### **Texas Commission on Environmental Quality**

### **Edwards Aquifer Application Cover Page**

#### **Our Review of Your Application**

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

### **Administrative Review**

- Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.
  - To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <a href="http://www.tceq.texas.gov/field/eapp">http://www.tceq.texas.gov/field/eapp</a>.
- 2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
- 3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
- 4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.
  - An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.
- 5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
- 6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

#### **Technical Review**

- When an application is deemed administratively complete, the technical review period begins. The regional
  office will distribute copies of the application to the identified affected city, county, and groundwater
  conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days
  to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
- 2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

- clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
- 3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
- 4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

#### **Mid-Review Modifications**

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Eisenhower Park				2. Regulated Entity No.: RN111044632					
3. Customer Name: City of San Antonio		1		4. Customer No.: CN600130625			0130625		
5. Project Type: (Please circle/check one)	New		Modif	icatior	1	Extension		Exception X	
6. Plan Type: (Please circle/check one)	WPAP	CZP	CZP SCS UST AST EXP KX		EXT	Technical Clarification	Optional Enhanced Measures		
7. Land Use: (Please circle/check one)	Resider	ntial	Non-residential		8. Site (acres):		e (acres):	51.36 acres	
9. Application Fee:	\$500		10. Permanent B			BMP(s	MP(s): NA		
11. SCS (Linear Ft.):	NA		12. AST/UST (No			o. Tar	Tanks): NA		
13. County:	Bexar		14. Watershed:				Leon Creek		

### **Application Distribution**

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field\_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region				
County:	Hays	Travis	Williamson	
Original (1 req.)	_	_	_	
Region (1 req.)	_	_	_	
County(ies)	_	_	_	
Groundwater Conservation District(s)	Edwards Aquifer AuthorityBarton Springs/ Edwards AquiferHays TrinityPlum Creek	Barton Springs/ Edwards Aquifer	NA	
City(ies) Jurisdiction	AustinBudaDripping SpringsKyleMountain CitySan MarcosWimberleyWoodcreek	AustinBee CavePflugervilleRollingwoodRound RockSunset ValleyWest Lake Hills	AustinCedar ParkFlorenceGeorgetownJerrellLeanderLiberty HillPflugervilleRound Rock	

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	_		_	_	_
Region (1 req.)	_			_	_
County(ies)	_	_			
Groundwater Conservation District(s)	Edwards Aquifer Authority Trinity-Glen Rose	Edwards Aquifer Authority	Kinney	EAA Medina	EAA Uvalde
City(ies) Jurisdiction	Castle HillsFair Oaks RanchHelotesHill Country VillageHollywood ParkSan Antonio (SAWS)Shavano Park	Bulverde Fair Oaks Ranch Garden Ridge New Braunfels Schertz	NA	San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.		
Arnoldo D Martinez, Jr, PE (Agent)		
Print Name of Customer/Authorized Agent		
January J. J. 3/28/2025		
Signature of Customer/Authorized Agent Date		

**FOR TCEQ INTERNAL USE ONLY**				
Date(s)Reviewed: Date Administratively Complete:				
Received From:	Correct	Number of Copies:		
Received By:	Distribu	ıtion Date:		
EAPP File Number:	Comple	X:		
Admin. Review(s) (No.):	No. AR	Rounds:		
Delinquent Fees (Y/N):	Review	Time Spent:		
Lat./Long. Verified:	SOS Cu	stomer Verification:		
Agent Authorization Complete/Notarized (Y/N):	Fee	Payable to TCEQ (Y/N):		
Core Data Form Complete (Y/N):	Check:	Signed (Y/N):		
Core Data Form Incomplete Nos.:		Less than 90 days old (Y/N):		

### **General Information Form**

**Texas Commission on Environmental Quality** 

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

### Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Arnoldo D Martinez, Jr., PE Date: 3/28/2025

Signature of Customer/Agent:

### Project Information

rı	oject inioimation		
1.	Regulated Entity Name: Eisenhower Park		
2.	County: Bexar		
3.	Stream Basin: <u>Leon Creek</u>		
4.	Groundwater Conservation District (If applicable): <u>I</u>	<u> </u>	
5.	Edwards Aquifer Zone:		
	Recharge Zone Transition Zone		
6.	Plan Type:		
	<ul><li>WPAP</li><li>SCS</li><li>Modification</li></ul>		AST UST Exception Request

7.	Customer (Applicant):	
	Contact Person: Homer Garcia III Entity: City of San Antonio Mailing Address: PO Box 839966 City, State: San Antonio, TX Telephone: 210-207-8480 Email Address: mark.wittlinger@sanantonio.gov	Zip: <u>78283-3966</u> FAX: <u>NA</u>
8.	Agent/Representative (If any):	
	Contact Person: Arnoldo D Martinez, Jr., PE Entity: Stantec Mailing Address: 70 NE Loop 410, Suite 1116 City, State: San Antonio, TX Telephone: 210-308-4701 Email Address: arnold.martinez@stantec.com	Zip: <u>78216</u> FAX: <u>NA</u>
9.	Project Location:	
	<ul> <li>☐ The project site is located inside the city limits</li> <li>☐ The project site is located outside the city limit jurisdiction) of</li> <li>☐ The project site is not located within any city's</li> </ul>	s but inside the ETJ (extra-territorial
10.	The location of the project site is described be detail and clarity so that the TCEQ's Regional s boundaries for a field investigation.	
	The location is Eisenhower Park, San Antonio,	<u>TX</u>
11.	Attachment A – Road Map. A road map show project site is attached. The project location at the map.	3
12.	Attachment B - USGS / Edwards Recharge Zor USGS Quadrangle Map (Scale: 1" = 2000') of the map(s) clearly show:	• • •
	<ul> <li>✓ Project site boundaries.</li> <li>✓ USGS Quadrangle Name(s).</li> <li>✓ Boundaries of the Recharge Zone (and Trangle Drainage path from the project site to the</li> </ul>	
13.	The TCEQ must be able to inspect the project Sufficient survey staking is provided on the prothe boundaries and alignment of the regulated features noted in the Geologic Assessment.	pject to allow TCEQ regional staff to locate
	Survey staking will be completed by this date:	<u>3/28/2025</u>

narrative	nt C – Project Description. Attached at the end of this form is a detailed description of the proposed project. The project description is consistent at the application and contains, at a minimum, the following details:
Perma Propos Site his	e areas vious cover nent BMP(s) sed site use
15. Existing proje	ct site conditions are noted below:
Existin Existin Existin Undev	g commercial site g industrial site g residential site g paved and/or unpaved roads eloped (Cleared) eloped (Undisturbed/Uncleared)
Prohibited	Activities
	e that the following activities are prohibited on the Recharge Zone and are not for this project:
	disposal wells regulated under 30 TAC Chapter 331 of this title (relating to ground Injection Control);
(2) New f	eedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
(3) Land o	lisposal of Class I wastes, as defined in 30 TAC §335.1;
(4) The us	e of sewage holding tanks as parts of organized collection systems; and
standa	nunicipal solid waste landfill facilities required to meet and comply with Type I ards which are defined in §330.41(b), (c), and (d) of this title (relating to Types nicipal Solid Waste Facilities).
• •	nunicipal and industrial wastewater discharges into or adjacent to water in the hat would create additional pollutant loading.
	e that the following activities are prohibited on the Transition Zone and are sed for this project:
	disposal wells regulated under 30 TAC Chapter 331 (relating to Underground

(2) Land disposal of Class I wastes, as defined in 30 TAC  $\S 335.1$ ; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

### **Administrative Information**

18. T	The fee for the plan(s) is based on:	
	where regulated activities will occur.  For an Organized Sewage Collection System footage of all collection system lines.  For a UST Facility Plan or Modification on number of tanks or piping systems.	r Modification, the total acreage of the site  tem Plan or Modification, the total linear  r an AST Facility Plan or Modification, the total  intive portion of the regulations related to the  ly approved plan.
19. 🏻	fee is not submitted, the TCEQ is not red	the time the application is filed. If the correct quired to consider the application until the nd the Edwards Aquifer Fee Form have been
		n Hays, Travis, and Williamson Counties) jects in Bexar, Comal, Kinney, Medina, and
20. 🏻	needed for each affected incorporated county in which the project will be locat	of the application, plus additional copies as city, groundwater conservation district, and ed. The TCEQ will distribute the additional must be submitted to the appropriate regional
21. [	<del></del> · · · -	d activity until the Edwards Aquifer Protection the and approved by the Executive Director.







70 NE Loop 410, Suite 1100 San Antonio, Texas 78216 (210) 525-9090, Phone

TBPE #F-6324 Copyright © 2018 www.stantec.com **ROAD MAP** 

EISENHOWER PARK

Date: 11/15/2023 Scale: 1:24,000 Tech: PWT

Project Number: 222012814

Page 1 of 1

and the state of t

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EISENHOWER PARK

Tech: PWT

Project Number: 222012814

Page 1 of 1

### **Attachment C - Project Description**

This is located at 19399 NW Military Hwy in San Antonio Texas and is known as Eisenhower Park. The proposed project includes bicycle trails with ADA access areas and redesigning of the existing playground area within Eisenhower Park. For this reason, we would like to submit this project as a **Recharge and Transition Zone Exception Request** application.

### PAPE-DAWSON

July 15, 2025

Ms. Theresa Larson City of San Antonio PO Box 839966 San Antonio, Texas 75283

Re:

Eisenhower Park

Geologic Assessment

Dear Ms. Larson:

Please find enclosed a Geologic Assessment (GA) Report, which summarizes our findings on the above-referenced project. Thank you for the opportunity to provide our environmental services.

The GA has been performed under the supervision of a professional geoscientist in accordance with 30 TAC §213.5(b)(3). Based on the results of the field survey conducted in accordance with Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions), no naturally occurring sensitive features were identified on site. However, should a feature be encountered during construction, consultation with a professional geoscientist is recommended. All conclusions, opinions, and recommendations in this report are based upon site conditions at the time of Pape-Dawson's site visit and should not be relied upon to represent conditions at later dates.

If you have any questions about the report or we may provide further services, please call our office.

Sincerely,

Pape-Dawson Consulting Engineers, LLC

Heather D. Johnson

Senior Environmental Manager

Henry E. Stultz III, P.G. Project Geoscientist II

P:\135\27\15\ENV\GA\Report\GA Cover-Letter.docx

### **EISENHOWER PARK**

**Geologic Assessment** 

### **EISENHOWER PARK**

**Geologic Assessment** 

### **Geologic Assessment**

**Texas Commission on Environmental Quality** 

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

### Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Henry E. Stultz III, P.G.	Teleph	one: <b>210-375-9000</b>
Date: July 24, 2025	Fax:	210-375-9090
Representing: Pape-Dawson Engineers, Inc., TBPG	registration i	number 50351
Signature of Geologist:		
		HENRY STULTZ III
Regulated Entity Name: <u>Eisenhower Park</u>		GEOLOGY 12121
Project Information		IN ONAL XGEOGRAPH
1. Date(s) Geologic Assessment was performed: Ju	ly 9, 2025	•
2. Type of Project:		
<ul><li>WPAP</li><li>SCS</li><li>Location of Project:</li></ul>	AST UST	
Recharge Zone Transition Zone Contributing Zone within the Transition Zone		

- 4. Attachment A Geologic Assessment Table. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
- 5. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Characteristics and Thickness					
Soil Name	Group*	Thickness(feet)			
Crawford, stony and Bexar soils, 0-5% slopes (Cb)	D	3-4			
Patrick soils, 1-3% slopes, rarely flooded (PaB)	В	2-5			
Eckrant cobbly clay, 1-8% slopes (TaB)	D	1-6+			
Eckrant-Rock outcrop association, 8-30% slopes (TaD)	D	0-1			

- \* Soil Group Definitions (Abbreviated)
  - A. Soils having a high infiltration rate when thoroughly wetted.
  - B. Soils having a moderate infiltration rate when thoroughly wetted.
  - C. Soils having a slow infiltration rate when thoroughly wetted.
  - D. Soils having a very slow infiltration rate when thoroughly wetted.
- 6. Attachment B Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
- 7. Attachment C Site Geology. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
- 8. Attachment D Site Geologic Map(s). The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale: 1" = <u>100'</u> Site Geologic Map Scale: 1" = **100**'

Site Soils Map Scale (if more than 1 soil type): 1" = 300'

9. Method of collecting positional data:

Global Positioning System (GPS) technology.

Other method(s). Please describe method of data collection:\_\_\_\_\_

10. The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. Surface geologic units are shown and labeled on the Site Geologic Map.
12. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
Geologic or manmade features were not discovered on the project site during the field investigation.
13. The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
<ul> <li>☐ There are(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)</li> <li>☐ The wells are not in use and have been properly abandoned.</li> <li>☐ The wells are not in use and will be properly abandoned.</li> <li>☐ The wells are in use and comply with 16 TAC Chapter 76.</li> <li>☐ There are no wells or test holes of any kind known to exist on the project site.</li> </ul>
Administrative Information
15. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies

to these jurisdictions. The copies must be submitted to the appropriate regional office.

# ATTACHMENT A Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE									PROJECT NAME: Eisenhower Park											
LOCATION						FE/	FEATURE CHARACTERISTICS							EVALUATION			PHYSICAL SETTING			
1A	1B *	* 1C* 2A 2B 3		3	4		5	5A	6	7	8A	8B	9	10		11		12		
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIME	MENSIONS (FEET)		TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						Х	Y	Z		10			-02			<40	>40	<1.6	<u>&gt;1.6</u>	
S-1	29.62270	-98.59029	F	20	Kgr				N57E	10			F	5	35	35		Х		Hillside
																		_		
	_																			

<sup>\*\*</sup> DATUM: NAD 83



2A TYPE	TYPE	2B POINTS
C .	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
0	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
sw	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	. 5
Z	Zone, clustered or aligned features	30

	8A INFILLING
N	None, exposed bedrock
С	Coarse - cobbles, breakdown, sand, gravel
0	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

189

Date Tuly 24, 2025

# ATTACHMENT B Stratigraphic Column

# **EISENHOWER PARK Geologic Assessment (TCEQ-0585)**

### Attachment B - Stratigraphic Column

Period	Epoch	Group	Formation	Member	Thickness	Lithology	Hydro- logic Unit	Hydro- stratigraphic Unit	Hydrologic Function	Porosity	Cavern Development							
		Edwards	Edwards	Kainer	Kainer	Kainer	Dolomitic	90–120	Hard, dense to granular, dolomitic limestone; chert as beds and nodules (absent in lower 20 ft); <i>Toucasia</i> sp. abundant; lower three-fourths composed of sucrosic dolomites and grainstones with hard, dense limestones interspersed; upper one-fourth composed mostly of hard, dense mudstone, wackestone, packstone, grainstone, and recrystallized dolomites with bioturbated beds	Edwards Aquifer	VII	Aquifer	IP, IC, IG, MO, BU, VUG, FR, BP, CV	Cave development as shafts with minor horizontal extent				
				Basal nodular	40–50	Moderately hard, shaly, nodular, burrowed mudstone to miliolid grainstone that also contains dolomite; contains dark, spherical textural features known as black rotund bodies; Ceratostreon texana, Caprina sp., miliolids, and gastropods		VIII	Aquifer, confining unit in areas without caves	IP, MO, BU, BP, FR, CV	Large lateral caves at surface							
					0–120 (absent in northern Comal Co.)		ı	Cavernous	Aquifer	MO, BR, BP, FR, CV								
Cretaceous					120–230 (thicker in northern Comal Co.)	Alternating resistant and nonresistant beds of blue	Upper Trinity Lower confining unit to the Edwards aquifer	Camp Bullis	Confining	BU, BP, FR, occasion al CV								
				Upper Glen Rose	0–10	shale, nodular marl, and impure, fossiliferous limestone; gray to yellowish gray; stair-step topography; contains two distinct evaporite zones; distinct <i>Corbula</i> sp. bed marks the contact with the underlying lower	Upper Trinity gunit to the Ed	Upper evaporite	Adulter	IP, MO, BU, BR	Some surface cave development							
	sno				0–40	member of the Glen Rose Limestone; Orbitulina texana	U	Fossil- iferous Lower  Lower evaporite	Aquifer	MO, BU, FR, CV								
	Early Cretaceous				80–150		Lowerd		Confining	MO, BU, FR								
Cre	Early				8–10				Aquifer	IP, MO, BU, BR								
		Trinity	Glen Rose Limestone		30–40 (typ. 30)			Bulverde	Semi- confining	MO, BR BP, FR								
												30–40 (typ. 30)			Little Blanco	Aquifer	MO, BU, BP, FR	
						Lower Glen Rose	10–66 (typ. 30)	Massive, fossiliferous limestone grading upward into thin beds of limestone, dolomite, marl, and shale; numerous caves and reefs occur in the lower portion of the member; <i>Orbitulina texana</i> , <i>Caprina</i> sp., <i>Toucasia</i> sp., <i>Trigonia</i> sp., <i>Turritella</i> sp., miliolids, and various	Middle Trinity	Twin Sisters	Semi- confining, confining shale beds	IP						
					40–80 (typ. 40)	corals common; contains trace fossil burrows, oysters, pectens, and shell fragments		Doeppen- schmidt	Aquifer	IP, MO, BU, BP, FR, CV								
					40–70 (typ. 40)			Rust	Semi- confining	IP, FR, CV								
					45–60 (typ. 55)			Honey Creek	Aquifer	IP, MO, BU, BP, FR, CH, CV								

Source: Clark, Golab, and Morris (2016); Cavern development modified from Stein and Ozuna (1995). Porosity types - Fabric selective: IP, interparticle porosity; IG, intergranular porosity; IC, intercrystalline porosity; SH, shelter porosity; MO, moldic porosity; BU, burrowed porosity; FE, fenestral; BP, bedding plane porosity. Not fabric selective: FR, fracture porosity; CH, channel porosity; BR, breccia; VUG, vug porosity; CV, cave porosity.

# ATTACHMENT C Site Geology

### **EISENHOWER PARK Geologic Assessment**

#### **ATTACHMENT C - SITE GEOLOGY**

#### **SUMMARY**

The approximately 59.8-acre Eisenhower Park (project site) is located in Bexar County, Texas. The project site is composed of two parcels. One ±59.3-acre parcel, which is designated for bike improvements, is located in the western portion of the overall extent of the park and east from Old Camp Bullis Rd. The other ±0.5-acre parcel, pertaining to the playground area, is located in the eastern portion of the park and west from NW Military Hwy.

Based on the results of the field survey conducted in accordance with Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions), no naturally occurring sensitive features were identified on site. No springs were identified on site. Two ephemeral streams were identified on site. These streams were not flowing at the time of the assessment. The overall potential for fluid migration to the Edwards Aquifer for the site is low.

### **SITE GEOLOGY**

As observed through field evidence, the geologic units which outcrop at the surface within the subject site are the upper member of the Glen Rose (Kgru) formation, and the basal nodular (Kekbn) and dolomitic (Kekd) members of the Kainer formation. These observations are consistent with published sources. These units are described below:

- The Kgru is characterized as yellowish-tan thinly bedded limestone and marl. Karst development within the Kgru is characterized by cave formation, with predominantly lateral large rooms.
- The Kekbn is a massive, shaly, mudstone to grainstone, nodular limestone. Karst development within the Kekbn is characterized by vertical shafts as well as large lateral caves.
- The Kekd is characterized as massively bedded, mudstone to grainstone, crystalline limestone. Karst development in the Kekd is characterized by few small sinkholes and caves developed as vertical shafts.

The predominant trend of faults in the vicinity of the site is approximately N57°E, based on faults identified during the previous mapping of the area.

### **EISENHOWER PARK Geologic Assessment**

#### **FEATURE DESCRIPTIONS:**

A description of the feature observed onsite is provided below:

#### Feature S-1

Feature S-1 is an intraformational fault within the Kgr. It was identified by review of aerial photography and published maps. Lack of evidence of enhanced permeability and the presence of fine-grained soil cover suggests a low probability for rapid infiltration.

#### **REFERENCES**

Clark, A.K., Golab, J.A., Morris, R.R., and Pedraza, D.E., 2023, Geologic framework and hydrostratigraphy of the Edwards and Trinity aquifers within northern Bexar and Comal Counties, Texas: U.S. Geological Survey Scientific Investigations Map 3510, 1 sheet, scale 1:24,000, 24-p. pamphlet, https://doi.org/10.3133/sim3510

Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. https://www.historicaerials.com/viewer, July 8, 2025.

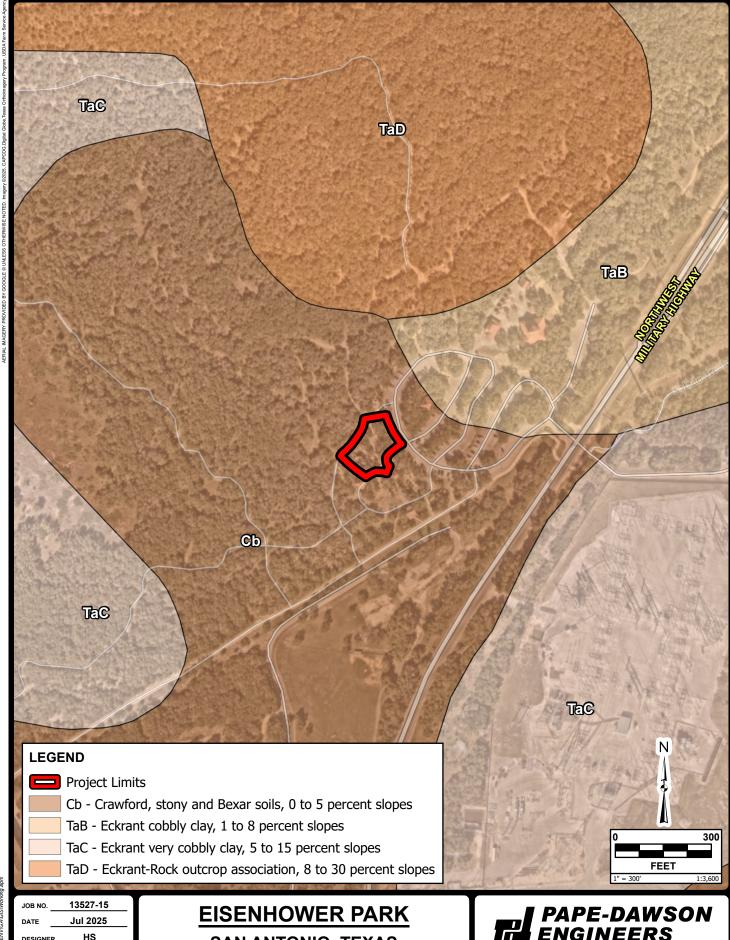
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. http://websoilsurvey.sc.egov.usda.gov/, July 8, 2025.

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Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer, July 8, 2025.

