LNV

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Solutions Today with a **Vision for Tomorrow**

December 16, 2020

Ms. Carrie Caylor
City of Rollingwood
403 Nixon Drive
Rollingwood, TX 78746

Subject: 4801 Rollingwood Drive Building Permit Site Plan Recommendation

Dear Ms. Caylor,

LNV has completed the review of the drainage components of the Building Permit Application for the construction of the pool and associated improvements at 4801 Rollingwood Drive. All comments have been addressed and LNV recommends approval of the drainage portion of the residential building permit for the subject address, based on the attached plans This application was reviewed only for conformity to the City of Rollingwood Code of Ordinances, Section 3.09 Stormwater Drainage Regulations. Please note that this permit requires drainage facilities that will be reviewed by LNV. LNV will provide review of constructed facilities and will notify the City when recommendation for final approval is made.

If you have any questions, please feel free to contact me at (512) 381-8333.

Sincerely,

Jay Campbell, PE CPESC
Project Manager
jcampbell@lnvinc.com

Western Hills Athletic Club

4801 Rollingwood Drive
Austin, Texas 78746

SUBMITTAL DATE
DATE: APRIL 24, 2020

OWNER:
WESTERN HILLS ATHLETIC CLUB
4801 ROLLINGWOOD DR
AUSTIN, TEXAS 78746

CONTACT:
CATHERINE SCOTT, PRESIDENT
(512) 327-6373

LANDSCAPE ARCHITECT:
MWM DESIGN GROUP, INC.
305 E HUNTLAND DR, STE #200
AUSTIN, TEXAS 78752

CONTACT:
DAVID CAZARES, ASLA, LEED AP
(512) 453-0767

CIVIL ENGINEER / AGENT:
MWM DESIGN GROUP, INC.
305 E HUNTLAND DR, STE #200
AUSTIN, TEXAS 78752

CONTACT:
MATTHEW RECTOR, P.E., CFM
(512) 453-0767

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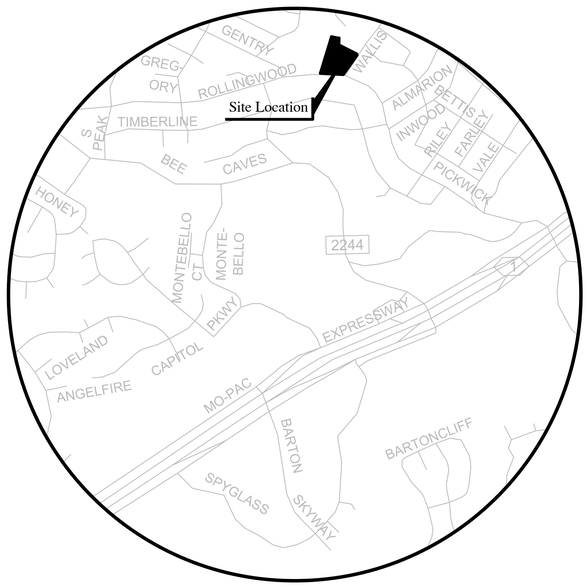
NOTES:

1. THIS SITE LIES WITHIN THE ROLLINGWOOD FULL PURPOSE JURISDICTION.
2. NO PORTION OF THIS SITE IS WITHIN THE 100 YEAR FLOODPLAIN AS PER FEMA FIRM PANEL #48453C0445K, DATED JANUARY 22, 2020.
3. NO CRITICAL ENVIRONMENTAL FEATURES ARE KNOWN TO EXIST WITHIN 150' OF THE PROJECT SITE.
4. THIS SITE IS LOCATED OVER THE EDWARD'S AQUIFER RECHARGE ZONE.
5. TREES GREATER THAN 8" IN DIAMETER ARE KNOWN TO EXIST ON THIS SITE.
6. AS PART OF THE SITE PLAN, THE STORM WATER POLLUTION PREVENTION PLAN (SWIPPP) IS REQUIRED TO BE ON SITE AT ALL TIMES.



LOCATION MAP

LEGAL DESCRIPTION: LOT 1, WESTERN HILLS ATHLETIC CLUB ADDITION
ZONED: PARK ZONING DISTRICT (P)
PROPOSED IMPERVIOUS COVER: 68186.17 SF, 50%
WATERSHED: LADY BIRD LAKE & EANES CREEK CLASSIFICATION: SUBURBAN

RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY CITY ENGINEERS.

SUBMITTED BY:

MATTHEW RECTOR, P.E., CFM — DATE
MWM DESIGNGROUP
305 E HUNTLAND DRIVE, SUITE 200
AUSTIN, TX. 78752
(512)453-0767

APPROVED BY:

FOR DIRECTOR OF PLANNING AND DEVELOPMENT REVIEW DEPARTMENT — DATE

SITE DEVELOPMENT PERMIT NUMBER

12/10/2020
STATE OF TEXAS — MATTHEW A. RECTOR SR — 122861 — LICENSED PROFESSIONAL ENGINEER

REGISTERED LANDSCAPE ARCHITECT — DAVID J. CAZARES — 1871 — STATE OF TEXAS
12/10/2020

mwm DesignGroup
305 East Huntland Drive
Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734

TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 — 1"
The bar above measures one inch on the original drawing. Adjust scales accordingly.

COVER SHEET

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

000

1 OF 26

File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\000 Cover.dwg 22x34

CONTRACTOR NOTES:

1. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING TYPE AND LOCATION OF UNDERGROUND, SURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT TYPE AND LOCATION OF ALL UTILITIES AFFECTED BY CONSTRUCTION FOR THIS PROJECT IN ORDER TO AVOID DAMAGING THOSE UTILITIES. THE CONTRACTOR SHALL A) IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, AND B) PAY FOR SAME AT NO EXTRA COST TO THE OWNER.

2. THE BIDDER (CONTRACTOR AFTER AWARD) SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY UNREPORTED OBSTACLES OR DISCREPANCIES THAT MAY IMPEDE OR PREVENT THE PROPER CONSTRUCTION OF THIS PROJECT.

3. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THIS PROJECT ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND COA STANDARD SPECIFICATIONS. ALL PAVEMENT CUTS SHALL BE SAW CUT PRIOR TO PLACEMENT OF H.M.A.C. AND COORDINATED WITH COA AND CITY INSPECTORS.

4. SLOPES OF ROADWAY CUTS AND EMBANKMENTS DAMAGED BY ANY OPERATION OF THE CONTRACTOR DURING THE EXECUTION OF THIS PROJECT SHALL BE REPAIRED AND RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITION IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE STANDARD SPECIFICATIONS. BACK FILL AND FILL PLACED DURING REMEDIAL GRADING SHALL BE COMPACTED TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE ORIGINAL CONDITIONS AND TO THE SATISFACTION OF THE ENGINEER AND GOVERNING AUTHORITIES.

5. BEFORE DISCONNECTING ANY WATER LINE OR GAS LINE, CONTRACTOR MUST PROVIDE FORTY-EIGHT (48) HOUR NOTICE TO THE OWNER EXCEPT IN THE CASE OF A BONA FIDE EMERGENCY.

6. CONTRACTOR SHALL COMPLY WITH CONSTRUCTION SEQUENCING WHICH IS SPECIFIED ON THIS SHEET.

7. ALL CONSTRUCTION SHALL FOLLOW THE LATEST VERSIONS OF THE CITY OF ROLLINGWOOD STANDARD DETAILS AND SPECIFICATIONS, UNLESS NOTED OTHERWISE.

8. UPON REQUEST, COMPUTER AIDED DESIGN (CAD) FILES CAN BE MADE AVAILABLE TO THE CONTRACTOR FOR THE PURPOSES OF CONSTRUCTION STAKING.

9. CONTRACTOR TO PROVIDE A 24-HOUR (MINIMUM) NOTICE TO ENGINEER PRIOR TO ALL UTILITY INSTALLATION TO ALLOW FOR VISUAL OBSERVATION OF TRENCH EXCAVATION, BEDDING, PIPE MATERIAL, AND BACKFILL.

PAVEMENT:

1. CONCRETE PAVEMENT SHALL BE FURNISHED AND INSTALLED IN COMPLIANCE WITH ITEM 360 OF THE CITY OF ROLLINGWOOD STANDARD SPECIFICATIONS.

2. CONTRACTOR SHALL PROVIDE A 24-HOUR (MINIMUM) NOTICE TO ENGINEER PRIOR TO ALL CONCRETE POURS TO ALLOW FOR VISUAL OBSERVATION OF FORMWORK AND REBAR PLACEMENT.

EXCAVATION AND BACKFILL:

1. ALL EXCAVATION FOR THIS PROJECT SHALL BE UNCLASSIFIED.

2. CONTRACTOR/REPAIR CREW MUST NOTIFY INSPECTOR AT LEAST TWENTY FOUR (24) HOURS PRIOR TO BEGINNING PERMANENT BACK FILL OPERATIONS.

3. BACKFILL DENSITY SHALL BE AS SPECIFIED IN ITEM 510 OF THE COA STANDARD SPECIFICATIONS. TEST METHODS SHALL BE AS SPECIFIED IN THE CITY STANDARD SPECIFICATIONS UNLESS INDICATED OTHERWISE IN WRITING BY THE ENGINEER.

4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS.

HANDICAP ACCESSBILITY:

1. ACCESSIBLE ROUTES MUST HAVE A RUNNING-SLOPE NO GREATER THAN 5% UNLESS DESIGNED AS A RAMP.

2. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 2%.

3. THE MAXIMUM RUNNING SLOPE OF A RAMP IN NEW CONSTRUCTION IS 8.33%.

4. TAS AND ADA CRITERIA SHALL GOVERN.

SAFETY:

1. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A SAFE, NEAT AND WORKMANLIKE MANNER AT ALL TIMES. JOB SITE SAFETY SHALL NOT BE COMPROMISED. ANY UNATTRACTIVE NUISANCE SHALL BE REMOVED OR CAMOUFLAGED BY CONTRACTOR WHEN DIRECTED BY THE OWNER OR ENGINEER.

2. ALL HOLES, TRENCHES, AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, FENCING, LIGHTS, AND/OR OTHER PROTECTIVE DEVICES AT ALL TIMES.

3. REMOVAL OF EXCAVATED MATERIALS AND DAILY CLEANUP OPERATIONS SHALL BE PERFORMED TO THE SPECIFICATIONS AND TO THE SATISFACTION OF THE OWNER AND ENGINEER.

4. CONTRACTOR SHALL MAINTAIN A SUPERINTENDENT UPON THE PROJECT AT ALL TIMES WORK IS IN PROGRESS.

TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL MAINTAIN CLEAR PASSAGE FOR LOCAL TRAFFIC AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT.

2. ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES, WARNING SIGNS, AND FLAG MEN OPERATIONS SHALL BE PLACED, CONSTRUCTED, EXECUTED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

3. WHERE PORTABLE SIGNS REQUIRE THE USE OF WEIGHTS, SANDBAGS SHALL BE USED. THE USE OF SOLID OBJECTS SUCH AS CONCRETE, ROCKS, IRON, ETC. SHALL NOT BE PERMITTED.

4. INSTALLATION OF CONSTRUCTION BARRICADING AND SIGNING SHALL BE COORDINATED THROUGH THE CITY OF ROLLINGWOOD RIGHT OF WAY MANAGEMENT AT (512) 974-1150 (OR APPLICABLE REGULATORY ENTITY).

5. ALL TRAFFIC CONTROL SIGNS SHALL REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS. IF SIGNS REQUIRE RELOCATION, CONTRACTOR SHALL CONTACT THE APPLICABLE REGULATORY ENTITY.

6. CONTRACTOR MUST RESTORE ALL PAVEMENT MARKINGS DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL OBSERVE ALL APPLICABLE MATERIALS, SPECIFICATIONS, AND INSTALLATION REQUIREMENTS INCLUDING SPECIAL ATTENTION TO MAINTAINING PROPER DIMENSIONS AND ALIGNMENT.

TRENCH SAFETY:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED.

2. IN ACCORDANCE WITH THE U.S. OSHA REGULATIONS, WHEN EMPLOYEES ARE REQUIRED TO BE IN TRENCHES 4 FOOT DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.

ORDINANCE REQUIREMENTS

1. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE A SITE PLAN AMENDMENT AND APPROVAL FROM THE DEVELOPMENT SERVICES DEPARTMENT.
2. APPROVAL OF THIS SITE PLAN DOES NOT INCLUDE BUILDING CODE APPROVAL; FIRE CODE APPROVAL; OR BUILDING, DEMOLITION, OR RELOCATION PERMITS APPROVAL. A CITY DEMOLITION OR RELOCATION PERMIT CAN ONLY BE ISSUED ONCE THE HISTORIC REVIEW PROCESS IS COMPLETED.
3. ALL SIGNS MUST COMPLY WITH THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE.
4. THE OWNER IS RESPONSIBLE FOR ALL COSTS OF RELOCATION OF, OR DAMAGE TO, UTILITIES.
5. ADDITIONAL ELECTRIC EASEMENTS MAY BE REQUIRED AT A LATER DATE.
6. A SITE DEVELOPMENT PERMIT MUST BE ISSUED PRIOR TO AN APPLICATION FOR BUILDING PERMIT FOR NONCONSOLIDATED OR LAND USE COMMISSION APPROVED SITE PLANS.
7. WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY THE CITY OF ROLLINGWOOD.
8. NO CERTIFICATE OF OCCUPANCY MAY BE ISSUED FOR THE PROPOSED RESIDENTIAL CONDOMINIUM PROJECT UNTIL THE OWNER OR OWNERS OF THE PROPERTY HAVE COMPLIED WITH CHAPTER 81 AND 82 OF THE PROPERTY CODE OF THE STATE OF TEXAS OR ANY OTHER STATUTES ENACTED BY THE STATE CONCERNING CONDOMINIUMS.
9. FOR CONSTRUCTION WITHIN THE RIGHT-OF-WAY, A R.O.W. EXCAVATION PERMIT IS REQUIRED.

COMPATIBILITY

1. HIGHLY REFLECTIVE MATERIALS WILL NOT BE USED. MATERIALS MAY NOT EXCEED 20% REFLECTIVITY. THIS REQUIREMENT SHALL NOT APPLY TO SOLAR PANELS OR TO COPPER OR PAINTED METAL ROOFS.
2. THE NOISE LEVEL OF MECHANICAL EQUIPMENT WILL NOT EXCEED 70 D.B.A. AT THE PROPERTY LINE ADJACENT TO RESIDENTIAL USES.
3. ALL EXTERIOR LIGHTING SHALL BE HOODED OR SHIELDED FROM THE VIEW OF ADJACENT RESIDENTIAL USES, OR PROPERTY ZONED RESIDENTIAL.
4. EXTERIOR LIGHTING ABOVE THE SECOND FLOOR IS PROHIBITED WHEN ADJACENT TO RESIDENTIAL PROPERTY.
5. ALL DUMPSTERS AND ANY PERMANENTLY PLACED REFUSE RECEPTACLES WILL BE LOCATED AT A MINIMUM OF TWENTY (20) FEET FROM A PROPERTY USED OR ZONED AS SF-5 OR MORE RESTRICTIVE.

FIRE DEPARTMENT

1. THE ROLLINGWOOD FIRE DEPARTMENT REQUIRES ASPHALT OR CONCRETE PAVEMENT PRIOR TO CONSTRUCTION AS AN "ALL-WEATHER DRIVING SURFACE."
2. HYDRANTS MUST BE INSTALLED WITH THE CENTER OF THE FOUR-INCH OPENING AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE FOUR-INCH OPENING MUST FACE THE DRIVEWAY OR STREET WITH THREE- TO SIX-FOOT SETBACKS FROM THE CURBLINE(S). NO OBSTRUCTION IS ALLOWED WITHIN THREE FEET OF ANY HYDRANT AND THE FOUR-INCH OPENING MUST BE TOTALLY UNOBSTRUCTED FROM THE STREET.
3. TIMING OF INSTALLATION: WHEN FIRE PROTECTION FACILITIES ARE INSTALLED BY THE DEVELOPER, SUCH FACILITIES SHALL INCLUDE ALL SURFACE ACCESS ROADS WHICH SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION. WHERE ALTERNATIVE METHODS OF PROTECTION, AS APPROVED BY THE FIRE CHIEF, ARE PROVIDED, THE ABOVE MAY BE MODIFIED OR WAIVED.
4. ALL PERVIOUS/DECORATIVE PAVING SHALL BE ENGINEERED AND INSTALLED FOR 80,000 LB. LIVE-VEHICLE LOADS. ANY PERVIOUS/DECORATIVE PAVING WITHIN 100 FEET OF ANY BUILDING MUST BE APPROVED BY THE FIRE DEPARTMENT.
5. COMMERCIAL DUMPSTERS AND CONTAINERS WITH AN INDIVIDUAL CAPACITY OF 1.5 CUBIC YARDS OR GREATER SHALL NOT BE STORED OR PLACED WITHIN TEN FEET OF OPENINGS, COMBUSTIBLE WALLS, OR COMBUSTIBLE EAVE LINES. CITY OF ROLLINGWOOD | CONSOLIDATED SITE PLAN APPLICATION INSTRUCTIONS REV 7/19/2016 | PAGE 30 OF 38
6. FIRE LANES DESIGNATED ON SITE PLAN SHALL BE REGISTERED WITH CITY OF ROLLINGWOOD FIRE MARSHAL'S OFFICE AND INSPECTED FOR FINAL APPROVAL.
7. VERTICAL CLEARANCE REQUIRED FOR FIRE APPARATUS IS 14 FEET FOR FULL WIDTH OF ACCESS DRIVE.

GENERAL CONSTRUCTION NOTES:

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF ROLLINGWOOD MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

2. CONTRACTOR SHALL CALL TEXAS 811 (811 OR 1-800-344-8377) FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.

3. CONTRACTOR SHALL NOTIFY THE CITY OF ROLLINGWOOD TO SUBMIT REQUIRED DOCUMENTATION, PAY CONSTRUCTION INSPECTION FEES, AND TO SCHEDULE THE REQUIRED SITE AND SUBDIVISION PRE-CONSTRUCTION MEETING. THIS MEETING MUST BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE R.O.W. OR PUBLIC EASEMENTS. PLEASE VISIT HTTP://AUSTINTEXAS.GOV/PAGE/COMMERCIAL-SITE-AND-SUBDIVISION-INSPECTIONS FOR A LIST OF SUBMITTAL REQUIREMENTS, INFORMATION CONCERNING FEES, AND CONTACT INFORMATION.

4. FOR SLOPES OR TRENCHES GREATER THAN FIVE FEET IN DEPTH, A NOTE MUST BE ADDED STATING: "ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION." (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 EAST 6TH STREET, ROLLINGWOOD TEXAS.)

5. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS.

6. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS AND PRIOR TO THE FOLLOWING, THE ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DRAINAGE, FILTRATION AND DETENTION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS; RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE DEVELOPMENT SERVICES DEPARTMENT (INSIDE THE CITY LIMITS); OR INSTALLATION OF AN ELECTRIC OR WATER METER (IN THE FIVE-MILE ETJ)

DEVELOPER INFORMATION

WESTERN HILLS ATHLETIC CLUB OWNER	(512) 327-6373 PHONE #
4801 ROLLINGWOOD DR, AUSTIN, TX 78746 OWNER ADDRESS	
CATHERINE SCOTT OWNER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS	(512) 327-6373 PHONE #
JOSH MCKAY PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDIMENTATION CONTROL MAINTENANCE	(512) 426-1483 PHONE #
JOSH MCKAY PERSON OR FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE	(512) 426-1483 PHONE #

AMERICANS WITH DISABILITIES ACT

THE CITY OF ROLLINGWOOD HAS REVIEWED THIS PLAN FOR COMPLIANCE WITH CITY DEVELOPMENT REGULATIONS ONLY. THE APPLICANT, PROPERTY OWNER, AND OCCUPANT OF THE PREMISES ARE RESPONSIBLE FOR DETERMINING WHETHER THE PLAN COMPLIES WITH ALL OTHER LAWS, REGULATIONS, AND RESTRICTIONS WHICH MAY BE APPLICABLE TO THE PROPERTY AND ITS USE.

BENCHMARK INFORMATION

COORDINATE BASIS: GRID AZIMUTH FOR TEXAS CENTRAL ZONE STATE PLANE COORDINATES, BASED ON GPS SOLUTIONS FROM THE NATIONAL GEODETIC SURVEY (NGS) ON-LINE POSITIONING USER SERVICE (OPUS).

BENCHMARKS:

B.M. #1 – SQUARE CUT ON B.O.C., NORTH SIDE OF ROLLINGWOOD DR.
+/-105 FEET WEST OF WALLIS DR.
ELEV.=628.77'

B.M. #3 – SQUARE CUT ON B.O.C. ON THE WEST SIDE OF WALLIS DR.
+/-190 FEET NORTH OF ROLLINGWOOD DR.
ELEV.=631.07'

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES:

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.

3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.

4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.

5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.

9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.

10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
   - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
   - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
   - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
   A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
   B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
   C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753-1808
PHONE (512) 339-2929
FAX (512) 339-3795

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329

12/10/2020

STATE OF TEXAS
MATTHEW A. RECTOR SR.
122861
LICENSED PROFESSIONAL ENGINEER

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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
The bar above measures one inch on the original drawing. Adjust scales accordingly.

GENERAL NOTES

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

001

Files: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\001 Notes.dwg 22x34

LOCATION MAP
NOT TO SCALE

SCALE: 1" = 30'
GRAPHIC SCALE
30 15 0 30

A SURVEY OF ALL OF LOT 1, WESTERN HILLS ATHLETIC CLUB ADDITION, A SUBDIVISION OF RECORD IN TRAVIS COUNTY, TEXAS ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOLUME 79, PAGE 355 OF THE THE PLAT RECORDS OF TRAVIS COUNTY, TEXAS, SAVE AND EXCEPT A 2,411 SQUARE FEET TRACT DESCRIBED IN VOLUME 11901, PAGE 1260 OF THE REAL PROPERTY RECORDS OF TRAVIS COUNTY, TEXAS.

