFILL MATRIX NOT LESS THAN THE MINIMUM DENSITY SPECIFIED ON THE DRAWINGS. THE EARTHFILL MATRIX IS DEFINED AS THE PORTION OF THE EARTHFILL MATERIAL FINER THAN THE MAXIMUM PARTICLE SIZE USED IN THE COMPACTION TEST METHOD SPECIFIED.

7. REWORKING OR REMOVAL AND REPLACEMENT OF DEFECTIVE EARTHFILL
EARTHFILL PLACED AT DENSITIES LOWER THAN THE SPECIFIED MINIMUM DENSITY OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED ACCEPTABLE RANGE OF MOISTURE CONTENT OR OTHERWISE NOT CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REWORKED TO MEET THE REQUIREMENTS OR REMOVED AND REPLACED BY ACCEPTABLE EARTHFILL. THE REPLACEMENT EARTHFILL AND THE FOUNDATION, ABUTMENT, AND EARTHFILL SURFACES UPON WHICH IT IS PLACED SHALL CONFORM TO ALL REQUIREMENTS OF THIS SPECIFICATION FOR FOUNDATION PREPARATION, APPROVAL, PLACEMENT, MOISTURE CONTROL, AND COMPACTION.

8. TESTING
DURING THE COURSE OF THE WORK, THE CONTRACTOR WILL PERFORM QUALITY CONTROL TEST REQUIRED TO IDENTIFY MATERIAL; DETERMINE COMPACTION CHARACTERISTICS; DETERMINE MOISTURE CONTENT; AND DETERMINE DENSITY OF EARTHFILL IN PLACE. TESTS PERFORMED WILL BE SUBMITTED TO THE ENGINEER OF RECORD TO VERIFY THAT THE EARTHFILLS CONFORM TO CONTRACT REQUIREMENTS OF THE SPECIFICATIONS.

DENSITIES OF EARTHFILL REQUIRING CLASS A COMPACTION WILL BE DETERMINED IN ACCORDANCE WITH ASTM D 698, D 1556, D 2167, D 2922, OR D 2937 EXCEPT THAT THE VOLUME AND MOIST WEIGHT OF INCLUDED ROCK PARTICLES LARGER THAN THOSE USED IN THE COMPACTION TEST METHOD SPECIFIED FOR THE TYPE OF FILL WILL BE DETERMINED AND DEDUCTED FROM THE VOLUME AND MOIST WEIGHT OF THE TOTAL SAMPLE BEFORE COMPUTATION OF DENSITY OR, IF USING THE NUCLEAR GAUGE, ADDED TO THE SPECIFIED DENSITY TO BRING IT TO THE MEASURE OF EQUIVALENT COMPOSITION FOR COMPARISON (SEE ASTM D 4718). THE DENSITY SO COMPUTED IS USED TO DETERMINE THE PERCENT COMPACTION OF THE EARTHFILL MATRIX. UNLESS OTHERWISE SPECIFIED, MOISTURE CONTENT IS DETERMINED BY ONE OF THE FOLLOWING METHODS: ASTM D 2216, D 3017, D 4643, D 4944, OR D 4959.

IMPERVIOUS CORE COMPACTION NOTE:
COMPACTED CLAY CORE TO BE PLACED A MINIMUM OF 2' BELOW EXISTING GRADE ALONG THE ENTIRE LENGTH OF THE BERM. MATERIAL TO HAVE A PI OF 30 OR GREATER, MINIMUM COMPACTED DRY DENSITY OF 90% AND GROUND CONTENT NO MORE THAN 5% BY WEIGHT LARGER THAN NO.4 SIEVE.

DETENTION POND NOTES:
CONSTRUCTION SPECIFICATION – TOP SOIL

1. VEGETATION OF POND BOTTOM – THE WORK CONSISTS OF PLACEMENT OF TOP SOIL ON NEW EARTH EMBANKMENTS, OTHER EARTHFILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS.

2. MATERIAL – THE TOPSOIL SHALL BE FERTILE SOIL, CONSISTING PRIMARILY OF CLAY AND CLAYEY MATERIALS, WITH A PLASTICITY INDEX GREATER THAN 15, AND SHALL BE FREE OF LARGE ORGANIC OR ROCK MATERIAL.

3. APPLICATION – TOPSOIL SHALL BE PLACED AT GRADES INDICATED ON THE PLANS AND ROLLED TO REDUCE EROSION. PERIODIC INSPECTION ARE REQUIRED AND ADDITIONAL TOPSOIL ADDED AS NEEDED UNTIL VEGETATION HAS ESTABLISHED

CONSTRUCTION SPECIFICATION – VEGETATION

1. VEGETATION OF EMBANKMENT – THE WORK CONSISTS OF ESTABLISHING VEGETATION ON NEW EARTH EMBANKMENTS, OTHER EARTHFILLS, AND EARTH BACKFILLS REQUIRED BY THE DRAWINGS.

2. MATERIAL – VEGETATION SHALL CONSIST OF "NATIVE SUN TURF GRASS" AS SUPPLIED BY NATIVE AMERICAN SEED IN JUNCTION, TX, CONSISTING OF 34% BLUE GRAMA AND 64% BUFFALO GRASS, OR ENGINEER APPROVED EQUAL. SEED MIXTURE SHALL CONSIST OF A PURE LIVE SEED OF 90-95%

3. APPLICATION – THE SEED MIXTURE SHALL BE INSTALLED PER DISTRIBUTORS RECOMMENDATIONS AT A RATE OF 1 LB PER 400 SQFT. SEED MIXTURE SHALL BE WATERED AS REQUIRED UNTIL VEGETATION IS ESTABLISHED.

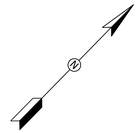
DRAINAGE INFRASTRUCTURE MAINTENANCE AND MONITORING GUIDELINES

- ACCESS – DRIVE OVER TOP OF CURB FOR MOWING AND MAINTENANCE OF DETENTION POND.

CHANNEL A
- STA BEGIN TO STA 16+00 – WILL BE ACCESSED FROM A CUL DE SAC OF LITTLE PEBBLE AND CREEK BED DR
- STA 17+00 & THE CULVERT OUTLET – WILL BE ACCESSED FROM OPEN SPACE NEXT TO LAKE FRONT
- STA 18+70 TO 19+50 – WILL BE ACCESSED FROM HIGH SIDE OF LAKE FRONT AVE OPEN SPACE TO MAINTAIN CULVERT INLET
- STA 21+00 TO STA END – WILL BE ACCESSED FROM A RAMP OFF SLOW CREEK ST.

DETENTION POND– WILL BE ACCESSED FROM RAMP CREEK BED DR

- SEASONAL MOWING AND LAWN CARE – IF THE DETENTION POND IS MADE UP OF TURF GRASS, IT SHOULD BE MOWED AS NEEDED TO LIMIT VEGETATION HEIGHT TO 18 INCHES, USING A MULCHING MOWER (OR REMOVAL OF CLIPPINGS). IF NATIVE GRASSES ARE USED, THE POND MAY REQUIRE LESS FREQUENT MOWING, BUT A MINIMUM OF TWICE ANNUALLY. REGULAR MOWING SHOULD ALSO INCLUDE WEED CONTROL PRACTICES, HOWEVER HERBICIDE USE SHOULD BE KEPT TO A MINIMUM. HEALTHY GRASS CAN BE MAINTAINED WITHOUT USING FERTILIZERS BECAUSE RUNOFF USUALLY CONTAINS SUFFICIENT NUTRIENTS. IRRIGATION OF THE SITE CAN HELP ASSURE A DENSE AND HEALTHY VEGETATIVE COVER.
- INSPECTION – INSPECT DETENTION POND AT LEAST TWICE ANNUALLY FOR EROSION OR DAMAGE TO VEGETATION; HOWEVER, ADDITIONAL INSPECTION AFTER PERIODS OF HEAVY RUNOFF IS MOST DESIRABLE. MORE FREQUENT INSPECTIONS OF THE GRASS COVER DURING THE FIRST FEW YEARS AFTER ESTABLISHMENT WILL HELP TO DETERMINE IF ANY PROBLEMS ARE DEVELOPING, AND TO PLAN FOR LONG-TERM RESTORATIVE MAINTENANCE NEEDS. BARE SPOTS AND AREAS OF EROSION IDENTIFIED DURING SEMI-ANNUAL INSPECTIONS MUST BE REPLANTED AND RESTORED TO MEET SPECIFICATIONS.
- DEBRIS AND LITTER REMOVAL – THE DETENTION POND SHOULD BE KEPT FREE OF OBSTRUCTIONS TO REDUCE FLOATABLES BEING FLUSHED DOWNSTREAM, AND FOR AESTHETIC REASONS. THE NEED FOR THIS PRACTICE IS DETERMINED THROUGH PERIODIC INSPECTION, BUT SHOULD BE PERFORMED NO LESS THAN 2 TIMES PER YEAR.
- SEDIMENT REMOVAL – SEDIMENT MAY ACCUMULATE WITHIN THE DETENTION POND, PREVENTING UNIFORM OVERLAND FLOW, SEE ATTACHED EXHIBIT FOR SEDIMENT MARKER LOCATION NEAR THE POND OUTFALL. SEDIMENT IS TO BE REMOVED WHEN THE ACCUMULATED OR AT LEAST EVERY 10 YEARS.
- STORM DRAIN – ALL CURB INLETS AND JUNCTION BOXES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY FOR SEDIMENT BUILD UP OR DAMAGE. ADDITIONAL INSPECTION OF ALL STORM DRAIN SYSTEMS, INCLUDING OUTLETS, CONCRETE RIPRAP, AND PIPES SHOULD ALSO BE INSPECTED BI-ANNUALLY.



LEGEND

- 900 — EXISTING CONTOUR
- 900 — PROPOSED CONTOUR
- DRAINAGE FLOW ARROW
- GRADE BREAK/SWALE

Clear Creek Subdivision Water Quality Summary Table

Ex. Imp Cover (SF)	Pro Imp Cover (Streets) (SF)	Pro Imp Cover (Rooftops and Conc) (SF)	Imp Cover Increase (SF)
0	178,658	273,600	452,258

Water Quality Volume Required (CF)	18,844
Water Quality Volume Required (CF) + 20%	22,613
Water Quality Volume Provded* (CF)	22,799

	Circular Pipe Sized
	Flow Allowed
	0.264 cfs
	3in Pipe Flow
	0.18 cfs
Total Time to drain (Vol/flow=) =	35.18 hours
Half Time to drain (Vol/flow=) =	17.59 hours

Detention Pond Storage Summary

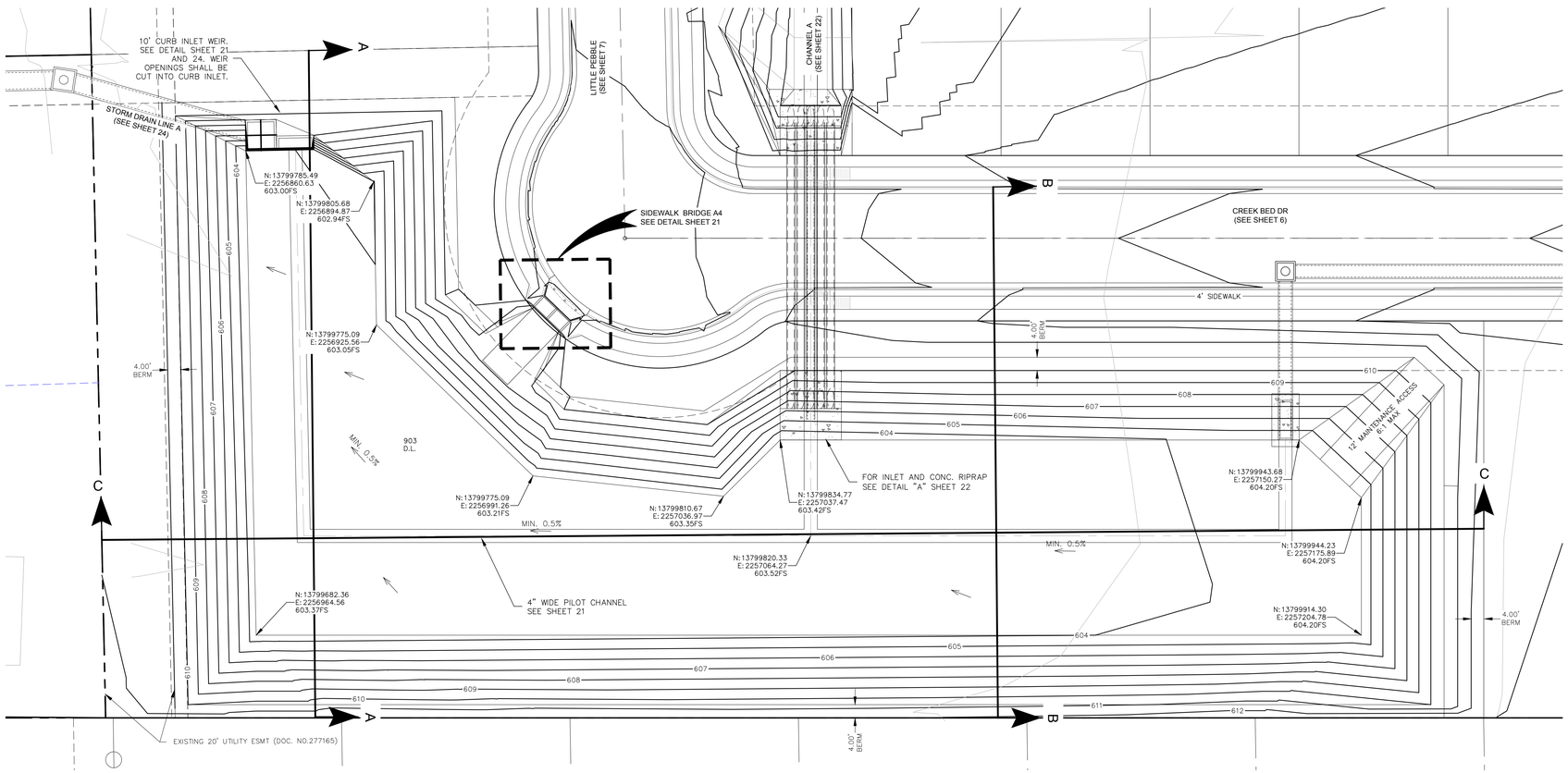
Stage (ft)	Elevation	Area (sf)
0.0	603	0
1.0	604	10,089
2.0	605	33,832
3.0	606	62,775
4.0	607	94,875
5.0	608	130,232
6.0	609	169,078
7.0	610	213,492

Overflow Weir Calculations	Q(cfs)
Proposed 25-yr Flow	165.05
54' Overflow in Junction Box	187.43
Detained Outfall @ 100yr WSEL	240.26
Total Outfall Flow to Top of Berm	427.69

54" lf from perimeter of 8'x8' junction box & a type 1 10' curb inlet

Clear Creek Detention Pond Hydraulics

Storm Event	Q (CFS)	V (FT/S)	Time to Empty (hrs)	WSEL
2	42.3	5.31	20.4	606.55
10	102.2	6.76	22.2	607.72
25	151.0	7.59	25.6	608.26
50	193.1	8.35	22.5	608.63
100	240.4	9.12	24.3	609.00



STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

DETENTION POND PLAN & NOTES

SHEET 19 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
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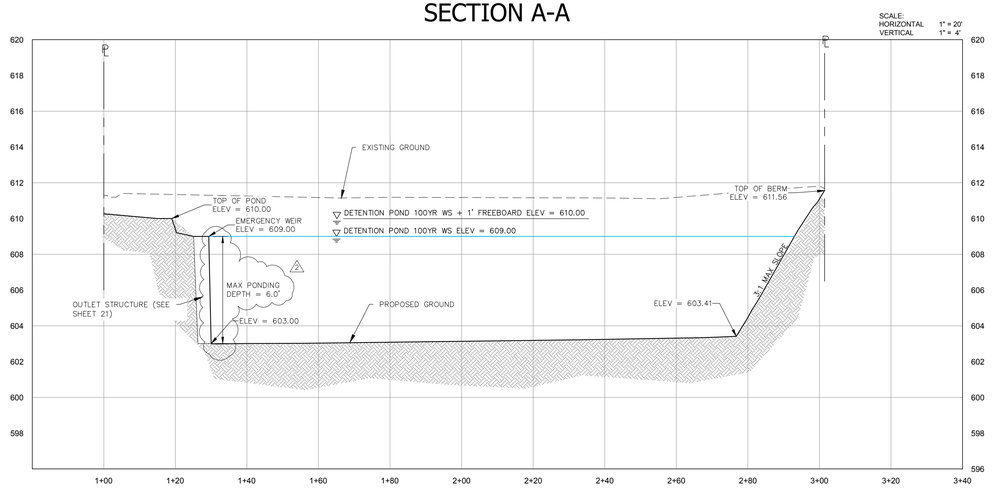
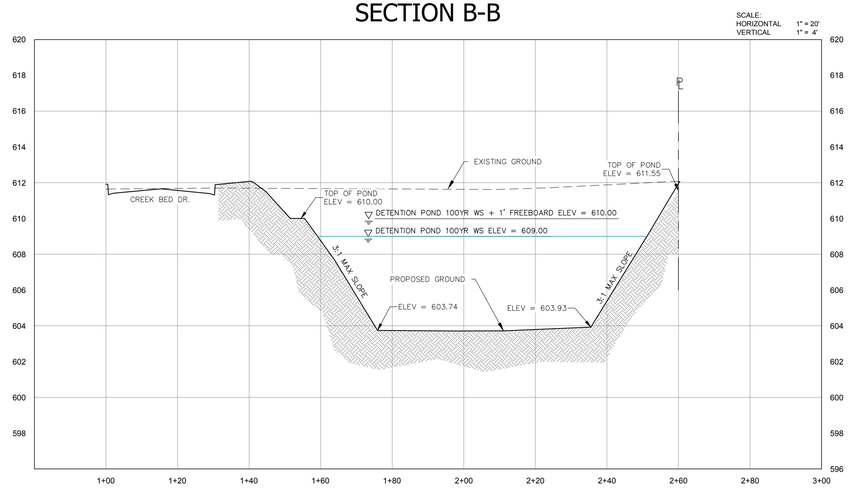
Drawing Name: N:\Projects\1A480001 Harris Tract\Civil\Construction Drawings\20 DETENTION POND GRADES-SECTIONS.dwg User: chaffmsenalan Feb 14, 2024 - 12:56pm

SEE SHEET 19 - DETENTION POND PLAN & NOTES FOR SECTION MARKER LOCATIONS

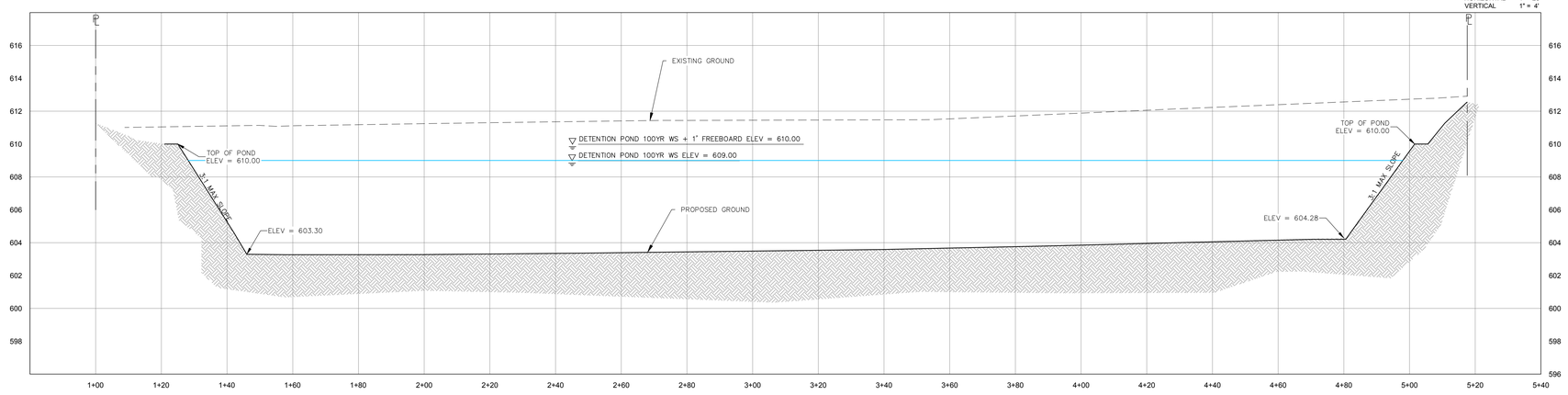
SECTION A-A



SECTION B-B



SECTION C-C



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02/14/2024

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CLEAR CREEK SUBDIVISION
UNIT-1

DETENTION POND
CROSS-SECTIONS

SHEET 20 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	~~11-19-2023~~	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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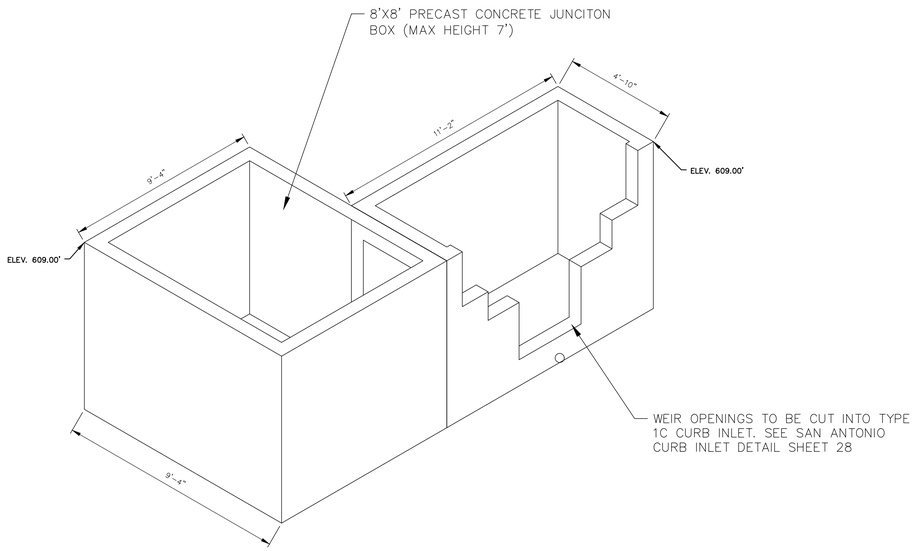
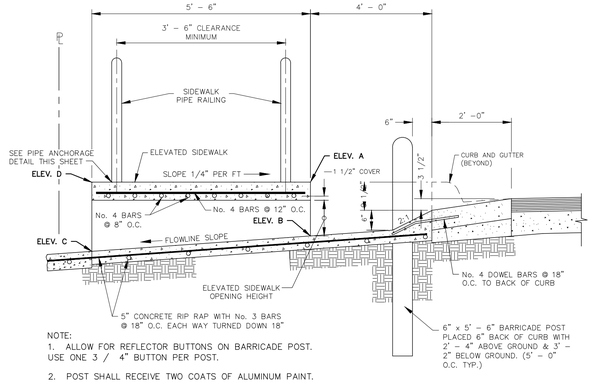


DETENTION POND OUTLET - CURB INLET DETAIL

NOT TO SCALE



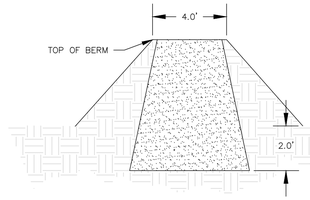
NOTE:
1. ALLOW FOR REFLECTOR BUTTONS ON BARRICADE POST. USE ONE 3 / 4" BUTTON PER POST.
2. POST SHALL RECEIVE TWO COATS OF ALUMINUM PAINT.

SIDEWALK BRIDGE "A4" SUMMARY						
STORM EVENT	CULVERT SIZE	H.W. ELEV	CULVERT Q (CFS)	WEIR Q (CFS)	CULVERT V (FT/S)	TOTAL Q (CFS)
10-YEAR	2 ~ 5'x1'	609.61	19.72	0.00	3.99	21.39
100-YEAR		609.92	30.35	6.86	5.87	40.68

SIDEWALK BRIDGES SUMMARY - UNIT					
	ELEVATION				
	A	B	C	D	
Bridge A4	610.03	608.70	608.60	610.16	

A Low end of sidewalk
B upstream flowline
C downstream flowline
D high end of sidewalk

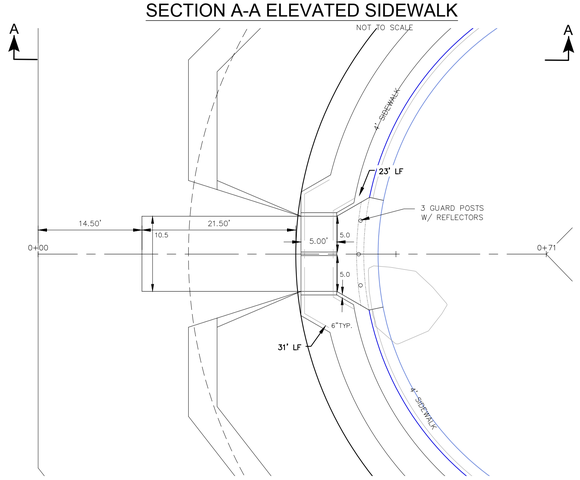
SECTION A-A ELEVATED SIDEWALK



IMPERVIOUS CORE COMPACTION NOTE

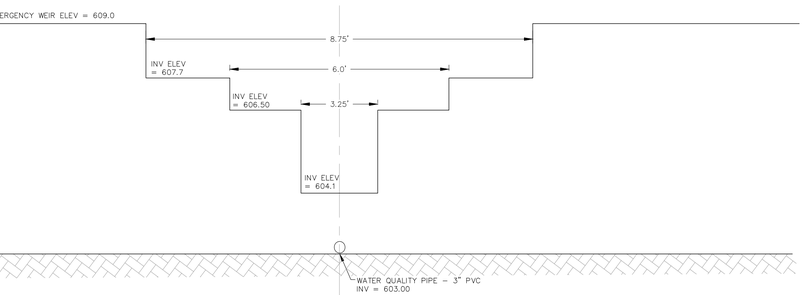
COMPACTED CLAY CORE TO BE PLACED A MINIMUM OF 2' BELOW EXISTING GRADE ALONG THE ENTIRE LENGTH OF THE BERM. MATERIAL TO HAVE A PI OF 30 OR GREATER, MINIMUM COMPACTED DRY DENSITY OF 90% AND GROUND CONTENT NO MORE THAN 5% BY WEIGHT LARGER THAN NO.4 SIEVE.

NOTE: IMPERVIOUS CLAY BERM CORE AND CLAY LINER SHOWN ARE TO BE CONSIDERED SUBSIDIARY TO POND EXCAVATION. (NO SEPARATE PAY ITEM)



PLAN VIEW SIDEWLAK BRIDGE A4

SCALE: 1" = 10'



POND A WEIR SECTION FRONT VIEW

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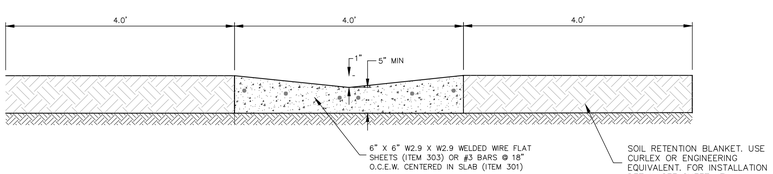
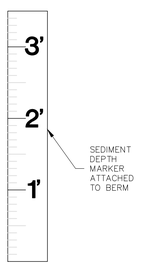
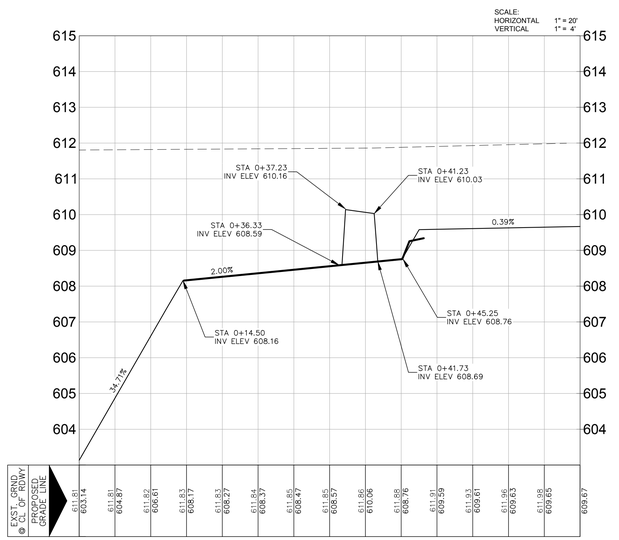




SEDIMENT DEPTH MARKER

NOT TO SCALE



PROFILE VIEW SIDEWALK BRIDGE A4

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

DETENTION POND STRUCTURE DETAILS

SHEET 21 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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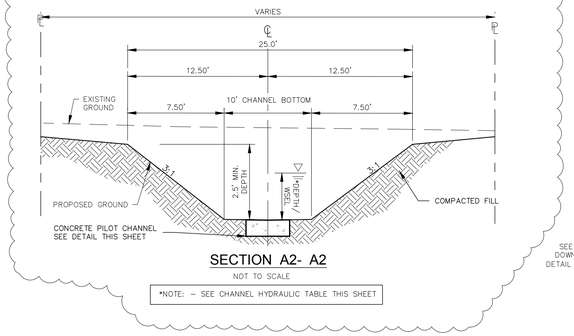
Drawing Name: N:\Projects\GAR0001 Harris Tract\Civil\Construction Drawings\07 DETENTION POND STRUCTURE DETAILS.dwg User: dhoffmann@ink Feb 14, 2024 - 12:56pm

Culvert A3 - Creek Bed Cul De Sac						
STORM EVENT	CULVERT SIZE	H.W. ELEV	CULVERT Q (CFS)	WEIR Q (CFS)	CULVERT V (FT/S)	TOTAL Q (CFS)
2-YEAR	5 ~ 24" RCP	608.89	50.88	0.00	5.49	50.88
25-YEAR		611.16	111.02	0.00	7.87	111.02
50-YEAR		611.60	128.39	4.93	8.70	133.30
100-YEAR		612.12	138.72	22.20	9.23	160.89

Culvert A2 - Lake Front Ave						
STORM EVENT	CULVERT SIZE	H.W. ELEV	CULVERT Q (CFS)	WEIR Q (CFS)	CULVERT V (FT/S)	TOTAL Q (CFS)
2-YEAR	3 ~ 24" RCP	619.13	15.87	0.00	7.53	15.87
25-YEAR		620.08	33.85	0.00	8.99	33.85
50-YEAR		620.31	40.38	0.00	9.74	40.38
100-YEAR		620.59	48.42	0.00	10.21	48.42

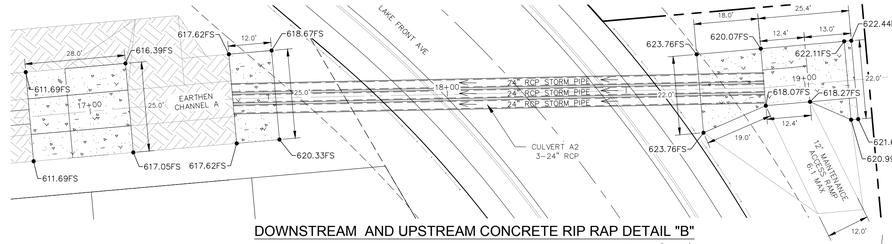
Channel Section A - 0.50% with conc. Pilot channel								
Q_2 (CFS)	S (%)	n	V_2 (FT/S)	dn (FT)	Vh	Tw (FT)	REQUIRED FREEBOARD	REQUIRED DEPTH (dr) (FT)	DEPTH PROVIDED (D) (FT)
42.29	0.50	0.030	3.12	1.13	0.15	16.14	n/a	1.13	2.50
Q_{25} (CFS)	S (%)	n	V_{25} (FT/S)	dn (FT)	Vh	Tw (FT)	REQUIRED FREEBOARD	REQUIRED DEPTH (dr) (FT)	DEPTH PROVIDED (D) (FT)
90.63	0.50	0.030	3.86	1.68	0.23	19.47	0.50	2.18	2.50
Q_{50} (CFS)	S (%)	n	V_{50} (FT/S)	dn (FT)	Vh	Tw (FT)	REQUIRED FREEBOARD	REQUIRED DEPTH (dr) (FT)	DEPTH PROVIDED (D) (FT)
108.39	0.50	0.03	4.06	1.74	0.26	20.45	n/a	1.74	2.50
Q_{100} (CFS)	S (%)	n	V_{100} (FT/S)	dn (FT)	Vh	Tw (FT)	REQUIRED FREEBOARD	REQUIRED DEPTH (dr) (FT)	DEPTH PROVIDED (D) (FT)
130.15	0.50	0.030	4.26	1.92	0.28	21.55	n/a	1.92	2.50