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# ATTACHMENT D Site Geologic Map(s)

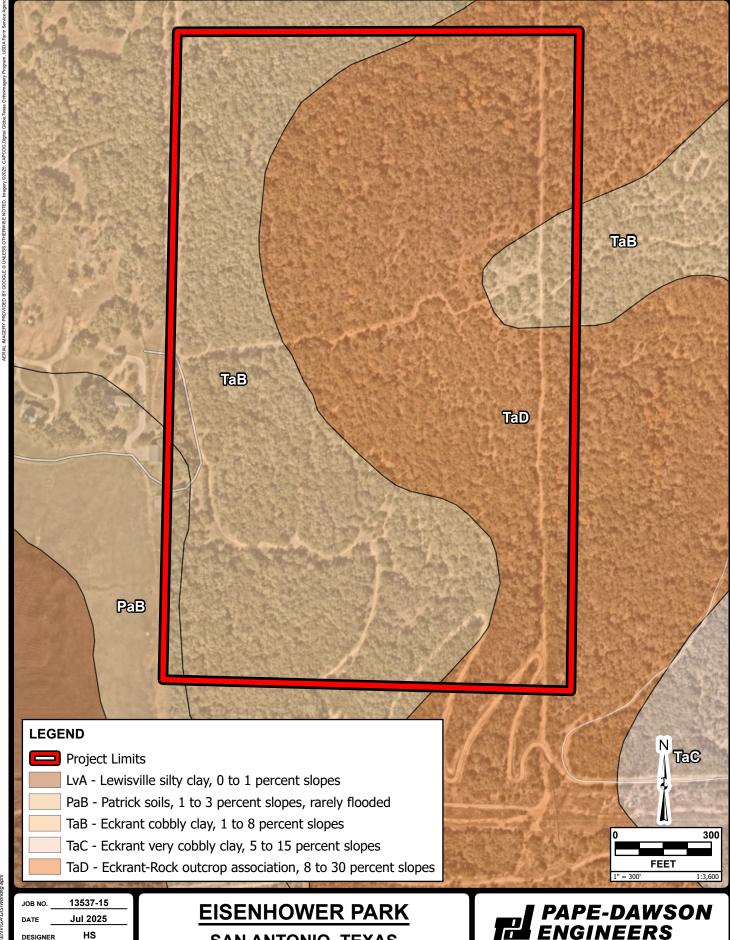


HS HDJ ATTACHMENT D

SAN ANTONIO, TEXAS SITE SOILS MAP



2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

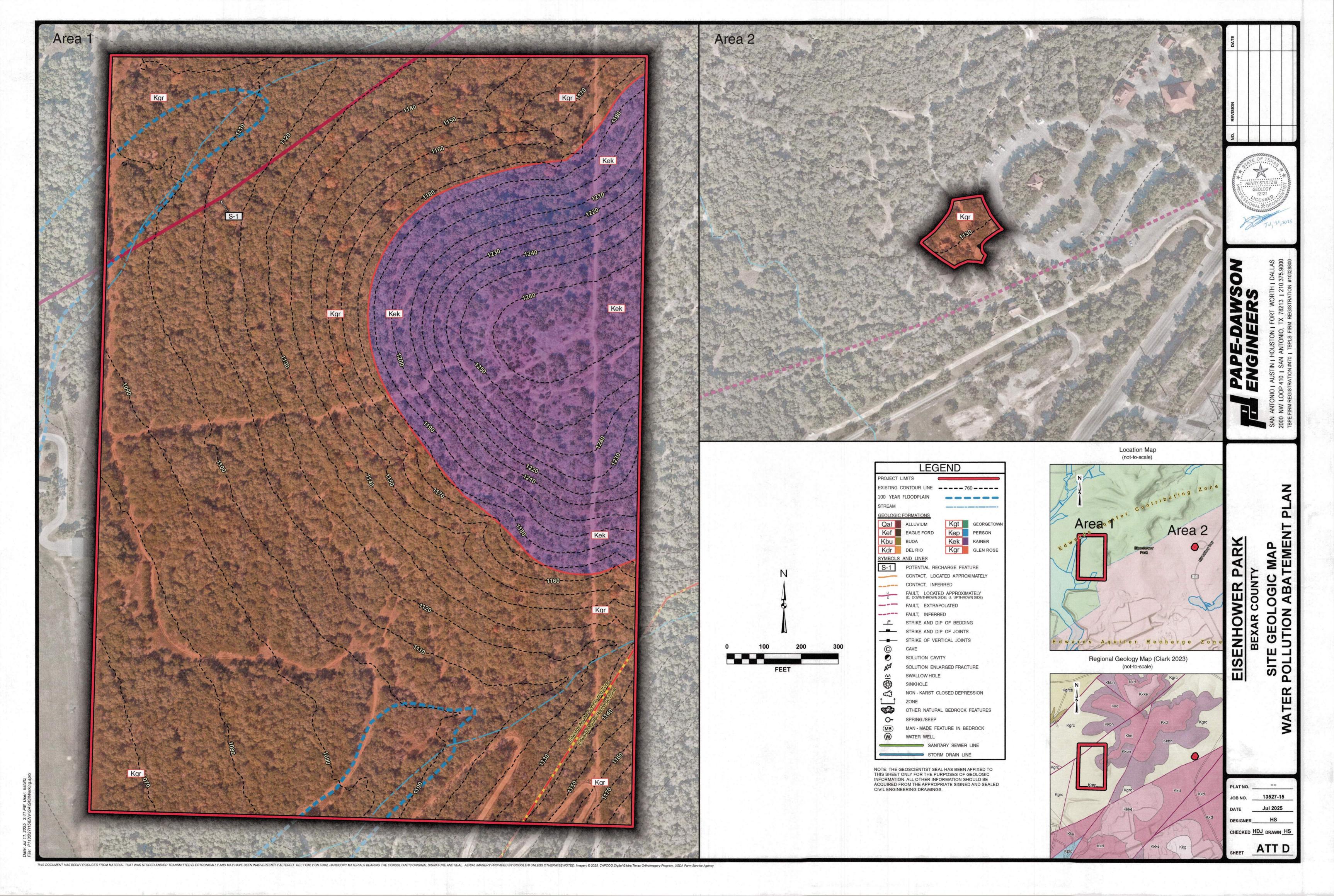


HS HDJ ATTACHMENT D

SAN ANTONIO, TEXAS SITE SOILS MAP



2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000





July 17, 2025

Ms. Theresa Larson City of San Antonio PO Box 839966 San Antonio, Texas 75283

Re: Eisenhower Park

Karst Terrain Feature Survey

Dear Ms. Larson:

Please find enclosed a Karst Terrain Feature Survey (KTFS) Report, which summarizes our findings on the above-referenced project. Thank you for the opportunity to provide our environmental services.

The KTFS has been performed under the supervision of a biologist holding a U.S. Fish and Wildlife Service (USFWS) Section 10(a)(1)(A) permit for research and recovery of threatened and endangered species. Based on the guidelines set forth by the USFWS, the project site does not appear to contain surface expression of habitat for endangered karst invertebrates. However, should a feature be encountered during construction, consultation with the USFWS or a USFWS-permitted karst biologist/geologist is recommended. All conclusions, opinions, and recommendations in this report are based upon site conditions at the time of Pape-Dawson's site visit and should not be relied upon to represent conditions at later dates.

If you have any questions about the report or we may provide further services, please call our office.

Sincerely,

Pape-Dawson Consulting Engineers, LLC

Valerie Collins, M.S., ES205717-1

Vice President

### **EISENHOWER PARK**

**Karst Terrain Feature Survey** 



### **EISENHOWER PARK**

**Karst Terrain Feature Survey** 



### **TABLE OF CONTENTS**

INTRODUCTION	1
KARST INVERTEBRATE BACKGROUND & SITE INFORMATION	
PROPERTY DESCRIPTION	3
Topography, Surface Drainage and Geology	3
Desktop Review of Vegetation	4
METHODS	4
Karst Feature Survey	4
RESULTS	
Site Observations	5
Karst Invertebrate Assessment	<del>6</del>
CONCLUSIONS	e
Karst Invertebrate Assessment	6
LITERATURE CITED	7

### **EXHIBITS**

Exhibit 1 – Location Map

Exhibits 2a and 2b - Karst Zones Map

Exhibits 3a and 3b - Site Map

Exhibits 4a and 4b – Geologic Map

### **APPENDIX**

Appendix A– Site Photographs & Photo Location Maps



### **INTRODUCTION**

Pape-Dawson Consulting Engineers, LLC (Pape-Dawson) was contracted to conduct a listed karst invertebrate habitat assessment on the approximately 59.8-acre Eisenhower Park (project site) located in Bexar County, Texas. The project site is composed of two parcels; one ±59.3-acre parcel located in the western portion of the overall extent of the park and east from Old Camp Bullis Rd, designated for bike improvements, and another ±0.5-acre parcel, pertaining to the playground area, located in the eastern portion of the park and west from NW Military Hwy. The entirety of the project site is located in San Antonio, Texas (Exhibit 1).

The Endangered Species Act (ESA) lays out a framework for the conservation of species listed by the U.S. Fish and Wildlife Service (USFWS), outlining procedures, prohibitions, and enforcement provisions and penalties (ESA; 16 U.S.C. 1531-1544). Among the key provisions of the ESA is the Section 9 prohibition of 'Take' of species listed as federally threatened or endangered; "take" meaning "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" such species. The ESA also provides protections to 'critical habitat' of importance to a species' survival designated by the USFWS. Sections 7 and 10 provide mechanisms by which the USFWS can authorize otherwise prohibited take: Section 7 addressing actions federal agencies "fund, authorize, permit, or otherwise carry out" affecting listed species or designated critical habitat, and Section 10 addressing permitting procedures for non-federal activities, including but not limited to private development. This report represents the first step for a landowner or project proponent conducting due diligence with respect to the ESA by determining whether a planned activity is located in an area where a federally listed species is likely to occur.

#### KARST INVERTEBRATE BACKGROUND & SITE INFORMATION

In 2000, the USFWS listed nine karst invertebrates in Bexar County (USFWS 2000). The nine species were two unnamed beetles (*Rhadine exilis*, *R. infernalis*), the Helotes mold beetle (*Batrisodes venyivi*), the Madla Cave meshweaver (*Cicurina madla*), the Government Canyon Bat Cave meshweaver (*Cicurina venia*), the Robber Baron Cave meshweaver (*Cicurina baronia*), the Braken Bat Cave meshweaver (*Cicurina venii*), the Government Canyon Bat Cave spider (*Tayshaneta microps*), and the Cokendolpher Cave harvestman (*Texella cokendolpheri*) (USFWS 2000). However, the Braken Bat Cave meshweaver has recently been delisted due to recent taxonomic revisions (USFWS 2022). Each of these species are



considered troglobitic (i.e., a species that completes their life cycle in subterranean environments) and inhabit caves, interstitial mesocaverns, and other subterranean voids.

In a report prepared for the Texas Department of Transportation, Veni, Cooper, and Dickerson (2024) delineated four 'Karst Zones' (with Karst Zones 3 and 4 having two subzones) in the San Antonio area reflecting the likelihood of finding federally endangered karst invertebrate species:

- Zone 1. Areas known to contain listed karst invertebrate species.
- Zone 2. Areas having a high probability of containing suitable habitat for listed karst invertebrate species.
- Zone 3a. Areas suitable for troglobite species but have a low probability of containing listed karst species because the habitat is occupied by other trogolobite species.
- Zone 3b. Areas which have a low probability of containing listed karst species because they are poorly suited for troglobite species.
- Zone 4a. Areas suitable for trogolbite species but which do not contain listed karst species because the habitat is occupied by other troglobite species.
- Zone 4b. Areas which do not contain troglobite species.

The project site is located in Karst Zone 1 (Exhibits 2a and 2b). The USFWS recommends that a karst terrain feature survey (KTFS) be conducted by a karst geologist or karst biologist with demonstrated experience identifying karst features on project sites located within karst zones 1, 2, 3a, 3b or within 500 feet of the boundaries of these karst zones (USFWS 2024b).

Further subdivisions of these karst zones were developed in the San Antonio area known as 'Karst Fauna Regions' (KFRs). KFRs are delineated regions based on the known geographic distribution of karst invertebrates and the potential discontinuity of geologic units that may restrict their dispersal (Veni, Cooper, and Dickerson 2024). There are six formal KFRs in the San Antonio area: Alamo Heights, Culebra Anticline, Government Canyon, Helotes, Stone Oak, and University of Texas San Antonio (UTSA). Additionally, there are six informal KFRs: Central Medina, Central San Antonio, IH 35, New Braunfels, Northern Bexar, and West Comal. The project site is located entirely within the Stone Oak KFR (Exhibits 2a and 2b).



Listed karst invertebrates known from the Stone Oak KFR are the Madla Cave meshweaver, *Rhadine infernalis*, and *Rhadine exilis* (USFWS 2024a).

The nearest designated critical habitat unit (CHU) for karst invertebrates relative to the ±59.3-acre bike improvements parcel is CHU 10a, situated approximately 0.6 miles to the north (USFWS 2012, **Exhibit 2a**). In comparison, the closest designated CHU to the playground parcel is CHU 10b, located about 0.1 miles north of that parcel (USFWS 2012, **Exhibit 2b**). Both CHU 10a and CHU 10b have been designated for the protection of *Rhadine infernalis* (USFWS 2012). The entirety of the project site is not within critical habitat for any of the endangered karst invertebrates (USFWS 2012, **Exhibits 2a and 2b**).

#### **PROPERTY DESCRIPTION**

### **Topography, Surface Drainage and Geology**

Elevation across the ±59.3-acre bike improvements parcel of the project site ranges from approximately 1,060 to 1,260 feet above mean sea level, whereas elevation of the playground parcel is that of 1,120 feet above mean sea level. Surface runoff along the bike improvements parcel generally flows west and offsite into Unnamed Tributary 15 in Leon Creek, while surface runoff along the playground parcel generally flows south and offsite into Unnamed Tributary 1 to Upper Salado Creek (FEMA 2025, Exhibits 3a and 3b).

The project site is located within the Balcones Fault Zone (BFZ). The BFZ consists of southwestward trending high angle, normal faults with varying degrees of displacement. The BFZ divides the relatively horizontal Cretaceous-age rocks of the Edwards Plateau from the southeast dipping Tertiary-age units of the Gulf Coastal Plain. According to published geologic maps, the project site overlies the Cavernous (Kgrc) hydrostatigraphic unit of the Glen Rose Limestone formation (Clark et al. 2023, **Exhibits 4a and 4b**).

The Kgrc ranges in thickness from 0 to 120 feet in the San Antonio area and is considered water bearing with evaporite beds and large amounts of bioturbation. The bioturbated beds have resulted in interconnected lateral flow and linked bedding planes, fractures, and caves (Clark et al. 2023). Thus, some surface cave development is often associated with this unit (Stein and Ozuna 1995).



### **Desktop Review of Vegetation**

Texas Parks and Wildlife Department (TPWD)'s *Vegetation Types of Texas* depicts the bike improvements parcel within the "Live Oak-Mesquite-Ashe Juniper Parks" area and the playground parcel within the "Live Oak-Ashe Juniper Parks" area (McMahan et al. 1984). The project site is depicted within the Balcones Canyonlands Level IV Ecoregion of Texas. Upland woodland habitat in this ecoregion can consist of Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), Texas persimmon (*Diospyros texana*), and Texas oak (*Quercus buckleyi*). Minimally disturbed grasslands may contain little bluestem (*Schizachyrium scoparium*) and yellow Indiangrass (*Sorghastrum nutans*). Grazed areas may consist of Texas wintergrass (*Nassella leucotricha*) and threeawns (*Aristida* sp.). Riparian habitat can include American sycamore (*Platanus occidentalis*), black willow (*Salix nigra*), and boxelder (*Acer negundo*) (Griffith et al. 2007).

### **METHODS**

### **Karst Feature Survey**

A KTFS was performed in accordance with USFWS Section 10(a)(1)(A) *Karst Invertebrate Survey Requirements* by Pape-Dawson personnel (USFWS 2024, **Figure 1**). While this accomplishes the discovery of many visible features, hindrances such as dense vegetation, lighting, topographic relief, soil cover, brush piles, etc. may conceal features. Biologists familiar with habitat requirements for karst invertebrates conducted surveys within the site on July 9<sup>th</sup>, 2025, totaling approximately four man-hours. During the survey, Pape-Dawson personnel systematically walked the project site north to south in transects spaced approximately 50 feet apart. Pape-Dawson personnel included Valerie Collins (ES205717-1), who reviewed the report; Walker Lazo (TE79006D-0), who lead the survey; and Fernanda Flores, who assisted with the karst survey and wrote the report.

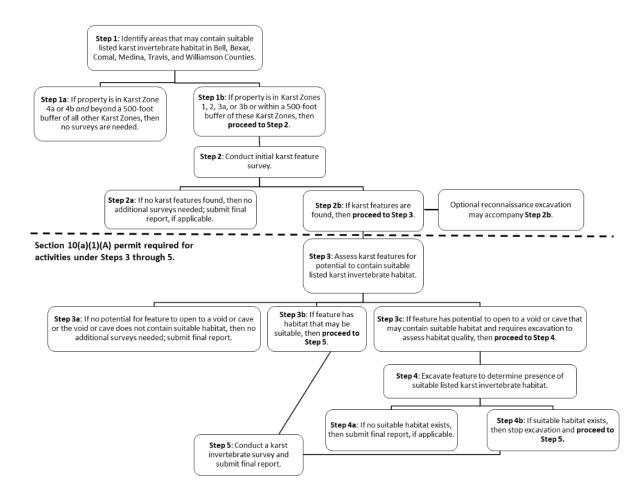


Figure 1. Five-step approach for determining presence/absence of karst invertebrates (USFWS 2024b).

#### **RESULTS**

#### **Site Observations**

The ±59.3-acre bike improvements parcel of the project site is composed of closed-canopy woodlands with paved park trails transecting the vegetation diagonally along the central and southern portions. An unpaved trail is also observed to cut through the vegetation vertically along the east. Vegetation predominantly consists of plateau live oak (*Quercus fusiformis*), Ashe juniper (*Juniperus ashei*), Texas persimmon (*Diospyros texana*), Texas red oak (*Quercus buckleyi*), cedar sedge (*Carex planostachys*), sotol (*Dasylirion texanum*), agarito (*Mahonia trifolata*), red bud (*Cercis texensis*), flame leaf sumac (*Rhus lanceolata*), and evergreen sumac (*Rhus virens*). Vegetation in the northeastern portion of the bike improvements parcel is located along steep slopes.



The playground parcel of the project site shows evidence of vegetation along most of its extent to accommodate for a playground, rock climbing wall, picnic tables, benches, and water fountains. Areas filled with mulch are seen directly surrounding the mentioned facilities, which are interrupted by paved trails that serve as connectors between the facilities. Patches of vegetation, interrupted by the paved trails, are observed scattered throughout the parcel. Vegetation within these areas consists mostly of Ashe junipers, plateau live oak, Texas prickly pear (*Opuntia engelmannii*), agarito, silverleaf nightshade (Solanum elaegnifolium), Italian bugloss (*Anchusa azurea*), Mexican hat (*Ratibida columnifera*), Texas yellowstar (*Lindheimera texana*), Texas mountain Laurel (*Dermatophyllum secundiflorum*), and Johnson grass (*Sorghum halpense*).

#### **Karst Invertebrate Assessment**

No karst features were identified on the project site during the time of the site visit (**Exhibit 2**). Work was completed to Step 2a of the USFWS five-step approach (USFWS 2024b).

Site photographs of identified and evaluated features, if encountered, and a map of the photo locations is located in **Appendix A**.

### **CONCLUSIONS**

### **Karst Invertebrate Assessment**

Based on the karst investigation conducted on the project site, there is no surface expression of karst invertebrate habitat; therefore, due diligence is completed with respect to karst invertebrate species and no further action is required according to the USFWS (2024b) protocols. However, should a feature be encountered during construction, consultation with the USFWS or a USFWS-permitted karst geologist/biologist is recommended.

#### LITERATURE CITED

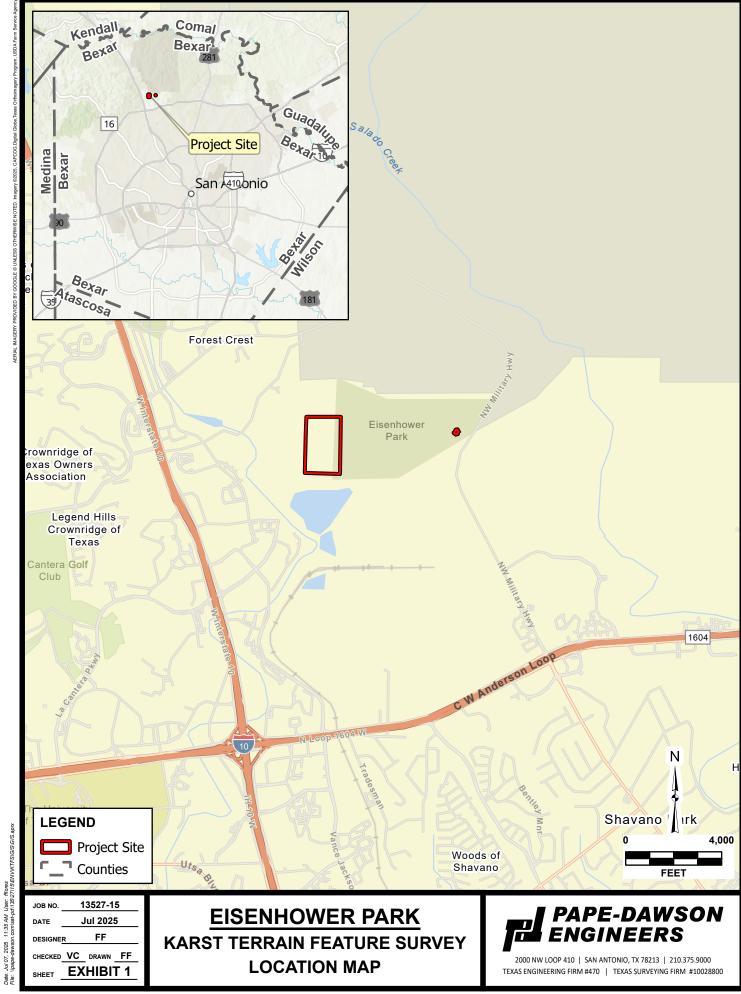
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- U.S. Fish and Wildlife Service. 2012. Endangered and threatened wildlife and plants; Designation of critical habitat for nine Bexar County, TX, invertebrates. Federal Register, 77(30), 8450–8523
- U.S. Fish and Wildlife Service (USFWS). 2022. Endangered and threatened wildlife and plants; removing the Bracken Bat Cave meshweaver from the list of endangered and threatened wildlife. Federal Register 87(163): 51925-51928.
- U.S. Fish and Wildlife Service (USFWS). 2024a. Central Texas Karst Invertebrates Karst Zones and Karst Fauna Regions Overview. Austin Ecological Services Field Office, Austin, Texas. Revised June 2024
- U.S. Fish and Wildlife Service (USFWS). 2024b. United States Fish and Wildlife Service, Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys and Habitat Assessments for Listed Karst Invertebrates in Central Texas. U.S. Fish and Wildlife Service, Austin Ecological Services Field Office, 1505 Ferguson Lane, Austin, Texas. Revised August 2024.



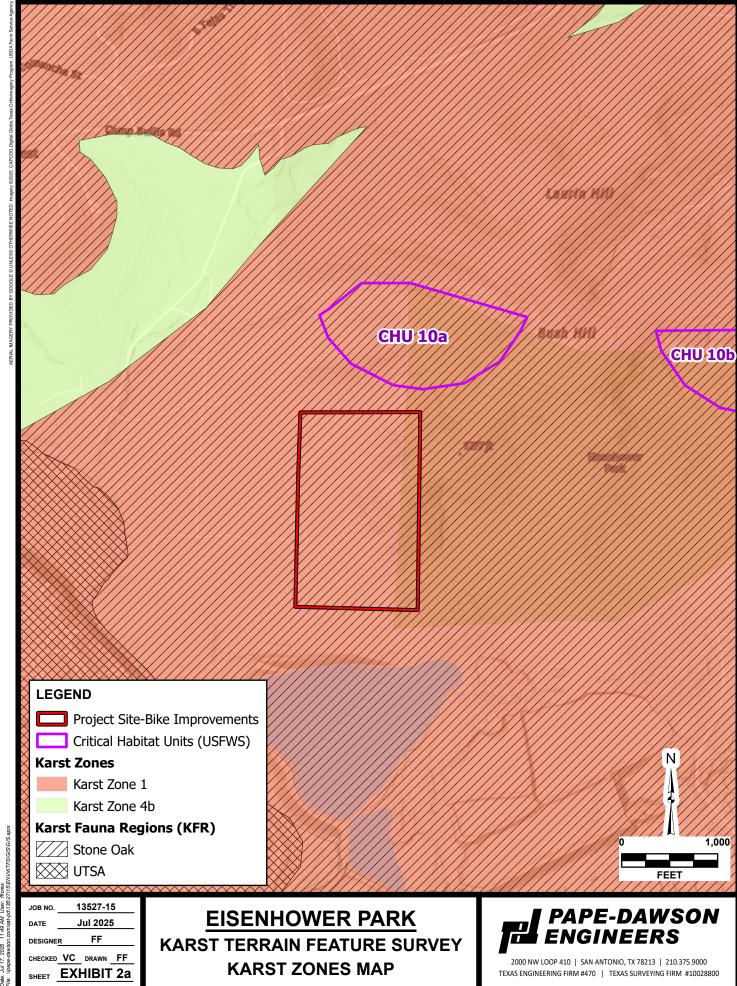
Veni, G., Cooper, J., and W. Dickerson. 2024. Statistical Analysis and Revision of Endangered Karst Invertebrate Species Distribution, San Antonio area, Texas. Prepared for the Texas Department of Transportation: Voluntary Conservation Measure for US 281 from Loop 1604 to the Comal County Line, Bexar County, Texas. 74 pp.

