GENERAL NOTES:

1. RETAINING WALL DESIGN:
 1.1. STRUCTURAL DESIGN HEREIN REPRESENTS A FINISHED STRUCTURE. THE GENERAL CONTRACTOR/OWNER SHALL PROVIDE ALL INTERIM BRACING, SHORING, INTERIM DRAINAGE PROVISIONS, DRAINAGE DIVERSION AND EROSION PROTECTION REQUIRED UNTIL FINAL CAPPING, PAVING, CURBING AND COMPLETION OF FINAL STORM DRAIN SYSTEM IS COMPLETE.
  1.1.1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/OWNER TO ENSURE THAT THE FINISHED SITE DRAINAGE IS DIRECTED AWAY FROM THE RETAINING WALL SYSTEM.
  1.1.2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/OWNER TO ENSURE THAT THE SURFACE WATER RUNOFF FROM ADJACENT CONSTRUCTION AREAS IS NOT ALLOWED TO ENTER THE RETAINING WALL AREA OF THE CONSTRUCTION SITE.

 1.2. THE DESIGN OF THE RETAINING WALLS IS IN ACCORDANCE WITH ACCEPTED SOIL MECHANICS PRINCIPLES AND PROCEDURES AS WELL AS ACI 530.1-02 SPECIFICATION FOR MASONRY STRUCTURES AND INCLUDES EXTERNAL STABILITY; SLIDING AND OVERTURNING. THE APPLIED BEARING PRESSURES ARE LISTED IN THE DETAILS.

 1.3. THE DESIGN OF THE RETAINING WALLS IS BASED ON THE FOLLOWING DOCUMENTS:

  DRAWINGS C3.0 & C3.1 DATED 1/24/2022 PREPARED BY KFW.

  GEOTECHNICAL REPORT DATED 9/29/2021 PREPARED BY INTEC OF SAN ANTONIO, L.P. INTEC PROJECT NO. S211319

 1.4. THE DESIGN OF THE RETAINING WALL IS BASED ON THE INDIVIDUAL SOIL PROPERTIES AS LISTED ON THE DETAILS AS WELL AS THE FOLLOWING CRITERIA:

  SEISMIC ACCELERATION = N/A

  HYDROSTATIC LOADING = NONE

  SURCHARGE LOADING = 100 PSF LOCATED 2'-0" FROM FACE OF WALL UNO IN DETAIL 1/D1.

2. MATERIAL PROPERTIES:
 2.1. PORTLAND CEMENT MORTAR.
  2.1.1. PORTLAND CEMENT MORTAR SHALL HAVE THE FOLLOWING PROPORTIONS PER CUBIC YARD OF MORTAR. THE PORTLAND CEMENT MORTAR SUPPLIER SHALL PROVIDE BATCH TICKETS CLEARLY INDICATING THE APPROPRIATE AMOUNT OF MATERIAL ARE PROVIDED IN EACH LOAD. THE BATCH TICKETS SHALL CLEARLY INDICATE THE AMOUNT BATCHED, THE DATE, THE PROJECT NAME AND SHALL BE PROVIDED TO ROSCH ENGINEERING FOR REVIEW.

MATERIAL	AMOUNT PER CUBIC YARD	
TYPE I PORTLAND CEMENT	376	LBS
TYPE F FLY ASH	94	LBS
FINE AGGREGATE	3,250	LBS
POTABLE WATER	235	LBS
RETARDER (BASED ON EUCON 100)	48	OZ AVERAGE

  2.1.2. CONCRETE RETARDERS SUCH AS EUCON 100 MAY BE USED AT THE DISCRETION OF THE WALL CONTRACTOR. DURING HOT WEATHER A GREATER AMOUNT OF RETARDER IS TYPICALLY NECESSARY AND DURING COLD WEATHER A LESSOR AMOUNT IF TYPICALLY NECESSARY. FOLLOW MANUFACTURERS RECOMMENDATIONS.
  2.1.3. THE ABOVE PROPORTIONS WILL PROVIDE A PORTLAND CEMENT MORTAR WITH A COMPRESSIVE STRENGTH OF APPROXIMATELY 1,500 PSI. ROSCH ENGINEERING DOES NOT REQUIRE ANY TESTING OF THE MORTAR PROVIDED THE ABOVE PROPORTIONS ARE VERIFIED BY WAY OF THE BATCH TICKETS.