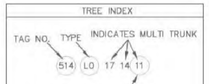
TREE LIST

16901 HB 7 4	20027 CE 8	20055 LO 8 7	20082 LO 21	20118 CDR 7	20144 LO 10 9
16902 CE 6 4	20028 CE 9	20056 CDR 13	20083 LO 17	20119 CDR 7	20145 LO 13
16903 LO 9	20029 CB 14	20057 LO 16 12	20084 LO 12	20120 CDR 9	20146 CDR 10
16904 LO 7	20030 CB 14	20058 CDR 14	20086 LO 12	20121 LO 7	20147 LO 6
16905 LO 9	20032 HB 13	20059 LO 13	20088 LO 14	20122 CDR 6	20148 LO 18 13
16906 LO 8	20033 CB 9	20060 CDR 7	20089 LO 11	20123 CDR 8	20149 CE 10 5
16907 CE 7 4	20034 CB 11 7 5	20061 CE 6	20090 LO 16	20124 CDR 6	20150 CE 14
16908 LO 13	20035 CB 7	20062 CDR 8	20093 LO 18	20125 LO 13	20151 CB 10
16909 LO 7	20036 CB 8	20063 LO 17	20094 LO 12	20126 LO 9	20152 CB 13
16910 CB 9	20038 CB 15	20064 CDR 10	20095 LO 10	20127 LO 8	20155 LIG 9 6 6
16911 CB 7	20039 CDR 10	20065 PO 19 16	20096 LO 11	20128 CDR 6	20158 CB 8
16912 LIG 8 6	20040 CE 8	20066 CDR 8	20097 LO 9	20129 CDR 12	20159 CB 20
16913 BE 8	20041 CE 13	20067 LO 7	20098 LO 12	20130 CDR 7	20160 CE 10
16914 BE 6	20042 CE 12	20068 LO 10	20099 LO 15	20131 CDR 7	20161 CE 9 8
16915 BE 6	20043 CE 10 8	20069 LO 11 8	20100 LO 12	20132 CDR 7	20162 LO 20
16916 WLNT 7	20044 LO 10	20070 CDR 7	20101 LO 13	20133 CE 9	20163 CE 11
16917 WLNT 6	20045 LO 8	20071 CE 6	20102 LO 19 17	20134 CE 10	20164 LO 22
16918 WLNT 6	20046 LO 13	20072 CB 7	20103 LO 20	20135 LO 13 10	20165 LO 22
20016 LO 23 21 19 19	20047 LO 12	20074 LO 15	20105 CE 15	20136 HB 6	20166 LO 21
20017 CE 18	20048 LO 13	20075 LO 18	20106 LO 10	20137 CDR 6	20167 LO 18
20018 LO 20	20049 HB 8	20076 LO 15	20107 LO 12	20138 CE 8	20168 LO 24
20021 LO 19	20050 CE 10	20077 LO 17	20108 LO 7	20139 CDR 8	20169 LO 19
20023 PEC 17	20051 LO 11	20078 LO 17	20109 LO 12	20140 HB 9	20170 CE 17
20024 LO 18	20052 LO 12	20079 LO 19	20114 CE 9	20141 PEC 11	20171 LO 19 19
20025 LO 13	20053 LO 10	20080 LO 18	20116 CDR 10	20142 PEC 10	20173 CE 14
20026 LO 8 5	20054 LO 17 16	20081 LO 11	20117 LO 9	20143 CDR 6	

TREE LEGEND

BE –	BOX ELDER	LIG –	LIGUSTRUM
CB –	CHINA BERRY	LO –	LIVE OAK
CDR –	CEDAR	PEC –	PECAN
CE –	CEDAR ELM	WLNT –	WALNUT
HB –	HACKBERRY		

TREE INDEX



CRITICAL ROOT ZONES (TREE CIRCLES) ARE SHOWN USING THE COA FORMULA FOR SINGLE AND MULTI TRUNK TREES.

BENCHMARK NOTE:

B.M. #1 – SQUARE CUT ON B.O.C., NORTH SIDE OF ROLLINGWOOD DR. +/–105 FEET WEST OF WALLIS DR.
ELEV.=628.77'

B.M. #3 – SQUARE CUT ON B.O.C. ON THE WEST SIDE OF WALLIS DR. +/–190 FEET NORTH OF ROLLINGWOOD DR.
ELEV.=631.07'

MANHOLE AND INLET NOTE:

THIS SURVEY SHOWS FIELD MEASURED SIZES AND DEPTHS AS OBSERVED FROM GROUND LEVEL OPENINGS. EXACT MEASUREMENTS AND DEPTHS, PARTICULARLY IN CRITICAL AREAS, SHOULD BE VERIFIED WITH UTILITY RECORD MAPS AND/OR FIELD VERIFICATION PRIOR TO FINAL PLANNING OR CONSTRUCTION.

LEGEND

- 1/2" REBAR FOUND
- CALCULATED POINT
- 3/4" IRON PIPE FOUND
- NAIL FOUND
- COTTON SPINDLE FOUND
- BENCHMARK LOCATION
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- SPRINKLER CONTROL VALVE
- UTILITY POLE
- GUY WIRE
- OVERHEAD UTILITIES
- LIGHT POLE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- STORMSEWER MANHOLE
- HANDICAP PARKING SPACE
- AC PAD
- GAS UTILITY
- ELECTRIC UTILITY
- SIGN
- EDGE OF PAVEMENT
- WROUGHT IRON FENCE
- CHAIN LINK FENCE
- PUMP BOX
- PUMP

CURVE TABLE

NO.	DELTA	RADIUS	TAN	ARC	CHORD	BEARING	(RECORD CHORD)
C1	4°35'35"	315.81'	12.67'	25.32'	25.31'	S10°15'58"W	(S11°47'W 25.26')
C2	29°33'56"	122.57'	32.34'	63.25'	62.55'	S02°21'10"E	(S00°43'E 62.57')

FLOOD–PLAIN NOTE:

The tract shown hereon lies within Zone "X" (areas determined to be outside 500–year flood–plain identified by the Federal Emergency Management Agency, Federal Insurance Administration, as shown map no. 48453C0445J, dated January 06, 2016, for Travis County, Texas and incorporated areas. this site is not within an identified special flood hazard area, this flood statement does not imply the property and/or the structures thereon will be free from flooding or flood damage. This flood statement shall not create liability on the part of the surveyor.

TITLE COMMITMENT NOTE:

This Survey was prepared without the benefit of a Commitment for Title, and may be subject to additional easements or restrictions not shown hereon. No additional easement research was done the purpose of this survey.

NOTE FROM PREVIOUS SURVEY (9/26/07):

The Travis CAD map 01_0909 (01/04/2006) shows what appears to be additional R.O.W. for Rollingwood Drive and Wallis Drive. There was no monumented evidence in the field of a R.O.W. dedication along the north line of Rollingwood Drive. After researching Travis CAD and the Travis County Clerk records, we were not able to locate any documents reflecting additional street frontag conveyed to the City of Rollingwood. Since no title research was provided by the client, there was enough data to accurately determine the position of the intersection of the north R.O.W. of Rolling Drive and the west R.O.W. of Wallis Drive, so the position is represented on the map by a calculat point for the purposes of this survey.

SURVEYOR'S CERTIFICATE:

CERTIFIED TO:

Julie Martinez
Western Hills Athletic Club

PROPERTY ADDRESS: Rollingwood Drive @ Wallis Drive

DATE OF SURVEY: 09/26/07; Topographic and Tree Survey Udated 09/20/17, Updated 4/27/18

BEARING BASIS: Grid azimuth for Texas Central Zone state plane coordinates, based on GPS solutio from The National Geodetic Survey (NGS) On–line Positioning User Service (OPUS).

ATTACHMENTS: none

I hereby certify that a survey of the property shown hereon was actually made upon the ground u my direction and supervision on the date shown, and that to the best of my professional knowledg and belief: there are no apparent encroachments, overlapping of improvements, discrepancies, deed conflicts, visible utility lines or roads in place, except as shown hereon, and that this property abu or adjoins a dedicated road right–of–way or access easement, unless noted hereon.

Robert C. Watts, Jr. Date
Registered Professional Land Surveyor
State of Texas No. 4995

5.10.18

STATE OF TEXAS
ROBERT C. WATTS, JR.
4995
REGISTERED
PROFESSIONAL
LAND
SURVEYOR

Chaparral
Professional Land Surveying, Inc.
Surveying and Mapping
3500 McCall Lane

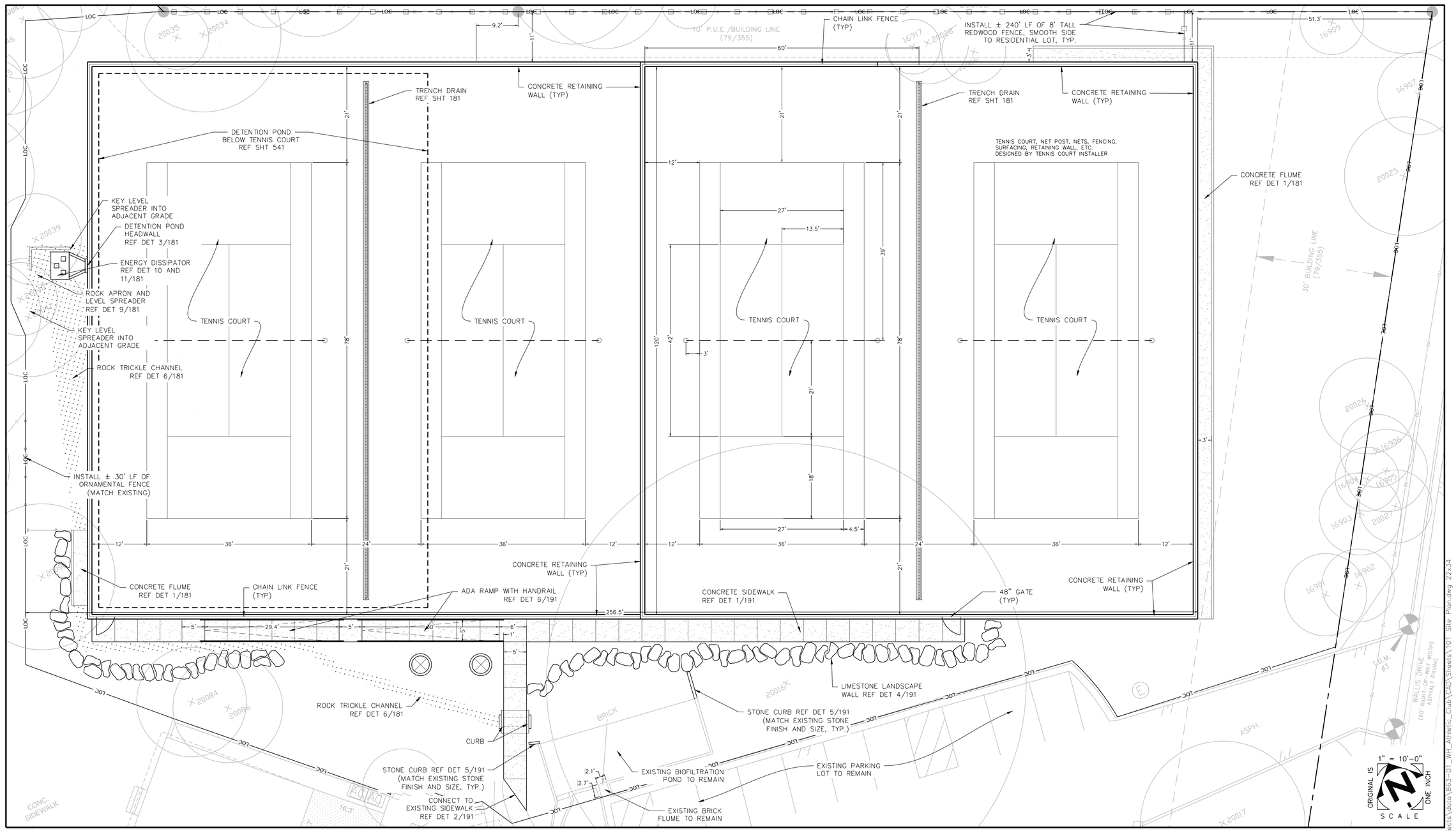
PROJECT NO
585–001

DRAWING NO
585–001–BA

PLOT DATE:
05/10/18

PLOT SCALE:
1"=30'

DRAWN BY:
RGH/MAW/EI



REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
1871
STATE OF TEXAS

12/07/2020

mwm DesignGroup

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Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734

TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

SITE PLAN

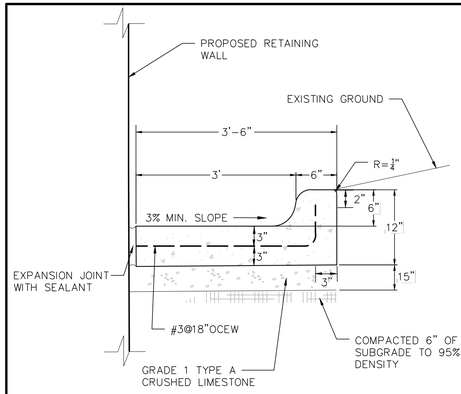
Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

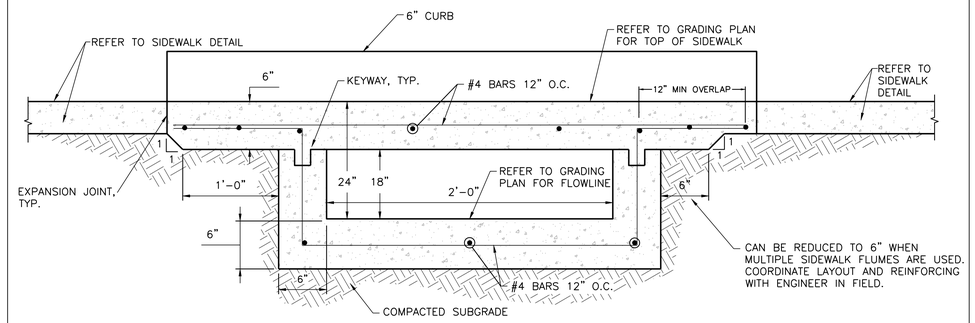
101

4 OF 26

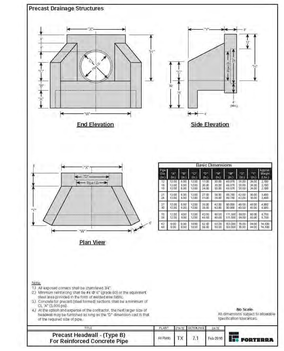
Files: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\101 Site Plan.dwg 22x34



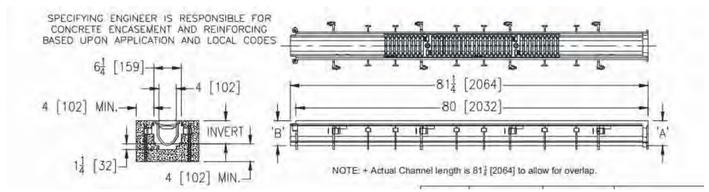
1 181 **CONCRETE FLUME**
SCALE: NTS



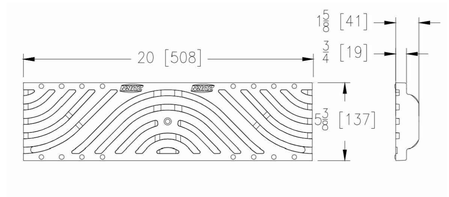
2 181 **SIDEWALK FLUME**
SCALE: NTS



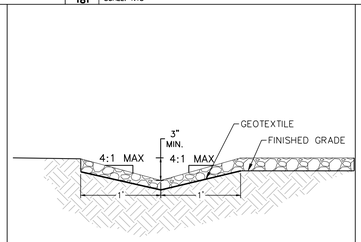
3 181 **HEAD WALL**
SCALE: NTS



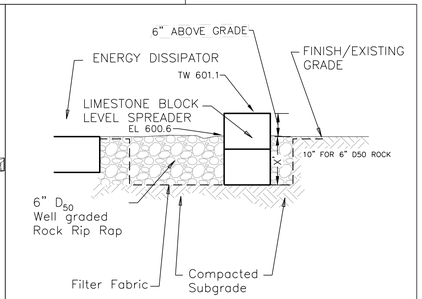
4 181 **TRENCH DRAIN**
SCALE: NTS



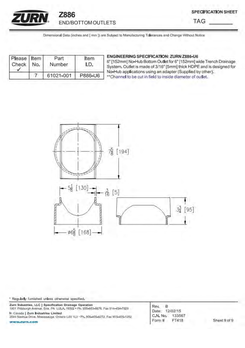
5 181 **DRAINAGE COVER**
SCALE: NTS



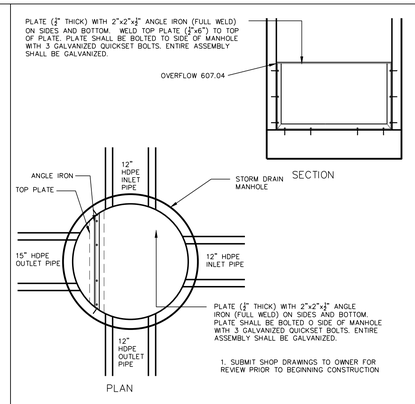
6 181 **ROCK TRICKLE CHANNEL DETAIL**
N.T.S.



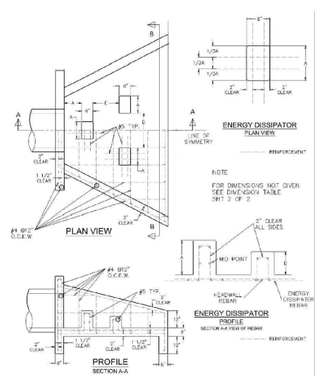
9 181 **ROCK APRON AND LEVEL SPREADER**
n.t.s.



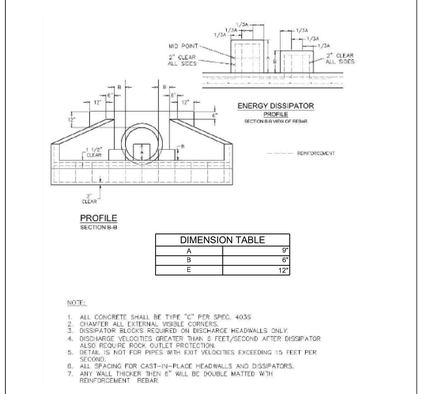
7 181 **U6-BOTTOM OUTLET**
SCALE: NTS



8 181 **TYPICAL WEIR PLATE DETAIL**
n.t.s.



10 181 **ENERGY DISSIPATOR 1 OF 2**
n.t.s.



11 181 **ENERGY DISSIPATOR 2 OF 2**
n.t.s.

12/10/2020
STATE OF TEXAS
MATTHEW A. RECTOR SR.
122861
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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
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SITE DETAILS

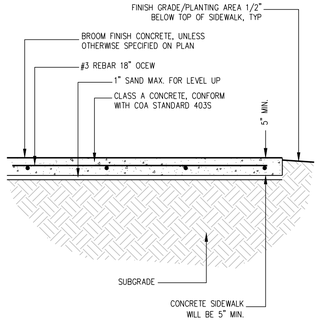
Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

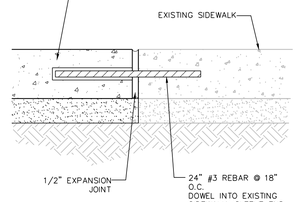
181

5 OF 26

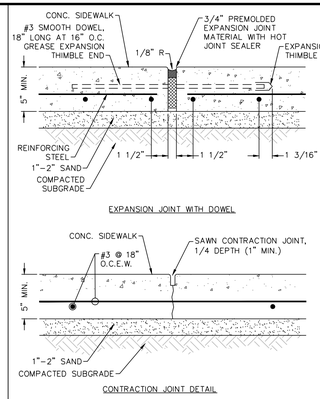
File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\181 Site Details.dwg 22x34



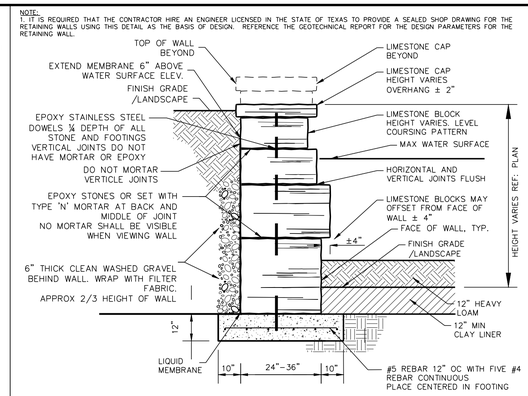
1 191 **CONCRETE SIDEWALK** SCALE: NTS



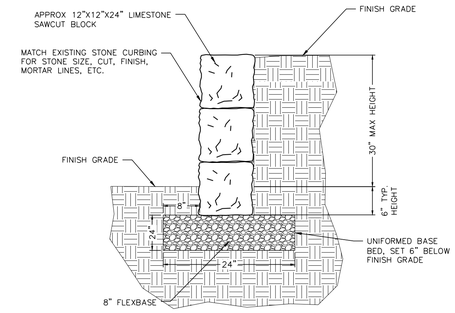
2 191 **NEW SIDEWALK CONNECTION AT EXISTING SIDEWALK** SCALE: NTS



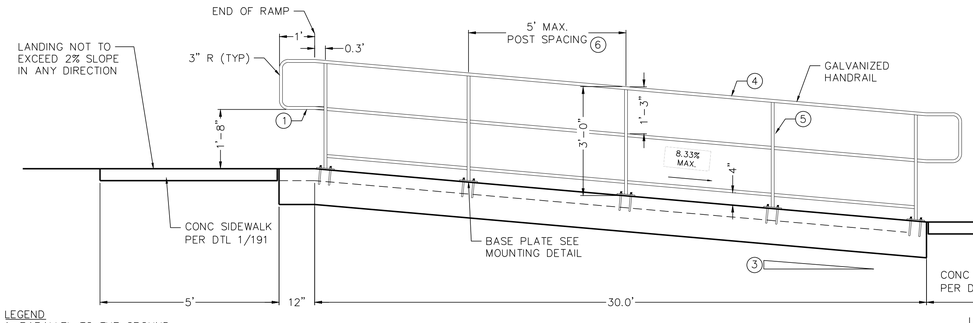
3 191 **SIDEWALK JOINT** SCALE: NTS

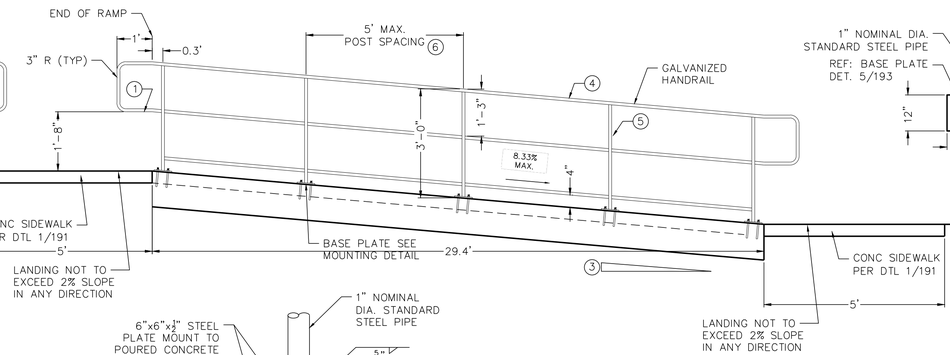


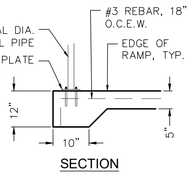
4 191 **LIMESTONE LANDSCAPE WALL** SCALE: NTS



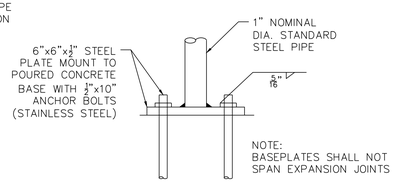
5 191 **MORTARED STONE WALL** SCALE: NTS







SECTION



BASE PLATE DETAIL

LEGEND

1. PARALLEL TO THE GROUND.
2. SHOP SPLICE IS PERMITTED WITH MINIMUM 85 PERCENT PENETRATION. THE WELD MAY BE SQUARE GROOVE OR SINGLE VEE GROOVE. GRIND SMOOTH.
3. SEE GRADING PLAN FOR RAMP SLOPE. MAXIMUM RAMP SLOPE WILL NOT EXCEED 8.3 PERCENT.
4. 1" DIA EXTRA HEAVY PIPE (1.315" O.D. , 0.179" WALL THICKNESS). PARALLEL TO RAMP/ SIDEWALK. PROVIDE HOLES AS NEEDED IN 1" DIA PIPE FOR GALVANIZING DRAINAGE AND VENTING.
5. 1" DIA STANDARD PIPE (1.315" O.D. , 0.179" WALL THICKNESS). PLUMB ALL POSTS. SEE POST MOUNT DETAIL FOR CRIMPING AND TRIMMING POST TO FIT DIA OF TOP RAIL. PROVIDE HOLES AS NEEDED IN POST FOR GALVANIZING DRAINAGE AND VENTING.
6. CENTER LINE ⅝ DIA ROUND BAR EQ SPACES AT 4 ½ " MAX. PLUMB ALL PICKETS.