## **EXHIBITS**

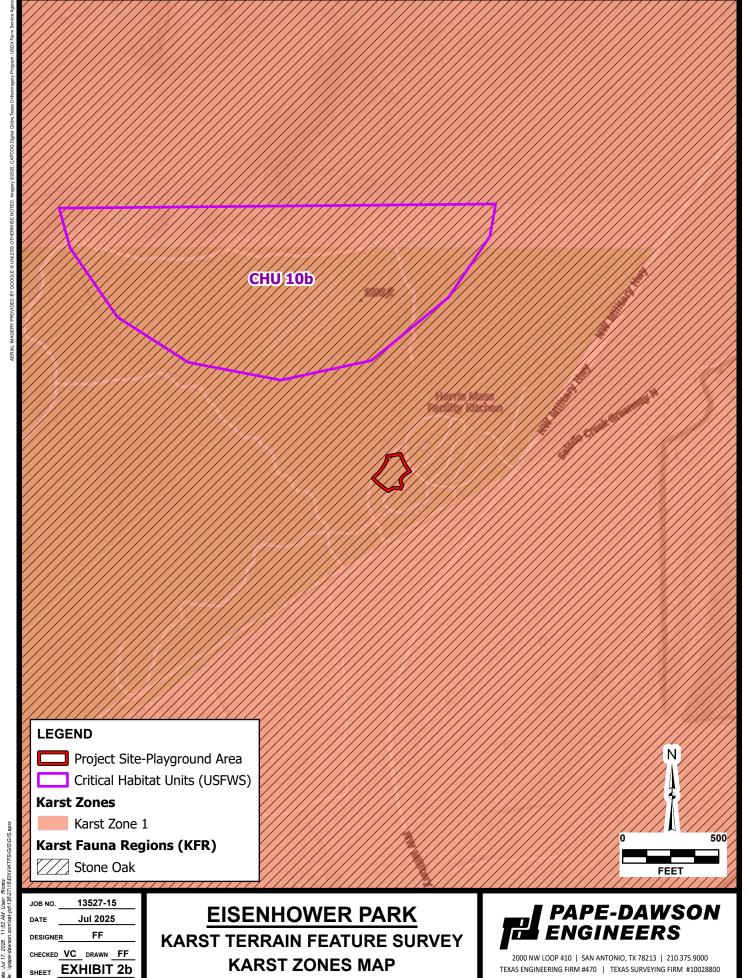
## EXHIBIT 1<br/>Location Map



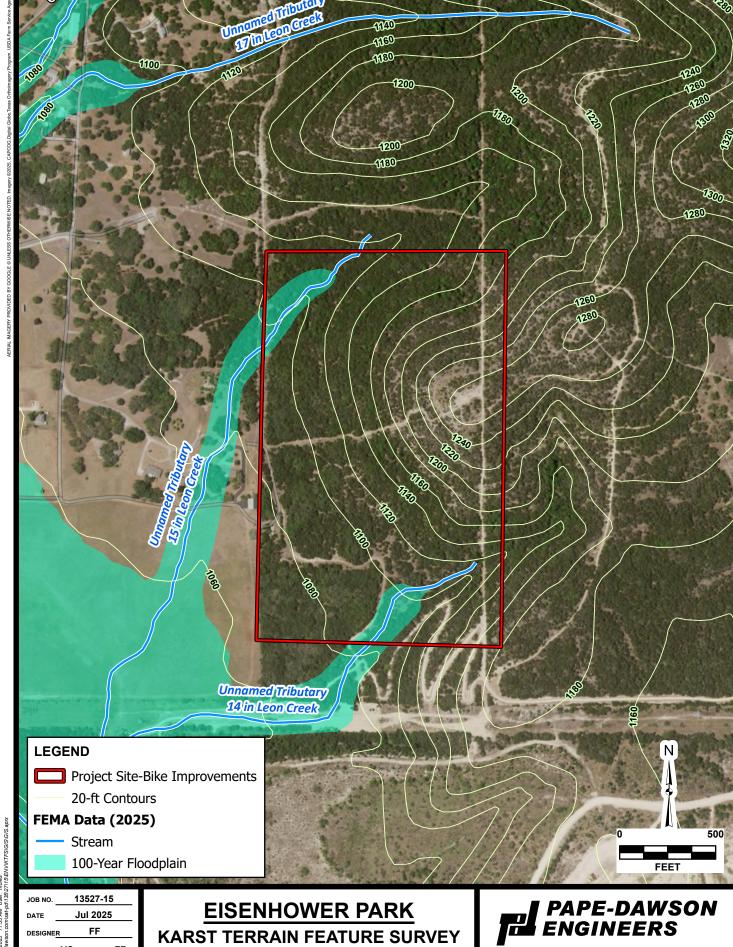
## **EXHIBIT 2A Karst Zones Map**



## **EXHIBIT 2B Karst Zones Map**



## EXHIBIT 3A Site Map



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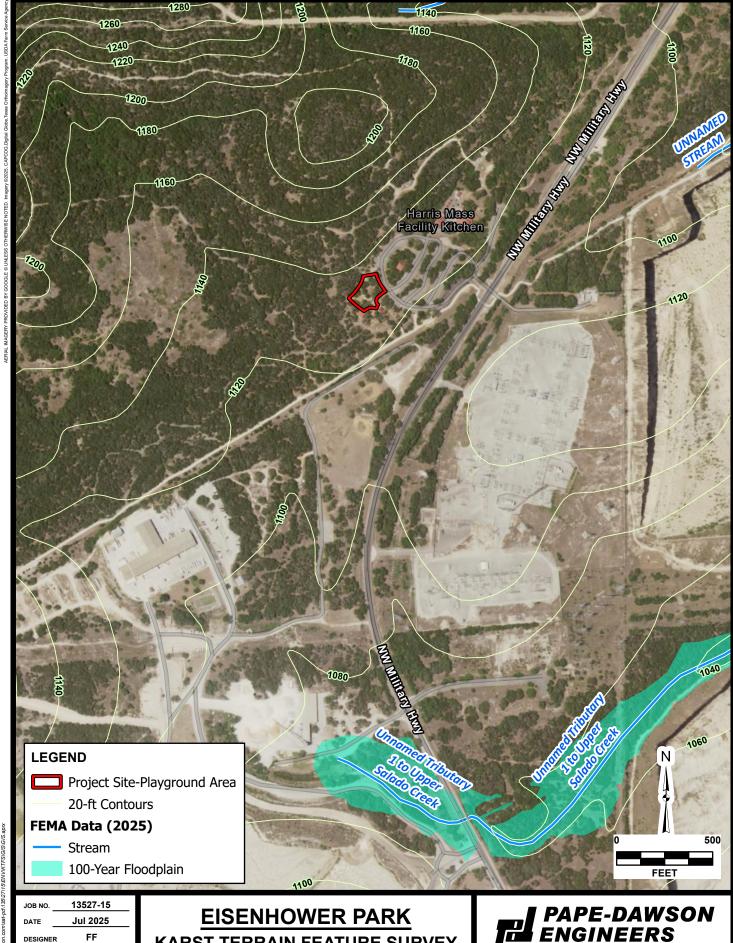
SHEET EXHIBIT 3a

**SITE MAP** 

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

## **EXHIBIT 3B**Karst Zones Map



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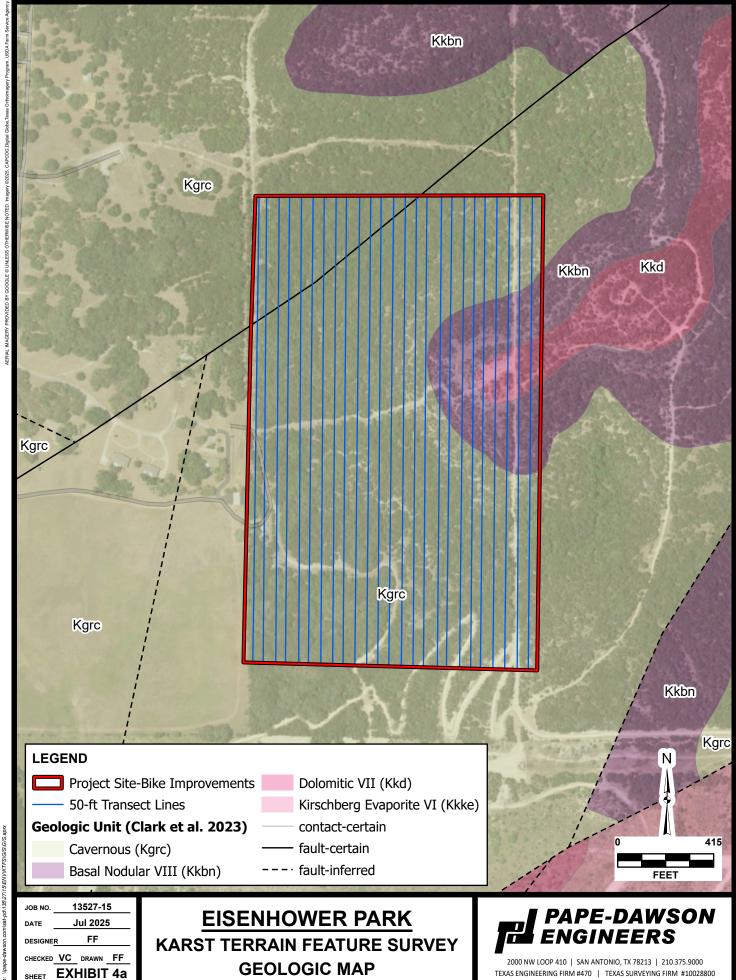
SHEET EXHIBIT 3b

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

KARST TERRAIN FEATURE SURVEY

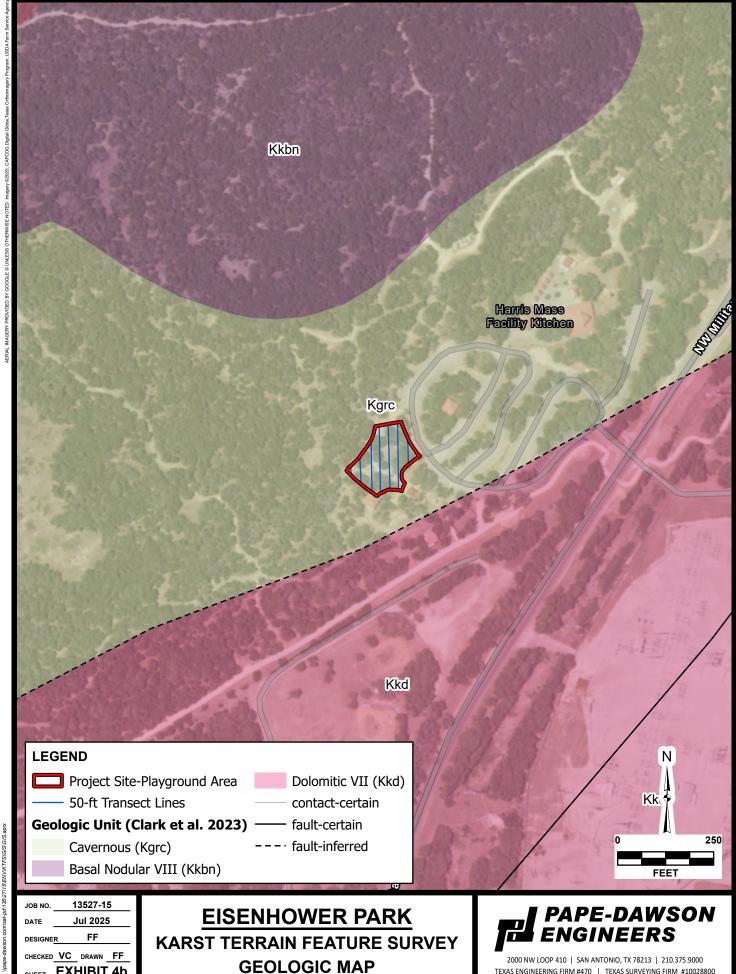
**SITE MAP** 

## **EXHIBIT 4A Geologic Map**



Date: Jul 17, 2025 12:01 PM User: #fc

## **EXHIBIT 4B Karst Zones Map**



SHEET EXHIBIT 4b

## **APPENDIX**

# APPENDIX A Site Photographs & Photo Location Map

Photo No.

**Date**: 7/2/2024

#### Description:

A view of the vegetation along the northern portion of the bike improvements parcel of the project site. This area has a continuous canopy, mature Ashe junipers (Juniperus ashei), and steep slopes. Photo taken facing southeast.

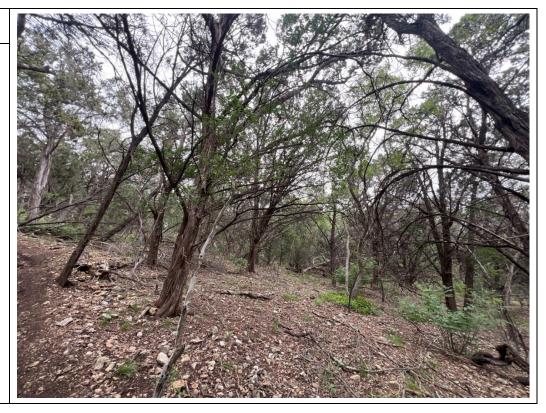


Photo No.

**Date**: 7/2/2024

#### Description:

View of a segment of an unpaved trail located near the eastern boundary of the bike improvements parcel. Vegetation and canopy coverage is interrupted along the trail's length. Photo taken facing east.



Photo No.

**Date**: 7/9/2025

#### **Description:**

Vegetation removal along other portions of the park's trails in the bike improvements parcel is evident. This photo was taken along the southwestern section of the project site. Photo taken facing southeast.



Photo No.

**Date**: 7/2/2024

#### **Description:**

Patches along the central portion of the bike improvements parcel show signs of vegetation removal. Cobbles of various sizes were found along such sections with vegetation removal. Photo taken facing west.



Photo No.

**Date**: 7/9/2025

#### **Description:**

View of the playground's rock-climbing wall located in the southwestern portion of the playground parcel of the project site. Evidence of previous vegetation removal to accommodate for the playground facilities is present. Photo taken facing northwest.

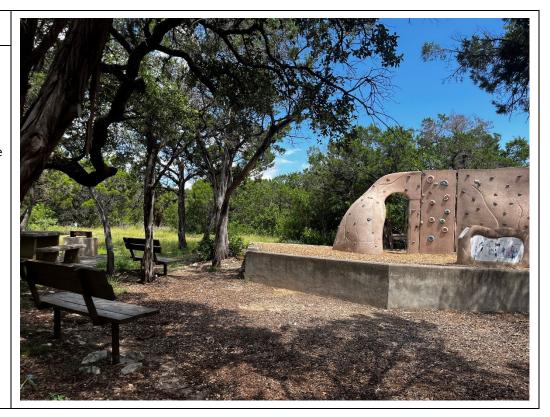


Photo No.

**Date**: 7/9/2025

#### **Description:**

Paved trails running adjacent to the western portion of the playground parcel are observed intersecting the vegetated areas. Vegetation mostly consists of regrowth Ashe juniper, Texas mountain Laurel (Dermatophyllum secundiflorum), and Texas yellowstar (Lindheimera texana) Photo taken facing west.



Photo No.

**Date**: 7/9/2025

### Description:

View of concrete picnic tables and the paved surfaces surrounding the playground and connecting other playground facilities throughout the parcel. Photo taken facing northeast.



Photo No.

**Date**: 7/9/2025

### Description:

View of the playground area located in the central portion of the playground parcel. The surrounding areas consist of mulched or cemented surfaces. Photo taken facing southeast.



Photo No.

**Date**: 7/9/2025

#### **Description:**

A road and the park's paved parking area is directly adjacent to the northeastern corner of the playground parcel. A few more Ashe juniper trees are observed throughout this area as well. Photo taken facing northeast.



Photo No. 10 **Date**: 7/9/2025

### Description:

Additional picnic tables and grills for the public are observed along the northern portion of the playground parcel. Photo taken facing northwest.





Jul 2025 FF CHECKED VC DRAWN FF SHEET APP. A (A)

**EISENHOWER PARK** KARST TERRAIN FEATURE SURVEY **PHOTO LOCATION MAP** 



2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000



CHECKED VC DRAWN FF SHEET APP. A (B)

FF

## KARST TERRAIN FEATURE SURVEY **PHOTO LOCATION MAP**



2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000 TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

## **Recharge and Transition Zone Exception Request Form**

**Texas Commission on Environmental Quality** 

30 TAC §213.9 Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Recharge and Transition Zone Exception Request Form** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

	Print Name of	: Customer,	/Agent:	Arnoldo	D Ma	rtinez,	Jr.,	PΕ
--	---------------	-------------	---------	---------	------	---------	------	----

Date: <u>3/28/2025</u>

Signature of Customer/Agent:

Regulated	<b>Entity</b>	Name:	Eisenhower	Park

## **Exception Request**

- 1. Attachment A Nature of Exception. A narrative description of the nature of each exception requested is attached. All provisions of 30 TAC §213 Subchapter A for which an exception is being requested have been identified in the description.
- 2. Attachment B Documentation of Equivalent Water Quality Protection.

  Documentation demonstrating equivalent water quality protection for the Edwards Aquifer is attached.

## Administrative Information

- 3. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 4. The applicant understands that no exception will be granted for a prohibited activity in Chapter 213.
- 5. The applicant understands that prior approval under this section must be obtained from the executive director for the exception to be authorized.

### **Attachment A – Nature of Exception**

The proposed project includes bicycle trails with ADA access areas and redesigning of the existing playground area within Eisenhower Park. For this reason, we would like to submit this project as a **Recharge and Transition Zone Exception Request** application. Please refer to the previous approval letter associated with Eisenhower Park (13001150).

## **Attachment B – Documentation of Equivalent Water Quality Protection**

Our site has been developed before, and we plan on adding a negligible increase in impervious cover, and any water quality will be protected.

## **Temporary Stormwater Section**

**Texas Commission on Environmental Quality** 

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Arnoldo D. Martinez, Jr., PE

Date: 3/28/2025

Signature of Customer/Agent:

Regulated Entity Name: Eisenhower Park

## **Project Information**

### **Potential Sources of Contamination**

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1.	Fuels for construction equipment and hazardous substances which will be used during construction:
	The following fuels and/or hazardous substances will be stored on the site:
	These fuels and/or hazardous substances will be stored in:
	Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

	<ul> <li>Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.</li> <li>Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.</li> </ul>
	igstyle igstyle Fuels and hazardous substances will not be stored on the site.
2.	Attachment A - Spill Response Actions. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
3.	Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
4.	Attachment B - Potential Sources of Contamination. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.
Se	equence of Construction
5.	Attachment C - Sequence of Major Activities. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
	<ul> <li>For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.</li> <li>For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.</li> </ul>
6.	Name the receiving water(s) at or near the site which will be disturbed or which will

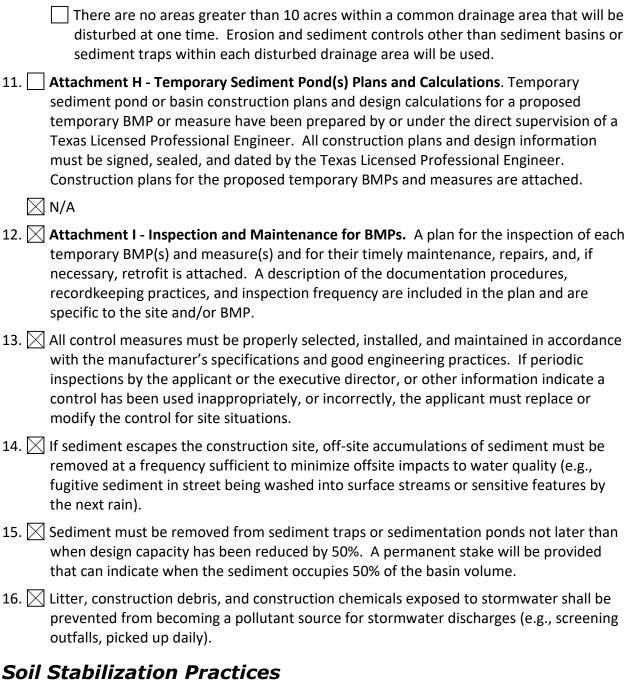
## Temporary Best Management Practices (TBMPs)

receive discharges from disturbed areas of the project: Leon Creek

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. Attachment D – Temporary Best Management Practices and Measures. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

	A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
	A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
	A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
	A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8.	The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
	Attachment E - Request to Temporarily Seal a Feature. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
	There will be no temporary sealing of naturally-occurring sensitive features on the site.
9.	<b>Attachment F - Structural Practices</b> . A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10.	<b>Attachment G - Drainage Area Map</b> . A drainage area map supporting the following requirements is attached:
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
	There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.



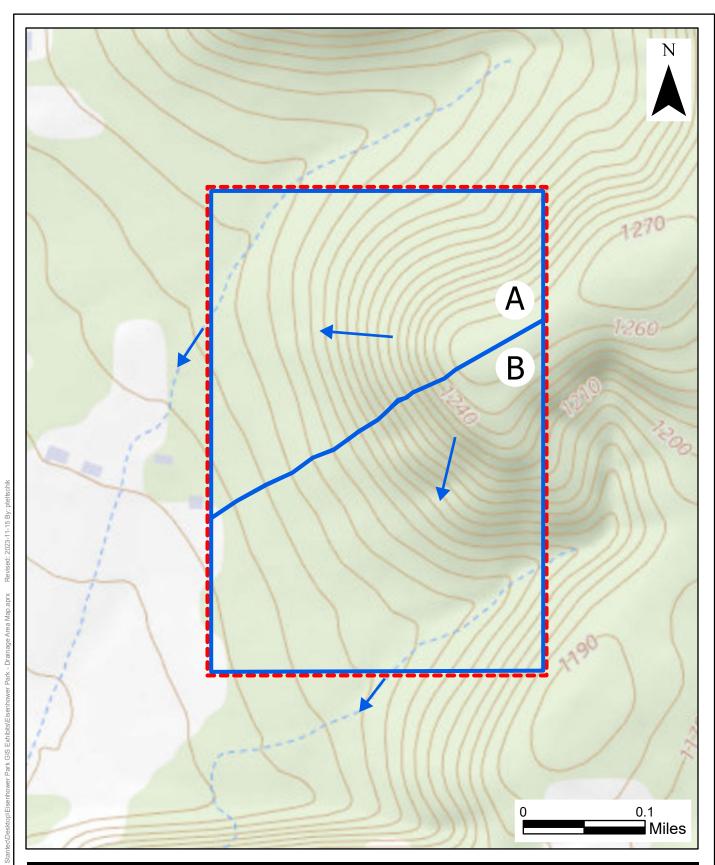
Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices. A schedule of the interim and permanent soil stabilization practices for the site is attached.

- 18. Records must be kept at the site of 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.
- 19. Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

### Administrative Information

- 20. All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
- 22. Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.





70 NE Loop 410, Suite 1100 San Antonio, Texas 78216 (210) 525-9090, Phone TBPE #F-6324 Copyright © 2018 www.stantec.com DRAINAGE AREA MAP EISENHOWER PARK Date: 11/15/2023 Scale: 1:5,000 Tech: PWT

Project Number: 222012814

Page 1 of 1

#### **Agent Authorization Form**

For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

Ī	Homor Gaen III
_	Print Name
Paks	a Recordin Dresso
	Title - Owner/President/Other
of	are of Son Antonio
	Corporation/Partnership/Entity Name
have authorized	Arnoldo D Martinez, Jr., PE
	Print Name of Agent/Engineer
of	Stantec
	Print Name of Firm

11

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

#### I also understand that:

- 1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
- 2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
- 3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
- 4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
- 5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

#### SIGNATURE PAGE:

form To in	3.7-25
Applicant's Signature	Date

THE STATE OF TK S

County of Blkar §

BEFORE ME, the undersigned authority, on this day personally appeared Homev (youcia known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

REENA LEE GONZALEZ
Notary Public, State of Texas
Comm. Expires 12-04-2026
Notary ID 131814991

NOTARY PUBLIC

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 12.04-2024

### **Application Fee Form**

#### **Texas Commission on Environmental Quality** Name of Proposed Regulated Entity: Eisenhower Park Regulated Entity Location: 19399 NW Military Hwy, San Antonio, TX Name of Customer: City of San Antonio Contact Person: Arnoldo D Martinez, Jr., PE Phone: <u>210-308-4701</u> Customer Reference Number (if issued):CN NA Regulated Entity Reference Number (if issued):RN NA **Austin Regional Office (3373)** Hays Travis Williamson San Antonio Regional Office (3362) Medina Uvalde Comal Kinney Application fees must be paid by check, certified check, or money order, payable to the Texas Commission on Environmental Quality. Your canceled check will serve as your receipt. This form must be submitted with your fee payment. This payment is being submitted to: **Austin Regional Office** San Antonio Regional Office Mailed to: TCEQ - Cashier Overnight Delivery to: TCEQ - Cashier **Revenues Section** 12100 Park 35 Circle Mail Code 214 Building A, 3rd Floor P.O. Box 13088 Austin, TX 78753 Austin, TX 78711-3088 (512)239-0357 Site Location (Check All That Apply): Recharge Zone Contributing Zone **Transition Zone**

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone		
Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone		
Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone		
Plan: Non-residential	Acres	\$
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	1 Each	\$ 500.00
Extension of Time	Each	\$

Date: 3/25/2025

### **Application Fee Schedule**

**Texas Commission on Environmental Quality** 

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

#### Water Pollution Abatement Plans and Modifications

**Contributing Zone Plans and Modifications** 

Project	Project Area in Acres	Fee
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional,	< 1	\$3,000
multi-family residential, schools, and other sites	1 < 5	\$4,000
where regulated activities will occur)	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

Project	Cost per Linear Foot	Minimum Fee- Maximum Fee
Sewage Collection Systems	\$0.50	\$650 - \$6,500

### Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	Cost per Tank or Piping System	Minimum Fee- Maximum Fee
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

**Exception Requests** 

Project	Fee
Exception Request	\$500

Extension of Time Requests

Project	Fee
Extension of Time Request	\$150



### **TCEQ Core Data Form**

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

### **SECTION I: General Information**

1. Reason for Submission (If other is checked please describe in space provided.)

Renewal (	(Core Data Form should be subr	nitted with the rene	ewal form)		<b>□</b> 0	ther			
	r Reference Number (if issued)  Follow this link to for CN or RN num  Central Registr					gulated Entity Re	ference	Number (if	issued)
	N II: Custome	r Informa			KIV				
4. General Customer Information 5. Effective Date for Custom					ormation	<b>Updates</b> (mm/dd,	/уууу)		3/28/2025
New Customer ☐ Update to Customer Information ☐ Ch☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Pub						ge in Regulated En Accounts)	tity Owne	ership	
	r Name submitted here ma s Comptroller of Public Acco	·	omatically b	ased on	what is c	urrent and active	with th	ne Texas Sec	retary of State
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)						If new Customer,	enter pre	evious Custom	ner below:
						City of San Antor	nio		
7. TX SOS/CPA Filing Number 8. TX State			x ID (11 digits	5)				10. DUNS applicable)	Number (if
11. Type of Customer: Corporation					☐ Individ	lual	Partne	ership: 🔲 Ger	neral 🗌 Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other				Sole P	roprietorship	Otl	her:		
.2. Number o	of Employees					13. Independe	ntly Ow	ned and Op	erated?
0-20 2	21-100	1-500 🛚 501 an	nd higher			Yes	⊠ No		
14. Customer	<b>Role</b> (Proposed or Actual) – a	s it relates to the Re	gulated Entity	listed on	this form.	Please check one o	f the follo	owing	
Owner Occupationa	☐ Operator al Licensee ☐ Responsible I		er & Operator P/BSA Applica			☐ Other:	:		
15. Mailing	City of San Antonio/ Public W	orks Dept. 100 V	W. Houston St.	., 15th Flo	or				
Address:	City San Antonio		State T	X	ZIP	78283		ZIP + 4	3966
16. Country N		le USA)		17.	E-Mail Ad	ddress (if applicab	le)		
·									

