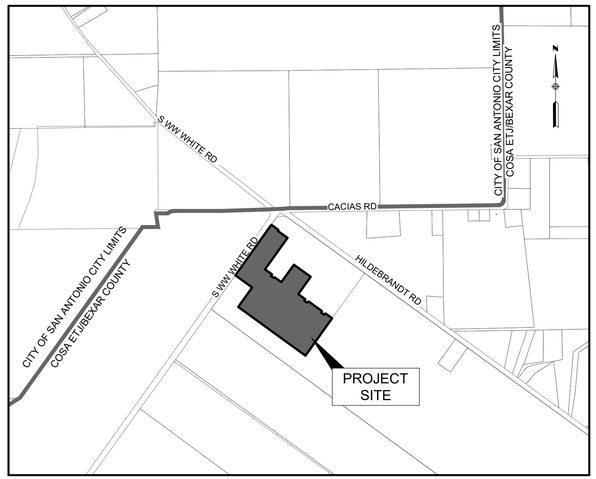
RED HAWK LANDING UNIT 1B SUBDIVISION

PAVING, DRAINAGE, WATER, AND WASTEWATER IMPROVEMENTS

LAND-PLAT 24-11800048

SAN ANTONIO, TEXAS 78223

BEXAR COUNTY



LOCATION MAP

(N.T.S.)

SUBMITTAL DATE: AUGUST 2024

RED HAWK LANDING SUBDIVISION UNIT 1B

SHEET NUMBER	SHEET DESCRIPTION
1	COVER
1.1	GENERAL NOTES
2.0	UTILITY PLAN (SHEET 1 OF 3)
2.1	UTILITY PLAN (SHEET 2 OF 3)
2.2	UTILITY PLAN (SHEET 3 OF 3)
3.0	EXISTING DRAINAGE AREA MAP
3.1	PROPOSED & ULTIMATE DRAINAGE AREA MAP
3.2	GRADING PLAN (SHEET 1 OF 3)
3.3	GRADING PLAN (SHEET 2 OF 3)
3.4	GRADING PLAN (SHEET 3 OF 3)
4.0	DRAIN 'A' STA 1+00 TO END
4.1	DRAIN 'B' STA 1+00 TO END
4.2	DRAIN 'C' STA 1+00 TO END
4.3	DRAIN 'D' STA 1+00 TO END
4.4	DRAIN 'E' STA 1+00 TO END
4.5	S WW WHITE RD BARDITCH STA 6+00 TO END
4.6	DRAINAGE DETAIL SHEET 1
4.7	DRAINAGE DETAIL SHEET 2
4.8	DRAINAGE DETAIL SHEET 3
5.0	HARLANS PATH STA 1+00 TO END
5.1	KETTLES RDG STA 1+00 TO END
5.2	RAPTOR HL STA 1+00 TO END
5.3	EYAS MDWS STA 1+00 TO END
5.4	SHARPIES CYN STA 1+00 TO END
5.5	OSPREY CRK STA 1+00 TO END
5.6	FALCON FLD & KESTREL HOLW STA 1+00 TO END
5.7	SIGNAGE PLAN
5.8	TRAFFIC DETAILS SHEET 1
5.9	TRAFFIC DETAILS SHEET 2
6.0	WATER COVER
6.1	WATER PLAN SHEET 1
6.2	WATER PLAN SHEET 2
6.3	WATER PLAN SHEET 3
7.0	WASTEWATER COVER
7.1	WASTEWATER PLAN SHEET 1
7.2	WASTEWATER PLAN SHEET 2
7.3	WASTEWATER PLAN SHEET 3
7.4	WWL 'F' STA 1+00 TO 5+00
7.5	WWL 'F' STA 5+00 TO END
7.6	WWL 'G' STA 1+00 TO END
7.7	WWL 'A' STA 1+00 TO END
7.8	WWL 'B' STA 1+00 TO END
7.9	WWL 'C' STA 1+00 TO END
8.0	STORMWATER POLLUTION PREVENTION PLAN
8.1	STORMWATER POLLUTION PREVENTION DETAILS

PROPERTY DESCRIPTION

BEING OF A 24.64 ACRE TRACT OF LAND OUT OF THE JUAN MONTEZ SURVEY NO. 6, ABSTRACT NO. 11, COUNTY BLOCK 4007, BEXAR COUNTY, TEXAS, BEING OUT OF THE REMAINDER OF A 277.6 ACRE TRACT DESCRIBED IN DEED TO ARLENE WITZEL, DANIEL R. BECK AND BARBARA J. REEVES OF RECORD IN VOLUME 17049, PAGE 830, OFFICIAL PUBLIC RECORDS, BEXAR COUNTY, TEXAS.

BENCHMARK INFORMATION:

TBM A: IR W/ ALUM LJA CAP
ELEVATION = 594.116

TBM B: IR W/ ALUM LJA CAP
ELEVATION = 577.312

TBM C: IR W/ALUM LJA CAP
ELEVATION = 590.163

VERTICAL DATUM: NAVD-88/NAD-83 SPC-SOUTH CENTRAL

THIS INFORMATION PROVIDED BY LJA SURVEY

DEVELOPER: CASTLEROCK COMMUNITIES LLC
CONTACT: KIRK BREITENWISCHER
2401 FOUNTAIN VIEW DR, SUITE 215
HOUSTON, TX 77057
PHONE: (210) 797-7205

ENGINEER: LJA ENGINEERING, INC.
9830 COLONNADE BLVD, SUITE 300
SAN ANTONIO, TEXAS 78230
CONTACT PERSON: RICK GRAY, PE
PHONE # (210) 503-2700

SURVEYOR: RICKMAN LAND SURVEYING
419 BIG BEND
CANYON LAKE, TEXAS 78133
CONTACT PERSON: AMIL M. BAKER, JR.
PHONE # (830) 935-2457

CONTOUR DATA: LJA SURVEYING

LJA JOB NO. SA201-0401-426

REVISIONS			
NO.	DESCRIPTION	BY	DATE

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

811 Know what's below. Call before you dig.

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.

9830 Colonnade Blvd.
Suite 300
San Antonio, Texas 78230

Phone 210.503.2700
LJA.COM
FRN-F-1386

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION JUNE 2008, OR LATEST.
2. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED IN THE BID PROPOSAL. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
3. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION ANY DAMAGE DONE TO EXISTING FENCES, CONCRETE ISLANDS, STREET PAVING, CURBS, SHRUBS, BUSHES, EXISTING WOODEN FENCES, ORNAMENTAL STONE PLANTERS, OR DRIVEWAYS. (NO SEPARATE PAY ITEM).
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". THE CITY'S CONSTRUCTION INSPECTOR AND TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF, IN THE OPINION OF THE TRAFFIC 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.
6. IF THE NEED ARISES, ADDITIONAL BARRICADES AND DIRECTIONAL DEVICES MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.171 C.P.S. 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.
8. CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKS, ETC. IF ANY ARE DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS EMPLOYEES, THEY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
9. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY THE FOLLOWING AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO EXCAVATION OPERATION:

SAN ANTONIO WATER SYSTEM (SAWS)	233-2010
COSA DRAINAGE	207-8048
COSA SIGNAL OPERATIONS	207-7720 / 207-7765
TEXAS STATE WIDE ONE CALL LOCATOR	1-800-344-8377
-CITY PUBLIC SERVICE ENERGY	
-SPECTRUM (TIME WARNER)	
-AT&T	
-MCI	

10. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED, BUT SHALL BE INVESTIGATED AND VERIFIED BY THE CONTRACTOR BEFORE STARTING WORK. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES AND FOR THE MAINTENANCE AND PROTECTION OF THE EXISTING UTILITIES EVEN IF THEY ARE NOT SHOWN ON THE PLANS. LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND HE SHALL BE RESPONSIBLE FOR PROTECTION OF SAME DURING CONSTRUCTION.
11. ALL WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE PROJECT. NO WASTE MATERIAL SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING ARTIFICIAL OR NATURAL DRAINAGE.
12. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
13. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND / OR TRACKED CONSTRUCTION MATERIALS AND / OR DEBRIS.
14. IF THE CONTRACTOR ENCOUNTERS ANY ARCHAEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY, CONTACT THE CITY INSPECTOR, AND CALL THE CITY HISTORIC PRESERVATION OFFICE AT 207-7306 OR 207-3327 FOR AN ARCHAEOLOGICAL INVESTIGATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION AGAIN WITHOUT WRITTEN PERMISSION FROM THE CITY. IF MORE THAN THREE (3) DAYS ARE REQUIRED FOR INVESTIGATION (NOT INCLUDING HOLIDAY AND WEEKENDS) AND IF THE CONTRACTOR IS UNABLE TO WORK IN OTHER AREAS, THEN THE CONTRACTOR WILL BE ALLOWED TO NEGOTIATE FOR ADDITIONAL CONSTRUCTION TIME UPON WRITTEN REQUEST WITHIN TEN (10) DAYS AFTER THE FIRST NOTICE TO THE CITY OF ARCHAEOLOGICAL INVESTIGATION FOR EACH EVENT. IF THE TIME REQUIRED FOR INVESTIGATION IS LESS THAN OR EQUAL TO THREE (3) DAYS FOR EACH EVENT, CONTRACT DURATION WILL NOT BE EXTENDED.
15. IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, C.O.S.A. SHALL BE NOTIFIED IMMEDIATELY WHEN CONTAMINATED SOILS AND / OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION AND MEASURES TAKEN TO CONTAIN THE CONTAMINATED MEDIA AND PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL AND / OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR C.O.S.A APPROVAL. THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE C.O.S.A. INSPECTOR. THE CONTRACTOR CANNOT BEGIN EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE CITY.
16. CONTRACTOR IS TO INCLUDE A MAILBOX POST BLOCKOUT FOR VACANT LOTS AND ALL RESIDENCES WHICH DO NOT HAVE MAILBOXES AT THE CURB. BLOCKOUTS ARE PROVIDED FOR FUTURE USE BY THE POST OFFICE.
17. CONTRACTOR SHALL NOT REMOVE OR ADJUST ANY VIA FACILITIES. THE CONTRACTOR MUST CONTACT VIA FOURTEEN DAYS PRIOR, FOR THE REMOVAL OF BENCHES, STOP POLES OR ANY OTHER VIA FACILITIES THAT MAY BE PRESENT. PLEASE PROVIDE THIRTY DAYS PRIOR NOTICE FOR SHELTER REMOVAL (TELEPHONE NOS: (210) 362-2155 OR (210) 362-2096). THE CONTRACTOR WILL BE LIABLE FOR ANY DAMAGES TO VIA FACILITIES NOT REMOVED BY VIA. THE CONTRACTOR IS REQUIRED TO REPLACE ALL FLATWORK REMOVED OR DAMAGED IN THE COURSE OF EXECUTING THE CONTRACT UNLESS OTHERWISE NOTED BY VIA. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING VIA FACILITIES IF ADJACENT TO WORK AREA.

TREE PROTECTION AND PRESERVATION GENERAL NOTES

1. NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
2. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. DURING CONSTRUCTION ACTIVITY, AT LEAST A SIX-INCH LAYER OF COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE (NO SEPARATE PAY ITEM).
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
4. ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
5. ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
7. NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS 1 FOOT OF RADIUS PER INCH OF TREE'S DIAMETER. A 10-INCH DIAMETER TREE WOULD HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. OAK WOUNDS SHALL BE PAINTED OVER WITHIN 30 MINUTES TO PREVENT OAK WILT.
8. SAPLINGS, SHRUBS OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A LARGE TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
9. NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
10. TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE CITY STREET OR ALLEY RIGHT-OF-WAY OR PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES SHALL BE PROPERLY PRUNED FOLLOWING THE ANSI A-300 STANDARDS FOR PRUNING. ALL TREE PRUNING SHALL BE COMPLETED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED CONTRACTOR (ARTICLE 21-171, CITY CODE) ONLY AFTER APPROVAL FROM THE CAPITAL PROJECTS MANAGEMENT THROUGH THE INSPECTOR.
11. NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
12. ALL DEBRIS GENERATED BY THE PRUNING AND TRIMMING OF THE TREES AND / OR BUSHES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY (NO SEPARATE PAY ITEM).
13. TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE, BUT NOT LIMITED TO: WATERING THE ROOT PROTECTION ZONE, WASHING FOLIAGE, FERTILIZATION, PRUNING, ADDITIONAL MULCH APPLICATIONS AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT.
14. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (210) 207-0278
15. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
16. TREE PLANTING FOR MITIGATION OR ENHANCEMENT: ALL PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATION, FERTILIZING, PRUNING AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT. TREES THAT DIE WITHIN TWELVE (12) MONTHS SHALL BE REPLACED WITH A TREE OF EQUAL SIZE AND SPECIES.

ACCESSIBILITY REQUIREMENTS

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS AT ALL TIMES TO LOCAL RESIDENCES AND BUSINESSES.
2. WHEN THE WORK REQUIRES THE EXCAVATION OF THE STREET AND THE REMOVAL OF THE EXISTING DRIVEWAY APPROACHES AND SIDEWALKS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY ALL-WEATHER ACCESS TO THE BUSINESSES AND RESIDENCES. THE TEMPORARY DRIVEWAY APPROACHES SHALL BE CONSTRUCTED WITH FLEXIBLE BASE OR GRAVEL MATERIAL AT NO SEPARATE COST TO THE CITY.
3. PRIOR TO INITIATING THE CONSTRUCTION OF NEW DRIVEWAY APPROACHES, THE CONTRACTOR SHALL GIVE ADVANCE WARNING IN PERSON, OR IN WRITING, OF AT LEAST 48 HOURS TO EACH RESIDENCE THAT WILL BE IMMEDIATELY AFFECTED, SO THAT ALTERNATE PLANS MAY BE MADE BY THE RESIDENTS.
4. FOR BUSINESSES WITH MORE THAN ONE DRIVEWAY, AT LEAST ONE DRIVEWAY SHALL REMAIN OPEN WHILE THE OTHER NEW DRIVEWAY APPROACHES ARE CONSTRUCTED. FOR BUSINESSES WITH ONLY ONE DRIVEWAY, THE NEW DRIVEWAY APPROACH SHALL BE CONSTRUCTED IN HALF WIDTHS, UNLESS A TEMPORARY ASPHALT DRIVEWAY IS FIRST INSTALLED AT NO SEPARATE COST TO THE CITY.

REVISED JULY 2017

SAWS CONSTRUCTION NOTES COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT

GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.
12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

WATER SECTION

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
   - FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014
2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)
4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. ALL VALVES SHALL READ "OPEN RIGHT".
6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF "PRV IS/ARE REQUIRED FOR SUCH LOT(S). ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. "NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).
7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.
8. BACKFLOW PREVENTION DEVICES:
   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.

SEWER NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

   SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

   NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.
2. IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".
3. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.
5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)
6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.
7. MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
GENERAL NOTES

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_General Notes.dwg

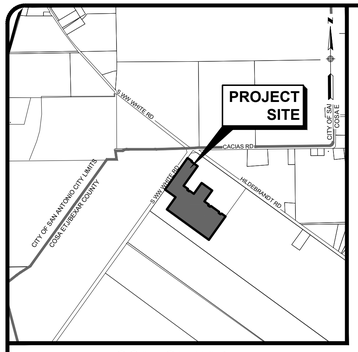
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 1.1

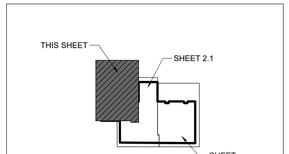
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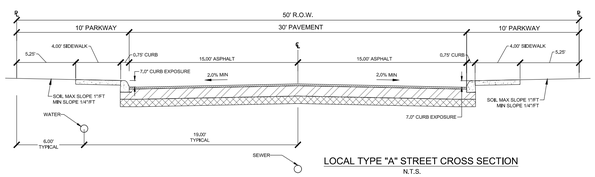
LOCATION MAP
N.T.S.

GENERAL NOTES

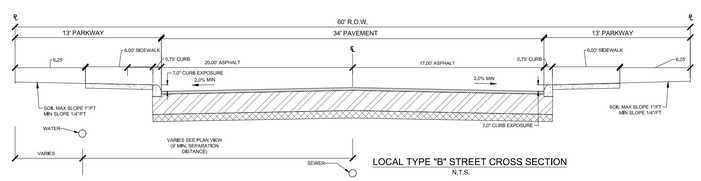
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3. ALL VALVES SHALL READ "OPEN RIGHT".
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9. CONTRACTOR TO REFERENCE MOST CURRENT SAWS DETAILS & SPECIFICATIONS. FOR SEWER MANHOLES REFERENCE SAWS STANDARD SPECIFICATION ITEM NO. 852.
10. PROJECT DESIGNED IN TX8-SCF GRID. CONVERSION FACTOR TO SURFACE = 1.00013
11. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING SAWS STANDARD SPECIFICATION 804 FOR EXCAVATION, TRENCHING AND BACKFILLING REQUIREMENTS AND STANDARD SPECIFICATION 812 FOR WATER/SEWER SEPARATION REQUIREMENTS.



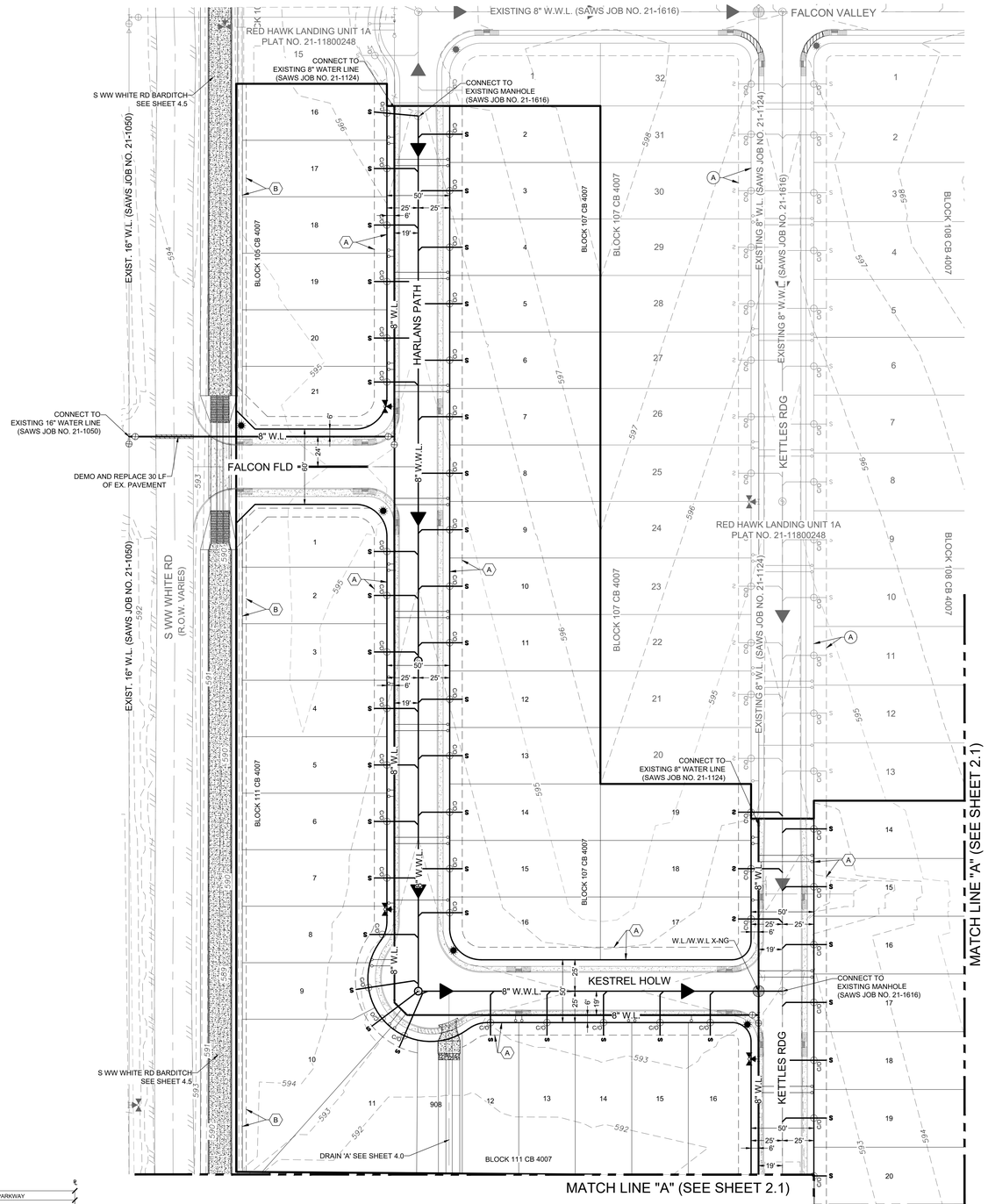
SHEET INDEX
N.T.S.



LOCAL TYPE "A" STREET CROSS SECTION
N.T.S.

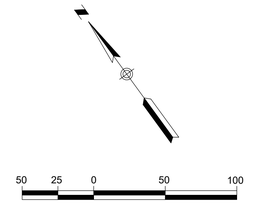


LOCAL TYPE "B" STREET CROSS SECTION
N.T.S.



LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
		SANITARY SEWER LATERAL
C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE
		PHASE LINE



SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

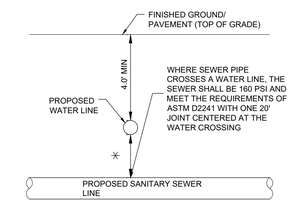
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



* SEPARATION DISTANCE TO COMPLY WITH TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E AND 30 TAC 217.53(D) APPENDIX D- SEPARATION DISTANCE

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NTS

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
UTILITY LAYOUT (SHEET 1 OF 3)

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Utility Plan.dwg

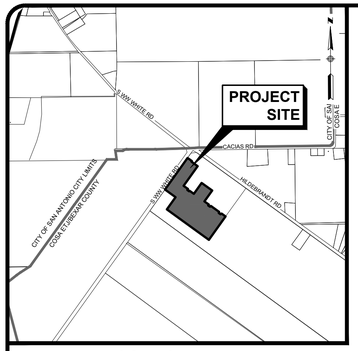
STATE OF TEXAS
RICHARD W. GRAY III
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08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
2.0

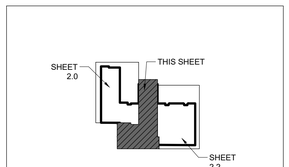
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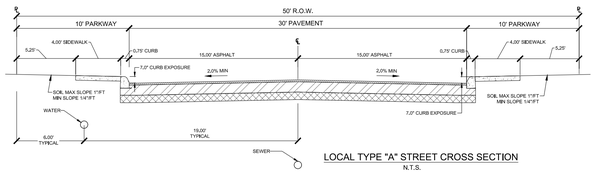
LOCATION MAP
N.T.S.

GENERAL NOTES

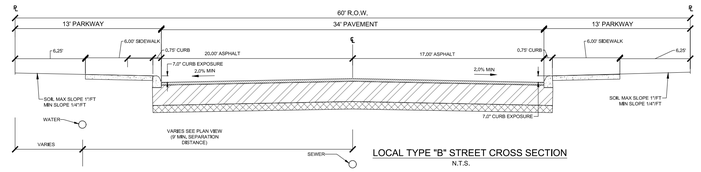
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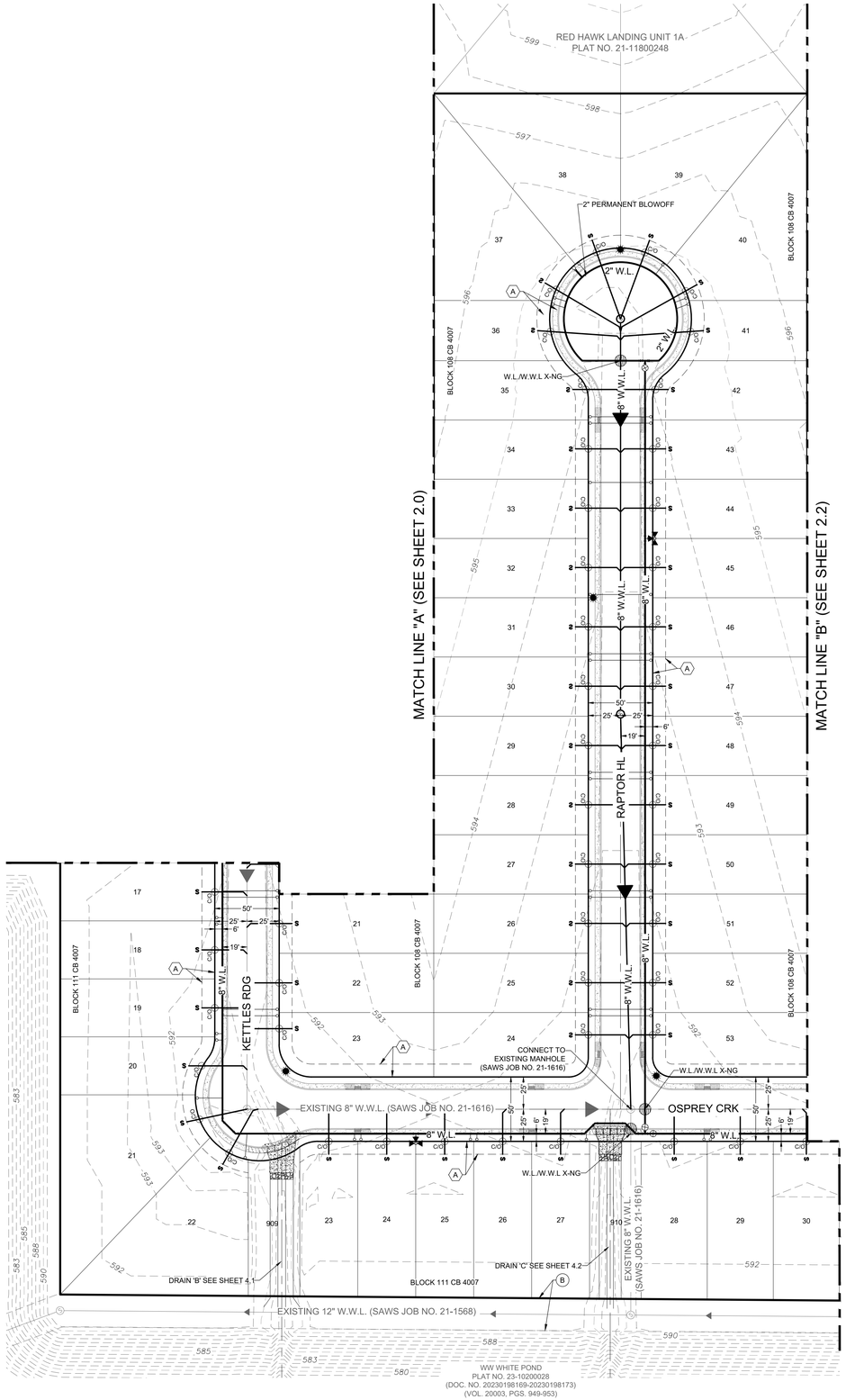
SHEET INDEX
N.T.S.



LOCAL TYPE "A" STREET CROSS SECTION
N.T.S.



LOCAL TYPE "B" STREET CROSS SECTION
N.T.S.



LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
c/o	c/o	SANITARY SEWER LATERAL CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
OU	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE PHASE LINE

50 25 0 50 100

SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

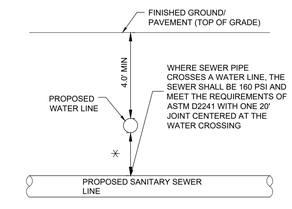
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TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NTS

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
UTILITY LAYOUT (SHEET 2 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Utility Plan.dwg

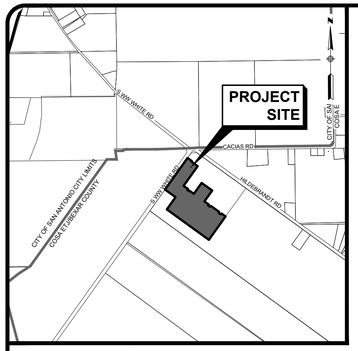
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JOB NUMBER: SA201-0401B-426

SHEET NO. 2.1

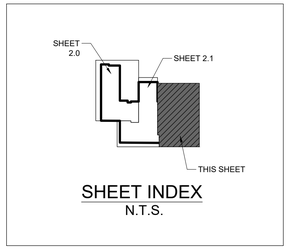
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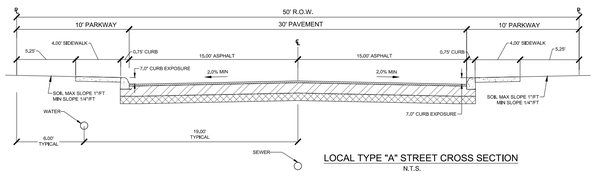
LOCATION MAP
N.T.S.

GENERAL NOTES

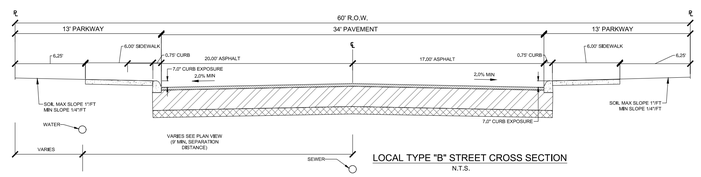
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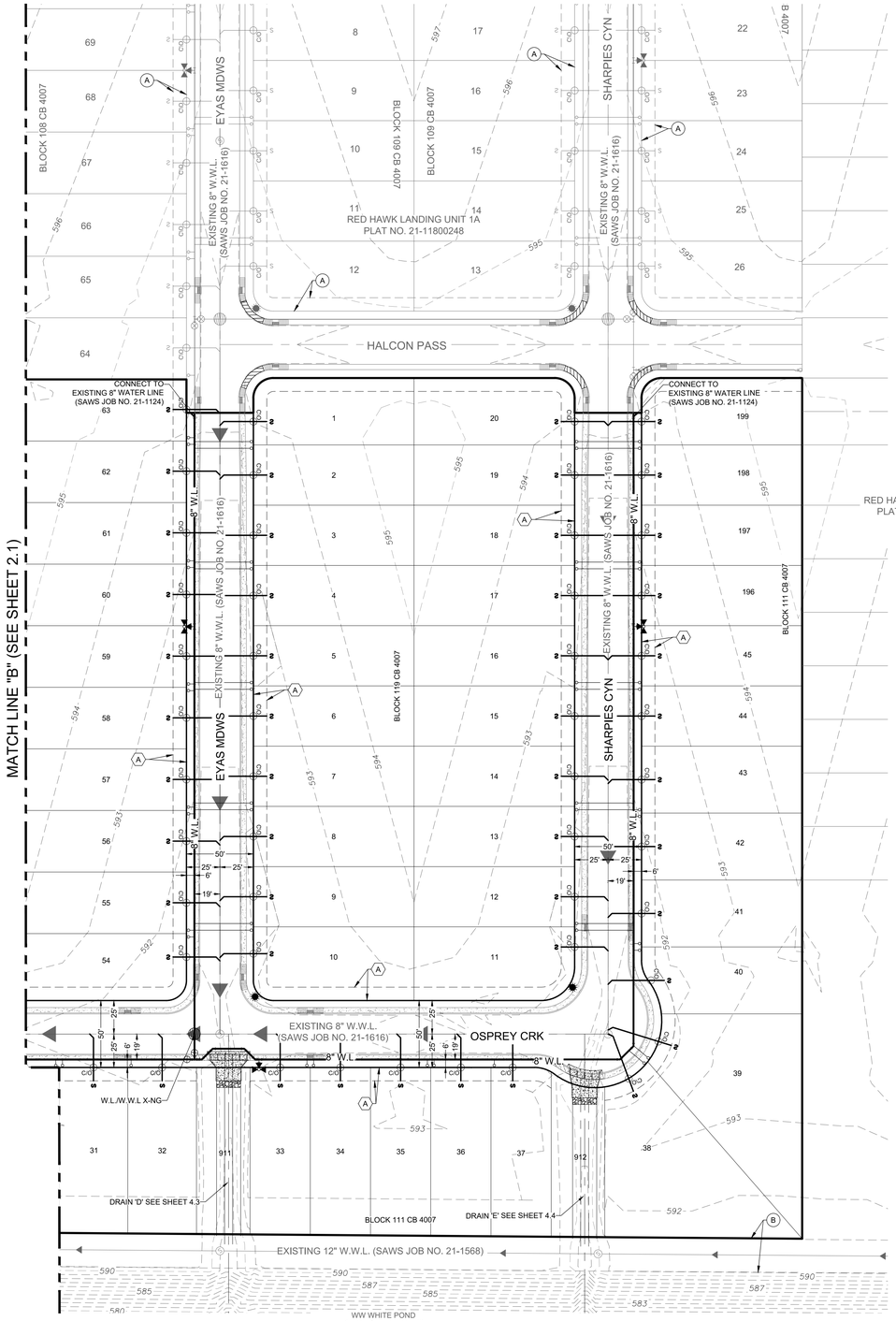
SHEET INDEX
N.T.S.



LOCAL TYPE "A" STREET CROSS SECTION
N.T.S.

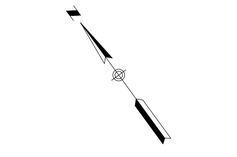


LOCAL TYPE "B" STREET CROSS SECTION
N.T.S.



LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
		SANITARY SEWER LATERAL
C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE PHASE LINE



50 25 0 50 100

SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

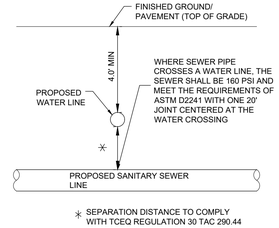
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



* SEPARATION DISTANCE TO COMPLY WITH TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E AND 30 TAC 217.53(D) APPENDIX D- SEPARATION DISTANCE

TYPICAL SANITARY SEWER/WATER CROSSING DETAIL
NTS

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
UTILITY LAYOUT (SHEET 3 OF 3)

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 8/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Utility Plan.dwg

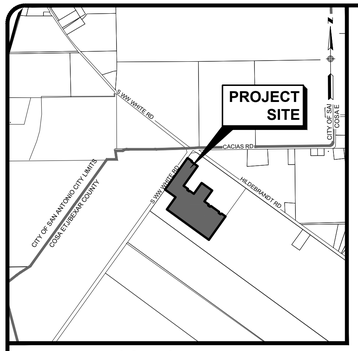
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 2.2

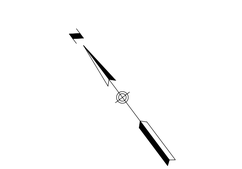
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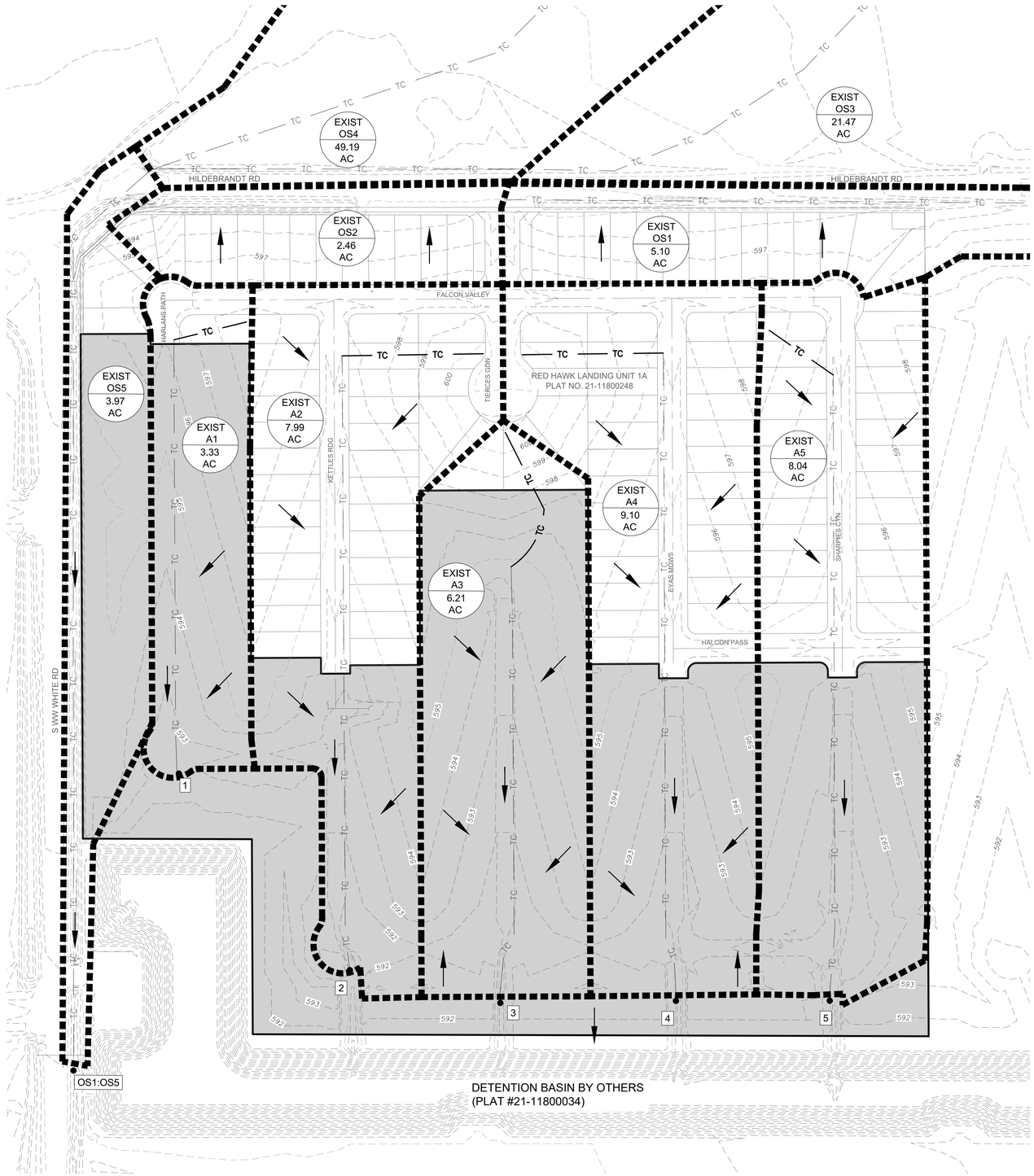
LOCATION MAP
N.T.S.

LEGEND

A / X.X	AREA (BASIN) / ACREAGE
740	EXISTING CONTOUR
620	PROPOSE CONTOUR
	DRAINAGE AREA LIMITS
TC TC	TIME OF CONCENTRATION PATH
	FLOW ARROWS
	PROPOSED BOUNDARY
	EXISTING LOT LINES
A	REFERENCE POINT
	LIMITS OF PROPOSED SITE



SCALE IN FEET
SCALE: 1"=100'



Red Hawk Landing Unit 1B Atlas14 Existing Time of Concentration Table PA_4

Study Point	Sheet Flow (max length = 100') n	L_t(ft)	P_2(in)	S_t%	T_t(min)	Shallow Concentrated Flow Paved/Unpaved	L_{sc}(ft)	S_{sc}%	k	T_{sc}(min)	Channel Flow L(ft)	V(ft/sec)	T_{ch}(min)	Total T_c(min)
1	0.24	100	3.91	1.3	15.3	Unpaved	28	1.9	16.13	0.2	745	4	3.1	**18.65**
2	0.24	100	3.91	1.6	14.1	Unpaved	142	1.6	16.13	1.2	1052	4	4.4	**19.7**
3	0.24	100	3.91	2.8	11.3	Unpaved	166	1.8	16.13	1.3	740	4	3.1	**15.65**
4	0.24	100	3.91	1.6	14.1	Unpaved	142	1.6	16.13	1.2	1106	4	4.6	**19.9**
5	0.24	100	3.91	1.9	13.2	Unpaved	33	1.9	16.13	0.2	1063	4	4.4	**17.85**
OS1:OS5	0.24	100	3.91	0.5	20.0	Unpaved	0	0.2	16.13	0.0	4017	4	16.7	**36.7**
	Eq 5.4.1 $T_t=\frac{0.007(nL_t)^{0.8}}{(P_2)^{0.5}S_t^{0.4}}$					Eq 5.4.2 $T_{sc}=\frac{L_{sc}}{3600KS_{sc}^{0.5}}$					Eq 5.4.3 $T_{ch}=\frac{L_{ch}}{3600*V}$			Eq 5.4 $T_t+T_{sc}+T_{ch}$

Red Hawk Landing Unit 1B Atlas14 Existing Q Flow Table PA_4

Drainage Area Area(s)	A (ac.)	Coefficient C	Intensity I_5(in/hr)	I_{25}(in/hr)	I_{100}(in/hr)	Flow Q_5 (ft³/s)	Q_{25}(ft³/s)	Q_{100}(ft³/s)
EXIST A1	3.33	0.51	4.68	6.44	8.01	**7.95**	**10.93**	**13.60**
EXIST A2	7.99	0.67	4.56	6.26	7.79	**24.39**	**33.53**	**41.68**
EXIST A3	6.21	0.49	5.13	7.08	8.82	**15.60**	**21.53**	**26.84**
EXIST A4	9.10	0.65	4.53	6.23	7.74	**26.79**	**36.82**	**45.77**
EXIST A5	8.04	0.63	4.78	6.59	8.20	**24.23**	**33.37**	**41.53**
OS1:OS5	82.19	0.46	3.31	4.53	5.62	**125.04**	**171.35**	**212.53**

Eq 5.3.1 $Q = CIA$

COMPOSITE DRAINAGE AREAS COEFFICIENT

EXIST A1 = (2.89AC*0.47+0.44AC*0.77)/3.33AC = 0.51
EXIST A2 = (2.68AC*0.47+5.31AC*0.77)/7.99AC = 0.67
EXIST A3 = (5.79AC*0.47+0.42AC*0.77)/6.21AC = 0.49
EXIST A4 = (3.75AC*0.47+5.35AC*0.77)/9.10AC = 0.65
EXIST A5 = (3.70AC*0.47+4.34AC*0.77)/8.04AC = 0.63
OS1:OS5 = (5.10AC*0.77+2.46AC*0.77+21.47AC*0.41+49.19AC*0.41+3.97AC*0.77)/82.19 AC = 0.46

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
EXISTING DRAINAGE AREA MAP

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

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DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
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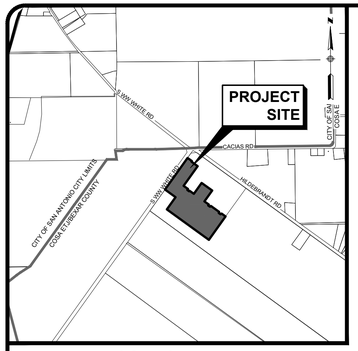
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
3.0

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Plot Date/Time: Jul. 18, 24 - 10:13:39



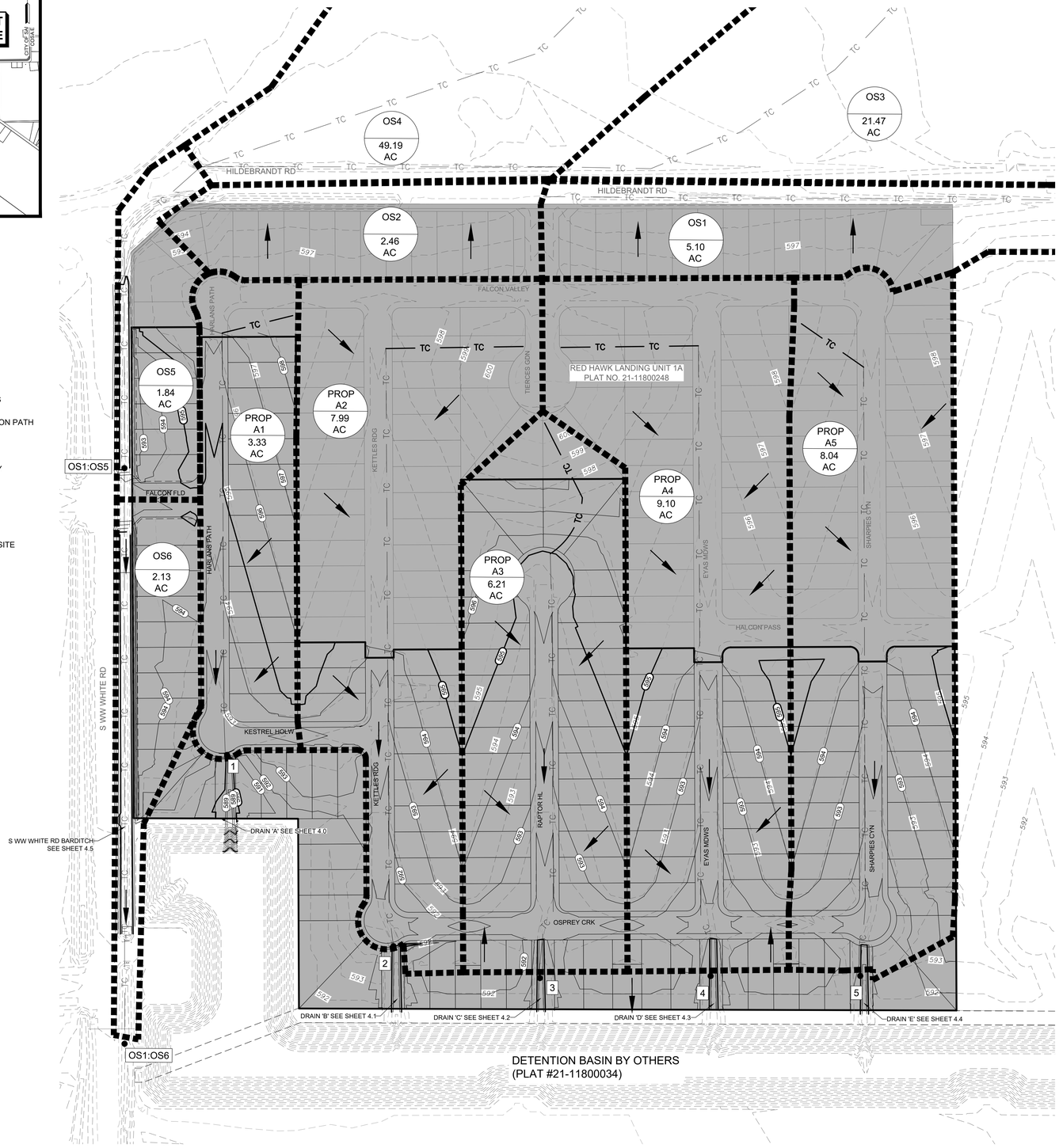
LOCATION MAP
N.T.S.