6 191 **ADA RAMP WITH HANDRAIL** SCALE: NTS

REGISTERED LANDSCAPE ARCHITECT DAVID J. CAZARES 1871 STATE OF TEXAS 12/7/2020

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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
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SITE DETAILS

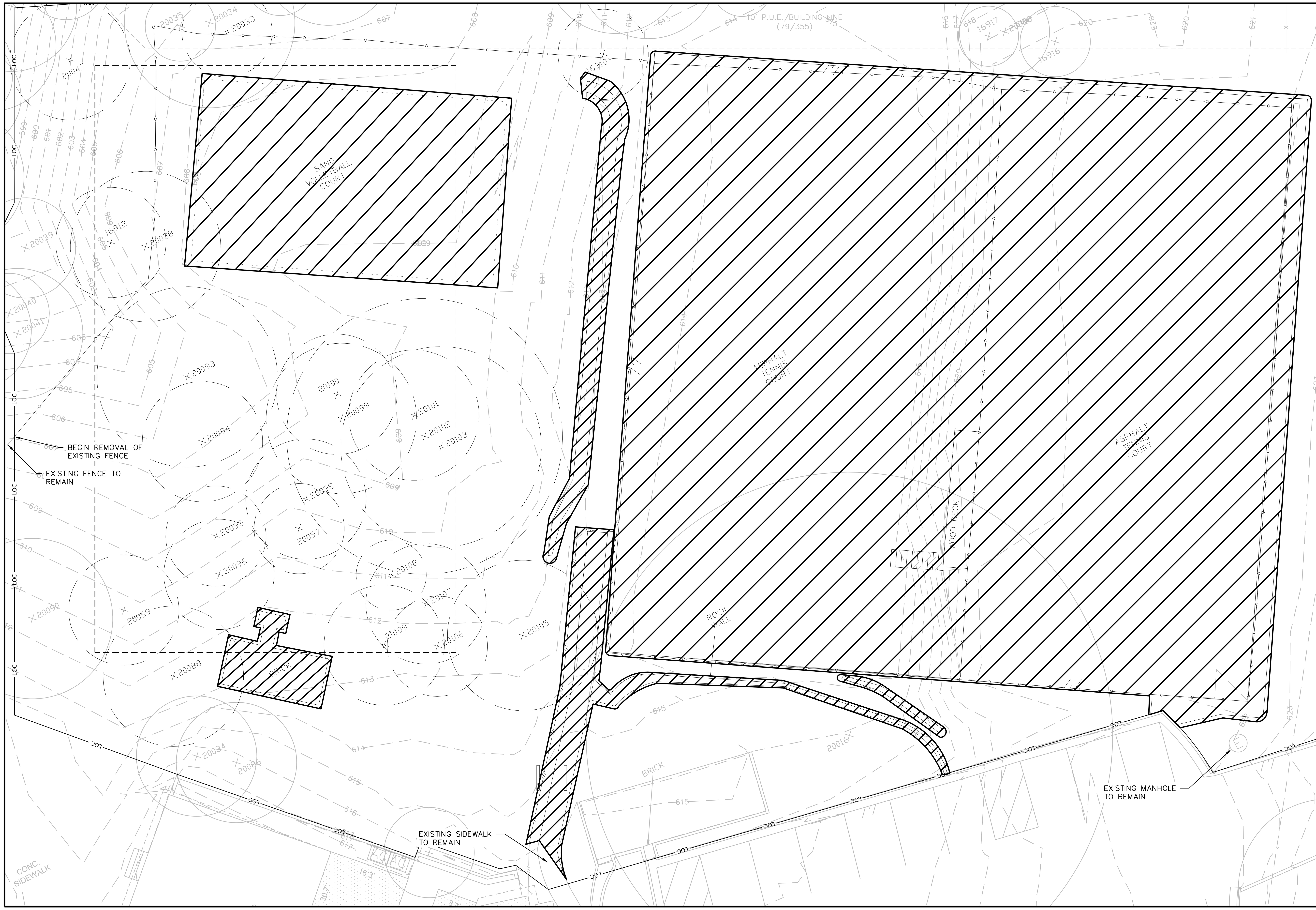
Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

191

6 OF 26

File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\191 Site Details.dwg 22x34



1" = 10'-0"
ORIGINAL IS ONE INCH
SCALE

DEMO LEGEND

- EXIST. IMPROVEMENTS (TO BE REMOVED)
- EXISTING FENCE (TO BE REMOVED)
- EXIST. TREE (TO BE REMOVED) — 0000

NOTES:
1. CONTRACTOR TO VERIFY CLEARANCE OF OVERHEAD LINES. MINIMUM MUST BE 14 FEET. IF NOT, CONTRACTOR TO CONTACT UTILITY TO HAVE RAISED.
2. DEMOLITION WASTE – COORDINATE WITH AMANDA HOWE, 512-327-6373.
3. SALVAGE – COORDINATE WITH AMANDA HOWE, 512-327-6373.
4. ALL TREES WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE PROTECTED UNLESS OTHERWISE NOTED.
5. ALL SIDEWALKS, CURBS, DRIVEWAYS, UTILITY APPURTENANCES, ETC. SHALL BE PROTECTED FROM DAMAGE OR RESTORED TO ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE UNLESS SPECIFICALLY INDICATED TO BE REMOVED.
6. CONTRACTOR IS RESPONSIBLE FOR SECURITY OF SITE DURING CONSTRUCTION.
7. KNOWN EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND DEPICTED USING RECORD DOCUMENTS. CONTRACTOR TO VERIFY LOCATION IN FIELD BEFORE STARTING CONSTRUCTION.

TREE REMOVAL LIST

TREE TAG	TREE TYPE	SIZE (INCHES)	REASON FOR REMOVAL/MITIGATION
16910	Chinaberry	9.00	Invasive
16912	Ligustrum	11.00	Invasive
20033	Chinaberry	9.00	Invasive
20038	Chinaberry	15.00	Invasive
20047	Live Oak	12.00	Construction
20088	Live Oak	14.00	Construction
20089	Live Oak	11.00	Construction
20093	Live Oak	18.00	Construction
20094	Live Oak	12.00	Construction
20095	Live Oak	10.00	Construction
20096	Live Oak	11.00	Construction
20097	Live Oak	9.00	Construction
20098	Live Oak	12.00	Construction
20099	Live Oak	15.00	Construction
20100	Live Oak	12.00	Construction
20101	Live Oak	13.00	Construction
20102	Live Oak	27.50	Construction
20103	Live Oak	20.00	Construction
20105	Cedar Elm	15.00	Construction
20106	Live Oak	10.00	Construction
20107	Live Oak	12.00	Construction
20108	Live Oak	7.00	Construction
20109	Live Oak	12.00	Construction
	TOTAL INCHES REMOVED	**296.50**	

12/10/2020

STATE OF TEXAS
MATTHEW A. RECTOR SR.
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PROFESSIONAL ENGINEER

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NO.	DATE	DESCRIPTION	BY

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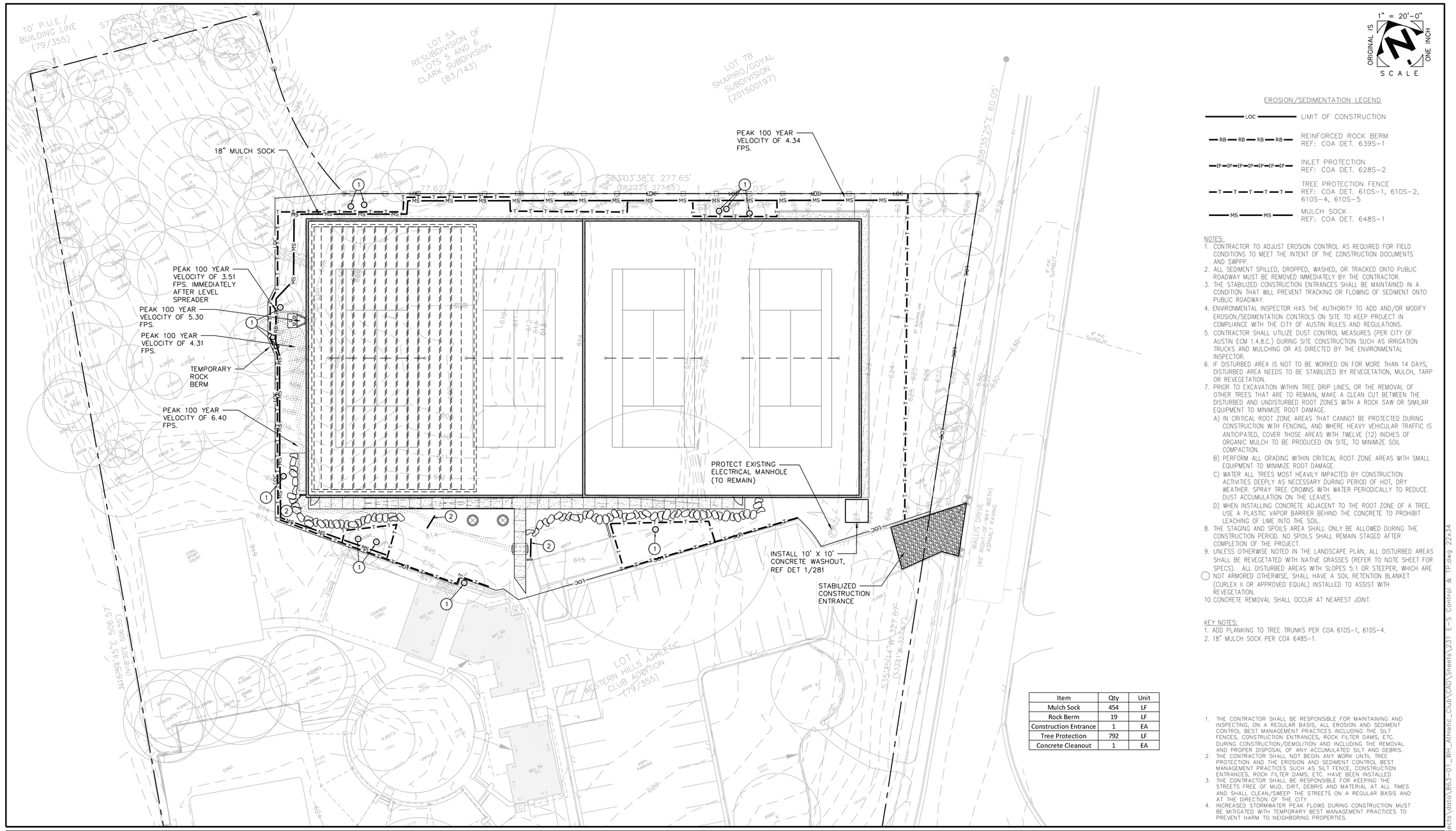
DEMOLITION PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

201



1" = 20'-0"

ORIGINAL IS ONE INCH

SCALE

EROSION/SEDIMENTATION LEGEND

LOC	LIMIT OF CONSTRUCTION
RB RB RB RB	REINFORCED ROCK BERM REF: COA DET. 639S-1
IP IP IP IP IP IP IP IP	INLET PROTECTION REF: COA DET. 628S-2
T T T T T	TREE PROTECTION FENCE REF: COA DET. 610S-1, 610S-2, 610S-4, 610S-5
MS MS	MULCH SOCK REF: COA DET. 648S-1

NOTES:

1. CONTRACTOR TO ADJUST EROSION CONTROL AS REQUIRED FOR FIELD CONDITIONS TO MEET THE INTENT OF THE CONSTRUCTION DOCUMENTS AND SWPPP.
2. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
3. THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY.
4. ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS.
5. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES (PER CITY OF AUSTIN ECM 1.4.8.C.) DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
6. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION.
7. PRIOR TO EXCAVATION WITHIN TREE DRIP LINES, OR THE REMOVAL OF OTHER TREES THAT ARE TO REMAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.
   A) IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING, AND WHERE HEAVY VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH TWELVE (12) INCHES OF ORGANIC MULCH TO BE PRODUCED ON SITE, TO MINIMIZE SOIL COMPACTION.
   B) PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE.
   C) WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY AS NECESSARY DURING PERIOD OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
   D) WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.
8. THE STAGING AND SPOILS AREA SHALL ONLY BE ALLOWED DURING THE CONSTRUCTION PERIOD. NO SPOILS SHALL REMAIN STAGED AFTER COMPLETION OF THE PROJECT.
9. UNLESS OTHERWISE NOTED IN THE LANDSCAPE PLAN, ALL DISTURBED AREAS SHALL BE REVEGETATED WITH NATIVE GRASSES (REFER TO NOTE SHEET FOR SPECS). ALL DISTURBED AREAS WITH SLOPES 5:1 OR STEEPER, WHICH ARE NOT ARMORED OTHERWISE, SHALL HAVE A SOIL RETENTION BLANKET (CURLEX II OR APPROVED EQUAL) INSTALLED TO ASSIST WITH REVEGETATION.
10. CONCRETE REMOVAL SHALL OCCUR AT NEAREST JOINT.

KEY NOTES:

1. ADD PLANKING TO TREE TRUNKS PER COA 610S-1, 610S-4.
2. 18" MULCH SOCK PER COA 648S-1.

Item	Qty	Unit
Mulch Sock	454	LF
Rock Berm	19	LF
Construction Entrance	1	EA
Tree Protection	792	LF
Concrete Cleanout	1	EA

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND INSPECTING, ON A REGULAR BASIS, ALL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES INCLUDING THE SILT FENCES, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC. DURING CONSTRUCTION/DEMOLITION AND INCLUDING THE REMOVAL AND PROPER DISPOSAL OF ANY ACCUMULATED SILT AND DEBRIS.
2. THE CONTRACTOR SHALL NOT BEGIN ANY WORK UNTIL TREE PROTECTION AND THE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES SUCH AS SILT FENCE, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC. HAVE BEEN INSTALLED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE STREETS FREE OF MUD, DIRT, DEBRIS AND MATERIAL AT ALL TIMES AND SHALL CLEAN/SWEEP THE STREETS ON A REGULAR BASIS AND AT THE DIRECTION OF THE CITY.
4. INCREASED STORMWATER PEAK FLOWS DURING CONSTRUCTION MUST BE MITIGATED WITH TEMPORARY BEST MANAGEMENT PRACTICES TO PREVENT HARM TO NEIGHBORING PROPERTIES.

12/10/2020

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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

231

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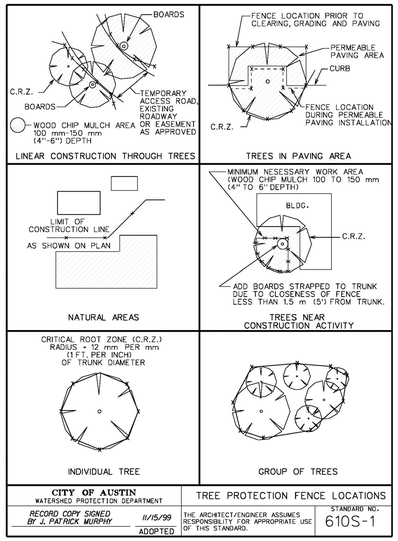
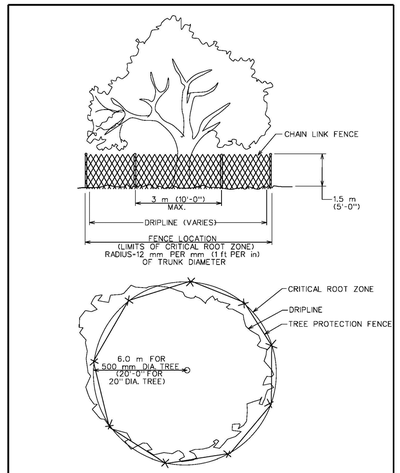
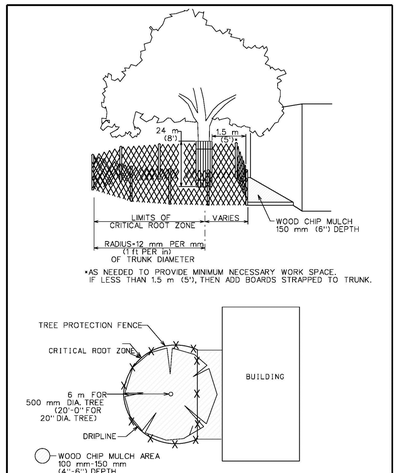


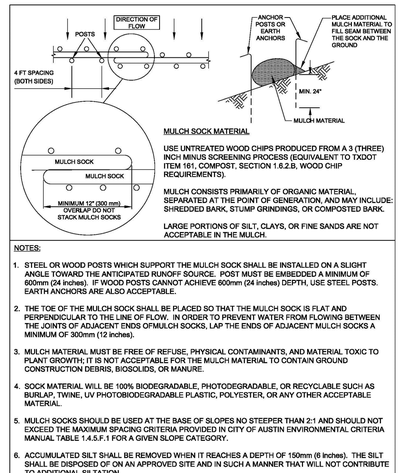
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TREE PROTECTION FENCE LOCATIONS	
RECORD COPY SIGNED BY J. PATRICK MURPHY	11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-1



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TREE PROPTECTION FENCE TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY	11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-2



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TREE PROTECTION FENCE MODIFIED TYPE A - CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY	11/15/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S-4



MULCH SOCK MATERIAL

USE UNTREATED WOOD CHIPS PRODUCED FROM A 3 (THREE) INCH MINUS SCREENING PROCESS (EQUIVALENT TO TXDOT ITEM 161, COMPOST, SECTION 1.6.2.B, WOOD CHIP REQUIREMENTS).

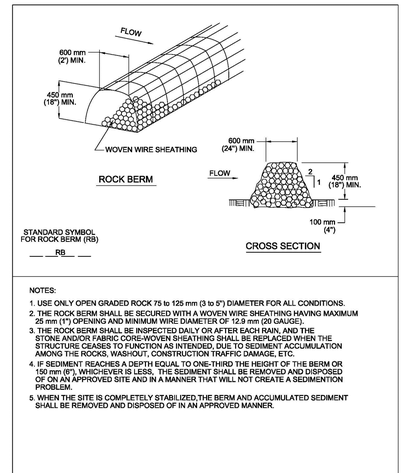
MULCH CONSISTS PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, OR COMPOSTED BARK.

LARGE PORTIONS OF SILT, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MULCH.