TCEQ-10400 (11/22) Page 1 of 3

18. Telephone Number			19. Extension or	Code		20. Fa	ax Number (ij	<sup>f</sup> applicab	le)	
( 210 ) 207-2874						(	) -			
SECTION III: I	Regul	ated Ent	ity Inform	ation						
21. General Regulated En	tity Inform	ation (If 'New Re	gulated Entity" is select	ted, a new p	ermit applica	tion is a	also required.)			
New Regulated Entity     ■	Update to	o Regulated Entity	Name	o Regulated	Entity Inform	ation				
The Regulated Entity Namas Inc, LP, or LLC).	ne submitte	ed may be upda	ted, in order to mee	t TCEQ Cor	re Data Star	ndards	(removal of o	organiza	ition	al endings such
22. Regulated Entity Nam	<b>e</b> (Enter nar	ne of the site whe	re the regulated action	is taking pla	ace.)					
Eisenhower Park										
23. Street Address of										
the Regulated Entity:	OLD CAMP	BULLIS RD								
(No PO Boxes)	City	San Antonio	State	TX	ZIP	7825	57	ZIP +	4	9700
24. County	Bexar				•	•		•		
		If no Stre	et Address is provid	ed, fields 2	25-28 are re	quired				
25. Description to										
Physical Location:										
26. Nearest City						State			Near	est ZIP Code
San Antonio						TX			7825	7
Latitude/Longitude are re used to supply coordinate	-	-	-		Data Standa	rds. (G	ieocoding of	the Phys	ical /	Address may be
27. Latitude (N) In Decima	al:	29.624792		28. L	ongitude (V	V) In De	ecimal:	-92.5	8859	4
Degrees	Minutes		Seconds	Degre	ees		Minutes			Seconds
29		37	29.2512		92		35	5		20.184
29. Primary SIC Code (4 digits)		. Secondary SIC digits)	Code	31. Primai (5 or 6 digi	ry NAICS Co ts)	de	<b>32. Sec</b> (5 or 6 c	ondary I	NAIC	S Code
7999				712190						
33. What is the Primary B	usiness of	this entity? (D	o not repeat the SIC or	NAICS descr	ription.)					
Public Park										
34. Mailing	City of Sa	n Antonio/ Public	Works Dept. 100 V	V. Houston S	it., 15th Floor	r				
Address:	City	San Antonio	State	тх	ZIP	7828	33	ZIP +	+ 4	3966
35. E-Mail Address:	Ma	ark.Wittlinger@Sa	nAntonio.Gov			1				

TCEQ-10400 (11/22) Page 2 of 3

**38. Fax Number** (if applicable)

( ) -

37. Extension or Code

36. Telephone Number

( 210 ) 207-2874

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance. ☐ Dam Safety Districts Edwards Aquifer ☐ Emissions Inventory Air ☐ Industrial Hazardous Waste ☐ New Source OSSF Petroleum Storage Tank ☐ PWS Review Air Sludge Storm Water ☐ Title V Air ☐ Tires Used Oil ☐ Voluntary Cleanup ■ Wastewater ■ Wastewater Agriculture ■ Water Rights Other: **SECTION IV: Preparer Information** 40. Name: Arnoldo D Martinez, jr., PE 41. Title: Civil Engineer 42. Telephone Number 43. Ext./Code 44. Fax Number 45. E-Mail Address (210) 308-4701 arnold.martinez@stantec.com **SECTION V: Authorized Signature** 46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39. Company: Job Title: Civil Engineer Stantec Arnoldo D Martinez, Jr., PE Name (In Print): Phone: ( 210 ) 308- **4701** Signature: 3/28/2025 Date:

TCEQ-10400 (11/22) Page 3 of 3

# CITYWIDE BICYCLE RECREATIONAL FACILITIES AT EISENHOWER PARK

SAN ANTONIO, TEXAS

FEBRUARY 5TH, 2025

### SHEET INDEX

LC 0.00 COVER SHEET
LS 1.00 TREE STAND DELINEATION PLAN
BP-01.00 BIKE PARK GENERAL NOTES
BP-01.01 FLOW LINES GENERAL NOTES
BP-01.02 SKILLS COURSE NOTES
BP-01.03 EROSION CONTROL NOTES
BP-01.04 TRAIL CONSTRUCTION NOTES
FL-00.01 FLOW LINE NOTES
BP-03.00 FLOW LINES MATERIALS PLAN
BP-03.01 FLOW LINES MATERIALS PLAN
BP-03.02 FLOW LINES MATERIALS PLAN
BP-03.03 FLOW LINES MATERIALS PLAN
BP-03.04 FLOW LINES MATERIALS PLAN
BP-03.05 FLOW LINES MATERIALS PLAN
BP-03.06 FLOW LINES MATERIALS PLAN
BP-03.07 FLOW LINES MATERIALS PLAN
BP-06.00 SKILL COURSE DETAILS
BP-06.01 SKILL COURSE DETAILS
BP-06.02 SKILL COURSE DETAILS
BP-06.03 SKILL COURSE DETAILS
BP-06.04 SKILL COURSE DETAILS
BP-06.05 SKILL COURSE DETAILS
BP-06.06 SKILL COURSE DETAILS
BP-06.07 SKILL COURSE DETAILS
BP-06.08 SKILL COURSE DETAILS
BP-06.09 WAY FINDING NOTES
WF-08.00 WAY FINDING NOTES

### PROJECT INFORMATION

### CLIENT

CITY OF SAN ANTONIO SAN ANTONIO, TX CONTACT: MARK WITTLINGER PHONE: 210-207-2874

### **SUB CONSULTANT**

ACTION SPORTS DESIGN, LLC 12400 STATE HWY 71, 350-348 AUSTIN, TX78738 EMAIL: mike.mcintyre@ActionSportsDesign.com PHONE: 512-727-4347 CONTACT: MIKE MCLNTYRE

### PRIME CONSULTANT

STANTEC 70 NE LOOP 410 SUITE 1100 SAN ANTONIO, TX PHONE: 210-525-9090 CONTACT: MARK MALDONADO

### SURVEY

STANTEC
70 NE LOOP 410
SUITE 1100
SAN ANTONIO, TX
PHONE: 210-714-9990
CONTACT: JONATHAN PEREZ

### LOCATION MAP

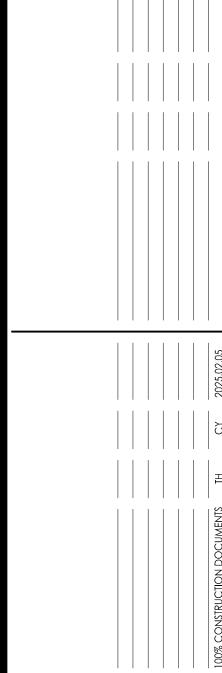


### DOCUMENT ISSUE

DATE	NO.	ISSUE	APPROVAL
2024.03.27	01	100% DESIGN DEVELOPMENT	
2024.11.01	02	90% CONSTRUCTION DOCUMENTS	
2025.02.05	03	100% CONSTRUCTION DOCUMENTS	

Stante TBPE # FLoop 410 Suite 1100
TBPLS # 1019

Consultant



SA 3162

oject F SAN ANTONIO

CITYWIDE BICYCLE RECREATIONAL FAC EISENHOWER PARK

Project No.: 22201281

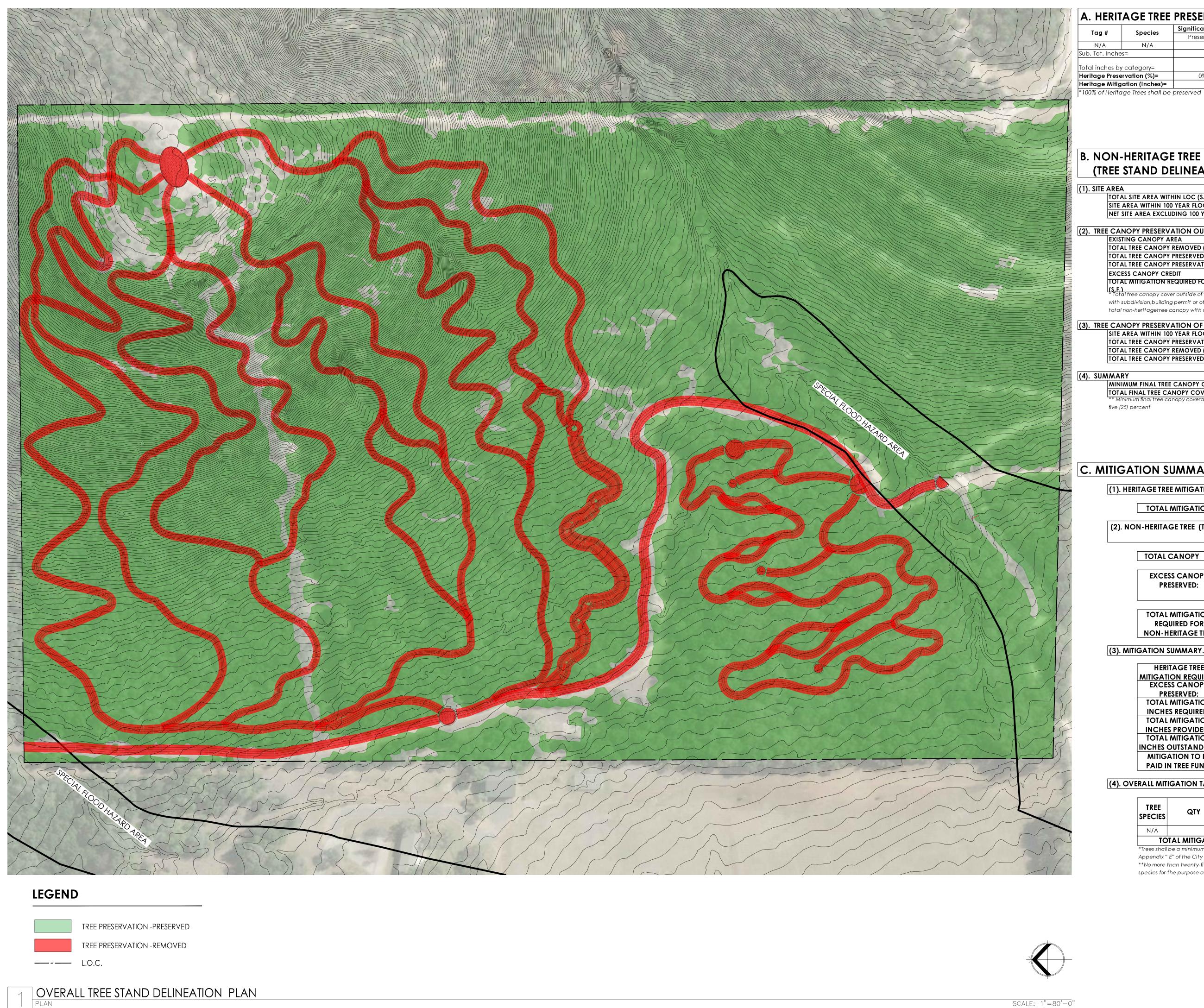
 XL
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 CY
 2025-02

 Dwn.
 Dsgn.
 Chkd.
 YYYY.MN

COVER SHEET

Revision: Sheet: of Drawing No.

LC0.00



Tag #	Species	Significant Tree* Heritage 3:1		ge 3:1	Heritage 1:1	
rug #	species	Preserved	Removed	Preserved	Removed	Preserved
N/A	N/A			0		
Sub. Tot. Inche	25=	0	0	0	0 0	
otal inches by	/ category=	0		0		
leritage Prese	ervation (%)=	0%	0%			
leritage Mitig	ation (inches)=			(	)	

### B. NON-HERITAGE TREE PRESERVATION. sec. 35-523. (f)(3)A. (TREE STAND DELINEATION) (2003)

$\mathbb{H}$	(1). SITE AREA		
	TOTAL SITE AREA WITHIN LOC (S.F.):		2,214,290
	SITE AREA WITHIN 100 YEAR FLOODPLAIN (S.F.):		147,983
1/2	NET SITE AREA EXCLUDING 100 YEAR FLOODPLAIN (S.F.):		2,066,307
1			
1	(2). TREE CANOPY PRESERVATION OUTSIDE OF FLOODPLAIN		
E	EXISTING CANOPY AREA		1,860,221
=	TOTAL TREE CANOPY REMOVED (S.F.)	16.8%	312,469
	TOTAL TREE CANOPY PRESERVED (S.F.)	83.2%	1,547,752
$\pm$	TOTAL TREE CANOPY PRESERVATION REQUIRED (S.F.) *	30%	558,066
	EXCESS CANOPY CREDIT	989,	686
	TOTAL MITIGATION REQUIRED FOR TREE CANONY REMOVAL	0	
E	(S.F.) * Total tree canopy cover outside of the regulatory floodplain: 35% of to	J	

with subdivision, building permit or otherpermit after the masterdevelopment plan stage or 30% of total non-heritagetree canopy with masterdevelopment plan.

(3). TREE CANOPY PRESERVATION OF REGULATORY FLOODPLAIR	N AREA	
SITE AREA WITHIN 100 YEAR FLOODPLAIN (S.F.)		147,983
TOTAL TREE CANOPY PRESERVATION REQUIRED (S.F.)	80%	118,387
TOTAL TREE CANOPY REMOVED (S.F.)	N/A	6,082
TOTAL TREE CANOPY PRESERVED (S.F.)	N/A	141,635
<u> </u>		

TOTAL TREE CANOPY PRESERVED (S.F.)	N/A	141,635
(4). SUMMARY		
MINIMUM FINAL TREE CANOPY COVERAGE REQUIRED (S.F.)**	<b>k</b>	25%
	·	0.4.0~

TOTAL FINAL TREE CANOPY COVERAGE (S.F.)

\*\* Minimum final tree canopy coverage of multi-family and nonresidential shall be provided at twenty-

### C. MITIGATION SUMMARY. Section 35-523(g).

(1). HERITAGE TREE MITIGATION REQUIRED. Section 35-523(g).		
TOTAL MITIGATION	(CALIPER INCH)	C

(2). NON-HERITAGE TREE (TREE STAND DELINEATION) MITIGATION REQUIRED. Section 35-523(g).

TOTAL CANOPY	(S.F.)	1,860,221
EXCESS CANOPY	(S.F.)	989,686
PRESERVED:	(QUANTITY of TREE) /875	1,131
	(CALIPER INCH) x16.7	18,889

**TOTAL MITIGATION** TOTAL MITIGATION (S.F.)

REQUIRED FOR (QUANTITY of TREE) /875 NON-HERITAGE TREE (CALIPER INCH) x16.7

### (3). MITIGATION SUMMARY. Section 35-523(g).

HERITAGE TREE	(CALIDED INCLI)	
MITIGATION REQUIRED:	(CALIPER INCH)	•
EXCESS CANOPY PRESERVED:	(CALIPER INCH)	18,889
TOTAL MITIGATION	(CALIPER INCH)	0
INCHES REQUIRED:	(CALIFER INCH)	U
TOTAL MITIGATION	(CALIPER INCH)	
INCHES PROVIDED:	(CALIFER INCH)	•
TOTAL MITIGATION	(CALIPER INCH)	
INCHES OUTSTANDING:	(CALIFER INCH)	•
MITIGATION TO BE	(\$200.00 per inch)	
PAID IN TREE FUND:	(\$200.00 per inch)	-

### (4). OVERALL MITIGATION TABLE. Section 35-523(g).

TREE SPECIES	QTY	CALIPER INCHES	MITIGTION INCHE
N/A			
TC	TAL MITIGATIO	N INCHES PROVIDED	N/A

\*Trees shall be a minimum of 1.5 caliper inches in size and from the approved list found in Appendix " E" of the City of San Antonio Unified Development Code. \*\*No more than twenty-five (25) percent of the replacement trees shall be of the same species for the purpose of mitigation .

> OVERALL TREE STAND DELINEATION PLAN

Drawing No.

LS1.00

Permit/Seal

Project No.: 222012814

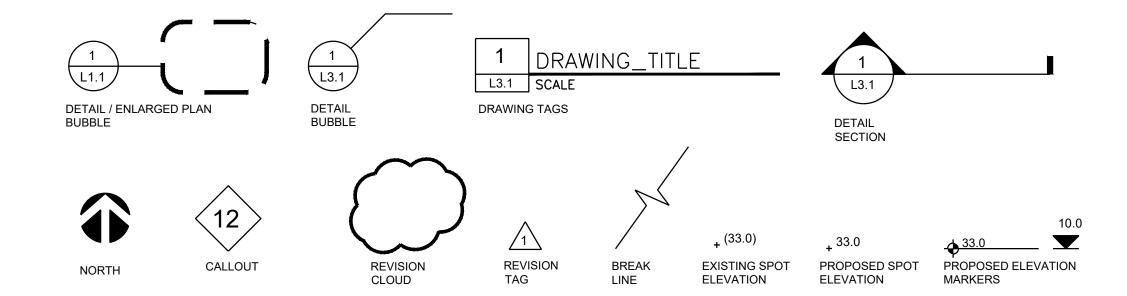
XLTHCY2025-02-05Dwn.Dsgn.Chkd.YYYY.MM.DD

Revision: Sheet: of

### DIKE DADK DDAMING CET ARRDEMIATIONS

ABC AD	AGGREGATE BASE COURSE AREA DRAIN	FIN FL	FINISH(ed)	OC OD	ON CENTER OUTSIDE DIAMETER
NDJ	ADJACENT	FLG	FLOOR FLANGE	OFD	OVERFLOW DRAIN
FF	ABOVE FINISH FLOOR	FLSG	FLASHING	OPNG	OPENING
LT	ALTERNATE	FLR	FLOOR	OPP	OPPOSITE
LUM	ALUMINIUM	FLUOR	FLUORESCENT	OSB	ORIENTED STRAND BOARD
NOD	ANODIZED	FOC	FACE OF CONCRETE	OSF OZ	OUTSIDE FACE OUNCE
PPROX RCH	APPROXIMATE ARCHITECTURAL	FOF	FACE OF FINISH	PA	PAINTED
&B	BALL AND BURLAP	FOS FR	FACE OF STUD	PART	PARTITION
/O	BOTTOM OF	FK FT	FIRE-RETARDANT FEET	PAV	PAVERS
С	BACK OF CURB	FTG	FOOTING	PC	POINTS OF CURVATURE
LW	BELOW	GA	GAUGE	PCC	PRECAST CONCRETE
LDG	BUILDING	GAL	GALLON	PERP	PERPENDICULAR
LKG M	BLOCKING BEAM	GALV GC	GALVANIZED	PL PLMB	PLATE PLUMBING
OT	BOTTOM	GI	GENERAL CONTRACTOR GALVANIZED IRON	PLSTC	PLASTIC
RG	BEARING	GL BLK	GLASS BLOCK	PLWD	PLYWOOD
₹K	BRICK	GL	GLASS	PNT	PAINTED
S.,	BOTTOM OF STEP BOTTOM OF WALL	GMMU	GLASS MESH MASONARY UNIT	PPL	PROPERTY LINE
N C	CENTER TO CENTER	GND	GROUND	PR	PAIR
AL	TREE CALIPER	GR	GRANITE	PREFAB PROJ	PREFABRICATE PROJECTION
FM	CUBIC FEET PER MINUTE	GRD H&V	GRADE HEATING & VENTILATION	PSF	POUNDS PER SQUARE FOOT
IP	CAST IN PLACE	HB	HOSE BIB	PSI	POUNDS PER SQUARE INCH
J	CONTROL JOINT	HC	HOLLOW CORE	PT	PRESSURE TREATED
L LG	CENTER LINE CEILING	HDW	HARDWARE	PVC	POLYVINYL CHLORIDE
LR	CLEAR	HM	HOLLOW METAL	QTY R	QUANTITY RISER
М	CORRUGATED METAL	HH HODZ	HAND HEWN	RD	ROOF DRAIN
MP	CORRUGATED METAL PIPE	HORZ HP	HORIZONTAL HIGH POINT	REF	REFERENCE
MU	CONCRETE MASONRY UNIT	HR	HOURS	REFR	REFRIGERATOR
) )	CLEAN OUT	HT	HEIGHT	REINF	REINFORCED
OL ONC	COLUMN CONCRETE	ID	INSIDE DIAMETER	REQD	REQUIRED
ONST	CONSTRUCTION	IN	INCHES	REV RM	REVISION ROOM
ONT	CONTINUOUS	INCL	INCLUDE	RO	ROUGH OPENING
ORR	CORRUGATED	INFO INSUL	INFORMATION INSULATION	RP	RADIUS POINT
S U	CONCRETE SEALER	INT	INTERIORS	RS	ROUGH SAWN
Y	CUBIC CUBIC YARD	JT	JOINT	S SC	SOUTH
•	DEPTH	LAB	LABORATORY	SCH	SOLID CORE SCHEDULE
D	DECK DRAIN	LAM	LAMINATED	SD	STORM DRAIN
F	DRINKING FOUNTAIN	LAV	LAVATORY POUNDS	SECT	SECTION
l 	DRAIN INLET	LB(S) LP	LOW POINT	SF	SQUARE FEET
IA AG	DIAMETER DIAGONAL	LT	LIGHT	SHT	SHEET
M	DIMENSION	LTWT	LIGHTWEIGHT	SIM SIP	SIMILAR STRUCTURAL INSULATION PANE
١	DOWN	LVR	LOUVER	SLR	SEALER
3	DOWNSPOUT	MACH	MACHINE	SNK	SINK
ſL	DETAIL	MATL MAX	MATERIAL MAXIMUM	SPEC	SPECIFICATION
VG	DRAWING EAST	MECH	MECHANICAL	SQ	SQUARE
<b>\</b>	EACH	MED	MEDIUM	SS	STAINLESS STEEL SERVICE SINK
	EXPOSED CONSTRUCTION	MEZZ	MEZZANINE	SSK STA	STAINED
l	EXPANSION JOINT	MFR	MANUFACTURER	STD	STANDARD
EC.	ELECTRICAL	MH	MANHOLE	STIFF	STIFFENER
.EV	ELEVATION ELEVATOR	MIN MISC	MINIMUM MISCELLANEOUS	STL	STEEL
.EVR /I	ELEVATOR EMERGENCY	MLW	MILLWORK	STMP	STAMPED
л ЛВЕD	EMBEDMENT	MO	MASONRY OPENING	STN	STORAGE
Q	EQUAL	MTD	MOUNTED	STOR STRUCT	STORAGE STRUCTURAL
UIP	EQUIPMENT	MTL	METAL	SUSP	SUSPENDED
SC	ESCALATOR	N N/A	NORTH	TR	TREAD
(IST	EXISTING	N/A NIC	NOT APPLICABLE NOT IN CONTRACT	TSS	TOP OF STRUCTURAL SLAB
(P (PA	EXPOSED EXPANSION	NO	NUMBER	TSF	TOP OF STRUCTURAL FLOOR
KPA KT	EXTERIOR	NOM	NOMINAL	TFF	TOP OF FINISH FLOOR
)	FLOOR DRAIN	NTS	NOT TO SCALE	TOC	TOP OF CURB
ON	FOUNDATION	OA	OVERALL	TEL	TELEPHONE

### GRAPHIC SYMBOLS LEGEND





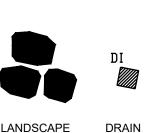
LIGHT



BIKE RACK

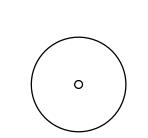
BOLLARD

LIGHT



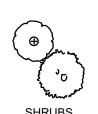
**BOULDERS** 

INLET



DECIDUOUS TREE CONIFEROUS TREE





THICKNESS **THROUGH** 

TOP OF BEAM TOP OF CONCRETE

TOP OF WALL

**TRANSVERSE** TOP OF STEP

UNDERGROUND

UNDERWRITER'S LAB **UNLESS NOTED OTHERWISE** 

TYPICAL

VERTICAL

WEST

WOOD

**VESTIBULE** 

**VERIFY IN FIELD** 

WATER CLOSET

WATERPROOF

WATERPROOF MEMBRANE

WATER RESISTANT

WELDED WIRE FABRIC

WHITE WATER PARK

WATER SURFACE

TOB

**VERT** 

WLS

YDS

### SUMMARY OF WORK

### GENERAL SKILLS COURSE CONSTRUCTION NOTES

- 1. Contractor shall verify and coordinate finish grades with related site improvements. Contractor shall immediately report any conflicts or discrepancies to the Owner's Representative.
- 2. The contractor shall be responsible for confirming ground elevations and overall topography of the site, as well as, all site dimensions prior to start of construction. The contractor shall immediately notify the Owner's Representative in writing of any differences in topography or site dimensions that differ from those shown on the plans.
- 3. Written dimensions are to take precedence over scaled dimensions. Notify Owner's Representative of any discrepancies found in the field before moving forward. Failure to gain clarification from Owner's Representative before moving forward will render contractor responsible for all costs associated with correcting installed work to the satisfaction of the Owner's Representative.
- 4. Contractor shall be responsible for removing all debris from the project site, as needed, during construction and upon final acceptance by Owner's Representative.
- 5. Contractor shall perform all work in accordance with all applicable local, state and/or national building codes and regulations.
- 6. Contractor is responsible for investigating and procuring any necessary local, state, and federal permits required for compliance with any local, state, or federal laws.
- 7. Confirm utility locations before digging. Call Texas Dig 811 or 1-800-321-ALERT (2537), and ensure utility locates are done before work commences.
- 8. Contractor shall be responsible for maintenance and protection of vehicular and pedestrian traffic. All traffic control measures shall be in accordance with local, state, and OSHA regulations.
- 9. Any retaining walls will require coordination with and design by a professional engineer. Plans to be in accordance with local design and permitting requirements. Shop drawings shall be required and provided to Owner's Representative for approval before commencing with construction.
- 10. Contractor shall have all required submittal approvals prior to beginning the work or ordering materials.
- 11. Contractor shall be responsible for repair to any sidewalks, lawn, trees, paving, and other improvements disturbed by construction or demolition activities proposed herein.