SECTION A2- A2

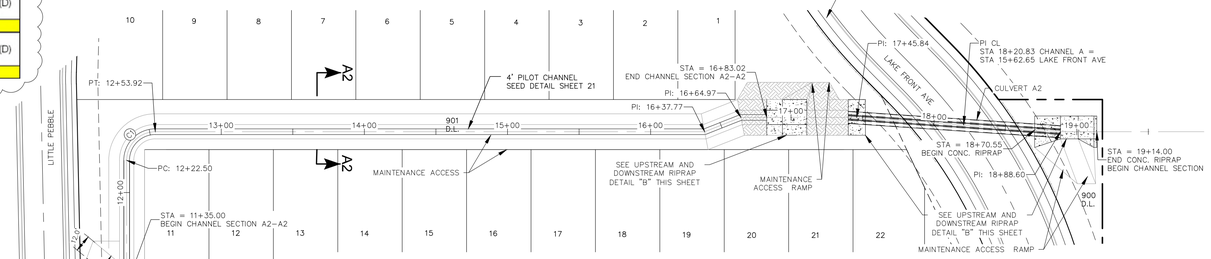
NOT TO SCALE

*NOTE: – SEE CHANNEL HYDRAULIC TABLE THIS SHEET

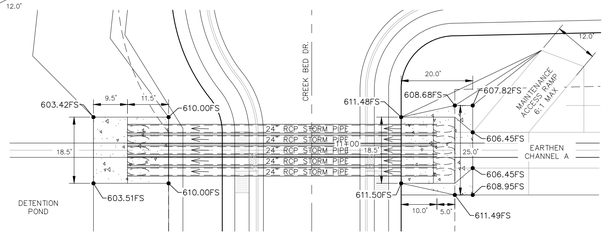


DOWNSTREAM AND UPSTREAM CONCRETE RIP RAP DETAIL "B"

SCALE: 1" = 20'



Curve Table						
Curve #	Radius	Length	Delta	Tangent	Chord Length	Chord Direction
C1	20.00	31.42	90°00'00"	20.00'	28.28'	N01° 00' 17.77"E



DOWNSTREAM AND UPSTREAM CONCRETE RIP RAP DETAIL "A"

SCALE: 1" = 20'

LEGEND

- HYDROTURF (ENGINEER APPROVED EQUIVALENT)
- CONCRETE
- ROCK RIP-RAP
- CHANNEL CENTERLINE

SCALE: 1"=50'

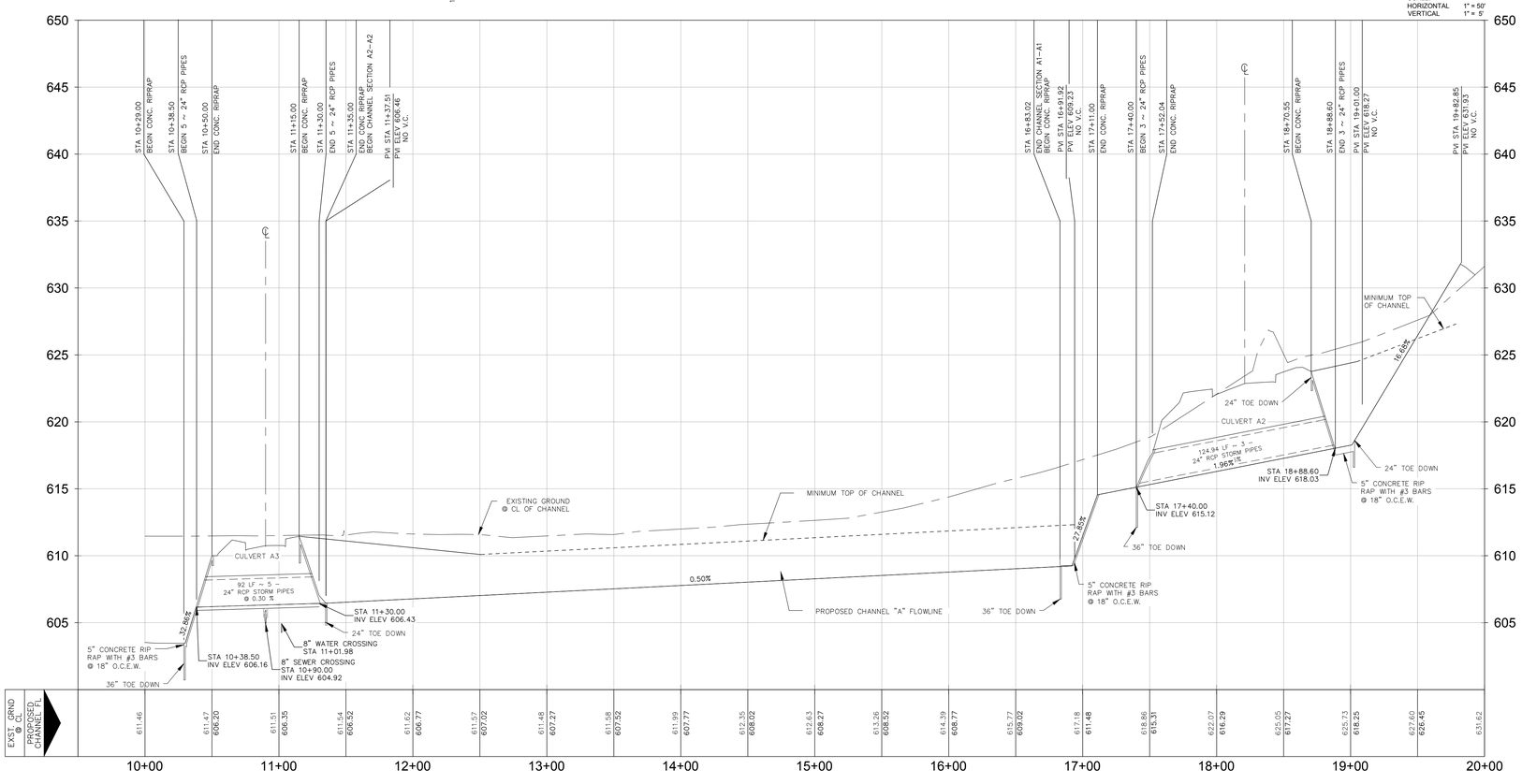
ALL RCP TO BE CLASS IV RCP AND IS RATED FOR DIRECT TRAFFIC LOADING

PRIOR TO CONSTRUCTION CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITES AND REPORT ANY DISCREPANCIES TO ENGINEER

STORM DRAIN AND CULVERT MAINTENANCE

- INSPECT INLETS, JUNCTION STRUCTURES, OUTLETS AND CHANNELS THROUGH PERIODIC INSPECTION BUT NO LESS THAN EVERY 6 MONTHS TO CLEAR STRUCTURES OF OBSTRUCTIONS, DEBRIS AND STRUCTURAL INTEGRITY.

CHANNEL A STA 10+00 TO END



02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

CHANNEL A PLAN & PROFILE

SHEET 22 OF 49

NO	DATE	ISSUES AND REVISIONS
3	9-28-2023	UPDATED PER CONB COMMENTS
2	11-10-2023	UPDATED PER CONB COMMENTS
1	1-15-2024	UPDATED PER CONB COMMENTS
0	2-1-2024	UPDATED PER CONB COMMENTS
4	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
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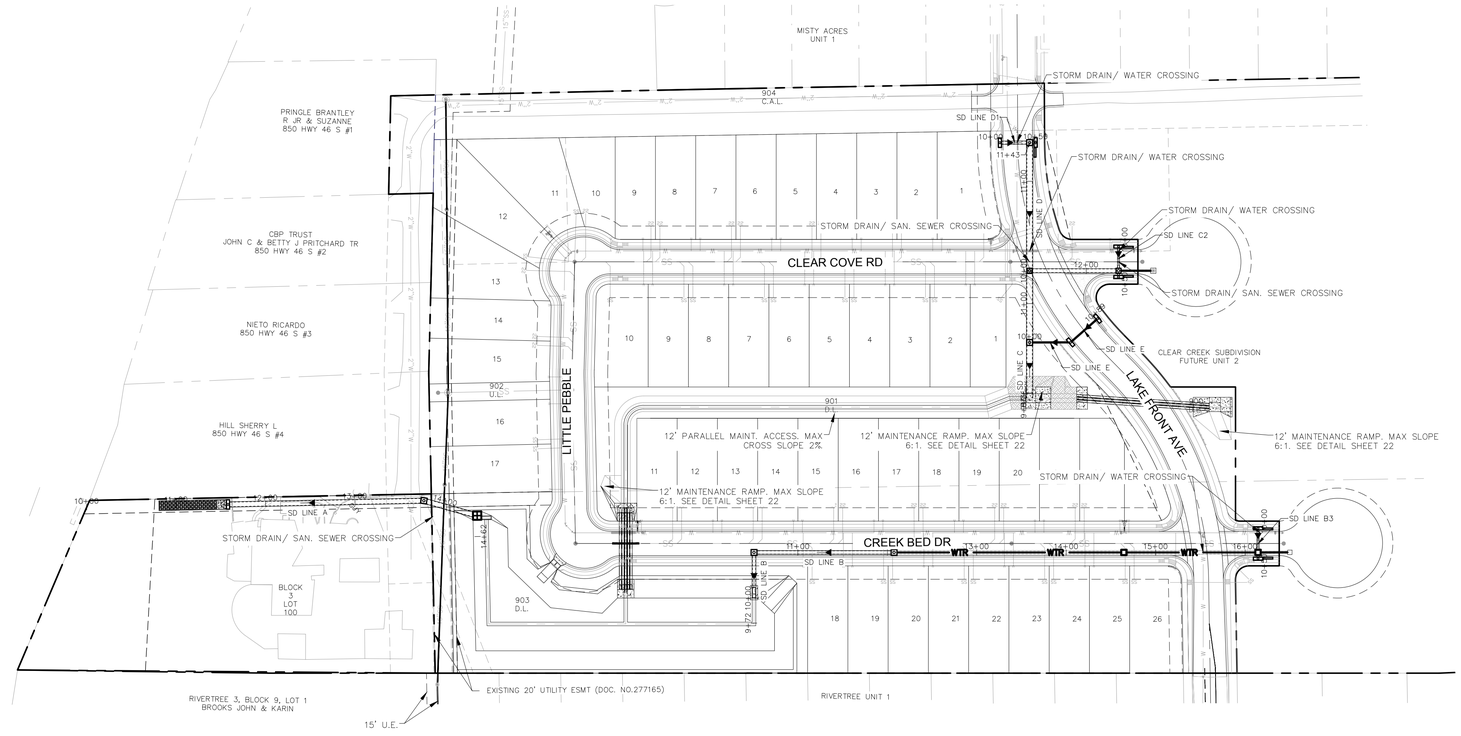
Drawing Name: N:\Projects\V&R0001 Harris Tract\Civil\Construction Drawings\22 CHANNEL A PLAN & PROFILE.dwg User: chadfriesenhahn Feb 14, 2024 - 12:57pm



0 80' 160'

SCALE: 1"=80'

LEGEND

SS NEW SANITARY SEWER

W W NEW WATER SERVICE

ALL RCP TO BE CLASS IV RCP AND IS RATED FOR DIRECT TRAFFIC LOADING

STORM DRAIN AND CULVERT MAINTENANCE

- INSPECT INLETS, JUNCTION STRUCTURES, OUTLETS AND CHANNELS THROUGH PERIODIC INSPECTION BUT NO LESS THAN EVERY 6 MONTHS TO CLEAR STRUCTURES OF OBSTRUCTIONS, DEBRIS AND STRUCTURAL INTEGRITY.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

OVERALL STORM DRAIN PLAN

SHEET 23 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
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STORM DRAIN A 25-YR					
NAME	V (ft/s)	UPSTREAM 25-YR HGL	GROUND ELEV	DIFF	25-YR HGL 2' Below Gutter?
PIPE A1	22.95				
JB A2		599.52	610.46	10.94	✓
PIPE A2	7.68				
WEIR		601.23	609.00	7.77	✓

STORM DRAIN A 100-YR					
NAME	V (ft/s)	UPSTREAM 100-YR HGL	GROUND ELEV	DIFF	Below Ground?
PIPE A1	25.96				
JB A1		600.62	610.46	9.84	✓
PIPE A2	12.22				
WEIR		603.25	609.00	5.75	✓

ORIFICE
Q = C0* A0* (2gH0)^0.5

Co	0.6
D	0.5 FT
A0	0.196 FT^2

SHARP-CRESTWEIR WITH END CONTRACTIONS
Q = Cscw* L* H^1.5
Cscw = 3.27+0.4 (H/Hc)
H = VARIES

Hc =	6.3 FT
L =	10 FT

Junction Box Length (FT) =	10
Junction Box Width (FT) =	3.67
Area of 60" Diameter Pipe (SF) =	19.6
Length of stomdrain pipe with stored water (FT)	160

Volume of system below weir elevation
3369 CF

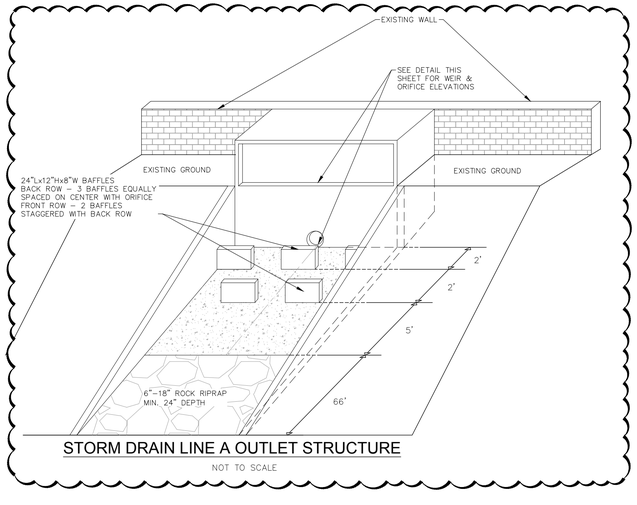
Time to drain 0.41 hours

* Assume pipe is full

	Orifice			Weir			Cumulative	
Height	Headwater Elevation (FT)	Discharge (CFS)	Velocity (FT/S)	Headwater Elev (FT)	Weir Coefficient	Discharge(CFS)	Discharge (CFS)	
1	0.7	0.79	4.03	0	0	0	0.79	
2	1.7	1.23	6.28	0	0	0	1.23	
3	2.7	1.55	7.91	0	0	0	1.55	
4	3.7	1.82	9.26	0	0	0	1.82	
5	4.7	2.05	10.44	0	0	0	2.05	
6	5.7	2.26	11.50	0	0	0	2.26	
6.3	6	2.32	11.79	0.1	3.28	1.04	2.93	Start of Weir Flow
7.33	7.03	2.51	12.77	1.13	3.34	40.14	42.32	2-Year Storm Event
8.25	7.95	2.67	13.58	2.05	3.40	99.80	102.19	10-Year Storm Event
8.85	8.55	2.76	14.08	2.65	3.44	148.32	150.82	25-Year Storm Event
9.32	9.02	2.84	14.46	3.12	3.47	191.13	193.63	50-Year Storm Event
9.79	9.49	2.91	14.83	3.59	3.50	237.93	240.60	100-Year Storm Event
9.8	9.5	2.91	14.84	3.6	3.50	238.97	241.56	Max Headwater

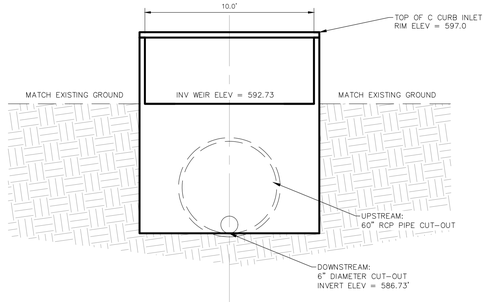
Storm Drain Line A Outfall - 0.50% with Rock Riprap				
Q_2 (CFS)	S (%)	n	V_2 (FT/S)	dn (FT)
42.30	0.50	0.068	1.78	1.29
Q_{25} (CFS)	S (%)	n	V_{25} (FT/S)	dn (FT)
102.20	0.50	0.068	2.92	2.77
Q_{50} (CFS)	S (%)	n	V_{50} (FT/S)	dn (FT)
193.10	0.50	0.068	3.21	3.20
Q_{100} (CFS)	S (%)	n	V_{100} (FT/S)	dn (FT)
240.40	0.50	0.068	3.49	3.21

COMPOSITE MANNINGS COEFFICIENT
WITH CONCRETE WALLS (n = 0.013)
ROCK RUBBLE BOTTOM (n = 0.069)



STORM DRAIN LINE A OUTLET STRUCTURE

NOT TO SCALE



STORM DRAIN LINE A "JB A3" DETAIL

NOT TO SCALE

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830–629–8400
Spectrum Cable	830–625–3408
Centerpoint Gas	830–643–6434
Robert Sanders	830–643–6903
Damaged Line	888–876–5786
AT&T Telephone	830–303–1333
Erick White PM	210–283–1706
Scott McBrearty (Construction)	210–658–4886
Texas One Call	830–545–6005

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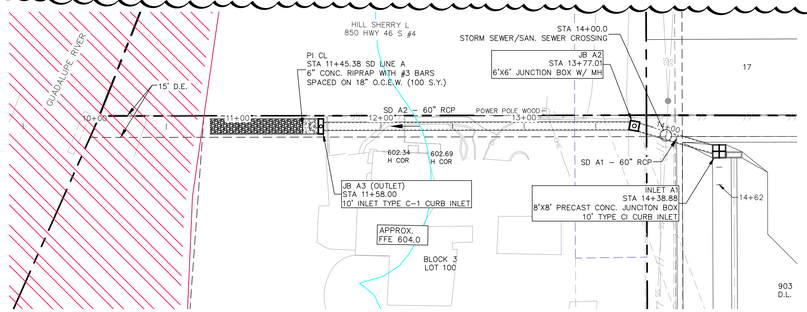
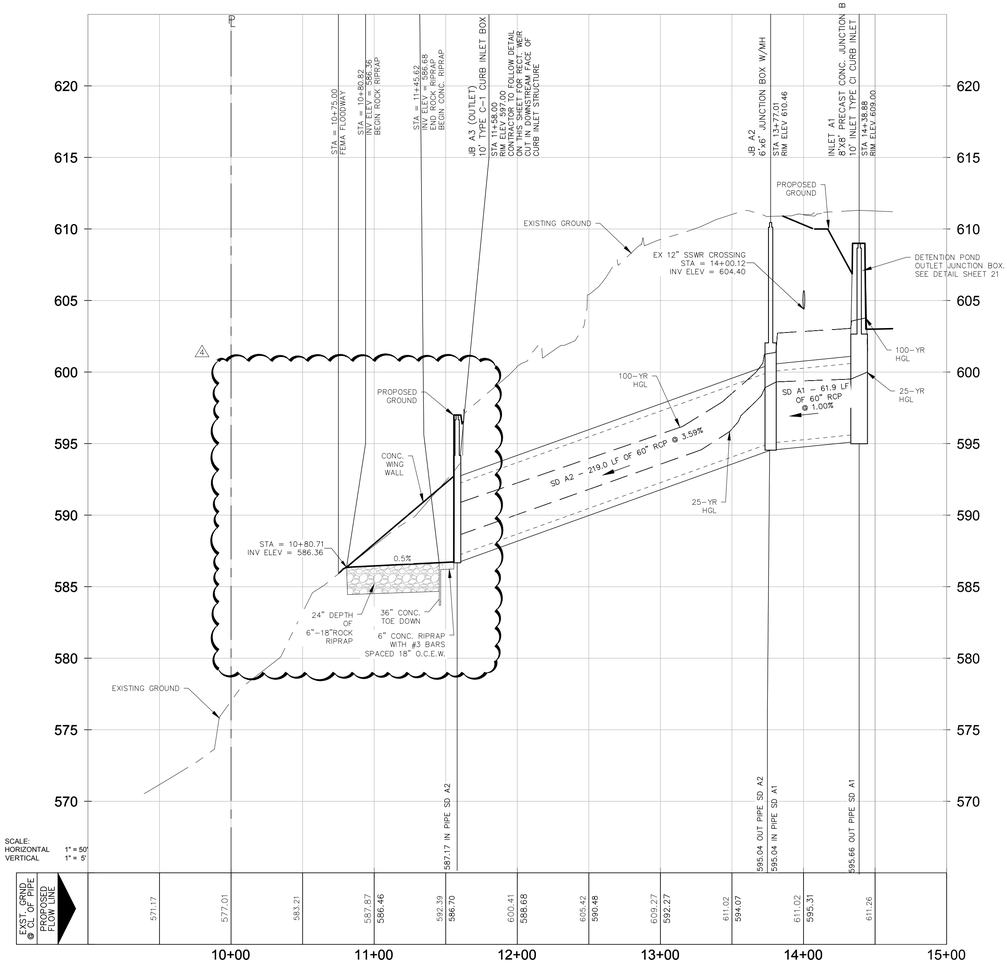
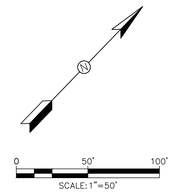


STORM DRAIN LINE A





LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER SERVICE
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT
- REGULATORY FLOODWAY (FEMA ZONA
- FLOODPLAIN (FEMA ZONE A)

ALL RCP TO BE CLASS IV RCP AND IS RATED FOR DIRECT TRAFFIC LOADING

STORM DRAIN AND CULVERT MAINTENANCE

- INSPECT INLETS, JUNCTION STRUCTURES, OUTLETS AND CHANNELS THROUGH PERIODIC INSPECTION BUT NO LESS THAN EVERY 6 MONTHS TO CLEAR STRUCTURES OF OBSTRUCTIONS, DEBRIS AND STRUCTURAL INTEGRITY.

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

STORM DRAIN LINE A

SHEET 24 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9–28–2023	UPDATED PER CONB COMMENTS
2	11–17–2023	UPDATED PER CONB COMMENTS
3	1–15–2024	UPDATED PER CONB COMMENTS
4	2–1–2024	UPDATED PER CONB COMMENTS
5	2–14–2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830–358–7127 ink–civil.com
TBPE FIRM F–13351

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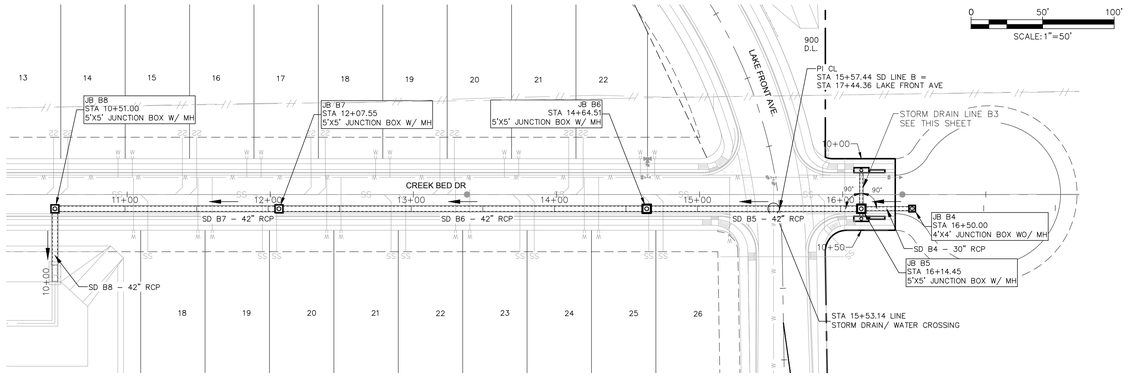
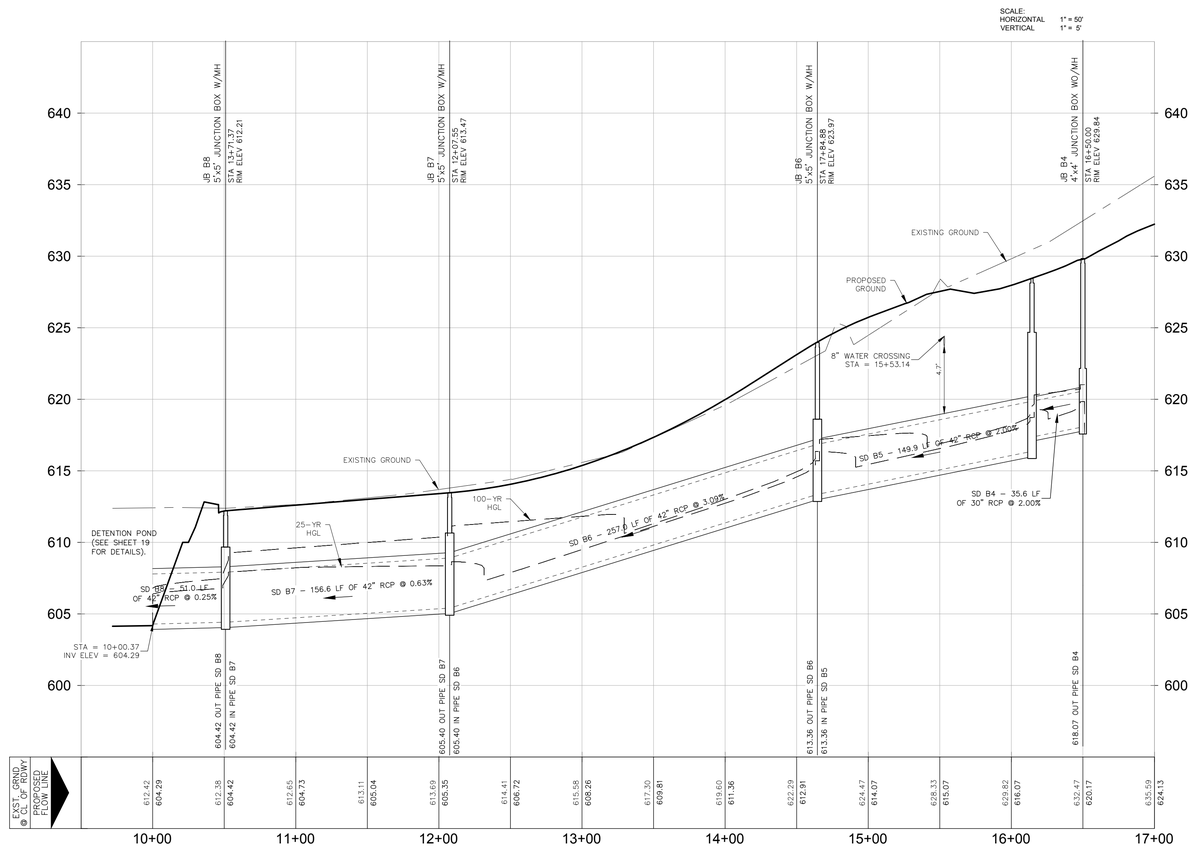
Drawing Name: N:\Projects\#48900 Harris Tract\Civil\Construction Drawings\24 STORM DRAIN LINE A.dwg User: chadhespenheide Feb 14, 2024 - 12:57pm

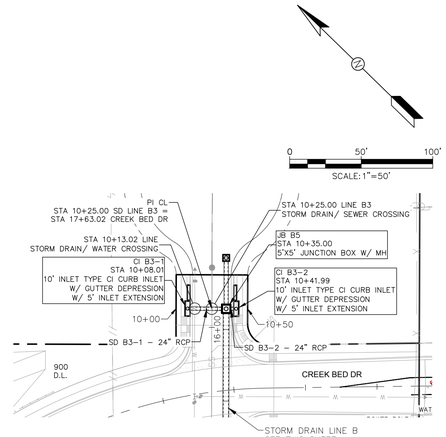
STORM DRAIN B 25-YR					
NAME	V (ft/s)	UPSTREAM 25-YR HGL	GROUND ELEV	DIFF	25-YR HGL 2' Below Gutter?
PIPE B8	5.97				
JB B8		607.68	612.21	4.53	✓
PIPE B7	8.53				
JB B7		608.45	613.47	5.02	✓
PIPE B6	15.36				
JB B6		615.72	623.97	8.25	✓
PIPE B5	13.05				
JB B5		618.68	628.46	9.78	✓
PIPE B4	11.8				
JB B4		620.44	629.79	9.35	✓
PIPE B3-1	6.49				
PIPE B3-2	11.11				
CB B3-1		622.3	628.92	6.62	✓
CB B3-2		622.3	628.92	6.62	✓

STORM DRAIN B 100-YR					
NAME	V (ft/s)	UPSTREAM 100-YR HGL	GROUND ELEV	DIFF	Below Ground?
PIPE B8	8.92				
JB B8		609.13	612.21	3.08	✓
PIPE B7	8.92				
JB B7		611.03	613.47	2.44	✓
PIPE B6	18.24				
JB B6		616.75	623.97	7.22	✓
PIPE B5	15.38				
JB B5		619.99	628.46	8.47	✓
PIPE B4	14.5				
JB B4		621.61	629.79	8.18	✓
PIPE B3-1	7.86				
PIPE B3-2	12.9				
CB B3-1		622.65	628.92	6.27	✓
CB B3-2		622.6	628.92	6.32	✓

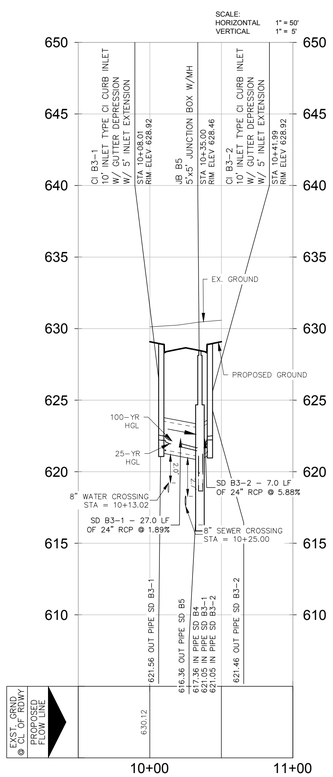


STORM DRAIN LINE B





STORM DRAIN LINE B3



LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER SERVICE
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT

ALL RCP TO BE CLASS IV RCP AND IS RATED FOR DIRECT TRAFFIC LOADING

STORM DRAIN AND CULVERT MAINTENANCE

- INSPECT INLETS, JUNCTION STRUCTURES, OUTLETS AND CHANNELS THROUGH PERIODIC INSPECTION BUT NO LESS THAN EVERY 6 MONTHS TO CLEAR STRUCTURES OF OBSTRUCTIONS, DEBRIS AND STRUCTURAL INTEGRITY.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