NOTES:

1. STEEL OR WOOD POSTS WHICH SUPPORT THE MULCH SOCK SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 600mm (24 inches). IF WOOD POSTS CANNOT ACHIEVE 600mm (24 inches) DEPTH, USE STEEL POSTS. EARTH ANCHORS ARE ALSO ACCEPTABLE.
2. THE TOE OF THE MULCH SOCK SHALL BE PLACED SO THAT THE MULCH SOCK IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. IN ORDER TO PREVENT WATER FROM FLOWING BETWEEN THE JOINTS OF ADJACENT ENDS OFMULCH SOCKS, LAP THE ENDS OF ADJACENT MULCH SOCKS A MINIMUM OF 300mm (12 inches).
3. MULCH MATERIAL MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH; IT IS NOT ACCEPTABLE FOR THE MULCH MATERIAL TO CONTAIN GROUND CONSTRUCTION DEBRIS, BIOSOLIDS, OR MANURE.
4. SOCK MATERIAL WILL BE 100% BIODEGRADABLE, PHOTODEGRADABLE, OR RECYCLABLE SUCH AS BURLAP, TWINE, UV PHOTOBIODEGRADABLE PLASTIC, POLYESTER, OR ANY OTHER ACCEPTABLE MATERIAL.
5. MULCH SOCKS SHOULD BE USED AT THE BASE OF SLOPES NO STEEPER THAN 2:1 AND SHOULD NOT EXCEED THE MAXIMUM SPACING CRITERIA PROVIDED IN CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL TABLE 1.4.5.F.1 FOR A GIVEN SLOPE CATEGORY.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		MULCH SOCK	
RECORD COPY SIGNED BY MORGAN BYARS	08/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 648S-1



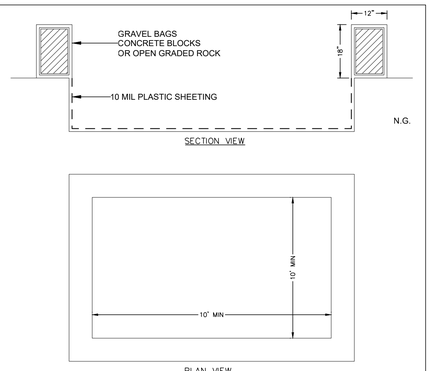
STANDARD SYMBOL FOR ROCK BERM (RB)

RB

NOTES:

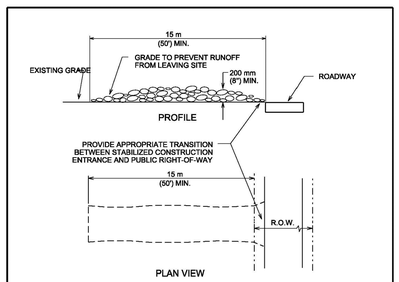
1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		ROCK BERM	
RECORD COPY SIGNED BY MORGAN BYARS	8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



1. THE EXCAVATION FOR THE CONCRETE TRUCK WASHOUT SHALL BE A MINIMUM OF 10 FEET WIDE AND OF SUFFICIENT LENGTH AND DEPTH TO ACCOMMODATE 7 GALLONS OF WASHOUT WATER AND CONCRETE PER TRUCK PER DAY AND/OR 50 GALLONS OF WASHOUT WATER AND CONCRETE PER PUMP TRUCK PER DAY.
2. IN THE EVENT THAT THE CONCRETE TRUCK WASHOUT IS CONSTRUCTED ABOVE GROUND, IT SHALL BE 10 FEET WIDE AND 10 FEET LONG WITH THE SAME REQUIREMENTS FOR CONTAINMENT AS DESCRIBED IN ITEM 1.
3. THE CONTAINMENT AREA SHALL BE LINED WITH 10 MIL PLASTIC SHEETING WITHOUT HOLES OR TEARS. WHERE THERE ARE SEAMS, THESE SHALL BE SECURED ACCORDING TO MANUFACTURERS DIRECTIONS.
4. THE BERM CONSISTING OF GRAVEL BAGS, CONCRETE BLOCKS OR OPEN GRADED ROCK SHALL BE NO LESS THAN 18 INCHES HIGH AND NO LESS THAN 12 INCHES WIDE.
5. THE PLASTIC SHEETING SHALL BE OF SUFFICIENT SIZE SO THAT IT WILL OVERLAP THE TOP OF THE CONTAINMENT AREA AND BE WRAPPED AROUND THE GRAVEL BAGS, CONCRETE BLOCKS OR OPEN GRADED ROCK AT LEAST 2 TIMES.
6. THE GRAVEL BAGS OR CONCRETE BLOCKS SHALL BE PLACED ABUTTING EACH OTHER TO FORM A CONTINUOUS BERM AROUND THE OUTER PERIMETER OF THE CONTAINMENT AREA.
7. THE WASHOUT MATERIAL IN TEH CONTAINMENT AREA SHALL NOT EXCEED 50% OF CAPACITY AT ANY ONE TIME.
8. SOLIDS SHALL BE REMOVED FROM CONTAINMENT AREA AND DISPOSED OF PROPERLY, ANY DAMAGE TO THE PLASTIC SHEETING SHALL BE REPAIRED OR SHEETING REPLACED BEFORE THE NEXT USE.

1	10' x 10' CONCRETE WASHOUT
281	SCALE: NTS



NOTES:
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND 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 A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY	5/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S-1

12/10/2020

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TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

EROSION / SEDIMENTATION CONTROL & TREE PROTECTION DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

281

9 OF 26

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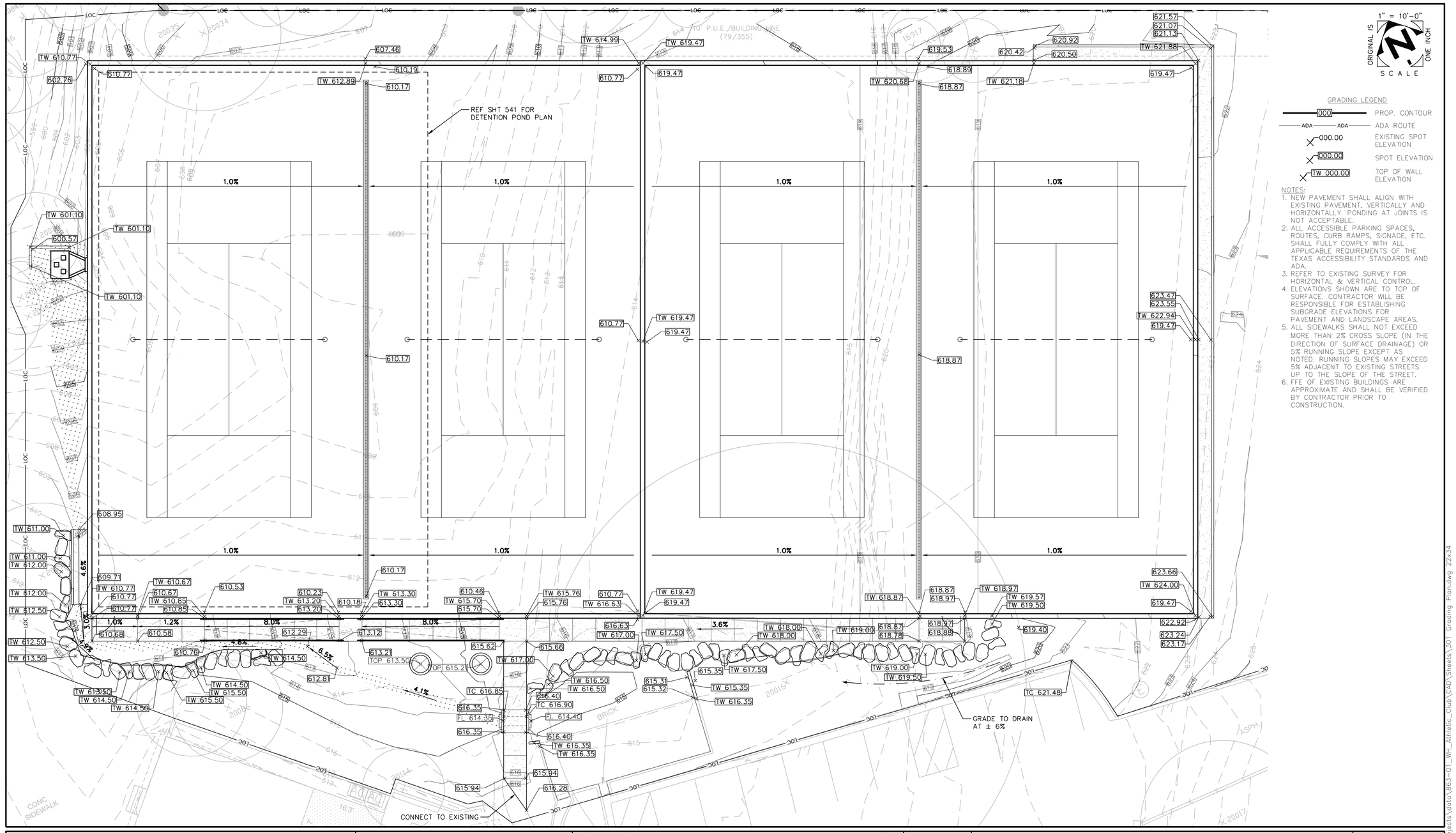

1" = 10'-0"
ORIGINAL IS ONE INCH
SCALE

GRADING LEGEND

- PROP. CONTOUR
- ADA ROUTE
- EXISTING SPOT ELEVATION
- SPOT ELEVATION
- TOP OF WALL ELEVATION

NOTES:

1. NEW PAVEMENT SHALL ALIGN WITH EXISTING PAVEMENT, VERTICALLY AND HORIZONTALLY. PONDING AT JOINTS IS NOT ACCEPTABLE.
2. ALL ACCESSIBLE PARKING SPACES, ROUTES, CURB RAMPS, SIGNAGE, ETC. SHALL FULLY COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE TEXAS ACCESSIBILITY STANDARDS AND ADA.
3. REFER TO EXISTING SURVEY FOR HORIZONTAL & VERTICAL CONTROL.
4. ELEVATIONS SHOWN ARE TO TOP OF SURFACE. CONTRACTOR WILL BE RESPONSIBLE FOR ESTABLISHING SUBGRADE ELEVATIONS FOR PAVEMENT AND LANDSCAPE AREAS.
5. ALL SIDEWALKS SHALL NOT EXCEED MORE THAN 2% CROSS SLOPE (IN THE DIRECTION OF SURFACE DRAINAGE) OR 5% RUNNING SLOPE EXCEPT AS NOTED. RUNNING SLOPES MAY EXCEED 5% ADJACENT TO EXISTING STREETS UP TO THE SLOPE OF THE STREET.
6. FFE OF EXISTING BUILDINGS ARE APPROXIMATE AND SHALL BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.

REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
1871
STATE OF TEXAS
11/01/2020

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TBAE FIRM REGISTRATION NO.: 1452
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TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 — 1"
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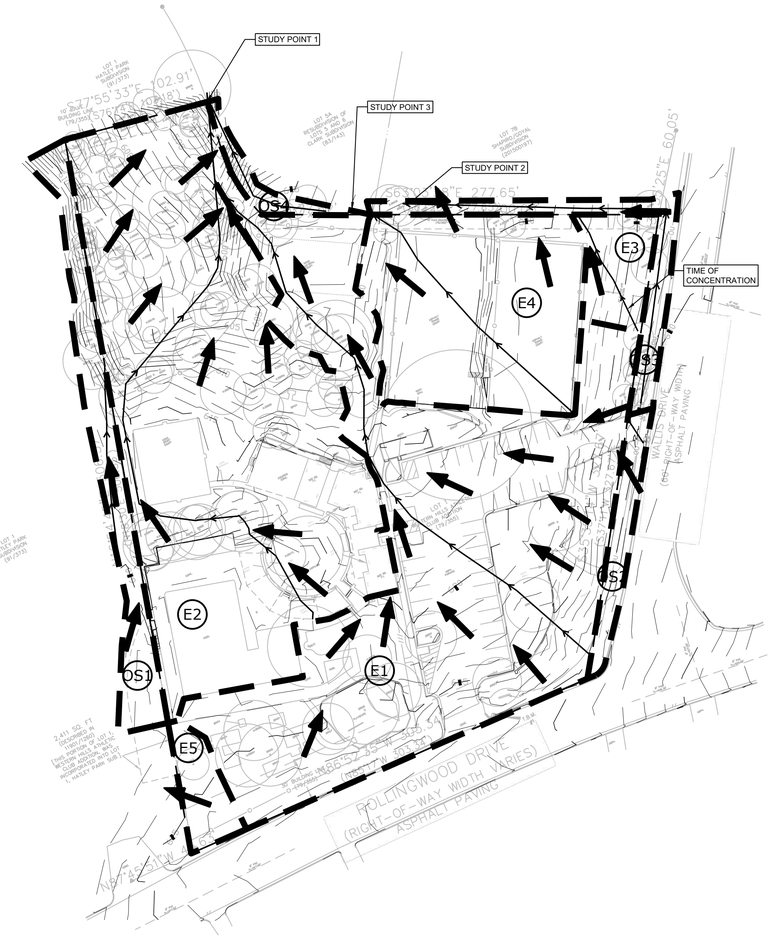
GRADING PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

301

10 OF 26



TIME OF CONCENTRATION CALCULATIONS

E1

Sheet Flow	Start Station	0.00 ft
	End Station	85.00 ft
	Length (L)	85 ft
	Manning's n	0.14
	2-year 24-hour rain	4.14 inches
	Start Elev	629.88 ft
	End Elev	620.73 ft
	Slope (S)	0.108 ft/ft
	T_t	4 minutes
Shallow Concentrated Flow	Start Station	85.00 ft
	End Station	500.45 ft
	Length	415 ft
	Start Elev	620.73 ft
	End Elev	586.03 ft
	Slope (S)	0.084 ft/ft
	Surface	UnPaved
	T_t	1 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	0.25 sf
	Wetted Perimeter (P)	4.71 ft
	Hydraulic Radius (r)	0.053078556 ft
	Start Elev	586.03 ft
	End Elev	586.05 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	0.00 ft
	T_t	0.00 minutes

Time of Concentration	5
Lag Time	3

E2

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.18
	2-year 24-hour rain	4.14 inches
	Start Elev	623.981 ft
	End Elev	617.64 ft
	Slope (S)	0.063 ft/ft
	T_t	6 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	476.00 ft
	Length	376 ft
	Start Elev	617.64 ft
	End Elev	586.03 ft
	Slope (S)	0.084 ft/ft
	Surface	Paved
	T_t	1.1 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	586.03 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	0.00 ft
	T_t	0.00 minutes

Time of Concentration	7
Lag Time	4

E3

Sheet Flow	Start Station	0.00 ft
	End Station	93.15 ft
	Length (L)	93.15 ft
	Manning's n	0.24
	2-year 24-hour rain	4.14 inches
	Start Elev	627.623 ft
	End Elev	621.31 ft
	Slope (S)	0.068 ft/ft
	T_t	7 minutes
Shallow Concentrated Flow	Start Station	93.15 ft
	End Station	93.15 ft
	Length	0 ft
	Start Elev	621.31 ft
	End Elev	621.31 ft
	Slope (S)	0.000 ft/ft
	Surface	Unpaved
	T_t	0 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	621.31 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	7
Lag Time	4

E4

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.06
	2-year 24-hour rain	4.14 inches
	Start Elev	622.242 ft
	End Elev	614.57 ft
	Slope (S)	0.077 ft/ft
	T_t	2 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	199.26 ft
	Length	99 ft
	Start Elev	614.57 ft
	End Elev	609.27 ft
	Slope (S)	0.053 ft/ft
	Surface	Unpaved
	T_t	0.4 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	609.274 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	5
Lag Time	3

E5

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.06
	2-year 24-hour rain	4.14 inches
	Start Elev	620.035 ft
	End Elev	617.05 ft
	Slope (S)	0.030 ft/ft
	T_t	4 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	141.88 ft
	Length	42 ft
	Start Elev	617.02 ft
	End Elev	612.70 ft
	Slope (S)	0.103 ft/ft
	Surface	Unpaved
	T_t	0 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	612.698 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	5
Lag Time	3

OS1

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.24
	2-year 24-hour rain	4.14 inches
	Start Elev	620.035 ft
	End Elev	617.05 ft
	Slope (S)	0.030 ft/ft
	T_t	11 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	141.88 ft
	Length	42 ft
	Start Elev	617.02 ft
	End Elev	612.70 ft
	Slope (S)	0.103 ft/ft
	Surface	Unpaved
	T_t	0 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	612.698 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	11
Lag Time	6

OS2

Sheet Flow	Start Station	0.00 ft
	End Station	19.90 ft
	Length (L)	19.9 ft
	Manning's n	0.13
	2-year 24-hour rain	4.14 inches
	Start Elev	630.014 ft
	End Elev	628.55 ft
	Slope (S)	0.074 ft/ft
	T_t	1 minutes
Shallow Concentrated Flow	Start Station	19.90 ft
	End Station	19.90 ft
	Length	0 ft
	Start Elev	628.55 ft
	End Elev	628.55 ft
	Slope (S)	0.000 ft/ft
	Surface	Unpaved
	T_t	0 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	628.55 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	5
Lag Time	3

OS3

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.24
	2-year 24-hour rain	4.14 inches
	Start Elev	629.896 ft
	End Elev	622.34 ft
	Slope (S)	0.076 ft/ft
	T_t	7 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	309.16 ft
	Length	209 ft
	Start Elev	622.34 ft
	End Elev	611.19 ft
	Slope (S)	0.053 ft/ft
	Surface	Unpaved
	T_t	1 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	611.19 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	8
Lag Time	5

OS4

Sheet Flow	Start Station	0.00 ft
	End Station	100.00 ft
	Length (L)	100 ft
	Manning's n	0.24
	2-year 24-hour rain	4.14 inches
	Start Elev	606.97 ft
	End Elev	590.71 ft
	Slope (S)	0.163 ft/ft
	T_t	5 minutes
Shallow Concentrated Flow	Start Station	100.00 ft
	End Station	126.65 ft
	Length	27 ft
	Start Elev	590.71 ft
	End Elev	586.72 ft
	Slope (S)	0.150 ft/ft
	Surface	Unpaved
	T_t	0 minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91 sf
	Wetted Perimeter (P)	7.85 ft
	Hydraulic Radius (r)	0.625 ft
	Start Elev	586.717 ft
	End Elev	586.362 ft
	Slope (S)	0.00 ft/ft
	Manning's n	0.013
	Velocity (V)	0.00 fps
	Start Station	ft
	End Station	ft
	Length (L)	ft
	T_t	0.00 minutes

Time of Concentration	5
Lag Time	3

MANNING'S N CALCULATIONS

Surface Desription		E1		E2		E3		E4		E5		OS1		OS2		OS3		OS4	
Concrete (rough or smooth finish)	0.015	25572.10	383.58	15015.40	225.23	0.00	0.00	15948.58	239.23	0.00	0.00	0.00	0.00	964.23	14.46	0.00	0.00	0.00	0.00
Asphalt	0.016		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Fallow (no residue)	0.050		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Cultivated Residue Cover ≤ 20%	0.060		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Cultivated Residue Cover > 20%	0.170		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Short prairie grass	0.150		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Dense Grass	0.240	33159.01	7958.16	40030.48	9607.32	3671.47	881.15	3945.55	946.93	2609.72	626.33	7503.67	1800.88	1076.30	258.31	3669.45	880.67	1430.95	343.43
Natural Range	0.130		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Light Underbrush	0.400		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Dense Underbrush	0.800		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Mannings Weighted N Value			0.14		0.18		0.24		0.06		0.24		0.24		0.13		0.24		0.24

CURVE NUMBER CALCULATIONS

COVER TYPE	HYDROLOGIC CONDITION	CURVE NUMBERS FOR HYDROLOGIC SOIL GROUP				DRAINAGE AREA								COMPOSITE CURVE NUMBER							
		A	B	C	D	E1	E2	E3	E4	E5	OS1	OS2	OS3	OS4	E1	E2	E3	E4	E5	OS1	OS2	OS3	OS4
Fully developed urban areas (vegetation established)															0	0	0			0	0	0	0
Open space (lawns, parks, golf courses, cemeteries, etc.)															0	0	0			0	0	0	0
Poor condition (grass cover 50%)		68	79	86	89										0	0	0			0	0	0	0
Fair condition (grass cover 50% to 75%)		49	69	79	84										0	0	0			0	0	0	0
Good condition (grass cover 75%)		39	61	74	80	33159.01	40030.48	3671.47	3945.55	2609.72	7503.67	1076.30	3669.45	1430.95	2652720.8	3202438.4	293717.6	315644	208777.6	600293.6	86104	293556	114476
Impervious areas:															0	0	0			0	0	0	0
Paved parking lots, roofs, driveways, etc. (excluding right of way)		98	98	98	98	25572.10	15015.40	0.00	15948.58	0.00	0.00	964.23	0.00	0.00	2506065.8	1471509.2	0	1562960.84	0	0	94494.54	0	0
Streets and roads:															0	0	0			0	0	0	0
Paved; curbs and storm drains (excluding right of way)		98	98	98	98										0	0	0			0	0	0	0
Paved; open ditches (including right of way)		83	89	92	93										0	0	0			0	0	0	0
Gravel (including right of way)		76	85	89	91										0	0	0			0	0	0	0
Dirt (including right of way)		72	82	87	89										0	0	0			0	0	0	0
Developing urban area															0	0	0			0	0	0	0
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94										0	0	0			0	0	0	0
Agricultural lands															0	0	0			0	0	0	0
Grassland, or range-continuous forage for grazing	Poor	68	79	86	89										0	0	0			0	0	0	0
	Fair	49	69	79	84										0	0	0			0	0	0	0
	Good	39	61	74	80										0	0	0			0	0	0	0
Meadow-continuous grass, protected from grazing and generally mowed for hay		30	58	71	78										0	0	0			0	0	0	0
Brush - brush-weed-grass mixture with brush the major element	Poor	48	67	77	83										0	0	0			0	0	0	0
	Fair	35	56	70	77										0	0	0			0	0	0	0
	Good	30	48	65	73										0	0	0			0	0	0	0
Woods - grass combination (orchard or tree farm)	Poor	57	73	82	86										0	0	0			0	0	0	0
	Fair	43	65	76	79										0	0	0			0	0	0	0
	Good	32	58	72	79										0	0	0			0	0	0	0
Woods - grass combination (orchard or tree farm)	Poor	45	66	77	83										0	0	0			0	0	0	0
	Fair	36	60	73	79										0	0	0			0	0	0	0
	Good	30	55	70	77										0	0	0			0	0	0	0
Farmstead - buildings, lanes, driveways and surrounding lots		59	74	82	86										0	0	0			0	0	0	0
															0	0	0			0	0	0	0
					SF	58731.11	55045.88	3671.47	19894.13	2609.72	7503.67	2040.53	3669.45	1430.95	88	85	80	94	80	80	89	80	80
					AC	1.35	1.26368	0.084	0.4567	0.05991	0.17	0.05	0.08	0.03									
					SM	0.00211	0.00197	0.00013	0.00071	0.00009	0.00027	0.00007	0.00013	0.00005									
					% Imp	44%	27%	0%	80%	0%	0%	47%	0%	0%									