### PERFORMANCE SPECIFICATIONS

#### TRAILS-

All trail construction shall comply with the specifications, drawings, requirements, and design intent prescribed in the construction and contract documents. Additional resources include "Trail Solutions, IMBA's Guide to Building Sweet Singletrack" (2004) and "Managing Mountain Biking" (2007). Modifications shall be approved by Owner's Representative.

- 1. Completed products shall reflect professional workmanship in appearance, quality, and attention to detail. Trails and features shall be well integrated into site, aesthetically pleasing in appearance, and well-shaped, crafted, and finished according to commonly accepted best practices for high quality and sustainable mountain biking trails. Work must be completed to the satisfaction of the Owner's Representative.
- 2. Should the contractor discover discrepancies in the specifications, the matter shall be at once brought to the attention of the Owner's Representative, and the discrepancies corrected before proceeding further.
- 3. Trail contractor shall be responsible for any coordination with General Contractor and Subcontractors as required to complete all operations.
- 4. Test Riding: Trail Contractor shall thoroughly test ride all trails and trail features, by bike with appropriately skilled rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with Owner's Representative. Trails and features shall be modified and corrected as necessary until performance specifications are met.
- 5. Trail Contractor shall leave trails and the adjacent area in a finished and natural-looking condition and minimize disturbance to permanent existing vegetation to the extent possible in coordination with general contractor, topsoil spreading, and irrigation and landscape installation.
- 6. All excavated material generated during trail construction must be used in the trail, or dispersed and blended into surrounding terrain, or removed. No piles of excavated material greater than 6 inches depth shall be left behind. All material left onsite shall be revegetated per plan. If taken off site, coordinate location with County Inspector.
- 7. The Trail Contractor shall be responsible for fine grading and positive drainage away from all trails and trail features. No impoundments nor ponding of surface water shall be allowed.
- 8. Where necessary, Trail Contractor may construct shallow porous detention basins adjacent to the trail to manage surface water drainage, provided they are constructed in an appropriate manner and do not create a hazard.

### FLOWLINE TRAILS-

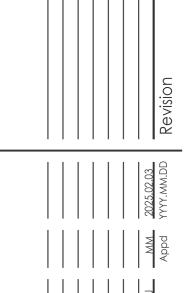
All flowline trails shall comply with the specifications, drawings, requirements, and design intent prescribed in the construction and contract documents. Any required supplemental information shall be provided by the selected contractor in the associated submittal and/or shop drawings.

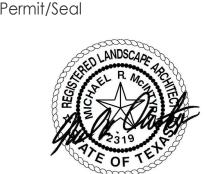
Field design and construction of shotcrete flow lines shall include, but is not limited to:

- 1. Field design and construction of acrylic-surfaced flow lines for all ages and riding abilities.
- 2. The ability to ride bikes, skateboards, rollerblades and scooters. Primary user is bikes.
- 3. Coordinating operations with trail development and other site development components.

### BIKE PARK BUILDER QUALIFICATIONS

- In addition to the performance specifications, the selected trail builder/contractor shall demonstrate a minimum level of specific trails construction experience to ensure the final product is satisfactory.
- 1. For all project scope except the acrylic-shotcrete flow lines, the qualified trail builder/contractor shall provide examples of a minimum of five (5) successfully completed projects similar in size and scope and 3 active references from these successfully completed projects. References shall include names, numbers and email addresses. ASD Planners will assist the City of San Antonio in evaluating submitted qualifications and the selection process.
- 2. Adaptive qualifications: Builder must also provide examples of successful field design and construction of Adaptive MTB trails. Understanding that this is an emerging segment in trail development, the requirements for examples of work will be less exhaustive than for other trail types. The builder must however demonstrate thorough understanding of and a passion for the construction of high level adaptive mountain bike trails, selected builder shall obtain and review adaptive MTB guidelines prior to initiating construction.
- 3. Specific to the shotcrete flow lines, the venor/contractor shall demonstrate a portfolio that includes more than 50 completed shotcrete parks as well as demonstrate their position at the cutting edge of asphalt pumptrack design and Additionally, the contractor shall demonstrate experience with acrylic surfacing applications. Action Sports Design, Ilc will assist the City of San Antonio in evaluating submitted qualifications and the selection process.





02/03/2025

Project No.: 222012814 le Name: BP-0.01-0.02 NOTES

 
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 **BIKE PARK** 

Revision: Sheet: of

Drawing No.

**BP-01.00** 

GENERAL NOTES

### **GENERAL CONSTRUCTION NOTES**

- Contractor shall verify and coordinate finish grades with related site improvements. Contractor shall immediately report any conflicts or discrepancies to the Owner's Representative.
- The contractor shall be responsible for confirming ground elevations and overall topography of the site, as well as, all site dimensions prior to start of construction. The contractor shall immediately notify the Owner's Representative in writing of any differences in topography or site dimension that differ from those shown on the plans.
- Written dimensions are to take precedence over scaled dimensions. Notify Landscape Architect of any discrepancies found in the field before moving forward. Failure to gain clarification from Landscape Architect before moving forward will render contractor responsible for all costs associated with correcting installed work to the satisfaction of the Owner's Representative.
- Contractor shall be responsible for removing all debris from the project site, as needed, during construction. Offiste disposal to be cleared by county inspector.
- 5. Contractor shall perform all work in accordance with all applicable local, state and/or national building codes and regulations.
- Contractor shall be responsible for maintenance and protection of vehicular and pedestrian traffic. All traffic control measures shall be in accordance with local, state, and OSHA regulations.
- Contractor shall have all required submittal approvals prior to beginning the work or ordering materials.
- 8. Contractor shall be responsible for repair to any sidewalks, lawn, trees, paving, and other improvements disturbed by construction or demolition activities proposed herein.
- 9. Environmental Inspector may request that additional erosion controls be installed on site at any time during construction.

### PERFORMANCE SPECIFICATIONS

All trail construction shall comply with the specifications, drawings, requirements, and design intent prescribed in the construction and contract documents. Additional resources include "Trail Solutions" (2004) and "Managing Mountain Biking" (2007). Modifications shall be approved by Owner's Representative.

- Completed products shall reflect professional workmanship in appearance, quality, and attention to detail. Trails and features shall be well integrated into site, aesthetically pleasing in appearance, and well-shaped, crafted, and finished according to commonly accepted best practices for high quality and sustainable mountain biking trails. Work must be completed to the satisfaction of the Owner's Representative.
- 2. Should the contractor discover discrepancies in the specifications, the matter shall be at once brought to the attention of the Owner's Representative, and the discrepancies corrected before proceeding further.
- Trail contractor shall be responsible for any coordination with General Contractor and Subcontractors as required to complete all operations.
- Test Riding: Trail Contractor shall thoroughly test ride all trails and trail features, by bike with appropriate expert rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with Owner's Representative. Trails and features shall be modified and corrected as necessary until performance specifications are met.
- Trail Contractor shall leave trails and the adjacent area in a finished and natural-looking condition and minimize disturbance to permanent existing vegetation to the extent possible in coordination with general contractor, topsoil spreading, and irrigation and landscape installation.
- . All excavated material generated during trail construction must be used in the trail, or dispersed and blended into surrounding terrain, or removed. No piles of excavated material greater than 6 inches depth shall be left behind. All material left onsite shall be revegetated per plan. If taken off site, coordinate location with County Inspector.
- The Trail Contractor shall be responsible for fine grading and positive drainage away from all trails and trail features. No impoundments nor ponding of surface water shall be allowed.
- 8. Where necessary, Trail Contractor may construct shallow porous detention basins adjacent to the trail to manage surface water drainage, provided they are constructed in an appropriate manner and do not create a hazard.

### TRAIL CONSTRUCTION NOTES

for that specific trail as described in the construction documents.

immediately contact Owner's Representative for resolution before proceeding.

#### 1. Trail Alignments

- a. The trail plan is diagrammatic and does not reflect an exact final alignment or dimension for each trail, trail improvement, armoring, or trail feature. All trail and trail improvement locations and dimensions are approximate.
- b. Trail Contractor shall create an exact final alignment and location for each trail and trail feature. The alignments and locations shall meet appropriate specifications as provided in the construction documents. Trail alignments must be flagged in the field prior to construction.
- c. The alignment, location, design, and construction of each individual trail shall conform to the specifications, intent, character, and description
- d. If conflicts arise in trail alignments, features, armoring, vegetation, landscaping, irrigation, and/or other items, Trail Contractor is required to
- e. The Trail Contractor shall work with the Owner's Representative to identify the need to further refine or adjust construction notes, location or types of trails or features, and make minor adjustments at the time of construction.

#### 2. Technical Trail Features (TTF)

- a. The feature location plans are diagrammatic and do not reflect an exact final alignment, location, or dimension for each feature. The Trail Contractor shall determine exact final location and dimension of all TTFs based upon final trail alignment, trail flow, character, difficulty, and surrounding terrain. It is the Trail Contractor's responsibility to ensure that final dimensions of TTFs (height, length, radius, width, etc.) flow appropriately with the speed of travel, other features and surrounding trails.
- TTF placements are required to include an optional line or bypass trail that provides users with an open and obvious route to avoid the TTF The Landscape Architect shall determine the final alignment for each optional line or bypass based upon the TTF, trail flow, difficulty, and surrounding terrain. Refer to details for typical detail.
- c. Dirt TTFs shall be incidental to the unit rate for trail construction.
- d. All manufactured TTF lengths are linear, not chord lengths.
- e. All manufactured TTF heights are from top of concrete footing to top of decking.

intersections, or otherwise to enhance the riding experience and trail sustainability.

All manufactured TTFs will be sourced from insured bike park feature manufacturer. Feature manufacturer shall hold product liability insurance.

#### 3. Turns

a. Turns on the trail system shall be cambered/banked/bermed as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Turn construction shall be incidental to the unit rate for trail construction.

#### 4. Vertical Undulations

The trails should have vertical undulations such as rollers, jumps, grade reversals, and dips as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Such vertical undulations shall be incidental to the unit rate for trail construction.

#### Rock Armoring

- a. Rock armoring of various types is intended to harden the trail surface, provide a more diverse trail surface, act as a "rumble-strip" near
- b. Rock-armoring is diagrammatic and does not reflect an exact final location or dimension for each section of armoring. Not all potential armoring segments or locations are indicated. Refer to plan for specified locations. An allowance of armoring has been provided on a per trail basis to be determined in the field as conditions require.

### 6. Landscape Boulders

a. Trail Contractor shall furnish and install landscape boulders on the trail system where necessary to help anchor the apex of turns, help define I. All tree protection to meet local tree protection requirements. and improve intersections, prevent short-cutting, and to otherwise enhance the edge of the trail corridor where necessary. Landscape boulders shall be native rock partially buried into soil a minimum 6 inches below grade and per plan.

### Rock Placement at Drainage Crossings

a. Trail Contractor shall construct a sub-base of crushed rock under the surfacing layer at drainage crossings. Locations for this improvement shall be determined by Landscape Architect. Possible locations include very low-lying terrain where water ponding is probable, significant water drainage crossings, or other areas expected to have very poor drainage. Rock shall be 3-inch minus along the trail, minimum 6" thick. Native rocks salvaged during construction shall be provided 10-ft upstream and 5-ft downstream of the drainage crossing through the width of the drainageway. Rocks shall be 6-inch nominal diameter.

### 8. Rock Procurement

a. All rock armoring, rock gardens, and landscape boulders to be used in trail construction shall first be obtained from on site stockpiles or designated areas to the extent possible. The Contractor shall not purchase additional boulders unless existing onsite stockpiles are exhausted or inappropriate.

### 9. Fill Material

a. Fill needed for trail construction, berms, rollers, or other features may be generated during trail excavation, borrowed from surrounding landscape where appropriate, borrowed from onsite stockpiles, or imported if necessary. Fill material shall be uncontaminated and free of organic material, trash, noxious weeds/seeds, and other objects. Fill material shall be placed, graded, and compacted by Trail Contractor in a manner that will support the intended use. The non-riding surfaces of berms, rollers, landscape mounds, or other terrain enhancements created by the Trail Contractor shall not exceed a 3:1 slope.

### Boulders

a. Boulders and rocks used for TTFs or landscaping shall have a character and shape consistent with native landscape rock settings. To the greatest extent possible, rocks shall be placed in their final locations with the lichen or weathered side exposed.

### 11. Compaction

a. All trail sub grades, trail treads, trail surfacing materials, backslopes, rollers, berms, fill, and terrain enhancements shall be compacted to a minimum 90% and in a manner that will support the intended use.

### Volunteers

a. Volunteer involvement is a possible component of this project. It is expected that volunteers will be assisting park staff with periodic maintenance once bike facility is open for public use. City of San Antonio will provide scheduling and coordination of volunteers.

a. For all specifications that contain more or less quantities, it shall be understood and agreed that quantities listed in the specifications are estimated only and may be increased or decreased in accordance with the requirements of the owner.

### 14. Sample Trail Section

a. Contractor shall construct sample segments of a minimum of 50 linear feet of each trail type and 20 square feet of each armoring type as indicated in the construction plans. These sections shall contain a complete sample of the construction methods, materials, and workmanship intended for the project. The Landscape Architect must accept work before additional construction may proceed. Modifications and corrections shall be executed as necessary for acceptance. The accepted samples shall be retained during construction as a standard of work. Accepted samples may be part of the actual trail system. Upon completion of sample, 500' lengths of individual trail may be constructed at a time. Landscape Architect to approve 500' section prior to commencement of next section.

### Trail Surfacing Material

- The intent of the trail surfacing material is to cover the existing soils with a well-balanced surface that facilitates drainage, compacts well, and that performs reasonably in both wet and dry weather conditions. Trail surfacing material shall be incidental to the unit rate for trail construction. All imported soil will require lab testing to meet the following requirements:
- 40 percent of the material remaining on the number 4 sieve should have at least two fractured faces. In addition the material should generally meet the following gradation.

Sieve Desigr	nation % Passing
3/8"	100
no. 4	80-90
no 30	45-65

no. 200

- Material shall be natural, uncontaminated, and free of organic material, vegetation, waste, recycled concrete, asphalt, noxious weeds/seeds and other deleterious matter.
- Material comprised wholly of rock aggregate, gravel, road base, crusher fines or similar is not acceptable due to unfavorable looseness, surface marbles, lack of binding, and other negative characteristics for bike riding.
- e. The trail surface material must demonstrated and tested in both wet and dry conditions on the sample trail sections described in the performance specifications. Modifications to the material may be necessary based on the sample test. Landscape Architect must approve the material before additional construction may proceed.

### 16. Tree Protection

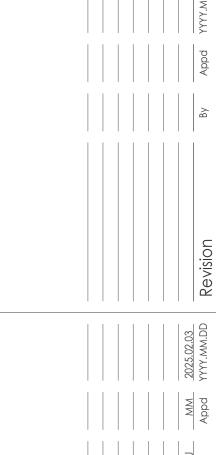
- a. Trail corridor tree removal will follow industry best practices. Trees larger than 6" DBH will not be removed with the exception of trees identified as hazardous by Contractor or Client. All selected trees to be removed must receive final approval from Owner's Representative prior to removal.
- b. A root protection zone defined at a minimum by the drip, shall be established around each tree or any vegetation to be preserved.
- c. The non-movable fencing will be a minimum height of 4'.

20-30

- d. No cutting roots within drip line. Exposed roots shall be covered at the end of the work day using techniques such as covering with soil, mulch, or wet burlap.
- e. No equipment, vehicles or materials shall be operated or stored within the root protection zone except where trail alignment necessitates through wooded areas. No clean-out areas will be constructed so that the material will be in or migrate to the root protection zone.
- f. No grade change allowed within the root protection zone.
- Roots or branches in conflict with construction shall be cut cleanly according to proper pruning methods. All tree wounds shall be painted within 30 minutes to prevent infection.
- h. No tree removal shall be approved unless otherwise noted.
- Trees which are damaged or lost due to the contractor's negligence during construction shall be mitigated.
- Trees must be maintained in good health throughout the construction process.
- k. No wires, nails or other materials may be attached to protected trees.
- 17. Trail Construction Disturbance and Revegetation
- a. A 20' offset of the centerline of the provided trail alignment is shown either side of the trail. This area is meant to distinguish the potential area to which the trail alignment can occur if a feature such as a tree, unusually large rock or other unforeseen circumstances necessitate moving the trail from provided alignment
- Contractor to minimize all disturbance to that which is reasonably necessary to complete trail alignment. A 3' width of disturbance either side of the trail is anticipated, creating a desired maximum10' wide area of disturbance including trail width. Disturbance to be limited to less if
- c. 4' orange fencing to be utilized as a method of establishing a limit of construction and tree protection. Complete one trail at a time and reuse orange fencing on each subsequent trail.
- d. Contractor to utilize proposed gravel parking lot as point of staging and storing of machinery. Parking lot and trail system to serve as the only point of ingress or egress for the entire project site.
- e. All areas disturbed by Contractor shall be revegetated in accordance with the project boundary line. Areas include but are not limited to:
- e.1. Cut and fill slopes on the "Sidehill Trail" profile on Sheet BP-3.0
- e.2. The backslope and bond beam areas of the Typical berm detail on Sheet BP-3.1
- e.3. Steep disturbed areas greater than 10% grade e.4. Other steep seeded areas which are determined in the field to require blanket to re-establish vegetation effectively

### 18. Concrete Washout

a. If a concrete washout is to be utilized during construction, the location will be determined once construction has begun and will be properly notated on the site map at that time.



Permit/Seal



Project No.: 222012814 ile Name: BP-1.01-1.06 MATERIALS

Dsgn. Chkd. YYYY.MM.DD

FLOW LINES GENERAL NOTES

Revision: Sheet: of Drawing No.

#### **Trail Work Specifications**

All trail work shall be done according to the specifications and typicals included in this document. When field conditions do not pertain to specifications provided the work shall be done in accordance with the 2007 edition of the USDA Trail Construction and Maintenance Notebook, the 2007 edition of Managing Mountain Biking, 2004 edition of the IMBA Trail Solutions Guide, and the 2017 edition of Guidelines for a Quality Trail Experience. Refer to these publications for details and descriptions of trail maintenance and construction. Deviation from these specifications will be allowed with the permission or at the direction of the Client.

#### 1.1 Trail Alignment

Trail alignments have been designed in Autocad, these alignments represent the approved corridor. The approved corridor extends 20' on each side of original alignment, but slight field refinements and revisions are anticipated as trails are flagged in the field by the selected Trail Contractor. The Client may approve adjustments to the alignment within this corridor to improve sustainability, improve the trail experience, reduce impact, and improve build efficiency. Material, such as stone, may be harvested within this corridor as long as that harvesting does not negatively impact the trail experience or stability. Trail Contractor shall create an exact final alignment and location for each trail and trail feature. The alignments and locations shall meet appropriate specifications as provided in the construction documents. The alignment, location, design, and construction of each individual trail shall conform to the specifications, intent, character, and description for that specific trail as described in the construction documents. If conflicts arise in trail alignments, features, armoring, vegetation, landscaping, irrigation, and/or other items, Trail Contractor is required to immediately contact Owner's Representative for resolution before proceeding. The Trail Contractor shall work with the Owner's Representative to identify the need to further refine or adjust construction notes, location or types of trails or features, and make minor adjustments as soon as identified by the contractor. The trail flagging delineates the center of the approved trail corridor and desired trail alignment.

#### 1.2 Technical Trail Features (TTF's)

The feature location plans provide quantities and feature types, but are diagrammatic and do not reflect an exact final alignment, location, or dimension for each feature. The Trail Contractor shall determine exact final location and dimension of all TTFs based upon final trail alignment, trail flow, character, difficulty, and surrounding terrain. It is the Trail Contractor's responsibility to ensure that final dimensions of TTFs (height, length, radius, width, etc.) flow appropriately with the speed of travel, other features and surrounding trails. TTF placements are required to include an optional line or bypass trail that provides users with an open and obvious route to avoid the TTF. Refer to details for typical detail. All manufactured TTF lengths are linear, not chord lengths. All manufactured TTF heights are from top of concrete footing or earth anchor to top of decking. All TTFs to be pre-engineered and designed. TTFs to be American Ramp Company or equal. Substitutes shall require approval by Owner's Rep. All manufactured TTFs will be sourced from insured bike park feature manufacturer and supplied by other. Feature manufacturer shall hold product liability insurance. TTFs are quantified separately in the bid form.

### 1.3 Turns

Turns on the trail system shall be cambered/banked/bermed as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Turns shall be built according to the trail type and difficulty level as specified in the construction documents. Turns shall be constructed according to design and sustainability guidelines as set forth in Building Sweet Singletrack. Turns shall be built with proper drainage and grade reversals before and after the turn. Construction of Turns are included in the base trail cost and will not be quoted as separate units.

### 1.4 Vertical Undulations / Features

The trails should have vertical undulations such as rollers, jumps, grade reversals, and dips as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Construction of typical trail features that are approximately 24" or less in height are included in the base trail cost and will not be quoted as separate feature units unless specifically identified in the bid form (ex. rollers, grade reversals, jumps <24").

### 1.5 Trail Drainage

All finished tread must provide positive drainage off of the trail. The finished tread shall show no signs of erosion prior to final payment. Drainage shall promote sheet flow off of the tread, riling from shallow concentrated flow shall not occur on trail tread. Where necessary, Trail Contractor may construct shallow porous stormwater infiltration areas and swales adjacent to the trail to manage surface water drainage, provided they are constructed in an appropriate manner and do

### 1.6 Grade Reversals (Rolling Grade Dip) / Drains

A designed grade reversal or constructed rolling grade dip shall occur at least every 100-150 feet along the trail alignment, preferably more frequently. All grade reversals must be strongly anchored to discourage short cutting. Grade reversals shall have cross slopes that promote positive drainage off trail and down slope of the tread. Cross slopes shall be twice that of the average tread cross slope (minimum 10%, maximum 20%). The grade reversal transition shall be gradual and the feature shall cover a distance of at least 10 feet of trail. Ref. Details.

### 1.7 Trail Corralling

Trail Contractor shall provide speed-reducing features and curves in the trail alignment to slow riders before reaching trail intersections. Speed-reducing features may include boulders, cut trees or in extreme cases fencing as obstacles. Contractor shall furnish and install landscape boulders on the trail system where necessary to help anchor the apex of turns, help define and improve intersections, prevent short-cutting, and to otherwise enhance the edge of the trail corridor where necessary. Landscape boulders shall be native rock partially buried into soil a minimum of 50% of the boulders height below grade and per plan.

### 1.8 Rock Armor / Tech Trails

Rock armoring shall be installed where necessary to prevent trail erosion, harden wet tread, or provide tread texture. Rock armoring should utilize local rocks. When possible rocks shall be harvested from the work site. Stone pitching, a form of rock armoring, shall be at least ten (10) inches deep with a minimum of seven (7) inches of the rock buried below the surface of the surrounding grade. Stones should be stable and aligned perpendicular to the direction of travel. Each end of a pitched section shall be supported by larger "bookend" stones embedded in the ground to prevent movement of the rock armor. Surface depth variation and unavoidable obstacles shall adhere to IMBA trail difficulty rating system. Rocks shall not move. Flagstone paving, a form of rock armoring, shall be two (2) inches to 24 inches thick and 12 inches to 48 inches wide. Voids larger than 2" shall be filled with compacted crushed stone and topped with compacted native soil, Rocks shall not move. Rock armor shall be constructed such that the desirable path of travel is the tread and not the surrounding forest floor. Additional guide stones may be required if the final surface of the trail appears more rugged than the adjacent landscape. All rock embedded in the trail surface should be stable. When used in structures, care will be taken to match rock to the immediate surroundings; grain patterns, lichen growth, etc. Excess tool marks on rocks is not acceptable. Contractor shall determine the appropriate ratio of "stone pitching" vs. "flagstone paving" for the particular trail segment.

### 1.9 Rock Placement at Drainage Crossings

Trail Contractor shall construct a sub-base of crushed rock under the Rock Armor layer at drainage crossings. Possible locations include very low-lying terrain where water ponding is probable, significant water drainage crossings, or other areas expected to have very poor drainage. Rock placement must not obstruct flow above or below the drainage crossing. It should be placed in such a way that water runs through the intended channel. Refer to Details.

### 1.10 Rock Procurement

All rock armoring, rock gardens, and landscape boulders to be used in trail construction shall first be obtained from on site stockpiles or designated areas to the extent possible. Given the lack of suitable native stone present on the site, the contractor should anticipate the need to source suitable stone elsewhere.