LEGEND

A / X.X	AREA (BASIN) / ACREAGE
740	EXISTING CONTOUR
620	PROPOSE CONTOUR
	DRAINAGE AREA LIMITS
TC TC	TIME OF CONCENTRATION PATH
	FLOW ARROWS
	PROPOSED BOUNDARY
	EXISTING LOT LINES
A	REFERENCE POINT
	LIMITS OF PROPOSED SITE

100 50 0 100 200

SCALE IN FEET
SCALE: 1"=100'



Red Hawk Landing Unit 1B Atlas14 Proposed Time of Concentration Table PA_4

Study Point	Sheet Flow (max length = 100') n	L_t(ft)	P_2(in)	S_t%	T_t(min)	Shallow Concentrated Flow Paved/Unpaved	L_{sc}(ft)	S_{sc}%	k	T_{sc}(min)	Channel Flow L(ft)	V(ft/sec)	T_{ch}(min)	Total T_c(min)
1	0.24	100	3.91	1.3	15.3	Unpaved	28	1.9	16.13	0.2	745	4	3.1	**18.65**
2	0.24	100	3.91	1.6	14.1	Unpaved	142	1.6	16.13	1.2	1052	4	4.4	**19.7**
3	0.24	100	3.91	2.8	11.3	Unpaved	166	1.8	16.13	1.3	740	4	3.1	**15.65**
4	0.24	100	3.91	1.6	14.1	Unpaved	142	1.6	16.13	1.2	1106	4	4.6	**19.9**
5	0.24	100	3.91	1.9	13.2	Unpaved	33	1.9	16.13	0.2	1063	4	4.4	**17.85**
OS1:OS5	0.24	100	3.91	0.5	20.0	Unpaved	700	0.2	16.13	16.2	3080	4	12.8	**49.0**
OS1:OS6	0.24	100	3.91	0.5	20.0	Unpaved	700	0.2	16.13	16.2	4017	4	16.7	**52.91**
	Eq. 5.4.1 $T_t = \frac{0.007(nL_t)^{0.8}}{(P_2)^{0.5}\,S_t^{0.4}}$					Eq 5.4.2 $T_{sc} = \frac{L_{sc}}{3600 K S_{sc}^{0.5}}$					Eq 5.4.3 $T_{ch} = \frac{L_{ch}}{3600 * V}$			$T_t + T_{sc} + T_{ch}$

Drainage Area(s)	A (ac.)	Coefficient C	Intensity I_5(in/hr)	I_{25}(in/hr)	I_{100}(in/hr)	Flow Q_5 (ft³/s)	Q_{25}(ft³/s)	Q_{100}(ft³/s)
PROP A1	3.33	0.77	4.68	6.44	8.01	**12.00**	**16.51**	**20.53**
PROP A2	7.99	0.77	4.56	6.26	7.79	**28.03**	**38.53**	**47.90**
PROP A3	6.21	0.77	5.13	7.08	8.82	**24.51**	**33.84**	**42.17**
PROP A4	9.10	0.77	4.53	6.23	7.74	**31.73**	**43.62**	**54.22**
PROP A5	8.04	0.77	4.78	6.59	8.20	**29.62**	**40.79**	**50.76**
OS1:OS5	80.06	0.71	2.79	3.84	4.78	**158.46**	**218.33**	**271.59**
OS1:OS6	82.19	0.71	2.65	3.66	4.56	**154.47**	**213.40**	**265.87**

Eq 5.3.1

$Q = CIA$

COMPOSITE DRAINAGE AREAS COEFFICIENT

EXIST A1 = (2.89AC*0.47+0.44AC*0.77)/3.33AC = 0.51
EXIST A2 = (2.68AC*0.47+5.31AC*0.77)/7.99AC = 0.67
EXIST A3 = (5.79AC*0.47+0.42AC*0.77)/6.21AC = 0.49
EXIST A4 = (3.75AC*0.47+5.35AC*0.77)/9.10AC = 0.65
EXIST A5 = (3.70AC*0.47+4.34AC*0.77)/8.04AC = 0.63
OS1:OS5 = (5.10AC*0.77+2.46AC*0.77+21.47AC*0.70+49.19AC*0.70+1.84AC*0.77)/80.06 AC = 0.71
OS1:OS6 = (5.10AC*0.77+2.46AC*0.77+21.47AC*0.70+49.19AC*0.70+1.84AC*0.77+2.13AC*0.77)/82.19 AC = 0.71

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
PROPOSED/ULTIMATE DRAINAGE AREA MAP

REVISIONS

NO.	DESCRIPTION	BY	DATE

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DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
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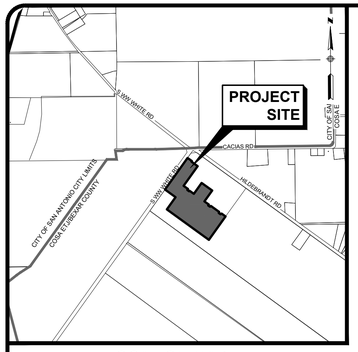
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

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9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
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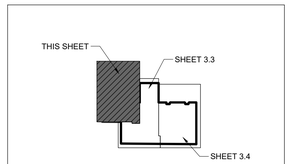
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Plot Date/Time: Jul. 18, 24 - 10:54:04



LOCATION MAP
N.T.S.



SHEET INDEX
N.T.S.

GENERAL SPECIFICATIONS FOR SITE PREPARATION

GENERAL DESCRIPTION

THE ITEM SHALL CONSIST OF ALL CLEARING AND PREPARATION OF LAND TO 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 IS TO BE PLACED, AND SURFACE SHALL THEN 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 THE 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 CURRENT THD-TEX-113-E COMPACTION PROCEDURE.

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. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12").

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. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

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).

DENSITY TEST

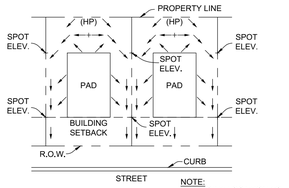
FIELD DENSITY TESTS SHALL BE PERFORMED ON LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE EIGHTEEN INCHES (18"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE TESTING LAB PERFORMS ALL TEST REQUIRED BY FHA SPECIFICATION.

LOT GRADING

ALL LOT GRADING SHALL BE IN ACCORDANCE WITH H.U.D.- F.H.A. DATA SHEET 79G.

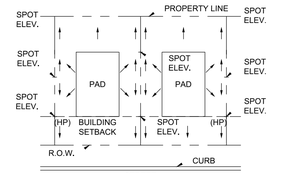
GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE OWNER ALL NECESSARY DENSITY TESTS FOR FILL LOTS AS REQUIRED BY HUD SPECIFICATIONS.
2. THE HOMEBUILDER WILL BE RESPONSIBLE FOR DETAILED GRADING ON EACH INDIVIDUAL LOT TO INCLUDE MINOR GRADING ON THE LOTS AND ANY SIDE OR BACK-LOT SWALES REQUIRED TO MEET THE DEPICTED DRAINAGE PATTERNS (SEE OVERALL MASTER DRAINAGE PLAN).
3. HOMEBUILDER SHALL REFER TO THE APPROVED SUBDIVISION PLAT TO CONFIRM ALL BUILDING SETBACKS PRIOR TO ANY FOUNDATION WORK.
4. AS SOON AS PRACTICAL HOMEBUILDER SHALL ESTABLISH VEGETATION (HYDROMULCH, SEEDING, SODDING, ETC...) TO PREVENT EROSION FROM OCCURRING.
5. CONTRACTOR SHALL CONTACT ENGINEER REGARDING ANY QUESTIONS ON THE INTENT OF THIS PLAN.
6. ELEVATIONS IN STREET ARE FINISHED GRADE AT PROPERTY LINE.
7. FINISHED FLOOR ELEVATIONS FOR EACH LOT SHALL BE A MINIMUM OF 8 INCHES ABOVE THE FINISHED ADJACENT GRADE.
8. EXISTING TOPOGRAPHIC CONTOURS SHOWN BASED ON FIELD SURVEY PROVIDED BY D.A. MAWYER LAND SURVEYING (210-325-0858).



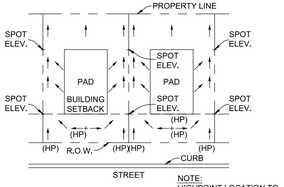
NOTE: HIGHPOINT LOCATION TO BE FIELD LOCATED FOR EACH INDIVIDUAL LOT.

TYPICAL "A" LOT GRADING
N.T.S.



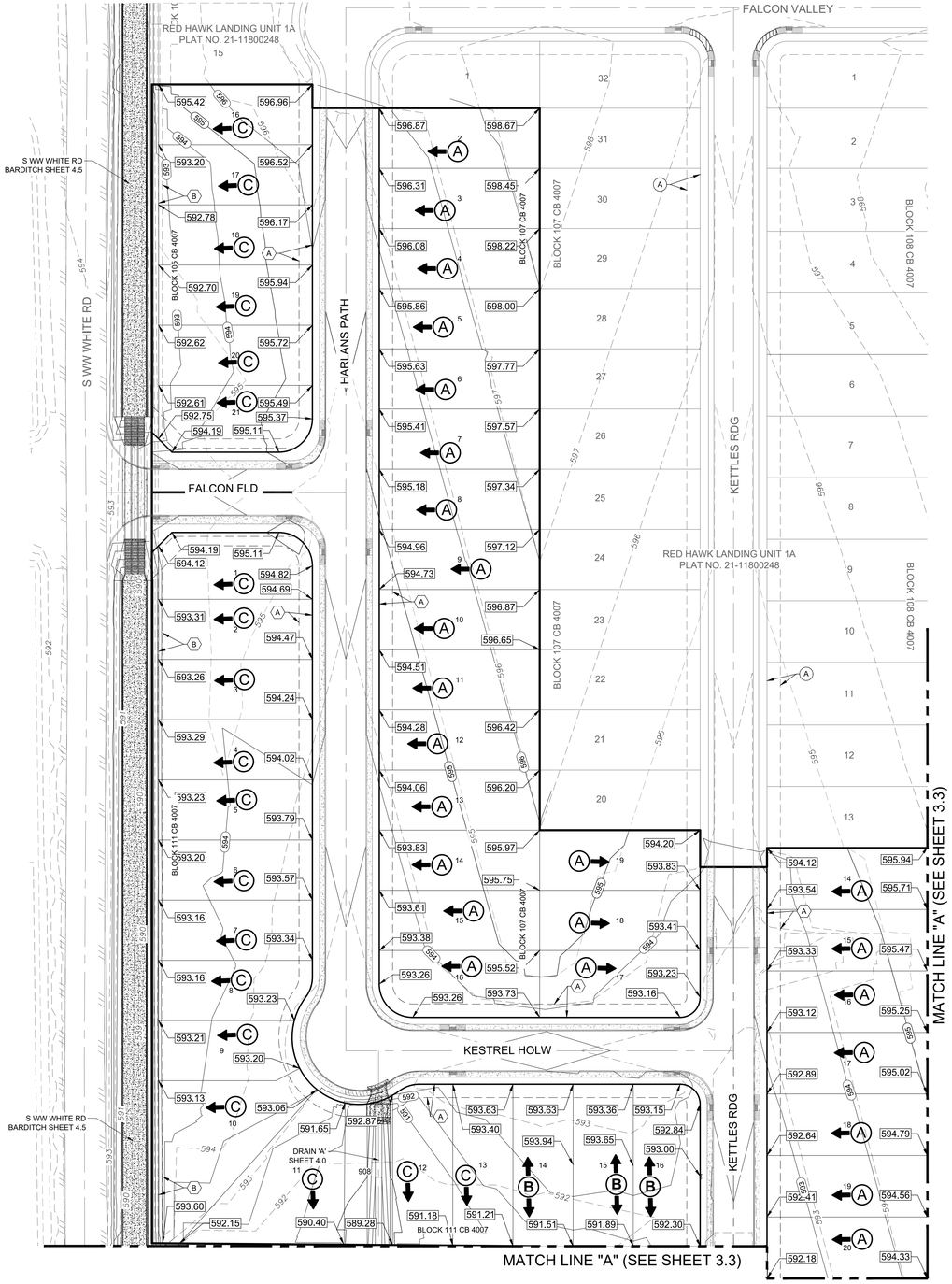
NOTE: HIGHPOINT LOCATION TO BE FIELD LOCATED FOR EACH INDIVIDUAL LOT.

TYPICAL "B" LOT GRADING
N.T.S.



NOTE: HIGHPOINT LOCATION TO BE FIELD LOCATED FOR EACH INDIVIDUAL LOT.

TYPICAL "C" LOT GRADING
N.T.S.



LEGEND

PROPOSED	EXISTING	
800	800	CONTOUR
2%	2%	FLOW ARROW
		GRASSED DRAIN FLOW
706.41	801.33	GROUND ELEVATION
706.41 ME		MATCH EXISTING GROUND
A		LOT DRAINS TO FRONT
B		LOT DRAINS 1/2 TO FRONT AND 1/2 TO REAR
C		LOT DRAINS TO REAR
Am		LOT TYPE A MODIFIED
Bm		LOT TYPE B MODIFIED
Cm		LOT TYPE C MODIFIED
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESMT.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		RETAINING WALL

50 25 0 50 100

SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

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(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
GRADING PLAN (SHEET 1 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
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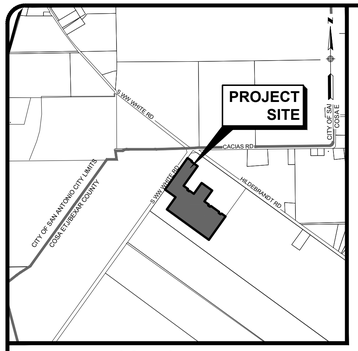
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75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.593.2700
LJA.COM
TBPE No. F-1386

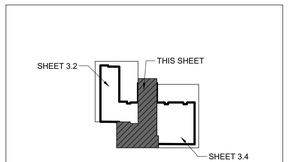
JOB NUMBER:
SA201-0401B-426

SHEET NO.
3.2

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User: jdunn
Last Modified: Aug 01, 24 - 10:12
Plot Style/Time: Aug 05, 24 - 09:06:24



LOCATION MAP
N.T.S.



SHEET INDEX
N.T.S.

GENERAL SPECIFICATIONS FOR SITE PREPARATION

GENERAL DESCRIPTION

THE ITEM SHALL CONSIST OF ALL CLEARING AND PREPARATION OF LAND TO 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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ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND SURFACE SHALL THEN 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 THE 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 CURRENT THD-TEX-113-E COMPACTION PROCEDURE.

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DENSITY TEST

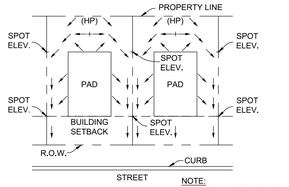
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LOT GRADING

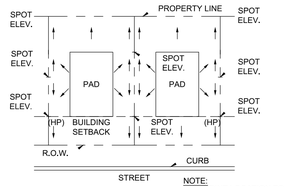
ALL LOT GRADING SHALL BE IN ACCORDANCE WITH H.U.D.- F.H.A. DATA SHEET 79G.

GENERAL NOTES:

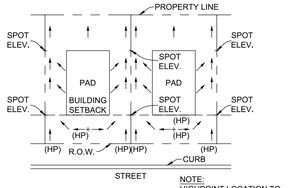
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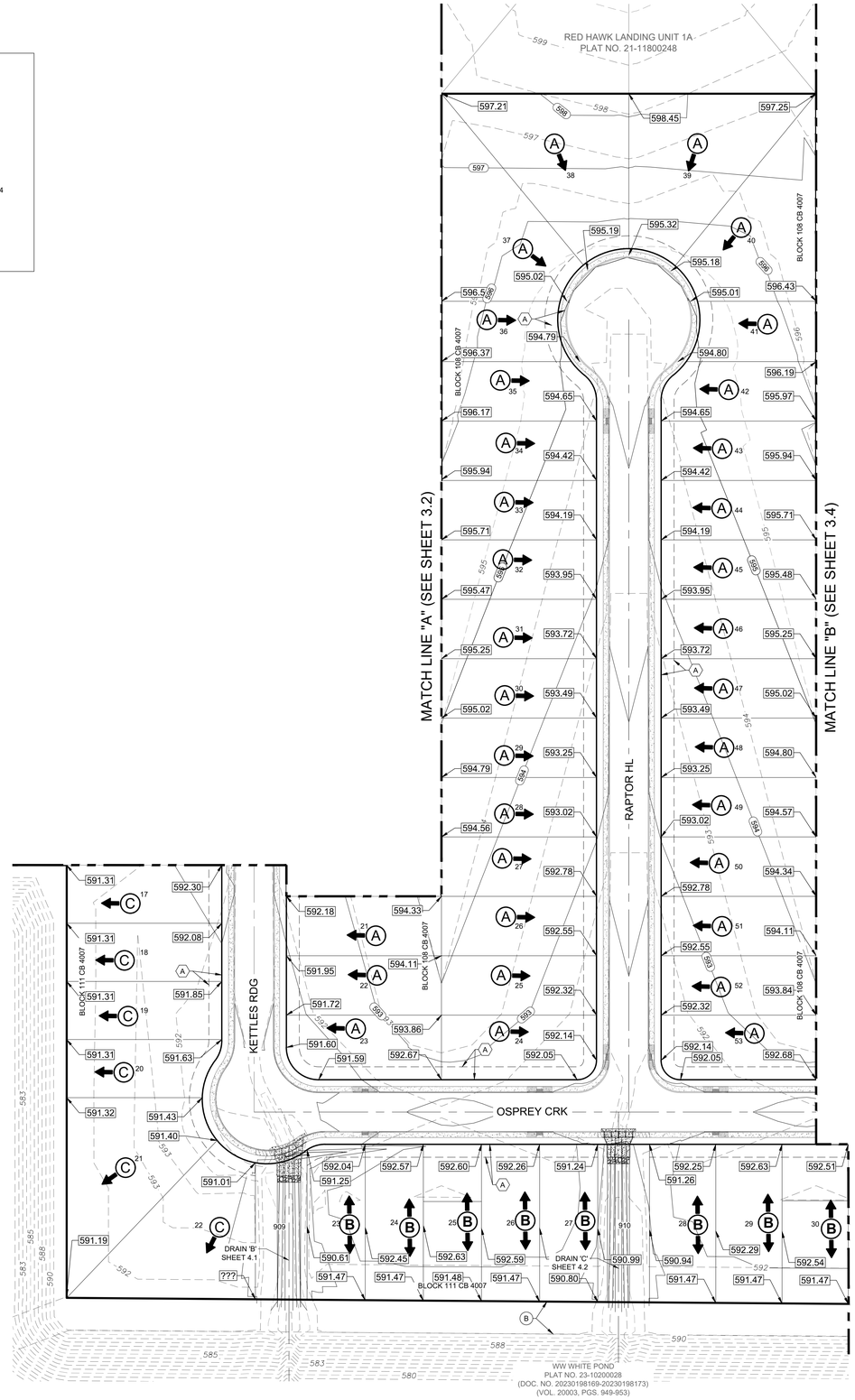
TYPICAL "A" LOT GRADING
N.T.S.



TYPICAL "B" LOT GRADING
N.T.S.

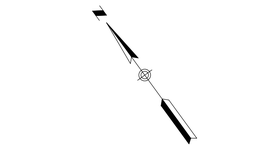


TYPICAL "C" LOT GRADING
N.T.S.



LEGEND

PROPOSED	EXISTING	
800	800	CONTOUR
2%	2%	FLOW ARROW
		GRASSED DRAIN FLOW
706.41	801.33	GROUND ELEVATION
706.41 ME		MATCH EXISTING GROUND
A		LOT DRAINS TO FRONT
B		LOT DRAINS 1/2 TO FRONT AND 1/2 TO REAR
C		LOT DRAINS TO REAR
Am		LOT TYPE A MODIFIED
Bm		LOT TYPE B MODIFIED
Cm		LOT TYPE C MODIFIED
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESMT.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		RETAINING WALL



50 25 0 50 100

SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
GRADING PLAN (SHEET 2 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 8/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Grading Plan.dwg

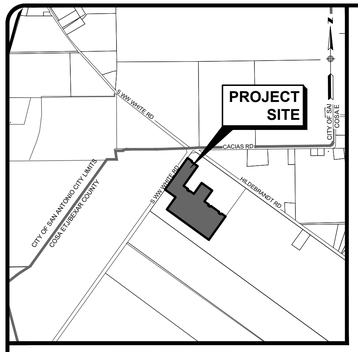
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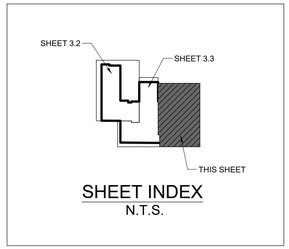
JOB NUMBER: SA201-0401B-426

SHEET NO. 3.3

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User: jburn
Last Modified: Aug 01, 24 - 10:12
Plot Style/Time: Aug 06, 24 - 09:56:52



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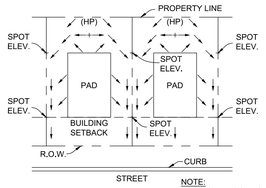
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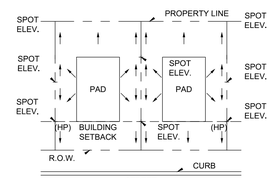
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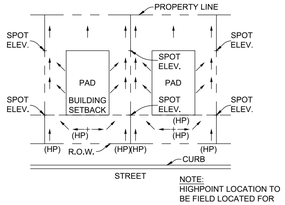
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TYPICAL "A" LOT GRADING
N.T.S.



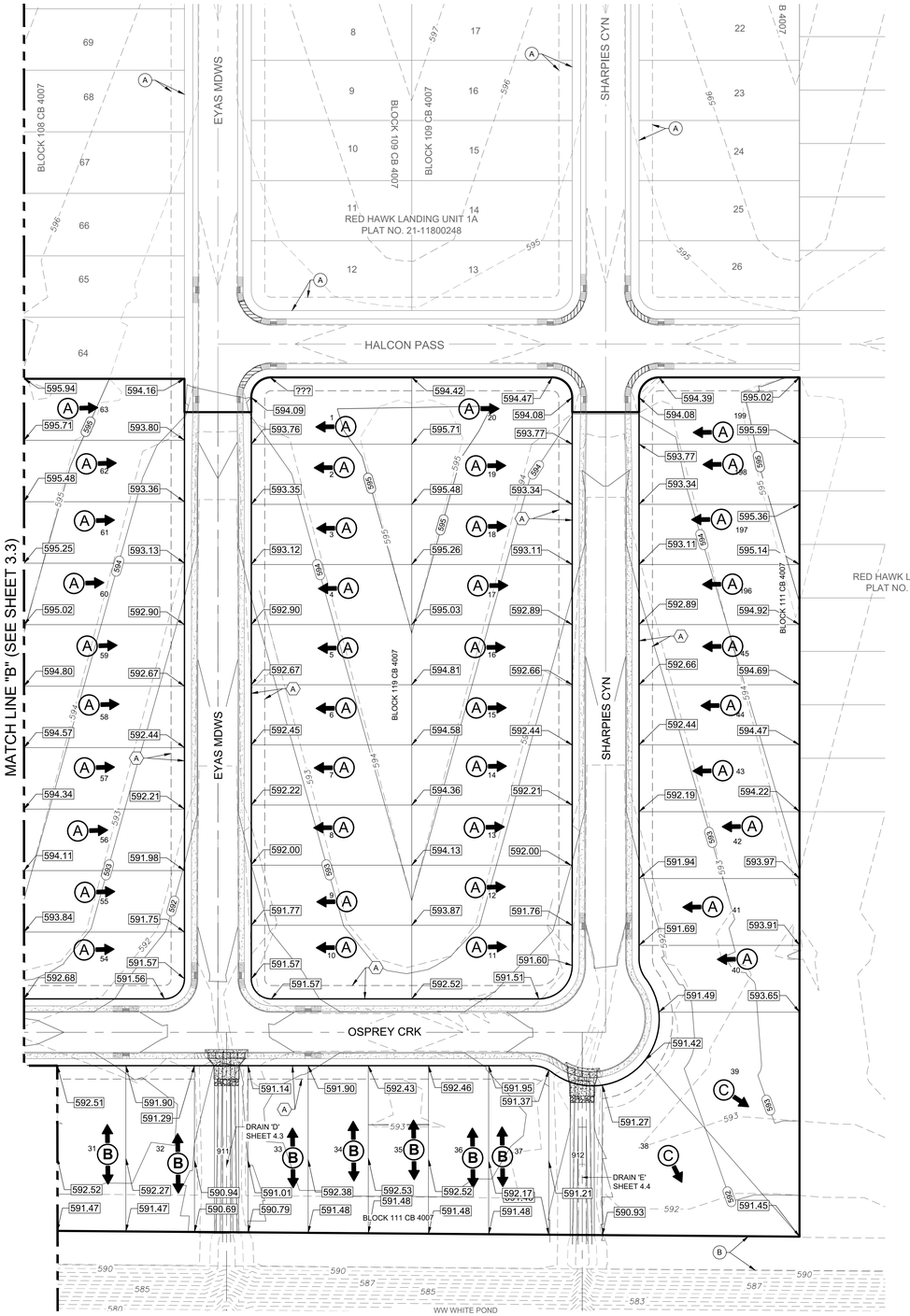
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TYPICAL "B" LOT GRADING
N.T.S.



NOTE:
HIGHPOINT LOCATION TO BE FIELD LOCATED FOR EACH INDIVIDUAL LOT.

TYPICAL "C" LOT GRADING
N.T.S.



LEGEND

PROPOSED	EXISTING	
800	800	CONTOUR
2%	2%	FLOW ARROW
		GRASSED DRAIN FLOW
706.41	801.33	GROUND ELEVATION
706.41 ME		MATCH EXISTING GROUND
A		LOT DRAINS TO FRONT
B		LOT DRAINS 1/2 TO FRONT AND 1/2 TO REAR
C		LOT DRAINS TO REAR
Am		LOT TYPE A MODIFIED
Bm		LOT TYPE B MODIFIED
Cm		LOT TYPE C MODIFIED
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESMT.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		RETAINING WALL

50 25 0 50 100
SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
GRADING PLAN (SHEET 3 OF 3)

NO.	DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Grading Plan.dwg

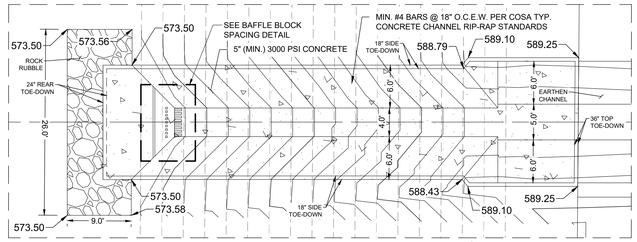
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RICHARD W. GRAY III
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JOB NUMBER:
SA201-0401B-426

SHEET NO.
3.4

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User: jaron
Last Modified: Aug. 01, 24 - 10:12
Xrefs Used/Other: Aug. 02, 24 - 10:36:17



RIP-RAP BLOW UP DETAIL

1" = 10'

Name	Drop Struc	Concrete Channel
BEGIN STA	1+54.76	1+95.16
END STA	1+95.16	2+11.17
Q_{25} (cfs)	16.51	16.51
h (ft)	2.00'	2.00'
b_w (ft)	4.00'	5.00'
z ( ):1 left	3	3
z ( ):1 right	3	3
t_w (ft)	16	17
n	0.015	0.015
Slope (%)	33.33%	1.00%
y (ft)	0.20'	0.48'
V (fps)	17.93	5.28

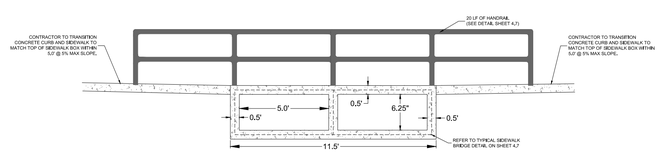
Fr_1	7.81	Froude Number
V_1 (fps)	17.92	velocity at drop
y_1 (ft)	0.20'	Supercritical Depth
g (ft/s2)	32.20	Gravitational constant
C=	0.85	Coefficient
L_B=	2.00'	Length of Basin
L_B/3 =	0.67	Chute to Baffle Distance
N_C =	16.00	Number of Chutes
z=	0.50	Flare
W_{B2}=	4.75	Basin Width at Baffles
y_2=	1.80	Conjugate Depth
h_1 =	0.17	Height of Baffles/Chutes
W_1 =	0.17	Baffle Width
W_2 =	0.17	Baffle Spacing
h_4=	0.17	End Sill Height
V_2	1.84	Exit Velocity

BAFFLE BLOCKS CALCS

DRAIN 'A' SIDEWALK BOX

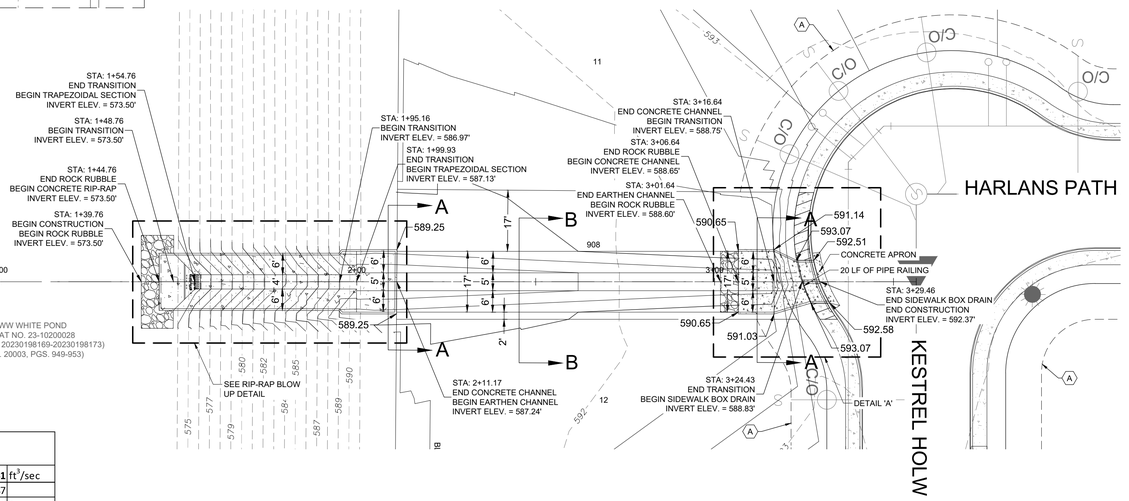
$Q = CL(h)^{3/2}$ 8.3.2.a

Amount of flow in CFS =	**Q (cfs)**	**16.51**	ft^3/sec
The Weir coefficient 3.087 =	C	3.087	
The length of drop curb opening required in feet =	L_R	7.62	ft
Length Provided =	L_P	10.00	ft
The head or depth of water at the opening in feet =	h	0.79	ft
	h^(3/2)	0.70	ft^2
	CHECK	16.51	ft^3/sec

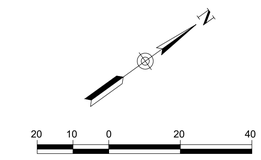


DRAIN 'A' SIDEWALK BOX DRAIN

N.T.S.



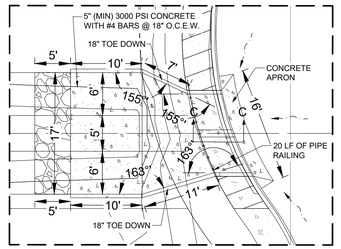
DRAIN 'A' STA 1+00 TO END



HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT



DETAIL 'A'

N.T.S.

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3. REFER TO SHEETS 4.6 - 4.8 FOR DRAINAGE DETAILS.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

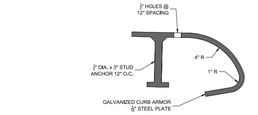
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

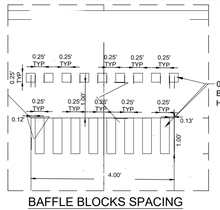
(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

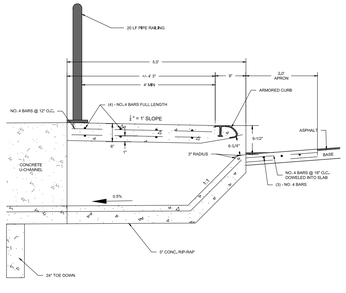


CURB ARMOR DETAIL

N.T.S.

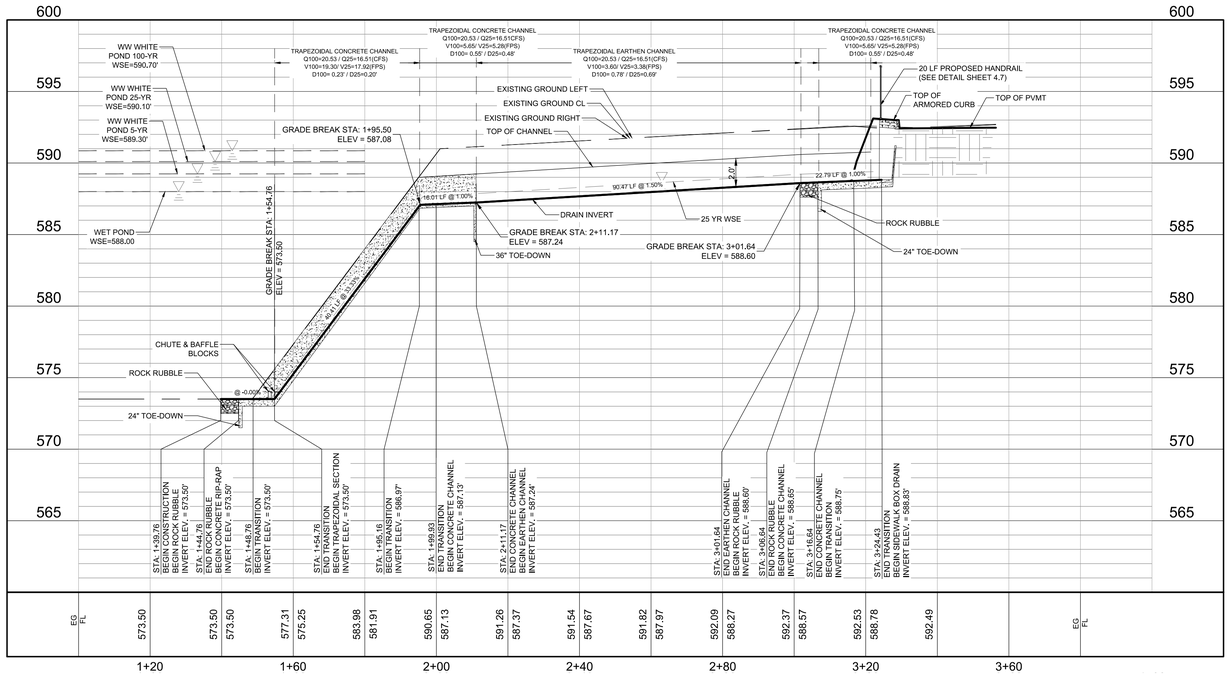


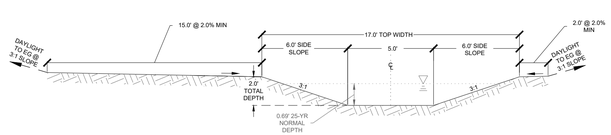
BAFFLE BLOCKS SPACING DETAIL



SIDEWALK BOX DETAIL C-C

N.T.S.

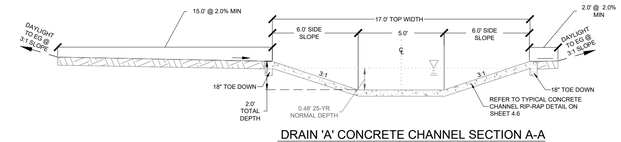




DRAIN 'A' EARTHEN CHANNEL SECTION B-B

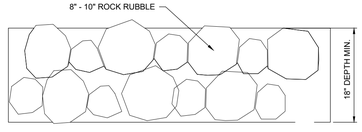
N.T.S. STA.: 2+11.17 - 3+01.64

DRAIN 'A'	
T_d = γRS	Retardance Class 'D' Vegetation
T_d = average shear stress at normal depth	T_d = 0.60 lb/ft^2
γ = unit weight of water	62.4 lb/ft
R = hydraulic radius	0.64 ft
S = channel slope	S = 1.50%



DRAIN 'A' CONCRETE CHANNEL SECTION A-A

N.T.S. STA.: 1+99.93 - 2+11.17
STA.: 3+06.64 - 3+16.64



ROCK RUBBLE DETAIL

N.T.S.

ROCK RUBBLE CALCULATIONS

5' BOTTOM WIDTH
3:1, 3:1 SIDE SLOPE
S=1.00%
N=0.025 (STONE, COBBLE, GRAVEL)
Q100=20.53 / Q25=16.51(CFS)
V100=3.96' V25=3.71(FPS)
D100= 0.72' / D25= 0.64'

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAIN 'A' STA 1+00 TO END
PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh Drain 'A'.dwg

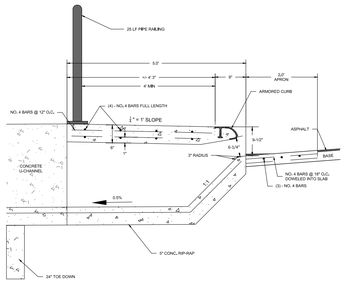
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

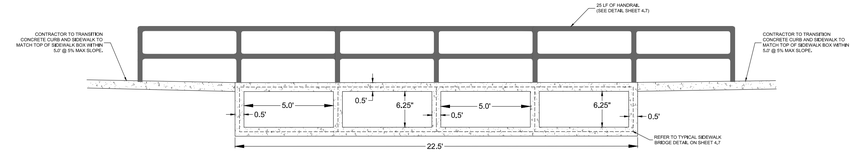
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User: jduron
Last Modified: Aug 21, 24 - 10:09
Plot Date/Time: Aug 21, 24 - 10:24:09



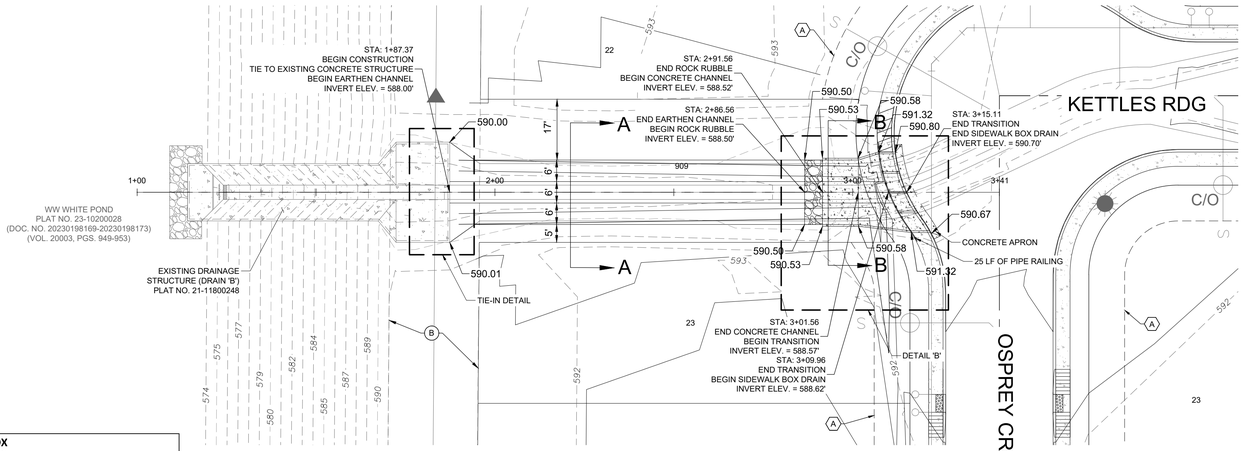
SIDEWALK BOX DETAIL C-C

N.T.S.

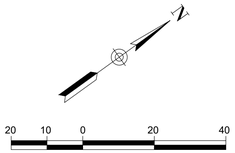


DRAIN 'B' SIDEWALK BOX DRAIN

N.T.S.



DRAIN 'B' STA 1+00 TO END



HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT

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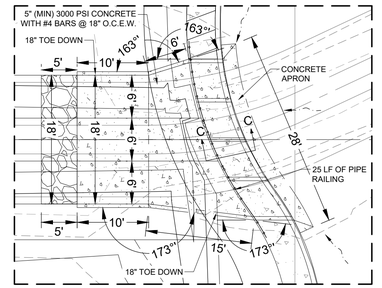
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

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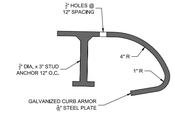
(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



DETAIL 'B'

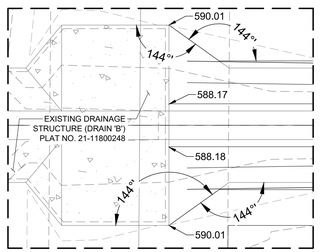
N.T.S.