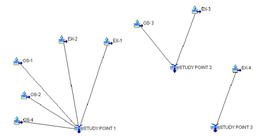
1" = 50'-0"

ORIGINAL IS ONE INCH SCALE

DRAINAGE AREA MAP LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- E1 DRAINAGE AREA DESIGNATION
- FLOW PATTERNS

HEC-HMS SCHEMATIC



12/10/2020

STATE OF TEXAS
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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

EXISTING DRAINAGE AREA MAP

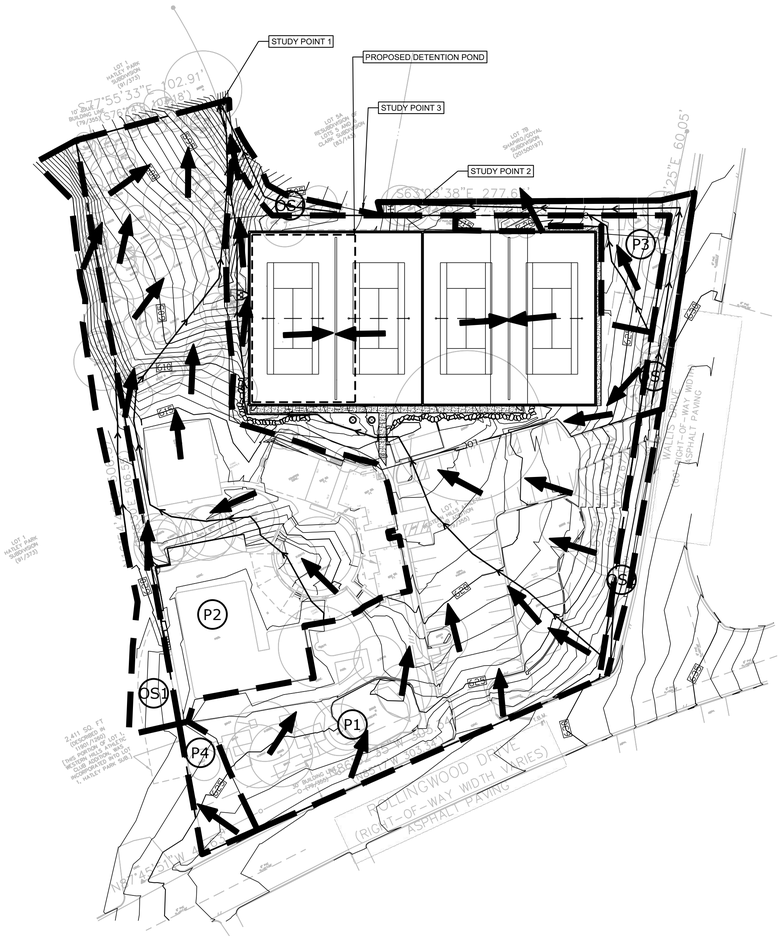
Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

501

11 OF 26

Files: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\501 Existing DAM.dwg 22x34



1" = 50'-0"

ORIGINAL IS ONE INCH

SCALE

DRAINAGE AREA MAP LEGEND

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION PATH
- (E1) DRAINAGE AREA DESIGNATION
- FLOW PATTERNS

NOTES:

1. P1 FLOWS ACROSS THE SURFACE TO EXISTING BIORETENTION BASIN THAT WAS DESIGNED TO TREAT .07 AC OF IMPERVIOUS COVER
2. P2 FLOWS VIA STORM DRAIN TO THE PROPOSED JELLYFISH TO TREAT .30 AC OF IMPERVIOUS COVER
3. FOR DETAILED JELLYFISH CALCULATIONS SEE SHEET 548

12/10/2020

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NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

PROPOSED DRAINAGE AREA MAP

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

503

12 OF 26

File: \\mwmdata\MWMProjects\Data\863-01_WH_Athletic_Club\CAD\Sheets\503 Proposed DAM.dwg 22x34

1" = 50'-0"
ORIGINAL IS ONE INCH
SCALE

MANNING'S N CALCULATIONS

Surface Desription			P1		P2		P3		P4		OS1		OS2		OS3		OS4	
Concrete (rough or smooth finish)	0.015		54804.33	822.06	14802.17	222.03	0.00	0.00	0.00	0.00	0.00	0.00	967.68	14.52	0.00	0.00	0.00	0.00
Asphalt	0.016			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Fallow (no residue)	0.050			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Cultivated Residue Cover ≤ 20%	0.060			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Cultivated Residue Cover > 20%	0.170			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Short prairie grass	0.150			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Dense Grass	0.240		28834.47	6920.27	34420.98	8261.04	3671.47	881.15	2609.72	626.33	7521.53	1805.17	1044.43	250.66	3669.45	880.67	1422.36	341.37
Natural Range	0.130			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Light Underbrush	0.400			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Dense Underbrush	0.800			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Mannings Weighted N Value				0.09		0.17		0.24		0.24		0.24		0.13		0.24		0.24

CURVE NUMBER CALCULATIONS

	HYDROLOGIC	RS FOR HYDROLOG				DRAINAGE AREA								COMPOSITE CURVE NUMBER							
COVER TYPE	CONDITION	A	B	C	D	P1	P2	P3	P4	OS1	OS2	OS3	OS4	P1	P2	P3	P4	OS1	OS2	OS3	OS4
Fully developed urban areas (vegetation established)														0	0	0					0
Open space (lawns, parks, golf courses, cemeteries, etc.)														0	0	0					0
Poor condition (grass cover 50%)		68	79	86	89									0	0	0					0
Fair condition (grass cover 50% to 75%)		49	69	79	84									0	0	0					0
Good condition (grass cover 75%)		39	61	74	80	28834.47	34420.98	3671.47	2609.72	7521.53	1044.43	3669.45	1422.36	2306757.6	2753678.4	293717.6	208777.6	601722.4	83554.4	293556	113788.8
Impervious areas:									0.00							0					
Paved parking lots, roofs, driveways, etc. (excluding right of way)		98	98	98	98	54804.33	14802.17	0.00	0.00	0.00	967.68	0.00	0.00	5370824.34	1450612.66	0	0	0	94832.64	0	0
Streets and roads:														0	0	0					0
Paved; curbs and storm drains (excluding right of way)		98	98	98	98									0	0	0					0
Paved; open ditches (including right of way)		83	89	92	93									0	0	0					0
Gravel (including right of way)		76	85	89	91									0	0	0					0
Dirt (including right of way)		72	82	87	89									0	0	0					0
Developing urban area														0	0	0					0
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94									0	0	0					0
Agricultural lands														0	0	0					0
Grassland, or range-continuous forage for grazing	Poor	68	79	86	89									0	0	0					0
	Fair	49	69	79	84									0	0	0					0
	Good	39	61	74	80									0	0	0					0
Meadow-continuous grass, protected from grazing and generally mowed for hay		30	58	71	78									0	0	0					0
Brush - brush-weed-grass mixture with brush the major element	Poor	48	67	77	83									0	0	0					0
	Fair	35	56	70	77									0	0	0					0
	Good	30	48	65	73									0	0	0					0
Woods - grass combination (orchard or tree farm)	Poor	57	73	82	86									0	0	0					0
	Fair	43	65	76	79									0	0	0					0
	Good	32	58	72	79									0	0	0					0
Woods - grass combination (orchard or tree farm)	Poor	45	66	77	83									0	0	0					0
	Fair	36	60	73	79									0	0	0					0
	Good	30	55	70	77									0	0	0					0
Farmstead - buildings, lanes, driveways and surrounding lots		59	74	82	86									0	0	0					0
																					0
					SF	83638.8	49223.15	3671.47	2609.72	7521.53	2012.11	3669.45	1422.36	92	85	80	80	80	89	80	80
					AC	1.92	1.13	0.08	0.06	0.1727	0.04619	0.08424	0.0327								
					SM	0.00300	0.00177	0.00013	0.00009	0.00027	0.00007	0.00013	0.00005								
					% Imp	66%	30%	0%	0%	0%	48%	0%	0%								

TIME OF CONCENTRATION CALCULATIONS

P1			
Sheet Flow	Start Station	0.00	ft
	End Station	85.00	ft
	Length (L)	85	ft
	Manning's n	0.09	
	2-year 24-hour rain	4.14	inches
	Start Elev	629.86	ft
	End Elev	620.73	ft
	Slope (S)	0.107	ft/ft
	T_t	3	minutes
Shallow Concentrated Flow	Start Station	85.00	ft
	End Station	193.00	ft
	Length	108	ft
	Start Elev	620.74	ft
	End Elev	616.39	ft
	Slope (S)	0.040	ft/ft
	Surface	Paved	
	T_t	0.44	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	1.767145868	sf
	Wetted Perimeter (P)	4.71	ft
	Hydraulic Radius (r)	0.37519	ft
	Start Elev	616.39	ft
	End Elev	586.03	ft
	Slope (S)	0.09	ft/ft
	Manning's n	0.013	
	Velocity (V)	17.71	fps
	Start Station	193.00	ft
	End Station	537.05	ft
	Length (L)	344.05	ft
	T_t	0.32	minutes
	Time of Concentration	5	
	Lag Time	3	

P2			
Sheet Flow	Start Station	0	ft
	End Station	100	ft
	Length (L)	100	ft
	Manning's n	0.17	
	2-year 24-hour rain	4.14	inches
	Start Elev	623.98	ft
	End Elev	617.64	ft
	Slope (S)	0.063	ft/ft
	T_t	6	minutes
Shallow Concentrated Flow	Start Station	100	ft
	End Station	466	ft
	Length	366	ft
	Start Elev	617.64	ft
	End Elev	586.03	ft
	Slope (S)	0.086	ft/ft
	Surface	Unpaved	
	T_t	1	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)		sf
	Wetted Perimeter (P)		ft
	Hydraulic Radius (r)		ft
	Start Elev		ft
	End Elev		ft
	Slope (S)	0.09	ft/ft
	Manning's n		
	Velocity (V)		fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	7	
	Lag Time	4	

P3			
Sheet Flow	Start Station	0.00	ft
	End Station	93.15	ft
	Length (L)	93.15	ft
	Manning's n	0.24	
	2-year 24-hour rain	4.14	inches
	Start Elev	627.623	ft
	End Elev	621.31	ft
	Slope (S)	0.068	ft/ft
	T_t	7	minutes
Shallow Concentrated Flow	Start Station	93.15	ft
	End Station	93.15	ft
	Length	0	ft
	Start Elev	621.31	ft
	End Elev	621.46	ft
	Slope (S)	0.000	ft/ft
	Surface	Unpaved	
	T_t	0	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91	sf
	Wetted Perimeter (P)	7.85	ft
	Hydraulic Radius (r)	0.625	ft
	Start Elev	621.46	ft
	End Elev	586.362	ft
	Slope (S)	0.00	ft/ft
	Manning's n	0.013	
	Velocity (V)	0.00	fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	7	
	Lag Time	4	

OS1			
Sheet Flow	Start Station	0.00	ft
	End Station	100.00	ft
	Length (L)	100	ft
	Manning's n	0.24	
	2-year 24-hour rain	4.14	inches
	Start Elev	620.035	ft
	End Elev	617.05	ft
	Slope (S)	0.030	ft/ft
	T_t	11	minutes
Shallow Concentrated Flow	Start Station	100.00	ft
	End Station	141.88	ft
	Length	42	ft
	Start Elev	617.02	ft
	End Elev	612.70	ft
	Slope (S)	0.103	ft/ft
	Surface	Unpaved	
	T_t	0	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91	sf
	Wetted Perimeter (P)	7.85	ft
	Hydraulic Radius (r)	0.625	ft
	Start Elev	612.698	ft
	End Elev	586.362	ft
	Slope (S)	0.00	ft/ft
	Manning's n	0.013	
	Velocity (V)	0.00	fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	11	
	Lag Time	6	

OS2			
Sheet Flow	Start Station	0.00	ft
	End Station	19.90	ft
	Length (L)	19.9	ft
	Manning's n	0.24	
	2-year 24-hour rain	4.14	inches
	Start Elev	630.014	ft
	End Elev	628.55	ft
	Slope (S)	0.074	ft/ft
	T_t	2	minutes
Shallow Concentrated Flow	Start Station	19.90	ft
	End Station	19.90	ft
	Length	0	ft
	Start Elev	628.55	ft
	End Elev	628.55	ft
	Slope (S)	0.000	ft/ft
	Surface	Unpaved	
	T_t	0	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91	sf
	Wetted Perimeter (P)	7.85	ft
	Hydraulic Radius (r)	0.625	ft
	Start Elev	628.55	ft
	End Elev	586.362	ft
	Slope (S)	0.00	ft/ft
	Manning's n	0.013	
	Velocity (V)	0.00	fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	5	
	Lag Time	3	

OS3			
Sheet Flow	Start Station	0.00	ft
	End Station	100.00	ft
	Length (L)	100	ft
	Manning's n	0.24	
	2-year 24-hour rain	4.14	inches
	Start Elev	629.896	ft
	End Elev	622.34	ft
	Slope (S)	0.076	ft/ft
	T_t	7	minutes
Shallow Concentrated Flow	Start Station	100.00	ft
	End Station	309.16	ft
	Length	209	ft
	Start Elev	622.34	ft
	End Elev	611.19	ft
	Slope (S)	0.053	ft/ft
	Surface	Unpaved	
	T_t	1	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91	sf
	Wetted Perimeter (P)	7.85	ft
	Hydraulic Radius (r)	0.625	ft
	Start Elev	611.19	ft
	End Elev	586.362	ft
	Slope (S)	0.00	ft/ft
	Manning's n	0.013	
	Velocity (V)	0.00	fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	8	
	Lag Time	5	

OS4			
Sheet Flow	Start Station	0.00	ft
	End Station	100.00	ft
	Length (L)	100	ft
	Manning's n	0.24	
	2-year 24-hour rain	4.14	inches
	Start Elev	606.97	ft
	End Elev	590.71	ft
	Slope (S)	0.163	ft/ft
	T_t	5	minutes
Shallow Concentrated Flow	Start Station	100.00	ft
	End Station	126.65	ft
	Length	27	ft
	Start Elev	590.71	ft
	End Elev	586.72	ft
	Slope (S)	0.150	ft/ft
	Surface	Unpaved	
	T_t	0	minutes
Channel or Storm Drain Flow	Cross Sectional Area (A)	4.91	sf
	Wetted Perimeter (P)	7.85	ft
	Hydraulic Radius (r)	0.625	ft
	Start Elev	586.717	ft
	End Elev	586.362	ft
	Slope (S)	0.00	ft/ft
	Manning's n	0.013	
	Velocity (V)	0.00	fps
	Start Station		ft
	End Station		ft
	Length (L)		ft
	T_t	0.00	minutes
	Time of Concentration	5	
	Lag Time	3	

RUNOFF CALCULATIONS

Point of Analysis	Storm Event	Exisiting Flow (cfs)	Proposed Without Detention (cfs)	Proposed flow with detention (cfs)	Net Change W/O Detention (cfs) (Proposed-Exist)	NetChange W/ Detention (cfs) (Propose-Exist)	Peak elevation
Study Point 1	2 Year	8.1	9.3	6.2	1.2	-1.9	601.8
Study Point 1	5 Year	11.4	13.3	8.8	1.9	-2.6	602.4
Study Point 1	10 Year	14.6	16.7	10.7	2.1	-3.9	602.7
Study Point 1	25 Year	19.6	21.9	13.5	2.3	-6.1	603.2
Study Point 1	50 Year	23.8	26.3	16	2.5	-7.8	603.6
Study Point 1	100 Year	28.9	31.3	18.7	2.4	-10.2	604
Study Point 2	2 Year	0.3	0.3	0	0	0	
Study Point 2	5 Year	0.5	0.5	0	0	0	
Study Point 2	10 Year	0.7	0.7	0	0	0	
Study Point 2	25 Year	1	0.9	0	-0.1	0	
Study Point 2	50 Year	1.2	1.1	0	-0.1	0	
Study Point 2	100 Year	1.5	1.4	0	-0.1	0	
Study Point 3	2 Year	1.5	0	0	-1.5	0	
Study Point 3	5 Year	2.1	0	0	-2.1	0	
Study Point 3	10 Year	2.6	0	0	-2.6	0	
Study Point 3	25 Year	3.3	0	0	-3.3	0	
Study Point 3	50 Year	4	0	0	-4	0	
Study Point 3	100 Year	4.8	0	0	-4.8	0	

STUDY POINTS

	Existing	Proposed
Study Point 1	E1	P1
	E2	P2
	OS1	OS1
	OS2	OS2
	OS4	OS4
Study Point 2	E3	P3
	OS3	OS3
Study Point 3	E4	

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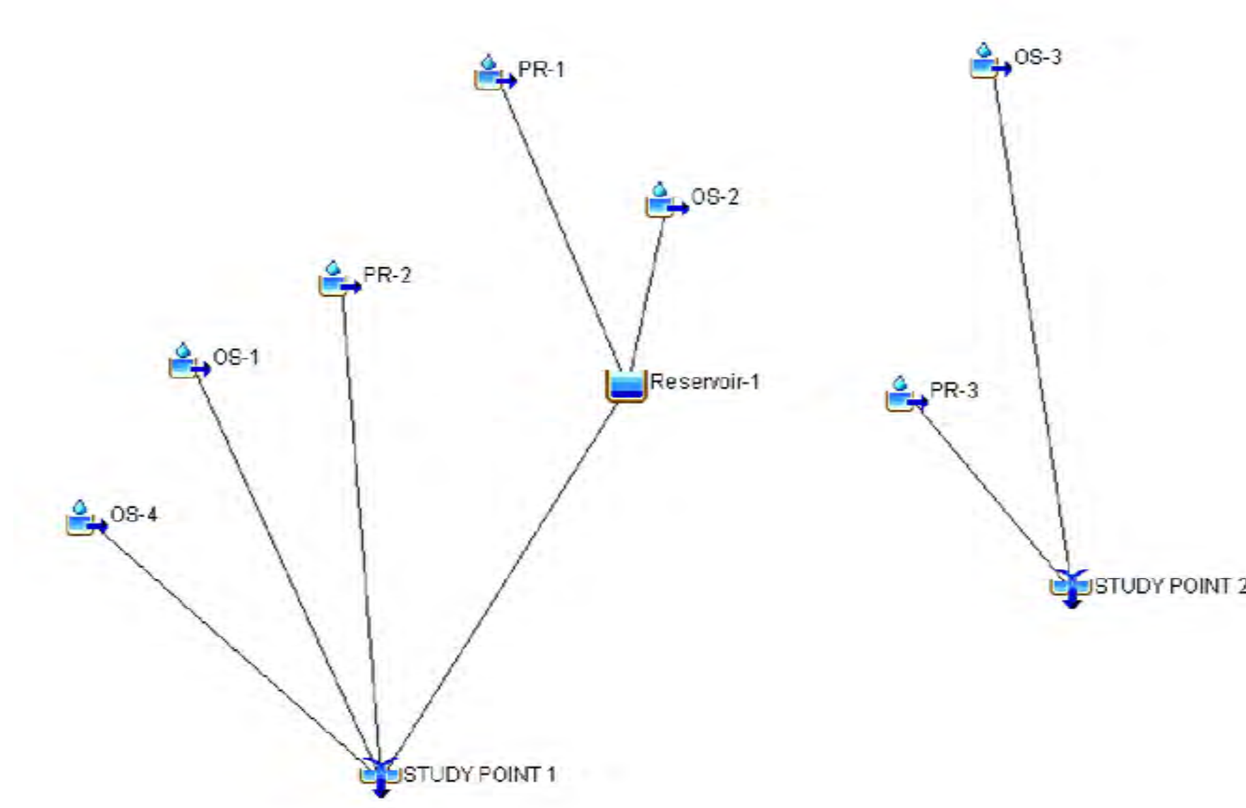

12/10/2020

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TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