STORM DRAIN LINES B AND B3

SHEET 25 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
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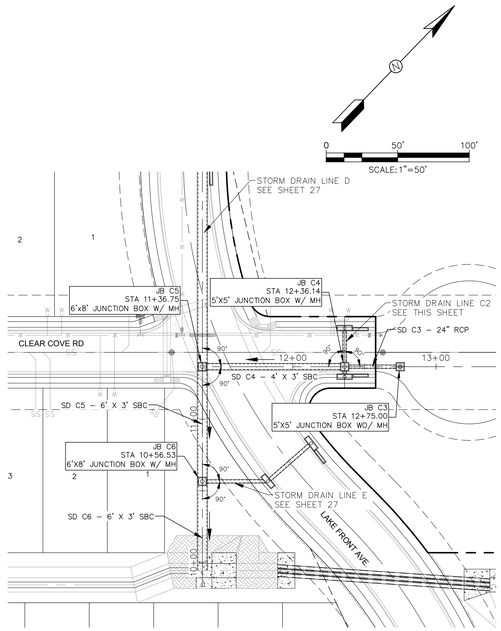
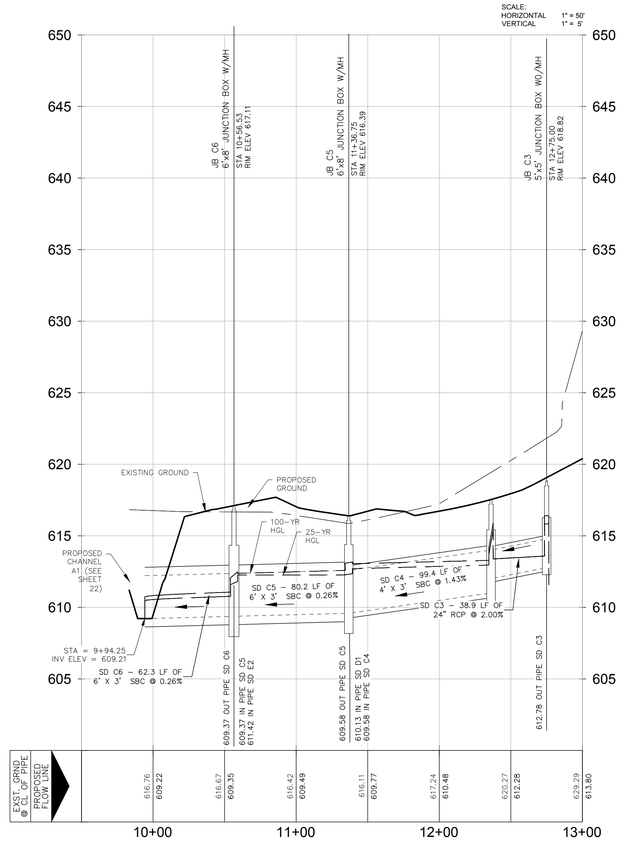
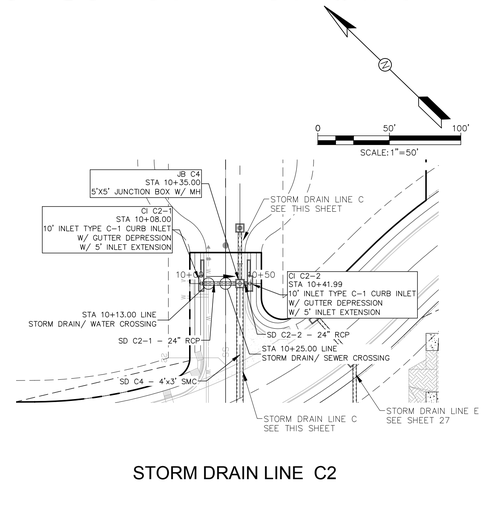
STORM DRAIN C 25-YR					
NAME	V (ft/s)	UPSTREAM 25-YR HGL	GROUND ELEV	DIFF	25-YR HGL 2' Below Gutter?
PIPE C6	5.64				
JB C6		611.80	617.11	5.31	✓
PIPE C5	5.52				
JB C5		612.35	616.4	4.05	✓
PIPE C4	9.69				
JB C4		613.85	617.53	3.68	✓
PIPE C3	9.6				
JB C3		614.44	618.82	4.38	✓
PIPE C2-1	8.09				
PIPE C2-2	4.1				
CB C2-1		614.49	618.00	3.51	✓
CB C2-2		614.45	618.01	3.56	✓

STORM DRAIN C 100-YR					
NAME	V (ft/s)	UPSTREAM 100-YR HGL	GROUND ELEV	DIFF	Below Ground?
PIPE C6	6.15				
JB C6		612.47	617.11	4.64	✓
PIPE C5	3.09				
JB C5		613.16	616.4	3.24	✓
PIPE C4	10.46				
JB C4		614.16	617.53	3.37	✓
PIPE C3	10.64				
JB C3		614.63	618.82	4.19	✓
PIPE C2-1	9.09				
PIPE C2-2	3.68				
CB C2-1		614.54	618.00	3.46	✓
CB C2-2		614.49	618.01	3.52	✓

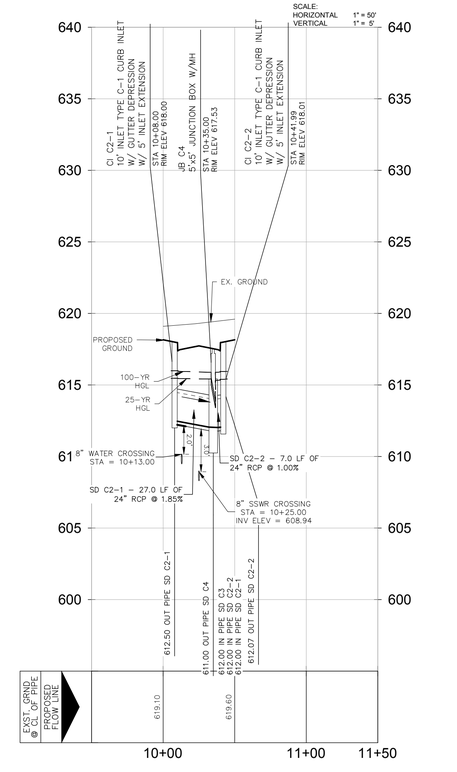


STORM DRAIN LINE C





STORM DRAIN LINE C2



LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER SERVICE
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT

ALL RCP TO BE CLASS IV RCP AND IS RATED FOR DIRECT TRAFFIC LOADING

STORM DRAIN AND CULVERT MAINTENANCE

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STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

STORM DRAIN LINES C AND C2

SHEET 26 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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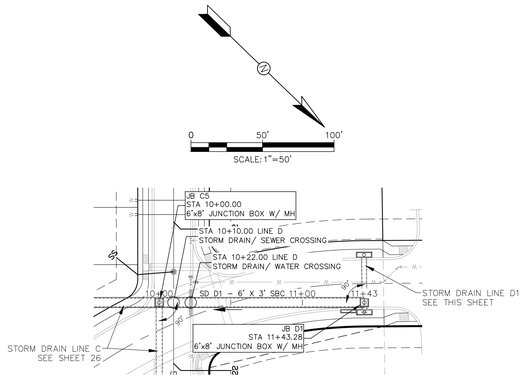
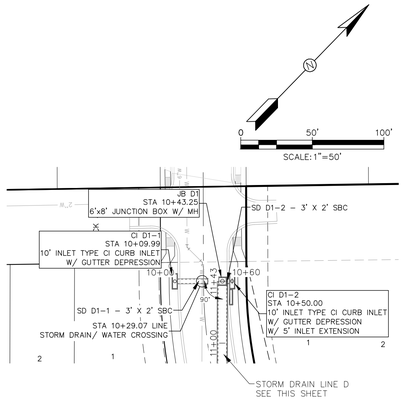
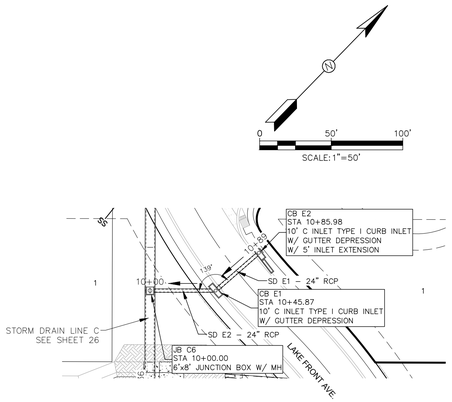


STORM DRAIN LINE D



STORM DRAIN LINE D1



STORM DRAIN LINE E

LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER SERVICE
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT

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STORM DRAIN AND CULVERT MAINTENANCE

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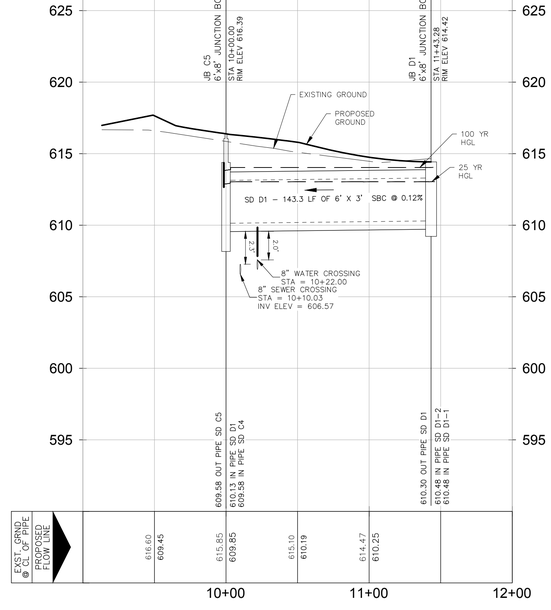
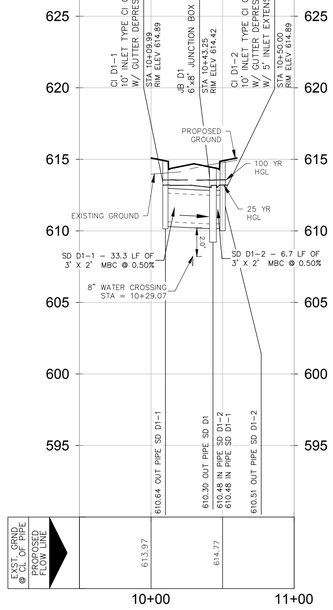
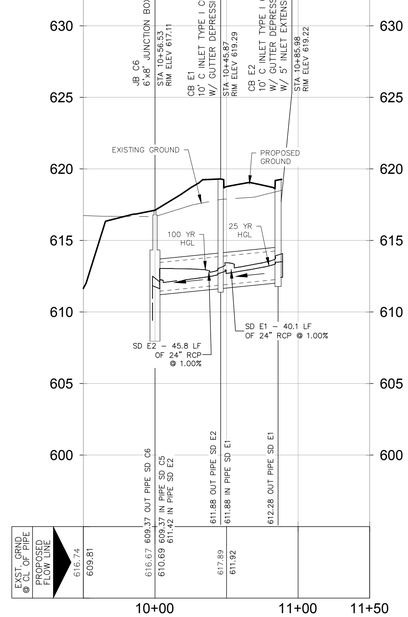


STORM DRAIN D 25-YR					
NAME	V (ft/s)	UPSTREAM 25-YR HGL	GROUND ELEV	DIFF	25-YR HGL 2' Below Gutter?
PIPE D1	4.19				
JB D1		614.42	614.42	0.00	✓
PIPE D1-1	5.73				
CB D1-1		614.89	614.89	0.00	✓
PIPE D1-2	5.7				
CB D1-2		614.89	614.89	0.00	✓



STORM DRAIN D 100-YR					
NAME	V (ft/s)	UPSTREAM 100-YR HGL	GROUND ELEV	DIFF	Below Ground?
PIPE D1	0.74				
JB D1		613.32	614.42	1.10	✓
PIPE D1-1	1.54				
CB D1-1		613.33	614.89	1.56	✓
PIPE D1-2	0.69				
CB D1-2		613.32	614.89	1.57	✓



STORM DRAIN E 25-YR					
NAME	V (ft/s)	UPSTREAM 25-YR HGL	GROUND ELEV	DIFF	25-YR HGL 2' Below Gutter?
PIPE E2	5.49				
CB E2		613.48	619.29	5.81	✓
PIPE E1	7.04				
CB E1		612.79	619.22	6.43	✓

STORM DRAIN E 100-YR					
NAME	V (ft/s)	UPSTREAM 100-YR HGL	GROUND ELEV	DIFF	Below Ground?
PIPE E2	6.66				
CB E2		614.05	619.29	5.24	✓
PIPE E1	8.19				
CB E1		613.21	619.22	6.01	✓

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

STORM DRAIN LINES
D, E, AND D1

SHEET 27 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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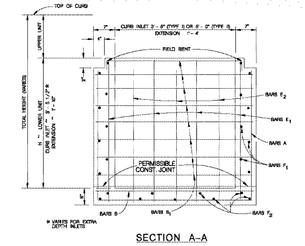
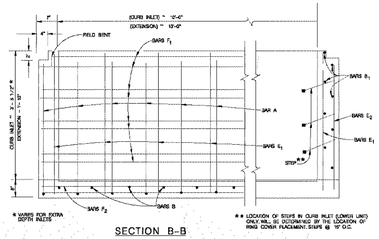


* VARIES FOR EXTRA DEPTH INLETS

SECTION A–A



* VARIES FOR EXTRA DEPTH INLETS

** LOCATION OF STEPS IN CURB INLET (LOWER UNIT) ONLY WILL BE DETERMINED BY THE LOCATION OF RING COVER PLACEMENT. STEPS @ 15" O.C.

SECTION B–B

REINFORCING STEEL

LOWER UNIT 10'X 3'– 8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-8"
B_1	VARIES	#4	12"	4'-8"
B_2	20	#4	16"±	VARIES
C_2	6	#4	16"±	VARIES
F_1	VARIES	#4	12"±	10'-10"
F_2	9	#4	----	10'-10"

LOWER UNIT 10'X 5'– 0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'-8"
B_1	VARIES	#4	12"	5'-10"
C_1	22	#4	16"±	VARIES
C_2	9	#4	16"±	VARIES
F_1	VARIES	#4	12"±	10'-10"
F_2	11	#4	----	10'-10"

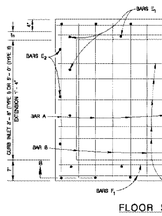
GENERAL NOTES

1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (S–C).
2. TYPE C–9 INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN-LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL GAPS INTERCEPTING MAIN CLR. RING & COVER SHALL BE CUT OR BEAT.
12. PAYMENT FOR ALL EXCAVATION, BACK-FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STATE SEALS, SHALL BE INCLUDED IN THE UNIT COST OF ITEM 465 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BENT.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SIZE OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

PHASE CONSTRUCTION

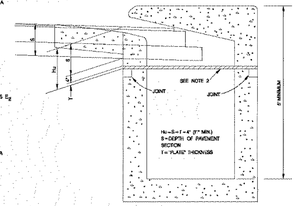
NOTES FOR PHASE CONSTRUCTION, WHEN DIRECTED BY THE ENGINEER:

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "H1" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE, APPROVED BY THE ENGINEER, AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND /OR EXTENSION.

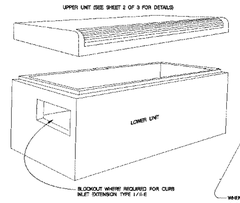


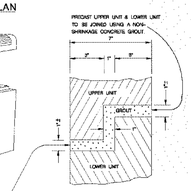
FLOOR STEEL

WALL STEEL



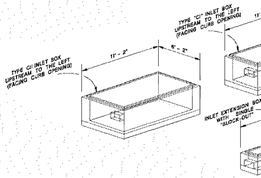
PLAN

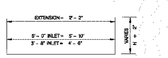




JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.





BARS A
(LOWER UNIT)

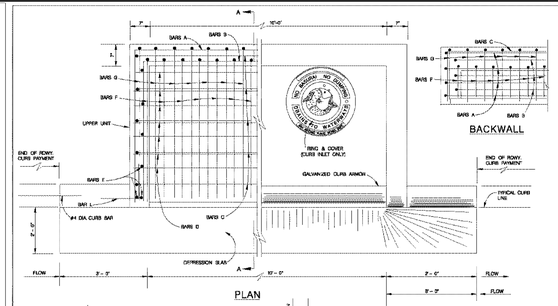
CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

MAY 2009

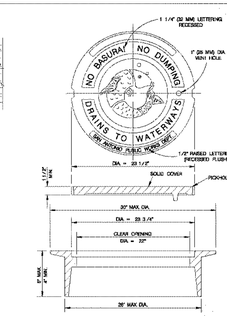
CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3

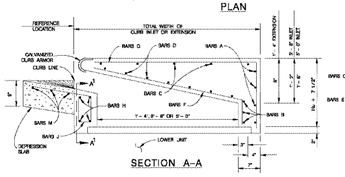
__ SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DESIGN BY: L.E. MALTOS, P.E.	CHKD. BY: B.S. HOSSEIN, P.E.	SHEET NO.: __ OF __



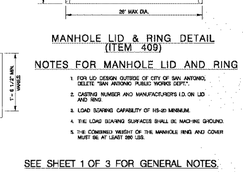
PLAN



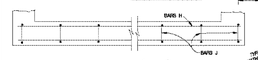
BACKWALL



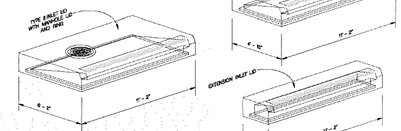
SECTION A–A



END WALL



SECTION A^1 – A^1



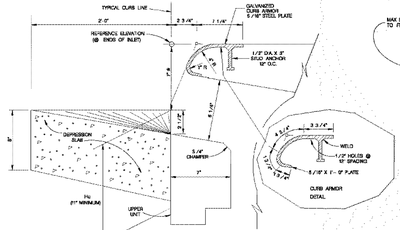
CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)

MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, SELECT "SAN ANTONIO PUBLIC WORKS DEPT."
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD RATING CAPABILITY OF 115–20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 280 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES



INLET OPENING DETAIL

REINFORCING STEEL (FOR Hu = 11")

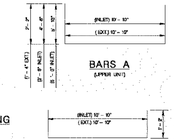
UPPER UNIT 10'X 3'–8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	10'-10"	58
B	3	#4	----	10'-10"	50
C	3	#4	11"	13'-2"	44
D	7	#4	8"	10'-10"	51
E	5	#4	11"	1'-1"	3
F	21	#5	6"	4'-8"	147
G	22	#5	5"	5'-8"	187
H	4	#4	----	10'-10"	29
J	12	#4	12"	2'-0"	25
L	4	#4	----	2'-0"	5
M	2	#4	----	14'-8"	20
TOTAL WEIGHT					620 LBS.

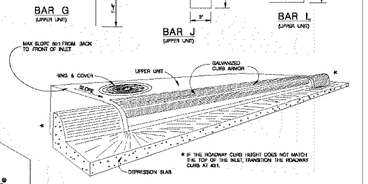
UPPER UNIT 10'X 5'–0" (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	12'-0"	65
B	3	#4	----	12'-0"	43
C	3	#4	11"	13'-2"	62
D	11	#4	8"	10'-10"	80
E	15	#4	11"	1'-1"	13
F	21	#5	6"	4'-8"	147
G	22	#5	5"	7'-0"	231
H	4	#4	----	10'-10"	29
J	12	#4	12"	2'-0"	25
L	4	#4	----	2'-0"	5
M	2	#4	----	14'-8"	20
TOTAL WEIGHT					799 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'–8" CURB INLET	1.9
10' X 5'–0" CURB INLET	2.7
10' EXTENSION	1.0



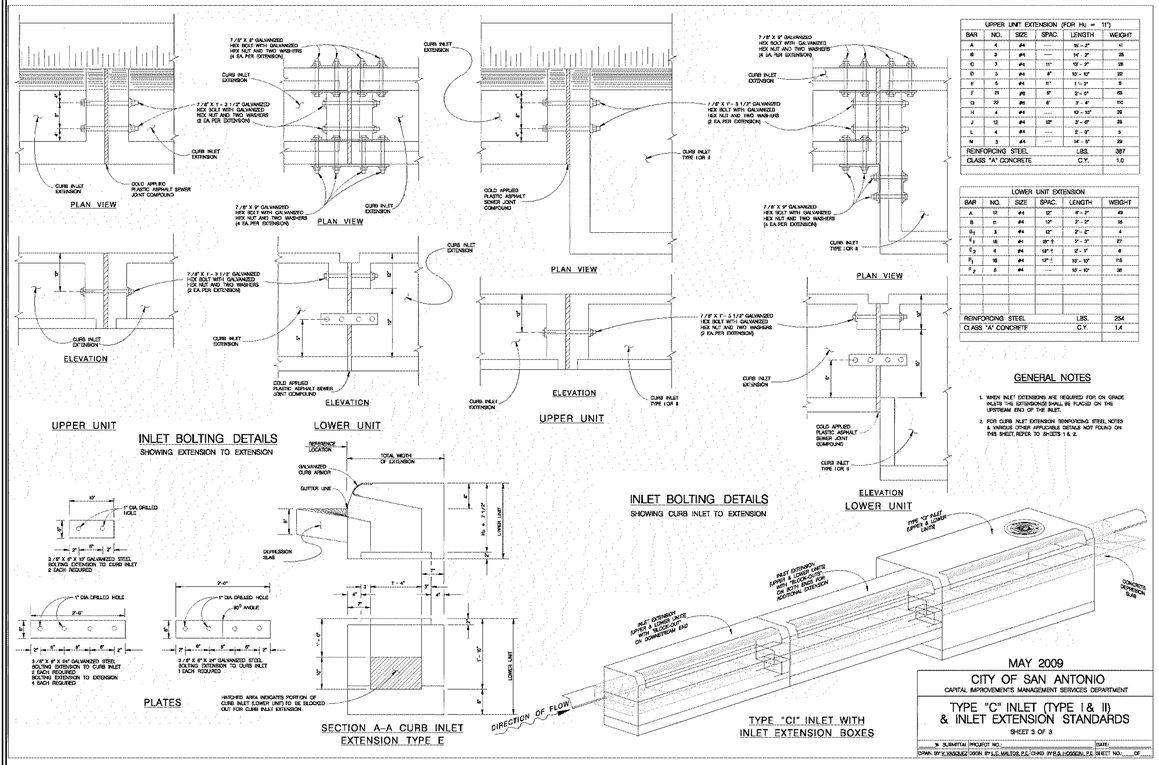


MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 2 OF 3

__ SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DESIGN BY: L.E. MALTOS, P.E.	CHKD. BY: B.S. HOSSEIN, P.E.	SHEET NO.: __ OF __



INLET BOLTING DETAILS
SHOWING EXTENSION TO EXTENSION

PLATES

SECTION A–A CURB INLET EXTENSION TYPE E

INLET BOLTING DETAILS
SHOWING CURB INLET TO EXTENSION

TYPE "CI" INLET WITH INLET EXTENSION BOXES

UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	----	10'–2"	41
B	3	#4	----	14'–2"	35
C	3	#4	11"	13'–2"	39
D	3	#4	8"	10'–10"	22
E	5	#4	11"	1'–1"	3
F	21	#5	6"	2'–2"	68
G	22	#5	6"	3'–4"	110
H	4	#4	----	10'–10"	29
J	12	#4	12"	2'–0"	25
L	4	#4	----	2'–0"	5
M	1	#4	----	14'–5"	29
REINFORCING STEEL				LBS.	397
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	9'–2"	49
B	10	#4	12"	2'–2"	18
B_1	3	#4	12"	2'–2"	4
F_1	18	#4	9" ±	2'–2"	27
F_2	4	#4	12" ±	2'–2"	6
F_1	18	#4	12" ±	10'–10"	115
F_2	5	#4	----	10'–10"	36
REINFORCING STEEL				LBS.	254
CLASS "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSIONS SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

DRAINAGE DETAILS I

SHEET 28 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9–28–2023	UPDATED PER COSA COMMENTS
2	11–17–2023	UPDATED PER COSA COMMENTS
3	1–15–2024	UPDATED PER COSA COMMENTS
4	2–1–2024	UPDATED PER COSA COMMENTS
5	2–14–2024	UPDATED PAVEMENT SECTIONS PER COSA COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830–358–7127 ink–civil.com
TBPE FIRM F–13351

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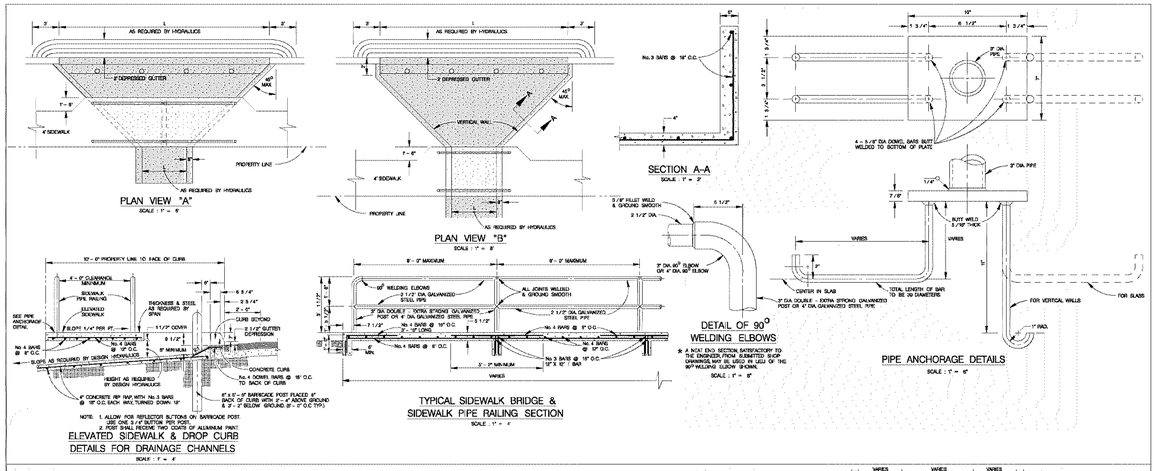
Drawing Name: N:\Projects\468000 Harris Tract\Civil\Construction Drawings\31 DRAINAGE DETAILS IV.dwg User: rhoffmannhahn Feb 14, 2024 – 12:58pm



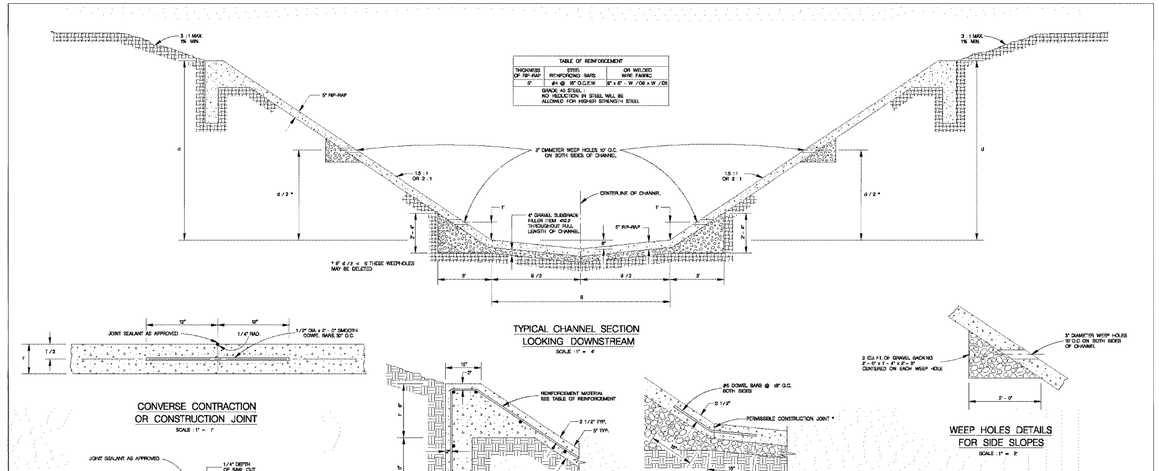
JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

ELEVATED SIDEWALK & RETARD STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:

SHEET NO. ___ OF ___



GENERAL NOTES

1. CONCRETE FOR CHANNEL RIP-RAP SHALL BE CLASS "A" 3000 P.S.I.
2. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS UNLESS OTH-ERWISE SHOWN.
3. ALL REINFORCEMENT STEEL SHALL MEET ASTM DESIGNATIONS AS CALLED FOR IN THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION."
4. NEW RIP-RAP SHOULD BE ATTACHED TO EXISTING RIP-RAP BY NO. 4 BARS DOWELED 9" INTO EXISTING RIP-RAP. THESE BARS ARE TO BE SPACED 18" O.C. AND HAVE A LENGTH OF 18".

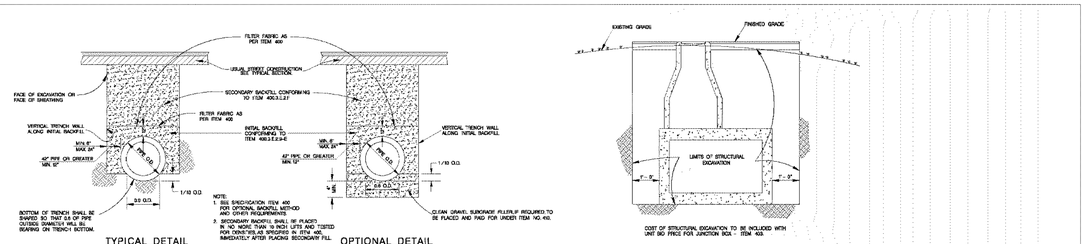
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:

SHEET NO. ___ OF ___



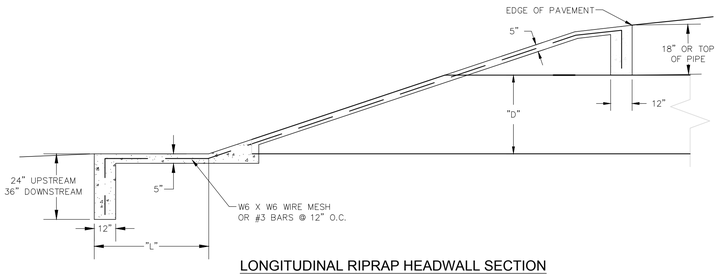
MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY:	DSGN. BY:	CHKD. BY:

SHEET NO. ___ OF ___



CONCRETE NOTES:

1. ALL CONCRETE SHALL BE CLASS "A" (3000 PSI).
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. ALL REINFORCING SHALL HAVE A MINIMUM COVER OF 2 INCHES.
4. UNLESS OTHERWISE NOTED, ALL BARS SHALL BE CENTERED WITHIN CONCRETE THICKNESS.
5. NON-SHRINKING GROUT OR APPROVED EPOXY SHALL BE USED WITH DOWEL BARS. IN LIEU OF DRILLING AND ROUTING, DOWELS MAY BE PLACED WITH FIRST STRUCTURE OR APRON CONSTRUCTED.