CURB ARMOR DETAIL

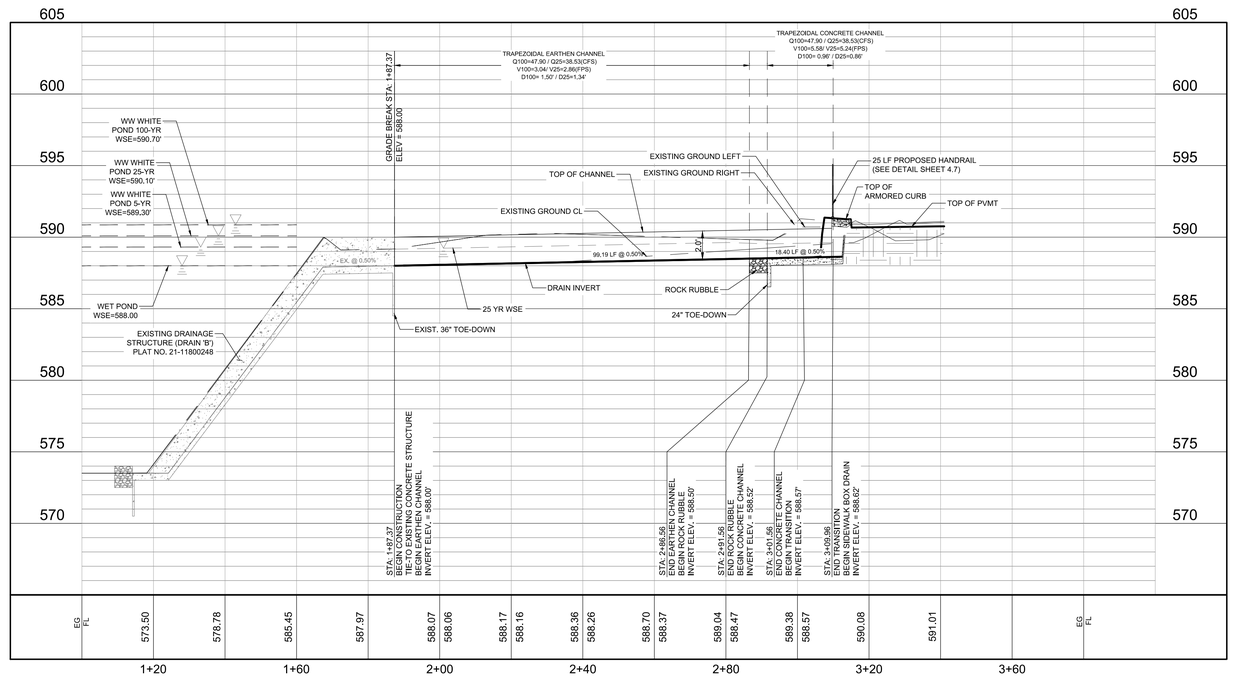
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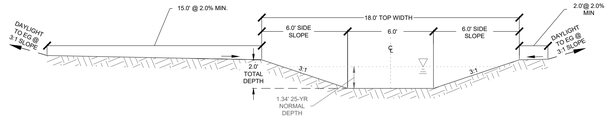
DRAIN 'B' SIDEWALK BOX			
$Q = CL(h)^{3/2}$ 8.3.2.a			
Amount of flow in CFS =	**Q (cfs)**	**38.53**	ft^3/sec
The Weir coefficient 3.087 =	C	3.087	
The length of drop curb opening required in feet =	L_R	17.78	ft
Length Provided =	L_P	20.00	ft
The head or depth of water at the opening in feet =	h	0.79	ft
	h^(3/2)	0.70	ft^2
	CHECK	38.53	ft^3/sec



TIE-IN DETAIL

N.T.S.

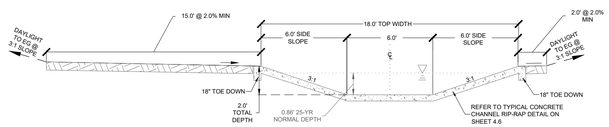




DRAIN 'B' EARTHEN CHANNEL SECTION A-A

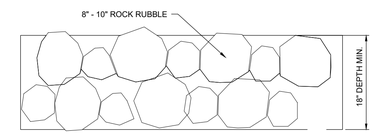
N.T.S. STA.: 1+87.37 - 2+86.56

DRAIN 'B'		
τ_d = yRS	Retardance Class 'E' Vegetation	
τ_d = average shear stress at normal depth	τ_d =	0.29 lb/ft^2
γ = unit weight of water		62.4 lb/ft
R = hydraulic radius		0.93 ft
S = channel slope		S = 0.50%



DRAIN 'B' CONCRETE CHANNEL SECTION B-B

N.T.S. STA.: 2.91.56 - 3+01.56



ROCK RUBBLE DETAIL

N.T.S.

ROCK RUBBLE CALCULATIONS

6' BOTTOM WIDTH
3:1, 3:1 SIDE SLOPE
S=0.50%
N=0.025 (STONE, COBBLE, GRAVEL)
Q100=47.90 / Q25=38.53(CFS)
V100=3.88/ V25=3.65(FPS)
D100= 1.26' / D25= 1.13'

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAIN 'B' STA 1+00 TO END
PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Drain 'B'.dwg

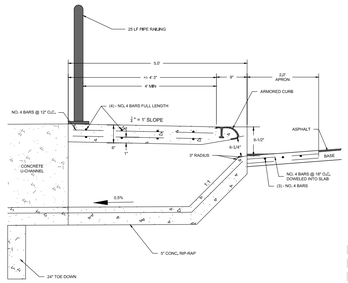
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.593.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

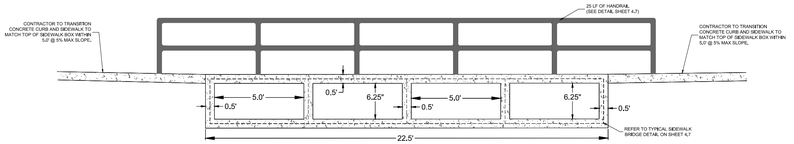
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User: jburn
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Plot Date/Time: Aug 21, 24 - 10:24:50



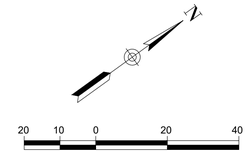
SIDEWALK BOX DETAIL C-C

N.T.S.



DRAIN 'C' SIDEWALK BOX DRAIN

N.T.S.



HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT

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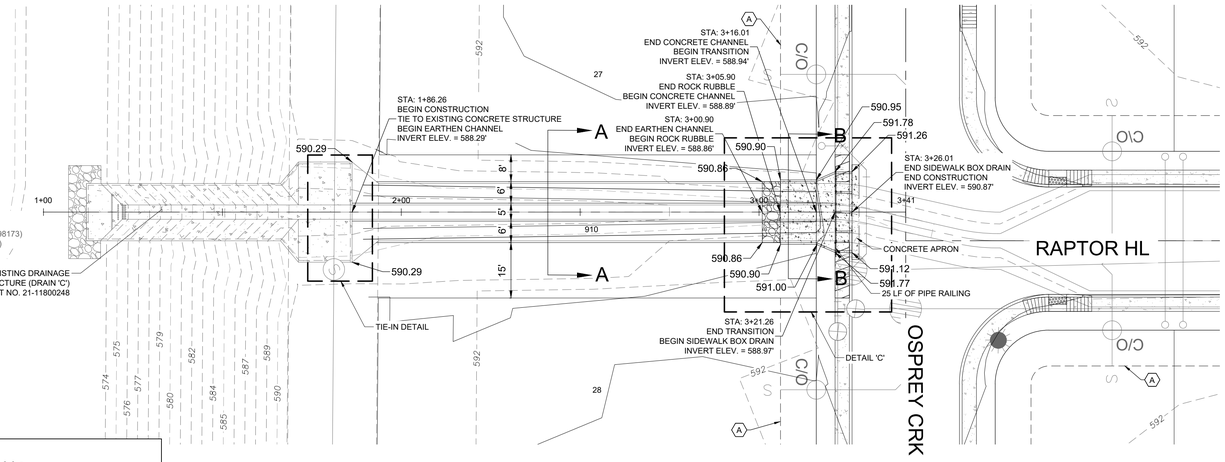
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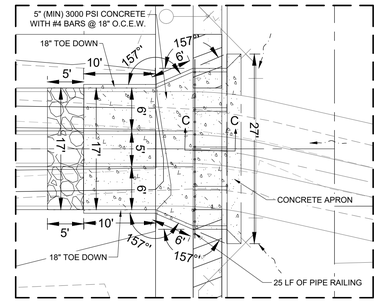
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(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

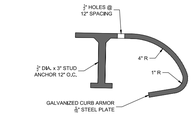
(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)





DETAIL 'C'

N.T.S.



CURB ARMOR DETAIL

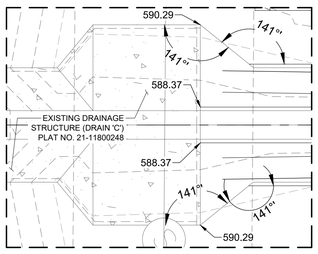
N.T.S.

DRAIN 'C' STA 1+00 TO END

DRAIN 'C' SIDEWALK BOX

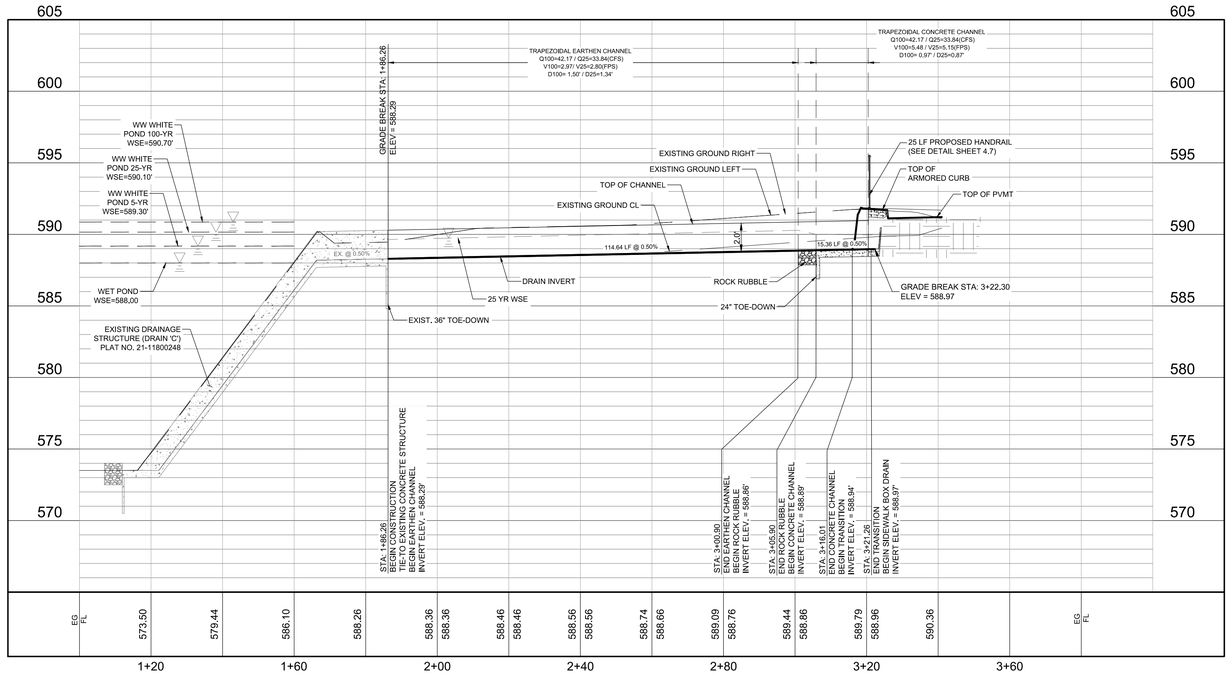
$Q = CL(h)^{3/2}$ 8.3.2.a

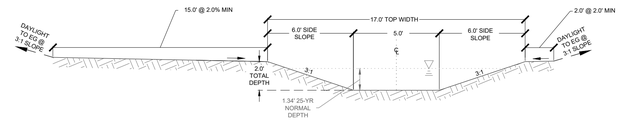
Amount of flow in CFS =	**Q (cfs)**	**33.84**	ft^3/sec
The Weir coefficient 3.087 =	C	3.087	
The length of drop curb opening required in feet =	L_R	15.61	ft
Length Provided =	L_P	20.00	ft
The head or depth of water at the opening in feet =	h	0.79	ft
	h^(3/2)	0.70	ft^2
	CHECK	33.84	ft^3/sec



TIE-IN DETAIL

N.T.S.

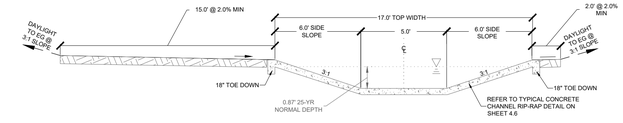




DRAIN 'C' EARTHEN CHANNEL SECTION A-A

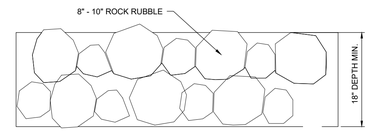
N.T.S. STA.: 1+86.26 - 3+00.90

DRAIN 'C'		
$\tau d = \gamma RS$	Retardance Class 'E' Vegetation	
τd = average shear stress at normal depth	τd =	0.28 lb/ft^2
γ = unit weight of water		62.4 lb/ft
R = hydraulic radius		0.90 ft
S = channel slope		S = 0.50%



DRAIN 'C' CONCRETE CHANNEL SECTION B-B

N.T.S. STA.: 3+05.90 - 3+16.01



ROCK RUBBLE DETAIL

N.T.S.

ROCK RUBBLE CALCULATIONS

5' BOTTOM WIDTH
3:1, 3:1 SIDE SLOPE
S=0.50%
N=0.025 (STONE, COBBLE, GRAVEL)
Q100=42.17 / Q25=33.84(CFS)
V100=3.80/ V25=3.57(FPS)
D100= 1.26' / D25= 1.13'

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAIN 'C' STA 1+00 TO END
PLAN & PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sb_Drain 'C'.dwg

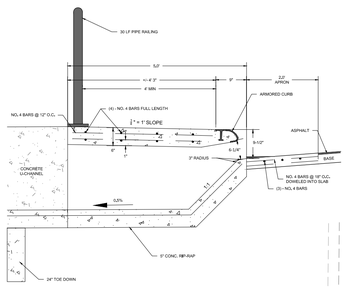
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

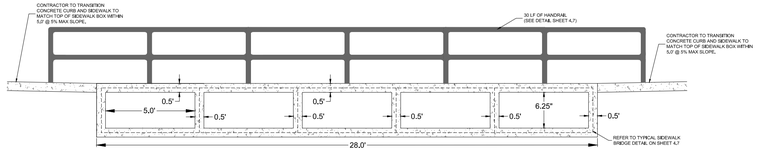
SHEET NO. **4.2**

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User: jbaron
Last Modified: Aug. 21, 24 – 10:12
Plot Style Name: Aug. 21, 24 – 10:22:34



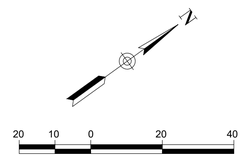
SIDEWALK BOX DETAIL C-C

N.T.S.



DRAIN 'D' SIDEWALK BOX DRAIN

N.T.S.



HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT

GENERAL NOTES:

1. ALL CONCRETE LINING SHALL BE A MINIMUM OF FIVE (5) INCHES THICK AND REINFORCED WITH NO. 4 ROUND BARS @ 18 INCHES ON CENTER EACH WAY. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN THREE THOUSAND (3000) POUNDS PER SQUARE INCH IN TWENTY EIGHT (28) DAYS. THE DEPTH OF ALL TOEDOWNS SHALL BE 36 INCHES UPSTREAM, 24 INCHES DOWNSTREAM, AND 18 INCHES OF SIDE SLOPES.
2. IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.
3. REFER TO SHEETS 4.6 - 4.8 FOR DRAINAGE DETAILS.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

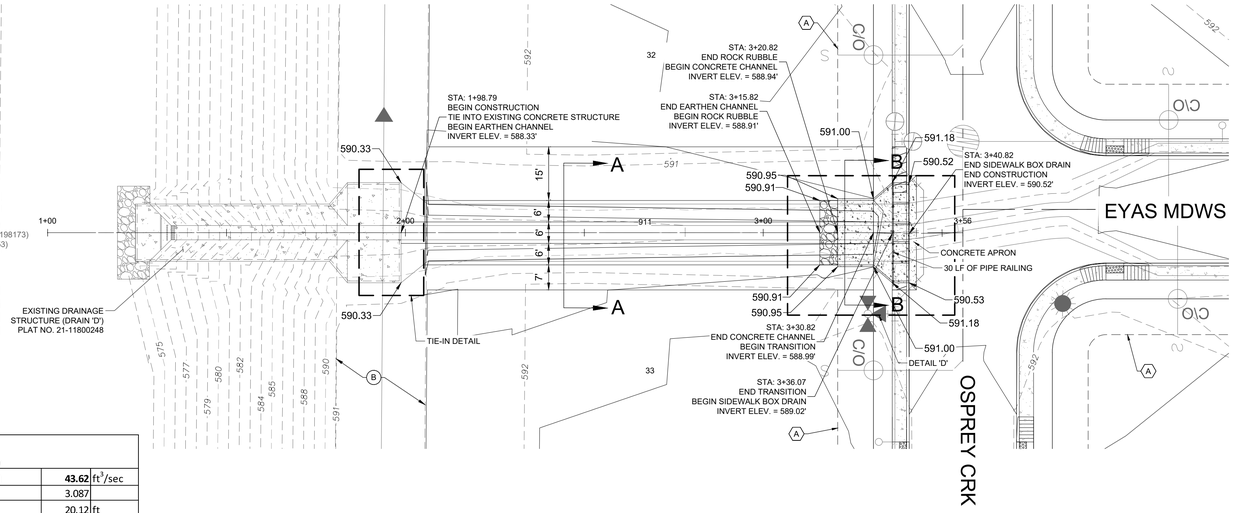
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

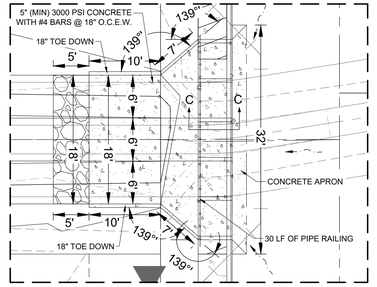
(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

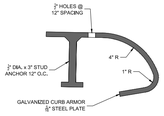


DRAIN 'D' STA 1+00 TO END



DETAIL 'D'

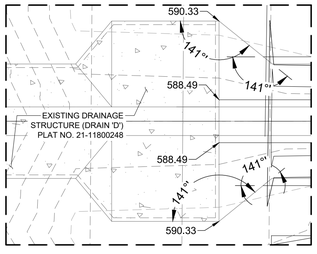
N.T.S.



CURB ARMOR DETAIL

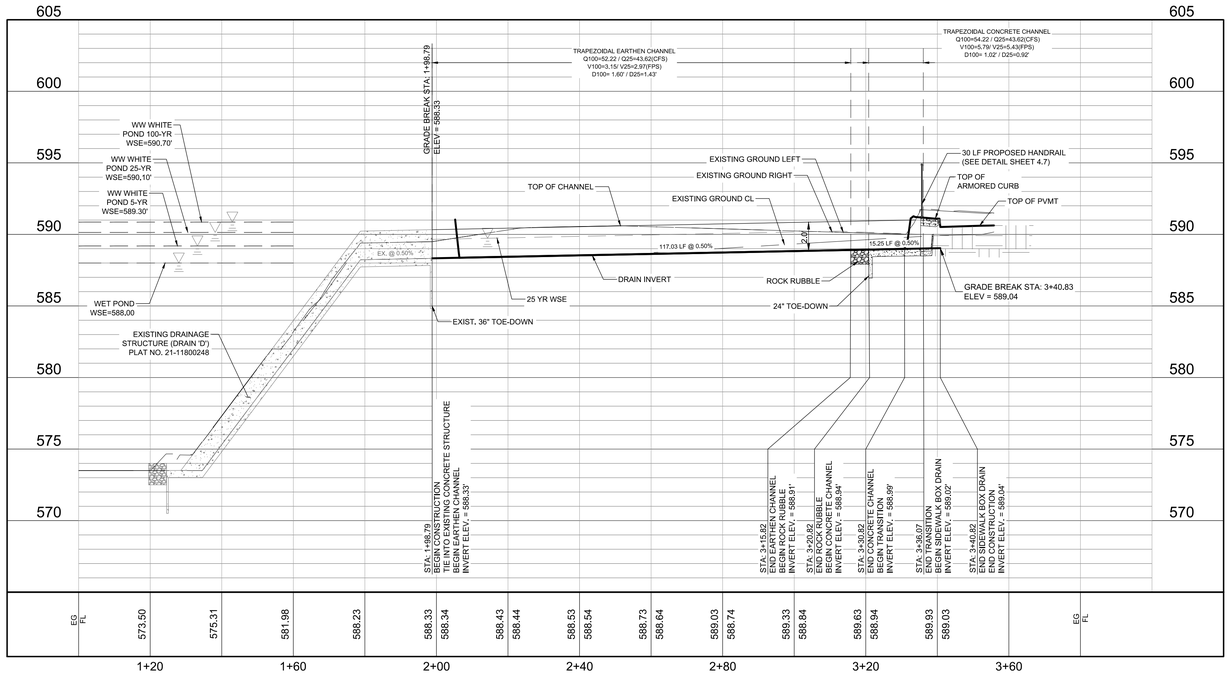
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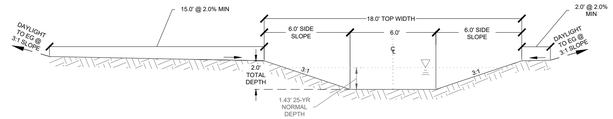
DRAIN 'D' SIDEWALK BOX			
$Q = CL(h)^{3/2}$ 8.3.2.a			
Amount of flow in CFS =	Q (cfs)	43.62	ft^3/sec
The Weir coefficient 3.087 =	C	3.087	
The length of drop curb opening required in feet =	L_R	20.12	ft
Length Provided =	L_P	25.00	ft
The head or depth of water at the opening in feet =	h	0.79	ft
	h^(3/2)	0.70	ft^2
	CHECK	43.62	ft^3/sec



TIE-IN DETAIL

N.T.S.

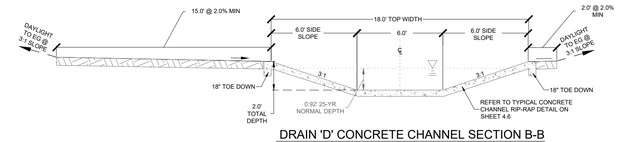




DRAIN 'D' EARTHEN CHANNEL SECTION A-A

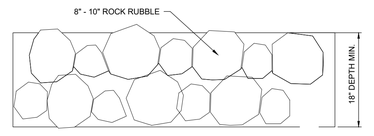
N.T.S. STA.: 1+98.79 - 3+15.82

DRAIN 'D'		
$\tau d = \gamma RS$	Retardance Class 'E' Vegetation	
τd = average shear stress at normal depth	τd =	0.31 lb/ft^2
γ = unit weight of water		62.4 lb/ft
R = hydraulic radius		0.98 ft
S = channel slope		S = 0.50%



DRAIN 'D' CONCRETE CHANNEL SECTION B-B

N.T.S. STA.: 3+20.82 - 3+30.82



ROCK RUBBLE DETAIL

N.T.S.

ROCK RUBBLE CALCULATIONS

6' BOTTOM WIDTH
3:1, 3:1 SIDE SLOPE
S=0.50%
N=0.025 (STONE, COBBLE, GRAVEL)
Q100=54.22 / Q25=43.62(CFS)
V100=4.02' V25=3.78(FPS)
D100= 1.35' / D25= 1.20'

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAIN 'D' STA 1+00 TO END
PLAN & PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Drain 'D' dwg

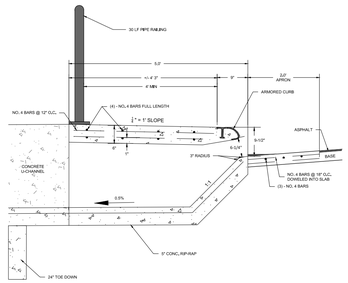
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

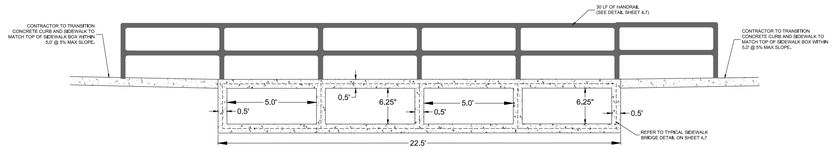
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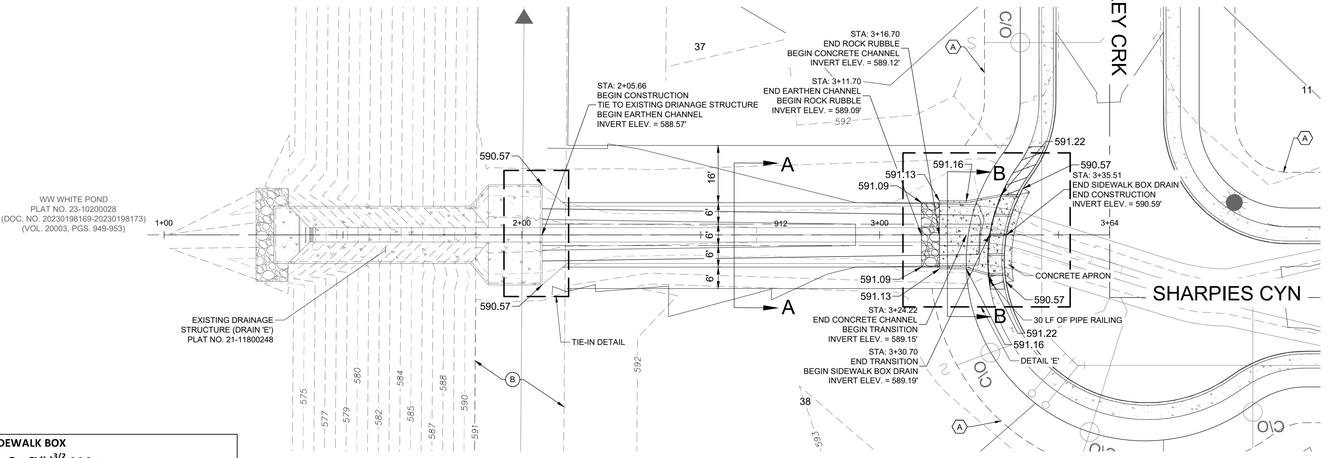
SIDEWALK BOX DETAIL C-C

N.T.S.



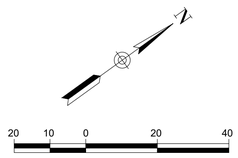
DRAIN 'E' SIDEWALK BOX DRAIN

N.T.S.



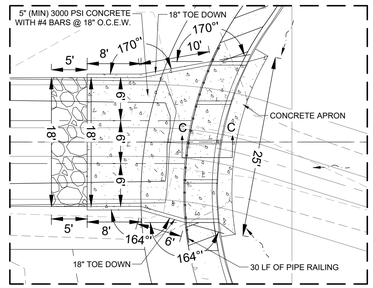
DRAIN 'E' STA 1+00 TO END

LEGEND



HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT



DETAIL 'E'

N.T.S.

GENERAL NOTES:

1. ALL CONCRETE LINING SHALL BE A MINIMUM OF FIVE (5) INCHES THICK AND REINFORCED WITH NO. 4 ROUND BARS @ 18 INCHES ON CENTER EACH WAY. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN THREE THOUSAND (3000) POUNDS PER SQUARE INCH IN TWENTY EIGHT (28) DAYS. THE DEPTH OF ALL TOEDOWNS SHALL BE 36 INCHES UPSTREAM, 24 INCHES DOWNSTREAM, AND 18 INCHES OF SIDE SLOPES.
2. IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.
3. REFER TO SHEETS 4.6 - 4.8 FOR DRAINAGE DETAILS.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

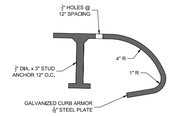
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

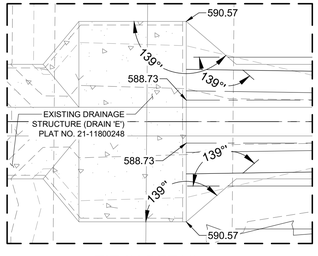
(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



CURB ARMOR DETAIL

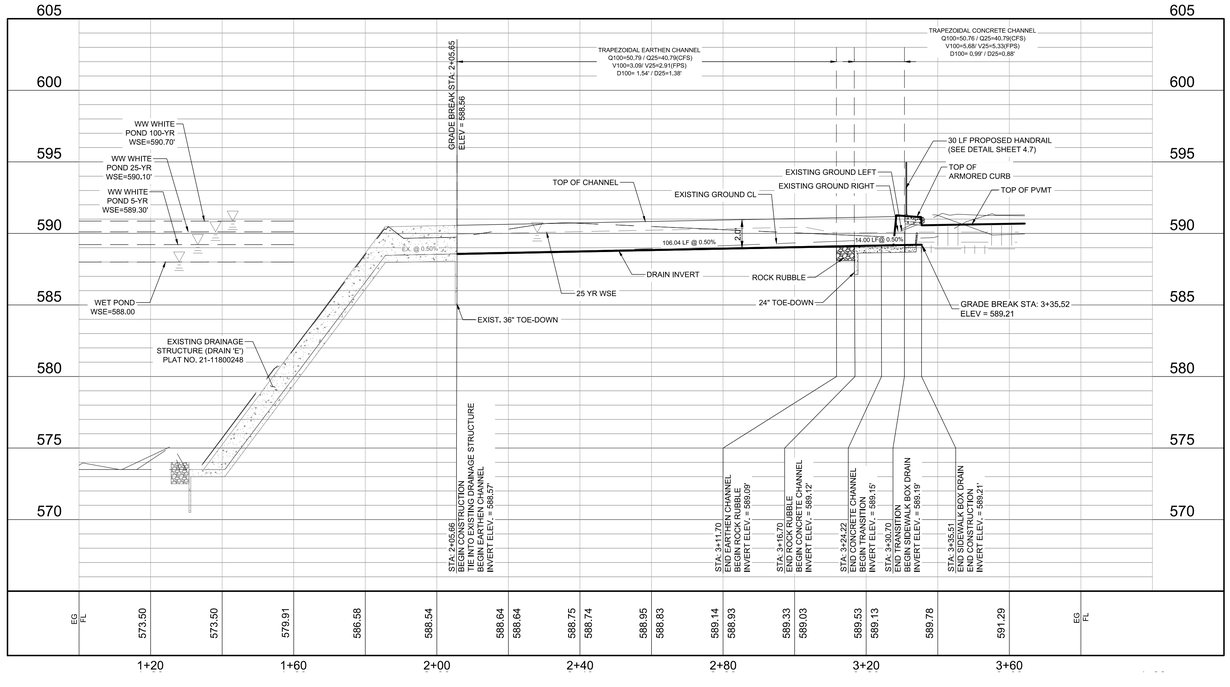
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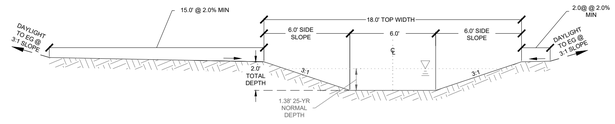
DRAIN 'E' SIDEWALK BOX			
$Q = CL(h)^{3/2}$ 8.3.2.a			
Amount of flow in CFS =	Q (cfs)	40.79	ft^3/sec
The Weir coefficient 3.087 =	C	3.087	
The length of drop curb opening required in feet =	L_R	18.82	ft
Length Provided =	L_P	20.00	ft
The head or depth of water at the opening in feet =	h	0.79	ft
	h^(3/2)	0.70	ft^2
	CHECK	40.79	ft^3/sec



TIE-IN DETAIL

N.T.S.

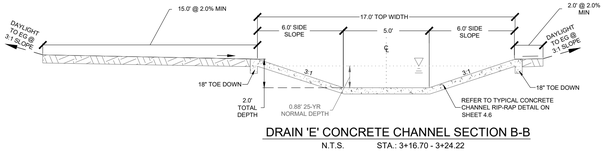




DRAIN 'E' EARTHEN CHANNEL SECTION A-A

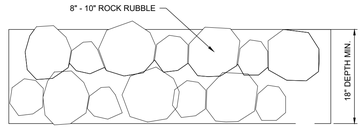
N.T.S. STA.: 2+05.66 - 3+11.70

DRAIN 'E'	
$\tau d = \gamma RS$ Retardance Class 'E' Vegetation	
τd = average shear stress at normal depth	τd = 0.30 lb/ft^2
γ = unit weight of water	62.4 lb/ft
R = hydraulic radius	0.95 ft
S = channel slope	S = 0.50%



DRAIN 'E' CONCRETE CHANNEL SECTION B-B

N.T.S. STA.: 3+16.70 - 3+24.22



ROCK RUBBLE DETAIL

N.T.S.

ROCK RUBBLE CALCULATIONS

6' BOTTOM WIDTH
3:1, 3:1 SIDE SLOPE
S=0.50%
N=0.025 (STONE, COBBLE, GRAVEL)
Q100=50.76 / Q25=40.79CFS)
V100=3.94/ V25=3.71(FPS)
D100= 1.30' / D25= 1.16'

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAIN 'E' STA 1+00 TO END
PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Drain 'E'.dwg

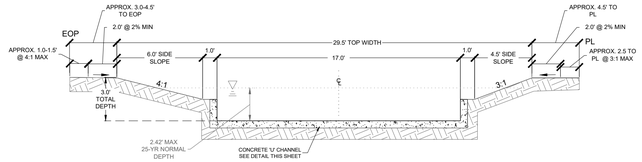
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

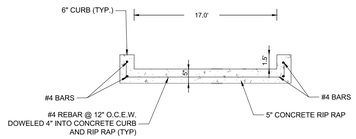
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Plot Date/Time: Aug 21, 24 - 10:26:30



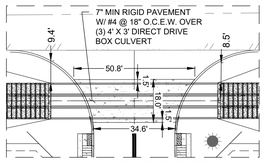
S WW WHITE BARDITCH CHANNEL SECTION A-A

N.T.S. STA.: 6+09.48 - 13+15.68
14+33.35 - 17+72.58



CONCRETE 'U' CHANNEL

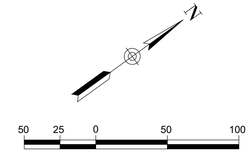
N.T.S.



RIGID PAVEMENT DETAIL

N.T.S.

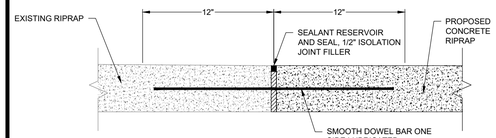
NOTE:
SEE SHEET 5.9 FOR CONCRETE/ASPHALT JUNCTION DETAIL.



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

LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
	EXISTING GROUND CENTERLINE
	EXISTING GROUND RIGHT
	SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
	SIDEWALK (DEVELOPER'S RESPONSIBILITY)
G,E,T,CA	GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
BSL	BUILDING SETBACK LINE
ESM'T.	EASEMENT
LT.	LEFT
RT.	RIGHT

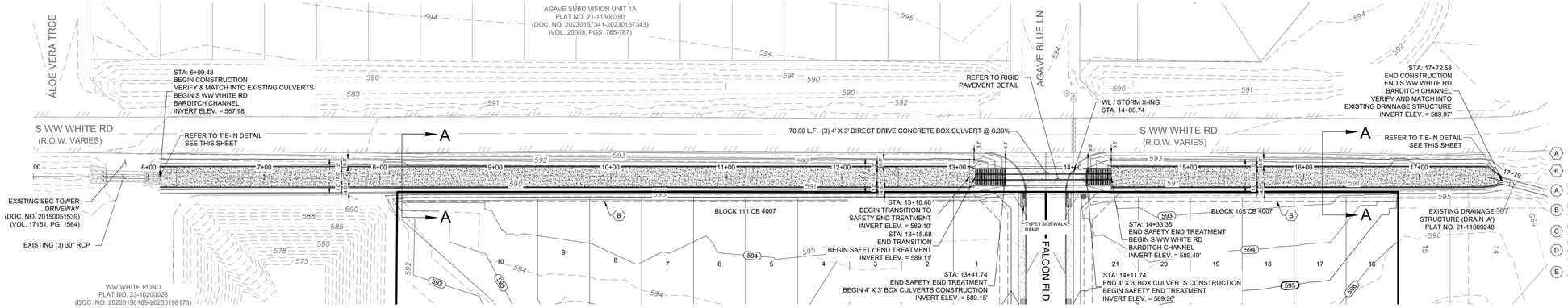


CONCRETE TIE-IN DETAIL

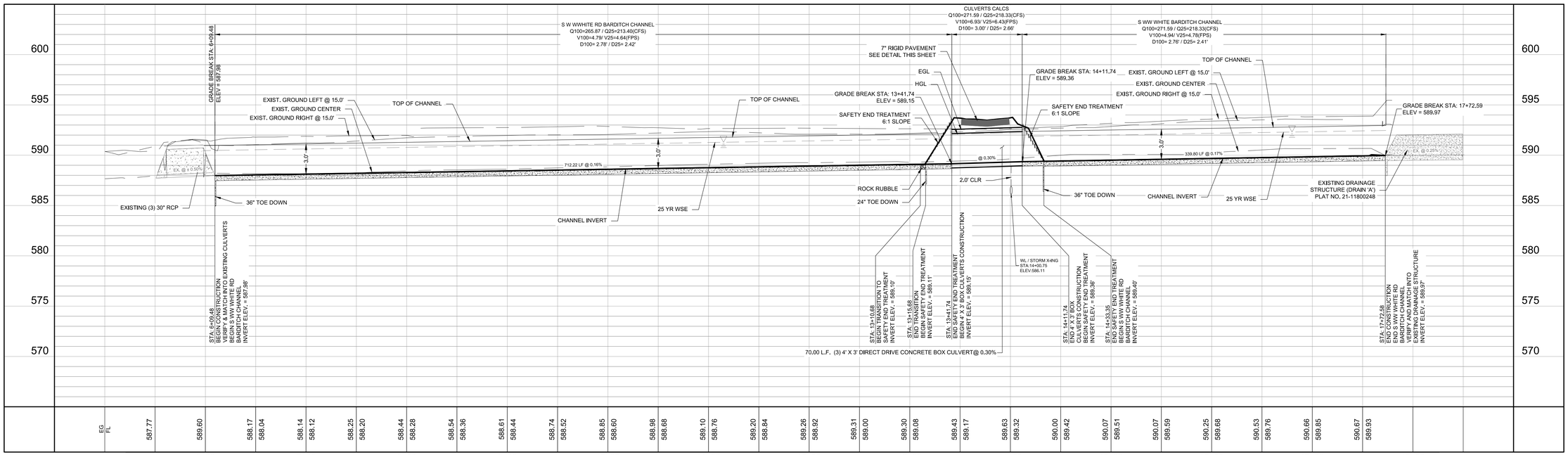
N.T.S.

GENERAL NOTES:

1. ALL CONCRETE LINING SHALL BE A MINIMUM OF FIVE (5) INCHES THICK AND REINFORCED WITH NO. 4 ROUND BARS @ 18 INCHES ON CENTER EACH WAY. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN THREE THOUSAND (3000) POUNDS PER SQUARE INCH IN TWENTY EIGHT (28) DAYS. THE DEPTH OF ALL TOEDOWNS SHALL BE 36 INCHES UPSTREAM, 24 INCHES DOWNSTREAM, AND 18 INCHES OF SIDE SLOPES.
2. IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATED BY SEEDING OR SODDING. EIGHTY-FIVE PERCENT OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.
3. REFER TO SHEETS 4.6 - 4.8 FOR DRAINAGE DETAILS.
4. A BEXAR COUNTY RIGHT OF WAY PERMIT MUST BE OBTAINED PRIOR TO WORKING IN EXISTING BEXAR COUNTY RIGHT OF WAY.



S WW WHITE RD BARDITCH STA 5+00 TO END



LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. **4.5**

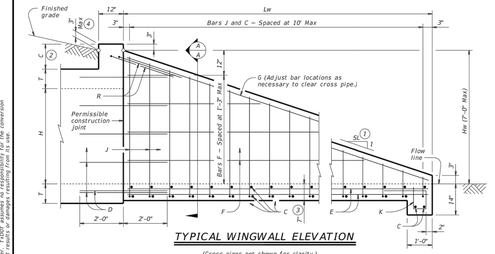
RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WW WHITE RD BARDITCH STA 5+00 TO END
PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY:
CHECKED BY: RG
DRAWING NAME: s:\WW WHITE RD\bardtich.dwg

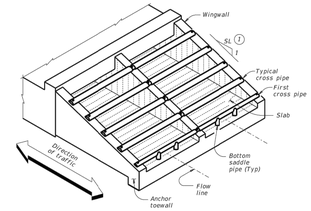
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

K:\SA201 Civil\Red Hawk Community\Red Hawk Landing UIB Subd\426 Site Development Plans\DWG-Sheet\Plan_WW WHITE RD Bardtich.dwg
User: jburn
Last Modified: Aug 05, 24 - 08:25
Plot Style/Date: Aug 05, 24 - 08:57



TYPICAL WINGWALL ELEVATION

(Cross pipes not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing bolted anchor option.)

WING DIMENSION CALCULATIONS:

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

For cast-in-place culverts:
Atw = (N) (S) + (N + 1) (U)
For precast culverts:
Atw = (N) (2U + S) + (N – 1) (0.500)

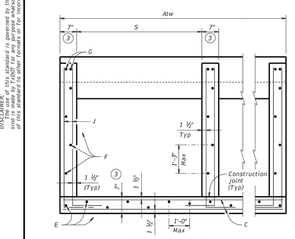
Total Wingwall Area (SF)
= (0.5) (Hw + 0.333') (Lw) (N – 1)
Total Concrete Volume (CY)
= ((Wingwall Area) (0.583') +
(Lw) (Atw) (0.583') +
(Atw) (1.167') (1.167' – 0.583')) ÷ (27)

PIPE RUNNER DIMENSION CALCULATIONS:

Pipe Runner Length (feet)
= (Lw) (X1) + (1.917')
Total Reinforcing (Lb)
= (1.55) (Lw) (Atw) +
(4.43) (Atw) +
(K2) (Hw) (N + 1) (√Lw)

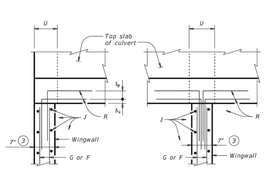
C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant value for use in formulas
Slope SL:1 K
0:1 = 7.54
4:1 = 1.031
6:1 = 1.014
Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)

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



SECTION A-A

(Showing typical wingwall and wing slab reinforcing. Pipe runners not shown for clarity.)



AT TOP OF EXTERIOR WINGWALL (Cast-in-place culvert)

AT TOP OF INTERIOR WINGWALL (Cast-in-place culvert)

AT OUTSIDE OF BOTTOM SLAB (Cast-in-place culvert)

AT INTERIOR WINGWALL (Precast culvert)

PLAN VIEWS OF CORNER DETAILS

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Adjust reinforcing as necessary to provide a minimum clear cover of 1½".
Provide Class "C" concrete (f'c = 3,600 psi).
Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L|52.
Provide ASTM A307 bolts.
Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with Item 445, "Galvanizing."