#### 1.11 Boulders

Boulders used in rock armor, for TTFs or landscaping shall have a character and shape consistent with native landscape rock settings. If no native landscape rock is present, the contractor shall source boulders that are angular an irregular with properties that are positive for riding on and construction. Boulders shall be a range of sizes and shapes, minimum size is 2'Wx1.5'Hx2.5'L. To the greatest extent possible, rocks shall be placed in their final locations with the lichen or weathered

### 1.12 Trail Surfacing Material

The intent of the Trail Surfacing Material is to cover the existing soils as called for in the plan set (typically on jump lines and gravity trails) with a well-balanced surface that facilitates drainage, compacts well, and that performs reasonably in both wet and dry weather conditions. Trail surfacing material shall be incidental to the unit rate for trail construction. All imported soil will require lab testing to meet the following requirements: 1. Surface material shall be composed of between 65-75% clay and 35-25% sand. 2. Material shall be natural, uncontaminated, and free of organic material, vegetation, waste, recycled concrete, asphalt, noxious weeds/seeds and other deleterious matter. 3. Material comprised wholly of rock aggregate, gravel, road base, crusher fines or similar is not acceptable due to unfavorable looseness, surface marbles, lack of binding, and other negative characteristics for bike riding. 4. The trail surface material must be tested in both wet and dry conditions on the sample trail sections described in the performance specifications. Modifications to the material may be necessary based on the sample test. Owner's Representative must approve the material before additional construction may proceed. Trail Surfacing Material is not incidental to the unit price for Natural Surface Trails and is quantified and identified as a separate bid item on the bid form.

#### 1.13 Compaction

All trail sub grades, trail treads, trail surfacing materials, backslopes, rollers, berms, fill, and terrain enhancements shall be compacted to a minimum 92% Proctor and in a manner that will support the intended use.

For all specifications that contain more or less quantities, it shall be understood and agreed that quantities listed in the specifications are estimated only and may be increased or decreased in accordance with the requirements of the owner.

Fill needed for trail construction, berms, rollers, or other features may be generated during trail excavation, borrowed from surrounding landscape where appropriate, borrowed from onsite stockpiles, or imported if necessary. Fill material shall be uncontaminated and free of organic material, trash, noxious weeds/seeds, and other objects. Fill material shall be placed, graded, and compacted by Trail Contractor in a manner that will support the intended use. The non-riding surfaces of berms, rollers, landscape mounds, or other terrain enhancements created by the Trail Contractor shall not exceed a 1:1 slope.

### 1.16 Backslope

The backslope of trail should be graded to a slope that limits the amount of site disturbance and does not exceed a 1:1.5 slope or until it matches the existing ground. The edge between existing ground surface and backslope shall be smooth and not impede the flow of water or provide vertical drop between the existing ground surface and backslope. Any backslope that is created by fill shall be compacted to 90% Proctor.

### 1.17 Trail Finished Condition

Finish and grading of backslope, down slope spoils, and drainage features shall leave surface that matches the texture of the surrounding forest floor. Finished tread should be compacted to 92% Proctor and provide positive drainage off trail. Finished tread shall incorporate fixed natural and native roots and rocks according to specifications and dependent on trail type. Runoff shall be diverted during sheet flow prior to shallow concentrated flow. Cross slopes may vary (5% minimum, 10% maximum), including cambering of turns, but water must exit the trail in sheet flow without causing erosion of or puddling on, the trail. Locations intended to drain water from the trail shall have a minimum slope of 10%, unless authorized by the Client or Client's Representative.

### 1.18 Spoils Stabilization

All excavated materials not used in the trail tread or other trail structures must be stabilized. Spoils shall not be placed in drainages, swales, ephemeral streams, wetlands, or any area known to convey water during wet weather events. When possible, spoils should be mulched with native materials to discourage erosion while native seed stocks reestablish. In areas without adequate native mulch, seed-free straw and suitable native seed may substitute. In certain circumstances, installation of formal erosion control measures may be required. It is the Contractor's responsibility to conform with all local, state, and federal stormwater regulations.

### 1.19 Corridor Clearing

The finished trail corridor shall extend horizontally a minimum of 3.0 feet from the edge of the trail tread to both sides and shall be a minimum vertically eight (8) feet high and higher in the case of jump and flow trail types as determined to be necessary by the Owner's Representative. Corridor clearing shall be confined to within five (6) feet of trail alignment centerline.

### 1.20 Spoils

The trail tread shall consist of mechanically compacted earth or rock. No organic material may be within trail tread. Tread shall be mineral soil or rock. All stumps shall be excavated and removed from the trail tread. Any stumps resulting from corridor clearing should be excavated and removed. Stumps not removed in the corridor may not pose an unreasonable risk. Spoils shall be stabilized as outlined in "Stabilization". Any downslope spoils must be distributed to encourage drainage off the trail. Spoils may be distributed upslope on hillsides with a slope angle less than 30%. Spoils and disturbed areas outside of the trail tread must be stabilized with a covering of forest mulch or leaves. In areas with insufficient duff, weed-free straw may be substituted for forest materials. Excess soil shall not be distributed into drainages or adjacent to streams. Any woody debris not used in trail closure should be removed from sight of the trail or arranged to blend into the landscape.

1.21 Debris and Woody Material Any woody debris not used in trail closure should be removed from sight of the trail or arranged to blend into the landscape. Cut and scatter all branches and brush to maximum height of 18 inches above the existing ground surface. No debris shall be left within 10 feet of trail, unless placed as anchors or stabilization. Butt-ends of any sawed limbs shall be placed facing away from trail. All branches trimmed shall be cut to a main branch or trunk to prevent stabs or "coat hangers". Woody material such as stumps, logs, and brush shall be removed from the trail tread. Stumps less than 12" diameter at breast height (DBH) within three (3) feet of the trail tread will be removed or flush cut to existing ground surface.

### 1.22 Test Riding

Trail Contractor shall thoroughly test ride all trails and trail features, by bike with appropriately skilled rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with Owner's Representative. Trails and features shall be modified and corrected as necessary until performance specifications are met.

### 1.23 Sample Trail Section

Contractor shall construct sample segments of a minimum of 50 linear feet of each trail type and 20 square feet of each armoring type as indicated in the construction plans. These sections shall contain a complete sample of the construction methods, materials, and workmanship intended for the project. The Owner's Representative must accept work before additional construction may proceed. Corrections shall be executed as necessary for acceptance. The accepted samples shall be retained during construction as a standard of work. Accepted samples shall be part of the actual trail system. Upon completion of sample, 2,500' lengths of individual trail may be constructed at a time. Owner's representative to approve 2,500' section prior to commencement of next section.

Any required bridges shall adhere to local codes and regulations. Design and determining exact location(s) shall be the responsibility of the selected contractor. Shop drawing shall be provided and must be approved by Owner's Representative. Bridges are not incidental to the unit price for Natural Surface Trails and are quantified and identified as a separate bid item on the bid form.

### 1.25 Contractor Coordination

Trail contractor shall be responsible for any coordination with General Contractor and Subcontractors as required to

### 1.26 Missing Specification

Any specifications not addressed in these notes are to be covered by City Master Spec Supplements.

### CHIP SEAL MOUNTAIN BIKE OPTIMIZED TRAIL

Chip Seal Trail will use rolling contour and lift and tilt (where required for drainage) construction methods and will have a medium frequency of rollers, berms and table top and rollable gap jumps (3-5 PER 100LF), or as quantified in

All trail construction shall comply with the specifications, drawings, requirements, and design intent prescribed in the construction and contract documents. Additional resources include "Trail Solutions, IMBA's Guide to Building Sweet Singletrack" (2004) and "Managing Mountain Biking" (2007). Modifications shall be approved by Owner's Representative. Trail shall include Technical Trail Features (TTF) in the types and locations called for on the plans and referenced in detail

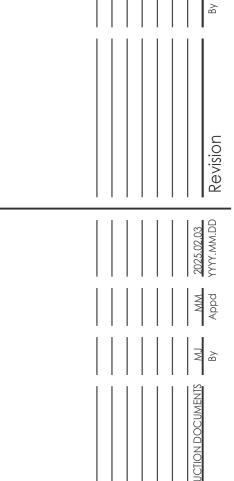
Completed products shall reflect professional workmanship in appearance, quality, and attention to detail. Trails and features shall be well integrated into site, aesthetically pleasing in appearance, and well-shaped, crafted, and finished according to commonly accepted best practices for high quality and sustainable mountain biking trails. Work must be completed to the satisfaction of the Owner's Representative.

Trail Contractor shall thoroughly test ride all trails and trail features, by bike with appropriately skilled rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with Owner's Representative. Trails and features shall be modified and corrected as necessary until performance specifications are met.

Following test ride and approval of final alignment and shapes, contractor shall import and compact road base (3/4 minus) or similar at 3-4 inches depth. Site visit and test ride required for sign off prior to applying chip seal. Contractor shall apply two layers of tar (CRS2-P if available and if not CRS2 is suitable) and two compacted layers of chip seal (3/8 clean chipped material for the initial layer and a more decorative 3/8 minus for the second (top) layer. Contractor must submit a surfacing mixture sample(s) (1 gallon) to the engineer or owner's representative prior to delivery to the site. Color and texture of final chip layer to be approved by engineer or owner's representative prior to delivery and/or installation.







Permit/Seal



Project No.: 222012814 le Name: BP-0.01-0.02 NOTES

 
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NOTES Revision: Sheet: of

Drawing No.

- 1. Project Description Build 4 miles of sustainable natural surface trail system. A sustainable natural surface trail system is designed to be low impact and low maintenance. Since erosion is the main cause for trail maintenance work, trail design and construction techniques are developed specifically for the prevention of erosion.
- 2. The following Sustainable Trail design criteria have been specifically developed as a strategy to control erosion:
- a. Trails are located so that they are nearly parallel to the grade, following, rather than crossing, the contour lines (Figure 1.1). The cross section of disturbance measured along the fall line will be typically less than 10'.
- b. Grade reversals (Figure 1.2 & Typical 5/8) are provided every 100'-150' This rolling contour design breaks the trail into micro watersheds and ensures that existing flow and flow channels are uninterrupted by the trail making it hydrologically invisible on the hillside. It also prevents storm runoff from concentrating itself and flowing on the surface of the trail for any distance.
- c. The average grade of the trail is generally between 1% and 10%. The maximum grade generally does not exceed 20% but may exceed 20% in circumstances such as grade reversals and switchback approaches.
- d. Trail tread (Figure 1.3 & Typical 4/8) is generally designed with a 5% minimum out-slope to encourage sheet flow. In some instances, the trail is in sloped (Figure 1.4) to reduce sheer forces and to prevent soil displacement.
- e. A minimum 25' buffer of existing vegetation is maintained as a filter strip between the limits of trail construction disturbance and water features.
- f. Trail approaches are graded so that water will remain in drainage swales (Figure 1.5).
- 3. The following Sustainable Trail construction practices are used to control erosion:
- a. The trail construction process is completed by a team working in close proximity to each other. The distance from the crew cleaning the vegetation back to the finish workers is rarely more 1,000'. The first team prunes the woody vegetation by hand and may install wattles (Typicals 1/2 and 2/2) in high flow drainages; a second team uses hand tools or a machine to construct the trail tread and back-slope; a third team disperses the spoils, tracks loose soil, and compacts the tread and backslope.
- Seeding and or mulching of the disturbed area takes place the same day (Figures on page 6 "Typical Trail Construction Techniques").
- b. Disturbance is phased so that only small sections are under construction at any time. Soil is typically only moved a few feet from its point of origin to the downslope portion of the trail where it is integrated into the vegetative filter strip (Typical 4/8).
- c. Back-slope stabilization: The area of the hillside just above the trail is the backslope (Figures 1.6 & 1.7). The height of the backslope is a direct function of the local terrain. The backslope is typically 1'-2' high although it can be higher in certain situations. It will be graded to a maximum 2:1 slope whenever the existing slope is 2:1 or less. A combination of compacting, tracking, and furrowing (Typical 4/2 & Detail B-3-2) is used to prevent slumping and riling and create seed pockets to facilitate re-vegetation. Jute mesh may be used to stabilize back-slopes steeper than 2:1.
- d. Spoils stabilization: The organic and mineral spoils from the excavation are typically broadcast in a thin layer down-slope of the trail avoiding drainages or swales. By scattering the spoils the existing vegetation is not smothered and quickly grows back up through the spoils. By mixing the native topsoil over the existing vegetation, the native seed bank is preserved and provides the seed stock for stabilization by local vegetation (Typical 4/8).
- e. Trail tread: The finished trail tread is a compacted natural soil surface that due to the minimal grades and distance between swales allowed with a rolling contour design is extremely erosion resistant. The trail is typically bench cut where the soil is excavated from the hillside providing a fill compacted by the machinery used to construct the trail. The outer edge is rolled at the critical point to allow water to sheet flow off the trail (Figures 1.6, 1.7 & Typical 4/8)
- f. Frequently soil adjacent to the trail will be harvested to provide mineral soil for the trail tread. The "borrow sites" are filled with mulch and when located below a low spot or drain on the trail act as sediment traps during construction. These detain sediment-laden runoff from disturbed areas long enough for the majority of the sediment to settle out. They are used in conjunction with erosion control practices such as temporary seeding, mulching, diversion dikes, etc., to reduce the amount of sediment flowing into the basin.
- g. Dips and crossings: Where water is concentrated either by the trail or where concentrated flow crosses the trail, such as at a turn or natural swale, rock arm red crossings (Typicals 1/8 & 2/8 and Fig. 2.7 & 2.8), grade reversals (Figure 1.2 & Typical 5/8) and knicks (Figure 1.8) are built to disperse the water, slow its velocity and spread it out into

the natural filter of the surrounding vegetation

- h. In wooded areas, where seed is unlikely to germinate, leaf litter is used to mulch the disturbed areas.
- 4. Standard trail construction: Natural surface trail construction is accomplished with a combination of machine
- Typical machines used can include:
- a. Primary Construction: 4' wide metal-tracked ride-in dozer (SWECO 450 and/or 480), and /or a small, rubber tracked excavator in the 1.5 to 3 ton range. (Kubota U-17 Zero-tail swing compact excavator)
- b. Secondary Construction: 4' wide rubber-tracked walk-behind dozer/loader (DitchWitch SK450 and/or SK650) and /or 4' wide rubber-track mini-excavator (Bobcat 323 or equivalent) Note for most projects, secondary machines are used as the primary.
- c. Other Support Machines/Devices: Ride-on and/or walk-behind haulers/crawlers to transport materials around jobsite, (various Canycom models, S25A, SC75, BFP602); skid-steer loaders to transport materials around jobsite and/or load haulers/crawlers (Bobcat T190) specialized implements such as a vibrating compactor to finish aggregate surface
- 5. Existing conditions Nearly all of the designed trail is in wooded areas with a very small percentage in open grassy areas. Side slopes vary from 20%-80%, but most often are in the 15%-30% range. Typical change in elevation on these side slopes is 400-500 feet.
- 6. Typical erosion and sedimentation control practices: Erosion and sedimentation control practices are used strategically to minimize impacts on the existing landscape. A buffer of existing vegetation shall be maintained down slope of all disturbed areas to filter any runoff. All newly disturbed areas are treated immediately. Trail tread is graded and compacted to encourage sheet flow of water and any other bare areas are covered with native ground material. Seeding, typically with annual rye grass, will be done as directed by agency staff or regulation.
- 7. Critical erosion areas: Critical erosion areas include back-slopes that are steeper than 2:1 and those areas where the trail crosses an intermittent stream or there is no adequate vegetative buffer between the trail and the water body. In these cases, jute mesh straw bale barriers, wattles, or found objects (logs, rocks, or brush) will be used to control erosion during trail construction and restoration periods. When jute mesh or wattles are used they will be entirely made up of decomposable material and will be left in place to decompose naturally rather than cause additional post construction disturbance during removal. Wattles are 6" to 12" diameter and 6' to 20' long. (Typicals 3/2, 1/2 & 2/2) In locations likely to see concentrated flow that have a greater potential for sediment loss, wattles may be installed downslope of the trail to capture sediment released during construction. Wattles may be constructed of decomposable jute and native mulch. Wattles are temporary sediment barriers composed of decomposable materials placed across or at the toe of a slope to intercept and detain sediment and decrease flow velocities from drainage areas of a limited size.
- 8. Tree removal: No live trees greater than 4" DBH shall be removed unless authorized by the client.
- Occasionally a standing dead tree must be taken down. Removed material is incorporated into the construction as described above. Fallen trees are turned sideways to the slope when possible to help break flow of water and create habitat areas.
- 9. Minor modifications to the trail alignment may be needed in the field to minimize impact on natural resources and adapt to changes in existing site conditions

### EROSION, SEDIMENTATION, AND LAND **CONSERVATION NOTES:**

- 1. Contractor will notify the Client at least 48 hours prior to the start of construction in accordance with the applicable state ordinances and policies.
- 2. Client grants the right of entry onto this property to the designated personnel for the purpose of inspecting and monitoring for compliance with this plan.
- 3. A copy of the approved erosion and sediment control plan shall be kept on the site at all times.
- 4. The contractor shall coordinate the location of staging areas with the owner.
- 5. If conditions necessitate, Client may wish to provide a temporary stone construction entrance at the location of the contractor's choosing. A temporary stone construction entrance is a stabilized stone pad with a filter fabric under liner that reduces the amount of mud transported onto paved public roads by construction vehicles. # 1 course aggregate (2 to 3 inch stone) is placed at least 6 inches deep on top of the filter fabric. The construction entrance is a minimum of 12 feet wide and 70 feet long. 6. The contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices
- 6. The contractor shall inspect all erosion and sediment

control measures biweekly and after each rainfall event of 0.5' or more, and immediately enact any necessary repairs

- 7. In the event, such as unforeseen site conditions, that non-biodegradable temporary erosion and sediment control measures must be used, they are to be removed within 30 days after adequate site stabilization and after the temporary measures are no longer needed, as authorized by the Owners inspectors.
- 8. During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with appropriate sediment control measures.
- All work shall be monitored by Client on a weekly basis and evaluated for satisfactory stabilization and revegetation. If a satisfactory condition has not been achieved within 30 days, additional measures, such as seeding, mulch, jute mesh, rock armoring, or wattles, shall be applied as needed to achieve a stable condition.
- SPECIAL CONDITIONS
- Occasionally, trail construction techniques may need to deviate from the typical bench cut trail tread. This is often done in seasonally wet or flat areas.
- 1. RAISED TREAD CONSTRUCTION: The trail tread can be lifted above the surrounding elevation by excavating mineral soil adjacent to the trail and placing it on the trail tread, raising the surface. This can also be accomplished with a stone turnpike, where rock is used to elevate the tread above soft or wet terrain. (Figure 1.9)

#### 2. CROSSING EPHEMERAL DRAINAGES, WET AREAS, AND BOULDER FIELDS:

- A Puncheon (Typical 6/2) is a wooden walkway used to create a reliably dry crossing when the trail passes over bogs, boulder fields, small streams or ephemeral drainages. It can be used where uneven terrain or lack of tread material makes turnpike construction impractical. Final puncheon design may vary depending on site conditions/requirements. Additionally, rock armored tread can also create a stabilized crossing of streams and ephemeral drainages. Rock armoring techniques include stone pitching (Figure 2.0), flagstone paving (Figure 2.1) and standard armoring (Typicals 1/8 & 2/8), where rock is buried just below the trail tread with soil or gravel on the surface. Instances where the swale gradient exceeds 30 percent, check dams may be placed to prevent headcutting (fig. 2.7 & 2.8). These areas will be monitored during construction. These practices will be implemented as needed or on a case-by-case basis.
- 3. In situations where the soils lack adequate strength or cohesion, crushed stone may be mixed with the native soil before compaction takes place.
- 4. ROCK RETAINING WALLS: Rock retaining walls (Figures 2.2, 2.3, & 2.4) may be used in certain situations, when building trail near a mature tree (Typical 3/8) to protect its roots by elevating the trail above ground, or switchback construction (Figure 2.5), for example.

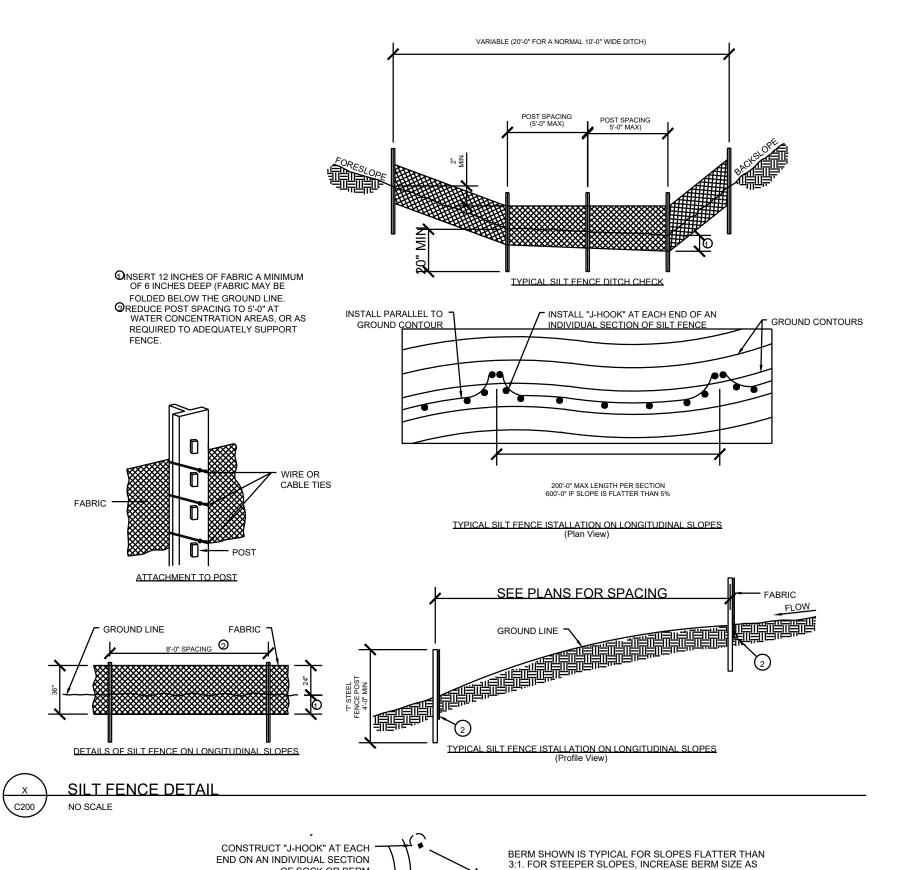
### A. Pollution Prevention and Erosion Protection

- 1. Code compliance: the contractor is responsible for compliance with all potential pollution and soil erosion control requirements of the Texas code, the Texas department of natural resources (TDNR) permit, the U.S. Clean water act, and any local ordinances. The contractor shall take all necessary steps to protect against erosion and pollution from this project site and all off-site borrow or deposit areas during performance or as a result of performance.
- 2. Damage claims: the contractor will hold the Owner and Architect / Engineer harmless from any and all claims of any type whatsoever resulting from damages to adjoining public or private property, including reasonable attorney fees incurred to owner. Further, if the contractor fails to take necessary steps to promptly remove earth sedimentation or debris which comes onto adjoining public or private property, the owner may, but need not, remove such items and deduct the cost thereof from amounts due to the contractor.
- B. Storm Water Discharge Permit
- 1. This project requires coverage under the NPDES general permit no. 2 for storm water discharges associated with construction activities from the TDNR, as required by the environmental protection agency (EPA). The general contractor and all subcontractors are responsible for compliance with and fulfillment of all requirements of the NPDES general permit no. 2 as specified in the contract documents.
- 2. All documents related to the storm water discharge permit, including, but not limited to, the notice of intent, proof of publications, discharge authorization letter, current SWPPP, site inspection log, and other items, shall be kept on site at all times and must be presented to any jurisdictional agencies upon request. Failure to comply with the NPDES permit requirements is a violation of the clean water act and the code of lowa.
- 3. A "notice of discontinuation" must be filed with the IDNR upon final stabilization of the disturbed site and removal of all

temporary erosion control measures. All plans, inspection reports, and other documents must be retained for a period of three years after project completion. The contractor shall retain a record copy and provide the original documents to the owner upon project acceptance and/or submittal of the notice of discontinuation.