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

DRAINAGE DETAILS II

SHEET 29 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-26-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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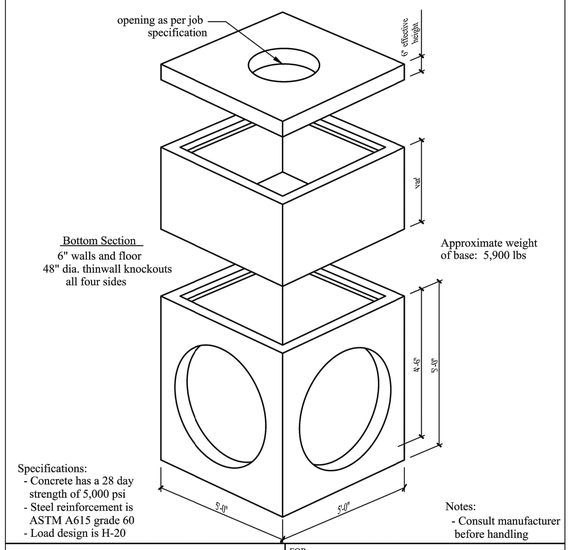
Drawing Name: N:\Projects\VA08001 Harris Tract\Civil\Construction Drawings\ST DRAINAGE DETAILS IV.dwg User: dhoffmeisterhahn Feb 14, 2024 - 12:58pm

4' x 4' x var Junction Box



Bottom Section
6" walls and floor
48" dia. thinwall knockouts
all four sides

Approximate weight of base: 5,900 lbs

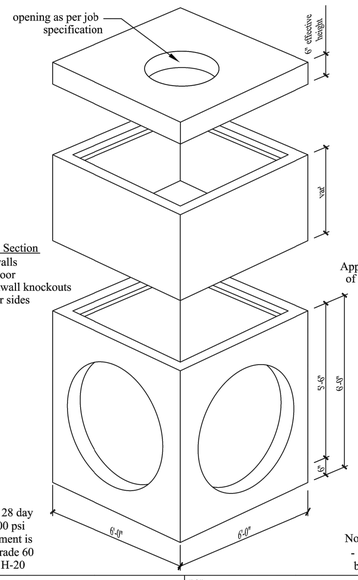
Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling

CAPITAL PRECAST, INC.
6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 4' x 4' x var Junction Box
JOB
DRAWN RW | DATE 12/1/2015 | Rev. No. | SHEET 1 OF 1
FILE catalog\junction boxes\4x4JB

5' x 5' x var Junction Box



Bottom Section
6" walls
6" floor
60" dia. thinwall knockouts
all four sides

Approximate weight of base: 8,000 lbs

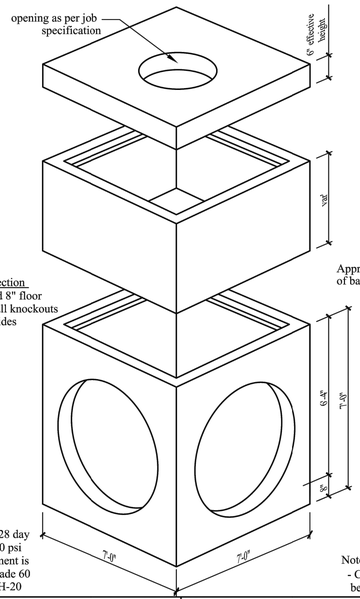
Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling

CAPITAL PRECAST, INC.
6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 5' x 5' x var Junction Box
JOB
DRAWN RW | DATE 12/1/2015 | Rev. No. | SHEET 1 OF 1
FILE catalog\junction boxes\5x5JB

6' x 6' x var Junction Box



Bottom Section
6" walls and 8" floor
72" dia. thinwall knockouts
all four sides

Approximate weight of base: 11,200 lbs

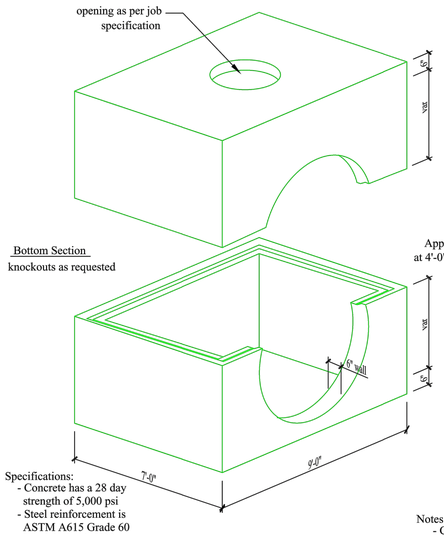
Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling

CAPITAL PRECAST, INC.
6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 6' x 6' x var Junction Box
JOB
DRAWN RW | DATE 12/1/2015 | Rev. No. | SHEET 1 OF 1
FILE catalog\junction boxes\6x6JB

6' x 8' x var Junction Box



Bottom Section
knockouts as requested

Approximate weight at 4'-0" height: 13,725 lbs

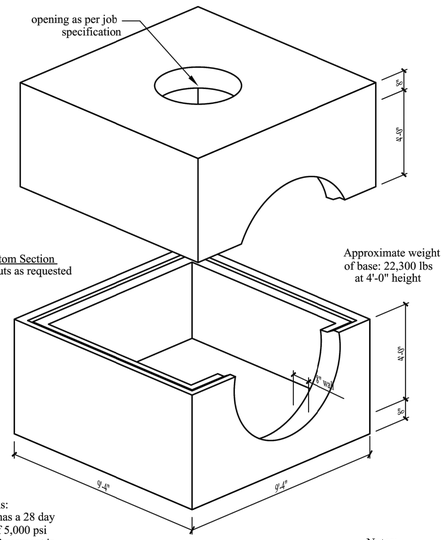
Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 Grade 60
- Load design is H20

Notes:
- Consult manufacturer before handling

CAPITAL PRECAST, INC.
6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 6' x 8' x var Junction Box
JOB
DRAWN EJ | DATE 10/07/2016 | Rev. No. | SHEET 1 OF 1
FILE catalog\junction boxes\6x8JB

8' x 8' x var Junction Box



Bottom Section
knockouts as requested

Approximate weight of base: 22,300 lbs at 4'-0" height

Specifications:
- Concrete has a 28 day strength of 5,000 psi
- Steel reinforcement is ASTM A615 grade 60
- Load design is H-20

Notes:
- Consult manufacturer before handling

CAPITAL PRECAST, INC.
6905 SOUTH OLD BASTROP HWY
SAN MARCOS, TEXAS 78666
PH. (830) 606-6200

FOR 8' x 8' x var Junction Box
JOB
DRAWN RW | DATE 12/1/2015 | Rev. No. | SHEET 1 OF 1
FILE catalog\junction boxes\8x8JB

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

DRAINAGE DETAILS III

SHEET 30 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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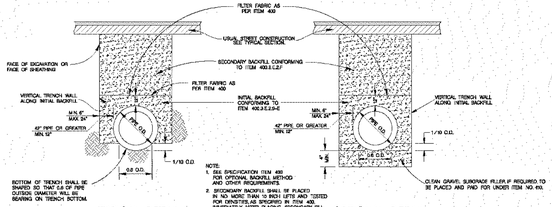
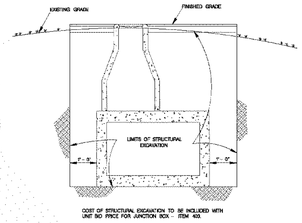


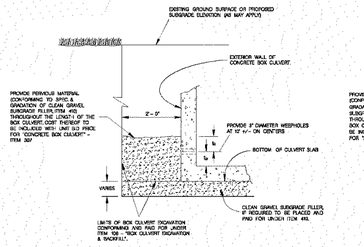
TYPICAL DETAIL OPTIONAL DETAIL

PIPE BEDDING & BACKFILL DETAILS

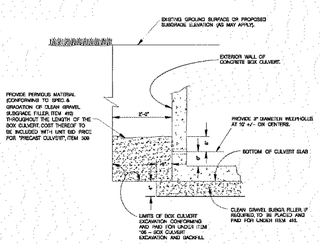


COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR JUNCTION BOX - ITEM 403.

STRUCTURAL EXCAVATION AT JUNCTION BOXES
NO SCALE

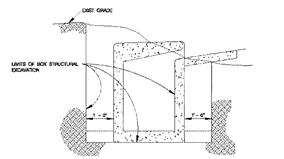


CAST-IN-PLACE BOX CULVERT

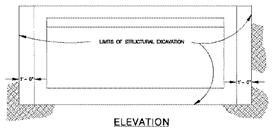


PRECAST BOX CULVERT

CONCRETE BOX CULVERT



SIDE VIEW



ELEVATION

COST OF STRUCTURAL EXCAVATION TO BE INCLUDED WITH UNIT BID PRICE FOR INLETS - ITEM 403.

STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS
NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

N. SUBMITTAL PROJECT NO. DATE
DRWN. BY CKD'A BY CHKD. BY SHEET NO. OF

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

DRAINAGE DETAILS IV

SHEET 31 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER COSA COMMENTS
2	11-17-2023	UPDATED PER COSA COMMENTS
3	1-15-2024	UPDATED PER COSA COMMENTS
4	2-1-2024	UPDATED PER COSA COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER COSA COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
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Drawing Name: N:\Projects\HA18001 Harris Tract\Civil\Construction Drawings\31 DRAINAGE DETAILS IV.dwg User: chadhespenheide Feb 14, 2024 - 12:59pm

GENERAL SPECIFICATIONS FOR SITE PREPARATION

GENERAL DESCRIPTION
THIS ITEM SHALL CONSIST OF ALL CLEARING AND PREPARATION OF LAND TOO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

SCARIFYING THE AREA TO BE FILLED
ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL MATERIAL
IS TO BE PLACED, AND SURFACE SHALL BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"). ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING.

COMPACTING THE AREA TO BE FILLED
FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE THD-TEX-113-E COMPACTION PROCEDURE. ALL AREAS EXCEEDING (6") SIX INCHES IN DEPTH, MUST MEET WITH FHA/HUD HANDBOOK 4140.30 SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G.

FILL MATERIALS
THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

DEPTH AND MIXING OF FILL LAYERS
THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THE STIPULATED ABOVE.
EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF THE DEMONSTRATED CAPABILITY.

ROCK
WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED.

COMPACTION OF FILL LAYER
COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

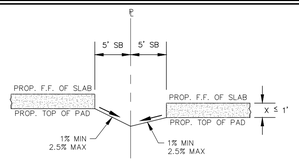
COMPACTION OF SLOPES
THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACE MAY BE DONE PROGRESSIVELY IN INCREMENTS OF THREE TO FIVE FEET (3' TO 5') IN FILL HEIGHT AS THIS FILL PROGRESSES OR AFTER THE FILL HAS BEEN BROUGHT TO ITS TOTAL HEIGHT.

DENSITY TEST
FIELD DENSITY TESTS SHALL BE PERFORMED ON ALL LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE TWELVE INCHES (12"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. NOTIFICATION BY THE CONTRACTOR TO CONDUCT TESTS SHALL BE AT LEAST THE DAY BEFORE. THIS NOTIFICATION SHALL INCLUDE THE FILL AREA LOCATION (LOT AND BLOCK), THE LIFT OR HEIGHT OF FILL AND APPROXIMATE DESIRED TIME OF TESTING. WHEN THESE TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR PORTION THEREOF IS BELOW THE REQUIRED DENSITY, THE PARTICULAR LAYER OR PORTION SHALL BE REWORKED AND RETESTED AT THE EXPENSE OF THE CONTRACTOR UNLESS THE CONTRACTOR CAN SHOW EVIDENCE THAT CIRCUMSTANCES BEYOND HIS CONTROL REQUIRED THE RETESTING. GENERALLY, THE SPECIFIC TESTING WILL BE AS FOLLOWS AND CONDUCTED BY A GEOTECHNICAL ENGINEER OR STAFF.

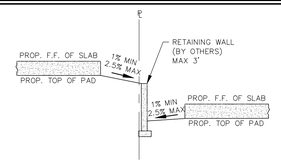
1. THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT A FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2. THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8-12 IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3. FILL AREAS SHALL BE TESTED AT A MAXIMUM OF EACH TWELVE INCHES (12") OF FILL.
4. TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL TEST RESULTS.

CUT/FILL LOTS
AREAS INVOLVING CUT ON THE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6 IN., AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.

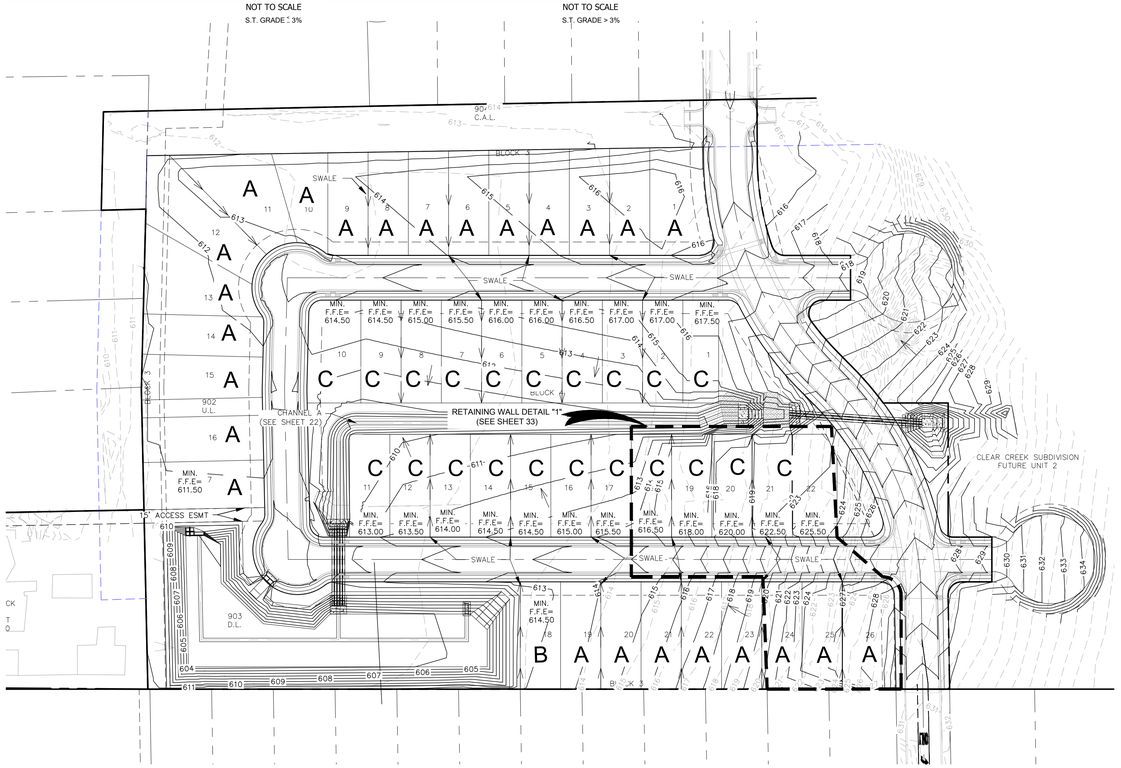
HUD 79-G
HUD 79-G REQUIREMENT FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79-G COMPACTION TESTING. IN ADDITION, CONTRACTOR MUST RETAIN A GEOTECHNICAL ENGINEER TO PROVIDE VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79-G. AFTER SITE GRADING IS COMPLETED, CONTRACTOR TO RETAIN GEOTECHNICAL ENGINEER TO PROVIDE THE OWNER A 79-G LETTER.

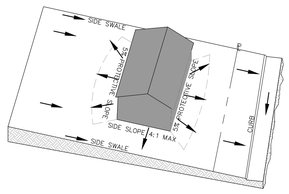


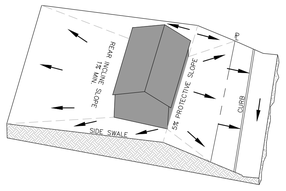
TYPICAL SIDE LOT GRADING DETAIL
NOT TO SCALE
S.T. GRADE ≤ 3%

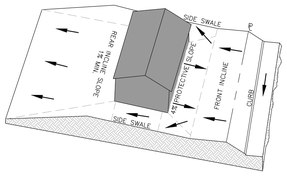


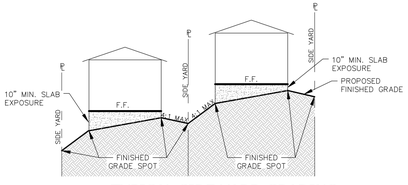
NON TYPICAL SIDE LOT GRADING DETAIL
NOT TO SCALE
S.T. GRADE > 3%











TYPICAL SIDE YARD GRADING
NOT TO SCALE

TYPE A LOT GRADING
NOT TO SCALE

TYPE B LOT GRADING
NOT TO SCALE

TYPE C LOT GRADING
NOT TO SCALE

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR
CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

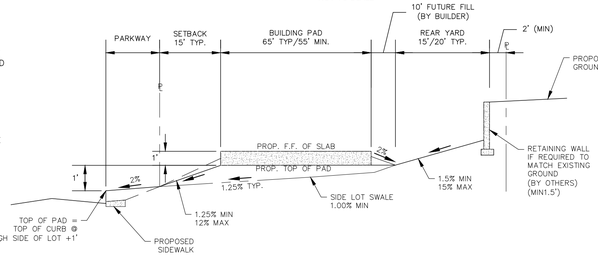
TELEPHONE LOCATOR
THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

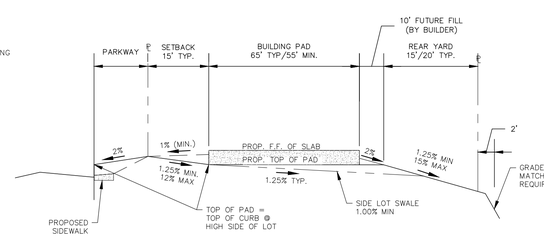
THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

GRADING NOTES:

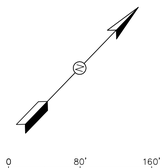
1. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC.12.2(N).
2. GRADING SHOWN ON THIS GRADING PLAN IS FOR MASS GRADING PURPOSES ONLY. FINAL GRADING AROUND HOMES, SETTING FINISHED FLOOR ELEVATIONS, ETC. WILL BE DONE AS PART OF EACH BUILDING PERMIT PROCESSED FOR THE INDIVIDUAL HOMES.
3. IN ALL FILL AREAS, LOOSE OR ORGANIC MATTER SHALL BE STRIPPED AND REMOVED FROM THE SITE UPON WHICH THE FILL IS TO BE PLACED AND THE AREA SHALL BE BROUGHT TO THE PROPER GRADE GRADE WITH ADEQUATE MOISTURE CONTENT AND COMPACTED TO NOT LESS THAN 90% DENSITY.
4. CONTRACTOR TO INSURE THAT ALL LOTS FILLED WILL HAVE POSITIVE DRAINAGE TO PREVENT ANY PONDING OF WATER AND PROVIDE A MINIMUM FINAL GRADE OF 1.2% WITHIN THE LOT.
5. CONTRACTOR TO CONTACT OWNER PRIOR TO ANY LOT FILLING TO DETERMINE IF TREES WITHIN THE FILL AREA CAN BE SAVED.
6. ALL LARGE ROCKS 10" OR LARGER SHALL BE KEPT OUT OF THE FILL SITE UNLESS INSTRUCTED BY THE OWNER TO PLACE SUCH ROCKS ON THE SITE.
7. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FOR ALL GRADING WITHIN LIMITS OF PROJECT.
8. FINISHED FLOOR ELEVATION FOR HOMES WILL BE A MINIMUM OF 12" ABOVE THE TOP OF CURB FRONTING THE LOT, AND ON C LOTS' DRIVEWAY SWALE FLOWLINE WILL BE A MINIMUM OF 6" BELOW THE FINISHED FLOOR OF THE HOUSE.



NON TYPICAL "A" LOT GRADING DETAIL
NOT TO SCALE



NON TYPICAL "C" LOT GRADING DETAIL
NOT TO SCALE



LEGEND

- PROPOSED CONTOUR (900)
- EXISTING CONTOUR (900)
- DRAINAGE FLOW ARROW
- GRADE BREAK/SWALE
- SWALE

Project Control Points

Point #	Raw Description	Elevation	Northing	Easting
1	CP MAG	611.93	13800057.6500	2256494.0800
2	CP MAG	613.02	13800266.7400	2256697.8900
3	CP IPSC	614.13	13800525.5000	2256968.8800
10	CP MAG	630.95	13800177.3290	2257655.6480
11	CP MAG	640.03	13800373.5850	2257871.0930
50	CP 60D	643.66	13800469.8320	2257779.9810

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

GRADING PLAN

SHEET 32 OF 49

NO	DATE	ISSUES AND REVISIONS
7	9-28-2023	UPDATED PER CONB COMMENTS
6	11-17-2023	UPDATED PER CONB COMMENTS
5	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
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Drawing Name: N:\Projects\HARROD1 Harris Tract\Civil\Construction Drawings\33 GRADING PLAN.dwg User: chaffenbahm Feb 14, 2024 - 12:59pm

GENERAL SPECIFICATIONS FOR SITE PREPARATION

GENERAL DESCRIPTION
THIS ITEM SHALL CONSIST OF ALL CLEARING AND PREPARATION OF LAND TOO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

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FILL MATERIALS
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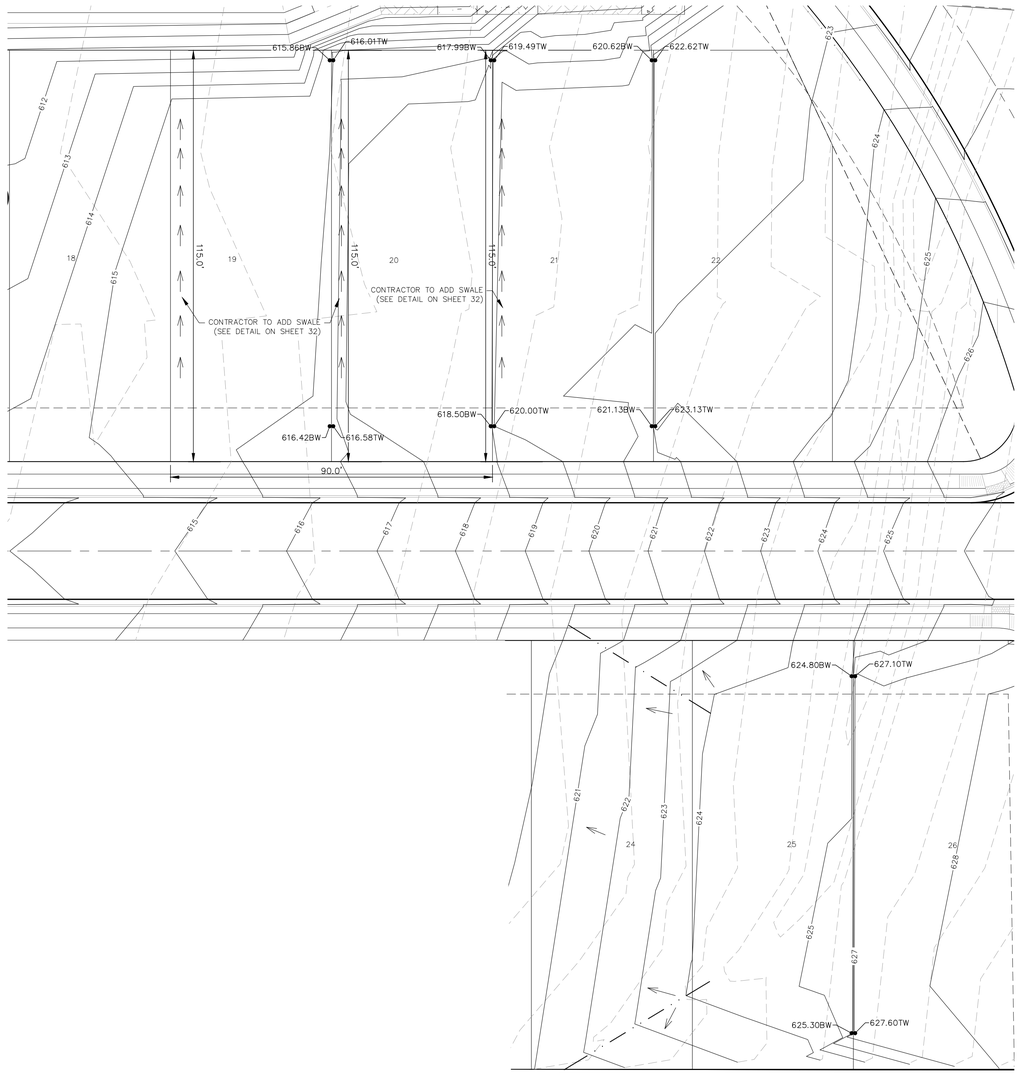
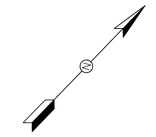


RETAINING WALL GRADING DETAIL "1"
SCALE: 1" = 30

NOTE:

SEE NON TYPICAL "C" LOT GRADING DETAIL SHEET 32



SCALE: 1"=20'

LEGEND

- PROPOSED CONTOUR
- EXISTING CONTOUR
- DRAINAGE FLOW ARROW
- GRADE BREAK/SWALE
- SWALE

02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

GRADING DETAIL I

SHEET 33 OF 49

NO	DATE	ISSUES AND REVISIONS
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PH: 830-358-7127 ink-civil.com
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Drawing Name: N:\Projects\VA08001 Harris Tract\Civil\Construction Drawings\34 RETAINING WALL DETAILS.dwg User: chadrielgeohorn Feb 14, 2024 - 12:59pm

GENERAL NOTES:

1. THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE AS ADOPTED AND AMENDED BY THE CITY OF SAN ANTONIO.
2. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREIN AS CORRECT, AND OBLIGATES HIMSELF TO ANY AND ALL EXPENSES, REAL OR IMPLIED ARISING FROM SUCH ACCEPTANCE. THE CONTRACTOR SHALL MAINTAIN THESE DRAWINGS AT A CURRENT STATUS, INCLUDING ALL ADDENDA AND REVISIONS.
3. EXPANSION JOINTS IN WALLS AND FOOTINGS SHALL BE PROVIDED SO THAT NO LENGTH OF WALL IS GREATER THAN 100 FEET BETWEEN EXPANSION JOINTS. EXPANSION JOINTS OCCUR AT ALL "T" INTERSECTIONS. REFER TO DETAILS 4/S1.1 AND 6/S1.1.

CONCRETE/REINFORCING NOTES:

1. CONCRETE SHALL BE LABORATORY DESIGNED TO DEVELOP A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI FOR DRILLED PIERS. USE OF FLY ASH WILL BE PERMITTED UP 20% CEMENT REPLACEMENT BY WEIGHT.
2. CONCRETE MIX DESIGN SHALL MEET THE FOLLOWING REQUIREMENTS:

-CEMENT TYPE:	ASTM C150, TYPE I (5 SACKS MIN. FOR 3000 PSI
-FLY ASH:	ASTM C618, TYPE C OR F
-AGGREGATES:	ASTM C33
-SLUMP LIMITS:	NO LESS THAN 3", NOT MORE THAN 5"

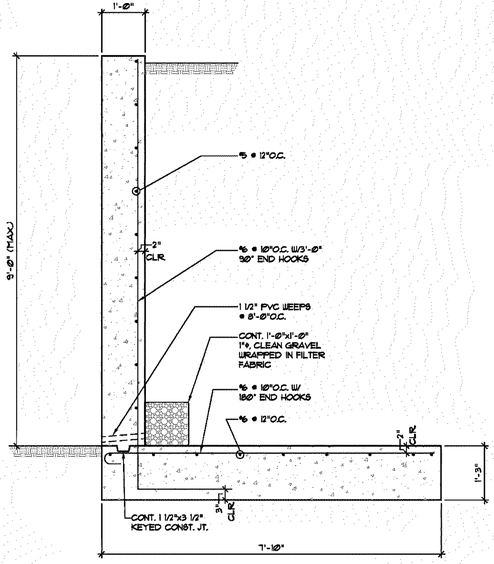
   GENERAL CONTRACTOR SHALL SUBMIT WRITTEN REPORT FOR THE PROPOSED MIX DESIGN AT LEAST 14 WORK DAYS PRIOR TO START OF CONCRETE WORK.
3. GENERAL CONTRACTOR IS TO EMPLOY A TESTING LABORATORY TO PERFORM SAMPLING TESTING DURING CONCRETE PLACEMENT AS FOLLOWS:

-AGGREGATES:	ASTM, C33, ONE TEST THE FIRST DAY
-COMPRESSIVE STRENGTH:	ASTM C39, ONE SET OF 5 CYLINDERS, FOR EACH 150 CUBIC YARDS OF CONCRETE. TWO CYLINDERS TESTED AT 7 DAYS, TWO TESTS AT 28 DAYS, REMAINING ONE TO BE TESTED AT 56 DAYS IF NECESSARY.
-SLUMP:	ASTM C143, AT LEAST TWO TEST SHALL BE MADE RANDOMLY DURING EACH DAY OF PLACEMENT.

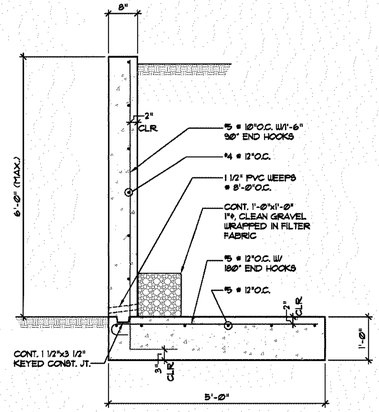
4. REINFORCING STEEL SHALL BE FROM DOMESTIC, NEW BILLET AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615. ALL REINFORCING STEEL SHALL BE GRADE 60.
5. ALL ITEMS EMBEDDED IN CONCRETE MUST BE TIED AND SECURED PRIOR TO PLACEMENT OF CONCRETE.
6. MECHANICAL VIBRATOR, HAND RODDING AND TAMPING MUST BE USED TO CONSOLIDATE CONCRETE AND TO INSURE THAT CONCRETE IS WORKED AROUND REINFORCEMENT, OTHER EMBEDDED ITEMS AND INTO FORMS.
7. ABSOLUTELY NO WELDING OF REINFORCEMENT BARS OR TORCHING TO BEND REINFORCEMENT BARS SHALL BE ALLOWED WITHOUT THE SPECIFIC APPROVAL OF THE STRUCTURAL ENGINEER.
8. DETAILING OF REINFORCEMENT BARS AND ACCESSORIES SHALL BE IN ACCORDANCE WITH LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI 315). BAR SPLICES SHALL BE A LENGTH EQUAL TO A MINIMUM OF 55 BAR DIAMETERS.
9. LOCATIONS OF CONSTRUCTION JOINTS IN MONOLITHIC CONCRETE SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

SHOP DRAWINGS AND FIELD VISITS

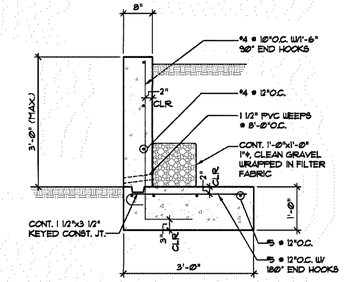
1. THE STRUCTURAL ENGINEER OF RECORD WILL REVIEW SHOP DRAWINGS FOR THE LIMITED PURPOSE OF CHECKING FOR GENERAL CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT STRUCTURAL DOCUMENTS. SUBMITTALS REQUIRED FOR THIS PROJECT INCLUDE, REINFORCING AND CONCRETE MIX DESIGNS.
2. THE STRUCTURAL ENGINEER-OF-RECORD SHALL REVIEW EACH SUBMITTAL AND RETURN THEM WITH ONE OF THE FOLLOWING STATEMENTS CHECKED OFF ON THE STAMP.
   A "NO EXCEPTIONS TAKEN" INFORMS THE CONTRACTOR THAT THE STRUCTURAL ENGINEER TAKES NO EXCEPTION TO THE SUBMITTAL BEING APPROVED AS PER AND IN ACCORDANCE WITH AIA DOCUMENT 201, SECTION 4.2.7.
   B "MAKE CORRECTIONS NOTED" INFORMS THE CONTRACTOR THAT THE STRUCTURAL ENGINEER HAS MADE CORRECTIONS OR COMMENTS ON THE SUBMITTALS BUT OTHERWISE TAKES NO EXCEPTION TO THE SUBMITTAL BEING APPROVED AS PER AND IN ACCORDANCE WITH AIA DOCUMENT 201, SECTION 4.2.7.
   C "REVISE AND RESUBMIT" INDICATES IMPORTANT ITEMS MUST BE CORRECTED AND RESUBMITTED. COMMENTS MADE ON THE SUBMITTAL MAY NOT NECESSARILY COVER ALL OF THE DEFECTS OF THE SUBMITTAL. THIS ACTION CONSTITUTES THE STRUCTURAL ENGINEER'S CONCERN AND HIS RECOMMENDATION TO THE CONTRACTOR THAT THE SUBMITTAL BE REVIEWED AND RESUBMITTED AS PER AND IN ACCORDANCE WITH AIA DOCUMENT 201, SECTION 4.2.7.
   D "RETURN ONE CORRECTED COPY FOR FILE" INFORMS THE CONTRACTOR THAT THE SUBMITTAL MAY BE APPROVED AS PER AIA DOCUMENT 201, SECTION 4.2.7, BUT A SINGLE CORRECTED COPY SHOWING THAT CORRECTIONS HAVE BEEN ACKNOWLEDGED MUST BE RETURNED FOR THE STRUCTURAL ENGINEER'S FILE.
3. STRUCTURAL ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY CONCRETE POUR OR OTHER ACTION THAT WILL COVER UP STRUCTURAL ELEMENTS THAT HAVE NOT BEEN OBSERVED BY AN AUTHORIZED REPRESENTATIVE OF THE OFFICE OF THE STRUCTURAL ENGINEER OF RECORD.
4. THE STRUCTURAL ENGINEER-OF-RECORD ("SER") WILL MAKE A SITE VISIT AT APPROPRIATE STAGES OF CONSTRUCTION AND AS DEFINED BY THE CONTRACT TO VISUALLY OBSERVE THE QUALITY AND THE PROGRESS OF THE CONSTRUCTION WORK RELATIVE TO THE PRIMARY STRUCTURAL SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE TO NOTIFY THE SER WHEN STRUCTURAL ELEMENTS ARE READY FOR REVIEW AND PRIOR TO THEIR BEING COVERED UP. FAILURE TO DO SO MAY RESULT IN KEY OBSERVATIONS NOT BEING MADE, PREVENTING THE ENGINEER FROM RECOMMENDING ACCEPTANCE OF THE WORK. A WRITTEN REPORT WILL BE MADE OF EACH VISIT DESCRIBING WHAT WAS OBSERVED AND LISTING DISCREPANCIES, IF ANY. IF A SUBSEQUENT VISIT IS NECESSARY IT WILL BE SO NOTED ON THE REPORT.
5. THE SER SHALL NOT HAVE CONTROL OVER OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK FOR THIS PART OF THE PROJECT. THESE ARE SOLELY THE CONTRACTOR'S RESPONSIBILITY UNDER THE CONTRACT FOR CONSTRUCTION. THE SER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S OR A SUBCONTRACTOR'S SCHEDULE OR FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE SER SHALL NOT HAVE CONTROL OVER OR CHARGE OF ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, THEIR AGENTS OR EMPLOYEES OR OTHER PERSONS PERFORMING PORTIONS OF THE WORK.