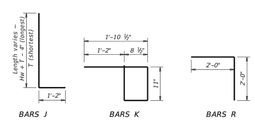
GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.
Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
The quantities for concrete, reinforcing steel, and cross pipes resulting from the formulas given herein are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

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

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'- 0" Max
F	#4	1'- 3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'- 0" Max
R	#4	As shown



BARS J (Length varies – Match T (Typ)) **BARS K** (Length = 4'-3") **BARS R**

1. Provide 6:1 or flatter slope.
2. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to Extended Curb Details the Extended Curb Details (ECD) standard sheet.
3. Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" Minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.
4. For vehicle safety, reduce height, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.
5. For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

Texas Department of Transportation	Bridge Division Standard

SAFETY END TREATMENT
FOR BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE I – PARALLEL DRAINAGE

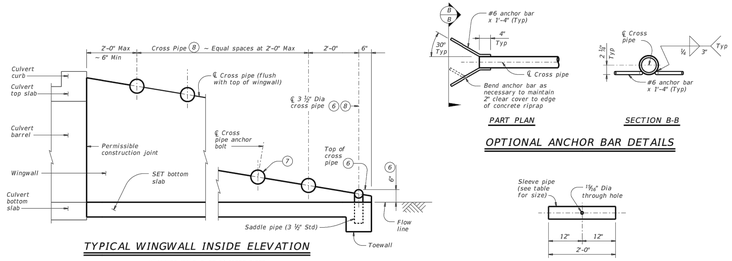
SETB-PD

FILE:	setbpdse-20.dgn	DN: SAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.

SHEET 1 OF 2

DISCLAIMER:
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DATE:
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TYPICAL WINGWALL INSIDE ELEVATION

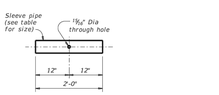
(Showing installation of cross pipes.)

PART PLAN **SECTION B-B**

OPTIONAL ANCHOR BAR DETAILS

REQUIRED PIPE SIZES (8)		
Culvert Span Sizes	Cross Pipe Size	Sleeve Pipe Size (9)
First Pipe	3 ½" STD	2 ½" STD
30" to 42"	4" STD	3" STD
48" to 72"	5" STD	4" STD
78" to 120"	6" STD	5" STD

STANDARD PIPE SIZES		
Pipe Size	Pipe O.D.	Pipe I.D.
2 ½" STD	2.875"	2.469"
3" STD	3.500"	3.068"
3 ½" STD	4.000"	3.548"
4" STD	4.500"	4.026"
5" STD	5.563"	5.047"
6" STD	6.625"	6.065"



SLEEVE PIPE DETAILS (9)

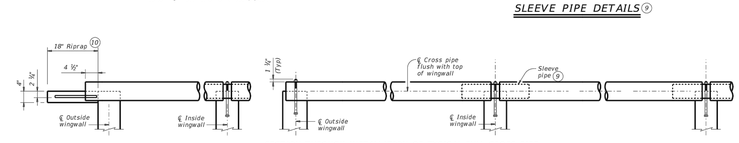
(6) The proper installation of the first cross pipe is critical for vechicle saftey. Place the top of the first cross pipe at no more than 6" above the flow line.

(7) Always install the third cross pipe from the bottom of the culvert using a bolted connection. Take care to ensure that concrete does not flow into this cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(8) Provide cross pipes and sleeve pipes (if required) as shown in the Required Pipe Sizes table. Provide 3 1⁄4#2" saddle pipes for the 3 1⁄4#2" first cross pipe.

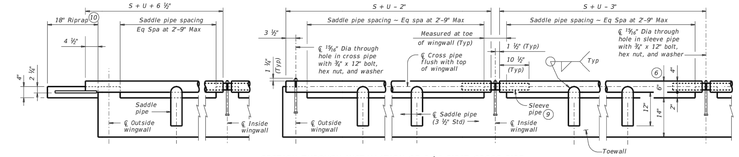
(9) At Contractor's option, make the cross pipe continuous across the inside wingwalls. If this option is selected, omit the sleeve pipe and make a 15⁄16" diameter throughhole in the cross pipe to accept the anchor bolt at the centerline of each interior wingwall.

(10) Provide riprap when using the Optional Anchor Bar details. Riprap is included in the bid price for Safety End Treatment. Provide riprap in accordance with Item 432, "Riprap".



SECTION THROUGH INSTALLATION OF TYPICAL FULL CROSS PIPE

(Anchor details and dimensions are similar to those shown below in Section Through Installation of 3 ½" First Cross Pipe detail.)



OUTSIDE CULVERT BARREL WITH OPTIONAL ANCHOR BARS & RIPRAP

SECTION THROUGH INSTALLATION OF 3 ½" FIRST CROSS PIPE

OUTSIDE CULVERT BARREL WITH BOLTED ANCHOR

INSIDE CULVERT BARREL

CROSS PIPE INSTALLATION DETAILS

SHEET 2 OF 2

Texas Department of Transportation	Bridge Division Standard

SAFETY END TREATMENT
FOR BOX CULVERTS
(MAXIMUM Hw = 7'-0")
TYPE I – PARALLEL DRAINAGE

SETB-PD

FILE:	setbpdse-20.dgn	DN: SAF	CK: CAT	DW: TxDOT	CK: TxDOT
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REVISIONS		DIST	COUNTY		SHEET NO.

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

Dimensions				Variable Reinforcing				Estimated Quantities per ft. of wing (2-wings) (4)		Estimated Quantities per ft of 1-cell (1-toewall) (1=toewall)	
				Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'-0"	2'-10"	2'-2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'-5"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'-2"	3'-6"	2'-8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'-8"	3'-9"	2'-11"	11'-0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'-2"	4'-0"	3'-2"	1'-2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'-5"	3'-5"	1'-4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'-6"	4'-10"	3'-8"	1'-6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'-0"	3'-11"	1'-7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2-wings)

Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No.	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



BARS D1



BARS D2

WING DIMENSION FORMULAS:

(All values are in feet.)

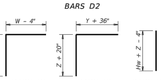
Hw = H + T + C
Lw = (Hw) (SL) + cosine (θ) for Type PW-1
= (Hw – 1') (SL) + cosine (θ) for Type PW-2 and Hw ≥ 4'
= (Hw – 0.5') (SL) + cosine (θ) for Type PW-2 and Hw < 4'

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

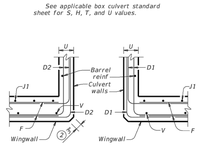
For precast culverts:
Ltw = ((N) (2 U + S) + (N – 1) (0.5')) + cosine (θ)
Total Wingwall Area (two wings – SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) – 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) – 1.5 SF for Type PW-2 and Hw < 4'

Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Channel slope ratio (horizontal: 1 vertical, usual value is 2:1)
θ = Culvert skew

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



BARS J1 **BARS J2** **BARS J3** **BARS V**

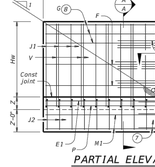


SECTION C-C - PW-1

PARTIAL ELEVATION - PW-1

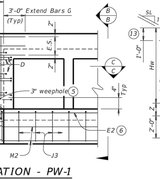
PARTIAL ELEVATION - PW-2

SECTION C-C - PW-2



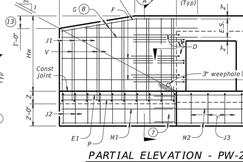
SECTION A-A

(Showing wing reinforcement.)



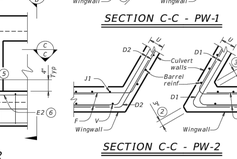
SECTION B-B

(Showing wing reinforcement.)



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR SKEWED BOX CULVERTS

(Showing 30° skew.)

DESIGNER NOTES:

Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewall for wingwalls and culverts may be reduced if constructed when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

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

1. Skew = 0°
2. At discharge end, chamfer may be ¾" minimum.
3. For 15° skew – 1"
For 30° skew – 2"
For 45° skew – 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by the Lw. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E2 1'-6" minimum into the wingwall footing.
7. Lap Bars M1 1'-6" minimum with Bars M2.
8. Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.
9. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
10. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 2" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

11. 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
12. 3'-0" for Hw < 4'.
13. 6" for Hw < 4'.

Texas Department of Transportation	Bridge Division Standard

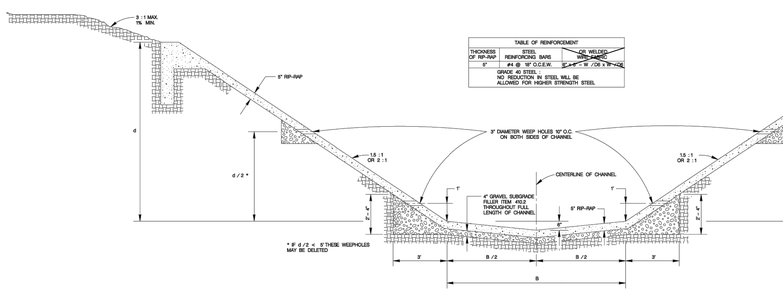
CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR BOX CULVERTS
TYPES PW-1 AND PW-2

PW

FILE:	pwstd01-20.dgn	DN: SAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY		SHEET NO.

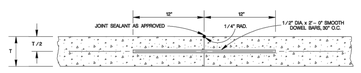
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DATE:
FILE:



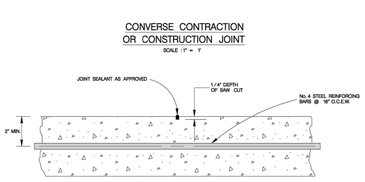
TYPICAL CHANNEL SECTION LOOKING DOWNSTREAM

SCALE : 1" = 4'



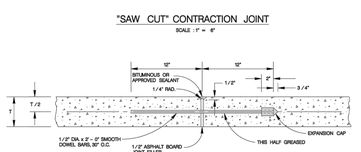
CONVERSE CONTRACTION OR CONSTRUCTION JOINT

SCALE : 1" = 1'



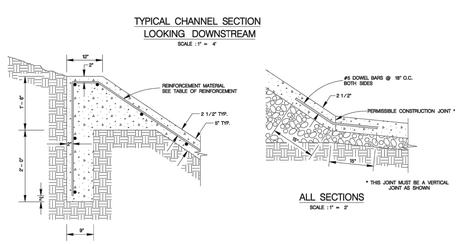
"SAW CUT" CONTRACTION JOINT

SCALE : 1" = 6"



TRANSVERSE EXPANSION JOINT

SCALE : 1" = 1'

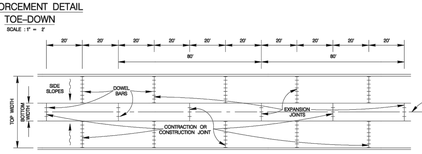


REINFORCEMENT DETAIL TOE-DOWN

SCALE : 1" = 2'

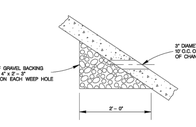
ALL SECTIONS

SCALE : 1" = 2'



EXPANSION AND CONTRACTION JOINTS FOR CONCRETE CHANNEL LINING

SCALE : 1" = 40'



WEEP HOLES DETAILS FOR SIDE SLOPES

SCALE : 1" = 2'

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 OTHERWISE 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 8" 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:_____
DRWN. BY:V.VASQUEZ CHKD. BY:_____ SHEET NO.:___OF___

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAINAGE DETAILS
(SHEET 1 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/9/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Drainage Details.dwg

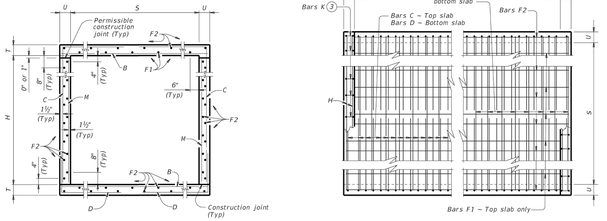
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
4.6

K:\SA201 Castlerock Communities_Red Hawk Landing Unit 1B Subd\426 Site Development Plans\DWG-Sheets\sh_Drainage Details.dwg
User: jlarson
Last Modified: Jul. 02, 24 - 11:22
Xrefs Modified: Jul. 16, 24 - 10:56:52



TYPICAL SECTION

PLAN OF REINF STEEL

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) For curbs less than 1'-0" high, till Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(4) 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR.
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

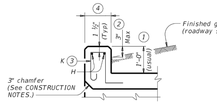
CONSTRUCTION NOTES:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

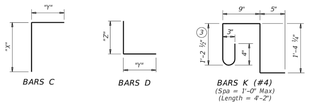
Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Single Box Culverts Cast-In-Place Miscellaneous Detail (SCC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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



SECTION THRU CURB



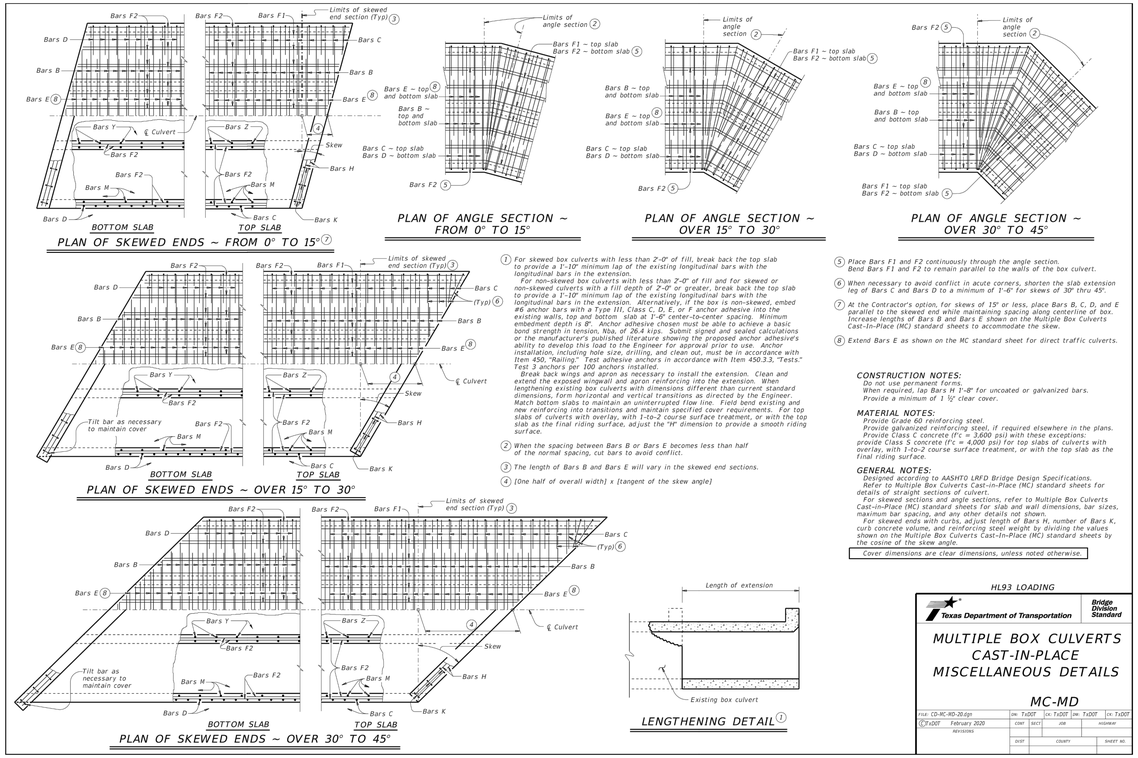
HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

File: CD-SCC34-21.dgn	dw: TBE	ck: BWP	dw: TxDOT	ck: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.



1. For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.
For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, Class C, D, E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.
Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.
2. When the spacing between Bars B or Bars E becomes less than half of the normal spacing, cut bars to avoid conflict.
3. The length of Bars B and Bars E will vary in the skewed end sections.
4. [One half of overall width] x [tangent of the skew angle]
5. Place Bars F1 and F2 continuously through the angle section. Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.
6. When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.
7. At the Contractor's option, for skews of 15° or less, place Bars B, C, D, and E parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B and Bars E shown on the Multiple Box Culverts Cast-In-Place (MC) standard sheets to accommodate the skew.
8. Extend Bars E as shown on the MC standard sheet for direct traffic culverts.

CONSTRUCTION NOTES:
Do not use permanent forms.
When required, lap Bars M 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 ½" clear cover.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for wall and slab elements, except provide Class S concrete (f'c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to Multiple Box Culverts Cast-in-Place (MC) standard sheets for details of straight sections of culvert.
For skewed sections and angle sections, refer to Multiple Box Culverts Cast-in-Place (MC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the Multiple Box Culverts Cast-In-Place (MC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

MULTIPLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

MC-MD

File: CD-MC-MD-20.dgn	dw: TxDOT	ck: TxDOT	dw: TxDOT	ck: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

SECTION DIMENSIONS				FILL HEIGHT (5)	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																								QUANTITIES				
					Bars B					Bars C						Bars D						Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt.	No.	Length	Weight	Length	Wt.	No.	Wt.	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
3'-0"	2'-0"	8"	7"	30"	108	#5	9"	3'-11"	441	108	#4	9"	5'-4"	385	2'-6"	2'-10"	108	#4	9"	5'-1"	367	2'-10"	2'-3"	108	9"	2'-0"	144	3	39'-9"	80	19	39'-9"	505	3'-11"	10	10	28	0.292	48.1	0.3	12.0	1,960
3'-0"	3'-0"	8"	7"	30"	108	#5	9"	3'-11"	441	108	#4	9"	6'-4"	457	3'-6"	2'-10"	108	#4	9"	5'-1"	367	2'-10"	2'-3"	108	9"	3'-0"	216	3	39'-9"	80	23	39'-9"	611	3'-11"	10	10	28	0.335	54.3	0.3	13.7	2,210
4'-0"	2'-0"	8"	7"	30"	108	#5	9"	4'-11"	554	162	#4	6"	5'-8"	613	3'-6"	3'-2"	162	#4	6"	5'-5"	586	3'-2"	2'-3"	108	9"	2'-0"	144	3	39'-9"	80	21	39'-9"	558	4'-11"	13	12	33	0.342	63.4	0.4	14.1	2,581
4'-0"	3'-0"	8"	7"	30"	108	#5	9"	4'-11"	554	162	#4	6"	6'-8"	721	3'-6"	3'-2"	162	#4	6"	5'-5"	586	3'-2"	2'-3"	108	9"	3'-0"	216	3	39'-9"	80	25	39'-9"	664	4'-11"	13	12	33	0.385	70.5	0.4	15.8	2,867
4'-0"	4'-0"	8"	7"	30"	108	#5	9"	4'-11"	554	162	#4	6"	7'-8"	830	4'-6"	3'-2"	162	#4	6"	5'-5"	586	3'-2"	2'-3"	108	9"	4'-0"	289	3	39'-9"	80	25	39'-9"	664	4'-11"	13	12	33	0.428	75.1	0.4	17.5	3,049

(5) For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

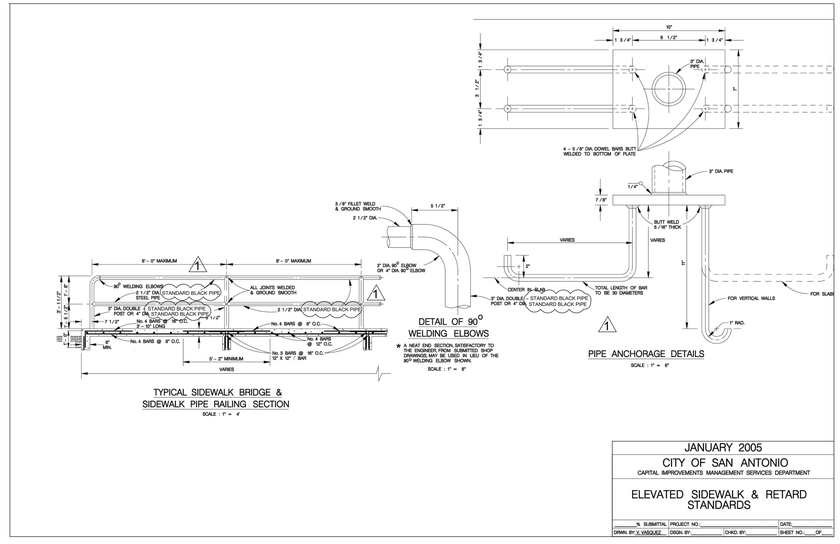
HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-3 & 4

File: CD-SCC34-21.dgn	dw: TBE	ck: BWP	dw: TxDOT	ck: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.



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

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAINAGE DETAILS
(SHEET 2 OF 3)

NO.	DESCRIPTION	BY	DATE
1	TEXT MODIFICATION TO ELEVATED SIDEWALK & RETARD STANDARDS	JD	08/06/2024

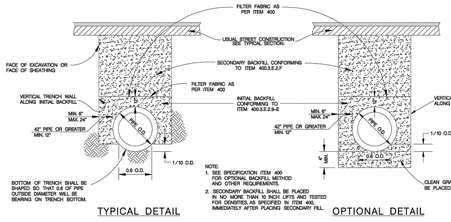
DATE: 9/8/2023
DESIGNED BY:
DRAWN BY:
CHECKED BY: RG
DRAWING NAME: sh_Drainage Details.dwg

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.593.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 4.7

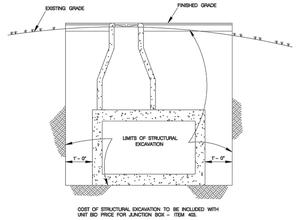
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User: jduron
Last Modified: Aug 06, 24 - 14:19
Plot Date/Time: Aug 06, 24 - 14:20:01



TYPICAL DETAIL

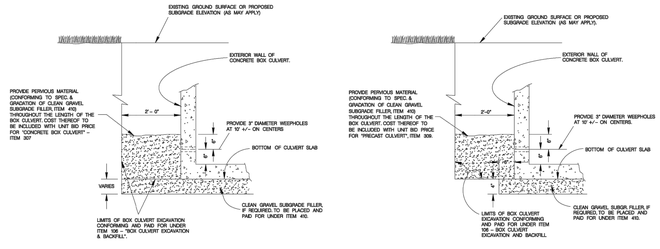
OPTIONAL DETAIL

PIPE BEDDING & BACKFILL DETAILS



STRUCTURAL EXCAVATION AT JUNCTION BOXES

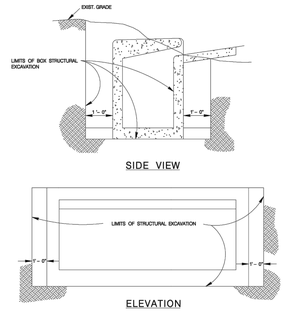
NO SCALE



CAST–IN–PLACE BOX CULVERT

PRECAST BOX CULVERT

CONCRETE BOX CULVERT



STRUCTURAL EXCAVATIONS AT DRAINAGE INLETS

NO SCALE

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

PIPE BEDDING & MISCELLANEOUS DRAINAGE DETAILS

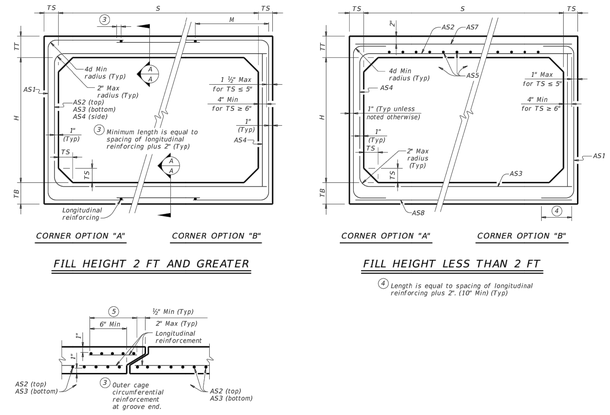
___% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: ___OF___

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②						① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
4	2	5	5	5	3 – 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
4	3	5	5	5	3 – 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
4	4	5	5	5	3 – 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

① For box length = 8'-0"

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



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

SECTION A-A

(Showing top and bottom slab joint reinforcement.)

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

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

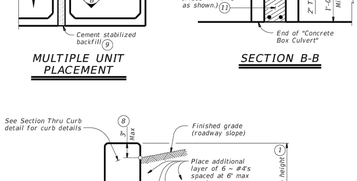
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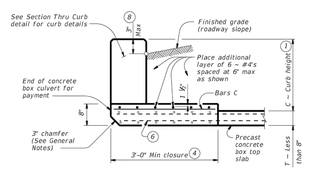
Texas Department of Transportation | Bridge Division Standard

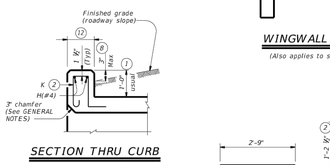
SINGLE BOX CULVERTS PRECAST
4'-0" SPAN

SCP-4

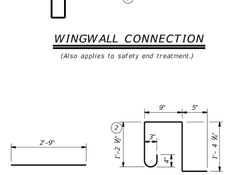
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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

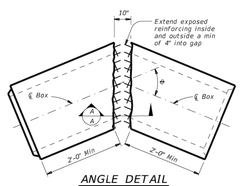


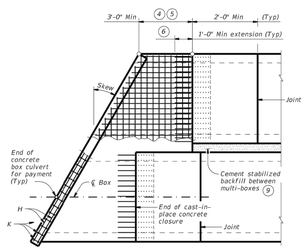




QUANTITIES PER FOOT OF CURB 10	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY







① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

③ Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

④ Provide a 3'-0" Min cast–in–place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast–in–place closure flush with the inside and outside faces of the precast box section.

⑤ For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast–in–place closure in the top slab, bottom slab, and interior wall. See Section B–B detail when interior walls are cast full length.

⑥ Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

⑦ Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

⑧ For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

⑨ Cement stabilized backfill between boxes is considered part of the box culvert for payment.

⑩ All curb concrete and reinforcing is considered part of the box culvert for payment.

⑪ Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

⑫ 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

⑬ For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

⑭ This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

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

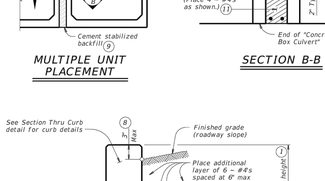
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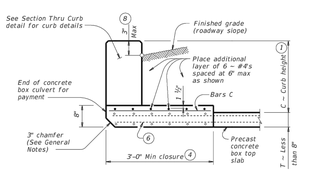
Texas Department of Transportation | Bridge Division Standard

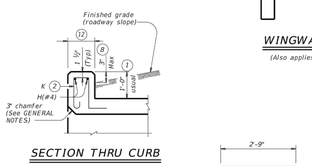
BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

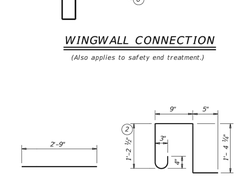
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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

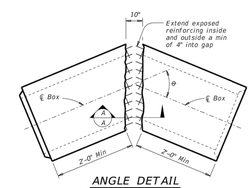


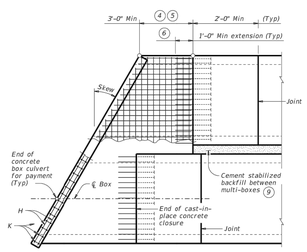




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Concrete	0.037 CY







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GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
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Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out–to–out of bars.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

File: CD-SCP-MD-20.dgn	dw: GAF	ck: LRW	dw: BWH/TxDOT	ck: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
DRAINAGE DETAILS
(SHEET 3 OF 3)

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Drainage Details.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
4.8

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User: jlyon
Last Modified: Jul. 02, 24 - 11:22
Plot Date/Time: Jul. 16, 24 - 10:30:12

GENERAL NOTES:

1. ALL HANDICAP RAMPS TO BE TYPE I OR II AS NOTED, REFER TO SHEET 5.9.
2. ALL ELEVATIONS ARE TOP OF CURB UNLESS OTHERWISE NOTED.
3. PROPOSED STREET LIGHTS SHALL BE LOCATED BEHIND THE BACK OF SIDEWALK AND INSTALLED PER THE CPS DESIGN.
4. STREETS AND DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. REFER TO SHEET 5.7 FOR STREET AND PAVEMENT SECTION DETAIL, CONCRETE CURB DETAIL, AND SIDEWALK DETAIL.
6. CONTRACTOR TO FIELD VERIFY ALL MATCH EXISTING ELEVATIONS, SEWER MANHOLE INVERTS, STORM DRAIN INVERTS, AND ALL OTHER UTILITIES PRIOR TO UTILITY WORK AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
7. CONTRACTOR IS TO MATCH EXISTING PAVEMENT, SIDEWALK, AND CURB ELEVATIONS.
8. A BEXAR COUNTY RIGHT OF WAY PERMIT MUST BE OBTAINED PRIOR TO WORKING IN EXISTING BEXAR COUNTY RIGHT OF WAY.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

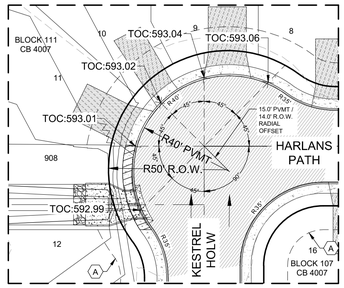
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

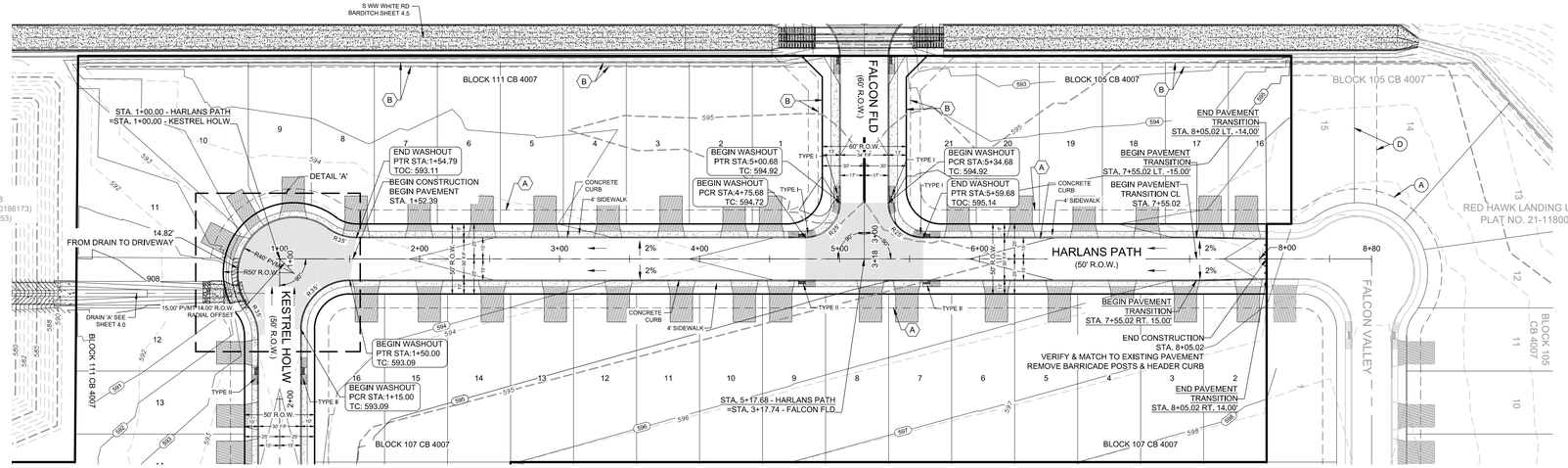
(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

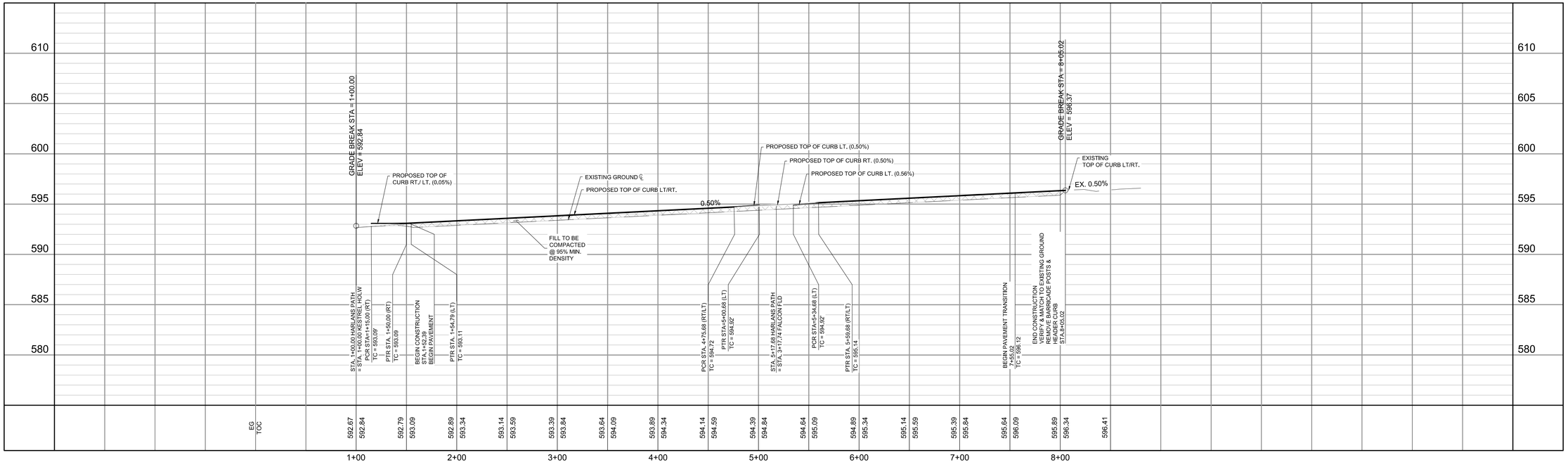
(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



DETAIL 'A'
1" = 30'

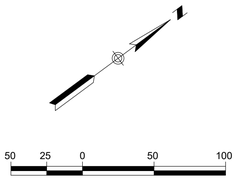


HARLANS PATH STA 1+00 TO STA END



LEGEND

- 800 — PROPOSED CONTOUR
- 2% — FLOW ARROW
- GRASSED DRAIN FLOW
- PROPOSED STREET GRADE
- EXISTING GROUND LEFT
- EXISTING GROUND CENTERLINE
- EXISTING GROUND RIGHT
- SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
- SIDEWALK (DEVELOPER'S RESPONSIBILITY)
- G,E,T,CA — GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
- BSL — BUILDING SETBACK LINE
- ESM'T. — EASEMENT
- LT. — LEFT
- RT. — RIGHT
- WASHOUT CROWN
- WASHOUT FLOW ARROW
- TYPE I SIDEWALK RAMP DEVELOPER RESPONSIBLE
- TYPE II SIDEWALK RAMP DEVELOPER RESPONSIBLE



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

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
HARLANS PATH
STA 1+00 TO END PLAN & PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 05_Harlans Path P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 5.0

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User: jduran
Last Modified: Aug. 05, 24 - 09:39
Plot Date/Time: Aug. 05, 24 - 09:41:45

GENERAL NOTES:

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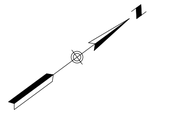
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

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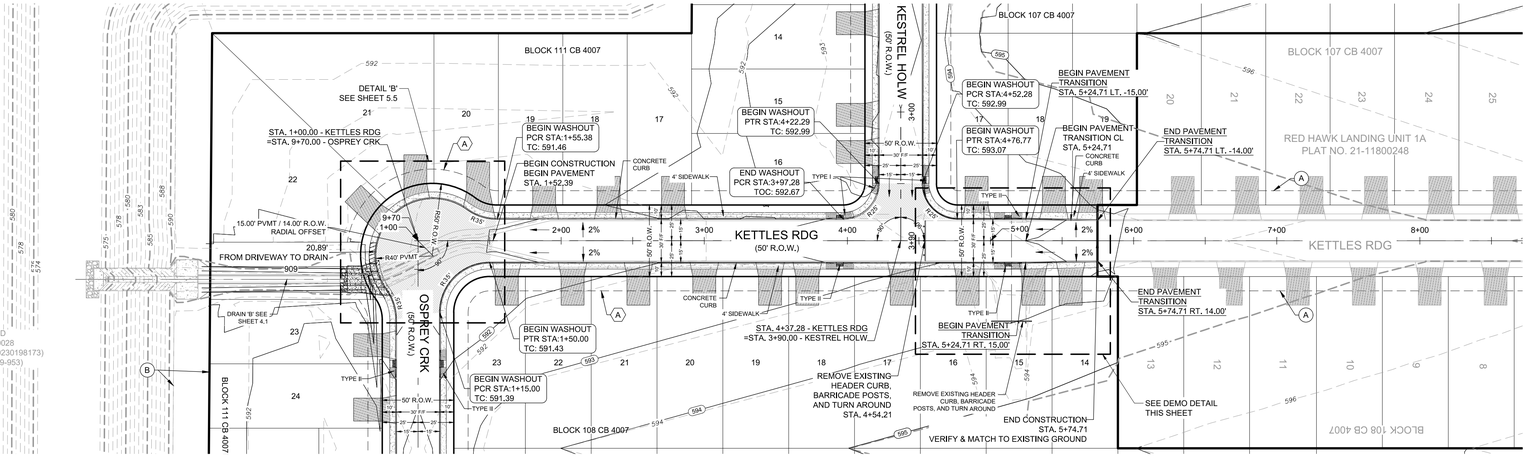
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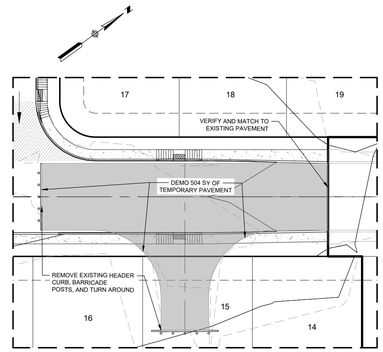


HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

LEGEND

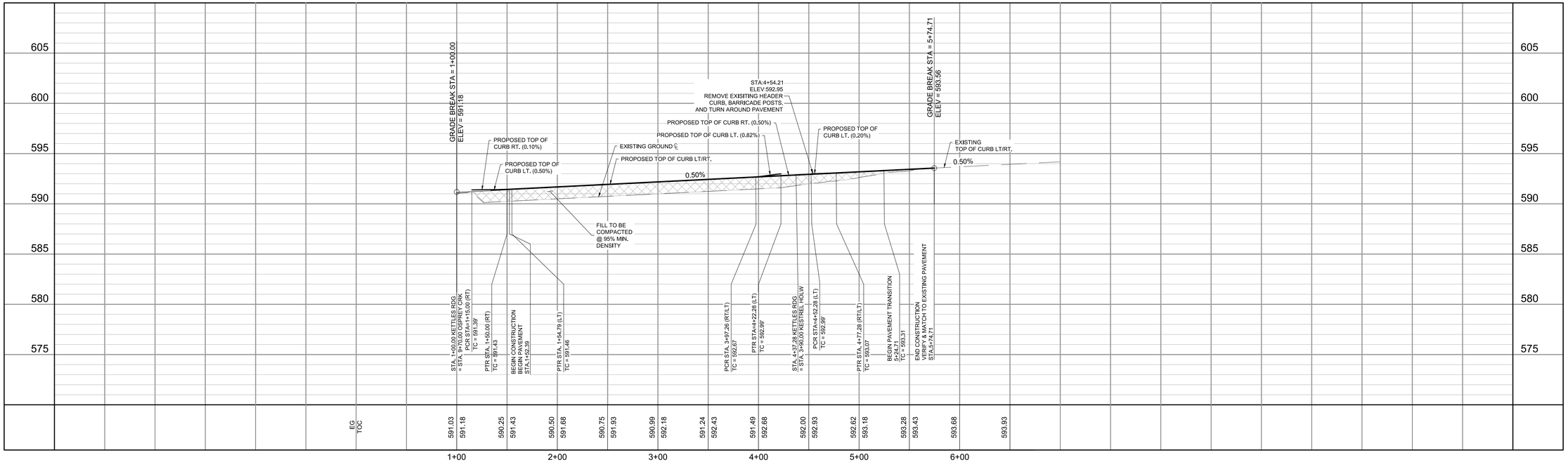
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DEMO DETAIL
1" = 30'

KETTLES RDG STA 1+00 TO STA END



RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
KETTLES RDG
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE

REVISIONS

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY:
CHECKED BY: RG
DRAWING NAME: sh_Kettles Rdg P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
5.1

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User: jburn
Last Modified: Aug. 07, 24 - 15:48
Plot Style Table: Aug. 05, 24 - 08:11:58

GENERAL NOTES:

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8. A BEXAR COUNTY RIGHT OF WAY PERMIT MUST BE OBTAINED PRIOR TO WORKING IN EXISTING BEXAR COUNTY RIGHT OF WAY.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E.