### C. Pollution prevention plan

- 1. The storm water pollution prevention plan (SWPPP) is a separate document in addition to these plan drawings. The contractor should refer to the SWPPP for additional requirements and modifications to the pollution prevention plan made during construction.
- 2. The SWPPP illustrates general measures and best management practices (bmp) for compliance with the project's NPDES permit coverage. All bmp's and erosion control measures required as a result of construction activities are the responsibility of the contractor to identify, note and implement. Additional bmp's from those shown on the plan may be
- 3. The SWPPP and site map should be expeditiously revised to reflect construction progress and changes at the project site.
- 4. The contractor is responsible for compliance with all requirements of the general permit and SWPPP, including, but not limited to, the following bmp's unless infeasible or not applicable:
- A. Utilize outlet structures that withdraw water from the surface when discharging from basins, provide and maintain natural buffers around surface waters, direct storm water to vegetated areas to increase sediment removal and maximize storm water infiltration, and minimize soil compaction.
- B. Install perimeter and final sediment control measures such as silt barriers, ditch checks, diversion berms, or sedimentation basins downstream of soil disturbing activities prior to site clearing and grading operations.
- C. Preserve existing vegetation in areas not needed for construction and limit to a minimum the total area disturbed by construction operations at any time.
- D. Maintain all temporary and permanent erosion control measures in working order, including cleaning, repairing, replacement, and sediment removal throughout the permit period. Clean or replace silt control devices when the measures have lost 50% of their original
- E. Inspect the project area and control devices (by qualified personnel assigned by the contractor) every seven calendar days. Record the findings of these inspections and any resulting actions in the SWPPP with a copy submitted weekly to the owner or engineer during construction. Revise the SWPPP and implement any recommended measures within 7 days.
- F. Prevent accumulation of earth and debris from construction activities on adjoining public or private properties, including streets, driveways, sidewalks, drainageways, or underground sewers. Remove any accumulation of earth or debris immediately and take remedial actions for future prevention.
- G. Install necessary control measures such as silt barriers, erosion control mats, mulch, ditch checks or riprap as soon as areas reach their final grades and as construction operations progress to ensure continuous runoff control. Provide inlet and outlet control measures as soon as storm sewers are installed.
- H. Respread a minimum of 8 inches of topsoil (including topsoil found in sod) on all disturbed areas, except where pavement, buildings or other improvements are located.
- I. Stabilize undeveloped, disturbed areas with mulch, temporary seed mix, permanent seed mix, sod, or pavement immediately as soon as possible upon completion or delay of grading operations. Initiate stabilization measures immediately after construction activity is finally completed or temporarily ceased on any portion of the site and which will not resume for a period exceeding 14 calendar days.
- J. Coordinate locations of staging areas with the owner and record in the SWPPP. Unless noted otherwise, staging areas should contain the following: job trailers, fueling / vehicle maintenance area, temporary sanitary facilities, materials storage, and concrete washout facility. Control runoff from staging areas with diversion berms and/or silt barriers and direct to a sediment basin or other control device where possible. Concrete washout must be contained onsite.
- K. Remove all temporary erosion control measures and site waste prior to filing of the "notice of discontinuation".



DIRECTED BY THE ENGINEER.

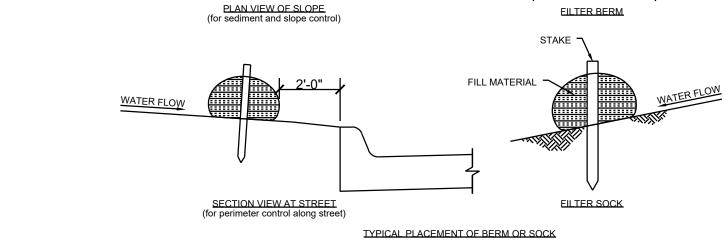
CONTRACT DOCUMENTS.

PLACE BERM IN UNCOMPACTED WINDOW

PERPENDICULAR TO THE SLOPE AT LOCATIONS

SPECIFIED IN THE CONTRACT DOCUMENTS.

FILTER SOCK DIAMETER AS SPECIFIED IN THE



END ON AN INDIVIDUAL SECTION

OF SOCK OR BERM

AREA TO BE PROTECTED

**FILTER SOCK DETAIL** 

PLACE BERM ON SOCK -

PERPENDICULAR TO SLOPE

 
 MJ
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 EROSION

CONTROL NOTES

02/03/2025

Revision: Sheet: of

Project No.: 222012814

le Name: BP-0.01-0.02 NOTES

Permit/Seal

THESE GENERAL STRUCTURAL NOTES APPLY TO GENERAL CONTRACTOR UNLESS OTHERWISE NOTED.

CODE:
COMPLY WITH 2015 INTERNATIONAL BUILDING CODE.

SEISMIC: SEISMIC USE GROUP SPECTRAL RESPONSE: Sds = 25.2

SITE CLASS

3-SECOND GUST WIND SPEED 90 M.P.H.
IMPORTANCE FACTOR I = 1.0
WIND EXPOSURE "C"

### FLOW TRAILS-STRUCTURAL NOTES

### 1. SPECIAL STRUCTURAL INSPECTION

- 1.1 PROVIDE SPECIAL STRUCTURAL INSPECTION AS REQUIRED BY BUILDING CODES FOR THE FOLLOWING ITEMS:
  - 1.1.1 CONCRETE: DURING THE TAKING OF TEST SPECIMENS & PLACING OF REINFORCED CONCRETE WHERE F'C > 2,500 PSI, EXCEPT SLABS ON GRADE.
- 1.1.2 BOLTS INSTALLED IN CONCRETE: DURING INSTALLATION OF EMBEDDED BOLTS IN CONCRETE AND DURING INSTALLATION OF EXPANSION BOLTS & EPOXY BOLTS / REBAR INTO EXISTING CONCRETE.
- 1.1.3 REINFORCING STEEL: DURING PLACING OF REINFORCING STEEL, FOR ALL CONCRETE REQUIRED TO HAVE SPECIAL INSPECTION BY THE CONCRETE SECTION ABOVE AND PLACING REINFORCING STEEL IN EPOXIED HOLES PER ABOVE.

#### 1.2 SCHEDULING OF SPECIAL STRUCTURAL INSPECTIONS:

1.2.1 THE CONTRACTOR SHALL ALLOW A MINIMUM OF 72 HOURS NOTIFICATION FOR THE SCHEDULING OF SPECIAL STRUCTURAL INSPECTIONS.

#### 2. FOUNDATIONS

2.1 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SOILS AND COMPACTION TESTING DURING THE COURSE OF CONSTRUCTION TILL FINAL ACCEPTANCE. A QUALIFIED STRUCTURAL ENGINEER RETAINED Y CONTRACTOR SHALL PROVIDE COMPACTION TESTING PRIOR TO CONCRETE CONSTRUCTION. A RECORD OF SOIL COMPACTION REPORTS SHALL BE SUBMITTED TO THE ADAPTIVE TRACK DESIGNER.

### 3. REINFORCING

- 3.1 SECURELY TIE ALL REBAR, INCLUDING DOWELS, IN LOCATION BEFORE PLACING CONCRETE OR GROUT.
- 3.2 WHERE REINFORCING IS SHOWN CONTINUOUS THRU CONSTRUCTION JOINTS, LENTON FORM SAVERS DOWEL BAR SPLICE DEVICES AS MANUFACTURED BY ERICO PRODUCTS, INC. (ICBO #3967) OR EQUIVALENT SHALL BE USED. SIZES AND TYPES SHALL BE SELECTED TO DEVELOP THE FULL TENSION STRENGTH OF THE BAR PER ICBO RESEARCH REPORT.

### 4. STRUCTURAL STEEL

- 4.1 ASTM A-36 FOR C, MC, ANGLES, AND PLATES.
- 4.2 ASTM A-53 GRADE B OR A-501 FOR STEEL PIPES
- 4.3 ASTM A-500 GRADE B, FY=46 KSI FOR TS/HSS TUBE STEEL FOR SIZES UP TO 5/8" THICK.
- 4.4 ASTM A-307 OR A-36 PLAIN ANCHOR BOLTS.

### 5. STRUCTURAL STEEL & REINFORCEMENT WELDING

- 5.1 ALL CONSTRUCTION AND TESTING PER AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT CERTIFICATES VALIDATED BY AN INDEPENDENT LAB & HAVING CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR. THE CONTRACTOR SHALL SUBMIT WELDING CERTIFICATES FOR EACH WELDER PRIOR TO COMMENCING THE WORK.
- 5.2 WELDING RODS TO BE LOW HYDROGEN TYPE, E70 SERIES, PER AWS D1.1 TYPICALLY EXCEPT E-6010 SERIES FOR STEEL SHEET METAL PER AWS D1.3 AND REINFORCING WELDMENTS PER AWS D1.4. USE E80 SERIES WELDING RODS FOR A706 REBAR.
- 5.3 FIELD INDICATED WELDS MAY BE DONE IN SHOP & SHOP INDICATED WELDS MAY BE DONE IN FIELD ONLY IF SUBMITTED AND APPROVED PRIOR TO CONSTRUCTION.

### 6. SUPPLEMENTARY NOTES

- 6.1 THESE CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION NOR DO THEY INDICATE THE STRUCTURAL CALCULATIONS OR PLANS. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, MEANS AND METHODS, BRACING, SHORING, FORMS, SCAFFOLDING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. OBSERVATION VISITS TO THE SITE BY THE CITY ENGINEER OBSERVERS SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- 6.2 REINFORCING OR THREADED RODS DRILLED AND EPOXIED INTO EXISTING CONCRETE AS DETAILED ON THE DRAWINGS SHALL BE ONE OF THE FOLLOWING OR APPROVED EQUIVALENT:
- 6.2.1 HILTI RE-500 SD ICC ESR-2322
- 6.2.2 SIMPSON SET-XP ICC ESR-2508
- 6.2.3 POWERS PE1000+ ICC ESR-2583
- 6.3 INSTALLATION OF EPOXIED DOWELS SHALL FOLLOW THE STRICT RECOMMENDATIONS OF THE MANUFACTURER AND THE APPLICABLE ICBO REPORT AND HAVE A MINIMUM 9 DIAMETERS EMBEDMENT.
- 6.4 ANY ENGINEERING AND/ OR STRUCTURAL DESIGN PROVIDED BY CONTRACTOR AND SUBMITTED FOR REVIEW SHALL BE BY AN INSURED LICENSED STRUCTURAL ENGINEER WITH CONTINUOUS FIVE YEARS OF EXPERIENCE IN THE TYPE OF DESIGN

### FLOW TRAILS GENERAL NOTES

#### I. GENERAL

- 1.1 CONSIDER GENERAL NOTES AS APPLYING TO ALL DRAWINGS.
- 1.2 NOTIFY THE LANDSCAPE ARCHITECT/ ENGINEER OF ANY DISCREPANCIES TO THESE PLANS.
- 1.3 PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND/OR LOCAL BUILDING CODES.
- 1.4 THE LANDSCAPE ARCHITECT/ ENGINEER SHALL HAVE NO CONTROL OR CHARGE OF, NOR BE RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, SAFETY PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
- 1.5 PROVIDE SPECIAL INSPECTION AS REQUIRED BY BUILDING CODES FOR THE FOLLOWING ITEMS:
  - 1.5.1 PLACEMENT OF REINFORCING STEEL.
  - 1.5.2 TAKING OF TEST SPECIMENS AND PLACING OF ALL CONCRETE
- 1.5.3 BOLTS IN CONCRETE.
- 1.5.4 TAKING OF TEST SPECIMENS AND PLACING OF ALL CONCRETE.
- 1.5.5 TAKING OF TEST SPECIMENS AS SPECIFIED BY THE STRUCTURAL PLANS (BY CONTRACTOR).
- 1.6 THE CONTRACTOR SHALL WARRANTY ALL OF THEIR WORK DURING CONSTRUCTION AND A MINIMUM OF THREE YEARS AFTER THE PROJECT IS ACCEPTED AS COMPLETE.
- 1.7 THE METRIC EQUIVALENT "[]" DIMENSIONS ARE SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THEIR ACCURACY.

### 2. CONCRETE WORK

- 2.1 CONCRETE MIXES SHALL BE DESIGNED BY A TESTING LABORATORY AND APPROVED BY THE LANDSCAPE ARCHITECT/ ENGINEER. MIXES SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS, REGARDLESS OF OTHER MINIMUM REQUIREMENTS SPECIFIED HEREIN OR ON THE DRAWINGS. MIX DESIGNS SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT/ ENGINEER FOR APPROVAL BEFORE USE. DESIGNS SHALL SHOW PROPORTIONS OF CEMENT, FINE AND COARSE AGGREGATES AND WATER, AND GRADATION OF COMBINED AGGREGATES.
- 2.2 CEMENT: ASTM C150. CEMENT SHALL BE OF SAME BRAND, TYPE AND SOURCE THROUGHOUT PROJECT. WHERE AGGREGATES ARE POTENTIALLY REACTIVE, USE LOW ALKALI CEMENT.
- 2.3 AGGREGATES/ SELECT FILL SHALL CONFORM TO STRUCTURAL DRAWINGS/ CALCULATIONS (BY CONTRACTOR) .
- 2.4 NO ADMIXTURES WITHOUT APPROVAL. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. CONCRETE SHALL NOT BE IN CONTACT WITH ALUMINUM.
- 2.5 CONCRETE MIX DESIGN CAST-IN-PLACE
  - 2.5.1 PROVIDE MIX DESIGNS THAT WILL MEET THE MINIMUM REQUIREMENTS LISTED BELOW. INCREASE CEMENT CONTENT OVER THAT SHOWN, IF REQUIRED TO OBTAIN THE COMPRESSIVE STRENGTH:

MIN. 28-DAY	MIN. CEMENT	MAX.	MAX.	MAX. AIR
COMPRESSIVE	CONTENT	SLUMP	AGGREGATE	ENTRAINING
STRENGTH (PSI)	(POUNDS)	(INCHES)	SIZE (INCHES)	(PERCENT)
4000	480	4"	1"	3-5%

- 2.6 CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCHING AND SHALL NOT EXCEED A TEMPERATURE OF 90°F UNLESS PRE-APPROVED BY THE LANDSCAPE ARCHITECT/ ENGINEER.
- 2.7 CONCRETE CYLINDERS SHALL BE TAKEN AND TESTED PER THE CODE BY AN INDEPENDENT TESTING LABORATORY FOR STRUCTURAL POURS OVER 50 CUBIC YARDS OF CONCRETE. HISTORICAL DATA SHALL BE SUBMITTED AND APPROVED PRIOR TO THE POUR IF NO TEST SAMPLES ARE TAKEN FOR POURS LESS THAN 50 CUBIC YARDS.
- 2.8 CONCRETE SHALL BE MAINTAINED AT A TEMPERATURE ABOVE 40°F AND IN MOIST CONDITION. FOR INITIAL CURING, CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR 24 HOURS AFTER PLACEMENT IS COMPLETE. FINAL CURING SHALL CONTINUE FOR SEVEN DAYS AFTER PLACEMENT AND SHALL CONSIST OF APPLICATION OF CURING COMPOUND PER ASTM C309. APPLY AT A RATE SUFFICIENT TO RETAIN MOISTURE, BUT NOT LESS THAN 1 GALLON [4.55I] PER 200 SQUARE FEET. COVER CONCRETE WITH POLYETHYLENE PLASTIC TO MAINTAIN TEMPERATURE IF NECESSARY. LAP SEAMS IN THE PLASTIC 6" AND TAPE, WEIGHT DOWN THE PLASTIC AS NEEDED.
- 2.9 THE CONTRACTOR SHALL FIX ALL CRACKS AND DISPLACEMENTS LARGER THAN 1/16".
- 2.11 ALL CONCRETE WHICH DURING THE LIFE OF THE STRUCTURE WILL BE SUBJECTED TO FREEZING TEMPERATURES WHILE WET, SHALL HAVE A WATER CEMENT RATIO NOT EXCEEDING 0.53 BY WEIGHT AND SHALL CONTAIN ENTRAINED AIR AS PER ACI 301. SUCH CONCRETE SHALL INCLUDE EXTERIOR SLABS, PERIMETER FOUNDATIONS, EXTERIOR CURBS AND GUTTERS, ETC.
- 2.12 CONDUITS, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF IBC SECTION
- 2.13 USE INTERMEDIATE GRADE ASTM A615, GRADE 60 FOR ALL REINFORCING. USE ASTM A706, GRADE 60 FOR ALL REINFORCING THAT IS TO BE WELDED. USE A108, GRADE 60, FOR ALL WELDED ANCHORS REFER TO AWS SPEC FOR WELDING WITHOUT PREHEAT. WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH ALL BUILDING CODES.
- 2.14 OBSERVE FOLLOWING REINFORCEMENT CLEARANCES:
  - 3" AT SURFACES POURED AGAINST EARTH

EXTENSION AT FREE ENDS OF COLUMN PILASTER TIES.

- 2" AT FORMED SURFACES EXPOSED TO EARTH OR WEATHER
- 1-1/2" AT OTHER SURFACES, EXCEPT WHERE SHOWN OTHERWISE.
- 2.15 SECURE REINFORCING, ANCHOR BOLTS, INSERTS, ETC. RIGIDLY IN PLACE PRIOR TO POURING CONCRETE.2.16 SUPPORT HORIZONTAL REINFORCING ON GALVANIZED CHAIRS OR OTHER APPROVED METHOD OF SUPPORT FOR
- FOOTINGS AND SLABS ON GRADE (MORTAR BLOCKS ARE UNACCEPTABLE).

  2.17 REMOVE FORMS AT FOLLOWING MINIMUM TIMES AFTER POURING: AT SLAB EDGES 24 HOURS. REFER TO GENERAL
- ACI REQUIREMENTS.

  2.18 MAKE HOOKS ACI 318-99 STANDARD HOOKS UNLESS OTHERWISE NOTED. PROVIDE 135 DEGREE MINIMUM TURN, PLUS 4"
- 2.19 MAKE LAPS CONTACT SPLICES, DEVELOPMENT LENGTHS, HOOK EMBEDMENT PER ACI 318-99, UNLESS OTHERWISE NOTED. STAGGER LAP SPLICES WHERE POSSIBLE.
- 2.20 ALL REBAR SHALL BE COLD BENT.
- 2.21 WHERE REINFORCING IS SHOWN CONTINUOUS THRU CONSTRUCTION JOINTS, LENTON FORM SAVERS DOWEL BAR SPLICE DEVICES AS MANUFACTURED BY ERICO PRODUCTS, INC. (ICBO #3967) OR EQUIVALENT SHALL BE USED. SIZES AND TYPES SHALL BE SELECTED TO DEVELOP THE FULL TENSION STRENGTH OF THE BAR PER ICBO RESEARCH REPORT.

2.22 MINIMUM CLEARANCE BETWEEN PARALLEL REINFORCEMENT BARS SHALL BE 2-1/2". LAP SPLICES IN REINFORCING BARS SHALL BE BY THE NON-CONTRACT LAP SPLICE METHOD WITH AT LEAST 2" CLEARANCE BETWEEN BARS.

2.23 SELECT FILL/ ENGINEERED FILL TO BE SPECIFIED BY STRUCTURAL ENGINEER, RETAINED BY CONTRACTOR, AND SHALL HAVE 95% COMPACTED NATIVE SOIL AND/ OR SELECT FILL/ ENGINEERED FILL. IF THESE GUIDELINES CONFLICT WITH THE GEO-TECHNICAL REPORT AND/ OR STRUCTURAL ENGINEERS PLANS/ SPECIFICATIONS, THE CONTRACTOR TO FOLLOW THE MORE STRINGENT OF THE TWO GUIDELINES.

### FLOW TRAILS- SITE AND GENERAL NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING ALL GRADES, LINES, AND MEASUREMENTS NECESSARY TO
- THE PROPER PERFORMANCE AND CONTROL OF THE WORK.

  2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FILLING OR CUTTING AS NECESSARY TO ENSURE THAT ALL
- PORTIONS OF THE SITE DRAIN.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING GRADES AND SITE CONDITIONS BY FIELD INSPECTION BEFORE SUBMITTING A BID.
   ALL OBJECTIONABLE MATERIALS DISCOVERED IN THE SOIL DURING THE GRADING PROCESS SHALL BE REMOVED
- FROM THE SITE BY CONTRACTOR.

  5. ANY DAMAGE TO THE EXISTING STREET PAVING, CURBS OR OTHER EXISTING ELEMENTS SHALL BE REPAIRED AT THE
- CONTRACTOR'S EXPENSE.

  6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SHOOTING ALL SPOT ELEVATIONS NECESSARY TO CONSTRUCT THE
- PROJECT.
  CONTRACTOR SHALL DETERMINE THE AMOUNT OF CUT AND FILL NECESSARY TO COMPLETE THE EARTHWORK AS
- SHOWN ON THESE PLANS AND INCLUDE A FEE FOR COMPLETION OF THE EARTHWORK IN THE BASE BID.

  8. SOIL SHALL NOT CONTAIN ROCKS 6" OR LARGER IN ANY DIMENSION. THE FINISH GRADE (TOP 6" OF DEPTH) SHALL NOT CONTAIN ANY ROCKS LARGER THAN ONE-HALF (1/2") IN DIAMETER.
- HORIZONTAL CONTROL POINTS ARE FOR POSITIONING POINTS AND DIMENSION CLARIFICATION ONLY.
   TREES SHALL NOT BE REMOVED WITHOUT THE SPECIFIC CONSENT OF THE OWNER'S PROJECT REPRESENTATIVE.
   THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING TREES REMOVED WITHOUT RECEIVING PROPER
- APPROVAL.
  11. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF TREE'S, SHRUBS AND OTHER PLAN MATERIAL WITHIN THE LIMITS OF THE WORK TO REMAIN. ANY PLANTING MATERIAL DAMAGED TO AND FROM PROJECT SITE PATH WILL
- BE AT THE EXPENSE OF CONTRACTOR WITH "AS-EQUAL" MATERIAL.

  12. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING AND PAYING ALL PERMITS AND INSPECTIONS FROM ALL JURISDICTIONAL AGENCIES AND CORPORATIONS. THE CONTRACTOR WILL BE REQUIRED TO PAY ALL PERMIT FEE'S
- 13. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ORIGINAL CONDITION OR BETTER. RESTORED AREAS INCLUDE, BUT ARE NOT LIMITED TO TRENCH BACKFILL, SIDE SLOPES, FENCES, DRAIN PIPES, DRAINAGE DITCHES, DRIVEWAYS, LANDSCAPING, EXISTING GRADE ELEVATIONS.
- 14. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PLACEMENT OF ALL SLEEVES UNDER CONCRETE PAVING AS
- INDICATED ON THE PLANS.

  15. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT EROSION. IN THE EVENT THAT SIGNIFICANT EROSION OCCURS AS A RESULT OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE THE ERODED AREA TO ORIGINAL CONDITION.
- 16. DISCREPANCIES IF ANY, SHOULD BE BROUGHT TO THE ATTENTION OF THE ADAPTIVE TRACK DESIGNER BEFORE WORK COMMENCES.
- ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES (FEDERAL, STATE, LOCAL, AND
  HEALTH DEPARTMENTS), EXCEPT WHERE REQUIREMENTS OF CONTRACT DOCUMENTS ARE MORE STRINGENT.
   NO DESIGN MODIFICATIONS SHALL BE MADE WITHOUT THE OWNER'S AND/ OR ADAPTIVE TRACK DESIGNER APPROVAL

### FLOW TRAILS- SITE- GRADING & DRAINAGE

- 1. FINAL HEIGHT AND SHAPE OF EXCAVATION TO BE VERIFIED BY BMX TRACK DESIGNER IN THE FIELD.
- ALL SPOT ELEVATIONS ARE FOR TOP OF FINISH WORK UNLESS OTHERWISE NOTED.
   MINIMUM SLOPE FOR ALL CONCRETE FINISH WORK SHALL BE 1%. WATER MUST DRAIN TOWARDS DIRECTION OF FLOW
- ARROWS AND FOLLOW OVERALL DESIGN INTENT.

  ALL AREAS DISTURBED BY GRADING OPERATIONS TO BE FINE GRADED.
- 4. All AREAS DISTURBED BY GRADING OPERATIONS TO BE FINE GRADED.

  5. VERIEV LOCATION AND DEPTH OF ALL LITTLES PRIOR TO COMMENCING WO
- 5. VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO COMMENCING WORK.6. REFER TO SECTIONS, DETAILS AND PROFILES FOR HEIGHT, RADII AND PROFILES.
- 7. ALL FINE GRADING OF EARTHWORK SHALL BE INSPECTED WITH TEMPLATES CUT TO THE SPECIFIED RADII/ ANGLE. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL TEMPLATES/ SCREEDS TO BE USED FOR EARTHWORK TOLERANCES FOR APPROVAL BY ADAPTIVE TRACK DESIGNER.
- 8. CONTRACTOR TO PROTECT ALL EXCAVATIONS FROM SOIL EROSION AND WATER SATURATION AT ALL TIMES USING APPROPRIATE CONSTRUCTION METHODS. LOSS OF SOIL PROFILE DURING CONSTRUCTION SHALL BE REPLACED WITH APPROPRIATE SOIL COMPOSITION AND COMPACTION METHODS TO MATCH LOSS SOIL.

### FLOW TRAILS- SITE- SURVEY NOTES

- LOCATE ALL SURVEY MARKS INCLUDING BENCH MARKS AND PROPERTY LINES IN ORDER THAT THE EXACT LINES OF CONSTRUCTION LIMITS AND GRADES MAY BE DETERMINED. BRING ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE IMMEDIATELY BEFORE PROCEEDING WITH WORK.
- 2. VERIFY ENTIRE LAYOUT PRIOR TO START OF CONSTRUCTION WITH PROJECT OWNER'S REPRESENTATIVES AND
- ADAPTIVE TRACK DESIGNER.

  3. LOCATE AND PROTECT CONTROL POINTS PRIOR TO STARTING SITE WORK AND PROTECT ALL PERMANENT REFERENCE POINTS DURING ENTIRE CONSTRUCTION. REPLACE PROJECT CONTROL POINTS WHICH MAY BE LOST OR DESTROYED DURING CONSTRUCTION.

### **EXISTING CONDITIONS & DEMOLITION**

- ALL MATERIAL "TO REMAIN" SHALL BE PROTECTED DURING CONSTRUCTION.
- ALL MATERIALS "TO BE REMOVED" SHALL BE TAKEN FROM THE SITE AND DISPOSED OF PROPERLY.
   IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE JOB SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT COULD AFFECT THE INSTALLATION OF ANY WORK SET FORTH IN THESE PLANS PRIOR TO
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ANY UTILITIES THAT MAY BE NEEDED OR AVOIDED IN THE DEMOLITION PHASE IN ADVANCE OF ANY CONSTRUCTION. ASD DOES NOT
- GUARANTEE ANY LOCATIONS REFERENCED.