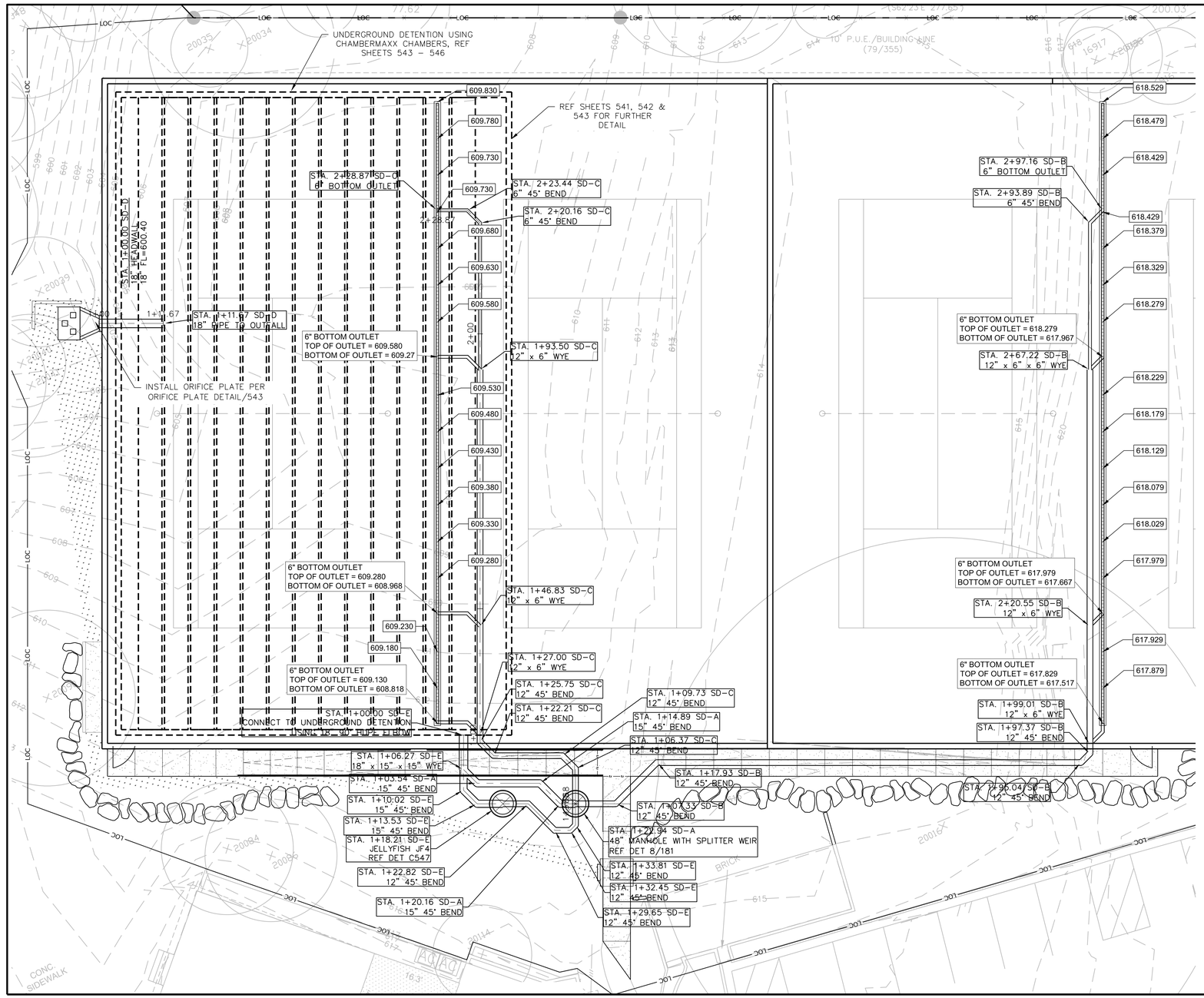
PROPOSED DRAINAGE AREA MAP CALCULATIONS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

504

File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\503 Proposed DAM.dwg 22x34



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STORM SEWER PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

541

14 OF 26

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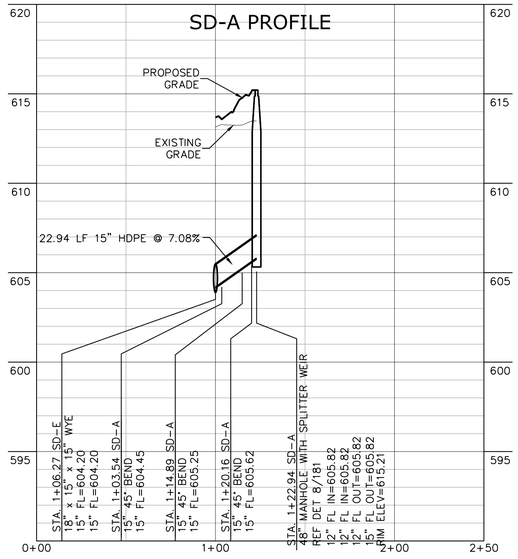

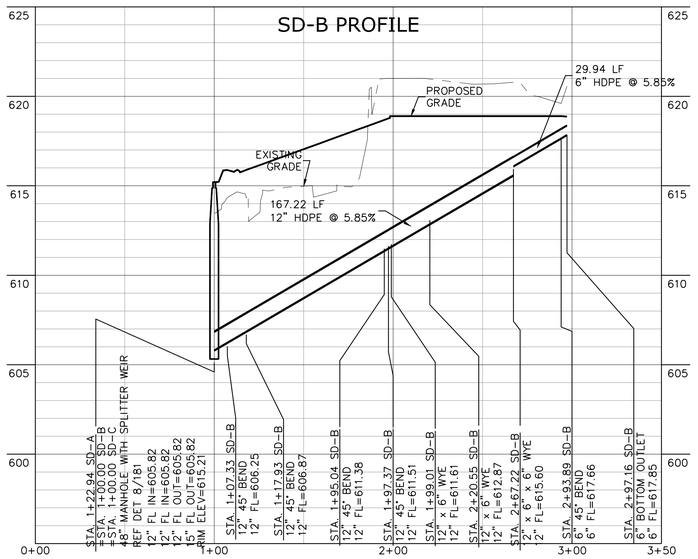

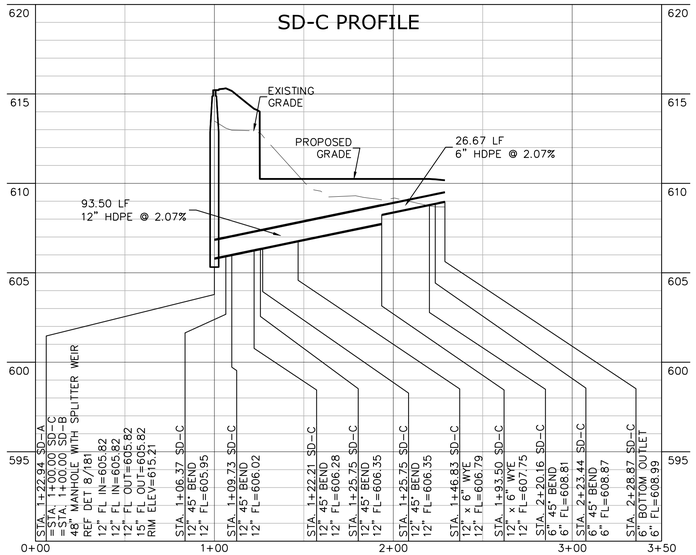

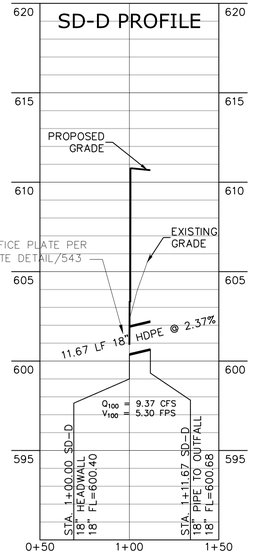

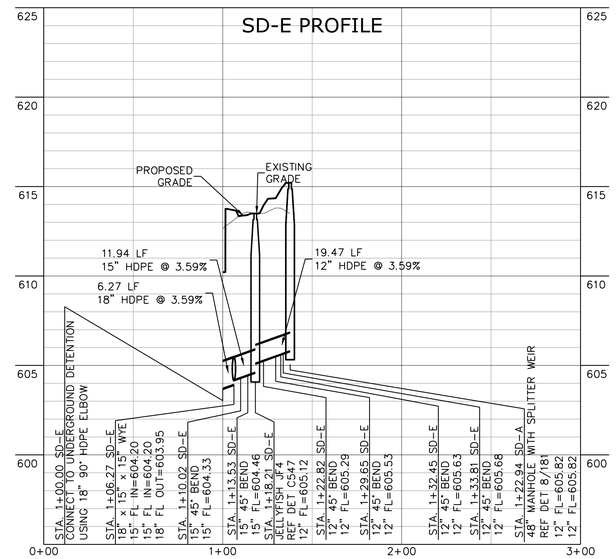

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STORM PROFILES

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

542

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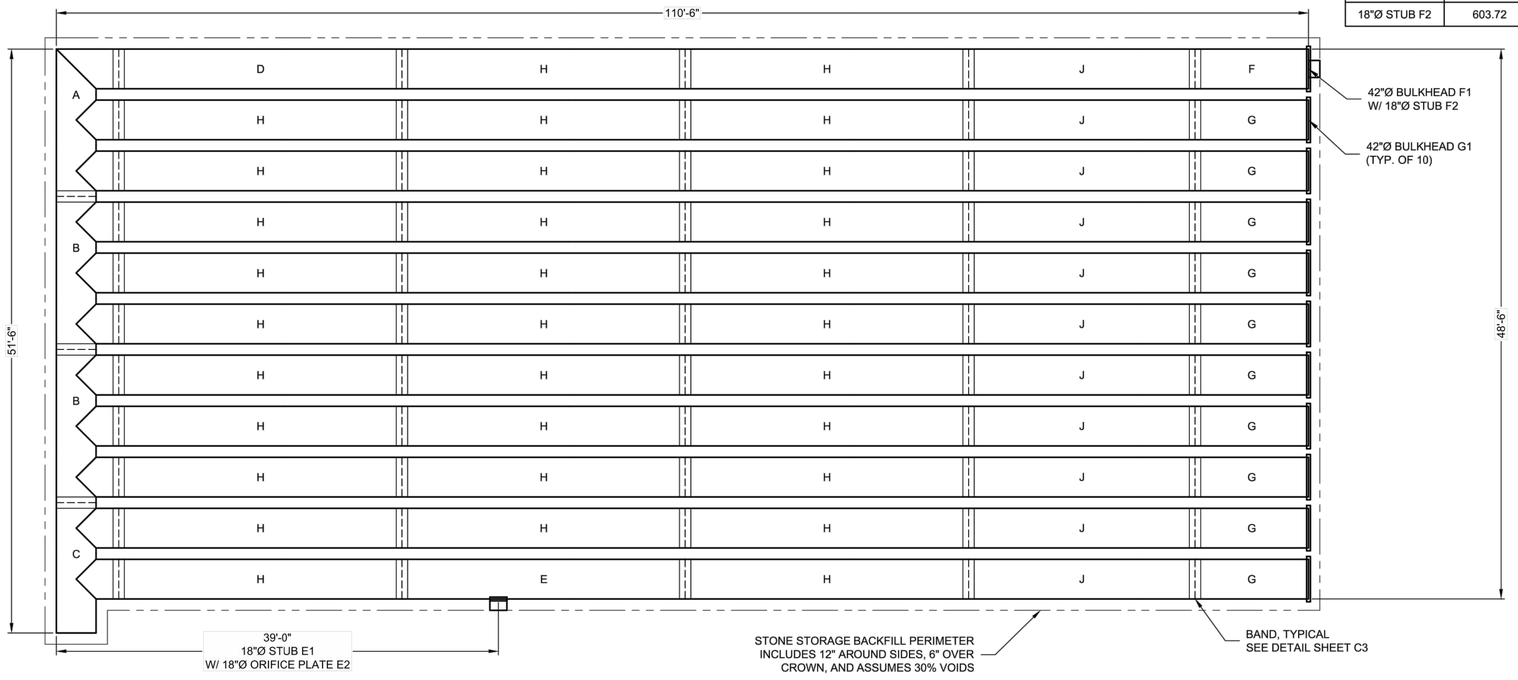
File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\542 Detention Pond Plan.dwg 22x34

STUB INFORMATION

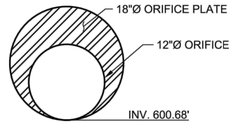
PIECE	STUB INVERT	SYSTEM INVERT
18"Ø STUB E1	600.68	600.68
18"Ø STUB F2	603.72	600.68



THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (4) PAGES INCLUDING THE FOLLOWING:

- **PIPE STORAGE = 11,820 CF**
- **MAINLINE PIPE GAGE = 16**
- **WALL TYPE = PERFORATED**
- **DIAMETER = 42"**
- **FINISH = ALT2**
- **CORRUGATION = 2 2/3x1/2**

CUSTOMER _____ DATE _____



ORIFICE PLATE DETAIL
PART E2
NOT TO SCALE

ASSEMBLY

SCALE: 1" = 10'
PIPE STORAGE: 11,820 CF
STRUCTURAL BACKFILL STORAGE: 3,280 CF
TOTAL STORAGE PROVIDED: 15,100 CF
LOADING: H20
PIPE INV. = 600.68'±

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH CONTRACT DRAWING

42"Ø PERFORATED UNDERGROUND RETENTION SYSTEM - 645393-010
WESTERN HILLS ATHLETIC CLUB - TENNIS COURTS
AUSTIN, TX
SITE DESIGNATION: DETENTION POND

PROJECT No.:	SEQ. No.:	DATE:
645393	010	5/12/2020
DESIGNED: SJ	DRAWN: ERE	
CHECKED:	APPROVED:	
SHEET No.: C1 OF 4		

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12/10/2020

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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
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DETENTION POND DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

543

16 OF 26

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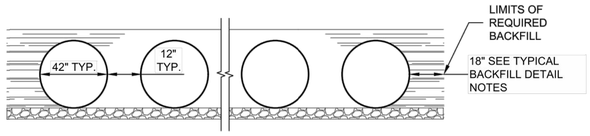
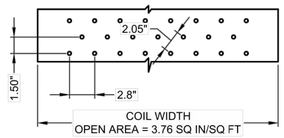


TYPICAL SECTION VIEW
NOT TO SCALE

2 2/3" x 1/2" CORRUGATION - STEEL AND ALUMINUM CMP
EDGE SPACING EQUAL ON BOTH SIDES



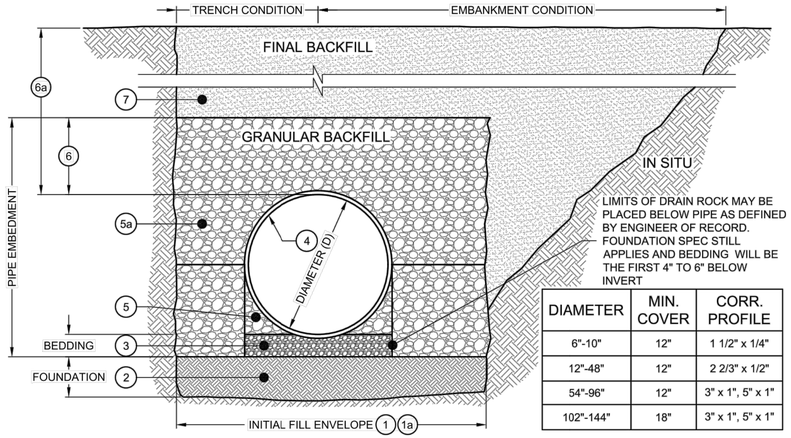
NOTES:
1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
3. DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
4. ALL HOLES 3/8"Ø.

EXFILTRATION AREA
STANDARD PERFORATION PATTERNS

APPROXIMATE AREA PER LINEAR FOOT OF PIPE				
PIPE	CORRUGATION PATTERN			
	2 2/3" x 1/2"	3" x 1"	5" x 1"	ULTRA FLO
42"Ø	42.7 SQ. IN.	45.2 SQ. IN.		

NOTES:
- GAGE AND COATING LIMITATIONS APPLY. 5" x 1" IS NOT AVAILABLE IN ALUMINUM.
- DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.

TYPICAL PERFORATION DETAIL
NOT TO SCALE



DIAMETER	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
54"-96"	12"	3" x 1", 5" x 1"
102"-144"	18"	3" x 1", 5" x 1"

1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE TRENCH WIDTH IS THE MINIMUM AMOUNT REQUIRED FOR PROPER INSTALLATION AND TO SUPPORT HORIZONTAL PRESSURE FROM THE PIPE. THE MANUFACTURER'S SUGGESTED MINIMUM VALUE IS: 1.5D + 12".

1a MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE: 3.0D BUT NO LESS THAN D + 4'0".

2 FOUNDATION SHALL BE WELL CONSOLIDATED & STABLE, CAPABLE OF SUPPORTING FILL MATERIAL LOAD.

3 OPEN-GRADED GRANULAR BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, 4" TO 6" IN DEPTH. SUGGESTED PARTICLE SIZE OF 1/2 CORRUGATION DEPTH.

4 CORRUGATED STEEL PIPE (CSP / HEL-COR).

5 HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION.

5a THE BACKFILL MATERIAL SHALL BE A FREE-DRAINING, ANGULAR, WASHED-STONE PER AASHTO M 43 SIZE #3 WITH A ½" - 2" PARTICLE SIZE OR APPROVED EQUAL. MATERIAL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR-TAMPER, VIBRATORY PLATE OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN A DENSITY EQUIVALENT TO 90% STANDARD PROCTOR IS ACHIEVED OR WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR OR UNDER FOOT. THE PROJECT ENGINEER OR HIS REPRESENTATIVE MUST BE SATISFIED WITH THE LEVEL OF COMPACTION. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE PIPE DEFLECTIONS AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

6 INITIAL OPEN GRADED GRANULAR BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL (AND RIGID PAVEMENT IF APPLICABLE). SEE TABLE ABOVE.

6a TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT.

7 FINAL BACKFILL MATERIAL SELECTION AND COMPACTION REQUIREMENTS SHALL FOLLOW THE PROJECT PLANS AND SPECIFICATIONS PER THE ENGINEER OF RECORD.

NOTES:
- GEOTEXTILE SHOULD BE USED TO PREVENT SOIL MIGRATION INTO VARYING SOIL TYPES (PROJECT ENGINEER).
- FOR MULTIPLE BARREL INSTALLATIONS THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE PIPE DIA. / 2 BUT NO LESS THAN 12", OR 36" FOR PIPE DIAMETERS 72" AND LARGER.
- CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING (TABLE C12.6.7-1).

TYPICAL BACKFILL DETAIL
NOT TO SCALE

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CONTECH ENGINEERED SOLUTIONS LLC
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11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH **PROPOSAL** DRAWING

42"Ø PERFORATED UNDERGROUND RETENTION SYSTEM - 645393-010
WESTERN HILLS ATHLETIC CLUB - TENNIS COURTS
AUSTIN, TX
SITE DESIGNATION: DETENTION POND

PROJECT No.:	SEQ. No.:	DATE:
645393	010	5/12/2020
DESIGNED: SJ		DRAWN: ERE
CHECKED:		APPROVED:
SHEET NO.: C2	OF 4	

12/10/2020
STATE OF TEXAS
MATTHEW A. RECTOR SR.
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TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
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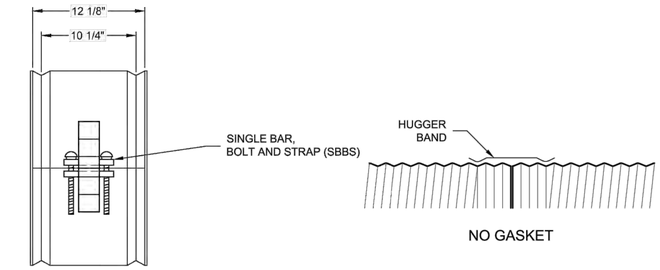
DETENTION POND DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

544
17 OF 26



CONNECTION DETAIL
(SBBS)

2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL
NOT TO SCALE

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CONTECH **PROPOSAL** DRAWING

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WESTERN HILLS ATHLETIC CLUB - TENNIS COURTS
AUSTIN, TX
SITE DESIGNATION: DETENTION POND

PROJECT No.:	SEQ. No.:	DATE:
645393	010	5/12/2020
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CHECKED:	APPROVED:	
SHEET NO.: C3 OF 4		

12/10/2020

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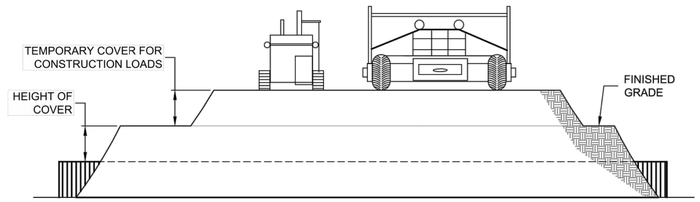


CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

MATERIAL SPECIFICATION

NOT TO SCALE

MARK	DATE	REVISION DESCRIPTION	BY

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX

CONTECH CMP DETENTION SYSTEMS

CONTECH PROPOSAL DRAWING

42"Ø PERFORATED UNDERGROUND RETENTION SYSTEM - 645393-010
WESTERN HILLS ATHLETIC CLUB - TENNIS COURTS
AUSTIN, TX
SITE DESIGNATION: DETENTION POND

PROJECT No.:	SEQ. No.:	DATE:
645393	010	5/12/2020
DESIGNED: SJ	DRAWN: ERE	
CHECKED:	APPROVED:	
SHEET NO.: C4 OF 4		

12/10/2020

mwm Design Group
305 East Huntland Drive
Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734

TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"

The bar above measures one inch on the original drawing. Adjust scales accordingly.