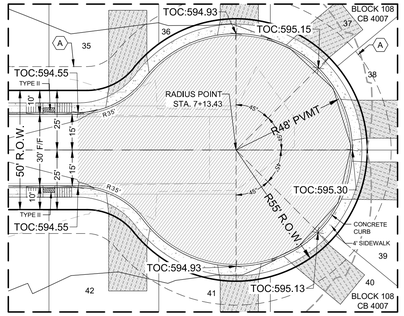
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)

(C) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800286) (DOC. NO. 20230118295)

(D) EXISTING 16' WATER ESM'T (LAND PLAT-23-10200028) (DOC. NO. 20230198169 - 20230198173) (VOL. 20003, PGS. 949-953)

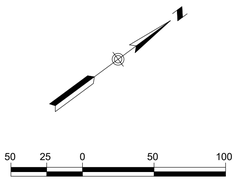
(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



DETAIL 'C'

1" = 30'

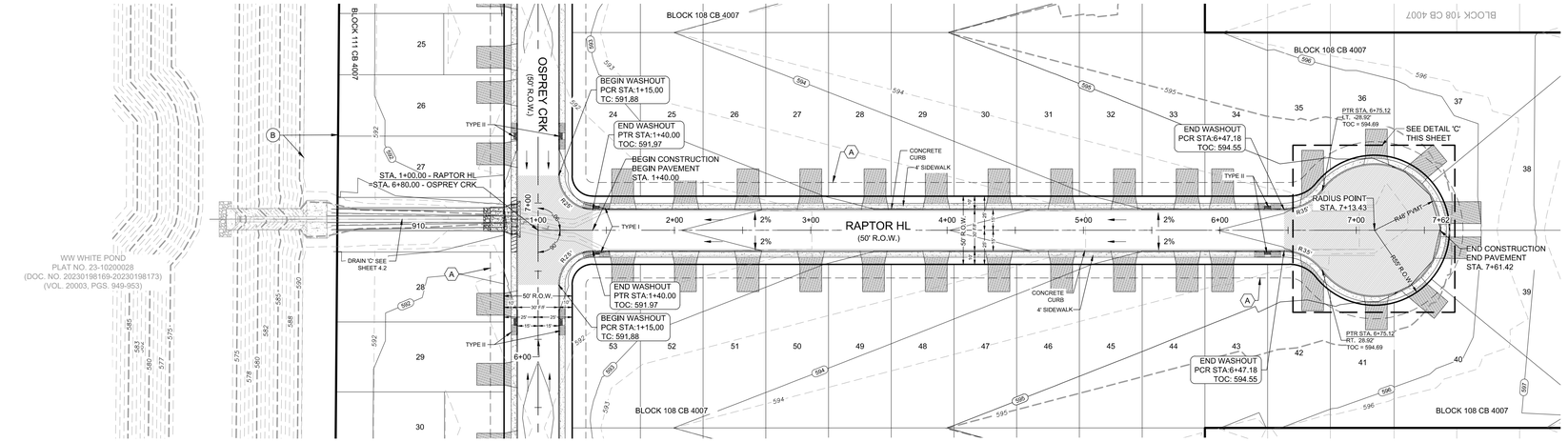




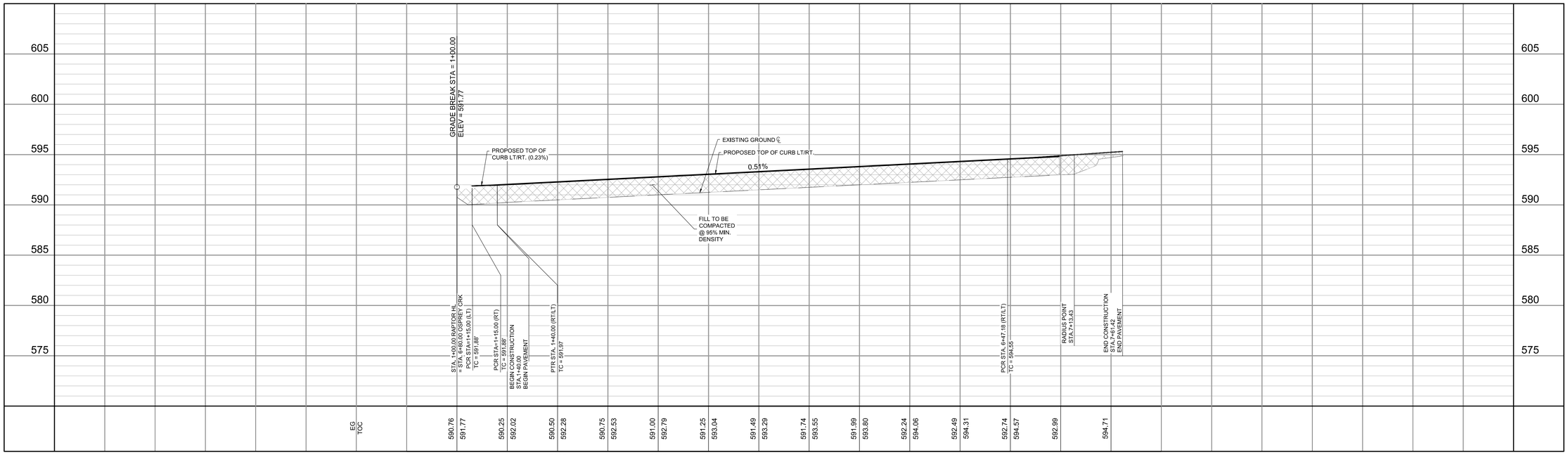
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'

LEGEND

- 800 — PROPOSED CONTOUR
- 2% — FLOW ARROW
- GRASSED DRAIN FLOW
- PROPOSED STREET GRADE
- EXISTING GROUND LEFT
- EXISTING GROUND CENTERLINE
- EXISTING GROUND RIGHT
- SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
- SIDEWALK (DEVELOPER'S RESPONSIBILITY)
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- BSL — BUILDING SETBACK LINE
- ESM'T. — EASEMENT
- LT. — LEFT
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- TYPE I SIDEWALK RAMP DEVELOPER RESPONSIBLE
- TYPE II SIDEWALK RAMP DEVELOPER RESPONSIBLE



RAPTOR HL STA 1+00 TO STA END



RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
RAPTOR HL
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/6/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 93_Raptor HL P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 5.2

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User: jturon
Last Modified: Aug. 05, 24 - 09:46
Plot Date/Time: Aug. 05, 24 - 09:49

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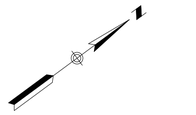
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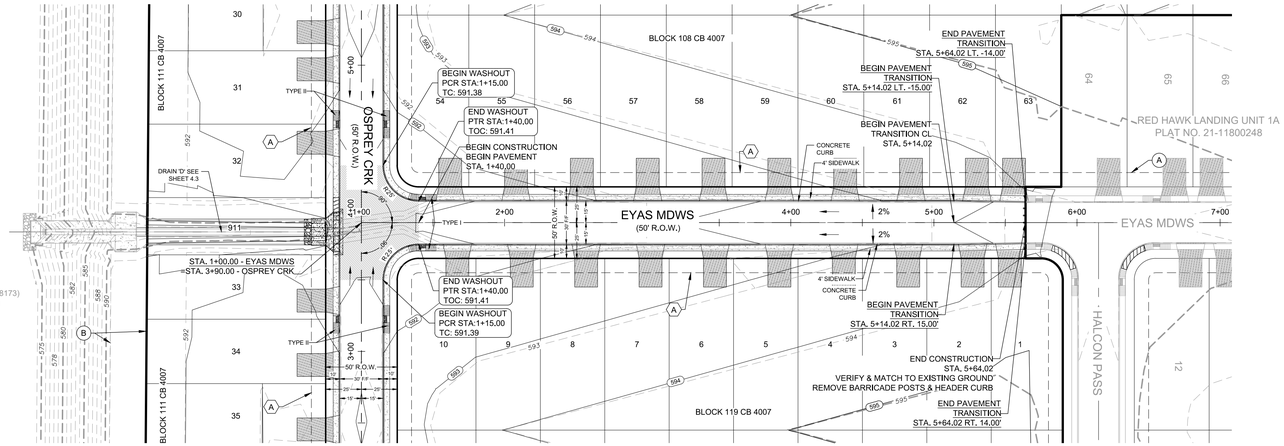


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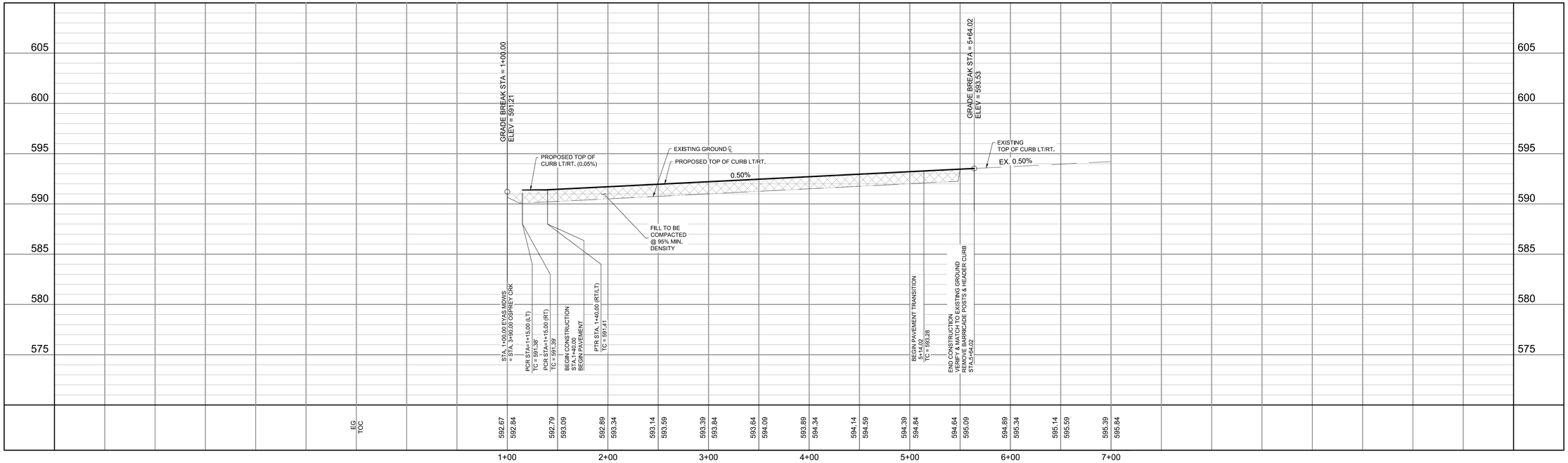
HORIZONTAL SCALE 1" = 50'
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LEGEND

800	PROPOSED CONTOUR
2%	FLOW ARROW
	GRASSED DRAIN FLOW
	PROPOSED STREET GRADE
	EXISTING GROUND LEFT
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	TYPE I SIDEWALK RAMP DEVELOPER RESPONSIBLE
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EYAS MDWS STA 1+00 TO STA END



RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
EYAS MDWS
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Eyas Mdws P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 5.3

K:\SA201 Castlerock Communities_Red Hawk Landing 1B_Sub\426 Site Development Plans\LWG-Sheets\sh_Eyas Mdws P&P.dwg
User: jduron
Last Modified: Aug 02, 24 - 08:13
Plot Style/Time: May 06, 24 - 09:53

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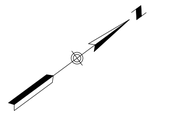
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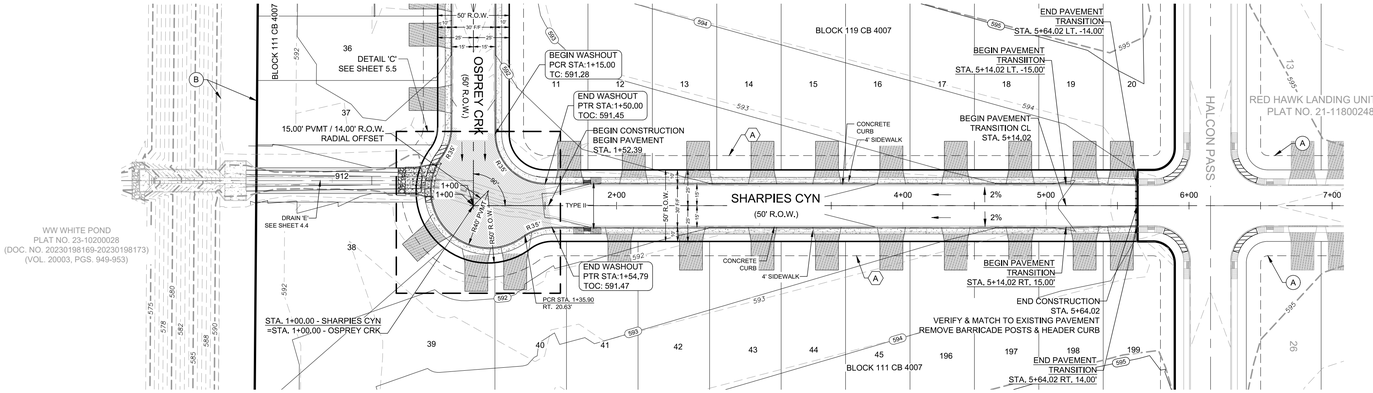


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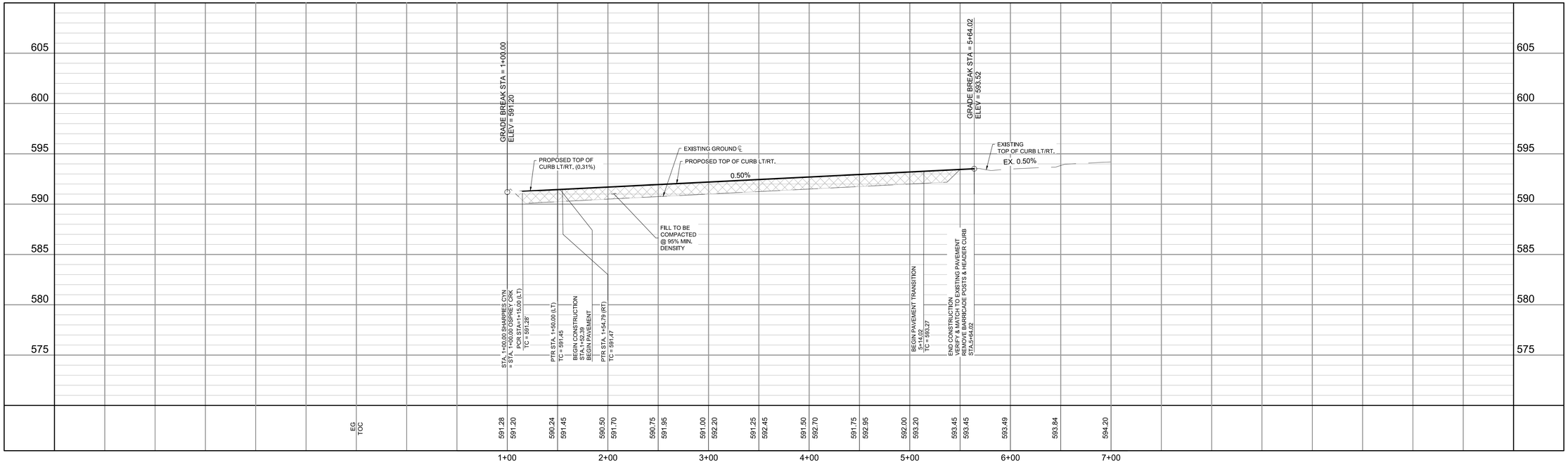
HORIZONTAL SCALE 1" = 50'
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SHARPIES CYN STA 1+00 TO STA END



RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
SHARPIES CYN
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Sharpies CYN P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED
PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 5.4

K:\SA201 Castlerock Communities_Red Hawk Landing 1B Sub\426 Site Development Plans\LWG-Sheets\sh_Sharpies CYN P&P.dwg
User: jduron
Last Modified: Aug 02, 24 - 16:28
Plot Style/Time: Aug 06, 24 - 09:13:20

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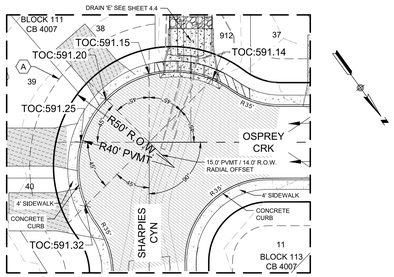
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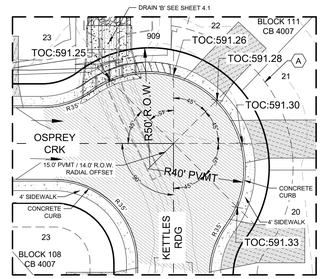
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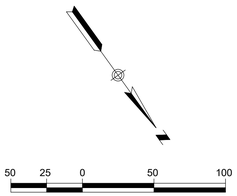
(E) 1' V.N.A. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141) (VOL. 20003, PGS. 921-923)



DETAIL 'C'
1" = 30'



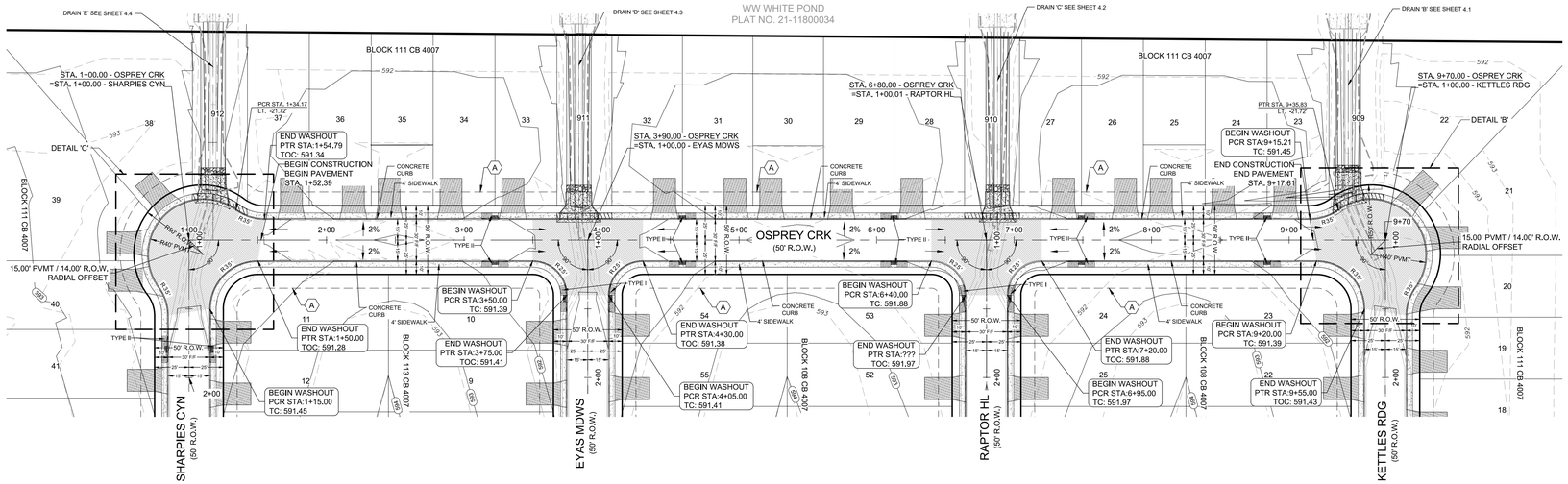
DETAIL 'B'
1" = 30'



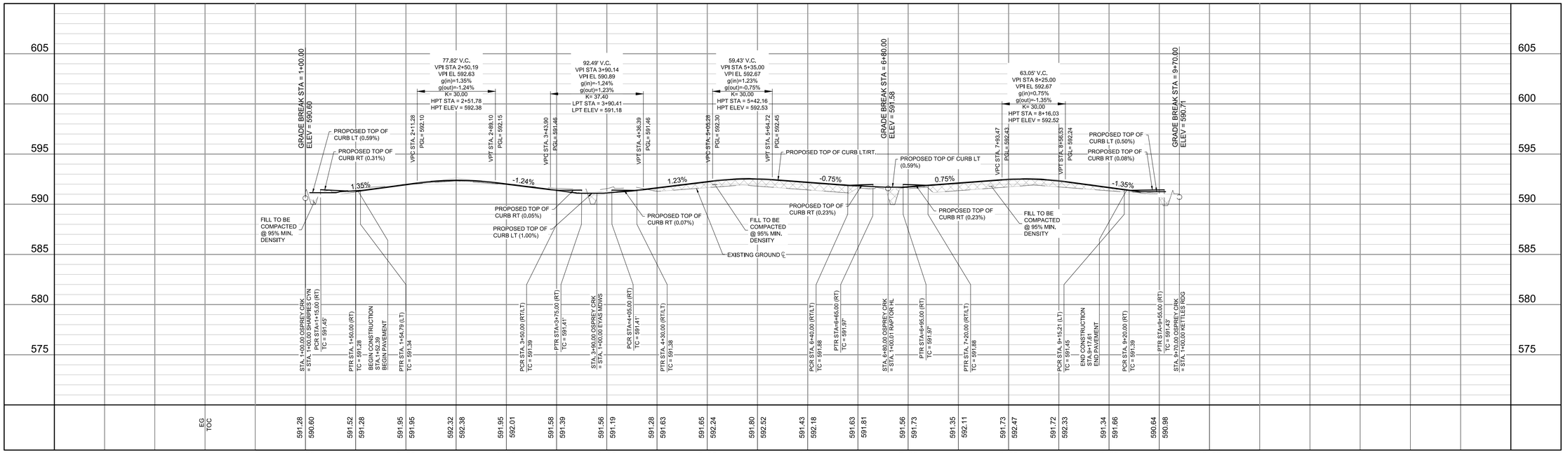
HORIZONTAL SCALE 1" = 50'
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K:\SA201 Castle\Rok Communities\L_Red Hawk Landing Unit 1\B Subd\430 Site Development Plans\DWG- Sheets\ph_Osprey CRK P&P.dwg
User: jdurgin
Last Modified: Aug. 02, 24 - 08:14
Plot Date/Time: Aug. 05, 24 - 09:12:56

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
OSPREY CRK
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY:
CHECKED BY: RG
DRAWING NAME: sh_Osprey CRK P&P.dwg

STATE OF TEXAS
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JOB NUMBER: SA201-0401B-426

SHEET NO. 5.5

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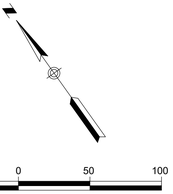
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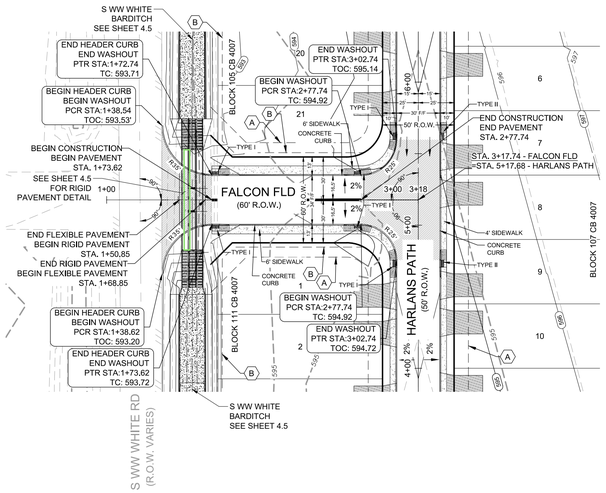
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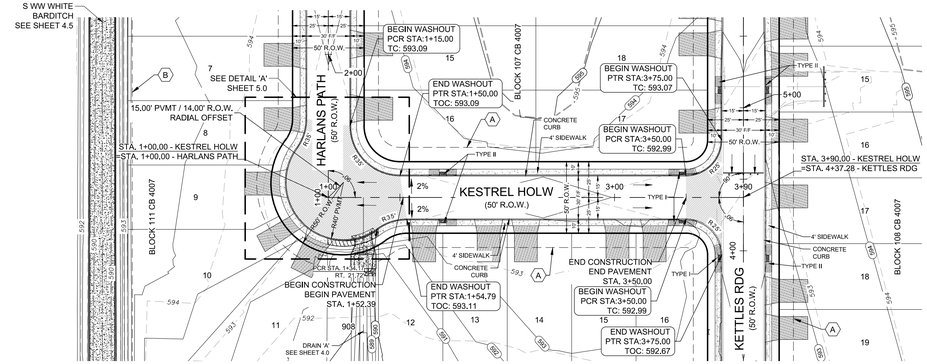
HORIZONTAL SCALE 1" = 50'
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LEGEND

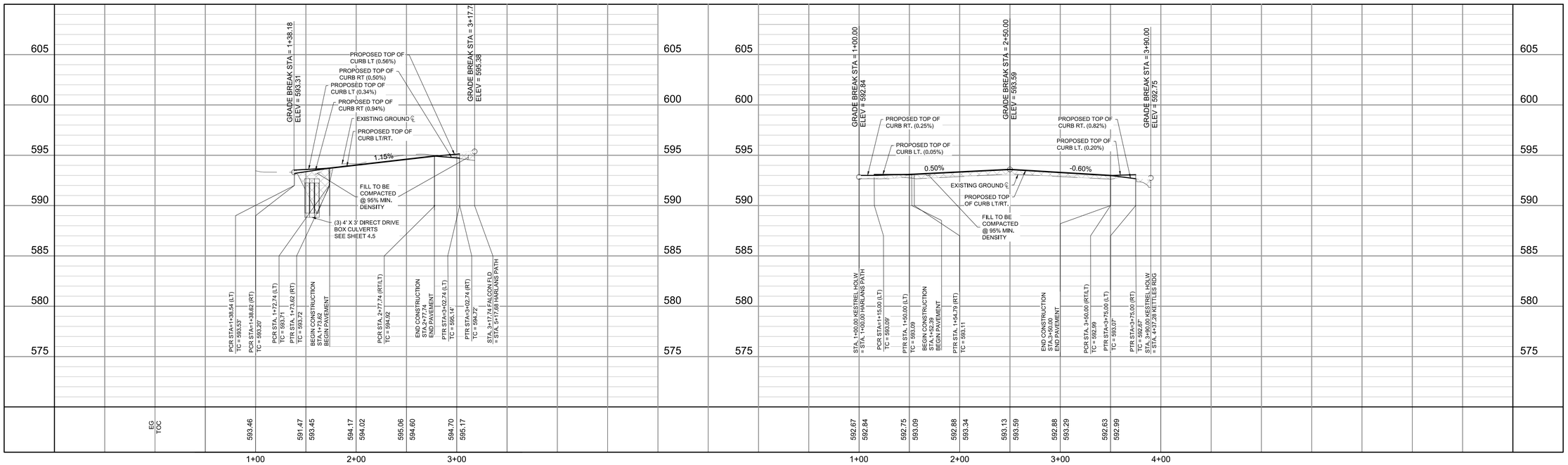
- 800 — PROPOSED CONTOUR
- 2% — FLOW ARROW
- GRASSED DRAIN FLOW
- PROPOSED STREET GRADE
- EXISTING GROUND LEFT
- EXISTING GROUND CENTERLINE
- EXISTING GROUND RIGHT
- SIDEWALK (HOMEOWNER'S RESPONSIBILITY)
- SIDEWALK (DEVELOPER'S RESPONSIBILITY)
- G,E,T,CA — GAS, ELECTRIC, TELEPHONE & CABLE TV EASEMENT
- BSL — BUILDING SETBACK LINE
- ESM'T. — EASEMENT
- LT. — LEFT
- RT. — RIGHT
- WASHOUT CROWN
- WASHOUT FLOW ARROW
- TYPE I SIDEWALK RAMP DEVELOPER RESPONSIBLE
- TYPE II SIDEWALK RAMP DEVELOPER RESPONSIBLE



FALCON FLD STA 1+73.62 TO STA END



KESTREL HOLW STA 1+00 TO STA END



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User: jduron
Last Modified: Aug 02, 24 - 16:30
Plot Style/Time: May 06, 24 - 09:41:31

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
FALCON FLD & KESTREL HOLW
STA 1+00 TO END PLAN & PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

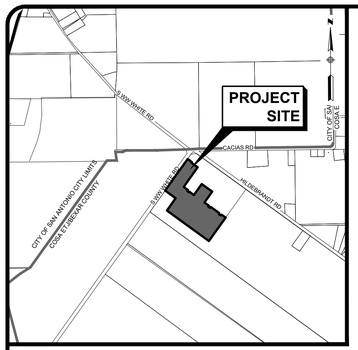
DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 10 Jt Kestrel HOLW P&P.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

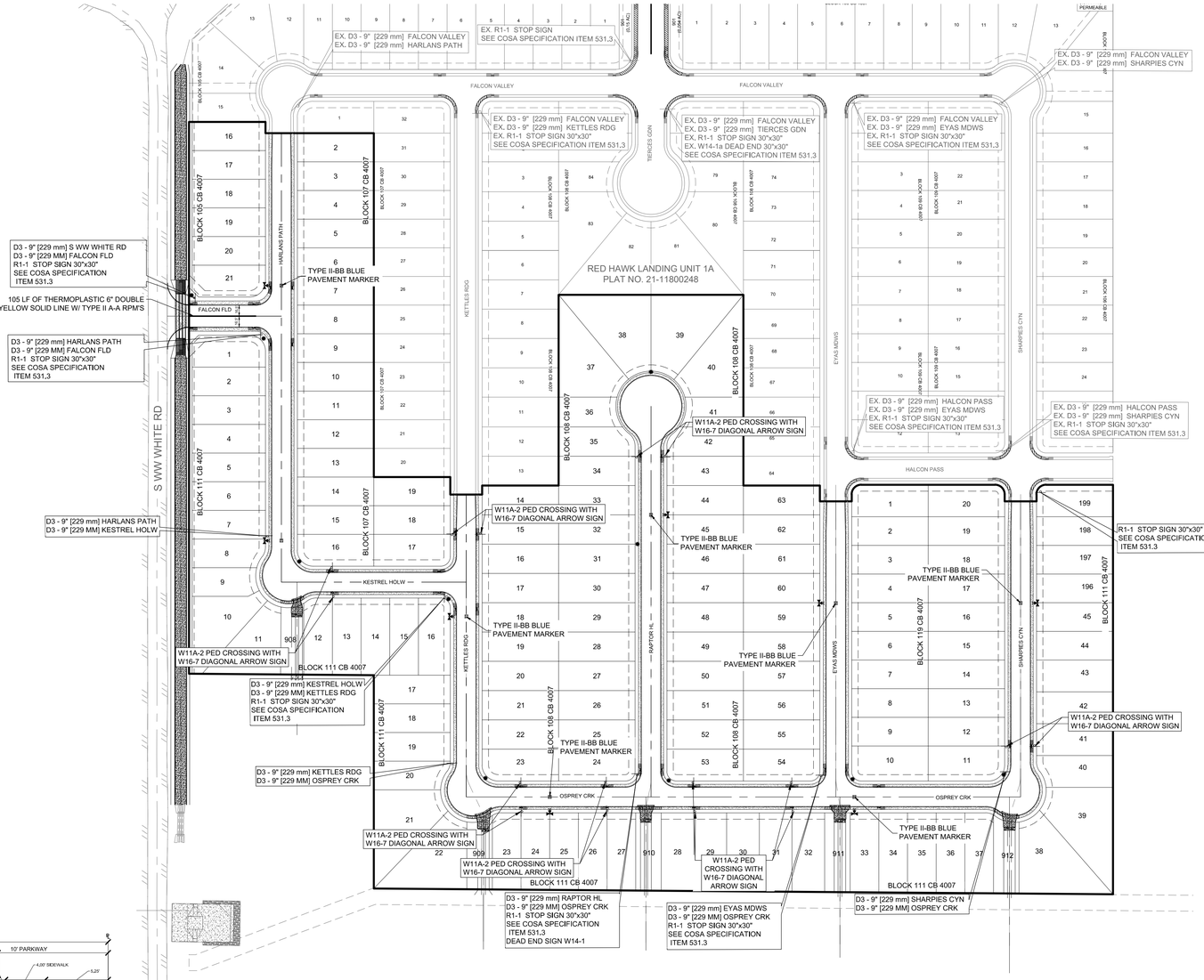
LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

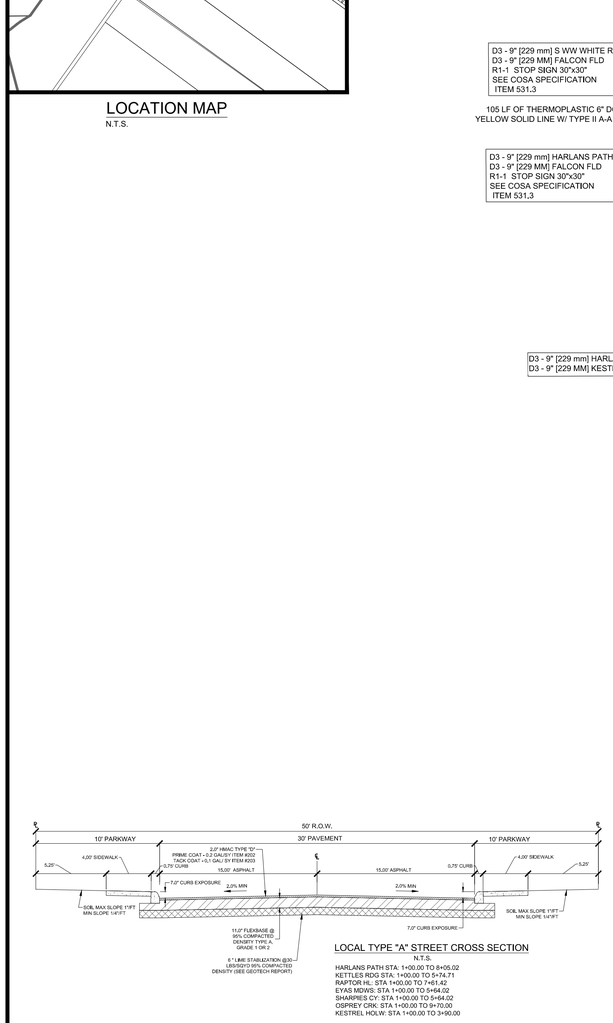
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SA201-0401B-426

SHEET NO.
5.6



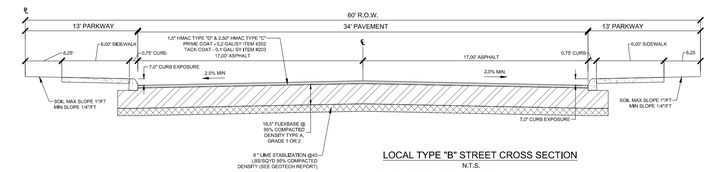
LOCATION MAP
N.T.S.





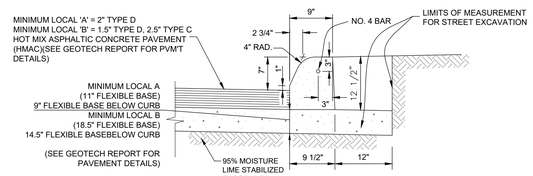
LOCAL TYPE "A" STREET CROSS SECTION
N.T.S.

HARLANS PATH STA: 1+00.00 TO 8+05.02
KETTLES RDG STA: 1+00.00 TO 5+74.71
RAPTOR HL: STA 1+00.00 TO 7+61.42
EYAS MDWS: STA 1+00.00 TO 5+64.02
SHARPIES CY: STA 1+00.00 TO 5+64.02
OSPREY CRK: STA 1+00.00 TO 9+70.00
KESTREL HOLW: STA 1+00.00 TO 3+90.00

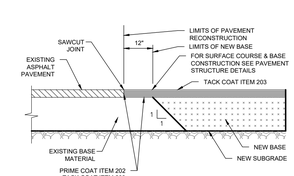


LOCAL TYPE "B" STREET CROSS SECTION
N.T.S.

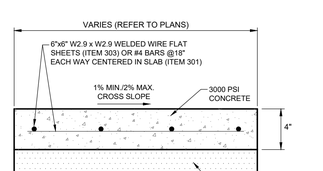
FALCON FLD: STA 1+73.62 TO 2+77.74



7" MACHINE LAID CURB DETAIL
N.T.S.



PAVEMENT TIE-IN DETAIL
N.T.S.



SIDEWALK DETAIL
N.T.S.

100 50 0 100 200

SCALE IN FEET
SCALE: 1"=100'

PAVEMENT SECTION TABLE CBR = 2.0	LOCAL A	LOCAL B
HOT MIX ASPHALT CONCRETE (TYPE "C" or TYPE "D") DEPTH:	TYPE D = 2.0"	TYPE D =1.5" TYPE C =2.5"
TYPE A, GRADE 1-2 - AGGREGATE BASE DEPTH:	11.00"	18.50"
LIME OR CEMENT STABILIZED SUBGRADE (SEE NOTE 3 & SUBGRADE NOTE 5):	6.00"	8.00"

1. CONTRACTOR TO REFER TO GEOTECHNICAL ENGINEERING BY INTEC TESTING DATED NOVEMBER 5, 2020 FOR PAVEMENT DESIGN SPECIFICATIONS, INTEC REPORT NO. S201211-P.
2. MINIMUM OF 4" FLEXIBLE BASE OR 2" OF ASPHALT TREATED BASE IS REQUIRED UNDERNEATH THE CURB (REFER TO PAVEMENT & CURB DETAILS).
3. HYDRATED LIME SHOULD BE MIXED WITH THE SUBGRADE SOILS IN ACCORDANCE WITH TXDOT ITEM 260. LIME STABALIZED TO A MINIMUM DEPTH OF 6" OR 8", AS NOTED ABOVE, ON AN APPLICATION RATE OF 7 PERCENT OF THE DRY WEIGHT OF THE SOIL TO BE TREATED. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABALIZATION. IF THE SOIL SULFATE CONTENT IS HIGH, AND ALTERNATE PROCEDURE WILL BE NEEDED. LIME APPLICATION RATE OF 30.0 LBS PER SQ YARD FOR 6-INCH DEPTH OF STABALIZATION & 40.0 LBS PER SQ YARD FOR 8-INCH DEPTH OF STABILIZATION IS RECOMMENDED.
4. GEOTECHNICAL ENGINEER TO BE ON SITE TO MAKE FINAL SUBGRADE DETERMINATION. CHANGES TO THIS PAVEMENT DESIGN SHALL BE SUBMITTED TO COSA-DSD & BEXAR COUNTY PRIOR TO PLACEMENT OF BASE MATERIAL.

NOTES FROM InTEC GEOTECH REPORT No. S201211-P

SUBGRADE NOTES

- 1. CUT AND FILL DATA ARE NOT AVAILABLE AT THIS TIME.
- 2. BASED ON THE THICKNESS OF THE CLAYS ENCOUNTERED IN THE BORINGS, WE ANTICPIATE THE FINAL PAVEMENT SUBGRADE PLASTICITY INDEX VALUE TO BE GREATER THAN 20. AS PER BEXAR COUNTY & CITY OF SAN ANTONIO REQUIREMENTS, SUBGRADE STABILIZATION IS NEEDED WHEN THE PLASTICITY INDEX VALUES ARE GREATER THAN 20.
- 3. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO STABILIZATION. IF THE SOIL SULFATE CONTENT IS HIGHER THAN 3,000 PPM AN LATERNATE PROCEDURE WILL BE NEEDED.
- 4. THE SUBGRADE SHOULD BE STABILIZED TO A DEPTH OF 6 OR 8 INCHES USING 6.5% LIME CONTENT.
  - A. LIME APPLICATION RATE OF 30.0 LBS PER SQ YARD FOR 6-INCH DEPTH OF STABILIZATION IS RECOMMENDED.
  - B. LIME APPLICATION RATE OF 40.0 LBS PER SQ YARD FOR 8 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
- 5. THE SUBGRADE MAY ALSO BE STABILIZED WITH CEMENT IN LIEU OF LIME. CEMENT APPLICATION RATES SHOULD BE DETERMINED AT THE TIME OF CONSTRUCTION.

PAVEMENT NOTE:

GEOTECHNICAL ENGINEER TO BE ON SITE TO MAKE FINAL SUBGRADE DETERMINATION. CHANGES TO THIS PAVEMENT DESIGN SHALL BE SUBMITTED TO COSA-DSD & BEXAR COUNTY PRIOR TO PLACEMENT OF BASE MATERIAL.

GENERAL NOTES

- 1. INPUT PARAMETERS USED IN PAVEMENT SECTION CALCULATIONS ARE SHOWN IN TABLE NO. 7. PLEASE CALL US (InTEC) TO PROVIDE PAVEMENT RECOMMENDATIONS, IF NEEDED, FOR DIFFERENT INPUT VALUES.
- 2. IF REPETITIVE TRUCK OR HEAVY TRUCK TRAFFIC IS ANTICIPATED, PLEASE CONTACT US FOR REVISED PAVEMENT RECOMMENDATIONS.
- 3. PAVEMENT SECTION RECOMMENDATIONS ARE BASED ON A SUBGRADE CBR VALUE OF 2.0. THE PAVEMENT RECOMMENDATIONS ARE NOT BASED ON THE SHRINK/ SWELL CHARACTERISTICS OF THE UNDERLYING SOILS. THE PAVEMENT CAN EXPERIENCE CRACKING AND DEFORMATION DUE TO SHRINKAGE AND SWELLING CHARACTERISTICS OF THE SOILS AS DESCRIBED IN THE VERTICAL MOVEMENTS SECTION OF THIS REPORT. USE OF GEOGRID HELPS REDUCE THE SHRINK/ SWELL RELATED CRACKING.
- 4. THE SUBGRADE SHOULD BE STABILIZED TO A DEPTH OF 6 OR 8 INCHES USING 6.5% LIME CONTENT.
  - A. LIME APPLICATION RATE OF 30.0 LBS PER SQ YARD FOR 6-INCH DEPTH OF STABILIZATION IS RECOMMENDED.
  - B. LIME APPLICATION RATE OF 40.0 LBS PER SQ YARD FOR 8 INCH DEPTH OF STABILIZATION IS RECOMMENDED.
- 5. THE SUBGRADE MAY ALSO BE STABILIZED WITH CEMENT IN LIEU OF LIME. CEMENT APPLICATION RATES SHOULD BE DETERMINED AT THE TIME OF CONSTRUCTION.
- 6. IF WATER IS ALLOWED TO GET UNDERNEATH THE ASPHALT, OR IF MOISTURE CONTENT OF THE BASE OR SUBGRADE CHANGES SIGNIFICANTLY, THEN PAVEMENT DISTRESS WILL OCCUR. MOISTURE PENETRATION UNDERNEATH THE ASPHALT PAVEMENT SURFACE MAY BE REDUCED BY INSTALLING A VERTICAL MOISTURE BARRIER, SUCH AS DEEPER CURBS; CURBS EXTENDING A MINIMUM OF 6 INCHES INTO SUBGRADE.
- 7. FILL USED TO RAISE THE GRADE - APPROVED FILL MATERIAL SHOULD HAVE A MINIMUM CBR VALUE OF 2.0 AND A MAXIMUM PLASTICITY INDEX VALUE OF 50. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL.

CONSTRUCTION VERIFICATION NOTES:

FOR CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED IN THE FIELD:

1. AFTER MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF 2 TO THREE (2-3) DAYS. MAINTAIN MOISTURE DURING MELLOWING.
2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE 3/4" SEIVE FROM SAMPLE)
   - 2.1. MINIMUM PASSING 1 ¾" SIEVE: 100%
   - 2.2. MINIMUM PASSING ¾" SIEVE: 85%
   - 2.3. MINIMUM PASSING NO. 4 SIEVE: 60%
3. SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY USC TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED ABOVE FOR MIXTURE DESIGN.
4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED).
5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).
6. VERIFY DEPTH OF LIME STABILIZED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
SIGNAGE PLAN

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

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DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 81_Signage Plan.dwg

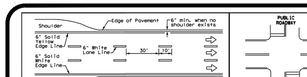
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
08/06/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
5.7

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User: jaron
Last Modified: Aug. 05, 24 - 14:40
Plot Date/Time: Aug. 05, 24 - 14:40:04



EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

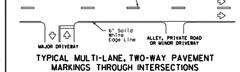


TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS

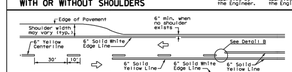


CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS

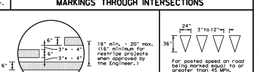


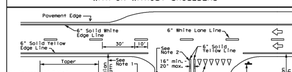


TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

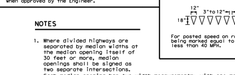
1. Where divided highways are separated by median widths at the median opening itself of 30' or more, crossover openings shall be aligned as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when 6' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

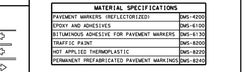
GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other factors. Edge line striping is not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lane or shoulder. Unless otherwise shown, the traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

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 Department Material Specifications as specified by the plans.





NOTE: Traveled way is evaluative of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE
Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation | Traffic Safety Division Standard

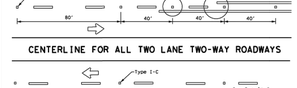
TYPICAL STANDARD
PAVEMENT MARKINGS

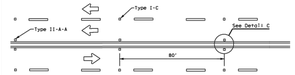
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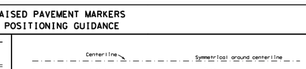
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11-22	9-08				
5-00	2-12				
DIST	COUNTY			SHEET NO.	

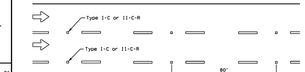
REFLECTIVE RAISED PAVEMENT MARKERS
FOR VEHICLE POSITIONING GUIDANCE



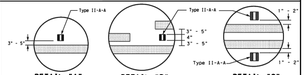








Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic. See Note 3.



REFLECTORIZED PROFILE
PATTERN DETAIL
USING REFLECTIVE PROFILE PAVEMENT MARKINGS

NOTES

1. Edge lines should ropliosity be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

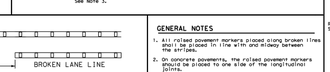
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the airlines.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type I-C-R with divided highways and raised medians.

Texas Department of Transportation | Traffic Safety Division Standard

POSITION GUIDANCE USING
RAISED MARKERS
REFLECTORIZED PROFILE
MARKINGS

PM(21)-22

FILE	pm(21)-22	DN:	CK:	DW:	CK:
©TxDOT	December 2022	REVISIONS			
4-17	8-06				
11-22	9-08				
5-00	2-12				
DIST	COUNTY			SHEET NO.	



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 Department Material Specifications as specified by the plans.