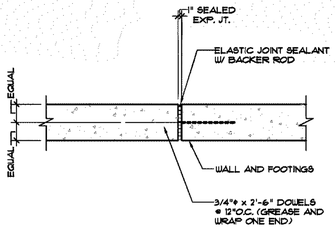
1 9'-0" MAX. RETAINAGE WALL
SCALE : 3/4" = 1'-0" 9FT



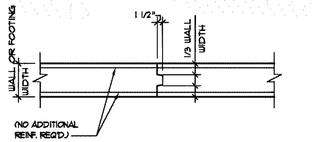
2 6'-0" MAX. RETAINAGE WALL
SCALE : 3/4" = 1'-0" 6FT



3 3'-0" MAX. RETAINAGE WALL
SCALE : 3/4" = 1'-0" 3FT

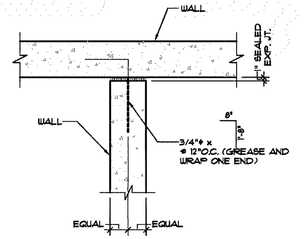


4 TYPICAL EXPANSION JOINT
N.T.S. 6EJ03



WALL & FOOTING

5 TYP. CONSTRUCTION JOINTS
SCALE : N.T.S. TCJ



6 EXP. JOINT @ "T" INTERSECTION
N.T.S. 6EJ03

AccuTech Consultants, LLC
STRUCTURAL & FORENSIC ENGINEERING
909 NORTHEAST LOOP 410, SUITE 900
SAN ANTONIO, TEXAS 78209
TEL: (210) 930-5355
FAX (210) 930-5460

INTERIM REVIEW
NOT FOR CONSTRUCTION
ENRIQUE MARTINEZ, P.E.
NO. 69866

CLEAR CREEK SUBDIVISION

SAN ANTONIO, TEXAS

REVISIONS:

FILE NAME:	INK003-S
DATE:	SEPT. 15, 2022
DRAWN BY:	MHG
CHECKED BY:	HM
SHEET NO:	S1.1

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

RETAINING WALL DETAILS

SHEET 34 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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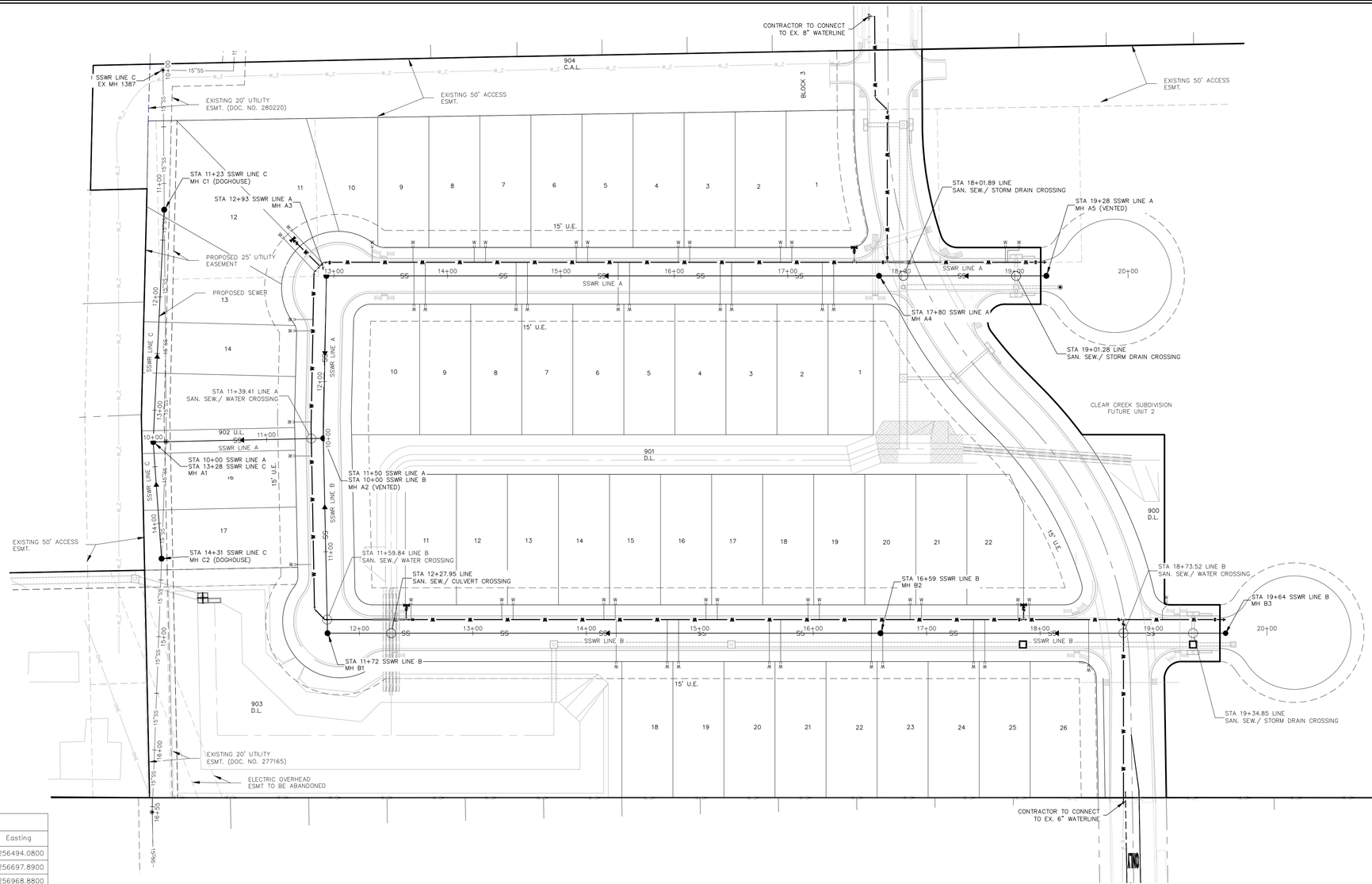
Drawing Name: N:\Projects\SA18001 Harris Tract\Civil\Construction Drawings\S4 RETAINING WALL DETAILS.dwg User: rhodrigueshahn Feb 14, 2024 - 12:59pm



0 50' 100'

SCALE: 1"=50'

LEGEND

- SS — NEW SANITARY SEWER
- OHE — EXISTING OVERHEAD ELECTRIC LINE
- NEW MANHOLE
- SS — NEW SEWER LATERAL
- W — W — NEW WATER SERVICE
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- 8"W — EX. 8" WATERMAIN
- 6"W — EX. 6" WATERMAIN
- 15"SS — EX. 15" SANITARY SEWER

Project Control Points				
Point #	Raw Description	Elevation	Northing	Easting
1	CP MAG	611.93	13800057.6500	2256494.0800
2	CP MAG	613.02	13800266.7400	2256697.8900
3	CP IPSC	614.13	13800525.5000	2256968.8800
10	CP MAG	630.95	13800177.3290	2257655.6480
11	CP MAG	640.03	13800373.5850	2257871.0930
50	CP 60D	643.66	13800469.8320	2257779.9810

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

CONSTRUCTION NOTES:

1. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
2. WHERE A 9' (NINE FOOT) SEPARATION FROM WATER AND SEWER LINES CROSSING CANNOT BE MAINTAINED, THE NEW WATER LINE SHALL BE ABOVE THE SEWER LINE AS SHOWN ON THE WATER/SEWER LINE CROSSING DETAIL. AT NO TIME SHALL A WATER LINE OR WATER SERVICE BE PLACED UNDER A SEWER LINE OR SEWER SERVICE.
3. WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.
4. ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.
5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.
7. CONTRACTOR TO COORDINATE WITH NBU IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.
8. ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO STREETS.
9. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
10. NO VALVES, FIRE HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
11. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
12. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

NOTE:

MINIMUM DEPTH OF COVER FOR THE UPPERMOST PROJECTION OF THE WATER PIPE AND ALL APPURTENANCES SHALL BE 42 INCHES. ADD CONCRETE CAP OR ENCASEMENT IF COVER IS LEES THAN 42 INCHES.

NOTE:

1. WASTEWATER LATERALS SHALL HAVE 2% SLOPE
2. NEW MANHOLES MUST BE CONSTRUCTED OF OR LINED WITH A CORROSION RESISTANT MATERIAL. WHERE NEW CONSTRUCTION CONNECTS TO AN EXISTING MANHOLE THAT IS NOT CONSTRUCTED OF A CORROSION RESISTANT MATERIAL, THE EXISTING MANHOLE MUST BE LINED WITH OR REPLACED WITH A CORROSION RESISTANT MATERIAL.
3. POINT OF DELIVERY IS DETERMINED BY NBU AND MAY NOT BE CLEANOUT. TYPICALLY, THIS IS PROPERTY LINE OR EASEMENT BOUNDARY. NBU IS RESPONSIBLE FOR FROM MAIN TO THE CLEANOUT OR PROPERTY LINE. CUSTOMER IS RESPONSIBLE FOR THE LINE FROM CLEANOUT / PROPERTY LINE TO PRIVATE PLUMBING, INCLUDING DESIGN, CONSTRUCTION, OPERATION, AND COMPLIANCE WITH CITY CODES.
4. WASTEWATER LATERALS SHALL BE INSTALLED WITH AT LEAST 36" OF COVER

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

OVERALL UTILITY PLAN

SHEET 35 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
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INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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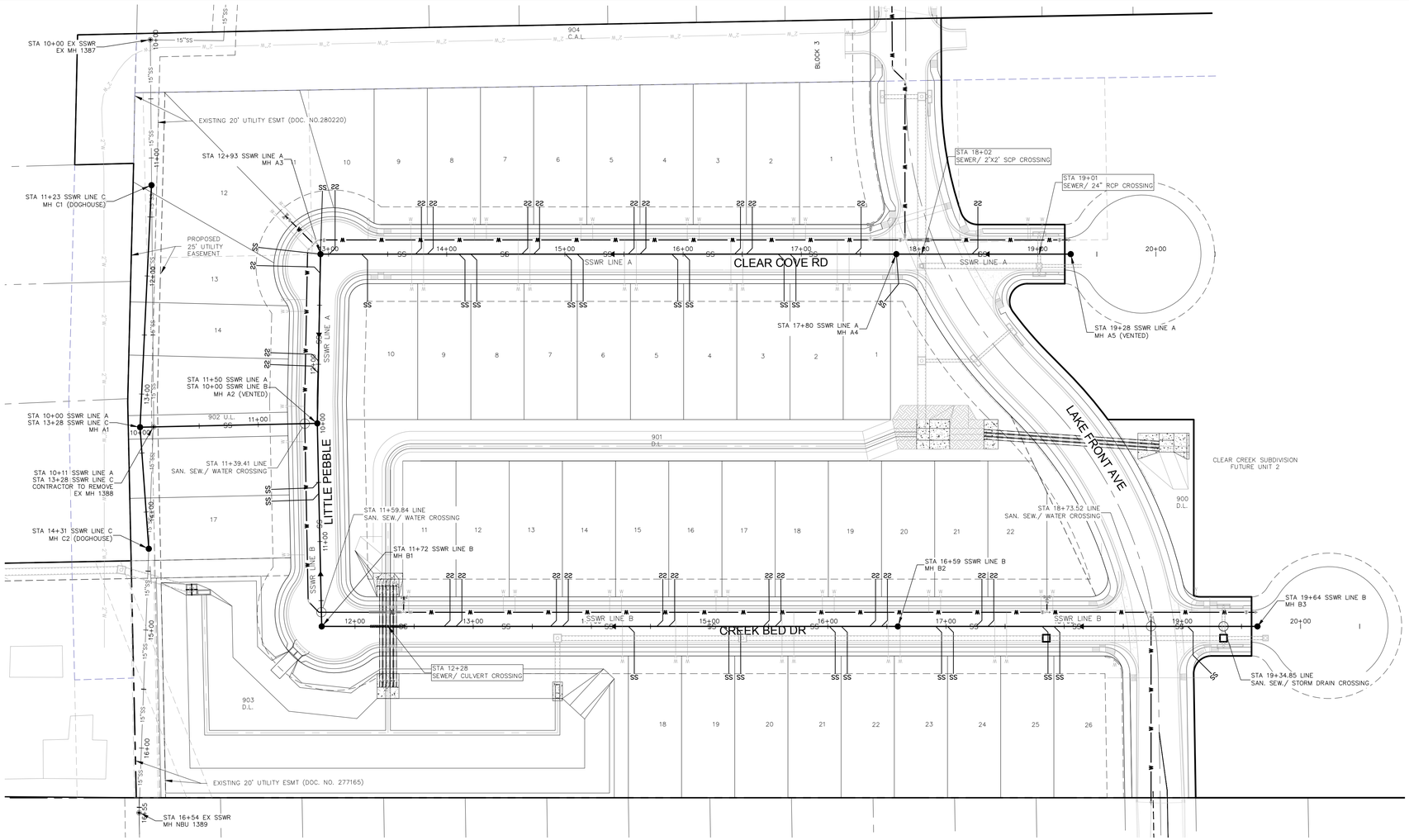

0 50' 100'

SCALE: 1"=50'

LEGEND

SS	NEW SANITARY SEWER
●	NEW MANHOLE
SS	NEW SEWER LATERAL
W W	NEW WATER MAIN
	NEW SINGLE METERED WATER SERVICE
	NEW FIRE HYDRANT
15"SS	EXISTING 15" SSWR LINE

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Centerpoint Gas	830-643-6434
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5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.
7. CONTRACTOR TO COORDINATE WITH NBU IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.
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9. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
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11. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
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NOTE:

1. WASTEWATER LATERALS SHALL HAVE 2% SLOPE
2. NEW MANHOLES MUST BE CONSTRUCTED OF OR LINED WITH A CORROSION RESISTANT MATERIAL. WHERE NEW CONSTRUCTION CONNECTS TO AN EXISTING MANHOLE THAT IS NOT CONSTRUCTED OF A CORROSION RESISTANT MATERIAL, THE EXISTING MANHOLE MUST BE LINED WITH OR REPLACED WITH A CORROSION RESISTANT MATERIAL.
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CLEAR CREEK SUBDIVISION – UNIT 1

ITEM	QTY.
SANITARY SEWER MAIN (8" PVC SDR-26)	452 LF
SANITARY SEWER MAIN (12" PVC SDR-26)	1440 LF
SANITARY SEWER MAIN (15" PVC SDR-26)	308 LF
SANITARY SEWER SERVICE	50 EA.
STANDARD MANHOLE	8 EA.
DOGHOUSE MANHOLE	2 EA

UNIT 1 Capacity - 8" Sewer Line Summary

	Flow (gpd)	Flow (gpm)	Velocity (ft/s)
8" Capacity (0.34%)	455,383	316.2	2.30
8" Average Dry Flow	10,290	7.1	0.83
8" Peak Dry Flow	41,160	28.6	1.25
8" Peak Wet Flow	51,804	36.0	1.34

UNIT 1 Capacity - 12" Sewer Line Summary

	Flow (gpd)	Flow (gpm)	Velocity (ft/s)
12" Capacity (0.20%)	1,029,743	715.1	2.31
12" Average Dry Flow	10,290	7.1	0.65
12" Peak Dry Flow	41,160	28.6	0.99
12" Peak Wet Flow	51,804	36.0	1.06

UNIT 1 Capacity - 15" Sewer Line Summary

	Flow (gpd)	Flow (gpm)	Velocity (ft/s)
15" Capacity (0.15%)	1,616,911	1,122.9	2.04
15" Average Dry Flow	10,290	7.1	0.57
15" Peak Dry Flow	41,160	28.6	0.87
15" Peak Wet Flow	51,804	36.0	0.93

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

OVERALL SANITARY SEWER PLAN

SHEET 36 OF 49

NO	DATE	ISSUES AND REVISIONS
2	9-28-2023	UPDATED PER CONB COMMENTS
1	11-17-2023	UPDATED PER CONB COMMENTS
1	1-15-2024	UPDATED PER CONB COMMENTS
3	2-1-2024	UPDATED PER CONB COMMENTS
4	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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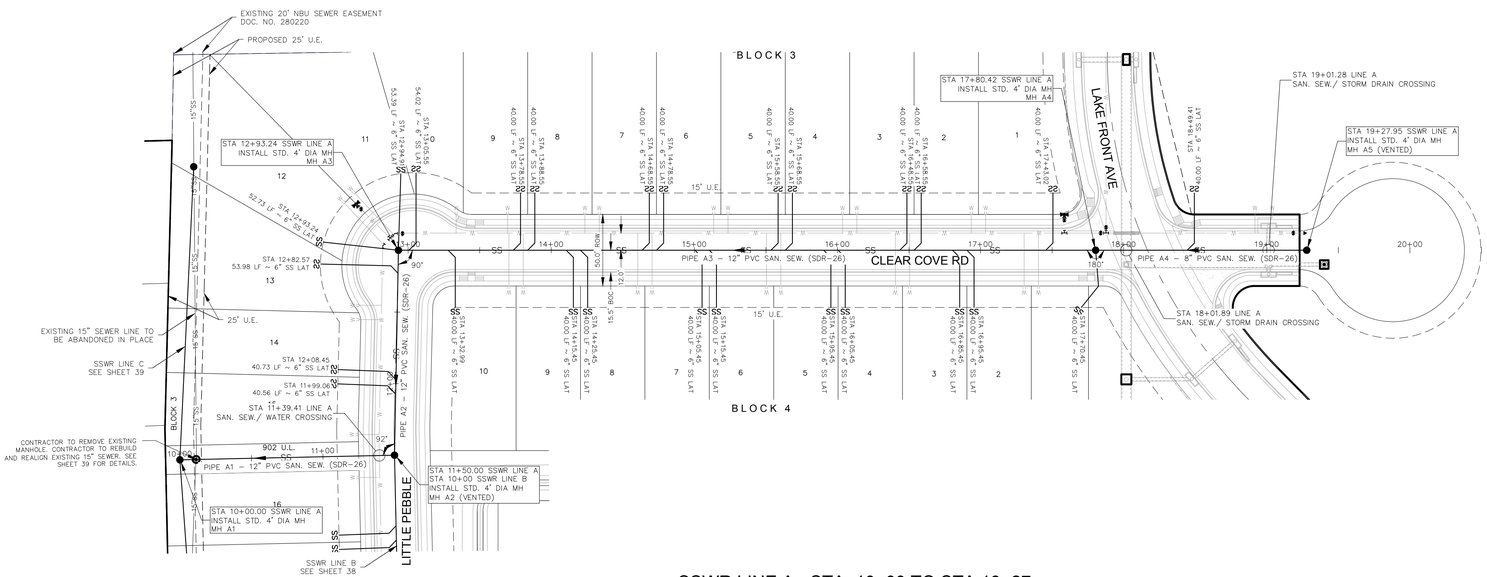
4. WASTEWATER LATERALS SHALL BE INSTALLED WITH AT LEAST 36" OF COVER

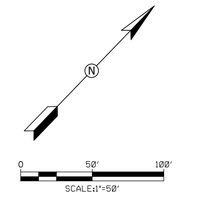
CONSTRUCTION NOTE:

CONTRACTOR TO CONSTRUCT LINE C PRIOR TO CONSTRUCTION OF SEWER LINE A. SEWER LINE A TO TIE INTO ESTABLISHED MANHOLE A1. 15" SEWER LINE CAN BE REMOVED AS NEEDED FOR SEWER LINE A CONSTRUCTION. CONTRACTOR TO MAINTAIN EXISTING SEWER SERVICE TO RESIDENTS.

Clear Creek Unit 1 - Sewer Line A Summary

Sanitary Sewer Line	Diameter (in)	Length (ft)	Slope$_{min}$ (%)	Peak Dry Weather Flow (gpd)	% Capacity	PDW Velocity (ft/s)	Peak Wet Weather Flow (gpd)	% Capacity	PWW Velocity (ft/s)
SSL A1	12	150	0.20	26,754	11.1%	0.87	44,033	14.1%	1.01
SSL A2	12	143	0.20	26,754	11.1%	0.87	44,033	14.1%	1.01
SSL A3	12	487	0.20	26,754	11.1%	0.87	44,033	14.1%	1.01
SSL A4	8	148	1.74	26,754	11.1%	1.95	44,033	14.1%	2.28



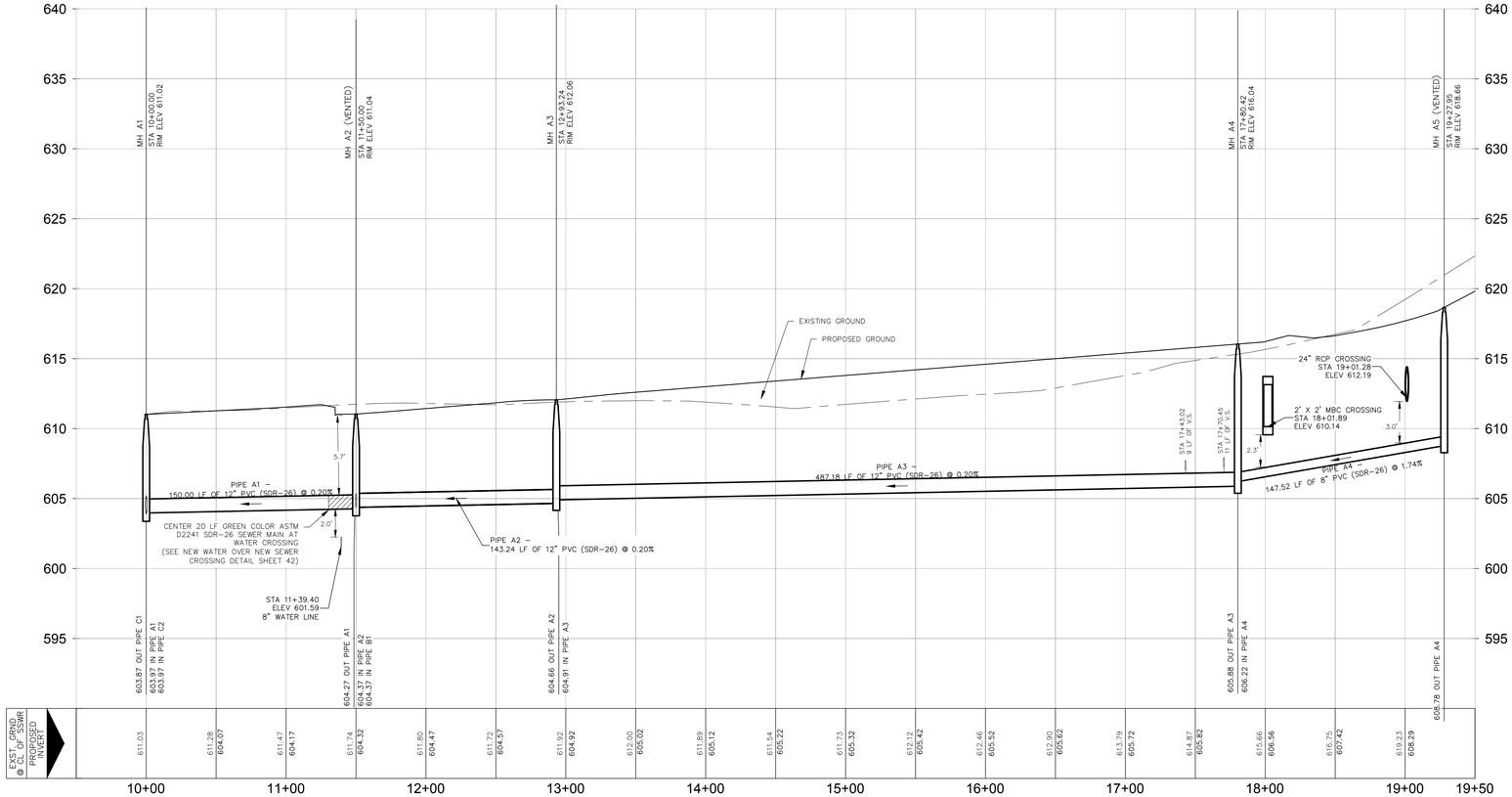


LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER MAIN
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING 15" SSWR LINE

SSWR LINE A - STA. 10+00 TO STA 19+27

SCALE:
HORIZONTAL 1" = 50'
VERTICAL 1" = 5'



02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
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CLEAR CREEK SUBDIVISION UNIT-1

SANITARY SEWER LINE A

SHEET 37 OF 49

NO	DATE	ISSUES AND REVISIONS
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INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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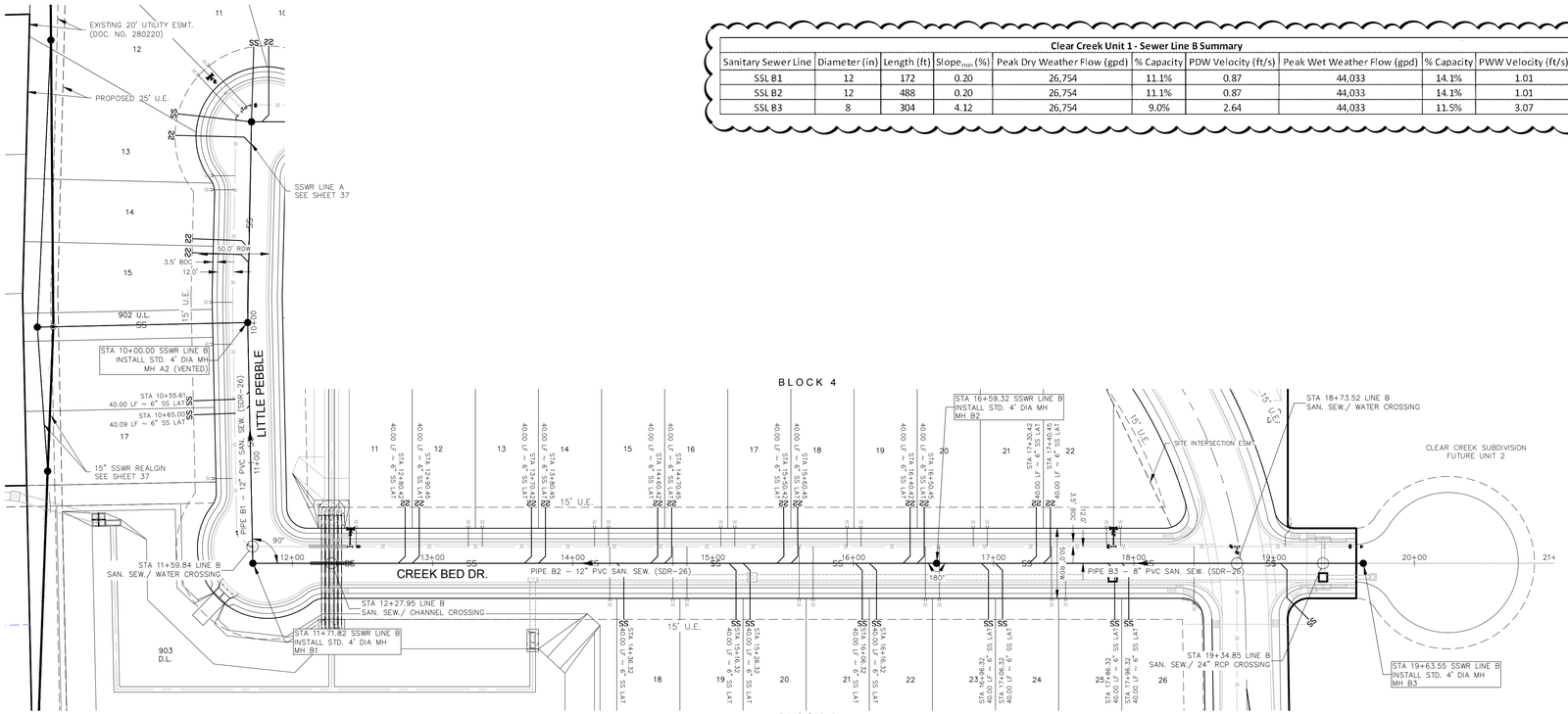
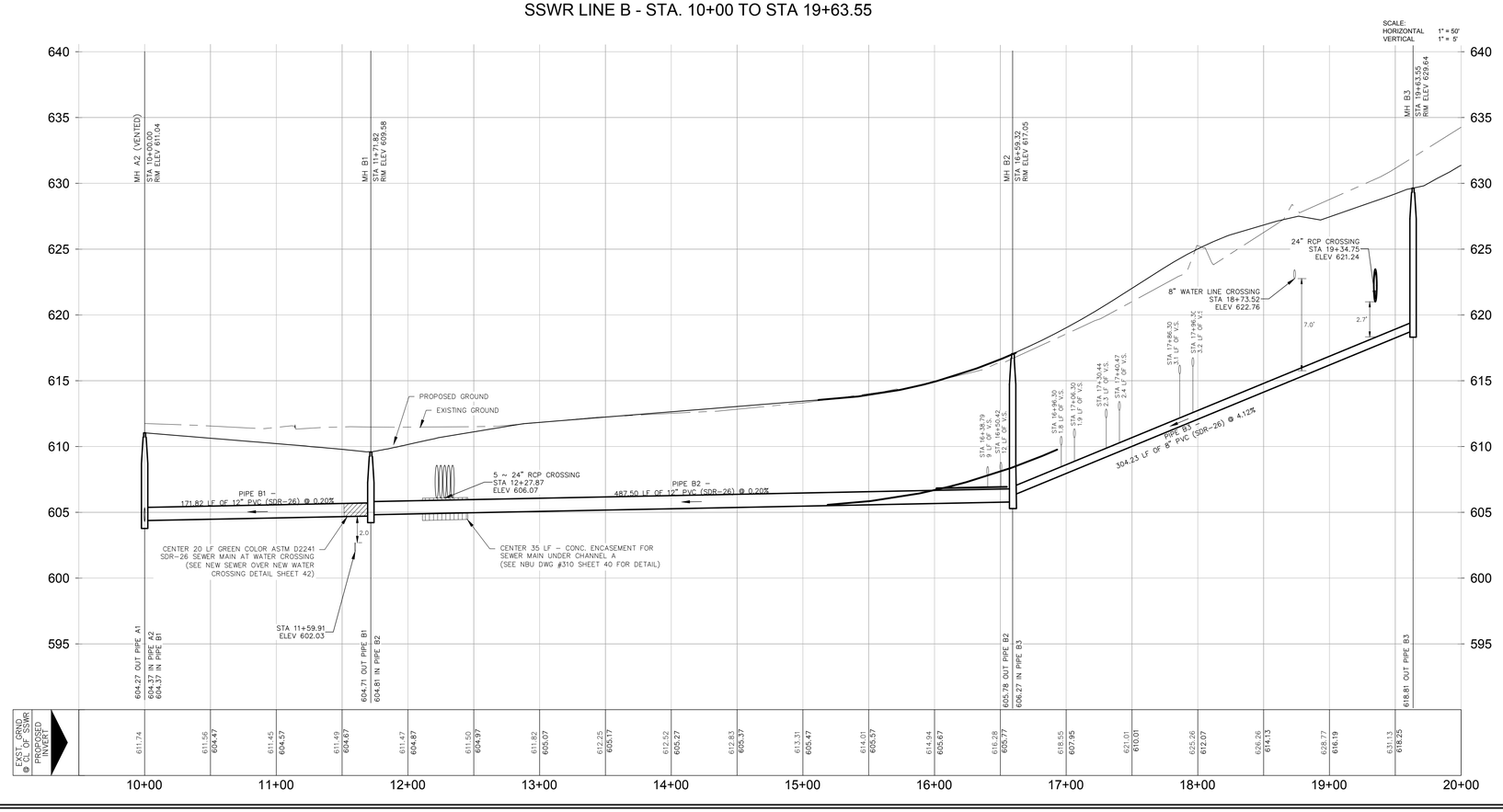
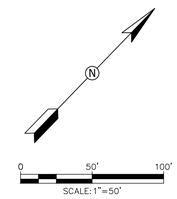


SSWR LINE B - STA. 10+00 TO STA 19+63.55





LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER MAIN
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT

Clear Creek Unit 1 - Sewer Line B Summary

Sanitary Sewer Line	Diameter (in)	Length (ft)	Slope$_{min}$ (%)	Peak Dry Weather Flow (gpd)	% Capacity	PDW Velocity (ft/s)	Peak Wet Weather Flow (gpd)	% Capacity	PWW Velocity (ft/s)
SSL B1	12	172	0.20	26,754	11.1%	0.87	44,033	14.1%	1.01
SSL B2	12	488	0.20	26,754	11.1%	0.87	44,033	14.1%	1.01
SSL B3	8	304	4.12	26,754	9.0%	2.64	44,033	11.5%	3.07

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PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

SANITARY SEWER LINE B

SHEET 38 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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Drawing Name: N:\Projects\WARREN1 Harris Tract\Civil\Construction Drawings\SS SANITARY SEWER LINE B.dwg User: cholt Feb 14, 2024 - 11:00pm

CONSTRUCTION NOTES:

1. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).
2. WHERE A 9' (NINE FOOT) SEPARATION FROM WATER AND SEWER LINES CROSSING CANNOT BE MAINTAINED, THE NEW WATER LINE SHALL BE ABOVE THE SEWER LINE AS SHOWN ON THE WATER/SEWER LINE CROSSING DETAIL. AT NO TIME SHALL A WATER LINE OR WATER SERVICE BE PLACED UNDER A SEWER LINE OR SEWER SERVICE.
3. WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.
4. ALL PRIVATE SERVICE LATERALS MUST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.
5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.
7. CONTRACTOR TO COORDINATE WITH NBU IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.
8. ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO STREETS.
9. ENSURE ALL DRIVEWAYS APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A. SPECIFICATIONS.
10. NO VALVES, FIRE HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
11. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
12. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
13. THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR AN NBU WASTE WATER SYSTEM IS THE MAIN SIDE OF THE SERVICE LATERAL FROM THE CUSTOMER'S CLEAN OUT OR PROPERTY LINE WHICH EVER IS NEARER. THE CUSTOMER IS RESPONSIBLE FOR DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER THE CUSTOMER'S INSTALLATION INCLUDING REVIEW, PERMITTING AND COMPLIANCE WITH ALL CITY PLUMBING CODES AND OTHER CODES AS APPLICABLE.