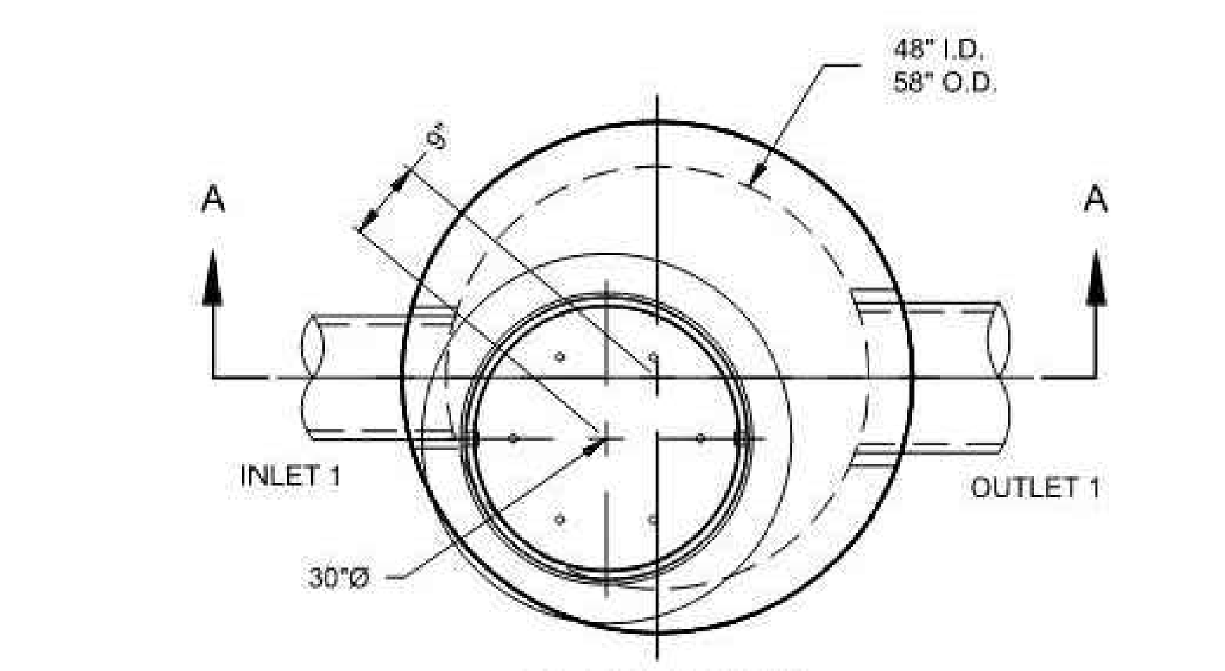
DETENTION POND DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

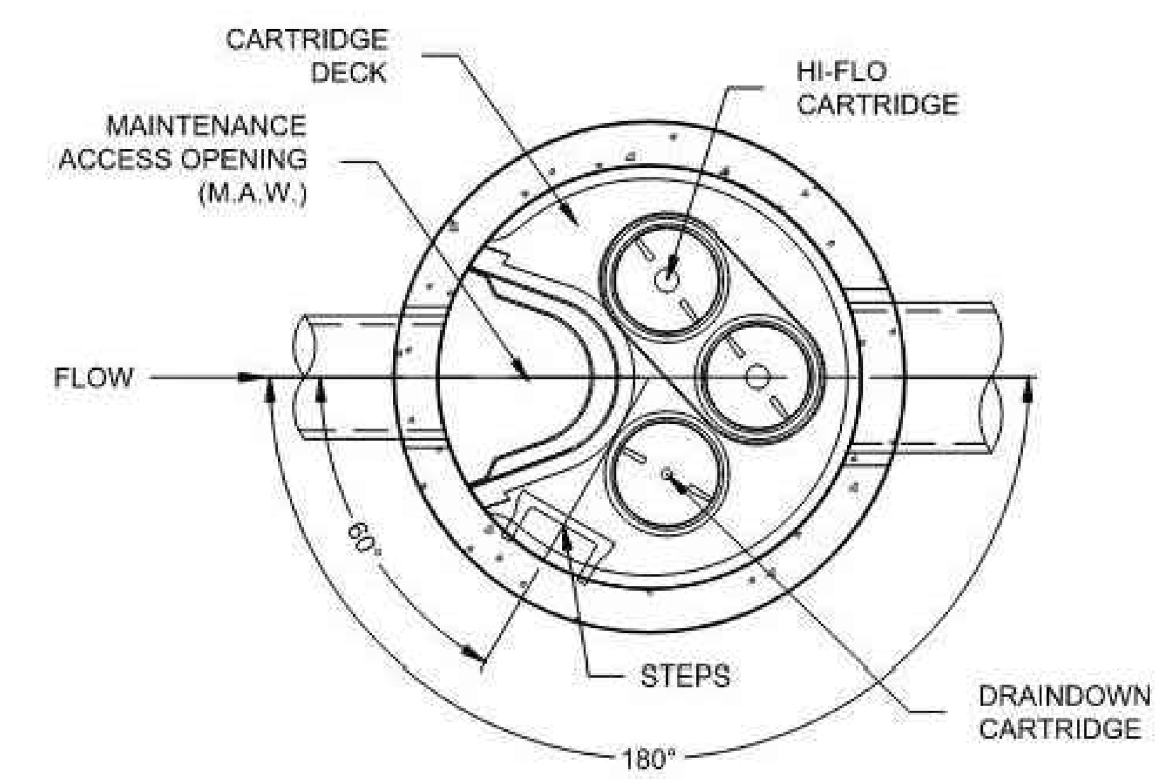
PLOTTED: 12/16/2020
JOB NO: 863-01

546

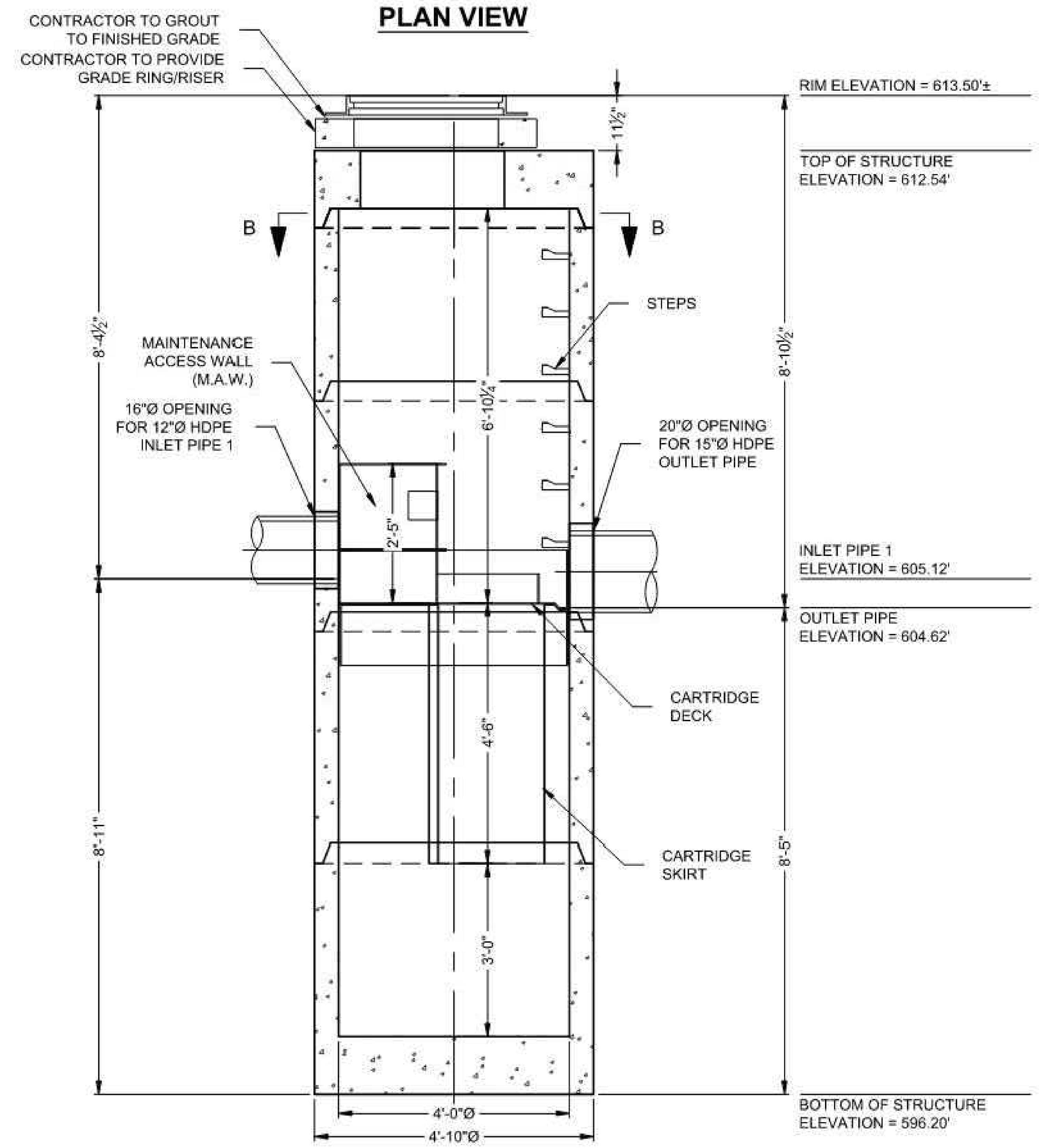
19 OF 26



PLAN VIEW



SECTION B-B



SECTION A-A

MATERIAL LIST - PROVIDED BY CONTECH

COUNT	DESCRIPTION	INSTALLED BY
2	54" HI-FLO CARTRIDGE (70 mm ORIFICE)	CONTECH
1	54" DRAINDOWN CARTRIDGE (35 mm ORIFICE)	CONTECH
1	ONLINE MAINTENANCE ACCESS WALL (M.A.W.) EXTENSION W/ BAFFLE	CONTECH
1	JF4 CARTRIDGE DECK WITH 54" SEPARATION SKIRT	CONTECH
1	JOINT SEALANT	CONTRACTOR
1	30"Ø x 4" FRAME & COVER, EJ#41600484	CONTRACTOR
1 PLCS	GRADE RING/RISER	CONTRACTOR
6	STEPS	CONTECH

SITE DESIGN DATA

WATER QUALITY FLOW RATE	0.31 CFS
PEAK FLOW RATE	N/A
RETURN PERIOD OF PEAK FLOW	N/A

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. WWW.ContechES.COM
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 1', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION AT (866) 740-3318.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK OF 5 PIECES = 6000 LBS.

CONTECH
CONTRACT
DRAWING

SLY
LAYOUT 1A

MARK	DATE	REVISION DESCRIPTION	BY

JF4-2-1 (54")- 645393-20
WESTERN HILLS ATHLETIC CLUB - TENNIS COURTS
AUSTIN, TX
FOR SYSTEM: JELLYFISH

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
Jellyfish Filter

DATE: 10/06/20	
DESIGNED: ERE	DRAWN: ERE
CHECKED: ----	APPROVED: ----
PROJECT No.: 645393	SEQUENCE No.: 20
SHEET: 1 OF 1	

12/10/2020
STATE OF TEXAS
MATTHEW A. RECTOR SR.
122861
LICENSED
PROFESSIONAL ENGINEER

mwm DesignGroup
305 East Huntland Drive
Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734
TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
The bar above measures one inch on the original drawing. Adjust scales accordingly.

WATER QUALITY TREATMENT DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

547

20 OF 26

File: \\mwmdata\mwmprojects\data\863-01_WH_Athletic_Club\CAD\Sheets\542 Detention Pond Details.dwg 22x34

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Western Hills Athletic Club - Tennis Courts
Date Prepared: 10/7/2020 RCS 6/22/2015

1. The Required Load Reduction for the total project:

Calculations from RG-348 Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project			
County =	**Travis**		
Total project area included in plan * =	**3.21**	acres	
Predevelopment impervious area within the limits of the plan * =	**1.30**	acres	
Total post-development impervious area within the limits of the plan* =	**1.60**	acres	
Total post-development impervious cover fraction * =	**0.50**		
P =	**32**	inches	
$L_{M\ TOTAL\ PROJECT}$ =	**261**	lbs.	
Number of drainage basins / outfalls areas leaving the plan area =	**1**		

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	**1**	
Total drainage basin/outfall area =	**0.85**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.42**	acres
Post-development impervious area within drainage basin/outfall area =	**0.72**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.85**	
$L_{M\ THIS\ BASIN}$ =	**261**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**0.85**	acres
A_I =	**0.30**	acres
A_P =	**0.55**	acres
L_R =	**294**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**261**	lbs.
F =	**0.89**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres
Calculations from RG-348 Pages Section 3.2.22		
Rainfall Intensity =	**1.05**	inches per hour
Effective Area =	**0.29**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**0.30**	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size		
Jellyfish Size for Flow-Based Configuration =	**JF4-2-1**	
Jellyfish Treatment Flow Rate =	**0.45**	cfs

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009 **Project Name:** WESTERN
Date Prepared: 10/7/2020

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor ove
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations us

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project		
County =	Travis	
Total project area included in plan * =	3.21	acres
Predevelopment impervious area within the limits of the plan * =	1.30	acres
Total post-development impervious area within the limits of the plan* =	1.60	acres
Total post-development impervious cover fraction * =	0.50	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	261	lbs.

* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	0.85	acres
Predevelopment impervious area within drainage basin/outfall area =	0.42	acres
Post-development impervious area within drainage basin/outfall area =	0.72	acres
Post-development impervious fraction within drainage basin/outfall area =	0.85	
$L_{M\ THIS\ BASIN}$ =	261	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Contech JellyFish
Removal efficiency = 86 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.85	acres
A_I =	0.30	acres
A_P =	0.55	acres
L_R =	294	lbs

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	261	lbs.
F =	0.89	

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-

Rainfall Depth =	1.60	inches
Post Development Runoff Coefficient =	0.28	
On-site Water Quality Volume =	1404	cubic feet
	Calculations from RG-348	Pages 3-36 to 3-37
Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	281	
Total Capture Volume (required water quality volume(s) x 1.20) =	1684	cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

12/10/2020
STATE OF TEXAS
MATTHEW A. RECTOR SR.
122861
LICENSED
PROFESSIONAL ENGINEER

mwm DesignGroup
305 East Huntland Drive
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p: 512.453.0767
f: 512.453.1734
TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
The bar above measures one inch on the original drawing. Adjust scales accordingly.

WATER QUALITY TREATMENT DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

548

21 OF 26

File: \\mwmdata\mwmprojects\data\9863-01_WH_Athletic_Club\CAD\Sheets\542 Detention Pond Details.dwg 22x34

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL OVERHEAD AND UNDERGROUND UTILITIES (INCLUDING THOSE PROPOSED WITH THIS PROJECT, I.E. IRRIGATION, WASTEWATER, WATER, STORM SEWER, GAS, TELECOM, FIBER OPTIC, ELECTRIC, ETC.) PRIOR TO STARTING WORK.

2. INFORMATION PROVIDED ON THIS PLAN IS GENERAL IN NATURE; DIMENSIONS, AREAS, AND DISTANCES ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO BIDDING. DISCREPANCIES SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT FOR RESOLUTION PRIOR TO STARTING WORK.

3. THE CONTRACTOR IS TO THOROUGHLY FAMILIARIZE HIM/HERSELF WITH ALL PLANS, SPECIFICATIONS AND THE SITE PRIOR TO BIDDING. FAILURE TO DO SO WILL NOT REDUCE THE CONTRACTOR'S OBLIGATION TO PERFORM THE WORK AS DESCRIBED FOR THE PRICE BID.

4. QUANTITIES SHOWN ARE INTENDED TO ASSIST CONTRACTORS IN EVALUATING THEIR OWN TAKE OFFS AND ARE NOT GUARANTEED AS ACCURATE REPRESENTATIONS OF REQUIRED MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS BID QUANTITIES AND IS REQUIRED TO REFLECT THE DESIGN INTENT.

5. ALL PLANT MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, OR EQUIVALENT

6. NO SUBSTITUTIONS OF PLANT MATERIAL LOCATIONS, SPECIES OR SIZE WILL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE LANDSCAPE ARCHITECT. ALL PLANT MATERIALS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. AS PART OF THE BASE BID, THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ALL LANDSCAPE MAINTENANCE AS INDICATED IN THE PROJECT SPECIFICATIONS (INCLUDING, BUT NOT LIMITED TO MOWING, WATERING, REPLACEMENT OF UNACCEPTABLE, DISEASED OR DEAD PLANTS, ETC.) AND WEED CONTROL UNTIL FINAL ACCEPTANCE BY OWNER.

8. CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL TO BE ALIVE AND BE IN A HEALTHY, VIGOROUS CONDITION FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF THE ENTIRE PROJECT OR OTHER DATE(S) ESTABLISHED BY THE LANDSCAPE ARCHITECT, OR OWNER, EXCEPT AS MAY RESULT FROM NEGLECT OR DAMAGE BY THE OWNER, DAMAGE BY OTHERS OR UNUSUAL PHENOMENA BEYOND THE CONTRACTORS CONTROL.

9. CONTRACTOR SHALL REPLACE ALL DEAD, AND/OR UNHEALTHY PLANT MATERIALS AND/OR PLANT MATERIALS THAT HAVE PARTIALLY DIED PURSUANT TO THE CONDITION OF THE WARRANTY AT NO EXPENSE TO THE OWNER. DEAD MATERIALS MUST BE REPLACED WITHIN 10 BUSINESS DAYS PER TECHNICAL PROVISIONS. RE-WARRANT REPLACEMENT PLANTS FOR AN ADDITIONAL ONE YEAR UNDER THE SAME TERMS AS THE ORIGINAL WARRANTY. PLANT MATERIALS USED FOR REPLACEMENT SHALL BE THE SAME SPECIES, SIZE AND SHAPE.

10. ALL PLANTS SHALL BE HEALTHY, VIGOROUS AND REPRESENTATIVE OF THE SPECIES SPECIFIED. ALL PLANTS SHALL BE WELL BRANCHED, PROPORTIONED, AND FREE OF ALL INSECTS, DISEASES, BARK BRUISES, SCRAPES, CRACKED BRANCHES AND PHYSICAL DAMAGE. PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. NO PLANT MATERIALS WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOT WRAPPING MATERIAL SHALL BE REMOVED AT TIME OF PLANTING, AS SHOWN ON DETAILS.

11. ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE CONTRACT SPECIFICATIONS.

12. ALL PLANTS AND STAKES SHALL BE SET PLUMB UNLESS OTHERWISE SPECIFIED.

13. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

14. INSTALLATION OF LANDSCAPE SHALL BE PERFORMED BY A QUALIFIED LANDSCAPE INSTALLER WITH A MINIMUM OF FIVE YEARS CONTINUOUS EXPERIENCE OF INSTALLING LANDSCAPE PLANTINGS OF SIMILAR SIZE AND SCOPE.

15. CONTRACTOR SHALL PROVIDE MAINTENANCE FOR LANDSCAPE & IRRIGATION SYSTEM FOR 12 MONTHS FOLLOWING FINAL ACCEPTANCE OF ENTIRE PROJECT.

16. LANDSCAPE MATERIALS SHALL BE LOCATED SO AS NOT TO OBSTRUCT VISUAL OR PHYSICAL ACCESS TO FIRE HYDRANTS. ALL LANDSCAPE MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH UTILITY COMPANY REQUIREMENTS AT TRANSFORMERS, METERS, OVERHEAD LINES, ETC. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.

17. EXECUTE ALL LANDSCAPING AND REVEGETATION PRIOR TO REQUEST FOR CERTIFICATE OF OCCUPANCY, FINAL INSPECTION OR AS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER. HOWEVER, NO PLANT MATERIALS SHALL BE INSTALLED BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE LANDSCAPE ARCHITECT, OWNER OR OWNER'S DESIGNATED REPRESENTATIVE. FULLY PREPARE ALL LANDSCAPE BEDS (INCLUDING IRRIGATION) PRIOR TO INSTALLATION OF LANDSCAPE PLANTS.

18. SITE STOCKPILED TOPSOIL MAY BE USED IF IT HAS BEEN DEEMED ACCEPTABLE IN QUALITY AND APPROVED BY LANDSCAPE ARCHITECT.

19. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.

20. THE LANDSCAPE CONTRACTOR SHALL PROVIDE AN IRRIGATION SYSTEM FULLY COMPLIANT WITH TCEQ REQUIREMENTS AND COMPLIANT WITH THE LANDSCAPE IRRIGATION NOTES AND CONTRACT SPECIFICATIONS.

LANDSCAPE IRRIGATION NOTES

AUTOMATIC IRRIGATION SYSTEMS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS. THESE REQUIREMENTS SHALL BE NOTED ON THE SITE DEVELOPMENT PERMIT AND SHALL BE IMPLEMENTED AS PART OF THE LANDSCAPE INSPECTION:

1. A NEW COMMERCIAL AND MULTI-FAMILY IRRIGATION SYSTEM MUST BE DESIGNED AND INSTALLED SO THAT:

(A) THERE IS NOT DIRECT OVERSPRAY ONTO NON-IRRIGATED AREAS;

(B) THE SYSTEM DOES NOT INCLUDE SPRAY IRRIGATION ON AREAS LESS THAN SIX (6) FEET WIDE (SUCH AS MEDIANS, BUFFER STRIPS, AND PARKING LOT ISLANDS)

(C) ABOVE-GROUND IRRIGATION EMISSION DEVICES ARE SET BACK AT LEAST SIX (6) INCHES FROM IMPERVIOUS SURFACES;

(D) THE IRRIGATION SYSTEM HAS A MASTER VALVE;

(E) CIRCUIT REMOTE CONTROL VALVES HAVE ADJUSTABLE FLOW CONTROLS;

(F) SERVICEABLE IN-HEAD CHECK VALVES ARE ADJACENT TO PAVED AREAS WHERE ELEVATION DIFFERENCES MAY CAUSE LOW HEAD DRAINAGE;

(G) THE IRRIGATION SYSTEM HAS A CITY- APPROVED WEATHER BASED CONTROLLER;

(H) AN AUTOMATIC RAIN SHUT-OFF DEVICE SHUTS OFF THE IRRIGATION SYSTEM AUTOMATICALLY AFTER NOT MORE THAN A ONE-HALF INCH (1/2") RAINFALL;

(I) ZONE VALVES AND CIRCUITS ARE SEPARATED BASED ON PLANT WATER REQUIREMENTS;

(J) AN IRRIGATION EMISSION DEVICE (SUCH AS SPRAY, ROTOR, OR DRIP EMITTER) DOES NOT EXCEED THE MANUFACTURER'S RECOMMENDED OPERATING PRESSURE; AND

(K) NO COMPONENT OF THE IRRIGATION SYSTEM DEVIATES FROM THE MANUFACTURER'S RECOMMENDED USE OF THE PRODUCT.

2. THE MAXIMUM SPACING BETWEEN SPRAY OR ROTARY SPRINKLER HEADS MUST NOT EXCEED THE RADIUS OF THROW OF THE HEAD UNLESS MANUFACTURER OF THE SPRINKLER HEAD SPECIFICALLY RECOMMENDS A GREATER SPACING. THE RADIUS OF THROW IS DETERMINED BY REFERENCE TO THE MANUFACTURER'S SPECIFICATIONS FOR A SPECIFIC NOZZLE AT A SPECIFIC OPERATING PRESSURE.

3. THE IRRIGATION INSTALLER SHALL DEVELOP AND PROVIDE AN AS-BUILT DESIGN PLAN AND WATER BUDGET TO THE CITY AT THE TIME THE FINAL PLUMBING INSPECTION IS PERFORMED. THE WATER BUDGET SHALL INCLUDE:

(A) A CHART CONTAINING ZONE NUMBERS, PRECIPITATION RATE, AND GALLONS PER MINUTE; AND

(B) THE LOCATION OF THE EMERGENCY IRRIGATION SYSTEM SHUT-OFF VALVE. A LAMINATED COPY OF THE WATER BUDGET SHALL BE PERMANENTLY INSTALLED INSIDE THE IRRIGATION CONTROLLER DOOR.