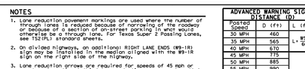
NOTES

1. Lane reduction pavement markings are used where the number of through traffic lanes is reduced by one lane due to a ramp or reduction of a section of on-street parking, or where shown otherwise as a through lane, for Texas Super 2 Passing Lanes, see TSD/PL-1 standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (R4-1M) sign shall be placed on the left side of the highway on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional white lane reduction arrow may be added based on engineering judgement. If used, the optional white lane reduction arrow shall 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.

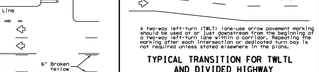
ADVANCED WARNING SIGN DISTANCE (D)	
Posted Speed	D (ft)
30 MPH	460
35 MPH	565
40 MPH	670
45 MPH	775
50 MPH	885
55 MPH	990
60 MPH	1,100
65 MPH	1,200
70 MPH	1,250
75 MPH	1,350

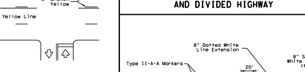






A two-way left-turn (TWLT) lane-use arrow pavement marking may be used in the center of a two-way left-turn lane or in a two-way left-turn lane within a major street. Repeating the marking after each intersection or deployed turn bay is not required unless stated elsewhere in the plans.





Texas Department of Transportation | Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES,
RURAL LEFT TURN BAYS,
AND LANE REDUCTION
PAVEMENT MARKINGS

PM(3)-22

FILE	pm(3)-22	DN:	CK:	DW:	CK:
©TxDOT	December 2022	REVISIONS			
4-98	2-10				
11-22	9-08				
5-00	2-12				
DIST	COUNTY			SHEET NO.	

GENERAL NOTES

1. Lane use word and arrow markings shall be used in auxiliary lanes of sufficient length to allow for at least two separate roadway turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings should be used in auxiliary lanes for short storage and turn bays for shorter lengths. Details for words and arrows are as shown in the Texas's 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 auxiliary lane is greater than L+WS. Only one set of lane use arrow and lane 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 unpainted faces for two-way left-turn lanes and two-way left-turn lanes. Use raised pavement marker Type II-C-R with painted faces for 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. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

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 Department Material Specifications as specified by the plans.

Texas Department of Transportation | Traffic Safety Division Standard

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
GENERAL NOTES & DETAILS

SMD(GEN)-08

FILE	smd(gen)-08	DN:	CK:	DW:	CK:
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9-08					
DIST	COUNTY			SHEET NO.	

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10SWG = 10 SWG Tubing (see SMD(SLIP-1) to (SLIP-3))
SRS = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WA = Wedge Anchor Aluminum - (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefix, "P101" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefix, "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefix, "U" (see SMD(SLIP-1) to (SLIP-3))
S = Suffix (see SMD(GEN))
(XXX or XXX + Number of Extensions) (see SMD(SLIP-1) to (SLIP-3), (TWT))
BW = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 Kiffi Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

REQUIRED CLEARANCE
FOR BREAKAWAY SUPPORT

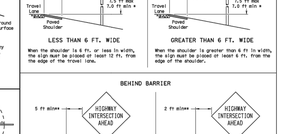


SIGN LOCATION

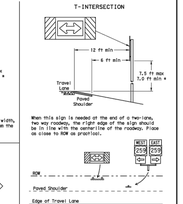


When the shoulder is 6 ft. or less in width, the sign should be placed at least 12 ft. from the edge of the shoulder.

When the shoulder is greater than 6 ft in width, the sign should be placed at least 6 ft. from the edge of the shoulder.



*Sign clearance based on distance required for proper guard rail or concrete barrier performance.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

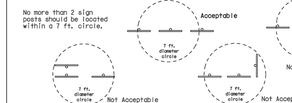
(1) a minimum of 7 ft a maximum of 7.5 feet above the edge of the traveled lane or
(2) a minimum of 7 ft a maximum of 7.5 feet above the grade at the base of the support when sign is mounted on the backslope.

The 7 ft minimum may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign slopes, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL



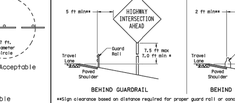
Bolts used to mount sign panels to the clamps are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head bolt with nut, lock washer, nylon washer and flat washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

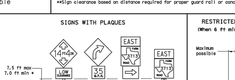
Sign clamps may be either the specific size clamp or the universal clamp.

Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



CURB & GUTTER OR RAISED ISLAND



Texas Department of Transportation | Traffic Safety Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
GENERAL NOTES & DETAILS

SMD(SLIP-3)-08

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. https://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer, Method, design, and location of manufacture. Marking shall be legible from the ground after installation.
2. Material Specifications: All steel components shall conform to the following specifications:
   10 SWG Tubing (3.475" outside diameter)
   0.138" nominal wall thickness
   Steel sheet per ASTM A653 or A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.128" to 0.138"
   Schedule 80 Pipe (2.375" outside diameter) 0.083" nominal wall thickness
   Conform to ASTM A123 or ASTM A653/A653. For uncoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by application with zinc wire per ASTM A633.
   Schedule 80 Pipe (2.375" outside diameter)
   0.275" nominal wall thickness
   Grade B per ASTM A53 or A500
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.835" to 2.895"
3. See the Traffic Operations Division website for detailed drawings of sign slopes and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation

1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation shall be a minimum depth of 18". When solid rock is encountered at depth of 18" or more, a minimum foundation depth of 30". If solid rock is encountered, the socketstub may be reduced in length as required to a minimum length of 18", except hole outside diameter shall be as shown on SMD(SLIP-1) sheet for the bottom and the clearance requirements given on SMD(SLIP-1) sheet for the bottom and the clearance requirements shall be maintained. The lower surfaces of the socketstub must reach free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 sack mix 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. Concrete shall be Class A.
3. Push the pipe and of the slip base stub into the center of the concrete. Rotate the stub base and pipe to the desired direction. Check the elevation of the stub base from the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Place the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. Attach the triangular slipbase system to the foundation as designed or recommended by the manufacturer.

Support

1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the traveway (i.e., edge of the closest lane) when sign is below the edge of pavement or 7 to 7.5 feet above the grade at the base of the support when sign is mounted on the backslope.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-3) for clearances based on sign types.

CONCRETE ANCHOR

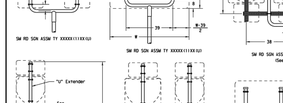


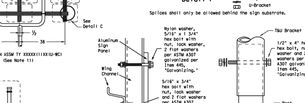
Texas Department of Transportation | Traffic Safety Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

FILE	smd(slip-1)-08	DN:	CK:	DW:	CK:
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9-08					
DIST	COUNTY			SHEET NO.	





GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall conform to Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign supports. The website address is:
   http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4910 and shall be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Post shall be 4" square tubing, 0.125" - 0.035", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are described by writing:
   Texas Department of Transportation
   Traffic Operations Division
   P.O. Box 5080
   Austin, Texas 78751-5080

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Slip 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 socketstub may be reduced in length as required to a minimum length of 18", any material removed from the socketstub shall be from the bottom and the clearance requirements given on SMD(SLIP-1) sheet for the bottom and the clearance requirements shall be maintained. The lower surfaces of the socketstub must reach free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 sack mix 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. Concrete shall be Class A.
3. Insert tubular socket into concrete and attach top of socket to approximately 1/4" above the concrete footing.
4. Allow concrete to cure a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
5. Attach the sign to the sign post.
6. Insert sign post into tubular socket and align sign face with roadway. Insert the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION P

RED HAWK LANDING UNIT 1B SUBDIVISION

WATER CONSTRUCTION PLANS

LAND-PLAT 24-11800048

SAN ANTONIO, TEXAS 78223

BEXAR COUNTY

Revised January 2022

SAWS CONSTRUCTION NOTES
COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT

General Section

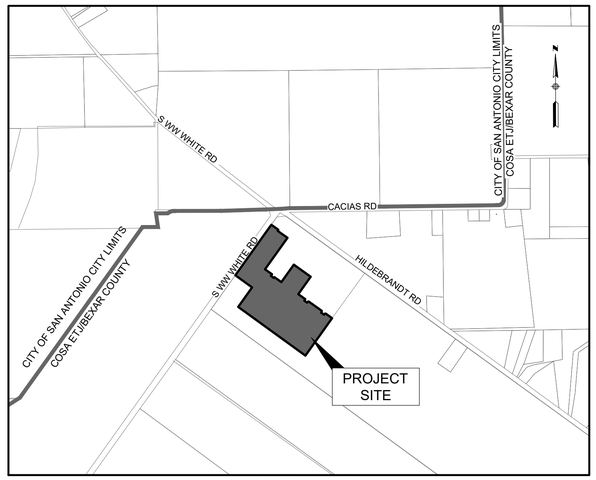
1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.
12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

WATER SECTION

1. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
   - FOR WATER MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS CENTER (210) 233-2014
2. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAY BE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK IS TO BE MADE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL SPECIFICATION FOR HANDLING ASBESTOS CEMENT PIPE".
3. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)
4. SUITABLE ANCHORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE PROVIDED AT ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS, PLUGS, CAPS, TEES, CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE STANDARD DRAWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. ALL VALVES SHALL READ "OPEN RIGHT".
6. PRVS REQUIRED: CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT IS BELOW GROUND ELEVATION OF 565 FEET WHERE THE STATIC PRESSURE WILL NORMALLY EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE GROUND LEVEL IS BELOW 565 FEET, THE DEVELOPER OR BUILDER SHALL INSTALL AT EACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN APPROVED TYPE PRESSURE REGULATOR IN CONFORMANCE WITH THE PLUMBING CODE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ALLOWED FOR ANY LOT(S) IF "PRV IS/ARE REQUIRED FOR SUCH LOT(S), ONLY SINGLE SERVICE CONNECTIONS SHALL BE ALLOWED. "NOTE: A PRESSURE REGULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE (PRV).
7. PIPE DISINFECTION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR FEET. (ITEM NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH WHERE SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE INSPECTOR, AND SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS METHOD OF DISINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE CONTRACTOR SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PROTECT HIS PERSONNEL DURING DISINFECTION OPERATIONS.
8. BACKFLOW PREVENTION DEVICES:
   - ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO HAVE BACKFLOW PREVENTION DEVICES.
   - ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED BY SAWS PRIOR TO INSTALLATION.
9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.
10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTIONS STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONTINUE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATIONS OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.



LOCATION MAP

(N.T.S.)

SUBMITTAL DATE: MAY 2024

RED HAWK LANDING SUBDIVISION UNIT 1B

SHEET NUMBER	SHEET DESCRIPTION
1	COVER
1.1	GENERAL NOTES
2.0	UTILITY PLAN (SHEET 1 OF 3)
2.1	UTILITY PLAN (SHEET 2 OF 3)
2.2	UTILITY PLAN (SHEET 3 OF 3)
3.0	EXISTING DRAINAGE AREA MAP
3.1	PROPOSED & ULTIMATE DRAINAGE AREA MAP
3.2	GRADING PLAN (SHEET 1 OF 3)
3.3	GRADING PLAN (SHEET 2 OF 3)
3.4	GRADING PLAN (SHEET 3 OF 3)
4.0	DRAIN 'A' STA 1+00 TO END
4.1	DRAIN 'B' STA 1+00 TO END
4.2	DRAIN 'C' STA 1+00 TO END
4.3	DRAIN 'D' STA 1+00 TO END
4.4	DRAIN 'E' STA 1+00 TO END
4.5	S WW WHITE RD BARDITCH STA 6+00 TO END
4.6	DRAINAGE DETAIL SHEET 1
4.7	DRAINAGE DETAIL SHEET 2
4.8	DRAINAGE DETAIL SHEET 3
5.0	HARLANS PATH STA 1+00 TO END
5.1	KETTLES RDG STA 1+00 TO END
5.2	RAPTOR HL STA 1+00 TO END
5.3	EYAS MDWS STA 1+00 TO END
5.4	SHARPIES CYN STA 1+00 TO END
5.5	OSPREY CRK STA 1+00 TO END
5.6	FALCON FLD & KESTREL HOLW STA 1+00 TO END
5.7	SIGNAGE PLAN
5.8	TRAFFIC DETAILS SHEET 1
5.9	TRAFFIC DETAILS SHEET 2
6.0	WATER COVER
6.1	WATER PLAN SHEET 1
6.2	WATER PLAN SHEET 2
6.3	WATER PLAN SHEET 3
7.0	WASTEWATER COVER
7.1	WASTEWATER PLAN SHEET 1
7.2	WASTEWATER PLAN SHEET 2
7.3	WASTEWATER PLAN SHEET 3
7.4	WWL 'F' STA 1+00 TO 5+00
7.5	WWL 'F' STA 5+00 TO END
7.6	WWL 'G' STA 1+00 TO END
7.7	WWL 'A' STA 1+00 TO END
7.8	WWL 'B' STA 1+00 TO END
7.9	WWL 'C' STA 1+00 TO END
8.0	STORMWATER POLLUTION PREVENTION PLAN
8.1	STORMWATER POLLUTION PREVENTION DETAILS

BENCHMARK INFORMATION:

TBM A: IR W/ ALUM LJA CAP
ELEVATION = 594.116

TBM B: IR W/ ALUM LJA CAP
ELEVATION = 577.312

TBM C: IR W/ALUM LJA CAP
ELEVATION = 590.163

VERTICAL DATUM: NAVD-88/NAD-83 SPC-SOUTH CENTRAL

THIS INFORMATION PROVIDED BY LJA SURVEY

PROPERTY DESCRIPTION

BEING OF A 24.64 ACRE TRACT OF LAND OUT OF THE JUAN MONTEZ SURVEY NO. 6, ABSTRACT NO. 11, COUNTY BLOCK 4007, BEXAR COUNTY, TEXAS, BEING OUT OF THE REMAINDER OF A 277.6 ACRE TRACT DESCRIBED IN DEED TO ARLENE WITZEL, DANIEL R. BECK AND BARBARA J. REEVES OF RECORD IN VOLUME 17049, PAGE 830, OFFICIAL PUBLIC RECORDS, BEXAR COUNTY, TEXAS.

DEVELOPER: CASTLEROCK COMMUNITIES LLC
CONTACT: KIRK BREITENWISCHER
2401 FOUNTAIN VIEW DR, SUITE 215
HOUSTON, TX 77057
PHONE: (210) 797-7205

ENGINEER: LJA ENGINEERING, INC.
9830 COLONNADE BLVD, SUITE 300
SAN ANTONIO, TEXAS 78230
CONTACT PERSON: RICK GRAY, PE
PHONE # (210) 503-2700

SURVEYOR: RICKMAN LAND SURVEYING
419 BIG BEND
CANYON LAKE, TEXAS 78133
CONTACT PERSON: AMIL M. BAKER, JR.
PHONE # (830) 935-2457

CONTOUR DATA: LJA SURVEYING

LJA JOB NO. SA201-0401-426

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

REVISIONS			
NO.	DESCRIPTION	BY	DATE

WATER: SAWS PRESSURE ZONE 2

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES
DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR, SUITE 215
CITY HOUSTON STATE TEXAS ZIP 77057
PHONE # (210) 797-7205 FAX # N/A
SAWS BLOCK MAP # 188546, 192550, 190550, TOTAL EDU'S 143 TOTAL ACREAGE 24.64
TOTAL LINEAR FOOTAGE OF PIPE: 8" - 4,187 LF, 2" - 271 LF PLAT NO. 24-11800048
NUMBER OF LOTS: 143 SAWS JOB NO. 24-1044

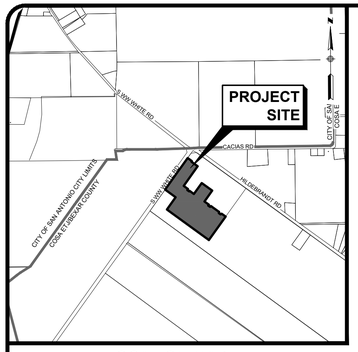
LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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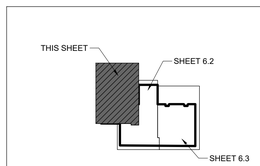
LJA Engineering, Inc.

9830 Colonnade Blvd.
Suite 300
San Antonio, Texas 78230

Phone 210.503.2700
LJA.COM
FRN-F-1386



LOCATION MAP
N.T.S.



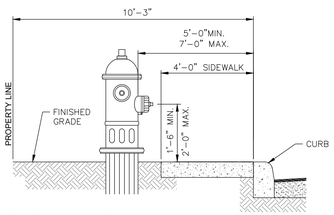
SHEET INDEX
N.T.S.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E. ESM'T

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)



FIRE HYDRANT LOCATION (WITH SIDEWALK)
NTS

WATER: SAWS PRESSURE ZONE 2

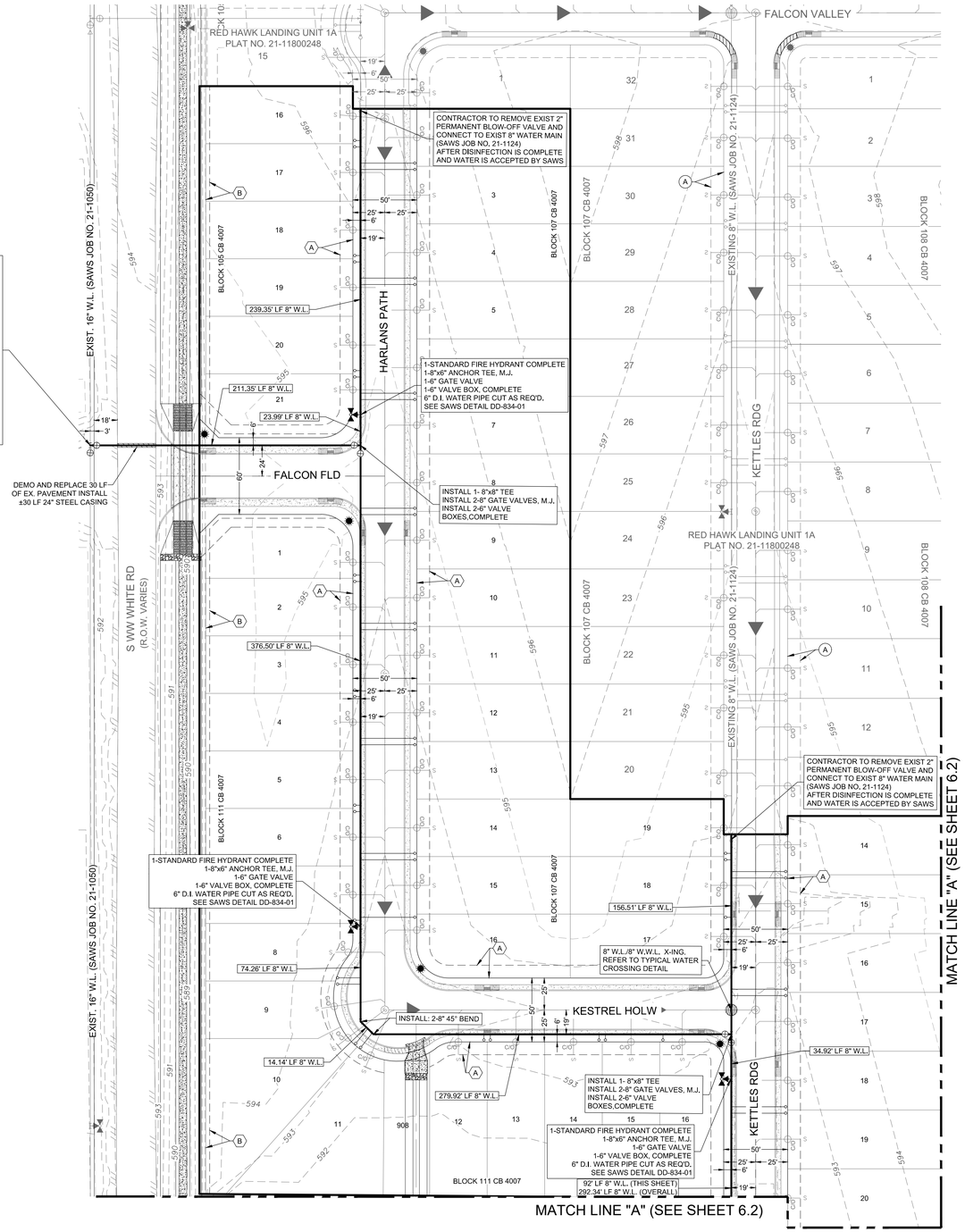
DEVELOPER'S NAME:	CASTLEROCK COMMUNITIES		
DEVELOPER'S ADDRESS:	2401 FOUNTAIN VIEW DR, SUITE 215		
CITY	HOUSTON	STATE TEXAS	ZIP 77057
PHONE #	(210) 797-7205	FAX # N/A	
SAWS BLOCK MAP #	190550, 190550, 188546	TOTAL EDU'S 143	TOTAL ACREAGE 24.64
TOTAL LINEAR FOOTAGE OF PIPE:	2" - 271 LF 8" - 4,187 LF	PLAT NO.	24-11800048
NUMBER OF LOTS:	143	SAWS JOB NO.	24-1044

CONTRACTOR TO TIE NEW 8" PVP PIPE TO EXIST. 16" PVC PIPE (SAWS JOB NO.21-1050)
AFER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY SAWS
INSTALL FOR CHLORINATION INJECTION

INSTALL FOR TIE IN:
1-16"X8" CUT IN TEE, M.J.
1-6" VALVES BOXES, COMPLETE
1-16" GATE VALVE, M.J.
1-8" GATE VALVE, M.J.

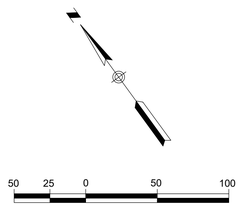
FOR CHLORINATION INJECTION
2 - 1" CORP. STOP C.C. X I.P.
2 - 1" CORP. X 1 1/4 " CPL. CURB STOP
2 - 1 1/2" SOLID CAP, THD.
2 - 1" COPPER TUBING, CUT AS REQ.
CONTRACTOR SHALL PROVIDE A 2" JUMPER CONNECTION TO LOAD NEW MAIN

1 - 2" BLOW OFF (TEMP.)
SAWS STD. DETAIL DD-844-01
1 - 12" SOLID SLEEVE M.J.



LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
		SANITARY SEWER LATERAL
C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE
		PHASE LINE



SCALE IN FEET
SCALE: 1"=50'

GENERAL NOTES

1. FIRE HYDRANT SHALL BE LOCATED BEHIND SIDEWALK IN ACCORDANCE WITH THE FIRE HYDRANT INSTALLATION DETAIL DD-834-01.
2. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
3. ALL VALVES SHALL READ "OPEN RIGHT".
4. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE SAWS COLORS.
5. FIRE HYDRANTS AND VALVE BOXES TO BE RAISED TO THE PROPOSED TOP OF PAVEMENT OR GROUND ELEVATION.
6. ALL WATER PIPE TO BE C-900, DR-18, CLASS 235 UNLESS OTHERWISE NOTED.
7. CONTRACTOR TO REFERENCE MOST CURRENT SAWS DETAILS AND SPECIFICATIONS
8. PROJECT DESIGNED IN GRID. CONVERSION FACTOR TO SURFACE = 1.00013

CAUTION: CONTRACTOR TO NOTIFY TEXAS ONE CALL AT 1-800-245-4545 48 HOURS PRIOR TO CONSTRUCTION FOR UTILITY LINE LOCATE. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY SIGNIFICANT DISCREPANCIES OR REQUIRED DESIGN CHANGES. EXISTING UTILITIES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.

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TRENCH EXCAVATION SAFETY PROTECTION
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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WATER LAYOUT (SHEET 1 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY:
CHECKED BY: RG
DRAWING NAME: sh_Water Plan.dwg

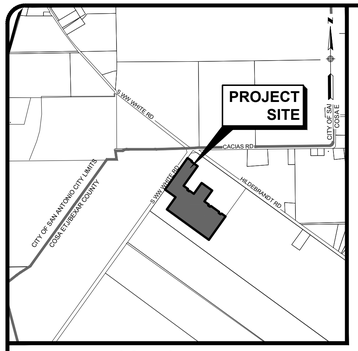
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

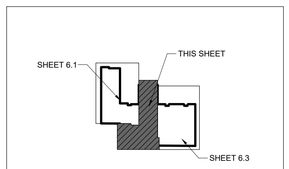
JOB NUMBER:
SA201-0401B-426

SHEET NO.
6.1
OF - SHEETS

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User: jkunn
Last Modified: May 21, 24 – 11:28
Plot Date/Time: May 21, 24 – 11:30:42



LOCATION MAP
N.T.S.



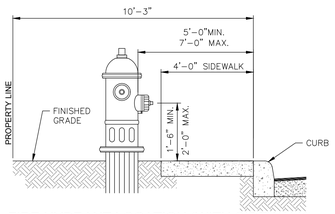
SHEET INDEX
N.T.S.

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E. ESM'T

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141)

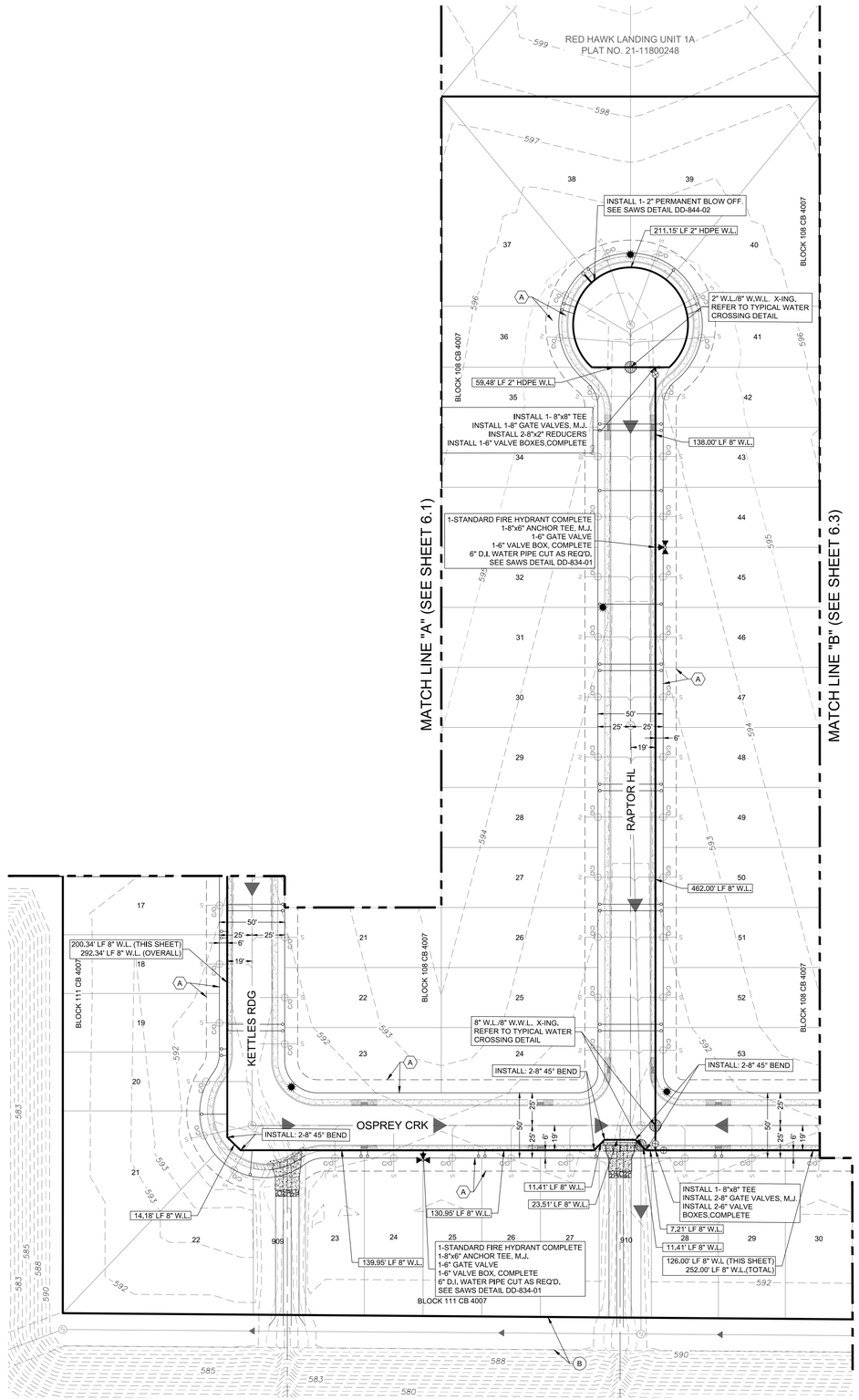
(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)



FIRE HYDRANT LOCATION (WITH SIDEWALK)
NTS

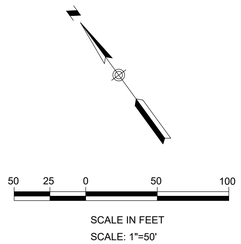
WATER: SAWS PRESSURE ZONE 2

DEVELOPER'S NAME:	CASTLEROCK COMMUNITIES		
DEVELOPER'S ADDRESS:	2401 FOUNTAIN VIEW DR. SUITE 215		
CITY: HOUSTON	STATE: TEXAS	ZIP: 77057	
PHONE #: (210) 797-7205	FAX #: N/A		
SAWS BLOCK MAP # 190550, 190550, 188546	TOTAL EDU'S: 143	TOTAL ACREAGE: 24.64	
TOTAL LINEAR FOOTAGE OF PIPE: 2" - 271 LF, 8" - 6,187 LF	PLAT NO.: 24-11800048		
NUMBER OF LOTS: 143	SAWS JOB NO.: 24-1044		



LEGEND

PROPOSED	EXISTING	
Ⓢ	Ⓢ	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
C/O	C/O	SANITARY SEWER LATERAL CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
Ⓓ	Ⓓ	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE PHASE LINE



GENERAL NOTES

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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WATER LAYOUT (SHEET 2 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/6/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Water Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

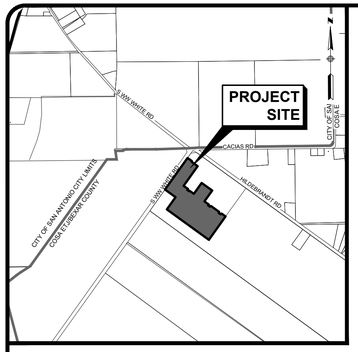
LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

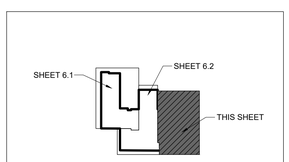
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OF - SHEETS

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Last Modified: May. 20, 24 - 11:00
File Date/Time: May. 20, 24 - 11:03



LOCATION MAP
N.T.S.



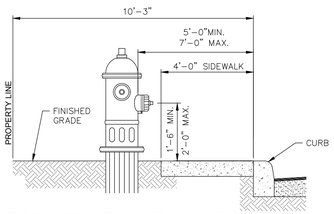
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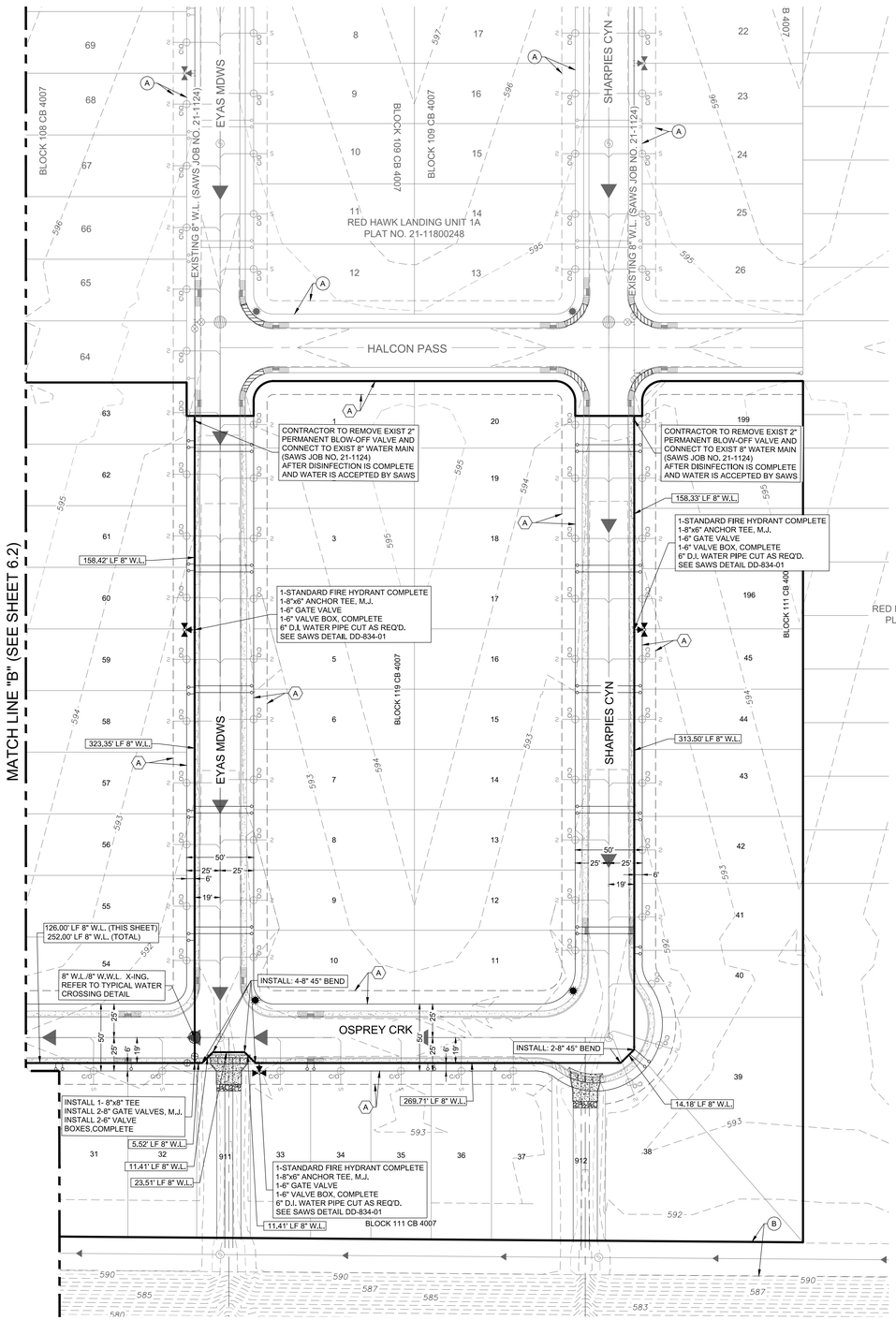
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NTS

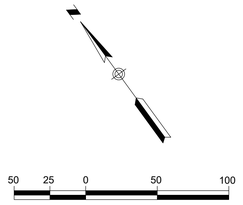
WATER: SAWS PRESSURE ZONE 2

DEVELOPER'S NAME:	CASTLEROCK COMMUNITIES		
DEVELOPER'S ADDRESS:	2401 FOUNTAIN VIEW DR, SUITE 215		
CITY	HOUSTON	STATE	TEXAS
ZIP	77057		
PHONE #	(210) 797-7205	FAX #	N/A
SAWS BLOCK MAP #	190500, 190550, 188546	TOTAL EDU'S	143
TOTAL ACREAGE	24.64		
TOTAL LINEAR FOOTAGE OF PIPE:	8" - 4,187 LF 2" - 271 LF	PLAT NO.	24-11800048
NUMBER OF LOTS:	143	SAWS JOB NO:	24-1044



LEGEND

PROPOSED	EXISTING	
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	WL	WATER LINE
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C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
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		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE
		PHASE LINE



GENERAL NOTES

1. FIRE HYDRANT SHALL BE LOCATED BEHIND SIDEWALK IN ACCORDANCE WITH THE FIRE HYDRANT INSTALLATION DETAIL DD-834-01.
2. CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.
3. ALL VALVES SHALL READ "OPEN RIGHT".
4. ALL FIRE HYDRANTS SHALL BE PAINTED APPROPRIATE SAWS COLORS.
5. FIRE HYDRANTS AND VALVE BOXES TO BE RAISED TO THE PROPOSED TOP OF PAVEMENT OR GROUND ELEVATION.
6. ALL WATER PIPE TO BE C-900, DR-18, CLASS 235 UNLESS OTHERWISE NOTED.
7. CONTRACTOR TO REFERENCE MOST CURRENT SAWS DETAILS AND SPECIFICATIONS
8. PROJECT DESIGNED IN GRID. CONVERSION FACTOR TO SURFACE = 1.00013

CAUTION: CONTRACTOR TO NOTIFY TEXAS ONE CALL AT 1-800-245-4545 48 HOURS PRIOR TO CONSTRUCTION FOR UTILITY LINE LOCATE. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY SIGNIFICANT DISCREPANCIES OR REQUIRED DESIGN CHANGES. EXISTING UTILITIES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

811 Know what's below. Call before you dig.

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. 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.

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WATER LAYOUT (SHEET 3 OF 3)

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 8b_1Water Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
6.3
OF - SHEETS

K:\SA201 CastleRock Communities\L_Red Hawk Landing Unit 1\B Subd\426 Site Development Plans\DWG-Sheets\8b_Water Plan.dwg
User: jsyrup
Last Modified: May 20, 24 - 11:05
Plot Date/Time: May 20, 24 - 11:03:38

RED HAWK LANDING UNIT 1B SUBDIVISION

WASTEWATER CONSTRUCTION PLANS

LAND-PLAT 24-11800048

SAN ANTONIO, TEXAS 78223

BEXAR COUNTY

REVISED JULY 2017

SAWS CONSTRUCTION NOTES COUNTER PERMIT AND GENERAL CONSTRUCTION PERMIT

GENERAL SECTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
   A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".
   C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".
   D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
   E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
3. THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
   - SAWS UTILITY LOCATES: HTTP://WWW.SAWS.ORG/SERVICE/LOCATES
   - COSA DRAINAGE (210) 207-0724 OR (210) 207-6026
   - COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480
   - COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951
   - TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

    WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

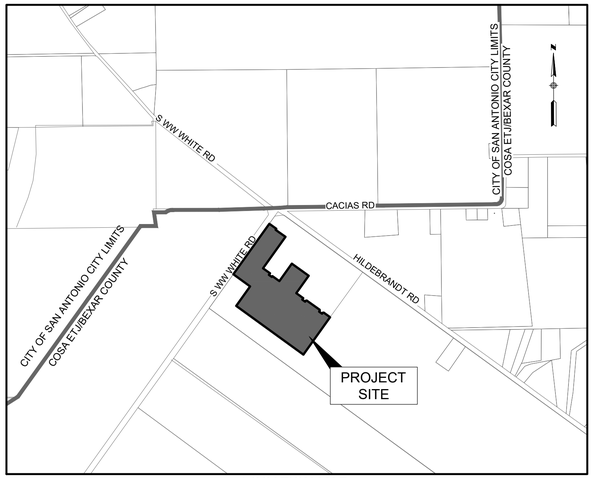
    ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.
12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

SEWER NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
   A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
   B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
   C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
   D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
   E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
   F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

   SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

   NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.
2. IF BYPASS PUMPING IS REQUIRED, THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".
3. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT LEAST ONE WEEK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
4. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.
5. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)
6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE REGARDLESS OF SIZE.
7. MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
8. ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.



LOCATION MAP

(N.T.S.)

SUBMITTAL DATE: MAY 2024

RED HAWK LANDING SUBDIVISION UNIT 1B

SHEET NUMBER	SHEET DESCRIPTION
1	COVER
1.1	GENERAL NOTES
2.0	UTILITY PLAN (SHEET 1 OF 3)
2.1	UTILITY PLAN (SHEET 2 OF 3)
2.2	UTILITY PLAN (SHEET 3 OF 3)
3.0	EXISTING DRAINAGE AREA MAP
3.1	PROPOSED & ULTIMATE DRAINAGE AREA MAP
3.2	GRADING PLAN (SHEET 1 OF 3)
3.3	GRADING PLAN (SHEET 2 OF 3)
3.4	GRADING PLAN (SHEET 3 OF 3)
4.0	DRAIN 'A' STA 1+00 TO END
4.1	DRAIN 'B' STA 1+00 TO END
4.2	DRAIN 'C' STA 1+00 TO END
4.3	DRAIN 'D' STA 1+00 TO END
4.4	DRAIN 'E' STA 1+00 TO END
4.5	S WW WHITE RD BARDITCH STA 6+00 TO END
4.6	DRAINAGE DETAIL SHEET 1
4.7	DRAINAGE DETAIL SHEET 2
4.8	DRAINAGE DETAIL SHEET 3
5.0	HARLANS PATH STA 1+00 TO END
5.1	KETTLES RDG STA 1+00 TO END
5.2	RAPTOR HL STA 1+00 TO END
5.3	EYAS MDWS STA 1+00 TO END
5.4	SHARPIES CYN STA 1+00 TO END
5.5	OSPREY CRK STA 1+00 TO END
5.6	FALCON FLD & KESTREL HOLW STA 1+00 TO END
5.7	SIGNAGE PLAN
5.8	TRAFFIC DETAILS SHEET 1
5.9	TRAFFIC DETAILS SHEET 2
6.0	WATER COVER
6.1	WATER PLAN SHEET 1
6.2	WATER PLAN SHEET 2
6.3	WATER PLAN SHEET 3
7.0	WASTEWATER COVER
7.1	WASTEWATER PLAN SHEET 1
7.2	WASTEWATER PLAN SHEET 2
7.3	WASTEWATER PLAN SHEET 3
7.4	WWL 'F' STA 1+00 TO 5+00
7.5	WWL 'F' STA 5+00 TO END
7.6	WWL 'G' STA 1+00 TO END
7.7	WWL 'A' STA 1+00 TO END
7.8	WWL 'B' STA 1+00 TO END
7.9	WWL 'C' STA 1+00 TO END
8.0	STORMWATER POLLUTION PREVENTION PLAN
8.1	STORMWATER POLLUTION PREVENTION DETAILS

PROPERTY DESCRIPTION

BEING OF A 24.64 ACRE TRACT OF LAND OUT OF THE JUAN MONTEZ SURVEY NO. 6, ABSTRACT NO. 11, COUNTY BLOCK 4007, BEXAR COUNTY, TEXAS, BEING OUT OF THE REMAINDER OF A 277.6 ACRE TRACT DESCRIBED IN DEED TO ARLENE WITZEL, DANIEL R. BECK AND BARBARA J. REEVES OF RECORD IN VOLUME 17049, PAGE 830, OFFICIAL PUBLIC RECORDS, BEXAR COUNTY, TEXAS.

BENCHMARK INFORMATION:

TBM A: IR W/ ALUM LJA CAP
ELEVATION = 594.116

TBM B: IR W/ ALUM LJA CAP
ELEVATION = 577.312

TBM C: IR W/ALUM LJA CAP
ELEVATION = 590.163

VERTICAL DATUM: NAVD-88/NAD-83 SPC-SOUTH CENTRAL

THIS INFORMATION PROVIDED BY LJA SURVEY

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DEVELOPER: CASTLEROCK COMMUNITIES LLC
CONTACT: KIRK BREITENWISCHER
2401 FOUNTAIN VIEW DR, SUITE 215
HOUSTON, TX 77057
PHONE: (210) 797-7205

ENGINEER: LJA ENGINEERING, INC.
9830 COLONNADE BLVD, SUITE 300
SAN ANTONIO, TEXAS 78230
CONTACT PERSON: RICK GRAY, PE
PHONE # (210) 503-2700

SURVEYOR: RICKMAN LAND SURVEYING
419 BIG BEND
CANYON LAKE, TEXAS 78133
CONTACT PERSON: AMIL M. BAKER, JR.
PHONE # (830) 935-2457

CONTOUR DATA: LJA SURVEYING

LJA JOB NO. SA201-0401-426

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

EAST SEWERSHED

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES
DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR, SUITE 215
CITY HOUSTON STATE TEXAS ZIP 77057
PHONE # (210) 797-7205 FAX # N/A
SAWS BLOCK MAP # 192548, 194546,196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64
TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048
NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538

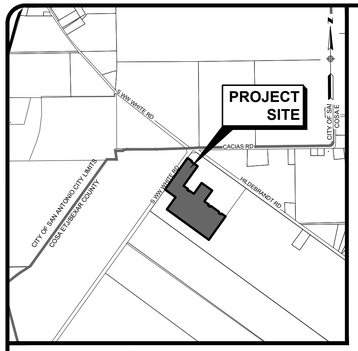
LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

811 Know what's below. Call before you dig.

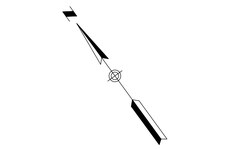
LJA Engineering, Inc.