NOTE:

1. WASTEWATER LATERALS SHALL HAVE 2% SLOPE
2. NEW MANHOLES MUST BE CONSTRUCTED OF OR LINED WITH A CORROSION RESISTANT MATERIAL. WHERE NEW CONSTRUCTION CONNECTS TO AN EXISTING MANHOLE THAT IS NOT CONSTRUCTED OF A CORROSION RESISTANT MATERIAL, THE EXISTING MANHOLE MUST BE LINED WITH OR REPLACED WITH A CORROSION RESISTANT MATERIAL.
3. POINT OF DELIVERY IS DETERMINED BY NBU AND MAY NOT BE CLEANOUT. TYPICALLY, THIS IS PROPERTY LINE OR EASEMENT BOUNDARY. NBU IS RESPONSIBLE FOR FROM MAIN TO THE CLEANOUT OR PROPERTY LINE. CUSTOMER IS RESPONSIBLE FOR THE LINE FROM CLEANOUT / PROPERTY LINE TO PRIVATE PLUMBING, INCLUDING DESIGN, CONSTRUCTION, OPERATION, AND COMPLIANCE WITH CITY CODES.
4. WASTEWATER LATERALS SHALL BE INSTALLED WITH AT LEAST 36" OF COVER
5. EXISTING SEWER LINE TO BE ABANDONED IN PLACE MUST BE FILLED WITH GROUT AND CAPPED ON EACH END.

CONSTRUCTION NOTE:

SEQUENCE OF CONSTRUCTION:

-CONSTRUCT LINE C PRIOR TO CONSTRUCTION OF SEWER LINE A.
-PERFORM APPROPRIATE INSPECTIONS OF THE NEW SANITARY SEWER LINE C
-HOOKUP BYPASS PUMP TO EXISTING MANHOLES TO MAINTAIN EXISTING SEWER SERVICE TO RESIDENTS.
-MAKE CONNECTION OF LINE C TO EXISTING MANHOLES.
-ABANDON IN PLACE EXISTING SEWER LINE AS SPECIFIED IN PLANS. ABANDONED 15" SEWER LINE CAN BE REMOVED AS NEEDED FOR SEWER LINE A CONSTRUCTION.
-SEWER LINE A TO TIE INTO ESTABLISHED MANHOLE A1.

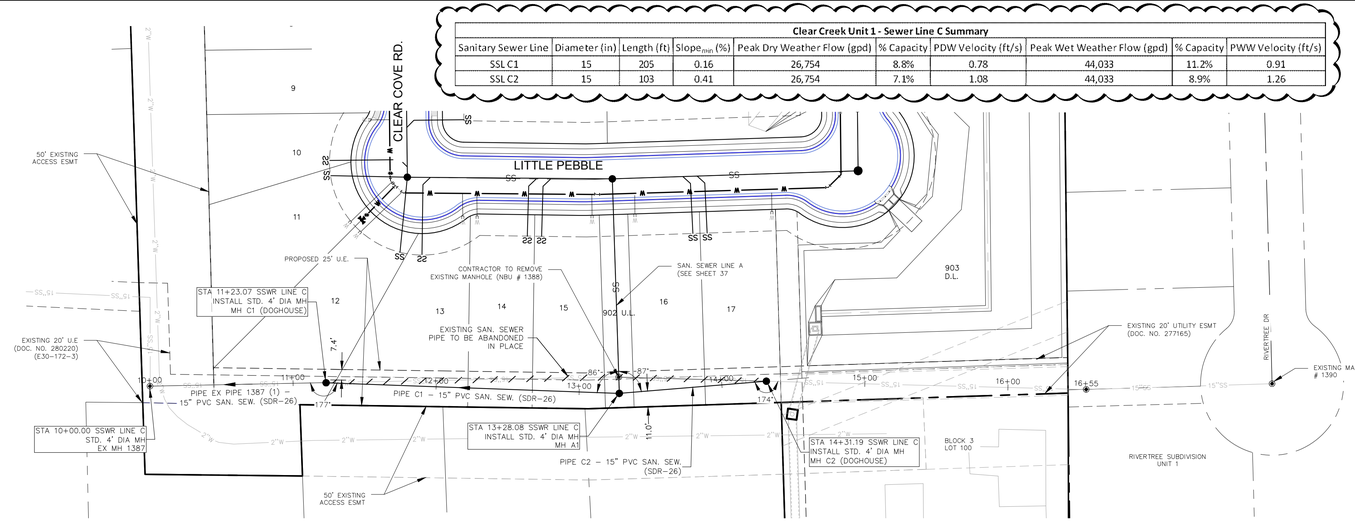
BYPASS PUMPING PLAN (BPP) TO CONFORM TO SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR CONSTRUCTION ITEM NO. 865

CONTRACTOR TO COORDINATE BPP WITH NBU.

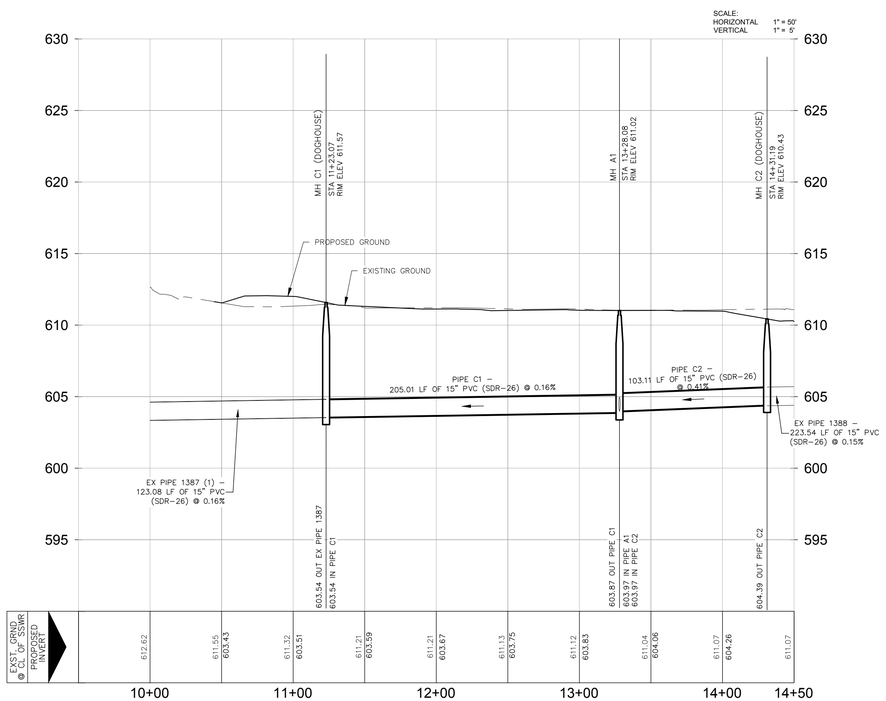
15" PIPE FULL FLOW CAPACITY: 1,122 GAL/MIN

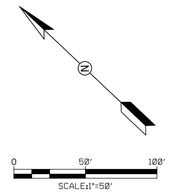
Clear Creek Unit 1 - Sewer Line C Summary

Sanitary Sewer Line	Diameter (in)	Length (ft)	$Slope_{min}$ (%)	Peak Dry Weather Flow (gpd)	% Capacity	PDW Velocity (ft/s)	Peak Wet Weather Flow (gpd)	% Capacity	PWW Velocity (ft/s)
SSL C1	15	205	0.16	26,754	8.8%	0.78	44,033	11.2%	0.91
SSL C2	15	103	0.41	26,754	7.1%	1.08	44,033	8.9%	1.26



SSWR LINE C





LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER MAIN
- NEW DOUBLE METERED DUAL WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING 15" SSWR LINE
- TO BE ABANDON IN PLACE

02/14/2024

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CLEAR CREEK SUBDIVISION UNIT-1

SANITARY SEWER LINE C

SHEET 39 OF 49

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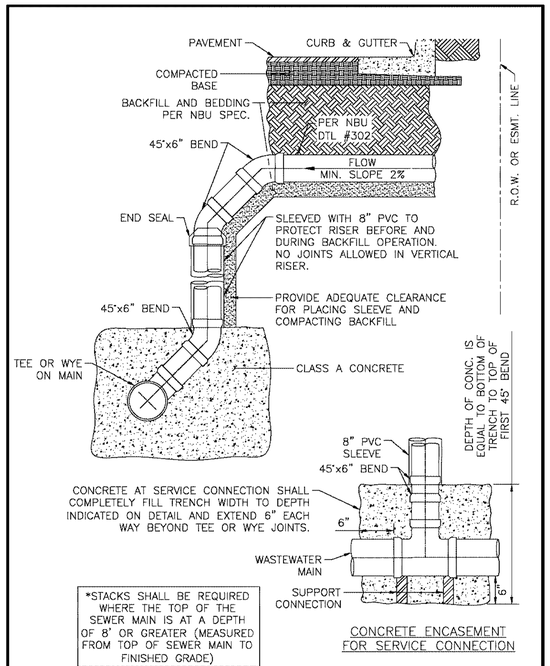
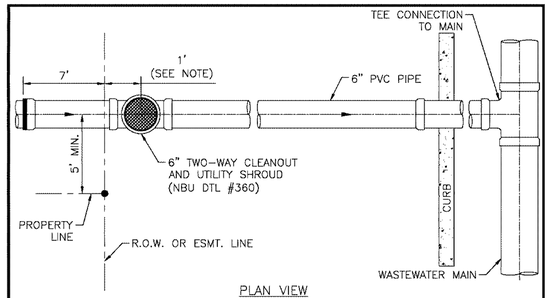
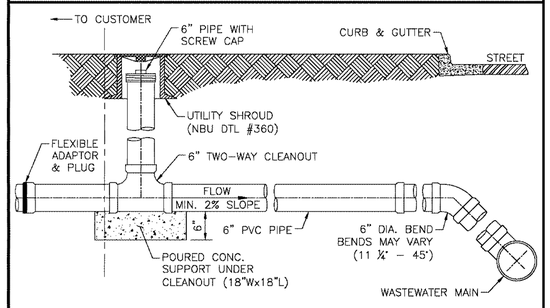


CONCRETE ENCASEMENT FOR SERVICE CONNECTION

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWING DATE: 8/17/21	STANDARD DRAWING: WASTEWATER DEEP SERVICE CONNECTION DETAIL	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 301



PLAN VIEW



PROFILE VIEW

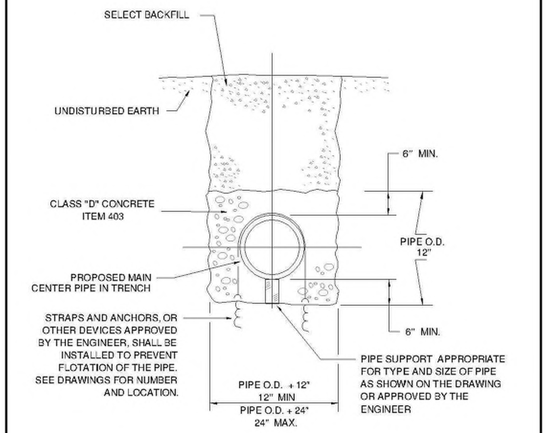
*CLEANOUT SHALL NOT BE PLACED WITHIN SIDEWALK OR DRIVEWAY. IF SIDEWALK EXISTS AT EDGE OF PROPERTY LINE, CLEANOUT CAN BE LOCATED UP TO 1' WITHIN PROPERTY. CONSISTENT PLACEMENT IS REQUIRED.

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWING DATE: 8/17/21	STANDARD DRAWING: SINGLE WASTEWATER SERVICE CONNECTION DETAIL	SCALE: N.T.S.	SHEET: 1 OF 2	DRAWING NO: 302

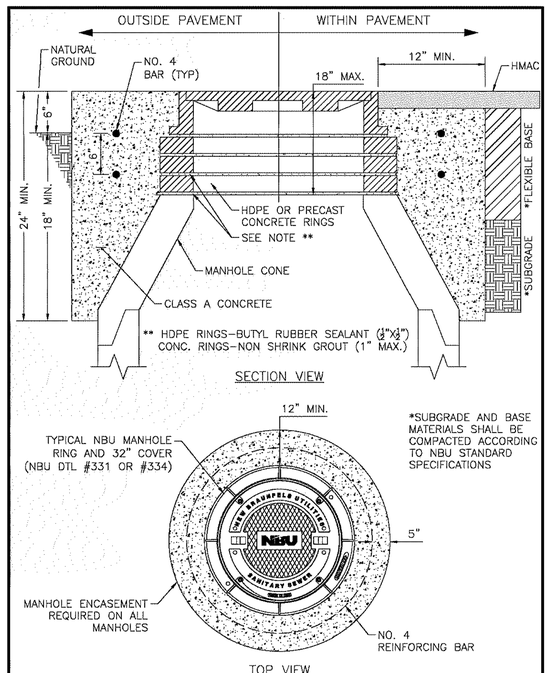
NOTES:

1. UTILITY CONTRACTOR, DURING SUBDIVISION CONSTRUCTION, SHALL INSTALL WASTEWATER CONNECTION TO MAIN, 6" STUB WITH 6" SERVICE BRANCH WITH 2–WAY CLEANOUT, CONCRETE SUPPORT (MIN. 18"Wx18"Lx6"H), RISER FOR CLEAN OUT (CAPPED), UTILITY SHROUD, 7' EXTENSION, AND PLUG. ALL WASTEWATER PIPING SHALL HAVE ELASTOMERIC GASKET TYPE JOINTS AND SHALL SLOPE DOWNWARD TO MAIN 2%, 1/4" PER FOOT, MINIMUM TO 45' MAXIMUM. DEPTH OF SERVICE STUB AT PROPERTY LINE WILL BE SHOWN ON PLANS BY ENGINEER OR DESIGNATED REPRESENTATIVE IF GREATER THAN 4', OTHERWISE, THE INSTALLED DEPTH WILL TYPICALLY BE 4' TO 6'. IF WASTEWATER SERVICE LINE TO MAIN REQUIRES DEFLECTION EXCEEDING 45', REFER TO DETAIL DRAWING 301. ALL INSTALLATIONS SHALL BE MADE IN ACCORDANCE WITH INFORMATION SHOWN ON APPLICABLE STANDARD DRAWINGS AND WILL BE INSPECTED BY NBU CONSTRUCTION INSPECTION PERSONNEL.
2. CUSTOMER SHALL REMOVE PLUG, INSTALL 4" WASTEWATER LINE (EXTEND 4" PIPE 6" MINIMUM INTO 6" PIPE AND JOINT WITH FLEXIBLE ADAPTOR). IF WASTEWATER WILL NOT SATISFACTORILY FLOW BY GRAVITY TO SEWER MAIN ADJACENT TO PROPERTY, PUMP EQUIPMENT MUST BE PROVIDED BY THE CUSTOMER AS PART OF CUSTOMER'S WASTEWATER SYSTEM.
3. CUSTOMER IS RESPONSIBLE FOR PIPING SYSTEM UNTIL WASTEWATER IS CONNECTED. ANY MISSING OR DAMAGED PARTS SHALL BE REINSTALLED BY CUSTOMER WHO SHALL GUARANTEE, FOR A PERIOD OF TWO (2) YEARS FROM DATE OF FINAL ACCEPTANCE, THAT CONNECTIONS TO NBU SYSTEMS ARE FREE FROM DEFECTS IN WORKMANSHIP OR MATERIALS. CUSTOMER ALSO HAS THE RESPONSIBILITY TO ASSURE THAT 2–WAY CLEANOUTS REMAIN CLEAR OF SIDEWALKS AND OTHER OBSTRUCTIONS.
4. NBU ACTIVITY IS LIMITED TO INSPECTION OF CONNECTIONS TO NBU'S WASTEWATER SYSTEM. FOR MAINTENANCE PURPOSES, NBU'S RESPONSIBILITY ENDS AT THE CUSTOMER'S WASTEWATER CONNECTION TO THE 2–WAY CLEANOUT OR THE PROPERTY LINE, WHICHEVER IS CLOSER TO WASTEWATER MAIN.
5. PIPING IN STREET RIGHT–OF–WAY AND IN EASEMENT AREA SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY NBU STANDARD SPECIFICATION; MATERIALS SHALL BE AS SPECIFIED; BACKFILL ABOVE THE GRANULAR BEDDING. SERVICE LINES IN THESE AREAS SHALL HAVE A MINIMUM COVER BELOW FINAL STREET GRADE OF 42"; ANY EXCEPTION MUST BE SPECIFICALLY APPROVED BY THE ENGINEER.

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWING DATE: 8/17/21	STANDARD DRAWING: SINGLE WASTEWATER SERVICE CONNECTION DETAIL	SCALE: N.T.S.	SHEET: 2 OF 2	DRAWING NO: 302



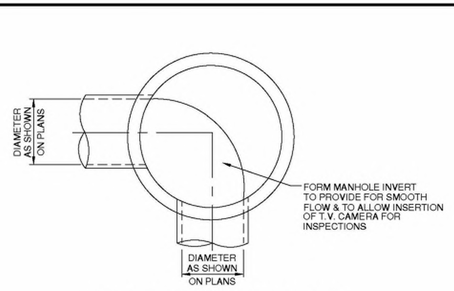
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: JD Amaro	APPROVED BY:	STANDARD DRAWING: CONCRETE ENCASEMENT	UPDATED: 4-16-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 310



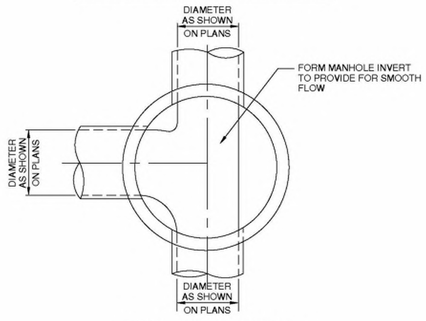
SECTION VIEW

TOP VIEW

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWING DATE: 8/17/21	STANDARD DRAWING: NEW MANHOLE CONSTRUCTION AND MINOR MANHOLE ADJUSTMENT	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 322



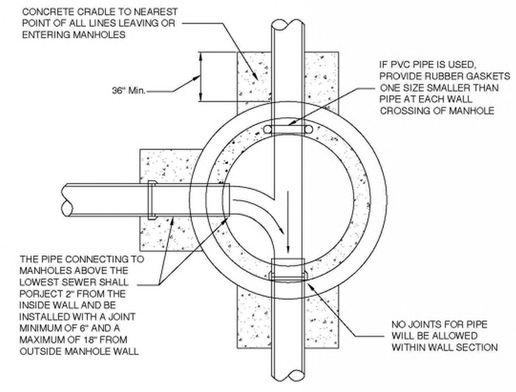
TYPICAL MANHOLE AT ANGLE IN SEWER



TYPICAL JUNCTION MANHOLE

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: JD Amaro	APPROVED BY:	STANDARD DRAWING: MANHOLE INVERT PLAN	UPDATED: 4-16-03	SCALE: N.T.S.	SHEET: 1 OF 2	DRAWING NO: 320

STANDARD MANHOLE



MANHOLE FLOOR PLAN

AUGUST 1998

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: H Shadrock	APPROVED BY:	STANDARD DRAWING: STANDARD MANHOLE MANHOLE FLOOR PLAN	UPDATED: 5-5-03	SCALE: N.T.S.	SHEET: 2 OF 2	DRAWING NO: 320

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
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02/14/2024

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9601 MCALLISTER FREEWAY, STE 600,
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CLEAR CREEK SUBDIVISION UNIT-1

SANITARY SEWER DETAILS I

SHEET 40 OF 49

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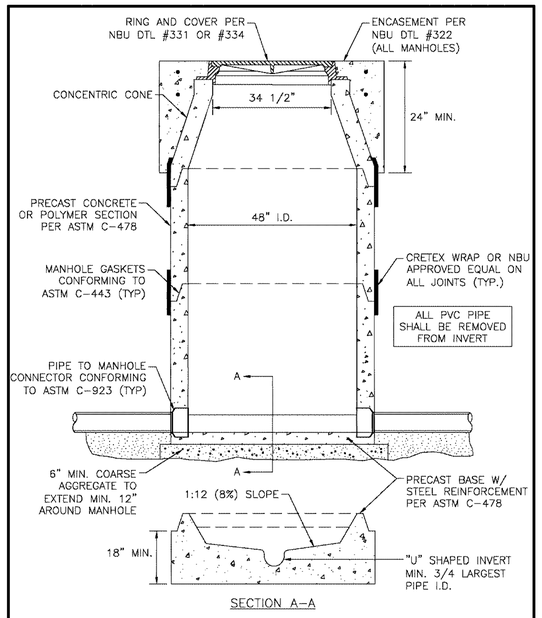
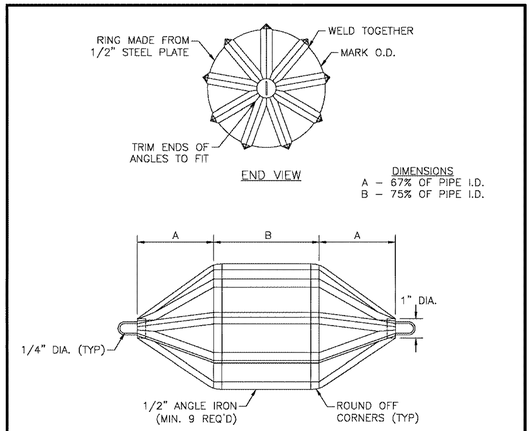


SECTION A–A

*CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWN DATE: 8/17/21	STANDARD DRAWING	WASTEWATER MANHOLE ON PRECAST BASE	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 328



END VIEW

DIMENSIONS
A – 67% OF PIPE I.D.
B – 75% OF PIPE I.D.

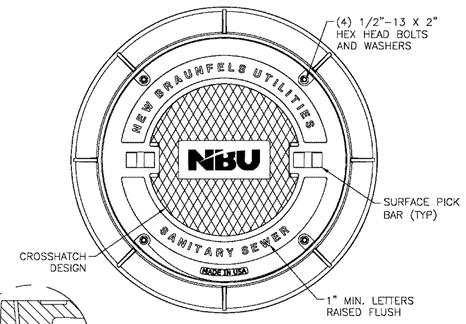
SIDE OR TOP VIEW

MANDREL REQUIREMENTS:

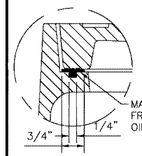
1. O.D. NOT LESS THAN 95% OF THE I.D. OF THE PIPE, AS SPECIFIED BY THE ASTM, AWWA, UNI–BELL OR ANSI.
2. ABLE TO WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
3. ODD NUMBER OF RUNNERS OR LEGS.

*THIS INFORMATION IS PROVIDED AS A REFERENCE. ALL DEFLECTION TESTING SHALL BE DONE IN ACCORDANCE WITH TCEQ CHAPTER 217.

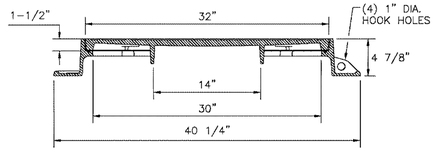
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWN DATE: 8/17/21	STANDARD DRAWING	GO, NO GO DEFLECTION TESTING MANDREL	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 350



PLAN VIEW



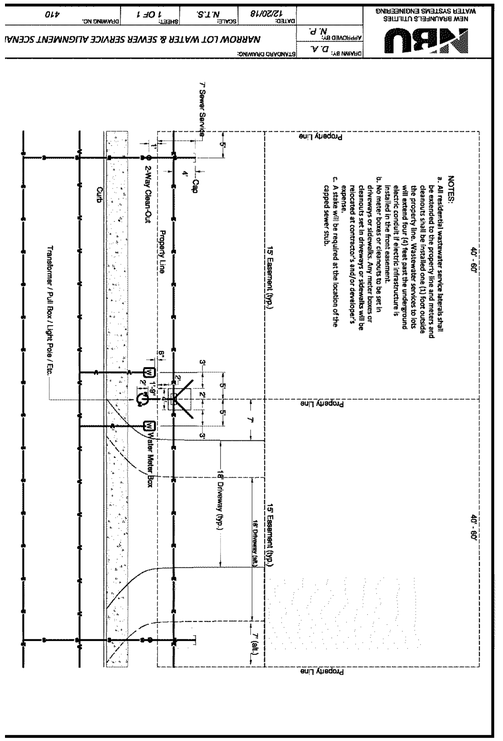
GASKET DETAIL



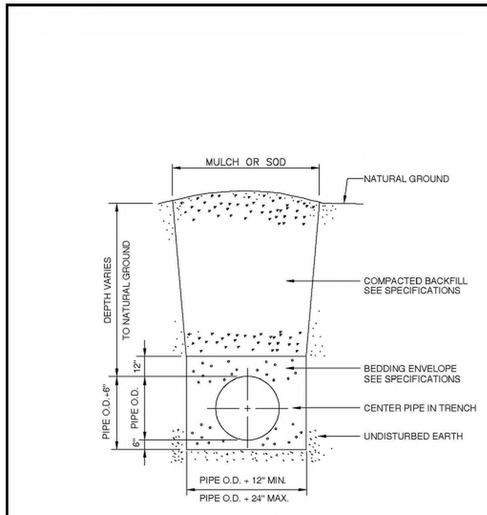
SECTION VIEW

MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWN DATE: 8/17/21	STANDARD DRAWING	SANITARY SEWER MANHOLE COVER	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 331

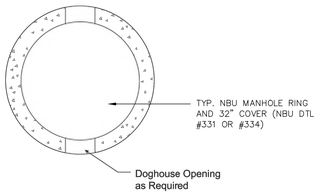


NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING
DRAWN BY: D. A.
APPROVED BY: N. P.
NARROW LOT WATER & SEWER SERVICE ALIGNMENT SCENARIO
STANDARD DRAWING
DATED: 12/20/18
SCALE: N.T.S.
SHEET: 1 OF 1
DRAWING NO.: 410



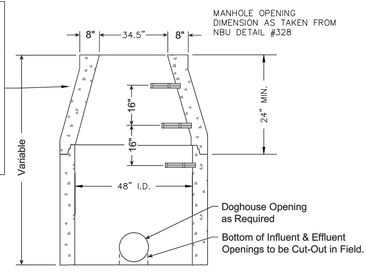
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: H Shadrock	APPROVED BY:	STANDARD DRAWING	TYPICAL TRENCH WITH UNFINISHED SURFACE	UPDATED: 4-30-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 422

Precast Sanitary or Storm Structures



NOTE:

1. SUBGRADE AND BASE MATERIALS SHALL BE COMPACTED ACCORDING TO NBU STANDARD SPECIFICATIONS.
2. BACKFILL WITH FLOWABLE FILL CLASS A CONCRETE.
3. FOLLOW NBU SPECIFICATIONS FOR OUTSIDE OF PAVEMENT MANHOLE CONSTRUCTION PER NBU DETAIL #322

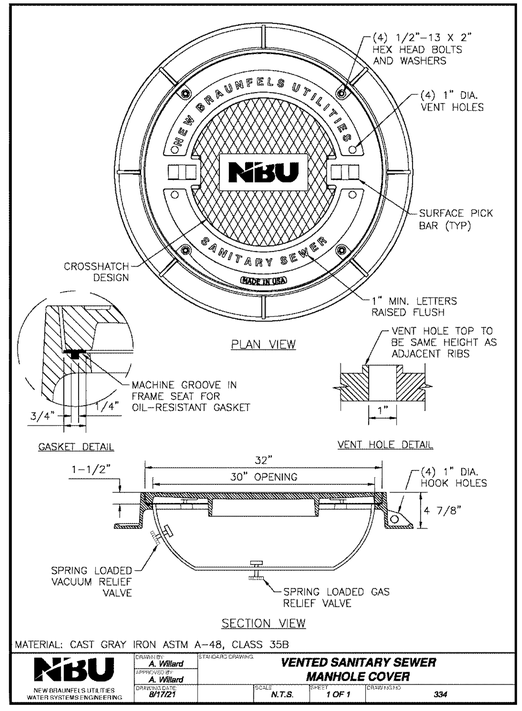


Note:

- Pipe size will determine manhole diameter.
- ~~96" and 120" diameter manholes will require a flat top with a transition to 48" diameter.~~
- All doghouse manholes will be cast without a bottom.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	STATE	SECTION-PAGE	DATE	Hanson
Doghouse Manhole Detail	AL	7.15	07-15-07	



PLAN VIEW

GASKET DETAIL

VENT HOLE DETAIL

SECTION VIEW

MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING	DRAWN BY: A. Willard	APPROVED BY: A. Willard	DRAWN DATE: 8/17/21	STANDARD DRAWING	VENTED SANITARY SEWER MANHOLE COVER	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 334

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

SANITARY SEWER DETAILS II

SHEET 41 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
5	2-1-2024	UPDATED PER CONB COMMENTS
6	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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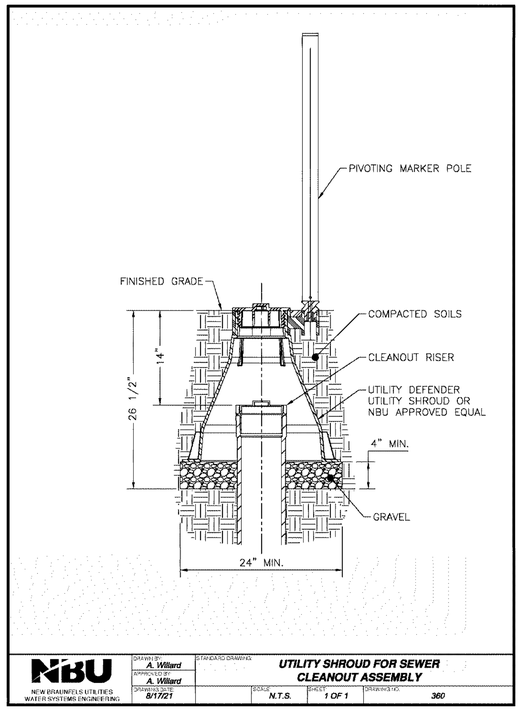
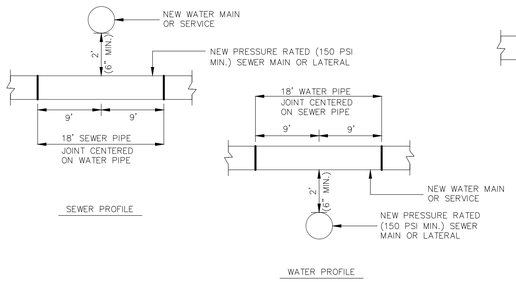
Drawing Name: N:\Projects\468001 Harris Tract\Civil\Construction Drawings\42 SANITARY SEWER DETAILS III.dwg User: chadfriesenhahn Feb 14, 2024 - 1:01pm



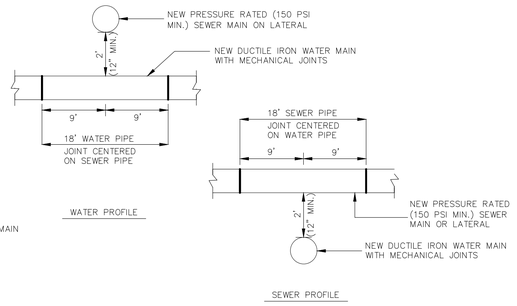
NBU
NEW BRAUNFELS UTILITIES
WATER SYSTEMS ENGINEERING

DRAWN BY:	STANDARD DRAWING:	
A. Willard	**UTILITY SHROUD FOR SEWER CLEANOUT ASSEMBLY**	
APPROVED BY: A. Willard		
SUPERSEDES DATED: 8/17/21	SCALE: N.T.S.	SHEET: 1 OF 1
		DRAWING NO: 360



NEW WATER OVER NEW SEWER CROSSING DETAIL

Scale: NTS



NEW SEWER OVER NEW WATER CROSSING DETAIL

Scale: NTS

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

SANITARY SEWER DETAILS III

SHEET 42 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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Drawing Name: N:\Projects\HARRIS Harris Tract\Civil\Construction Drawings\42 SANITARY SEWER DETAILS III.dwg User: chadfriesenhahn Feb 14, 2024 - 1:01pm

CONSTRUCTION NOTES:

1. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN NINE FEET (I.E., WATER LINES CROSSING WASTEWATER LINES, WATER LINES PARALLELING WASTEWATER LINES, OR WATER LINES NEXT TO MANHOLES) THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) (PIPE DESIGN) AND 30 TAC §290.44(E) (WATER DISTRIBUTION).