 2.2. DRAINAGE ROCK SHALL BE A CLEAN CRUSHED STONE OR GRANULAR FILL SUCH AS 1" CLEAN MEETING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D 422:

SIEVE SIZE	PERCENT PASSING
1 INCH	100
¾ INCH	75-100
NO. 4	0-60
NO. 40	0-50
NO. 200	0-5

 2.3. LOW PERMEABLE SOIL SHALL CONSIST OF MATERIAL HAVING A MINIMUM PLASTICITY INDEX OF 10. NO MORE THAN 10% SHALL BE RETAINED ON A NO. 4 SIEVE AND NO LESS THAN 35% SHALL PASS A NO. 200 SIEVE. MATERIAL WITH A USC DESIGNATION OF ML, CL, OR OL ARE ACCEPTABLE FOR USE AS LOW PERMEABLE SOIL.

 2.4. GEOTEXTILE FILTER FABRIC SHALL BE A NONWOVEN GEOTEXTILE COMPOSED OF POLYPROPYLENE FIBERS WITH A MINIMUM FLOW RATE OF 140 GPM/FT² WHEN TESTED ACCORDING TO ASTM D 4491.

 2.5. DRAINAGE PIPE SHALL BE A 4"Ø PERFORATED, SLOTTED PVC OR CORRUGATED HDPE PIPE. DRAINAGE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F 405 OR ASTM F 758.

3. EXCAVATION:
 3.1. THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE PLANS. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE OVER-EXCAVATION.

 3.2. EXCAVATION SUPPORT, INCLUDING THE STABILITY OF THE EXCAVATION AND ITS INFLUENCE ON ADJACENT PROPERTY IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

4. FOUNDATION SOIL PREPARATION:
 4.1. FOLLOWING EXCAVATION FOR THE FOOTING, FOUNDATION SOIL SHALL BE EXAMINED BY THE OWNER'S GEOTECHNICAL ENGINEER TO ASSURE THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN BEARING STRENGTH. SOIL NOT MEETING THE REQUIRED STRENGTH SHALL BE REMOVED AND REPLACED WITH SOIL MEETING THE DESIGN CRITERIA, AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

 4.2. FOUNDATION SOIL IS DEFINED AS THE SOIL UNDER THE FOOTING.

 4.3. FOUNDATION SOIL IS ASSUMED TO BE INTACT NATIVE LIMESTONE, NATIVE SOIL OR COMPACTED SELECT FILL.

5. BACKFILL PLACEMENT:
 5.1. DRAINAGE ROCK SHALL BE CONSOLIDATED WITH A MINIMUM OF 2 PASSES OF A VIBRATORY COMPACTOR. FIELD DENSITY TESTING WILL NOT BE REQUIRED FOR DRAINAGE ROCK.

 5.2. AT THE END OF EACH DAYS OPERATION, SLOPE THE LAST LEVEL OF BACKFILL AWAY FROM THE INTERIOR (CONCEALED) FACE OF THE WALL TO DIRECT SURFACE WATER AWAY FROM THE WALL.
  5.2.1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT THE FINISHED SITE DRAINAGE IS DIRECTED AWAY FROM ALL RETAINING WALLS.
  5.2.2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT THE SURFACE WATER RUNOFF FROM ADJACENT CONSTRUCTION AREAS IS NOT ALLOWED TO ENTER THE RETAINING WALL AREA OF THE CONSTRUCTION SITE.

6. DRAIN PIPE INSTALLATION:
 6.1. DRAINAGE COLLECTION PIPES SHALL BE INSTALLED TO MAINTAIN GRAVITY FLOW OF WATER OUTSIDE OF THE DRAINAGE ROCK ZONE. THE DRAINAGE COLLECTION PIPE SHOULD CONNECT INTO A STORM SEWER MANHOLE OR DAYLIGHT THROUGH THE FACE OF THE WALL AS SHOWN IN THE DETAILS.

7. FIELD QUALITY CONTROL:
 7.1. THE OWNER OR OWNER'S REPRESENTATIVE IS RESPONSIBLE FOR ENGAGING THE SERVICES OF AN INDEPENDENT THIRD PARTY INSPECTOR TO OBSERVE AND VERIFY ALL SOIL PROPERTIES AS WELL AS VERIFY CORRECT INSTALLATION OF ALL SYSTEM COMPONENTS TO MEET THE REQUIREMENTS OF THESE GENERAL NOTES AND DRAWINGS.