9830 Colonnade Blvd.
Suite 300
San Antonio, Texas 78230

Phone 210.503.2700
LJA.COM
FRN-F-1386



LOCATION MAP
N.T.S.



50 25 0 50 100

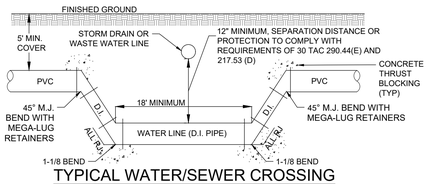
SCALE IN FEET
SCALE: 1"=50'

(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E. ESM'T

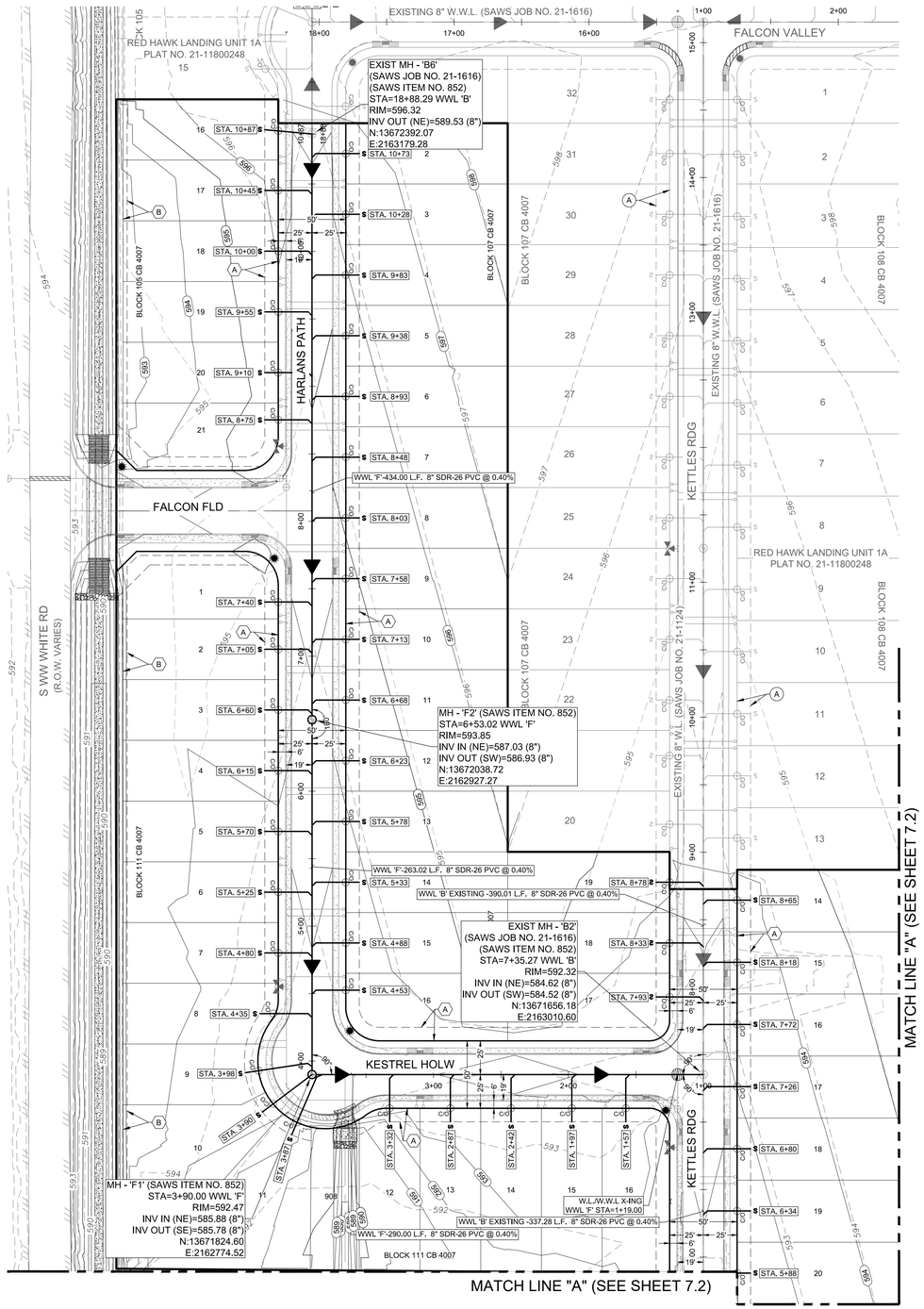
(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141)

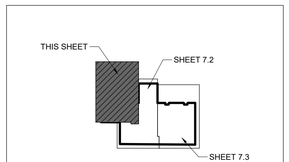
(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)



TYPICAL WATER/SEWER CROSSING
NTS

NOTE:
1. 18' MINIMUM WATER PIPE SEGMENT TO BE CENTERED UNDER WASTEWATER LINE.
2. WASTEWATER PIPE WITHIN NINE FEET OF WATER PIPE ON EITHER SIDE SHALL BE CONSTRUCTED USING AT LEAST 150 PSI PRESSURE RATED PIPE.
3. FULLY RESTRAINT TO BACK TO PVC PIPE. BEYOND THAT, RESTRAINT PER JOINT RESTRAINT TABLE.





SHEET INDEX
N.T.S.

EAST SEWERSHED

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES

DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215

CITY HOUSTON STATE TEXAS ZIP 77057

PHONE # (210) 797-7205 FAX # N/A

SAWS BLOCK MAP # 192548, 196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64

TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048

NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538

LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8" WW	8" WW	SANITARY SEWER LINE
	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
C/O	C/O	SANITARY SEWER LATERAL
		CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
	TMH	TOP OF MANHOLE
	EX.	EXISTING
	G,E,T,CA	GAS, ELEC, TELE & CABLE TV ESM'T.
	ESM'T.	EASEMENT
	VOL	VOLUME
	PG	PAGE
		4" CONDUIT FOR WATER SERVICE
		PHASE LINE

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING AND TESTING THE SANITARY SEWER SYSTEM IN ACCORDANCE WITH 30 TAC 217 [AND 213.5 FOR PROJECTS IN THE ERZD], THE DESIGN PLANS AND SAWS SPECIFICATIONS.
2. THE CONTRACTOR MUST PROVIDE CERTIFICATION UPON REQUEST OF THE ENGINEER THAT ALL MATERIALS FOR THE CONSTRUCTION OF THE SANITARY SEWER SYSTEM MEET TCEQ AND SAWS SPECIFICATIONS.
3. THE CONTRACTOR IS TO NOTIFY THE ENGINEER AT LEAST THREE (3) DAYS PRIOR TO BEGINNING WATER CONSTRUCTION AND TESTING SCHEDULE.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST THREE (3) DAYS PRIOR TO ALL TESTING ON THE SANITARY SEWER SYSTEM.
5. ANY TESTING PERFORMED WITHOUT THE PRESENCE OF THE ENGINEER WILL BE REDONE AT THE CONTRACTOR'S EXPENSE.
6. THE CONTRACTOR MUST PROVIDE THE ENGINEER WITH COPIES OF TV-VIDEO INSPECTIONS WHEN COMPLETED AND COMPACTION TESTING RESULTS PRIOR TO FINAL TESTING OBSERVATION BY THE ENGINEER.
7. AFTER ALL SANITARY SEWER CONSTRUCTION HAS BEEN COMPLETED, FINAL STABILIZATION OF THE CONSTRUCTION AREA ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES SHALL BE COMPLETED BY EVENLY DISTRIBUTING SEEDING AND WATERING TO A MINIMUM OF 70% OF THE NATIVE BACKGROUND VEGETATIVE COVER.
8. ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 6" DIA. AND 35 FEET FOR 50 FEET ROW, 40 FT. FOR 60 FEET ROW IN LENGTH UNLESS NOTED OTHERWISE.
9. ALL RESIDENTIAL SEWER SERVICE LATERALS SHALL BE EXTENDED TO THE 10' G.E.T.V.E. EASEMENT AND CAPPED AND SEALED.
10. LATERALS TO LOTS THAT SLOPE AWAY FROM STREET SHALL BE SLOPED FROM THE TEE OR STACK AT 2% TO THE PROPERTY LINE.
12. CONTRACTOR TO FIELD VERIFY ALL MATCH EXISTING ELEVATIONS, SEWER MANHOLE INVERTS, STORM DRAIN INVERTS, AND ALL OTHER UTILITIES PRIOR TO UTILITY WORK AND NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
13. RIM ELEVATIONS OF PROPOSED MANHOLES THAT ARE NOT WITHIN STREET RIGHT-OF-WAY ARE TO BE APPROXIMATELY 6" ABOVE NATURAL GROUND.
14. DAMAGE TO EXISTING PAVEMENT SHALL BE REPLACED BY CONTRACTOR AT NO ADDITIONAL COST.
15. COORDINATES ARE BASED ON STATE PLANE TX83-SCF- SURFACE. SCALE FACTOR: 1.00013.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING SAWS STANDARD SPECIFICATION 804 FOR EXCAVATION, TRENCHING AND BACKFILLING REQUIREMENTS AND STANDARD SPECIFICATION 812 FOR WATER/SEWER SEPARATION REQUIREMENTS.

CAUTION: CONTRACTOR TO NOTIFY TEXAS ONE CALL AT 1-800-245-4545 48 HOURS PRIOR TO CONSTRUCTION FOR UTILITY LINE LOCATE. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY SIGNIFICANT DISCREPANCIES OR REQUIRED DESIGN CHANGES. EXISTING UTILITIES SHOWN HEREON ARE FOR INFORMATIONAL PURPOSES ONLY. ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THIS INFORMATION.

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RED HAWK LANDING UNIT 1B SUBDIVISION LAND-PLAT-24-11800048

WASTEWATER LAYOUT (SHEET 1 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 81_Wastewater Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

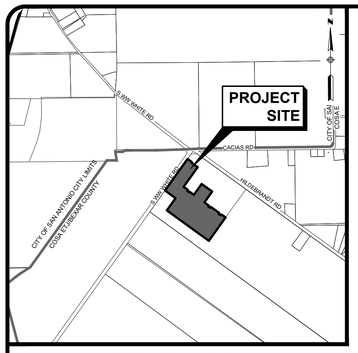
LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

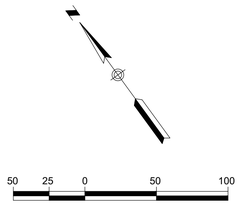
SHEET NO. 7.1

OF - SHEETS

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User: jturon
Last Modified: May. 20, 24 - 11:28
Plot Date/Time: May. 20, 24 - 11:28:03



LOCATION MAP
N.T.S.



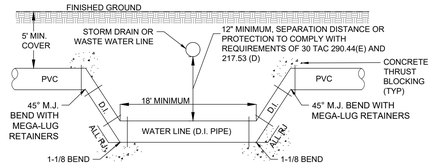
SCALE IN FEET
SCALE: 1"=50'

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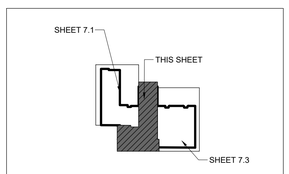
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TYPICAL WATER/SEWER CROSSING

NTS

NOTE:
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SHEET INDEX
N.T.S.

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DEVELOPER'S NAME: CASTLEROCK COMMUNITIES

DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215

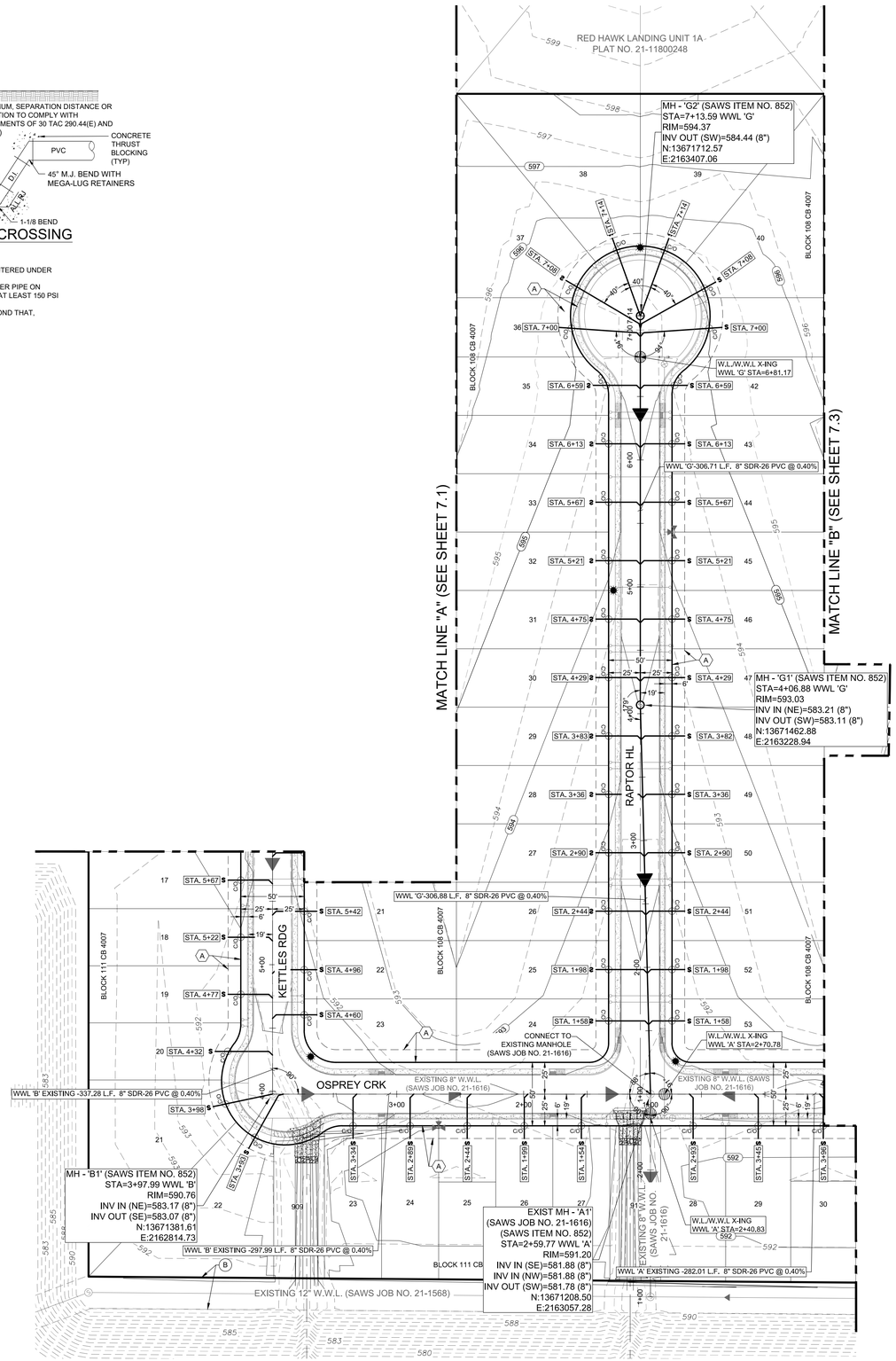
CITY HOUSTON STATE TEXAS ZIP 77057

PHONE # (210) 797-7205 FAX # N/A

SAWS BLOCK MAP # 192548, 194546, 196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64

TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048

NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538



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PROPOSED	EXISTING	
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	WL	WATER LINE
FM (BY OTHERS)		FORCE MAIN (BY OTHERS)
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C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
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		SINGLE WATER SERVICE
		DUAL WATER SERVICE
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		1"-6" (CPS) 2-4" CONDUITS (ATT/SPECTRUM)
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
	OU	OVERHEAD ELECTRIC
		BENCHMARK
		TOP OF MANHOLE
		EXISTING
		GAS, ELEC, TELE & CABLE TV ESM'T.
		EASEMENT
		VOLUME
		PAGE
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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WASTEWATER LAYOUT (SHEET 2 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 8in_Wastewater Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

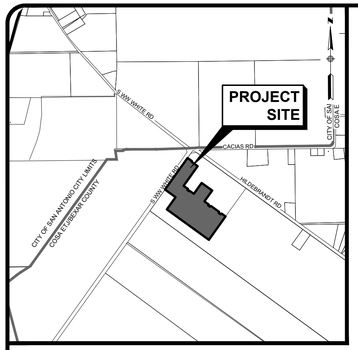
LJA Engineering, Inc.
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JOB NUMBER: SA201-0401B-426

SHEET NO. 7.2

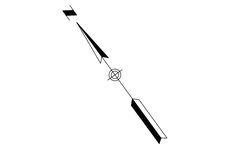
OF - SHEETS

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Plot Date/Time: May. 20, 24 - 11:26:41



LOCATION MAP

N.T.S.



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SCALE IN FEET

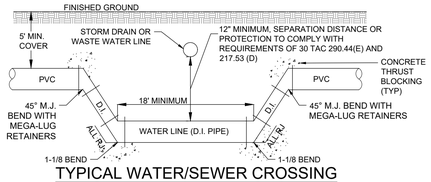
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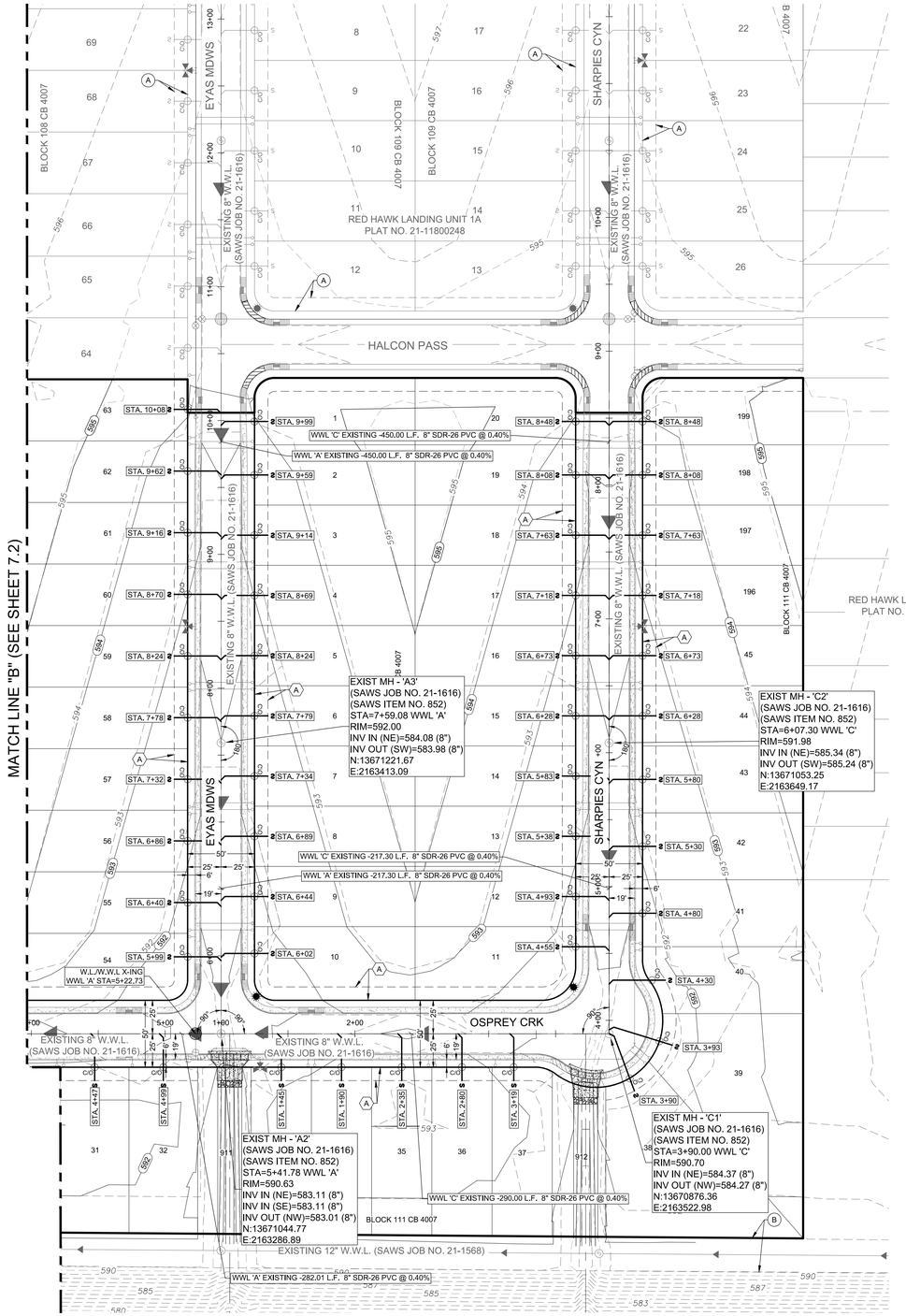


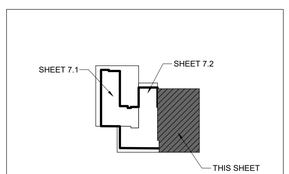
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SHEET INDEX

N.T.S.

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DEVELOPER'S NAME: CASTLEROCK COMMUNITIES

DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215

CITY HOUSTON STATE TEXAS ZIP 77057

PHONE # (210) 797-7205 FAX # N/A

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RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WASTEWATER LAYOUT (SHEET 3 OF 3)

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: 07_Wastewater Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 7.3

OF - SHEETS

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Plot Date/Time: May 20, 24 – 13:56:20

GENERAL NOTES

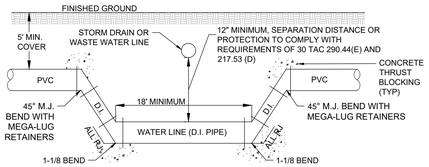
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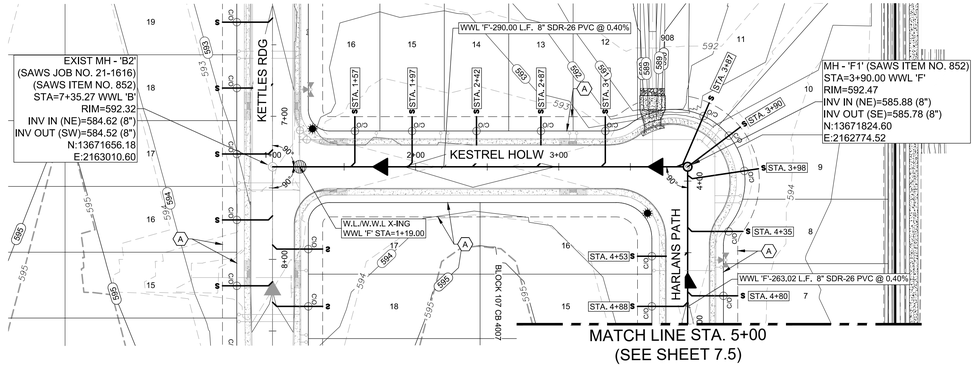
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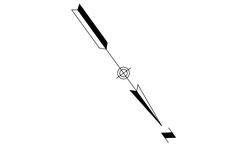


TYPICAL WATER/SEWER CROSSING

NTS

NOTE:
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3. FULLY RESTRAINT TO BACK TO PVC PIPE. BEYOND THAT, RESTRAINT PER JOINT RESTRAINT TABLE.





50 25 0 50 100

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

LEGEND

PROPOSED	EXISTING	
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8" WWL	EX 8" WWL	SANITARY SEWER LINE
8 WL	EX 16 WL	WATER LINE
C/O	C/O	SANITARY SEWER LATERAL
		CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
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		GUY WIRE
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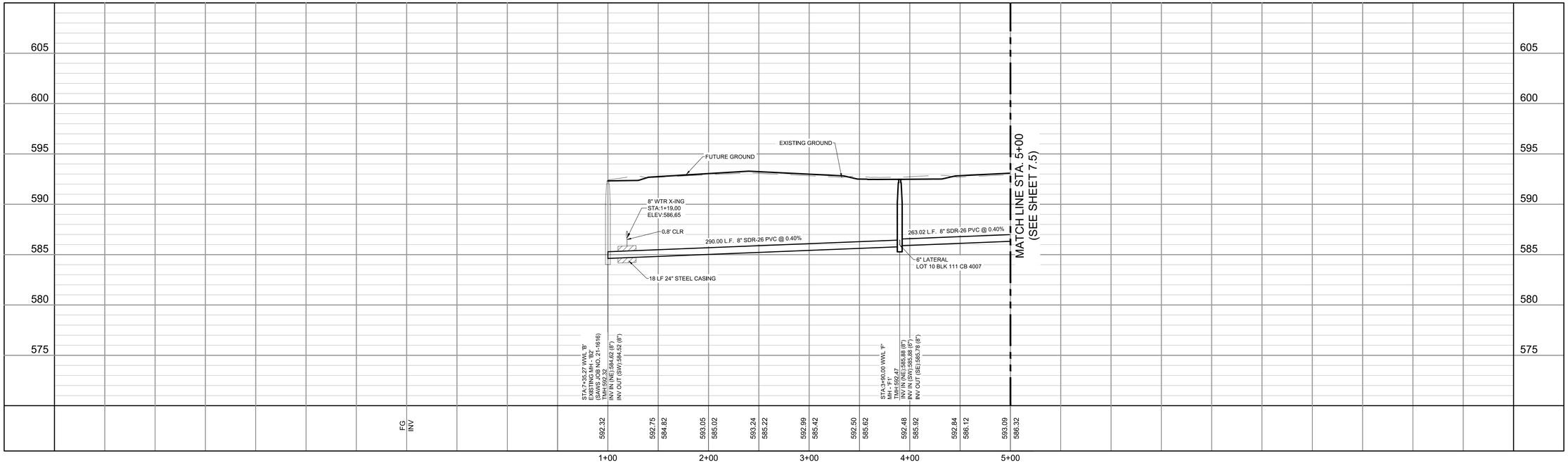
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EAST SEWERSHED

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES
DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215
CITY HOUSTON STATE TEXAS ZIP 77057
PHONE # (210) 797-7205 FAX # N/A
SAWS BLOCK MAP # 192548, 194546,196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64
TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048
NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538

W.W.L. 'F' STA. 1+00 TO 5+00



RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
WASTEWATER LINE 'F'
STA 1+00 TO 5+00 PLAN & PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sht_WWL 'F'.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

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LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 7.4
OF - SHEETS

K:\SA201 CastleRock Communities_Red Hawk Landing (#B Sub)\426 Site Development Plans\DWG-Sheets\sh_WWL 'F'.dwg
User: jaron
Last Modified: May 20, 24 - 11:24
Plot Date/Time: May 20, 24 - 11:31:04

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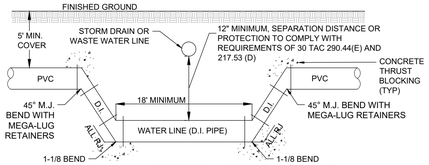
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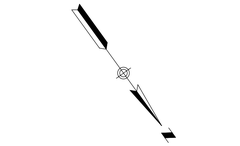
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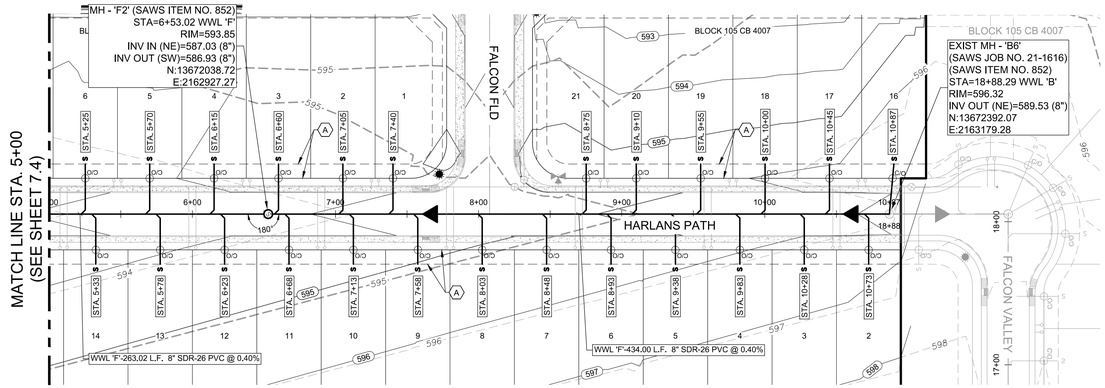


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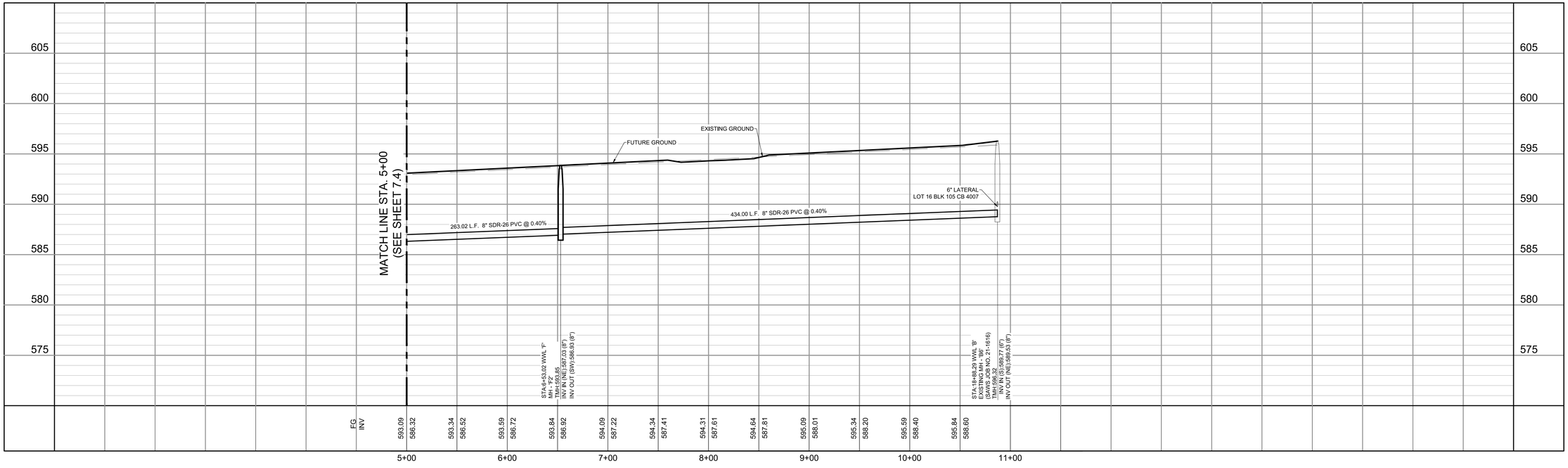
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SHEET NO. 7.5

OF - SHEETS

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LAND-PLAT-24-11800048
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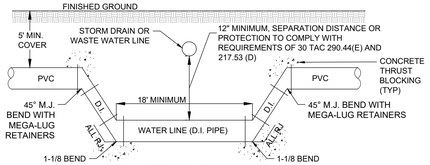
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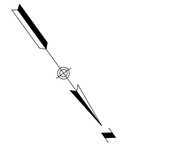
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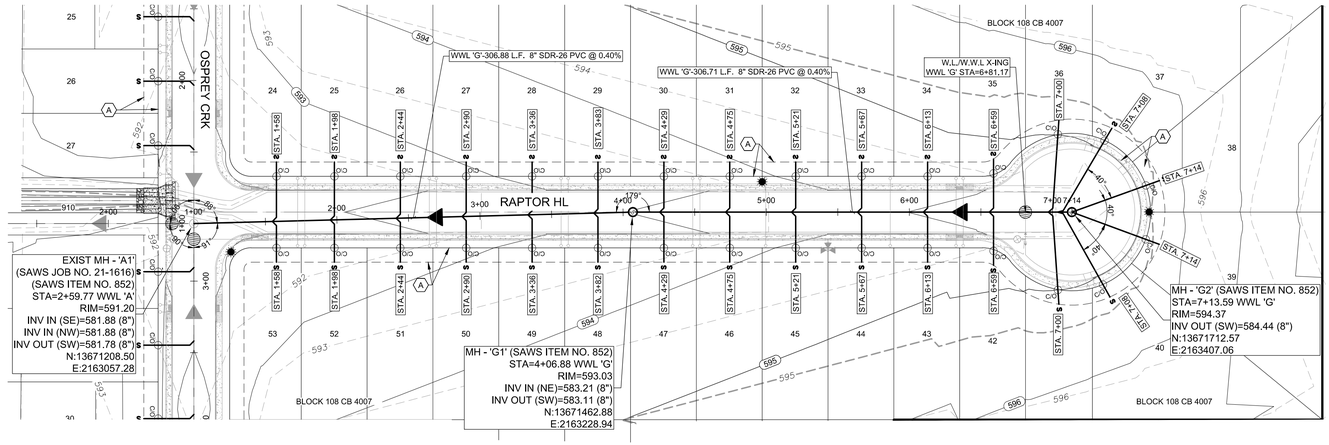


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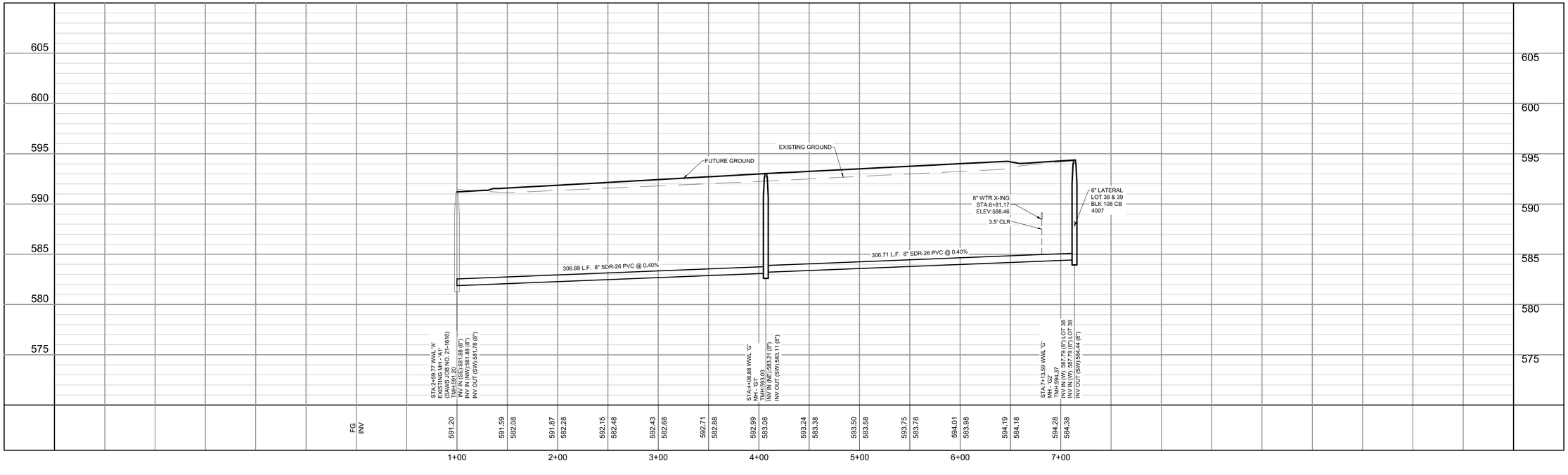
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SHEET NO. 7.6

OF - SHEETS

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User: jturon
Last Modified: May 20, 24 - 13:27
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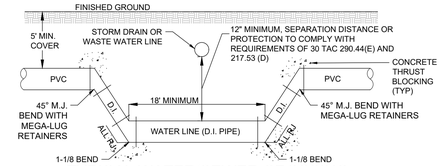
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(A) 10' G.E.T.CA. ESM'T

(B) 1' V.N.A.E. ESM'T

(A) EXISTING 10' G.E.T.CA. ESM'T (LAND PLAT-21-11800248) (DOC. NO. 20230198141)

(B) EXISTING OFF-LOT 25' SANITARY SEWER EASEMENT (VOL. 20002, PGS. 1757-1760)



TYPICAL WATER/SEWER CROSSING

NTS

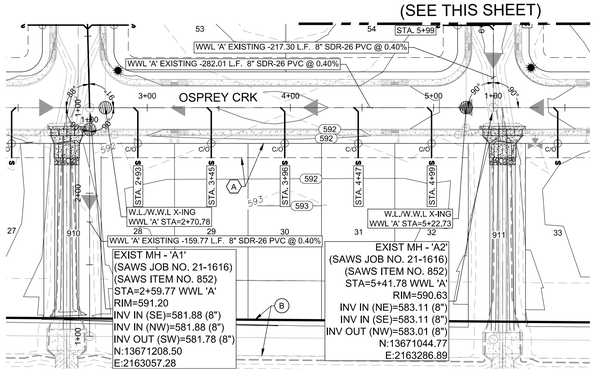
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HORIZONTAL SCALE 1" = 50'
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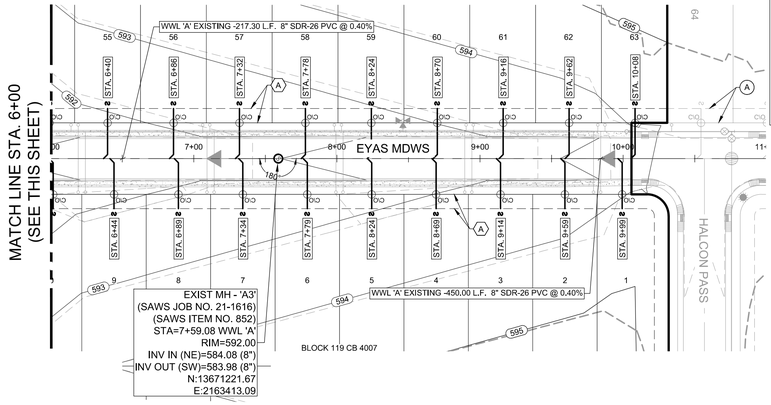
LEGEND

PROPOSED	EXISTING	
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8 SS	EX 8"WWL	SANITARY SEWER LINE
8 WL	EX 16 WL	WATER LINE
C/O	C/O	SANITARY SEWER LATERAL
		CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
		FIRE HYDRANT
		WATER METER
		GAS VALVE
G	G	GAS LINE
D	D	STORM SEWER MANHOLE
		CURB INLET
		POWER POLE
		STREET LIGHT (100 WATT LED)
		STREET LIGHT (250 WATT LED)
		GUY WIRE
OU	OU	OVERHEAD ELECTRIC
		BENCHMARK

MATCH LINE STA. 6+00 (SEE THIS SHEET)



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EAST SEWERSHED

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES

DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215

CITY HOUSTON STATE TEXAS ZIP 77057

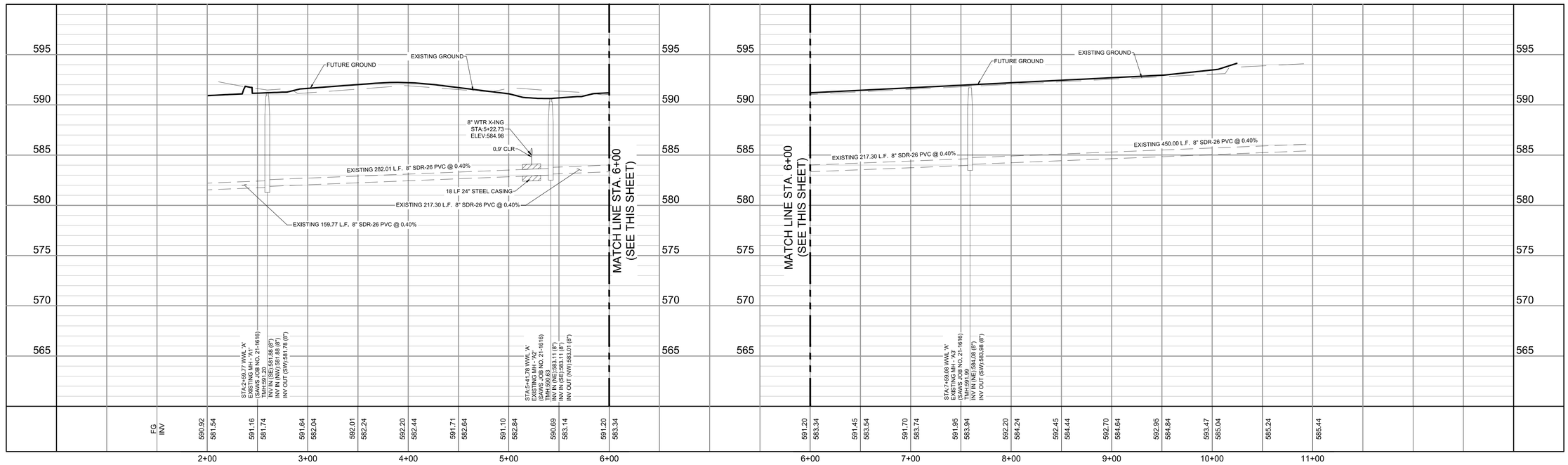
PHONE # (210) 797-7205 FAX # N/A

SAWS BLOCK MAP # 192548, 194546,196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64

TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048

NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538

EXIST W.W.L. 'A' STA. 1+00 TO END



LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
EXISTING WASTEWATER LINE 'A'
STA 1+00 TO END PLAN & PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_EXIST WWL 'A'.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

JOB NUMBER: SA201-0401B-426

SHEET NO. 7.7

OF - SHEETS

K:\SA201 CastleRock Communities_Red Hawk Landing (#B Subd)\426 Site Development Plans\DWG~Sheets\sh_EXIST WWL 'A'.dwg
User: jaron
Last Modified: May 20, 24 - 11:56
Plot Date/Time: May 20, 24 - 11:58:45

GENERAL NOTES

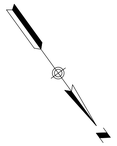
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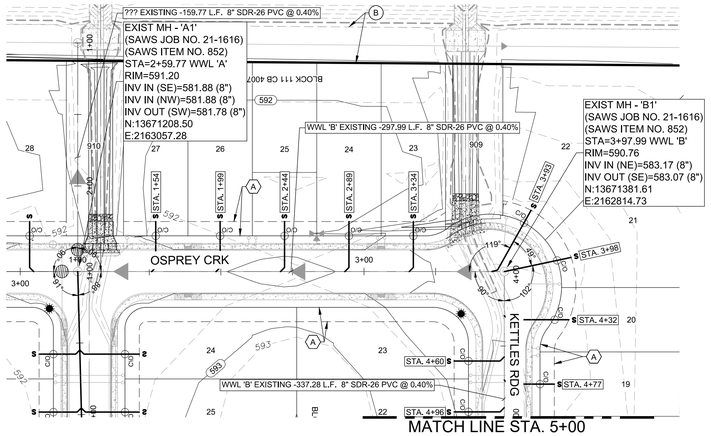
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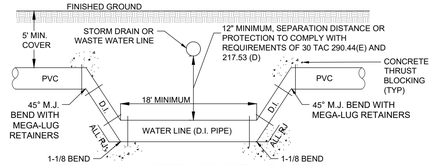
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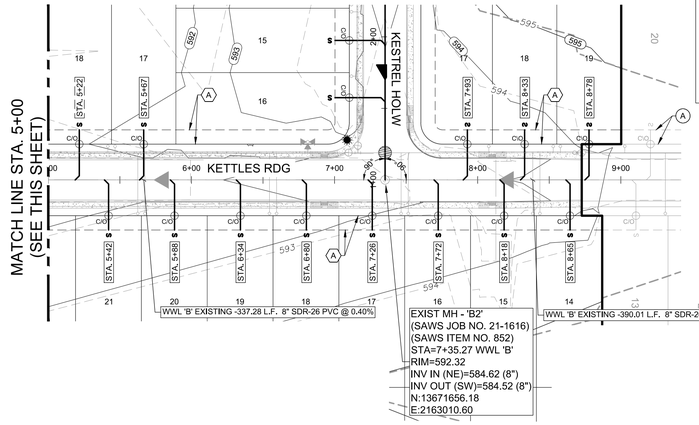