2. WHERE A 9' (NINE FOOT) SEPARATION FROM WATER AND SEWER LINES CROSSING CANNOT BE MAINTAINED, THE NEW WATER LINE SHALL BE ABOVE THE SEWER LINE AS SHOWN ON THE WATER/SEWER LINE CROSSING DETAIL. AT NO TIME SHALL A WATER LINE OR WATER SERVICE BE PLACED UNDER A SEWER LINE OR SEWER SERVICE.

3. WHERE A NEW POTABLE WATERLINE CROSSES AN EXISTING, PRESSURE RATED WASTEWATER MAIN OR LATERAL, ONE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. IF THE EXISTING WASTEWATER MAIN OR LATERAL SHOWS SIGNS OF LEAKING, IT SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE RATED PIPE.

4. ALL PRIVATE SERVICE LATERALS M12UST BE INSPECTED AND CERTIFIED IN ACCORDANCE WITH 30 TAC §213.5(C)(3)(I). AFTER INSTALLATION OF AND, PRIOR TO COVERING AND CONNECTING A PRIVATE SERVICE LATERAL TO AN EXISTING ORGANIZED SEWAGE COLLECTION SYSTEM, A TEXAS LICENSED PROFESSIONAL ENGINEER, TEXAS REGISTERED SANITARIAN, OR APPROPRIATE CITY INSPECTOR MUST VISUALLY INSPECT THE PRIVATE SERVICE LATERAL AND THE CONNECTION TO THE SEWAGE COLLECTION SYSTEM, AND CERTIFY THAT IT IS CONSTRUCTED IN CONFORMITY WITH THE APPLICABLE PROVISIONS OF THIS SECTION. THE OWNER OF THE COLLECTION SYSTEM MUST MAINTAIN SUCH CERTIFICATIONS FOR FIVE YEARS AND FORWARD COPIES TO THE APPROPRIATE REGIONAL OFFICE UPON REQUEST. CONNECTIONS MAY ONLY BE MADE TO AN APPROVED SEWAGE COLLECTION SYSTEM.

5. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.

6. METER BOXES MUST BE SET AT PROPOSED FINISHED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED BY THE CONTRACTOR AT NO ADDITIONAL COSTS.

7. CONTRACTOR TO COORDINATE WITH NBU IF EXISTING WATER MAINS WILL BE REMOVED FROM SERVICE AT ANY TIME.

8. ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO STREETS.

9. ENSURE ALL DRIVEWAY APPROACHES ARE BUILT IN GENERAL ACCORDANCE WITH A.D.A SPECIFICATIONS.

10. NO VALVES, FIRE HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.

11. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX- 114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO- TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

12. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH LOCATED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.

13. THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR AN NBU SYSTEM IS THE MAIN SIDE OF THE SERVICE/LATERAL/LEAD FROM CUSTOMER'S METER/BACKFLOW/EASEMENT EDGE. THE CUSTOMER IS RESPONSIBLE FOR DESIGN, CONSTRUCTION OPERATION AND MAINTENANCE BEYOND THE POINT OD DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER THE CUSTOMER'S INSTALLATION INCLUDING REVIEW, PERMITTING, AND COMPLIANCE WITH ALL CITY PLUMBING CODES OR OTHER APPLICABLE CODES.

14. ALL VALVES 16 INCH AND SMALLER SHALL BE RESILIENT SEATED GATE VALVES

NOTE:

MINIMUM DEPTH OF COVER FOR THE UPPERMOST PROJECTION OF THE WATER PIPE AND ALL APPURTENANCES SHALL BE 42 INCHES. ADD CONCRETE CAP OR ENCASEMENT IF COVER IS LEES THAN 42 INCHES.

NOTES:

1. STATIONING FOR 8" WATER MAINS ARE BASED ON ROAD ALIGNMENTS.
2. GATE VALVES ON FIRE HYDRANT LEADS SHALL BE RESTRAINED AT THE TEE. SEE THIS SHEET FOR CALLOUTS FOR ANCHOR TEES FOR FIRE HYDRANTS.
3. THE MAIN SUPPLY LINE THAT SUPPLIES ALL DOMESTIC METERS WITHIN THIS PROJECT SHALL REQUIRE AN RP BACKFLOW PREVENTION.
4. ALL IRRIGATION METERS SHALL HAVE AN RP BACKFLOW PREVENTION.
5. GATE VALVES SHALL NOT BE BUILT IN THE CURB OR GUTTERS. CONTRACTOR TO BUILD GATE VALVES ACCORDING TO NBU DETAILS.

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR

CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE BEGINNING ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CENTER POINT ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

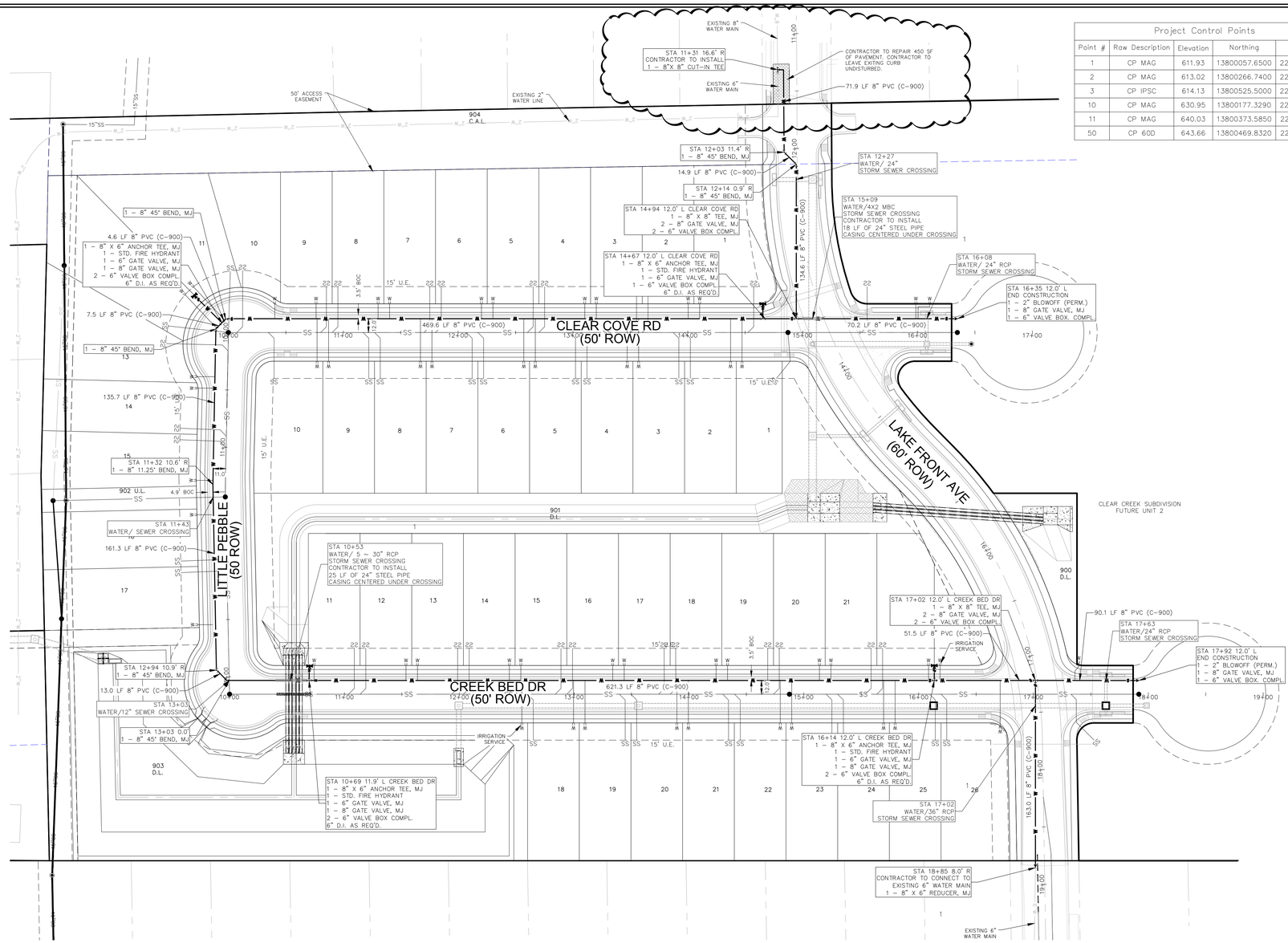
TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WLL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.



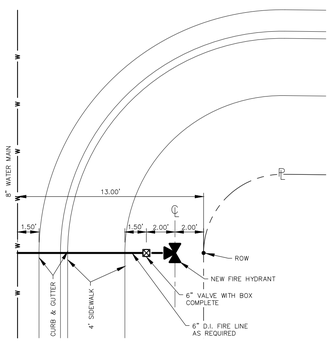
Project Control Points				
Point #	Raw Description	Elevation	Northing	Easting
1	CP MAG	611.93	13800057.6500	2256494.0800
2	CP MAG	613.02	13800266.7400	2256697.8900
3	CP IPSC	614.13	13800525.5000	2256968.8800
10	CP MAG	630.95	13800177.3290	2257655.6480
11	CP MAG	640.03	13800373.5850	2257871.0930
50	CP 60D	643.66	13800469.8320	2257779.9810

0 50' 100'
SCALE: 1"=50'

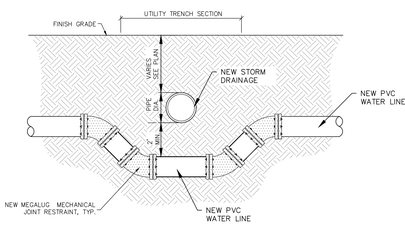
LEGEND

- NEW SANITARY SEWER
- NEW MANHOLE
- NEW SEWER LATERAL
- NEW WATER MAIN
- NEW SINGLE METERED WATER SERVICE
- NEW FIRE HYDRANT
- EXISTING OVERHEAD ELECTRIC
- EXISTING 8" SANITARY SEWER
- EXISTING WOOD FENCE
- EXISTING BARBWIRE FENCE
- EXISTING TRAFFIC GUARDRAIL
- EXISTING SIGN
- EXISTING SAN. SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING GUY

CLEAR CREEK SUBDIVISION – UNIT 1	
ITEM	QTY.
WATER MAIN (8" PVC C-900)	2038 LF
WATER SERVICES (1" METER)	51 EA.
IRRIGATION SERVICES (1" METER)	2 EA.
WATER METERS	53 EA.
FIRE HYDRANTS	4 EA.
FIRE LINES	40 LF
6" GATE VALVE	4 EA.
8" GATE VALVE	9 EA.
BLOWOFFS	2 EA.



FIRE HYDRANT LOCATION DETAIL
SCALE: 1" = 5'



NOTES:
1. MECHANICAL JOINTS SHALL CONFORM TO THE AWWA C-600 INSTALLATION PROCEDURES.
2. REFERENCE THE SPECIFICATIONS FOR MECHANICALLY RESTRAINED JOINTS FOR ADDITIONAL INFORMATION.
3. RECOMPACT ALL PIPE BEDDING AROUND NEW AND EXISTING PIPES AND REPAIR OR RECONSTRUCT FINISH GRADE MATERIAL.

WATER LINE / STORM DRAINAGE CROSSING DETAIL
(NOT TO SCALE)

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

WATER DISTRIBUTION PLAN

SHEET 43 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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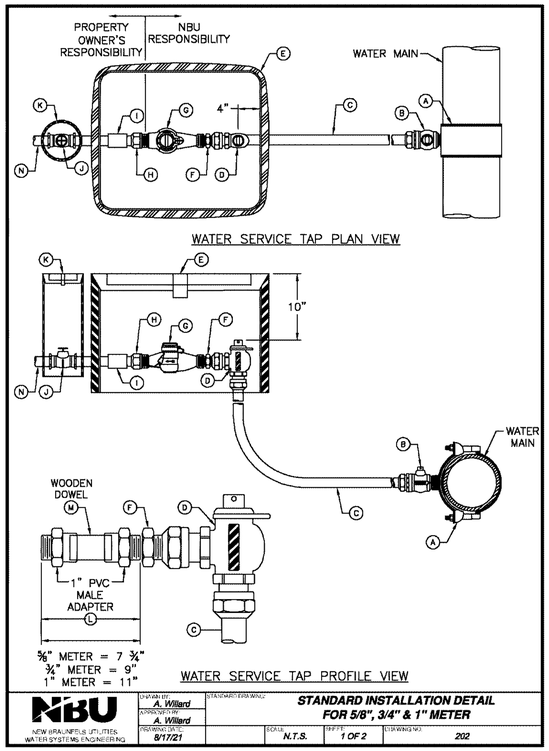
Drawing Name: N:\Projects\HA8000 Homs Tract\Civil\Construction Drawings\43 WATER DISTRIBUTION PLAN.dwg User: chadfriesenhan Feb 14, 2024 - 1:07pm



NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: A. Willard	STANDARD DRAWING: **STANDARD INSTALLATION DETAIL FOR 5/8", 3/4" & 1" METER**			
APPROVED BY: A. Willard				
DRAWING DATE: 8/17/21	SCALE: N.T.S.	SHEET: 1 OF 2	DRAWING NO: 202	

MATERIALS LIST:

A. 1" SERVICE CLAMP
B. 1" CORPORATION STOP
C. 1" TYPE "K" COPPER WATER SERVICE PIPE
D. 1" X 1" ANGLE METER STOP
E. METER BOX AND LID – DFW PLASTICS #DFW1600X.12.1A2 (STANDARD)
   METER BOX AND LID – DFW PLASTICS #DFW1219-10-3EA (INCIDENTAL TRAFFIC RATED)

MATERIALS TO BE INSTALLED BY PLUMBER:

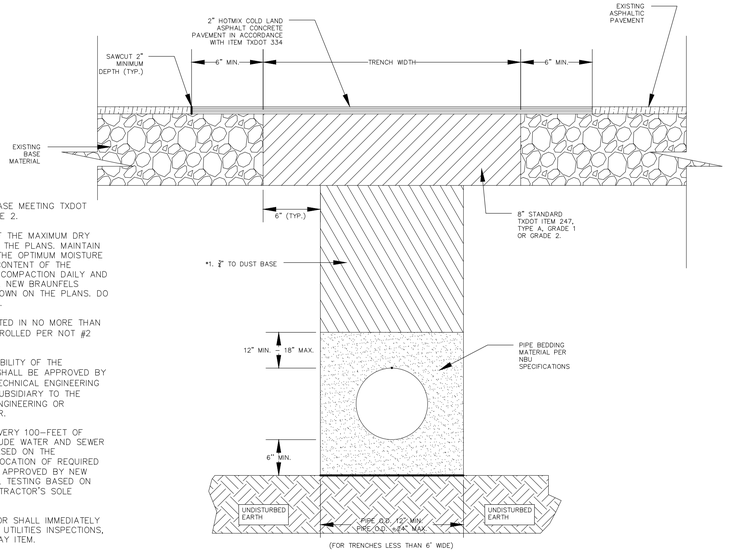
F. BRASS METER BUSHING – SIZE AS REQUIRED TO CONNECT ANGLE METER STOP TO METER. A 1" X 3/4" METER BUSHING IS REQUIRED AT THE ANGLE STOP FOR FOR ALL 5/8" AND 3/4" METERS.
G. WATER METER PURCHASED FROM NBU
H. BRASS WATER METER COUPLING MALE IPT x SWIVEL COUPLING NUT
I. SINGLE CHECK BACKFLOW DEVICE
J. PROPERTY OWNER'S CUT OFF VALVE – 1" BRASS GATE VALVE
K. PROPERTY OWNER'S CUT OFF VALVE BOX AND LID – NDS #D109-G
L. TEMPORARY METER SPACER (REQUIRED TO ASSURE METER WILL FIT APPROPRIATELY)
M. 1" WOODEN DOWEL (SHOW ADDRESS ON DOWEL USING WATERPROOF MARKER)
N. 1" PIPE MEETING CITY OF NEW BRAUNFELS PLUMBING CODE REQUIREMENTS

NOTES:

1. SERVICE PIPE SHALL BE COPPER TUBE SIZE. IT SHALL BE ANNEALED SEAMLESS TYPE "K" COPPER TUBING MEETING THE CURRENT ASTM B88 STANDARD WITH NO SWEAT OR SOLDERED JOINTS AND PLACED IN A STRAIGHT HORIZONTAL ALIGNMENT AND ALLOWED TO RELAX AND "SNAKE" LOOSELY IN THE TRENCH.
2. SERVICE SADDLE SHALL BE WRAPPED COMPLETELY WITH 8 MIL POLYETHYLENE FILM.
3. TOP OF BOXES SHOULD BE 2" ABOVE GROUND OR FLUSH WITH PAVEMENT SURFACE.
4. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY THE SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SPECIFICATIONS.
5. BOX CONSISTENTLY SPACED 6"-12" BEHIND CURB OR 6" FROM PROPERTY LINE AND OUT OF VEHICULAR TRAFFIC AREA.
6. ANGLE STOP PLACED A MAXIMUM OF 4" FROM BACK OF BOX THAT FACES CURB. TOP OF ANGLE STOP SHOULD BE A MINIMUM OF 10" FROM THE TOP OF METER BOX.
7. METER SIZES TO BE SHOWN ON PLANS.
8. METER BOX CUT OUTS SHALL NOT EXCEED TWO TIMES THE PIPE DIAMETER.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: A. Willard	STANDARD DRAWING: **STANDARD INSTALLATION DETAIL FOR 5/8", 3/4" & 1" METER**			
APPROVED BY: A. Willard				
DRAWING DATE: 8/17/21	SCALE: N.T.S.	SHEET: 2 OF 2	DRAWING NO: 202	



PAVEMENT REPAIR/ TRENCH BACKFILL
N.T.S.

PAVEMENT REPAIR/TRENCH BACKFILL NOTES:
1. WITHIN CONB ROW, TRENCH BACKFILL SHALL BE 3/4" TO DUST BASE MEETING TXDOT SPECIFICATION ITEM 247 FLEXIBLE BASE, TYPE A, GRADE 1 OR GRADE 2.

2. 3/4" TO DUST BASE SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY TEX-113-E, UNLESS OTHERWISE SHOWN ON THE PLANS. MAINTAIN MOISTURE DURING COMPACTION WITHIN ±2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY TEX-113-E. MEASURE THE MOISTURE CONTENT OF THE MATERIAL IN ACCORDANCE WITH TEX-115-E OR TEX-103-E DURING COMPACTION DAILY AND REPORT THE RESULTS THE SAME DAY TO THE ENGINEER OF RECORD, NEW BRAUNFELS UTILITIES, AND THE CITY OF NEW BRAUNFELS UNLESS OTHERWISE SHOWN ON THE PLANS. DO NOT ACHIEVE DENSITY BY DRYING THE MATERIAL AFTER COMPACTION.

3. 3/4" TO DUST BASE SHALL BE PLACED UNIFORMLY AND COMPACTED IN NO MORE THAN 12" LOOSE LIFTS. EACH COMPACTED LAYER SHALL BE DENSITY CONTROLLED PER NOT #2 ABOVE.

4. ALL UTILITY TRENCH COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEOTECHNICAL ENGINEER. (GEOTECHNICAL ENGINEER SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND THE CITY OF NEW BRAUNFELS) GEOTECHNICAL ENGINEERING AND COMPACTION TESTING IS A "NO SEPARATE PAY ITEM" AND IS SUBSIDIARY TO THE VARIOUS BID ITEMS. ALL COSTS ASSOCIATED WITH GEOTECHNICAL ENGINEERING OR COMPACTION TESTING IS AT THE SOLE EXPENSE OF THE CONTRACTOR.

5. COMPACTION TESTS SHALL BE DONE AT A MINIMUM OF 1-TEST EVERY 100-FEET OF TRENCH PER EACH COMPACTED LIFT. THIS REQUIREMENT SHALL INCLUDE WATER AND SEWER SERVICES. THE NUMBER OF TEST REQUIRED SHALL BE INCREASED BASED ON THE CONTRACTOR'S GEOTECHNICAL ENGINEER'S RECOMMENDATION. THE LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY NEW BRAUNFELS UTILITIES AND THE CITY OF NEW BRAUNFELS. ADDITIONAL TESTING BASED ON GEOTECHNICAL ENGINEER'S RECOMMENDATION SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

6. UPON COMPLETION OF THE COMPACTION TESTING, THE CONTRACTOR SHALL IMMEDIATELY SEND THE RESULTS TO THE ENGINEER OF RECORD, NEW BRAUNFELS, UTILITIES INSPECTIONS, AND THE CITY OF NEW BRAUNFELS INSPECTIONS. NON SEPARATE PAY ITEM.

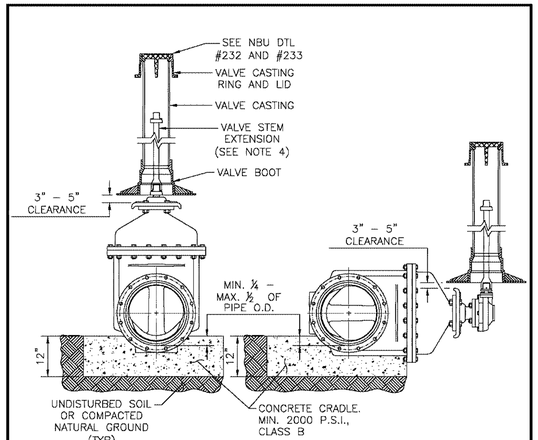
7. IF AT ANY TIME A TEST FAILS, THE CONTRACTOR SHALL AT A MINIMUM AND AT HIS SOLE EXPENSE, REMOVE THAT LAYER OF BACKFILL TO 50-FEET FROM EITHER SIDE OF THE FAILED TEST LOCATION. THE CONTRACTOR, AT HIS SOLE EXPENSE SHALL PROVIDE 2-ADDITIONAL TESTS AT THE REPLACED LOCATION WHERE THE INITIAL TEST FAILED AND AT 1 LOCATION POINT, RANDOMLY SELECTED OR AS INDICATED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER. THE RESULTS SHALL BE IMMEDIATELY SENT TO THE ENGINEER OF RECORD, NEW BRAUNFELS UTILITIES INSPECTIONS, AND THE CITY OF NEW BRAUNFELS INSPECTIONS.

8. CONTAINED WITH EACH COMPACTION TESTING REPORT, THE CONTRACTOR SHALL PROVIDE CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE PLACEMENT OF TRENCH BACKFILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THESE PLANS.

RESTRAINED LENGTH FOR PVC PIPE

PIPE INSIDE DIA.	HORIZONTAL BENDS				VERTICAL BENDS						DEAD END/ INLINE VALVES
					UPPER			LOWER			
	90°	45°	22.5°	11.25°	45°	22.5°	11.25°	45°	22.5°	11.25°	
8"	19	8	4	2	25	12	6	7	4	2	60
12"	27	12	6	3	36	17	9	9	5	3	85

NOTES:
LENGTHS SHOWN ABOVE WERE COMPUTED BASED ON THE FOLLOWING VALUES:
a. SAFETY FACTOR = 1.5 TO 1
b. TEST PRESSURE = 200 psi
c. SOIL DESIGNATION – WELL GRADED GRAVLES AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES (PEA GRAVEL)
d. DEPTH OF COVER – 4 feet (TYPICAL AND UPPER BEND)
e. DEPTH OF COVER – 5 feet (LOWER BEND)



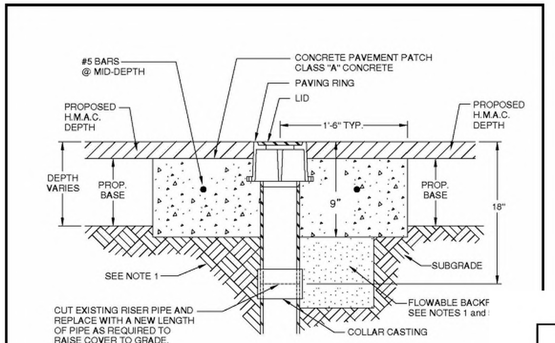
VERTICAL VALVE

HORIZONTAL VALVE
USE ONLY WHEN SPECIFIED IN DRAWINGS

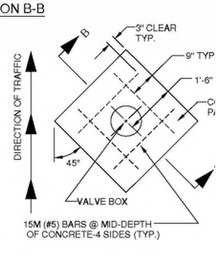
NOTES:
1. WELD SOCKET 2½" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT, [SCH. 80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.
5. TRACER WIRE SHALL EXTEND TO TOP OF THE VALVE STEM EXTENSION AND BE CONNECTED WITH WIRE CAPS.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: A. Willard	STANDARD DRAWING: **TYPICAL GATE VALVE**			
APPROVED BY: A. Willard				
DRAWING DATE: 8/17/21	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 230	



SECTION B-B



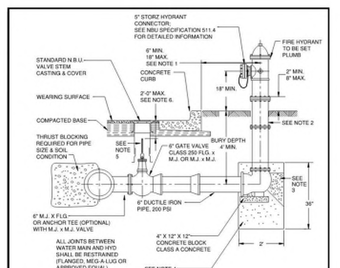
15M (#5) BARS @ MID-DEPTH OF CONCRETE-4 SIDES (TYP.)

PLAN VIEW

NOTES:
1. SUBGRADE SHALL BE COMPACTED AS PER SPECIFICATIONS.
2. VALVE CASTINGS SHALL BE ADJUSTED TO GRADE AFTER FINAL LIFT OF OVERLAY IS IN PLACE.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE BASE OF THE VALVE.
4. REMOVE EXISTING RISER PIPE DOWN 18" AND REPLACE TO THE NEW ELEVATION USING NEW PIPE AND A COLLAR CASTING.
5. WHERE CAST IRON CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL TO THE UNDERSIDE OF THE CONCRETE PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
6. REINFORCING STEEL SHALL MEET SPECIFICATIONS.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: JD Amaro	STANDARD DRAWING: **WATER VALVE BOX ADJUSTMENT TO GRA WITH CONCRETE AND HMAC FOR NEW STRI**			
APPROVED BY:				
UPDATED: 4-10-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 239	



NOTES:
1. DIMENSIONS SHOWN ARE APPLICABLE IN SPACE BETWEEN CURB AND SIDEWALK. WHERE WALK ABUTS CURB, AND IN PUBLIC OR COMMERCIAL AREAS, DIMENSION FROM BACK OF CURB SHALL BE 3' TO 5'. HYDRANTS ARE NOT TO BE PLACED IN SIDEWALK AREAS. SEE NEW BRAUNFELS UTILITIES STANDARD SPECIFICATIONS FOR LOCATION OF HYDRANT.
2. FOR BURY DEPTHS GREATER THAN 5', ONE BARREL EXTENSION NOT EXCEEDING 3' LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT.
3. CONCRETE BLOCKING WITH A MIN. 1 1/2 FT² BEARING AREA. CLASS A CONCRETE. DO NOT BLOCK DRAIN HOLES.
4. CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND THE BOTTOM OF THE HYDRANT FOR A RADIUS OF AT LEAST 12" AND EXTEND AT LEAST 10" ABOVE THE OUTLET. DO NOT BLOCK DRAIN HOLES.
5. WELD SOCKET 2 1/2" X 2" DEEP TO 1" SCH. 40 ROUND STEM EXTENSION, FITTED ON OPERATING NUT, SCH. 80 FOR LENGTHS OVER 10'.
6. VALVE EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 18" AND 24" FROM FINISHED GRADE.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY: JD Amaro	STANDARD DRAWING: **STANDARD FIRE HYDRANT INSTALLATION WITH 5" STORZ CONNECTOR**			
APPROVED BY:				
UPDATED: 4-10-03	REVISED: 5-22-12	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO: 240

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
AT&T Telephone	830-303-1333
Erick White PM	210-283-1706
Scott McBrearty (Construction)	210-658-4886
Texas One Call	830-545-6005

C.P.E. LOCATOR
CALL CENTER POINT ENERGY LOCATOR AT 1-800-545-6005, 48HRS BEFORE ANY EXCAVATION. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CE ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRA PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AR

TELEPHONE LOCATOR
THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOC. PRIOR TO EXCAVATION AT 1-800-545-6005. CONTRACTOR HAS THE RESPO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMF STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRA PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUME CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR I SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION TH WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. S CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORK AROUND TRENCH EXCAVATIONS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN A LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCAT EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AC FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRE FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUN STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

STATE OF TEXAS — JAMES INGALLS — 107416 — LICENSED PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION UNIT-1

WATER DETAILS I

SHEET 44 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

INK CIVIL
2021 W SH46, STE 105
NEW BRAUNFELS, TX. 78132
PH: 830-358-7127 ink-civil.com
TBPE FIRM F-13351

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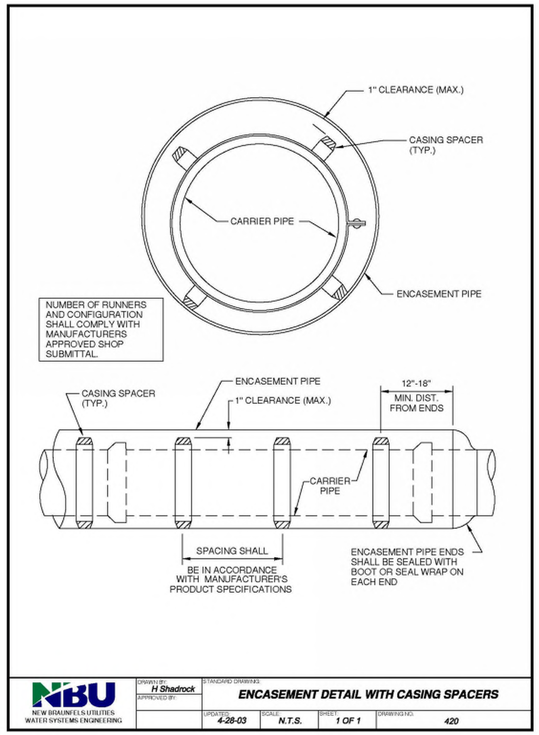
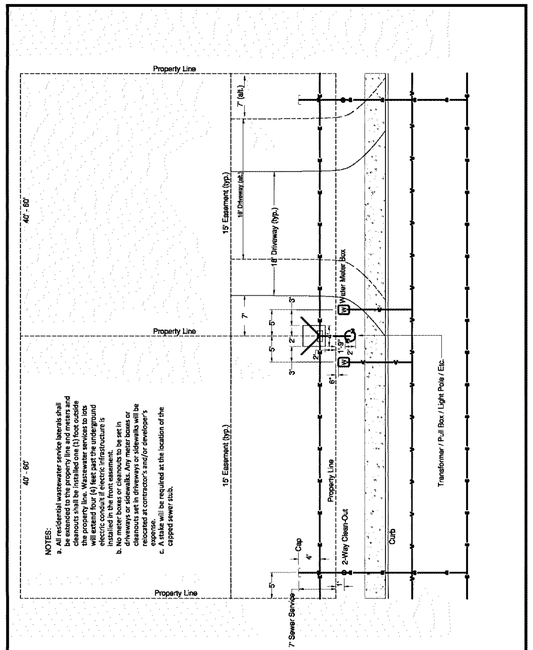
Drawing Name: N:\Projects\WATER\01 Harris Tract\Civil\Construction Drawings\05 WATER DETAILS II.dwg User: cbaldwin Feb 14, 2024 - 1:01pm