 7.2. TESTING METHODS, FREQUENCY AND VERIFICATION OF MATERIAL SPECIFICATIONS SHALL BE THE RESPONSIBILITY OF THE INDEPENDENT THIRD PARTY INSPECTOR.

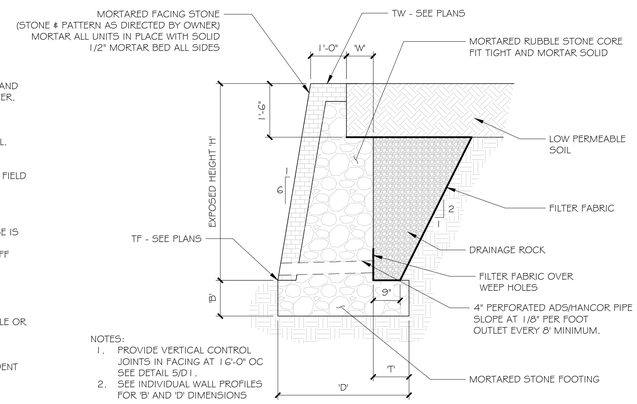
8. ABBREVIATIONS:

FGE	FINISHED GRADE EXTERIOR
FGI	FINISHED GRADE INTERIOR
FL	FLOW LINE
FS	FACTOR OF SAFETY
MIN	MINIMUM
OC	ON CENTER
PL	PROPERTY LINE
STA	STATION
TF	TOP OF FOOTING ELEVATION
TW	TOP OF WALL ELEVATION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

ANALYSIS RESULTS:

CONDITION	REQUIRED FS	MIN CALCULATED FS
OVERTURNING	1.5	2.46
SLIDING	1.5	1.54
GLOBAL STABILITY	1.5	1.50

ROSCH ENGINEERING HAS PERFORMED DESIGN CALCULATIONS BASED ON THE DESIGN CRITERIA, ASSUMED SOIL PARAMETERS, AND KNOWN LOADING CONDITIONS AS LISTED IN THESE DRAWINGS. THE OWNERS REPRESENTATIVE, INDEPENDENT THIRD PARTY SPECIAL INSPECTOR AND INSTALLER SHALL NOTIFY ROSCH ENGINEERING OF ANY CHANGES OR DIFFERENCES IN ACTUAL SITE CONDITIONS WHICH VARY FROM THOSE LISTED, PRIOR TO CONSTRUCTING THE WALL.



NOTES:
1. PROVIDE VERTICAL CONTROL JOINTS IN FACING AT 16'-0" OC SEE DETAIL 5/D1.
2. SEE INDIVIDUAL WALL PROFILES FOR 'B' AND 'D' DIMENSIONS

DESIGN TYPE 1 - ON LEAN CLAY:
FOUNDATION SOIL — LEAN CLAY (28° FRICTION ANGLE 120 PCF UNIT WEIGHT c=0 PSF)
RETAINED SOIL — DRAINAGE ROCK (34° FRICTION ANGLE 105 PCF UNIT WEIGHT)
SURCHARGE — 40 PSF LIVE LOAD @ 2' FROM FACE OF WALL
SURCHARGE — 400 PSF DEAD LOAD @ 5' FROM FACE OF WALL

'H'	'W'	'T'
0 TO 3'	0'	0'

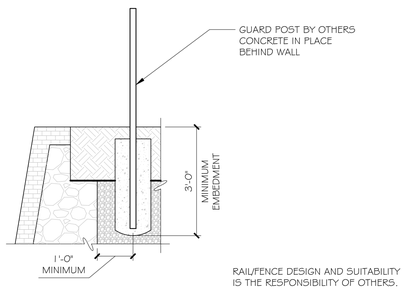
DESIGN TYPE 2 - ON LEAN CLAY:
FOUNDATION SOIL — LEAN CLAY (28° FRICTION ANGLE 120 PCF UNIT WEIGHT c=0 PSF)
RETAINED SOIL — DRAINAGE ROCK (34° FRICTION ANGLE 105 PCF UNIT WEIGHT)
SURCHARGE — 100 PSF LIVE LOAD @ 2' FROM FACE OF WALL

'H'	'W'	'T'
0 TO 3'	0'	0'