TYPICAL WATER/SEWER CROSSING

NTS

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50 25 0 50 100
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LEGEND

PROPOSED	EXISTING	
S	S	SANITARY SEWER MANHOLE
8 WL	EX 8" WWL	SANITARY SEWER LINE
8 WL	EX 16 WL	WATER LINE
		SANITARY SEWER LATERAL
C/O	C/O	CLEAN OUT (INSTALL BY HOME BUILDER)
		WATER VALVE
		SINGLE WATER SERVICE
		DUAL WATER SERVICE
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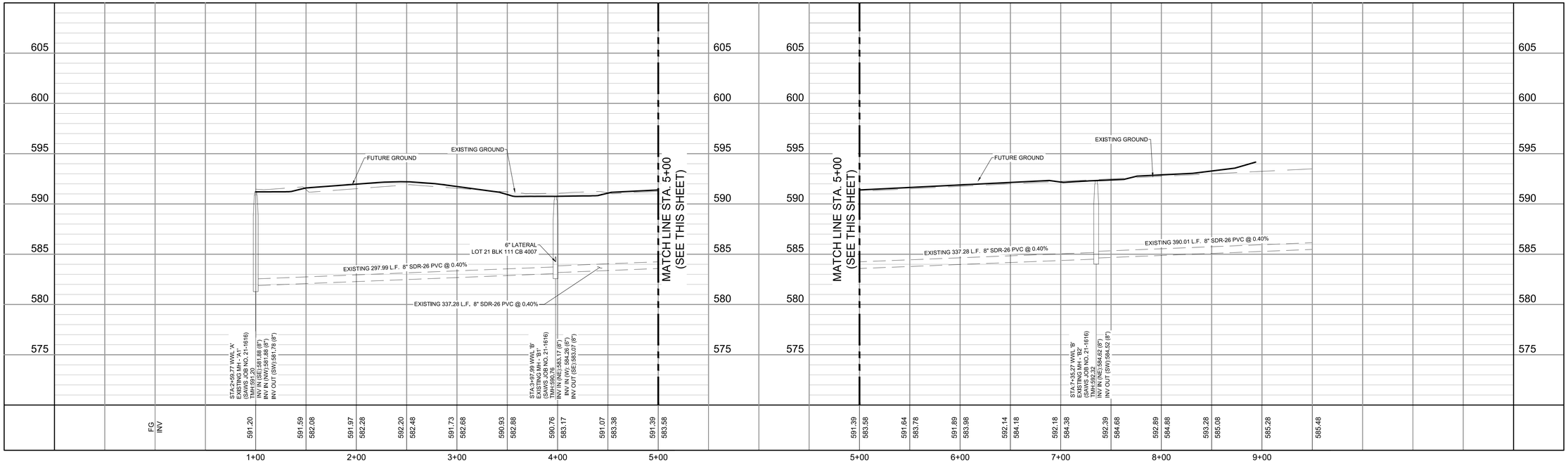
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EAST SEWERSHED

DEVELOPER'S NAME: CASTLEROCK COMMUNITIES
DEVELOPER'S ADDRESS: 2401 FOUNTAIN VIEW DR. SUITE 215
CITY HOUSTON STATE TEXAS ZIP 77057
PHONE # (210) 797-7205 FAX # N/A
SAWS BLOCK MAP # 192548, 194546,196546 TOTAL EDU'S 143 TOTAL ACREAGE 24.64
TOTAL LINEAR FOOTAGE OF PIPE: 8" - 1,601 LF PLAT NO. 24-11800048
NUMBER OF LOTS: 143 SAWS JOB NO. 24-1538

EXIST W.W.L. 'B' STA. 1+00 TO END



NO.	DESCRIPTION	BY	DATE

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_EXIST WWL 'B'.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 7.8
OF - SHEETS

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
EXISTING WASTEWATER LINE 'B'
STA 1+00 TO END PLAN & PROFILE

K:\SA201 CastleRock Communities_Red Hawk Landing (#8 Subd)\426 Site Development Plans\DWG~Sheets\sh_EXIST WWL 'B'.dwg
User: jaron
Last Modified: May 20, 24 - 11:46
Plot Date/Time: May 20, 24 - 11:49:34

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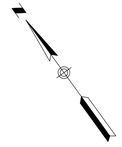
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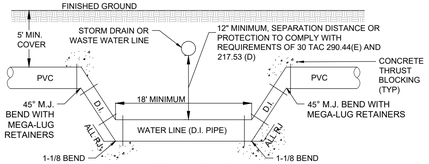
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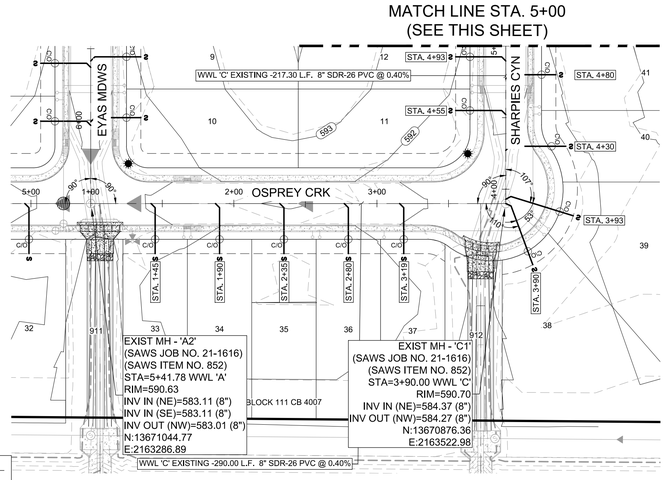


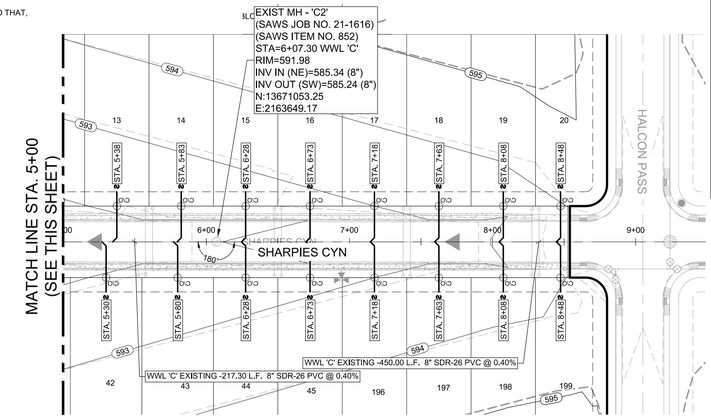


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C/O	C/O	SANITARY SEWER LATERAL
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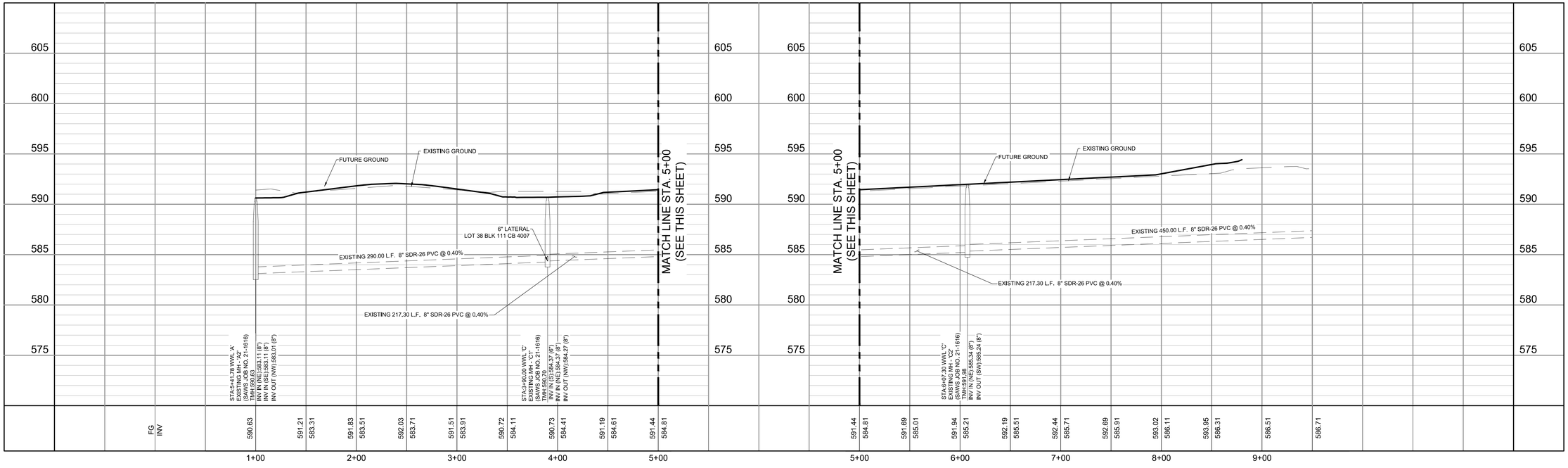
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K:\SA201 CastleRock Communities_Red Hawk Landing (HB Sub)\436 Site Development Plans\DWG-Sheets\sh_EXIST WWL 'C'.dwg
User: jaron
Last Modified: May 20, 24 - 11:48
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NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_EXIST WWL 'C'.dwg

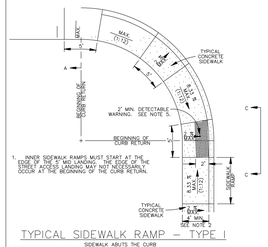
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
05/21/2024

LJA Engineering, Inc.
9830 Colonnade Blvd
Suite 300
San Antonio, Texas 78230
Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 7.9

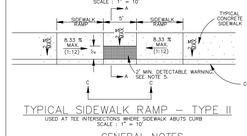
OF - SHEETS



1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE I

SIDEWALK ABUTS THE CURB
SCALE : 1" = 10'

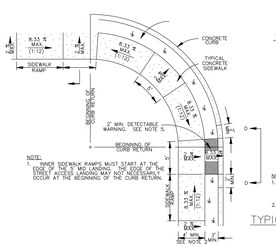


TYPICAL SIDEWALK RAMP – TYPE II

USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB
SCALE : 1" = 10'

GENERAL NOTES

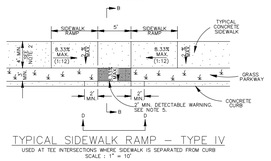
1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MINIMUM OF 1 FOOT BUFFER, DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4' AND 6' SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' 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 OF 3' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP ON THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SURFACE SHALL CONSIST OF TRUNCATED DOMES WITH A NOMINAL DIAMETER OF 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 TDLR STANDARD TEC-01, 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 PLACE TYPE I, II, III OR IV RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEM 750S – CONCRETE CURB, GUTTER, AND DRIVEWAY. CONCRETE FOR SIDEWALK RAMPS AND SIDEWALK RAMP SURFACE SHALL BE AIR-ENTRAINED.
9. RAMP DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE DETERMINED 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 CRUSHED, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 16" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY. 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 GRADE 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 CALCULATED AS THE ALGEBRAIC DIFFERENCE BETWEEN G1 AND G2 WHERE G1 AND G2 ARE EXPRESSED AS PERCENTS. WHEN DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33-(-2.67)=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 LEVELING 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.



NOTE:
1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

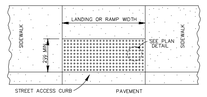
TYPICAL SIDEWALK RAMP – TYPE III

SIDEWALK SEPARATED FROM CURB
SCALE : 1" = 10'



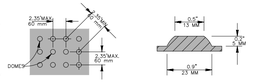
TYPICAL SIDEWALK RAMP – TYPE IV

USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1" = 10'



DETECTABLE WARNING SURFACE

SCALE : 1" = 4"

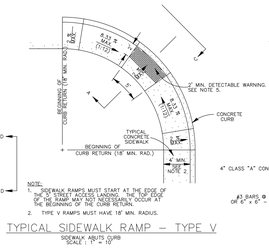


PLAN DETAIL

NO SCALE

DOME SECTION

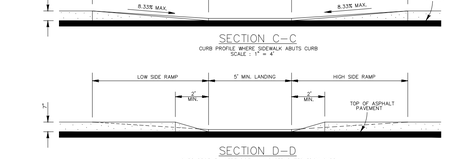
NO SCALE



NOTE:
1. SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' STREET ACCESS LANDING. THE TOP EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.
2. TYPE V RAMPS MUST HAVE 18' MIN. RADIUS.

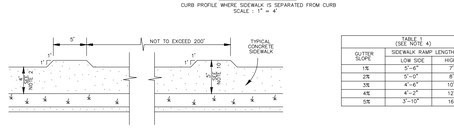
TYPICAL SIDEWALK RAMP – TYPE V

SIDEWALK ABUTS CURB
SCALE : 1" = 10'



SECTION C–C

CURB PROFILE WHERE SIDEWALK ABUTS CURB
SCALE : 1" = 4"



SECTION D–D

CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1" = 4"

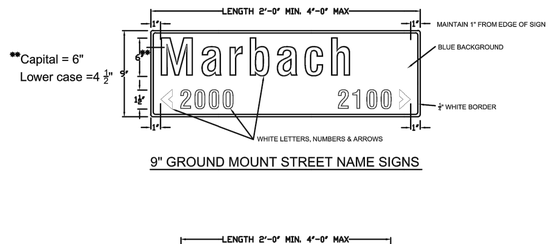


SIDEWALK PASSING SPACE

SCALE : 1" = 10'

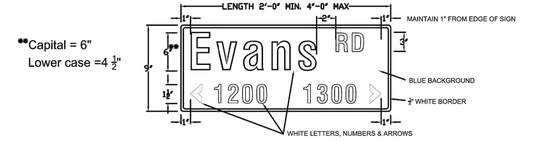
GUTTER SLOPE	TABLE-1 (SEE NOTE 4) SIDEWALK RAMP LENGTH (1:12) LOW SIDE	HIGH SIDE
1%	5'–6"	7'–2"
2%	5'–0"	8'–4"
3%	4'–6"	10'–0"
4%	4'–2"	12'–6"
5%	3'–10"	15'–8"

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.



SECTION A–A

SCALE : 1" = 4'



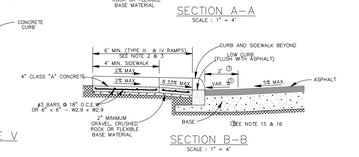
SECTION B–B

SCALE : 1" = 4'

② RESIDENTIAL : 2' MAXIMUM, COMMERCIAL SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

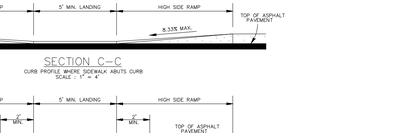
WITH SIDEWALK ABUTTING CURB



② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB



② RESIDENTIAL : 2' MAXIMUM, COMMERCIAL SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB

① 8% MAX TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.
② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

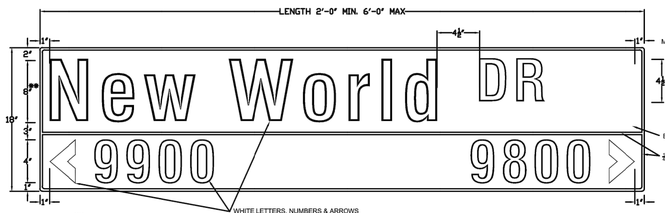
WITH SIDEWALK SEPARATED FROM CURB

**Capital = 6"
Lower case =4 ½"

9" GROUND MOUNT STREET NAME SIGNS

**Capital = 6"
Lower case =4 ½"

9" GROUND MOUNT STREET NAME SIGNS WITH STREET DESIGNATION

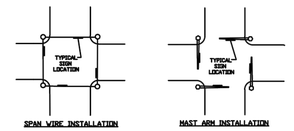


**Capital = 8"
Lower case =6"

18" OVERHEAD STREET NAME SIGNS

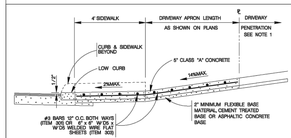
	18" OVERHEAD SIGN	9" GROUND MOUNT SIGNS
HEIGHT	18" (381 mm)	9" (228 mm)
LENGTH	48" (1200 mm) MIN. 72" (1800 mm) MAX. 1' (305mm) INCREMENTS OF LENGTH	24" (600 mm) MIN. 48" (1200 mm) MAX. 6" (150mm) INCREMENTS OF LENGTH
THICKNESS	0.125" (3 mm)	
SUBSTRATE	ALUMINUM ALLOY, 5052-H38 (ASTM B-209 GOLD CHROMATE FINISH	
SIGN FACE MATERIALS	BLUE FILM ✱ OVER DIAMOND GRADE – ASTM Type XI Non-Fluorescent	BLUE FILM ✱ OVER HIGH INTENSITY PRISMATIC- ASTM Type IV
LEGENDS AND SYMBOLS	SERIES D, B OR C IF NAME OTHERWISE EXCEEDS MAXIMUM SIGN LENGTH	
COLOR	WHITE LEGEND ON BLUE BACKGROUND	
LETTER TRACKING	17% (USUAL) 10% (MIN.)	10%

✱ ACRYLIC ELECTRONIC CUTTABLE FILM



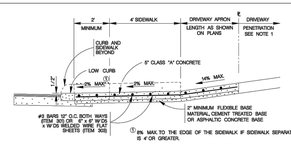
SIGN FACE MATERIALS SHALL CONFORM TO:

1. STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS & BRIDGES ON FEDERAL HIGHWAY PROJECTS - FP-03 U.S. CUSTOMARY UNITS SECTION 718
2. GENERAL SERVICES ADMINISTRATION FEDERAL SPECIFICATIONS L-S-300C
3. ASTM D 4956 - 09⋕1



TYPICAL RESIDENTIAL DRIVEWAY SECTION

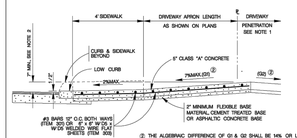
WITH SIDEWALK ABUTTING CURB
ITEM 503.1



① 8% MAX TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL RESIDENTIAL DRIVEWAY SECTION

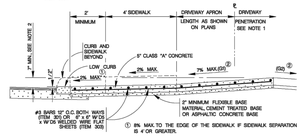
WITH SIDEWALK SEPARATED FROM CURB
ITEM 503.1



② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB
ITEM 503.1



① 8% MAX TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.
② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

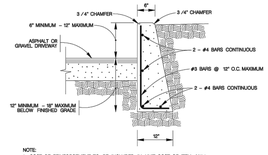
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB
ITEM 503.1

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO.503.1 OR 503.2
   B) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 316.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D'& 4" FLEXIBLE BASE
   C) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO.503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE
2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.
3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER,THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL – ONE WAY	12'	20'
COMMERCIAL – TWO WAY	24'	30'

4. FOR LOCAL TYPE "A" STREETS,SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND IF SEPARATED FROM THE CURB,THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
5. FOR OTHER THAN LOCAL TYPE "A" STREETS,THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 4' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR,AS AN OPTION,THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB,AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS,SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.
7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3 /8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.
8. SIDEWALK RAMP LONGITHE SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.



NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY – CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE
ITEM 307.1

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

CONCRETE DRIVEWAY STANDARDS

☐ SUBMITTAL PROJECT NO.: DATE:
DRWN. BY:V. VASQUEZ DSGN. BY: CHKD. BY:R.S. HOSSEINI, P.E. SHEET NO.: OF

Bexar County Public Works

Street Name Sign Details

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DESIGNED BY: DATE:
DRAWN BY: FILE NO.:

SHEET 1

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
TRAFFIC DETAILS
(SHEET 2 OF 2)

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: sh_Traffic Details.dwg

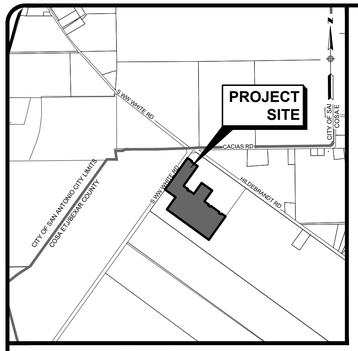
STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

LJA Engineering, Inc.
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Suite 300
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Phone 210.503.2700
LJA.COM
TBPE No. F-1386

JOB NUMBER:
SA201-0401B-426

SHEET NO.
5.9

K:\SA201 CastleRock Communities_Red Hawk Landing (1B Sub)\426 Site Development Plans\CWC-Sheets\sh_Traffic Details.dwg
User: jburon
Last Modified: Apr. 24, 24 – 08:47
Plot Date/Time: Jul. 18, 24 – 15:20:18

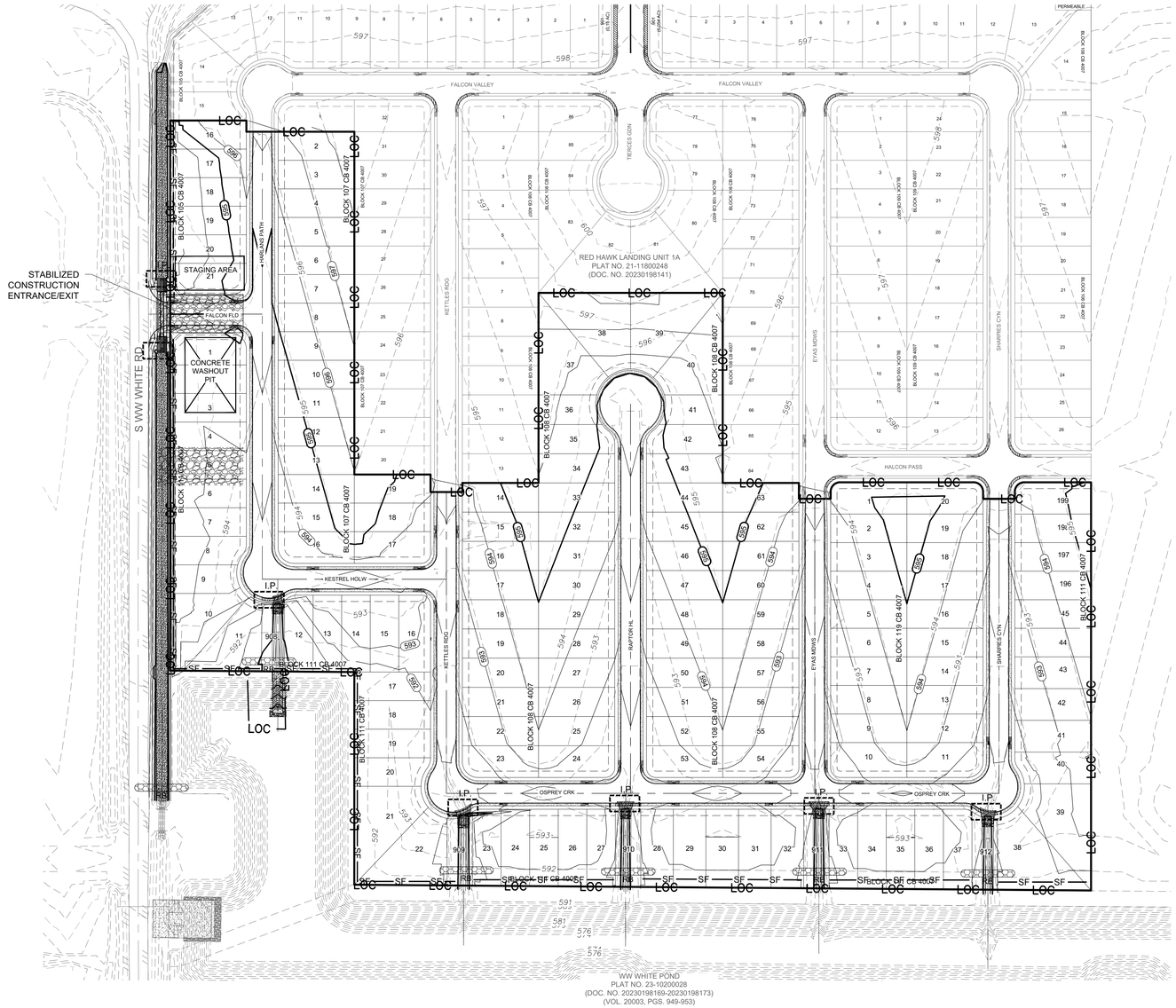


LOCATION MAP
N.T.S.

LEGEND

- GRASSED DRAIN FLOW
- PAVEMENT DRAIN FLOW
- 800 — EXISTING CONTOUR
- 800 — PROPOSED CONTOUR
- CONCRETE WASHOUT PIT
- STABILIZED CONSTRUCTION EXIT
- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
- RB — ROCK BERM
- I.P. — INLET PROTECTION

100 50 0 100 200
SCALE IN FEET
SCALE: 1"=50'



A. SILT FENCE

1. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR YBAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM NOMINAL WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.
2. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2' X 4" WELDED WIRE, 12 GAUGE MINIMUM.
3. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.
4. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.
5. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
6. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
7. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
8. INSPECT ALL FENDING WEEKLY, AND AFTER ANY RAINFALL. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES. REPLACE ANY TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

B. TRIANGULAR SEDIMENT FILTER DIKE

1. THE DIKE STRUCTURE SHALL BE CONSTRUCTED OF 6' X 6', 6 GAUGE WELDED WIRE MESH, 18 INCHES PER SIDE, AND WRAPPED WITH GEOTEXTILE FABRIC THE SAME COMPOSITION AS THAT USED FOR SILT FENCES.
2. FILTER FABRIC SHOULD LAP OVER ENDS SIX (6) INCHES TO COVER DIKE TO DIKE JUNCTION; EACH JUNCTION SHOULD BE SECURED BY SHOAT RINGS.
3. POSITION DIKE PARALLEL TO THE CONTOURS, WITH THE END OF EACH SECTION CLOSELY ABUTTING THE ADJACENT SECTIONS.
4. FASTENING - THE FABRIC SKIRT MAY BE TOED- IN WITH 6 INCHES OF COMPACTED MATERIAL, OR 12 INCHES OF THE FABRIC SKIRT SHOULD EXTEND UPHILL AND BE SECURED WITH A MINIMUM OF 3 INCHES OF OPEN GRADED ROCK, OR WITH STAPLES OR NAILS. IF THESE TWO OPTIONS ARE NOT FEASIBLE THE DIKE STRUCTURE MAY BE TRENCHED IN 4 INCHES.
5. TRIANGULAR SEDIMENT FILTER DIKES SHOULD BE INSTALLED ACROSS EXPOSED SLOPES DURING CONSTRUCTION WITH ENDS OF THE DIKE TIED INTO EXISTING GRADES TO PREVENT FAILURE AND SHOULD INTERCEPT NO MORE THAN ONE ACRE OF RUNOFF.
6. WHEN MOVED TO ALLOW VEHICULAR ACCESS, THE DIKES SHOULD BE REINSTALLED AS SOON AS POSSIBLE, BUT ALWAYS AT THE END OF THE WORKDAY.
7. INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR. INSPECT AND REALIGN DIKES AS NEEDED TO PREVENT GAPS BETWEEN SECTIONS.
8. ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

C. TEMPORARY CONSTRUCTION ENTRANCE/EXIT

1. AGGREGATE SIZE - 4 TO 8 INCHES WASHED, COARSE STONE.
2. LENGTH - AT LEAST 50 FEET.
3. THICKNESS - MINIMUM 8 INCHES.
4. WIDTH - MINIMUM. WIDTH SHALL BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.
5. WASHING - WHEN NECESSARY, IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM 4 INCH DIAMETER WASHED STONE OR COMMERCIAL RACK SHALL BE INSTALLED WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE - IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE 6 TO 8 INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
8. FABRIC - PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

D. INTERCEPTOR SWALE

1. MAXIMUM DEPTH OF FLOW IN THE SWALE SHALL BE 1 FOOT.
2. THE MINIMUM BOTTOM WIDTH OF THE SWALE SHALL BE 2 FEET.
3. SIDE SLOPES OF THE SWALE SHALL BE 3:1 OR FLATTER.
4. MINIMUM DESIGN CHANNEL FREEBOARD SHALL BE 6 INCHES
5. SWALES MUST MAINTAIN POSITIVE GRADE TO AN ACCEPTABLE OUTLET.
6. INTERCEPTOR SWALES MUST BE STABILIZED IMMEDIATELY UPON EXCAVATION SO AS NOT TO CONTRIBUTE TO THE EROSION PROBLEM THEY ARE ADDRESSING.
7. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS AND OTHER MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
8. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE DISPOSED OF IN AN APPROPRIATE SPOILS SITE.
9. INSPECTION MUST BE MADE AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE TO THE CHANNEL OR TO CLEAR DEBRIS OR OTHER OBSTRUCTIONS SO AS NOT TO DIMINISH FLOW CAPACITY. DAMAGES WHICH RESULT FROM NORMAL CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AT THE END OF EACH WORK DAY.

E. ROCK BERMS

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.
2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.
3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM (FIGURE 1-28), TO A HEIGHT NOT LESS THAN 18".
4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.
5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.
7. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.
8. REPAIR ANY LOOSE WIRE SHEATHING. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
9. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

F. SANDBAG BERMS

1. THE BAG LENGTH SHOULD BE 24 TO 30 INCHES. WIDTH SHOULD BE 16 TO 18 INCHES AND THICKNESS SHOULD BE 6 TO 8 INCHES. (3) SANDBAGS SHOULD BE FILLED WITH COARSE GRADE SAND, FREE FROM DELETERIOUS MATERIAL. ALL SAND SHOULD PASS THROUGH A NO. 10 SIEVE. THE FILLED BAG SHOULD HAVE AN APPROXIMATE WEIGHT OF 40 POUNDS.
2. THE BERM SHOULD BE A MINIMUM HEIGHT OF 18 INCHES, MEASURED FROM THE TOP OF THE EXISTING GROUND AT THE UPSLOPE TOE TO THE TOP OF THE BERM.
3. THE BERM SHOULD BE SIZED AS SHOWN IN THE PLANS BUT SHOULD HAVE A MINIMUM WIDTH OF 48 INCHES MEASURED AT THE BOTTOM OF THE BERM AND 16 INCHES MEASURED AT THE TOP OF THE BERM.
4. RUNOFF WATER SHOULD FLOW OVER THE TOPS OF THE SANDBAGS OR THROUGH 4-INCH DIAMETER PVC PIPES EMBEDDED BELOW THE TOP LAYER OF BAGS AS SHOWN.
5. SANDBAGS SHOULD BE STACKED IN AT LEAST THREE ROWS ABUTTING EACH OTHER, AND IN STAGGERED ARRANGEMENT.
6. THE BASE OF THE BERM SHOULD HAVE AT LEAST 3 SANDBAGS. THESE CAN BE REDUCED TO 2 AND 1 BAG IN THE SECOND AND THIRD ROWS RESPECTIVELY. FOR EACH ADDITIONAL 6 INCHES OF HEIGHT, AN ADDITIONAL SANDBAG MUST BE ADDED TO EACH ROW WIDTH.
7. THE SAND BAG BERM SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN. THE SANDBAGS SHOULD BE RESHAPED OR REPLACED AS NEEDED DURING INSPECTION.
8. WHEN THE SILT REACHES 6 INCHES, THE ACCUMULATED SILT SHOULD BE REMOVED AND DISPOSED OF AT AN APPROVED SITE IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

G. STONE OUTLET SEDIMENT TRAP

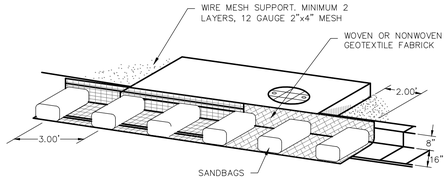
1. ALL AGGREGATE SHOULD BE AT LEAST 3 INCHES IN DIAMETER AND SHOULD NOT EXCEED A VOLUME OF 0.5 CUBIC FOOT.
2. EARTH EMBANKMENT: PLACE FILL MATERIAL IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH. BEFORE COMPACTION, MOISTEN OR AERATE EACH LAYER AS NECESSARY TO PROVIDE THE OPTIMUM MOISTURE CONTENT OF THE MATERIAL. COMPACT EACH LAYER TO 95 PERCENT STANDARD PROCTOR DENSITY. DO NOT PLACE MATERIAL ON SURFACES THAT ARE MUDDY OR FROZEN. SIDE SLOPES FOR THE EMBANKMENT ARE TO BE 3:1. THE MINIMUM WIDTH OF THE EMBANKMENT SHOULD BE 3 FEET.
3. A GAP IS TO BE LEFT IN THE EMBANKMENT IN THE LOCATION WHERE THE NATURAL CONFLUENCE OF RUNOFF CROSSES THE EMBANKMENT LINE. THE GAP IS TO HAVE A WIDTH IN FEET EQUAL TO 6 TIMES THE DRAINAGE AREA IN ACRES.
4. GEOTEXTILE COVERED ROCK CORE: A CORE OF FILTER STONE HAVING A MINIMUM HEIGHT OF 1.5 FEET AND A MINIMUM WIDTH AT THE BASE OF 3 FEET SHOULD BE PLACED ACROSS THE OPENING OF THE EARTH EMBANKMENT AND SHOULD BE COVERED BY GEOTEXTILE FABRIC WHICH SHOULD EXTEND A MINIMUM DISTANCE OF 2 FEET IN EITHER DIRECTION FROM THE BASE OF THE FILTER STONE CORE.
5. FILTER STONE EMBANKMENT: FILTER STONE SHOULD BE PLACED OVER THE GEOTEXTILE AND IS TO HAVE A SIDE SLOPE WHICH MATCHES THAT OF THE EARTH EMBANKMENT OF 3:1 AND SHOULD COVER THE GEOTEXTILE/ROCK CORE A MINIMUM OF 6INCHES WHEN INSTALLATION IS COMPLETE. THE CREST OF THE OUTLET SHOULD BE AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT.
6. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
7. TRASH AND OTHER DEBRIS SHOULD BE REMOVED AFTER EACH RAINFALL TO PREVENT CLOGGING OF THE OUTLET STRUCTURE. SEDIMENT SHOULD BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF OF THE DESIGN DEPTH OF THE TRAP.

H. SEDIMENT BASINS

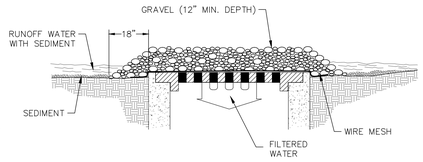
1. THE DRAINAGE AREA FOR A SEDIMENT BASIN SHALL BE LESS THAN 100 ACRES.
2. THE BASIN SHOULD INCLUDE A PERMANENT STAKE TO INDICATE THE SEDIMENT LEVEL IN THE POOL AND MARKED TO INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME (NOT THE TOP OF THE STAKE). SEDIMENT SHALL BE REMOVED WHEN SEDIMENT REACHES 50% STORAGE CAPACITY.
3. PLACE FILL MATERIAL IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH. BEFORE COMPACTION, MOISTEN OR AERATE EACH LAYER AS NECESSARY TO PROVIDE THE OPTIMUM MOISTURE CONTENT OF THE MATERIAL. COMPACT EACH LAYER TO 95 PERCENT STANDARD PROCTOR DENSITY. DO NOT PLACE MATERIAL ON SURFACES THAT ARE MUDDY OR FROZEN. SIDE SLOPES FOR THE EMBANKMENT SHOULD BE 3:1 (H:V). MINIMUM WIDTH OF THE EMBANKMENT AT THE TOP SHALL BE 8 FEET.
4. AN EMERGENCY SPILLWAY SHOULD BE INSTALLED ADJACENT TO THE EMBANKMENT ON UNDISTURBED SOIL AND SHOULD BE SIZED TO CARRY THE FULL AMOUNT OF FLOW GENERATED BY A 10-YEAR, 3-HOUR STORM WITH 1 FOOT OF FREEBOARD LESS THE AMOUNT WHICH CAN BE CARRIED BY THE PRINCIPAL OUTLET CONTROL DEVICE. THE EMERGENCY SPILLWAY SHOULD BE LINED WITH RIPRAP AS SHOULD THE SWALE LEADING FROM THE SPILLWAY TO THE NORMAL WATERCOURSE AT THE BASE OF THE EMBANKMENT.
5. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.TRASH AND OTHER DEBRIS SHOULD BE REMOVED AFTER EACH RAINFALL TO PREVENT CLOGGING OF THE OUTLET STRUCTURE.
6. ACCUMULATED SILT SHOULD BE REMOVED AND THE BASIN SHOULD BE RE- GRADED TO ITS ORIGINAL DIMENSIONS AT SUCH POINT THAT THE CAPACITY OF THE IMPOUNDMENT HAS BEEN REDUCED TO 75% OF ITS ORIGINAL STORAGE CAPACITY.

ADDITIONAL NOTES:

1. UPON COMPLETION OF CONSTRUCTION ALL DISTURBED AREAS SHALL BE REVEGETATED TO 70% OF EXISTING CONDITIONS IN ACCORDANCE WITH THE SWPPP AND TPDES REQUIREMENTS.
2. THIS SITE IS NOT LOCATED ADJACENT TO ANY SURFACE WATERS.
3. THIS SITE WILL NOT HAVE ANY LOCATIONS WHERE STORM WATER DISCHARGES DIRECTLY TO A SURFACE WATER BODY.



CURB INLET PROTECTION



GRATE INLET PROTECTION

NOTES:

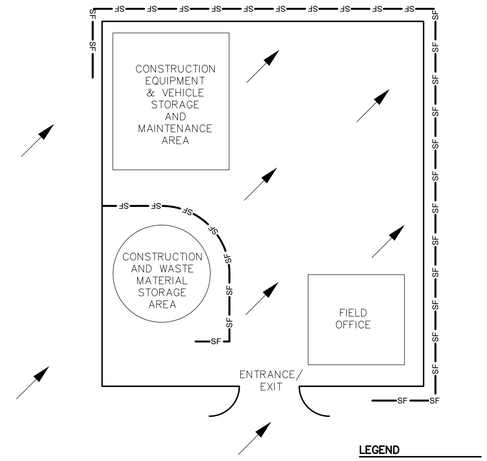
1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CHORD.
2. INLET PROTECTION SHALL BE PLACED OVER THE MOUTH OF THE INLET WITH A 2 FOOT OVERLAP ON EITHER SIDE.
3. THE FABRIC COVER AND SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE.
4. THE SKIRT SHALL BE WEIGHTED WITH ONE 18"x24"x6" SANDBAG EVERY 3 FEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF FOUR INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
7. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

NOTES:

1. WIRE MESH SHALL BE LAID OVER THE DROP INLET SO THAT THE WIRE EXTENDS MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. WIRE MESH WITH ½ INCH OPENINGS SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
2. COARSE AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ABOVE. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
3. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS IT'S FUNCTION, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED.

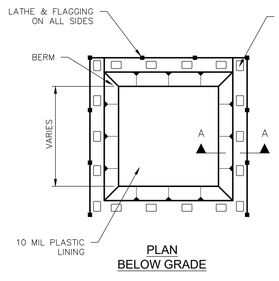
27.04 INLET PROTECTION

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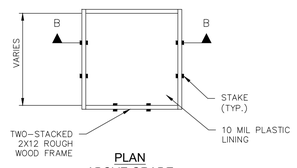


CONSTRUCTION STAGING AREA

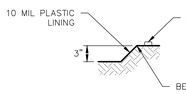
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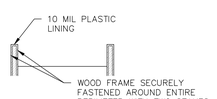
PLAN
BELOW GRADE



PLAN
ABOVE GRADE



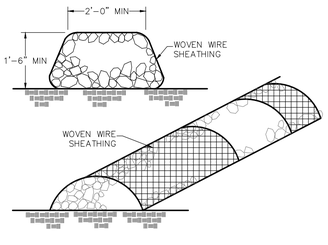
BELOW GRADE
SECTION A-A



ABOVE GRADE
SECTION B-B

27.02 CONCRETE WASHOUT AREA

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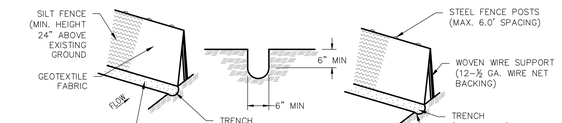


NOTES:

1. USE ONLY OPEN GRADED ROCK 4–8 INCH DIAMETER FOR STREAMFLOW CONDITION; USE OPEN GRADED ROCK 3–5 INCHES DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE – WOVEN WIRE SHEATHING, SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

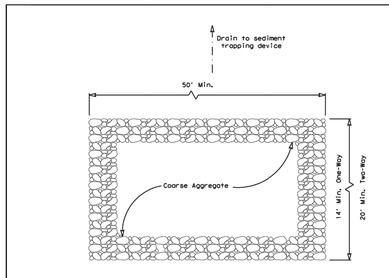
27.05 ROCK BERM

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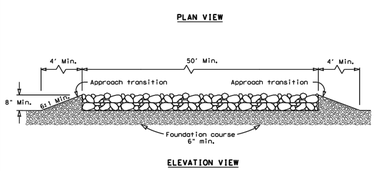


27.03 SILT FENCE

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PLAN VIEW



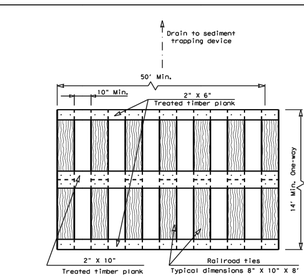
ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

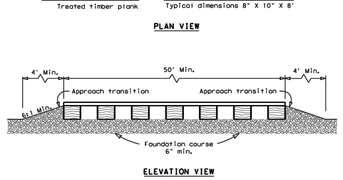
ROCK CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materials approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



PLAN VIEW



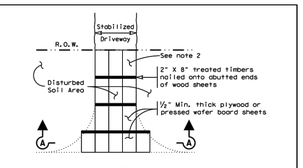
ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

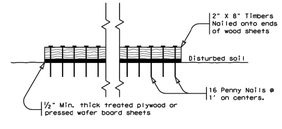
TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

SHORT TERM

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
	HDST6	SCTY6	EC(3)A-1	

RED HAWK LANDING UNIT 1B
SUBDIVISION
LAND-PLAT-24-11800048
STORMWATER POLLUTION PREVENTION DETAILS

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 9/8/2023
DESIGNED BY:
DRAWN BY: RG
CHECKED BY:
DRAWING NAME: s:\...SWPPP Plan.dwg

STATE OF TEXAS
RICHARD W. GRAY III
75617
REGISTERED PROFESSIONAL ENGINEER
07/19/2024

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LJA.COM
TBPE No. F-1386

JOB NUMBER: SA201-0401B-426

SHEET NO. 8.1

K:\SA201 CastleRock Communities\...Red Hawk Landing UNIT 1B Subd\426 Site Development Plans\DWG-Sheets\sh_SWPPP Plan.dwg
User: jburn
Last Modified: Jul 18, 24 - 15:03
Plot Style Table: Jul 18, 24 - 15:15