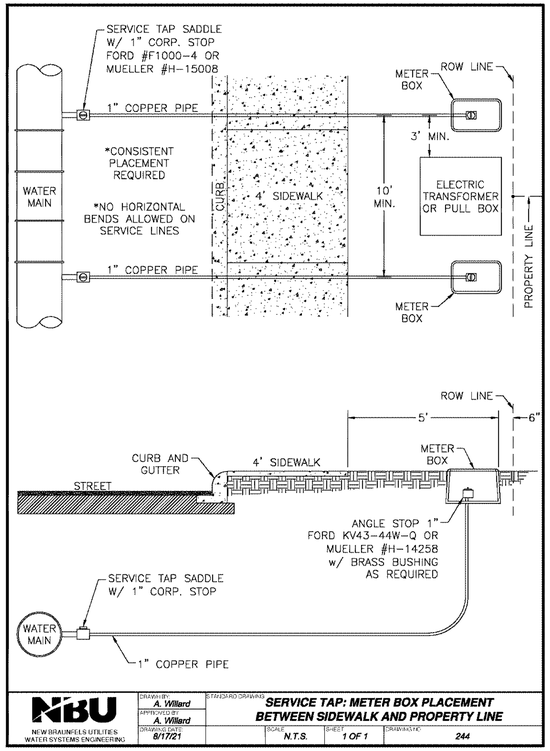
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING

DRAWN BY: H Shadrock	STANDARD DRAWING: ENCASEMENT DETAIL WITH CASING SPACERS			
APPROVED BY:	UPDATED: 4-28-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO.: 420



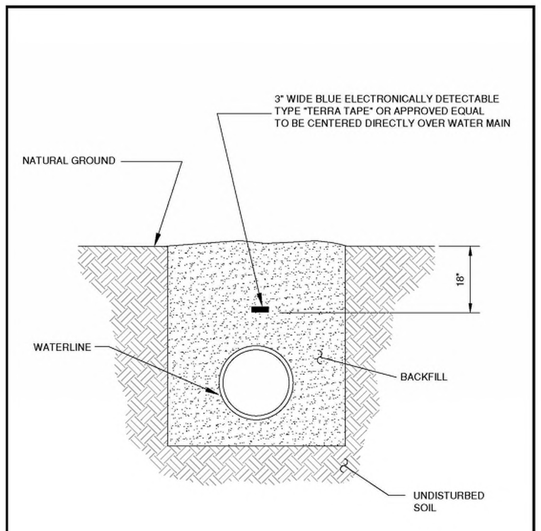
NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING

DRAWN BY: D. A.	STANDARD DRAWING: NARROW LOT WATER & SEWER SERVICE ALIGNMENT SCENARIO			
APPROVED BY: N. P.	DATED: 12/20/18	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO.: 410



NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING

DRAWN BY: A. Willard	STANDARD DRAWING: SERVICE TAP: METER BOX PLACEMENT BETWEEN SIDEWALK AND PROPERTY LINE			
APPROVED BY: A. Willard	DRAWING DATE: 8/17/21	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO.: 244

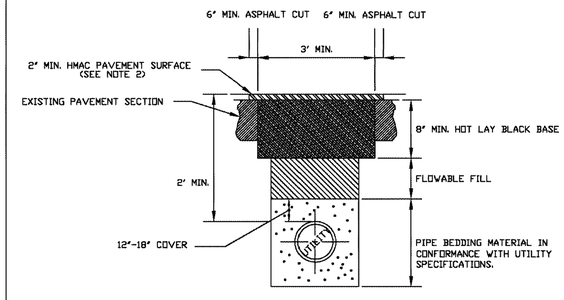


WATERLINE SURFACE IDENTIFICATION DETAIL

NOT TO SCALE

NBU NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING

DRAWN BY: H Shadrock	STANDARD DRAWING: PLACEMENT OF INDUCTIVE TRACER DETECTION TAPE			
APPROVED BY:	UPDATED: 5-23-03	SCALE: N.T.S.	SHEET: 1 OF 1	DRAWING NO.: 424



NOTES:

1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE AT A MINIMUM OF 12"WIDER THAN UNDISTURBED SIDES OF THE TRENCH SYMMETRICAL ABOUT THE CENTERLINE OF THE EXCAVATION.
2. REPLACEMENT HMAC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
   A) MIN. 2"HMAC TYPE "D"FOR TRENCH REPAIRS IN LOCAL/RESIDENTIAL STREETS.
   B) MIN. 3"HMAC TYPE "C"FOR TRENCH REPAIRS IN COLLECTOR/ARTERIAL STREETS.
3. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED
4. PRIME AND TACK COAT ALL EXPOSED EDGES AND SURFACES.
5. HOT LAY BLACK BASE LAYED IN 8"LIFTS @ 95% COMPACTION.
6. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAC.
7. CALICHE OR EXISTING MATERIAL SHALL NOT BE USED TO BACKFILL THE UTILITY EXCAVATION.

TRENCH REPAIR DETAIL	CITY OF NEW BRAUNFELS ENGINEERING DIVISION
ISSUE DATE: APRIL 2015	SCALE: N.T.S
DRAWN BY: AMF	CONTACT: GF

424 S. CASTELL AVE.
NEW BRAUNFELS, TEXAS 78130
PHONE: 830 221 4080
FAX: 830 626 3600

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

New Braunfels Utilities	830-629-8400
Spectrum Cable	830-625-3408
Centerpoint Gas	830-643-6434
Robert Sanders	830-643-6903
Damaged Line	888-876-5786
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C.P.E. LOCATOR

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TELEPHONE LOCATOR

THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR TO CONTACT THE TELEPHONE COMPANY CABLE LOCATOR 48HRS PRIOR TO EXCAVATION AT 1-800-545-6005,. CONTRACTOR HAS THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY DURING CONSTRUCTION.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTORS IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATIONS.

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Drawing Name: N:\Projects\VA00001 Harris Tract\Civil\Construction Drawings\45 WATER DETAILS II.dwg User: rhoffmeyerhahn Feb 14, 2024 - 1:01pm

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED PROFESSIONAL ENGINEER
02/14/2024

GEHAN HOMES
9601 MCALLISTER FREEWAY, STE 600,
SAN ANTONIO, TX 78216

CLEAR CREEK SUBDIVISION
UNIT-1

WATER DETAILS II

SHEET 45 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
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3	1-15-2024	UPDATED PER CONB COMMENTS
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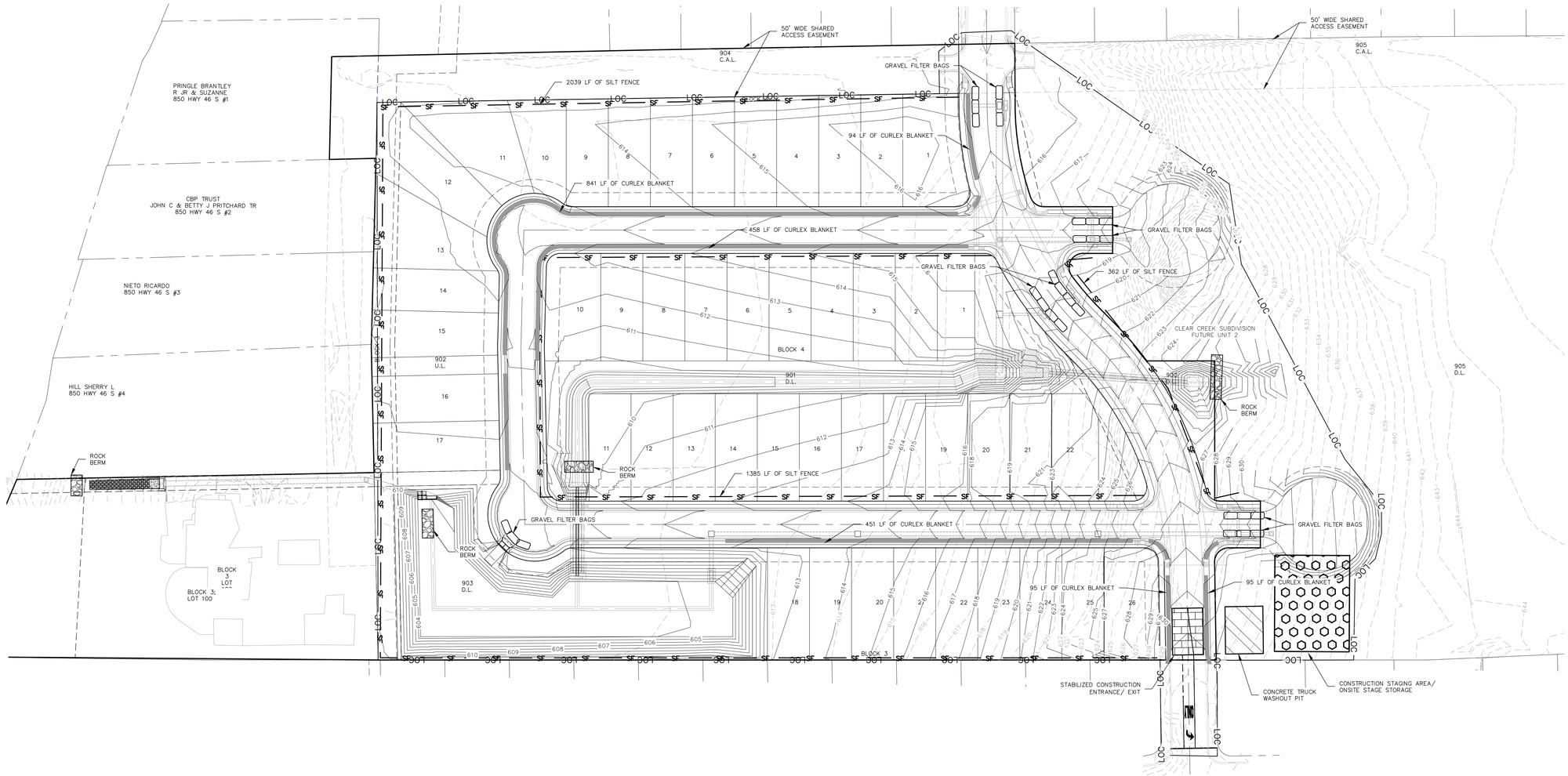
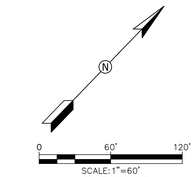




LEGEND

- SF — SILT FENCE
- CURLEX BLANKET
- BOUNDARY OF DISTURBED AREA
- 900 — EXISTING CONTOURS
- 900 — PROPOSED CONTOURS
- EDGE OF PAVEMENT
- FLOW ARROWS
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING TREE
- STABLIZED CONSTRUCTION ENTRANCE/EXIT
- TRUCK WASH OUT PIT
- CONSTRUCTION STAGING AREA
- ROCK BERM
- GRAVEL FILTER BAGS

SEQUENCE OF CONSTRUCTION:

1. OBTAIN CITY APPROVED SITE PREPARATION PLANS, AND TPDES PERMIT (NOT A COPY OF THE TPDES APPLICATION TO TCEQ), IF APPLICABLE.
2. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
3. BEGIN DEMOLITION ACTIVITIES, IF APPLICABLE.
4. BEGIN SITE CLEARING AND GRADING.
5. RESTORE AND REVEGETATE ALL DISTURBED AREAS NOT UNDER IMPERMEABLE IMPROVEMENTS.
6. COMPLETE ANY REMAINING "PUNCH LIST" ITEMS.
7. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROLS AFTER PERMANENT STABILIZATION IS AT LEAST 70% EVENLY ESTABLISHED. RYE IS NOT ACCEPTED.

EROSION CONTROL NOTES:

1. LIMITS OF CONSTRUCTION AND OTHER EROSION CONTROL IMPROVEMENTS SHOWN OUTSIDE THE PROPERTY ARE SHOWN FOR GRAPHICAL PURPOSE ONLY. IF NEAR PROPERTY LINE, THE INTENT IS TO BE PLACED NEAR THE PROPERTY LINE, NOT ON THE ADJACENT PROPERTY.
2. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.
3. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.
4. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED IN THE SWPPP DOCUMENTS AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.
5. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.
6. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.
7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.
8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.
9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UP-GRADIENT AREAS.
10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.
12. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 12.2(N).

RESIDENTIAL LOT STABILIZATION

1. CURELX BLANKET (I) (4' MIN WIDTH) OR ENGINEER APPROVED EQUAL
2. CURLEX MUST BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
3. MAX SLOPE FOR CURLEX (I) < 2H : 1V

SOIL STABILIZATION NOTE

PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

SUBSTANTIAL GRADING IS PROPOSED WITH THIS UNIT. PER THE NEW BRAUNFELS DRAINAGE AND EROSION CONTROL DESIGN MANUAL SEC. 13.2(N), STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE TIME.

HYDRAULIC MULCH

MATERIALS:

HYDRAULIC MULCHES: WOOD FIBER MULCH CAN BE APPLIED ALONE OR AS A COMPONENT OF HYDRAULIC MATRICES. WOOD FIBER APPLIED ALONE IS TYPICALLY APPLIED AT THE RATE OF 2,000 TO 4,000 LB/ACRE. WOOD FIBER MULCH IS MANUFACTURED FROM WOOD OR WOOD WASTE FROM LUMBER MILLS OR FROM URBAN SOURCES.

HYDRAULIC MATRICES: HYDRAULIC MATRICES INCLUDE A MIXTURE OF WOOD FIBER AND ACRYLIC POLYMER OR OTHER TACKIFIER AS BINDER. APPLY AS A LIQUID SLURRY USING A HYDRAULIC APPLICATION MACHINE (I.E., HYDRO SEEDER) AT THE FOLLOWING MINIMUM RATES, OR AS SPECIFIED BY THE MANUFACTURER TO ACHIEVE COMPLETE COVERAGE OF THE TARGET AREA: 2,000 TO 4,000 LB/ACRE WOOD FIBER MULCH, AND 5 TO 10% (BY WEIGHT) OF TACKIFIER (ACRYLIC COPOLYMER, GUAR, PSYLLIUM, ETC.)

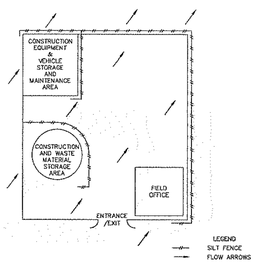
BONDED FIBER MATRIX: BONDED FIBER MATRIX (BFM) IS A HYDRAULICALLY APPLIED SYSTEM OF FIBERS AND ADHESIVES THAT UPON DRYING FORMS AN EROSION RESISTANT BLANKET THAT PROMOTES VEGETATION, AND PREVENTS SOIL EROSION. BFMS ARE TYPICALLY APPLIED AT RATES FROM 3,000 LB/ACRE TO 4,000 LB/ACRE BASED ON THE MANUFACTURER'S RECOMMENDATION. A BIODEGRADABLE BFM IS COMPOSED OF MATERIALS THAT ARE 100% BIODEGRADABLE. THE BINDER IN THE BFM SHOULD ALSO BE BIODEGRADABLE AND SHOULD NOT DISSOLVE OR DISPERSE UPON RE-WETTING. TYPICALLY, BIODEGRADABLE BFMS SHOULD NOT BE APPLIED IMMEDIATELY BEFORE, DURING OR IMMEDIATELY AFTER RAINFALL IF THE SOIL IS SATURATED. DEPENDING ON THE PRODUCT, BFMS TYPICALLY REQUIRE 12 TO 24 HOURS TO DRY AND BECOME EFFECTIVE.

INSTALLATION:

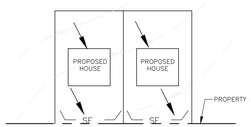
1. PRIOR TO APPLICATION, ROUGHEN EMBANKMENT AND FILL AREAS BY ROLLING WITH A CRIMPING OR PUNCHING TYPE ROLLER OR BY TRACK WALKING. TRACK WALKING SHALL ONLY BE USED WHERE OTHER METHODS ARE IMPRACTICAL.
2. TO BE EFFECTIVE, HYDRAULIC MATRICES REQUIRE 24 HOURS TO DRY BEFORE RAINFALL OCCURS.
3. AVOID MULCH OVER SPRAY ONTO ROADS, SIDEWALKS, DRAINAGE CHANNELS, EXISTING VEGETATION, ETC.
4. 4" OF TOP SOIL SHALL BE PLACED.

INSPECTION AND MAINTENANCE GUIDELINES:

1. MULCHED AREAS SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.
2. AREAS DAMAGED BY STORMS OR NORMAL CONSTRUCTION ACTIVITIES SHOULD BE REGRADED AND HYDRAULIC MULCH REAPPLIED AS SOON AS PRACTICAL.

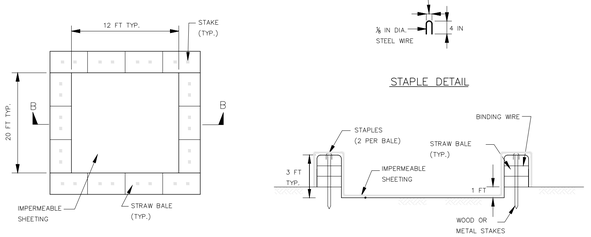


TYPICAL CONSTRUCTION STAGING AREA



TYPICAL SILT FENCE AT RESIDENTIAL LOT

NOTE:
RESIDENTIAL LOT CONSTRUCTION MUST MEET THE REQUIREMENTS OF THIS WPAP AS WELL AS WITH LOCAL, STATE, AND FEDERAL REGULATIONS. TEMPORARY BMPS MUST BE IN PLACE PRIOR TO ANY RESIDENTIAL LOTS CONSTRUCTION.



TYPICAL CONCRETE TRUCK WASHOUT PIT

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CLEAR CREEK SUBDIVISION UNIT-1

EROSION CONTROL PLAN

SHEET 46 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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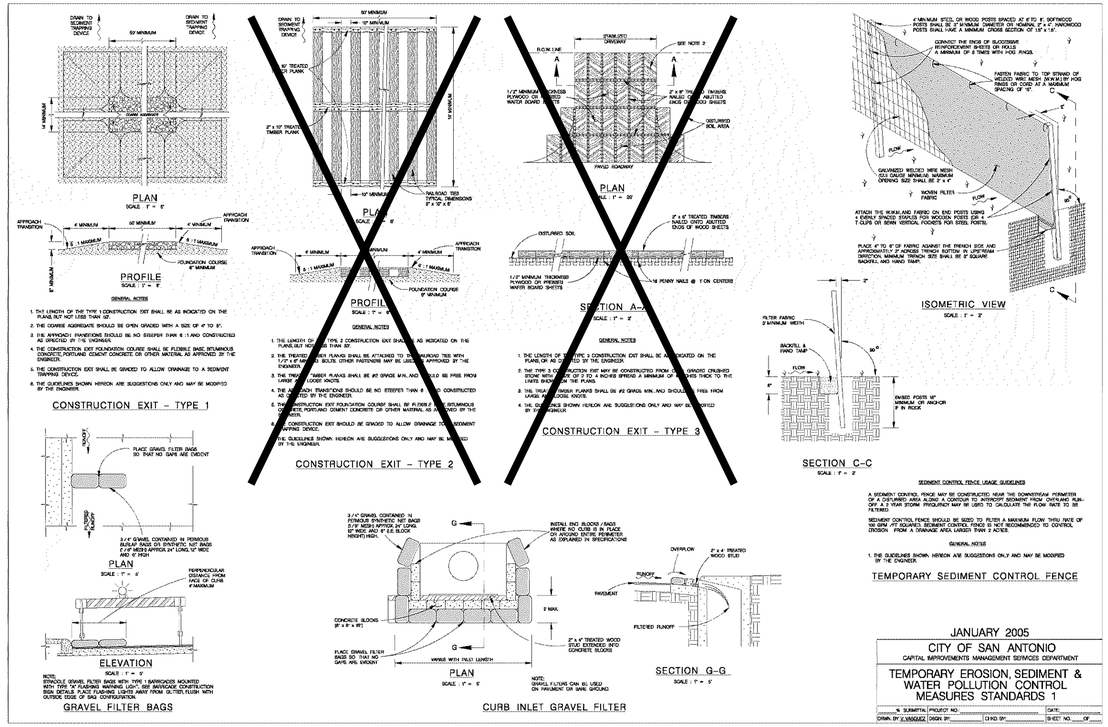

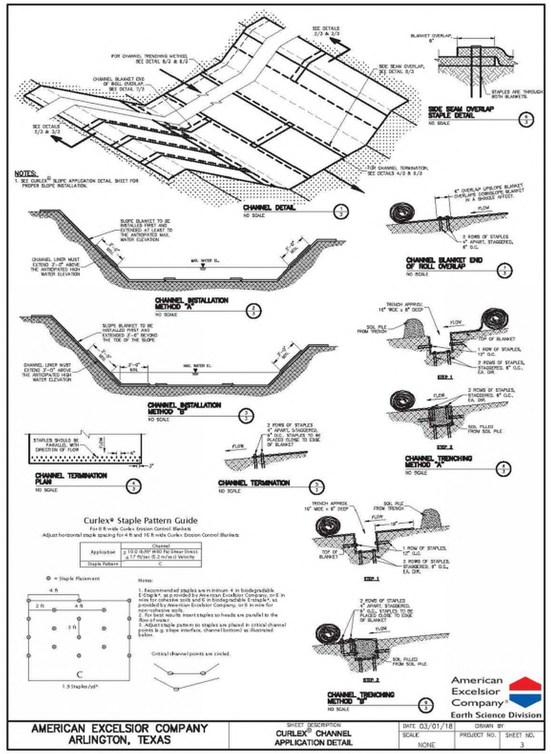

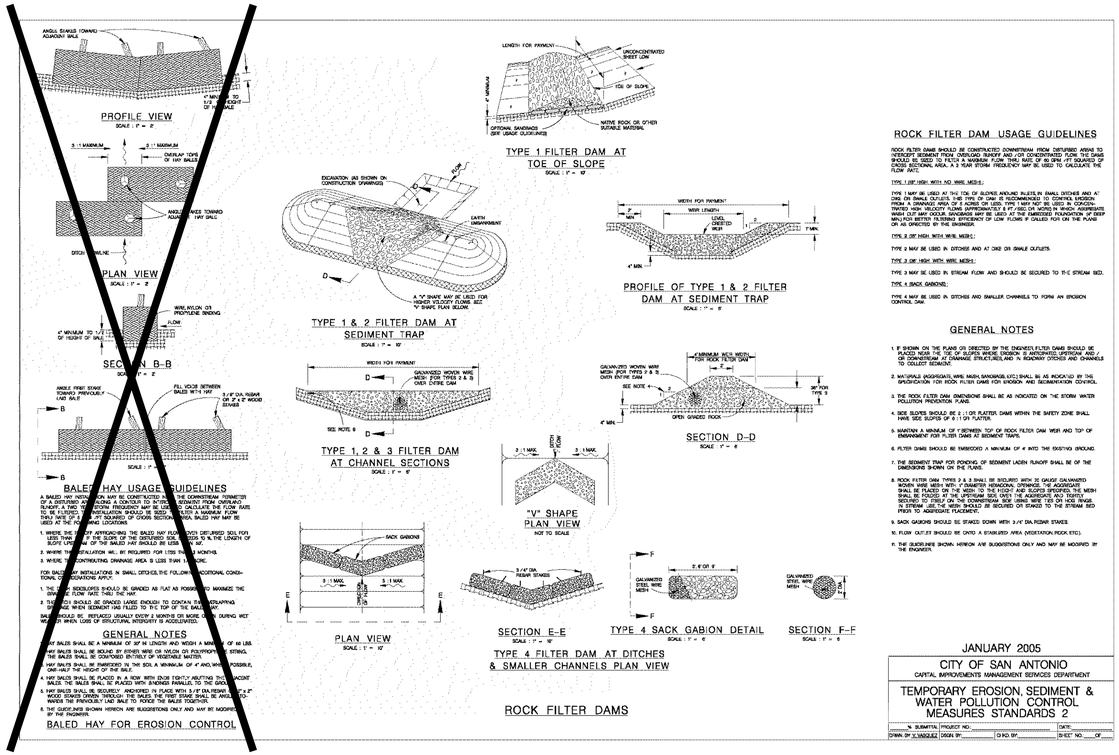

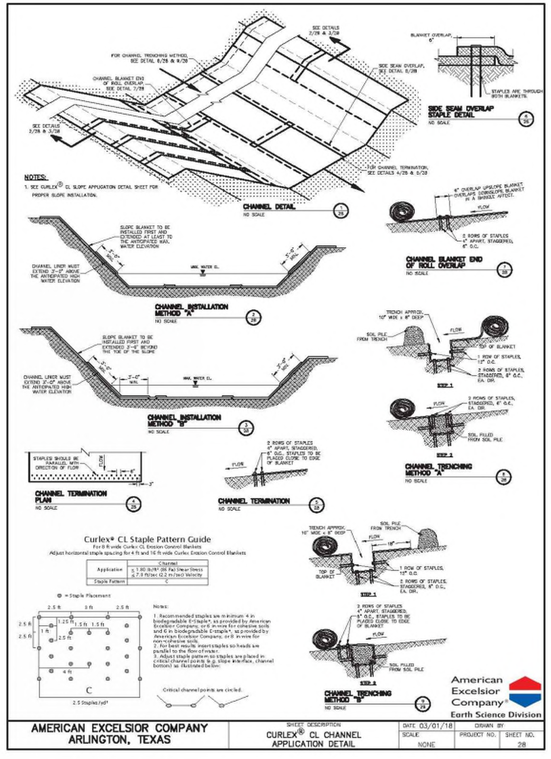

STATE OF TEXAS
JAMES INGALLS
107416
LICENSED
PROFESSIONAL ENGINEER
02/14/2024

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CLEAR CREEK SUBDIVISION
UNIT-1

EROSION CONTROL DETAILS I

SHEET 47 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
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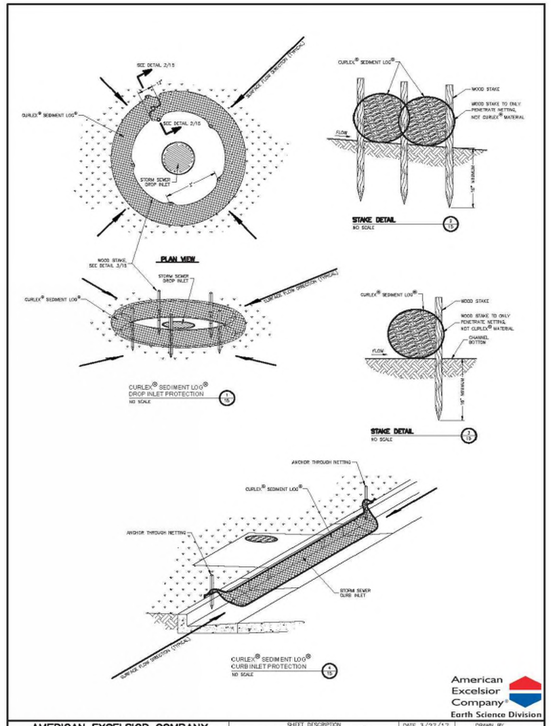

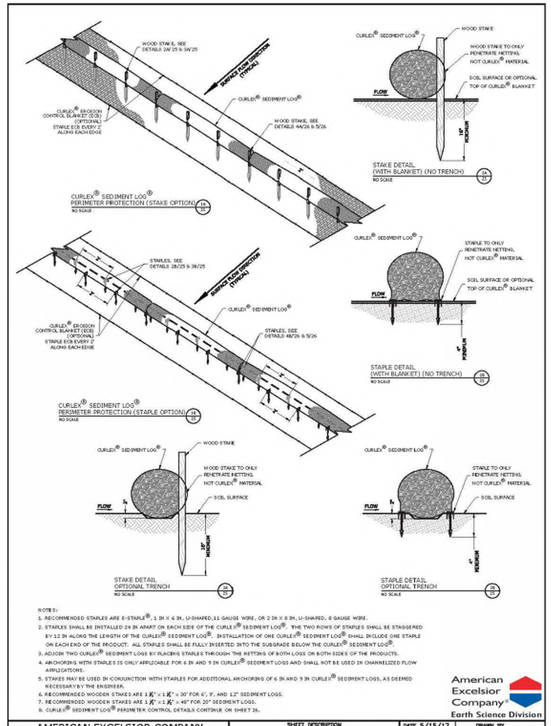

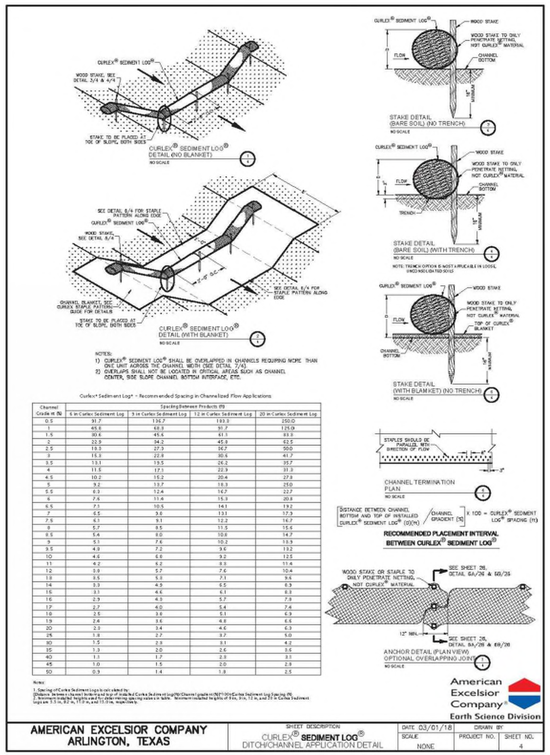

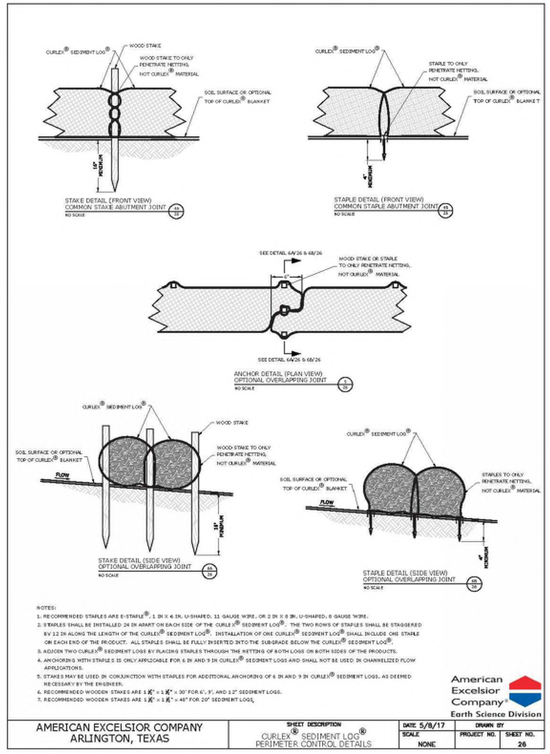

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CLEAR CREEK SUBDIVISION
UNIT-1

EROSION CONTROL DETAILS II

SHEET 48 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
4	2-1-2024	UPDATED PER CONB COMMENTS
5	2-14-2024	UPDATED PAVEMENT SECTIONS PER CONB COMMENTS

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0 80' 160'

SCALE: 1"=80'

BOUNDARY LINE
EXISTING OVERHEAD ELECTRIC LINE
EXISTING GUY WIRE
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING STORM DRAIN MANHOLE
EXISTING SIGN
EXISTING WATER METER
EXISTING WATER VALVE
EXISTING FIRE HYDRANT

CONCRETE TO BE REMOVED

- XX XX XX XX XX XX- TO BE REMOVED

STATE OF TEXAS
JAMES INGALLS
107416
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02/14/2024

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CLEAR CREEK SUBDIVISION UNIT-1

DEMOLITION PLAN

SHEET 49 OF 49

NO	DATE	ISSUES AND REVISIONS
1	9-28-2023	UPDATED PER CONB COMMENTS
2	11-17-2023	UPDATED PER CONB COMMENTS
3	1-15-2024	UPDATED PER CONB COMMENTS
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