4. IRRIGATION CONTRACTOR SHALL PROVIDE A COMPLETE AS-BUILT PLAN TO OWNER, OR OWNER'S DESIGNATED REPRESENTATIVE SHOWING ALL IRRIGATION COMPONENTS AND SIZE OF COMPONENTS, INCLUDING WATER PRESSURE, MAIN LINE, LATERAL LINES, VALVES, HEADS, BACKFLOW DEVICE, CONTROLLER, QUICK COUPLERS, ETC.

5. COMPLY WITH ALL APPLICABLE TCEQ IRRIGATION RULES AND REGULATIONS.

6. CONTRACTOR IS TO VERIFY PRESSURE AND WATER SUPPLY CHARACTERISTICS ARE ADEQUATE FOR THIS INSTALLATION. ANY DISCREPANCIES OR INADEQUACIES SHALL BE REPORTED TO THE OWNER IMMEDIATELY, BEFORE STARTING CONSTRUCTION. DESIGN PRESSURE IS 65 PSI AT 45 GMP.

7. CONTRACTOR SHALL OBTAIN ALL PERMITS AND HANDLE ALL INSPECTIONS FOR THIS WORK AS REQUIRED BY LOCAL REGULATIONS AND SHALL PAY ALL FEES ASSOCIATED WITH THESE PERMIT(S).

8. VERIFY LOCATION OF CONTROLLER, WATER SUPPLY; SITE CONDITIONS MAY VARY. OPERABLE IRRIGATION EQUIPMENT (VALVES, QUICK COUPLERS, BFP, ETC.) SHALL BE INSTALLED SEPARATELY IN VALVE BOXES.

9. ALL HEADS SHALL BE INSTALLED ON TRIPLE SWING JOINTS. HEADS SHALL BE NOT BE LOCATED CLOSER THAN 6" FROM PAVEMENT.

10. ADJUST RADII AND SPRAY PATTERNS TO ELIMINATE OVERSPRAY ONTO BUILDINGS, SIDEWALKS, FENCES, DRIVEWAYS, ROADWAYS, ETC.

11. ALL PAVEMENT CROSSINGS (LATERALS, WIRING, MAINLINE, ETC.) SHALL OCCUR WITHIN SLEEVES. INCLUDING SIDEWALKS, DRIVEWAYS, TRAILS, BIKE WAYS, ROADWAYS, ETC.

12. PRIOR TO CONSTRUCTION, VERIFY WITH THE GENERAL CONTRACTOR AND ALL UTILITY COMPANIES THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES. IMMEDIATELY REPORT ANY BREAKAGES TO THE APPROPRIATE UTILITY COMPANY.

13. THE CONTRACTOR IS TO INSTALL ALL SLEEVES IN SEQUENCE WITH OTHER CONSTRUCTION ACTIVITIES, AND WILL BE RESPONSIBLE FOR COORDINATING WITH OTHER SITE CONTRACTORS FOR THIS WORK. ADEQUATELY MARK THE LOCATIONS OF ALL SLEEVES AND PIPE CONNECTION POINTS TO EXISTING LINES.

14. INSTALL THE MAIN LINE A MINIMUM OF 15" DEEP AND LATERAL LINES MIN. 12" DEEP.

15. PROVIDE A NEW WATER PROOF TAG WITH CONTRACTOR'S NAME AND TELEPHONE NUMBER CLEARLY SHOWN AND SECURELY ATTACHED TO THE INSIDE OF THE CONTROLLER DOOR.

TREE MITIGATION/REPLACEMENT LIST

TREE TAG	TREE TYPE	SIZE (INCHES)				TOTAL CALIPER (INCHES)	REPLACEMENT FACTOR	REPLACEMENT INCHES REQUIRED	REASON FOR REMOVAL/MITIGATION	REPLACEMENT TREE TYPE	PROPOSED TREE CALIPER (INCHES)
16910	Chinaberry	9.00				9.0	0%	-	Invasive		
16912	Ligustrum	8.00	6.0			11.0	0%	-	Invasive		
20033	Chinaberry	9.00				9.0	0%	-	Invasive		
20038	Chinaberry	15.00				15.0	0%	-	Invasive		
20047	Live Oak	12.00				12.0	25%	3.00	Construction	MEXICAN SYCAMORE	4.00
20088	Live Oak	14.00				14.0	25%	3.50	Construction	MEXICAN SYCAMORE	4.00
20089	Live Oak	11.00				11.0	0%	-	Construction		
20093	Live Oak	18.00				18.0	25%	4.50	Construction	CEDAR ELM	6.00
20094	Live Oak	12.00				12.0	25%	3.00	Construction	MEXICAN SYCAMORE	4.00
20095	Live Oak	10.00				10.0	0%	-	Construction		
20096	Live Oak	11.00				11.0	0%	-	Construction		
20097	Live Oak	9.00				9.0	0%	-	Construction		
20098	Live Oak	12.00				12.0	25%	3.00	Construction	MEXICAN SYCAMORE	4.00
20099	Live Oak	15.00				15.0	25%	3.75	Construction	TEXAS ASH	4.00
20100	Live Oak	12.00				12.0	25%	3.00	Construction	TEXAS ASH	4.00
20101	Live Oak	13.00				13.0	25%	3.25	Construction	TEXAS ASH	4.00
20102	Live Oak*	19.00	17.0			27.5	25%	6.00	Construction	CEDAR ELM	6.00
20103	Live Oak	20.00				20.0	25%	5.00	Construction	CEDAR ELM	6.00
20105	Cedar Elm	15.00				15.0	25%	3.75	Construction	CEDAR ELM	4.00
20106	Live Oak	10.00				10.0	0%	-	Construction		
20107	Live Oak	12.00				12.0	25%	3.00	Construction	CEDAR ELM	4.00
20108	Live Oak	7.00				7.0	0%	-	Construction		-
20109	Live Oak	12.00				12.0	25%	3.00	Construction	TEXAS ASH	4.00
					TOTAL INCHES REMOVED	296.50	TOTAL REPLACEMENT INCHES REQUIRED	33.75	TOTAL REPLACEMENT INCHES PROVIDED		40.00

* Only replacing 6" maximum, as allowed by code

NOTE:
TOTAL CALIPER OF REPLACEMENT INCHES MUST EQUAL REQUIRED INCHES AS MEASURED AT DBH.

PLANT LIST

COMMON NAME	BOTANICAL NAME	SIZE	COMMENT
CEDAR ELM	ULMUS CRASSIFOLIA	6" CALIPER	12' HT., SINGLE TRUNK, B&B OR CONTAINER/BOX
CEDAR ELM	ULMUS CRASSIFOLIA	4" CALIPER	12' HT., SINGLE TRUNK, B&B OR CONTAINER/BOX
MEXICAN SYCAMORE	PLATANUS MEXICANA	4" CALIPER	12' HT., SINGLE TRUNK, B&B OR CONTAINER/BOX
TEXAS ASH	FRAXINUS TEXENSIS	4" CALIPER	12' HT., SINGLE TRUNK, B&B OR CONTAINER/BOX
LITTLE BLUESTEM	ANDROPOGON GLOMERATUS	1 GAL	36" O.C. TYP. WITHIN RIVER ROCK
OBEDIENT PLANT	PHYSOSTEGIA VIRGINIANA	1 GAL	36" O.C. TYP. WITHIN RIVER ROCK
SWITCH GRASS	PANICUM VIRGATUM	1 GAL	36" O.C. TYP. WITHIN RIVER ROCK
BERMUDA SOD	CYNODON DACTYLON	SOD	AS SHOWN

City Tree Requirements
Total Lot Area = 139,929
1 tree per 2000' s.f.
Required trees = 70 trees
Existing Tree Credit
11" height or more (1 for 1) = 95 trees
Trees Provided
Proposed trees = 13 trees
Total trees provided = 108 trees

REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
1871
STATE OF TEXAS
12/07/2020

mwm DesignGroup
305 East Huntland Drive
Suite 200
Austin, Texas 78752
p: 512.453.0767
f: 512.453.1734

TBAE FIRM REGISTRATION NO.: 1452
TBPE FIRM REGISTRATION NO.: F-1416
TBPLS FIRM REGISTRATION NO.: 10065600

NO.	DATE	DESCRIPTION	BY

0 1"
The bar above measures one inch on the original drawing. Adjust scales accordingly.

LANDSCAPE NOTES & CALCULATIONS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

700

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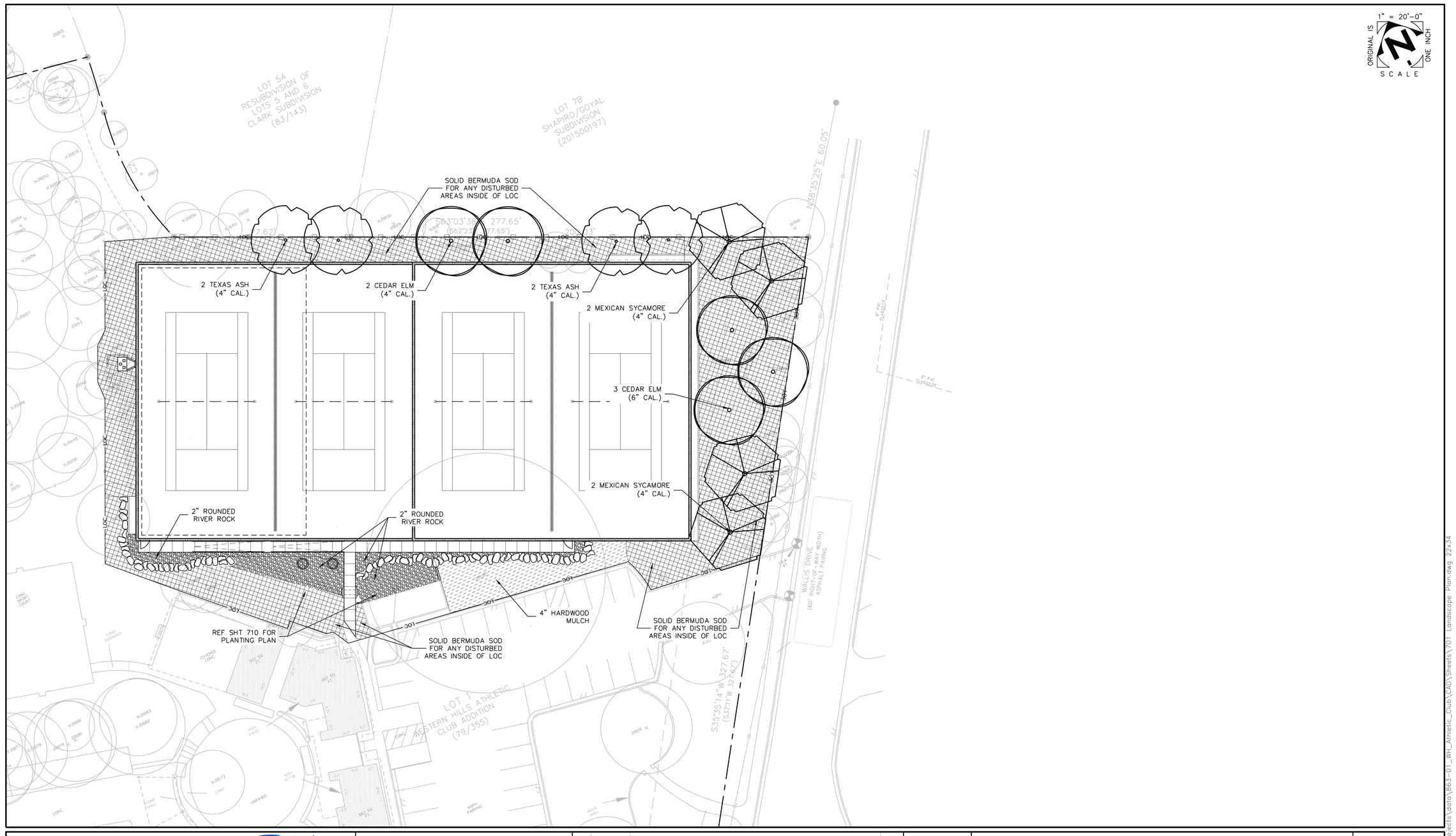

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LANDSCAPE PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

701

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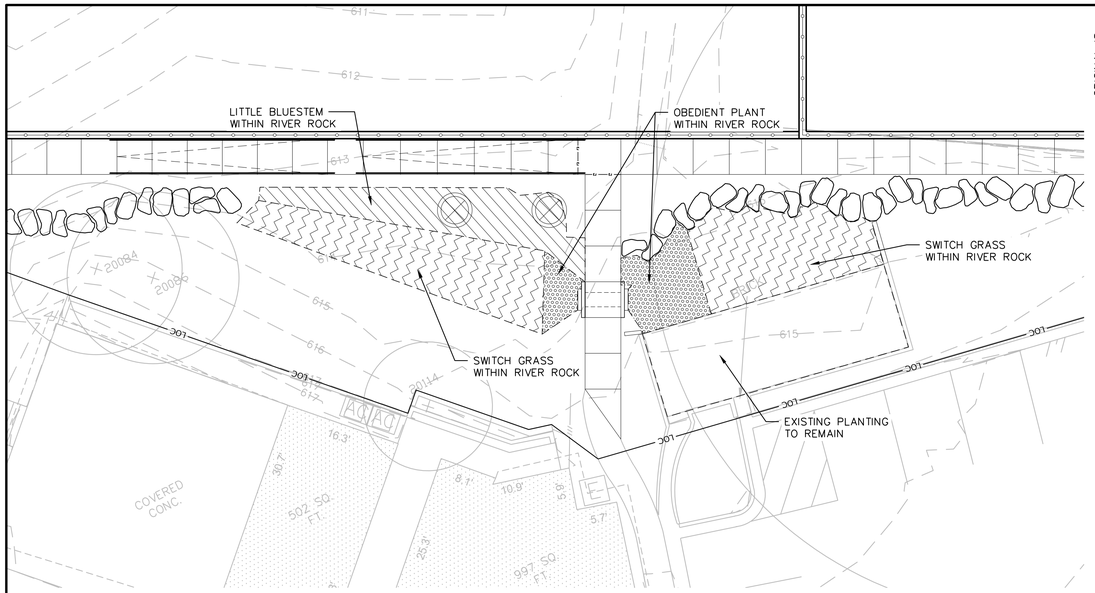

1" = 10'-0"

ORIGINAL IS ONE INCH

SCALE

DETENTION BASIN CALCULATIONS			17-Sep-20
Two Stage Extended Detention Basin Area	1,467	sf	
Two Stage Extended Detention Basin Landscape		Size	Spacing
Obedient Plant		1 Gallon	24" O.C.
Little Bluestem		1 Gallon	48" O.C.
Switch Grass		1 Gallon	48" O.C.

REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
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STATE OF TEXAS

12/16/2020

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PLANTING PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

710

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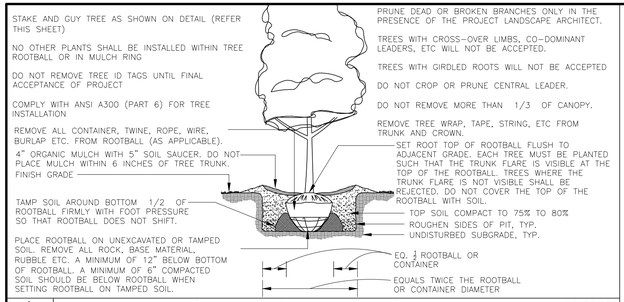
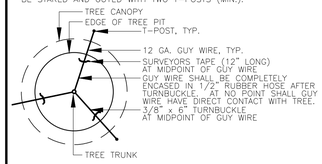


1 / 791 **TREE PLANTING DETAIL (SINGLE TRUNK) GREATER THAN 3" CALIPER** NO SCALE

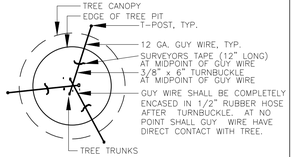
SINGLE TRUNK TREES 3" CALIPER AND GREATER SHALL BE STAKED AND GUYED WITH THREE T-POSTS (MIN.).

SINGLE TRUNK TREES LESS THAN 3" CALIPER SHALL BE STAKED AND GUYED WITH TWO T-POSTS (MIN.).



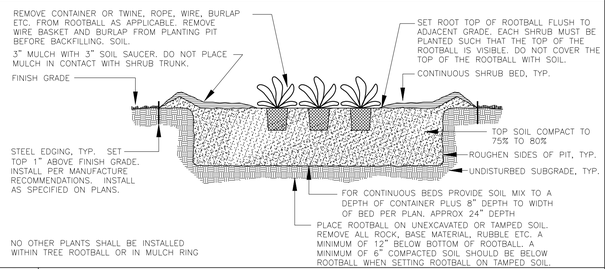
PLAN – SINGLE TRUNK

ALL MULTI-TRUNK TREES SHALL BE STAKED AND GUYED WITH THREE T-POSTS (MIN.).

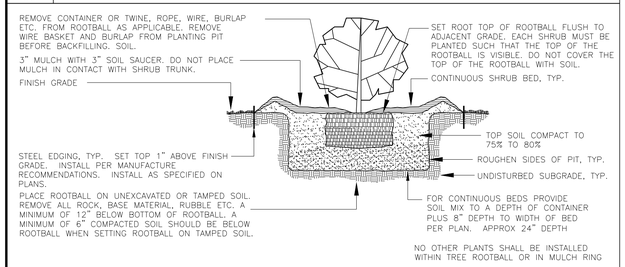


PLAN – MULTI-TRUNK

2 / 791 **TREE STAKING DETAIL** NO SCALE



3 / 791 **PERENNIAL / GROUNDCOVER PLANTING DETAIL** NO SCALE



4 / 791 **SHRUB PLANTING DETAIL** NO SCALE

REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
1871
STATE OF TEXAS
12/7/2020

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TBPLS FIRM REGISTRATION NO.: 10065600

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LANDSCAPE DETAILS

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

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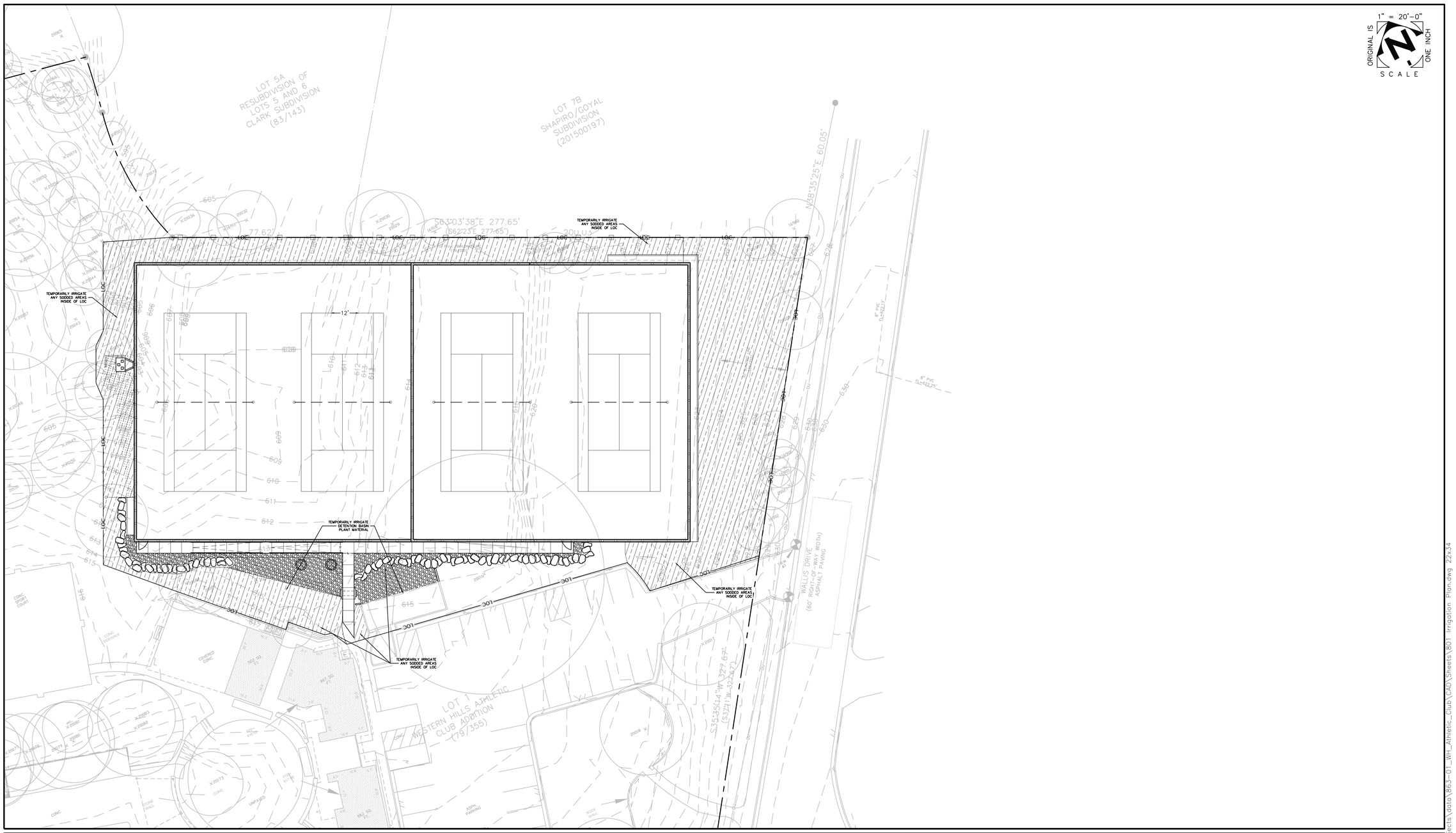

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REGISTERED LANDSCAPE ARCHITECT
DAVID J. CAZARES
1871
STATE OF TEXAS
12/07/2020

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IRRIGATION PLAN

Western Hills Athletic Club
4801 Rollingwood Drive
Austin, TX 78746

PLOTTED: 12/16/2020
JOB NO: 863-01

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