DESIGN TYPE 3 - ON LEAN CLAY:
FOUNDATION SOIL — LEAN CLAY (28° FRICTION ANGLE 120 PCF UNIT WEIGHT c=0 PSF)
RETAINED SOIL — DRAINAGE ROCK (34° FRICTION ANGLE 105 PCF UNIT WEIGHT)
SURCHARGE — 100 PSF LIVE LOAD @ 2' FROM FACE OF WALL
TOE SLOPE — 12H:1V (4.76°) MAXIMUM

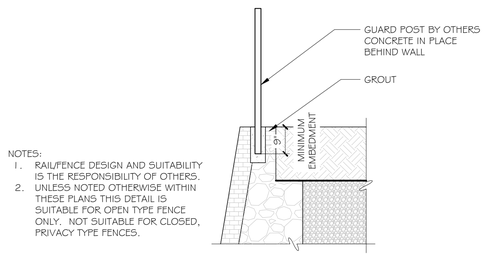
'H'	'W'	'T'
0 TO 2'	0'	0'
>2' TO 3'	0'	0.4'
>3' TO 4'	0'	1.1'
>4' TO 5'	0'	1.6'
>5' TO 6'	0.5'	1.6'

1 / D1 GRAVITY WALL SECTION
NTS



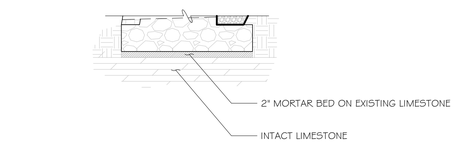
RAIL/FENCE DESIGN AND SUITABILITY IS THE RESPONSIBILITY OF OTHERS.

2 / D1 TYPICAL POST AT WALL
NTS



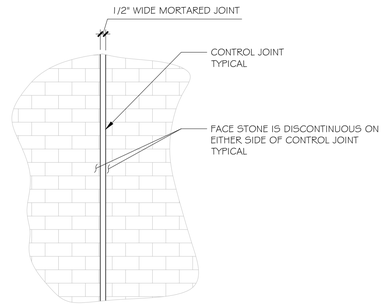
NOTES:
1. RAIL/FENCE DESIGN AND SUITABILITY IS THE RESPONSIBILITY OF OTHERS.
2. UNLESS NOTED OTHERWISE WITHIN THESE PLANS THIS DETAIL IS SUITABLE FOR OPEN TYPE FENCE ONLY. NOT SUITABLE FOR CLOSED, PRIVACY TYPE FENCES.

3 / D1 TYPICAL OPEN POST AT WALL
NTS



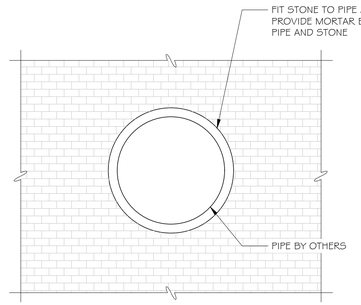
NOTE: REMOVE ALL LOOSE MATERIAL, THOROUGHLY CLEAN THE SURFACE, THEN PLACE A 2" MORTAR BED ON INTACT LIMESTONE.

4 / D1 LIMESTONE FOUNDATION DETAIL
NTS



PROVIDE VERTICAL CONTROL JOINTS IN FACING AT 16'-0" OC

5 / D1 CONTROL JOINT DETAIL
NTS



6 / D1 PIPE PENETRATION DETAIL
NTS

STRUCTURAL DESIGN HEREIN REPRESENTS A FINISHED STRUCTURE. THE GENERAL CONTRACTOR/OWNER SHALL PROVIDE ALL INTERIM BRACING, SHORING, INTERIM DRAINAGE PROVISIONS, DRAINAGE DIVERSION AND EROSION PROTECTION REQUIRED UNTIL FINAL CAPPING, PAVING, CURBING AND COMPLETION OF FINAL STORM DRAIN SYSTEM IS COMPLETE.

REV	DATE	DESCRIPTION

ROSCH ENGINEERING
3000 JOE DIMAGGIO BLVD., SUITE 28
ROUND ROCK, TX 78664
PHONE: 512-828-4167
FAX: 512-233-0540
TBPE #14762

VIDA SAN ANTONIO - PHASE 2
SAN ANTONIO, TX

RETAINING WALL
NOTES & DETAILS

STATE OF TEXAS
BRIAN C. SCHULER
LICENSED
PROFESSIONAL ENGINEER
8-30-22

DESIGNED:	BCS
DRAWN:	JTM
DESIGN ENGINEER:	JWH
REVIEWED:	RMJ
DATE:	8-30-22
JOB NO.:	21-1244
SHEET:	D1