  5. THE CONTRACTOR SHALL CONTACT ALL UTILITY ENTITIES AND OWNER FOR EXISTING LOCATIONS PRIOR TO ANY
- CONSTRUCTION ACTIVITY.

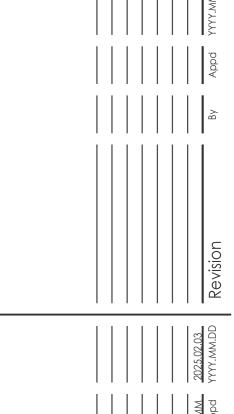
  6. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS NECESSARY DURING CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS NECESSARY DURING CONSTRUCTION
   THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.

Stantec





12400 W Hwy 71, Austin, TX 78738 Phone: 1(512) 38<sup>-</sup>



Permit/Seal



02/02/202

IDE BICYCLE ATIONAL FACILITIES , HOWER PARK

CITYWIDE RECREATI EISENHOV

Project No.: 222012814

File Name: BP-0.01-0.02 NOTES

Scale:

MJ MM 2025.02.03

Dwn. Dsgn. Chkd. YYYY.MM.DD

Title

TRAIL CONST.

Revision: Sheet:

Work under this item shall include all work, materials, labor, and incidentals necessary for the contractor to provide, install, and construct the portions of natural surface trails as shown on the plans. This project includes construction of vertical undulations / features and the construction of turns as called for on the plans. This project also includes grubbing stumps in the trail tread and flush cutting stumps in the trail corridor, see item 1.19 below for further detail. Natural surface trails will use rolling contour and lift and tilt (where required for drainage) construction methods and will have a varying frequency of rollers, berms and tabletop and rolling gap jumps as quantified in construction documents. Existing barbed wire and hog fence present on site shall be removed by contractor and shall be considered incidental to the unit rate for natural surface trails. The tread will be natural surface constructed by a contractor part of the professional trail builders association. Natural surface trails special provision shall cover all-natural surface trail bid items regardless of naming (adaptive trad. Trail, trad. trail, gravity trail, MBO trail, hiking trail, etc.).

All trail work shall be done according to the specifications and typical details included in this document. When field conditions do not pertain to specifications provided the work shall be done in accordance with the 2007 edition of the USDA trail construction and maintenance notebook, the 2007 edition of managing mountain biking, 2004 edition of the IMBA trail solutions guide, and the 2017 edition of guidelines for a quality trail experience. Refer to these publications for details and descriptions of trail maintenance and construction. Deviation from these specifications will be allowed with the permission or at the direction of the owner.

Trail alignments have been previously flagged in the field by Owner, these flag lines represent the downhill edge of tread as well as the approved corridor. The approved corridor extends 20' on each side of original flag line. The Owner may approve adjustments to the flag line within this corridor to improve sustainability, improve the trail experience, reduce impact, and improve build efficiency. Material, such as stone, may be harvested within this corridor as long as that harvesting does not negatively impact the trail experience or stability. Trail contractor shall create an exact final alignment and location for each trail and trail feature. The alignments and locations shall meet appropriate specifications as provided in the construction documents. The alignment, location, design, and construction of each individual trail shall conform to the specifications, intent, character, and description for that specific trail as described in the construction documents. If conflicts arise in trail alignments. features, armoring, vegetation, landscaping, irrigation, and/or other items, trail contractor is required to immediately contact Owner's representative for resolution before proceeding. The trail contractor shall work with the Owner's representative to identify the need to further refine or adjust construction notes, location or types of trails or features, and make minor adjustments as soon as identified by the contractor. The trail flagging delineates the center of the approved trail corridor and desired trail alignment.

1.2 Technical Trail Features (TTF'S)

The feature location plans provide quantities and feature types but are diagrammatic and do not reflect an exact final alignment, location, or dimension for each feature. The trail contractor shall determine exact final location and dimension of all TTFS based upon final trail alignment, trail flow, character, difficulty, and surrounding terrain. It is the trail contractor's responsibility to ensure that final dimensions of TTFS (height, length, radius, width, etc.) Flow appropriately with the speed of travel, other features and surrounding trails. TTF placements are required to include an optional line or bypass trail that provides users with an open and obvious route to avoid the TTF. Refer to details for typical detail. All manufactured TTF lengths are linear, not chord lengths. All manufactured TTF heights are from top of concrete footing or earth anchor to top of decking. All TTFS to be pre-engineered and designed. All manufactured TTFS will be sourced from insured bike park feature manufacturer and supplied by other. Feature manufacturer shall hold product liability insurance. TTFS are quantified separately in the bid form.

1.3 Turns Turns on the trail system shall be cambered/banked/ bermed as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Turns shall be built according to the trail type and difficulty level as specified in the construction documents. Turns shall be constructed according to design and sustainability guidelines as set forth in building sweet single track. Turns shall be built with proper drainage and grade reversals before and after the turn. Construction of turns are included in the base trail cost and will not be quoted as separate

1.4 Vertical Undulations / Features

The trails should have vertical undulations such as rollers, jumps, grade reversals, and dips as necessary according to the specifications, drawings, intended riding experience, trail flow, trail speed, and difficulty. Construction of typical trail features that are approximately 24" or less in height are included in the base trail cost and will not be quoted as separate feature units unless specifically identified in the bid form (ex. Rollers, grade reversals, jumps <24").

1.5 Trail Drainage

All finished tread must provide positive drainage off of the trail. The finished tread shall show no signs of erosion prior to final payment. Drainage shall promote sheet flow off of the tread, rutting from shallow concentrated flow shall not occur on trail tread. Where necessary, trail contractor may construct shallow porous stormwater infiltration areas and swales adjacent to the trail to manage surface water drainage, provided they are constructed in an appropriate manner and do not create a hazard.

1.6 Grade Reversals (Rolling Grade Dip) / Drains A designed grade reversal or constructed rolling grade dip shall occur at least every 100-150 feet along the trail alignment preferably more frequently. All grade reversals must be strongly anchored to discourage short cutting. Grade reversals shall have cross slopes that promote positive drainage off trail and down slope of the tread. Cross slopes shall be twice that of the average tread cross slope (minimum 10%, maximum 20%). The grade reversal transition shall be gradual, and the feature shall cover a distance of at least 10 feet of trail. See details for additional information.

1.7 Trail Corralling

Trail contractor shall provide speed-reducing features and curves in the trail alignment to slow riders before reaching trail intersections. Speed reducing features may include boulders, cut trees or in extreme cases fencing as obstacles. Contractor shall furnish and install landscape boulders on the trail system where necessary to help anchor the apex of turns, help define and improve intersections, prevent short-cutting, and to otherwise enhance the edge of the trail corridor where necessary. Landscape boulders shall be native rock partially buried into soil a minimum of 50% of the boulder's height below grade and per plan.

1.8 Rock Armor / Tech Trails Rock armoring shall be installed where necessary to prevent trail erosion, harden wet tread, or provide tread texture. Rock armoring should utilize local rocks. When possible, rocks shall be harvested from the work site. Stone pitching, a form of rock armoring, shall be at least ten (10) inches deep with a minimum of seven (7) inches of the rock buried below the surface of the surrounding grade. Stones should be stable and aligned perpendicular to the direction of travel. Each end of a pitched section shall be supported by larger "bookend" stones embedded in the ground to prevent movement of the rock armor. Surface depth variation and unavoidable obstacles shall adhere to IMBA trail difficulty rating system. Rocks shall not move. Flagstone paving, a form of rock armoring, shall be two (2) inches to 24 inches thick and 12 inches to 48 inches wide. Voids larger than 2" shall be filled with compacted crushed stone and topped with compacted native soil, rocks shall not move. Rock armor shall be constructed such that the desirable path of travel is the tread and not the surrounding forest floor. Additional guide stones may be required if the final surface of the trail appears more rugged than the adjacent landscape. All rock embedded in the trail surface should be stable. When used in structures, care will be taken to match rock to the immediate surroundings, grain patterns, lichen growth, etc. Excess tool marks on rocks are not acceptable. Contractor shall determine the appropriate ratio of "stone pitching" vs. "flagstone paving" for each individual trail segment.

1.9 Rock Placement at Drainage Crossings

Trail contractor shall construct a sub-base of crushed rock under the rock armor layer at drainage crossings. Possible locations include very low-lying terrain where water ponding is probable, significant water drainage crossings, or other areas expected to have very poor drainage. Rock placement must not obstruct flow above or below the drainage crossing. It should be placed in such a way that water runs through the intended channel. Refer to details. Locations for this improvement are to be flagged for the Owner's review and are outlined in the special considerations column of the trail schedule and quantified in the bid form, additional locations, while unlikely, may be determined by Owner's representative and shall be considered incidental to the unit rate for natural surface trails. If additional locations exceed 400 square feet, the contractor may submit a change order for added cost at the unit rate only after receiving written approval from the Owner's representative.

1.10 Rock Procurement All rock armoring, rock gardens, and landscape boulders to be used in trail construction shall first be obtained from on-site stockpiles or designated areas to the extent possible. Given the lack of suitable native stone present on the site, the contractor should anticipate the need to source suitable stone elsewhere.

Boulders used in rock armor, for TTFS or landscaping shall have a character and shape consistent with native landscape rock settings. If no native landscape rock is present, the contractor shall source boulders that are angular an irregular with properties that are positive for riding on and construction. Boulders shall be a range of sizes and shapes; minimum size is 2'W x 1.5'H x 2.5'L. To the greatest extent possible, rocks shall be placed in their final locations with the lichen or weathered side exposed.

1.12 Trail Surfacing Material

The intent of the trail surfacing material is to cover the existing soils

as called for in the plan set (typically on jump lines and gravity trails) with a well-balanced surface that facilitates drainage, compacts well, and that performs reasonably in both wet and dry weather conditions. Trail surfacing material shall be incidental to the unit rate for trail construction. All imported soil will require lab testing to meet the following requirements:

a ) Surface material shall be composed of between 65-75% clay and

b) Material shall be natural, uncontaminated, and free of organic material, vegetation, waste, recycled concrete, asphalt, noxious weeds/seeds, and other deleterious matter

c ) Material comprised wholly of rock aggregate, gravel, road base, crusher fines or similar is not acceptable due to unfavorable looseness, surface marbles, lack of binding, and other negative characteristics for bike riding.
d ) The trail surface material must be tested in both wet and dry conditions on the sample trail sections described in the performance specifications. Modifications to the material may be necessary based on the sample test.

Owner's representative must approve the material before additional construction may proceed. Trail surfacing material is not incidental to the unit price for natural surface trails and is quantified and identified as a separate bid item on the bid form.

1.13 Compaction

All trail sub grades, trail treads, trail surfacing materials, backslopes, rollers, berms, fill, and terrain enhancements shall be compacted to a minimum 92% proctor and in a manner that will support the intended

For all specifications that contain more or less quantities, it shall be understood and agreed that quantities listed in the specifications are estimated only and may be increased or decreased in accordance with the requirements of the Owner.

Fill needed for trail construction, berms, rollers, or other features may be generated during trail excavation, borrowed from surrounding landscape where appropriate, borrowed from onsite stockpiles, or imported if necessary. Fill material shall be uncontaminated and free of organic material, trash, noxious weeds/seeds, and other objects. Fill material shall be placed, graded, and compacted by trail contractor in a manner that will support the intended use. The non-riding surfaces of berms, rollers, landscape mounds, or other terrain enhancements created by the trail contractor shall not exceed a 1:1 slope

1.16 Backslope

Due to the erosive nature of the loess soils, the backslope of trail should be graded to a slope that limits the amount of site disturbance and does not exceed a 1:1.5 slope or until it matches the existing ground. The edge between existing ground surface and backslope shall be smooth and not impede the flow of water or provide vertical drop between the existing ground surface and backslope. Any backslope that is created by fill shall be compacted to 90% proctor. Refer to erosion control plans for additional requirements pertaining to backslopes.

1.17 Trail Finished Condition

Finish and grading of backslope, down slope spoils, and drainage features shall leave surface that matches the texture of the surrounding forest floor. Finished tread should be compacted to 92% proctor and provide positive drainage off trail. Finished tread shall incorporate fixed natural and native roots and rocks according to specifications and dependent on trail type. Runoff shall be diverted during sheet flow prior to shallow concentrated flow. Cross slopes may vary (5% minimum, 10% maximum), including cambering of turns, but water must exit the trail in sheet flow without causing erosion of or puddling on, the trail. Locations intended to drain water from the trail shall have a minimum slope of 10%, unless authorized by the Owner's representative.

1.18 Spoils Stabilization

All excavated materials not used in the trail tread or other trail structures must be stabilized. Spoils shall not be placed in drainages, swales, ephemeral streams, wetlands, or any area known to convey water during wet weather events. When possible, spoils should be mulched with native materials to discourage erosion while native seed stocks reestablish. In areas without adequate native mulch, seed-free straw and suitable native seed may substitute. In certain circumstances, installation of formal erosion control measures may be required. It is the contractor's responsibility to conform with all local, state, and federal stormwater regulations.

1.19 Corridor Clearing

The finished trail corridor shall extend horizontally a minimum of 3.0 feet from the edge of the trail tread to both sides and shall be a minimum vertically eight (8) feet high and higher in the case of jump and flow trail types as determined to be necessary by the owner's representative. Corridor clearing shall be confined to within five (6) feet of trail alignment centerline. The natural surface trails project contractor shall be responsible for all costs associated with grubbing of stumps within the trail tread and flush cutting of stumps within trail corridor, these costs will be incidental to the unit rate for natural surface trails.

1.20 Spoils The trail tread shall consist of mechanically compacted earth or rock. No organic material may be within trail tread. Tread shall be mineral soil or rock. All stumps shall be excavated and removed from the trail

tread. Any stumps resulting from corridor clearing should be excavated and removed. Stumps not removed in the corridor may not pose an unreasonable risk. Spoils shall be stabilized as outlined in "stabilization". Any down slope spoils must be distributed to encourage drainage off the trail. Spoils may be distributed up slope on hillsides with a slope angle less than 30%. Spoils and disturbed areas outside of the trail tread must be stabilized with a covering of forest mulch or leaves. In areas with insufficient duff, weed-free straw may be substituted for forest materials. Excess soil shall not be distributed into drainages or adjacent to streams. Any woody debris not used in trail closure should be removed from sight of the trail or arranged to blend into the landscape.

1.21 Debris and Woody Material

Any woody debris not used in trail closure should be removed from sight of the trail or arranged to blend into the landscape. Cut and scatter all branches and brush to maximum height of 18 inches above the existing ground surface. No debris shall be left within 10 feet of trail, unless placed as anchors or stabilization. Butt-ends of any sawed limbs shall be placed facing away from trail. All branches trimmed shall be cut to a main branch or trunk to prevent stabs or "coat hangers". Woody material such as stumps, logs, and brush shall be removed from the trail tread. Stumps less than 12" diameter at breast height (DBH) within three (3) feet of the trail tread will be removed or flush cut to existing ground surface.

1.22 Test Riding

Trail contractor shall thoroughly test ride all trails and trail features, by bike with appropriately skilled rider, to ensure the specified riding experience, design, flow, rhythm, character, difficulty, and specifications are met. Testing shall be performed during the trail alignment and trail feature location process, as well as during construction and following construction, to the extent possible and in consultation with owner's representative. Trails and features shall be modified and corrected as necessary until performance specifications are met.

1.23 Sample Trail Section

Contractor shall construct sample segments of a minimum of 50 linear feet of each trail type and 20 square feet of each armoring type as indicated in the construction plans. These sections shall contain a complete sample of the construction methods, materials, and workmanship intended for the project. The owner's representative must accept work before additional construction May proceed. Corrections shall be executed as necessary for acceptance. The accepted samples shall be retained during

Construction as a standard of work. Accepted samples shall be part of the actual trail system. Upon completion of sample, 2,500' lengths of individual trail may be constructed at a time. Owner's representative to approve 2,500' section prior to commencement of next section.

1.24 Bridges

Any required bridges shall adhere to local codes and regulations. Design and determining exact location(s) shall be the responsibility of the selected contractor. Shop drawing shall be provided and must be approved by owner's representative. Bridges are not incidental to the unit price for natural surface trails and are quantified and identified as a separate bid item on the bid form.

1.25 Contractor Coordination

Trail contractor shall be responsible for any coordination with general contractor and subcontractors as required to complete all operations.

Method of Measurement

Natural surface trails shall be measured by the linear foot quantity, complete in the field, as listed in the proposal page without measurement thereof

Basis of Payment

Natural surface trails shall be measured as described above and shall be paid for at the contract unit price which shall be full compensation for all work, materials, tools, equipment, labor, hauling, placement, disposal, and incidentals required to complete the work as set forth in the description. Natural surface trails special provision shall cover all-natural surface trail bid items regardless of naming (adaptive trad trail, trad trail, gravity trail, MBO trail, hiking trail, etc.)

**CONSTRUCTION SEQUENCE** 

The following construction sequence is to be used as a general guideline. The contractor to coordinate with the Owner and submit a proposed

2. Check for existing utilities prior to any excavation, (Call 811)

3. Install temporary erosion and sediment controls.

4. Contractor must submit a surfacing mixture sample (1 gallon) to the engineer prior to delivery to the site.

6. Fine grade dirt jumps and run ins. Install prefab wood kickers, wall rides. Site visit and test ride required for sign off.

7. Flag locations of all skill trails features, site visit required for sign off

required for sign off. 9. Grade all trail tread. Site visit and test ride required for sign off.

(1.) Field flagging (by Contractor) and review are required before any by Owner or Owner's Representative is required before construction

and approval min. 2 weeks prior to start of construction. 2. No easements or right-of-entry has been obtained by the city. access to site through private property. If contractor obtains right-of-entry,

3. Contractor shall be responsible for all necessary traffic control required to complete the project based on their proposed site access. Traffic control plan shall be submitted to engineer and owner for review and approval min.

both sides of closure, to forewarn users.

non-working hours. 6. Contractor to coordinate staging areas with city.

7. Contractor shall be responsible for restoration of all staging and site access areas

### **NOTES**

1. Building lines and corners are for use in preparing civil site plan documents. Building corners and building lines should be specifically verified, as necessary, prior to design for construction of any proposed expansion or connection of building components.

2. For clarity purposes, survey spot elevations are not shown on this survey, but are contained within the digital CADD files.

3. For the purpose of this survey, storm sewer, sanitary sewer and water main lines are assumed to follow a straight line from structure to

4. Utility service lines to buildings are approximate only. An internal building investigation, excavation and/or subsurface locating/designating would need to be performed to determine the location of services

5. Underground pipe materials and sizes are based upon visible evidence viewed from access manholes/structures. Due to the configuration and/or construction of the structure, it may be difficult to accurately determine the pipe material and/or size. The surveyor will use their judgment and experience to attempt to determine, but complete

construction sequence for review and approval prior to construction.

Stormwater and Site Preparation

1. Conduct a pre-construction meeting.

Trails and Jump Zone Construction

5. Install necessary drainage infrastructure and rough grade dirt jump

8. Install skills trails and bike playground features. Site visit and test ride

10. Remove remaining erosion and sediment controls only after surrounding disturbed areas have been properly stabilized.

11. Notes:

construction can begin on any bike park features or Skills trails. Sign off commences.

(2.) See general notes/specifications/construction details for detailed construction requirements.

### ACCESS & TRAFFIC CONTROL NOTES:

1. Contractor to submit site access plan to engineer and owner for review Contractor shall be responsible for obtaining right-of-entry, if required, for

private property.

agreements must be provided to city for record prior to contractor entering

2 weeks prior to start of construction. 4. All closures of existing trail system shall be by orange safety fence and type ill barricade across trail closed trail segments shall have trail closed ahead signage mounted on type ii barricades at nearest trail intersections

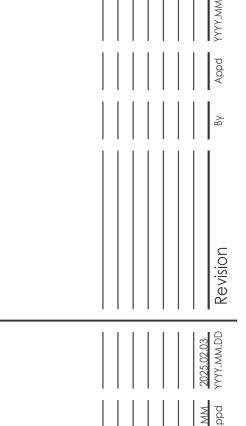
5. At minimum, one open lane of traffic in each direction shall be maintained along singing hills boulevard at all times. Singing hills boulevard shall be opened to two lanes of traffic in each direction and all traffic control removed during

entering the building.

accuracy cannot be guaranteed.







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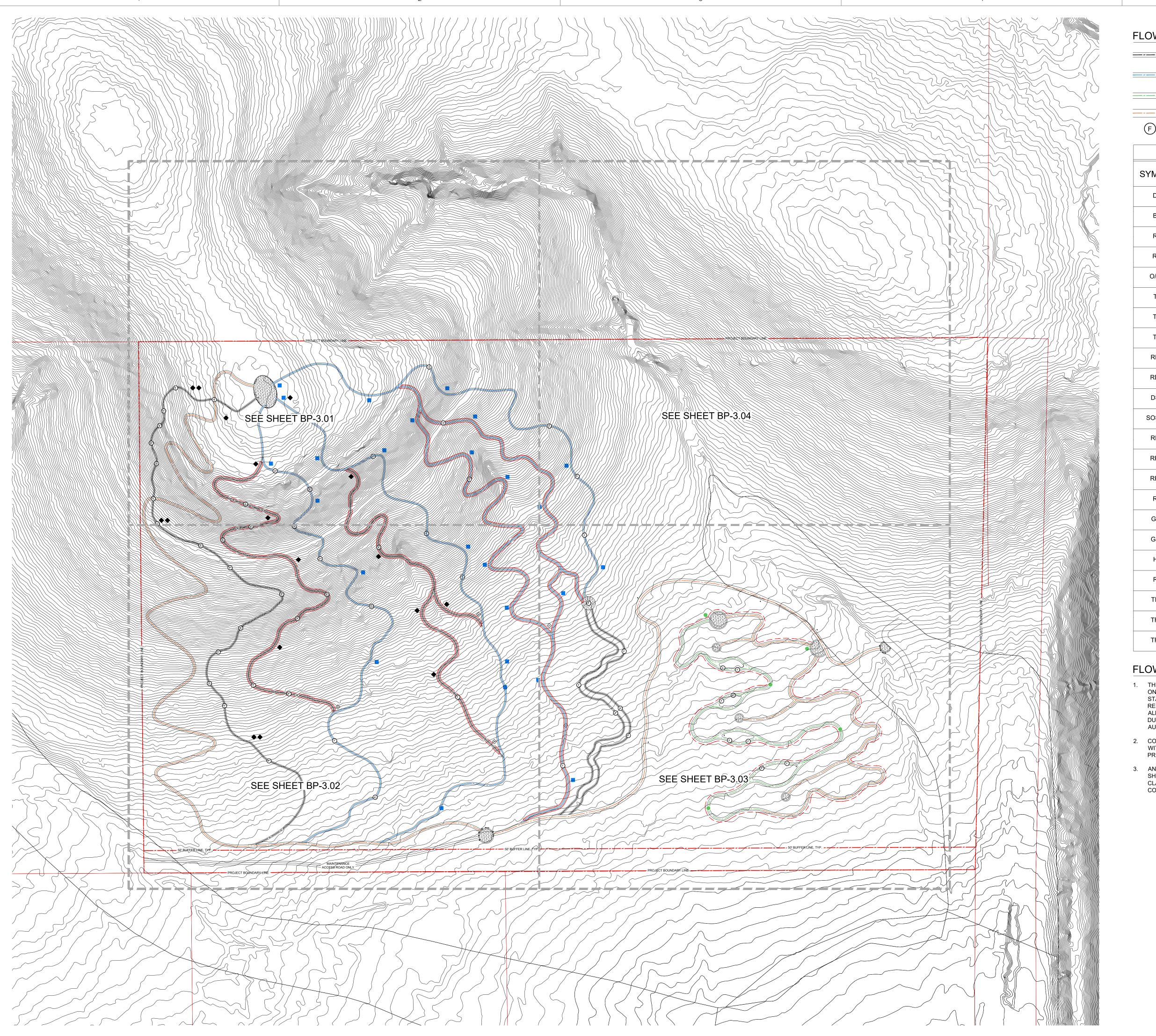
Project No.: 222012814

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FLOW LINE NOTES

Revision: Sheet: of



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH

RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

F FEATURE LOCATION

	TRAIL FEATURE - SCHEDULE	
SYMBOL	DESCRIPTION	DETAIL
D-1	DROP 3'	7
B-1	BERM 4'	14
R-1	ROLLERS 2'	8
R-2	ROLLERS 3'	9
O/U-1	ELEVATED OVER/UNDER BRIDGE	19
T-1	TABLE 10'	13
T-2	TABLE 15'	13
T-3	TABLE 20'	13
RD-1	ROLLER DOUBLE 10'	10
RD-2	ROLLER DOUBLE 20'	11
DS-1	SIDE-BY-SIDE DUAL SLALOM	
SOSO-1	STEP ON STEP OFF SX STYLE	
RR-1	ROCK ROLL 5'	5
RR-2	ROCK ROLL 6'	5
RR-3	ROCK ROLL 15'	5
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'	
GJ-1	GAP JUMP DOBULE 10'	21
GJ-2	GAP JUMP DOUBLE 12'	20
НТ	HIP TABLETOP 8'	20
RS	RHYTHM SECTION	
TR-1	RECH ROCKS EASY	3
TR-2	TECH ROCKS INTER	3
TR-3	TECH ROCKS HARD	7

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Permit/Seal



02/03/2025

TYWIDE BICYCLE :CREATIONAL FACILITIES AT SENHOWER PARK

Project No.: 222012814

File Name: BP-1.01-1.06 MATERIALS

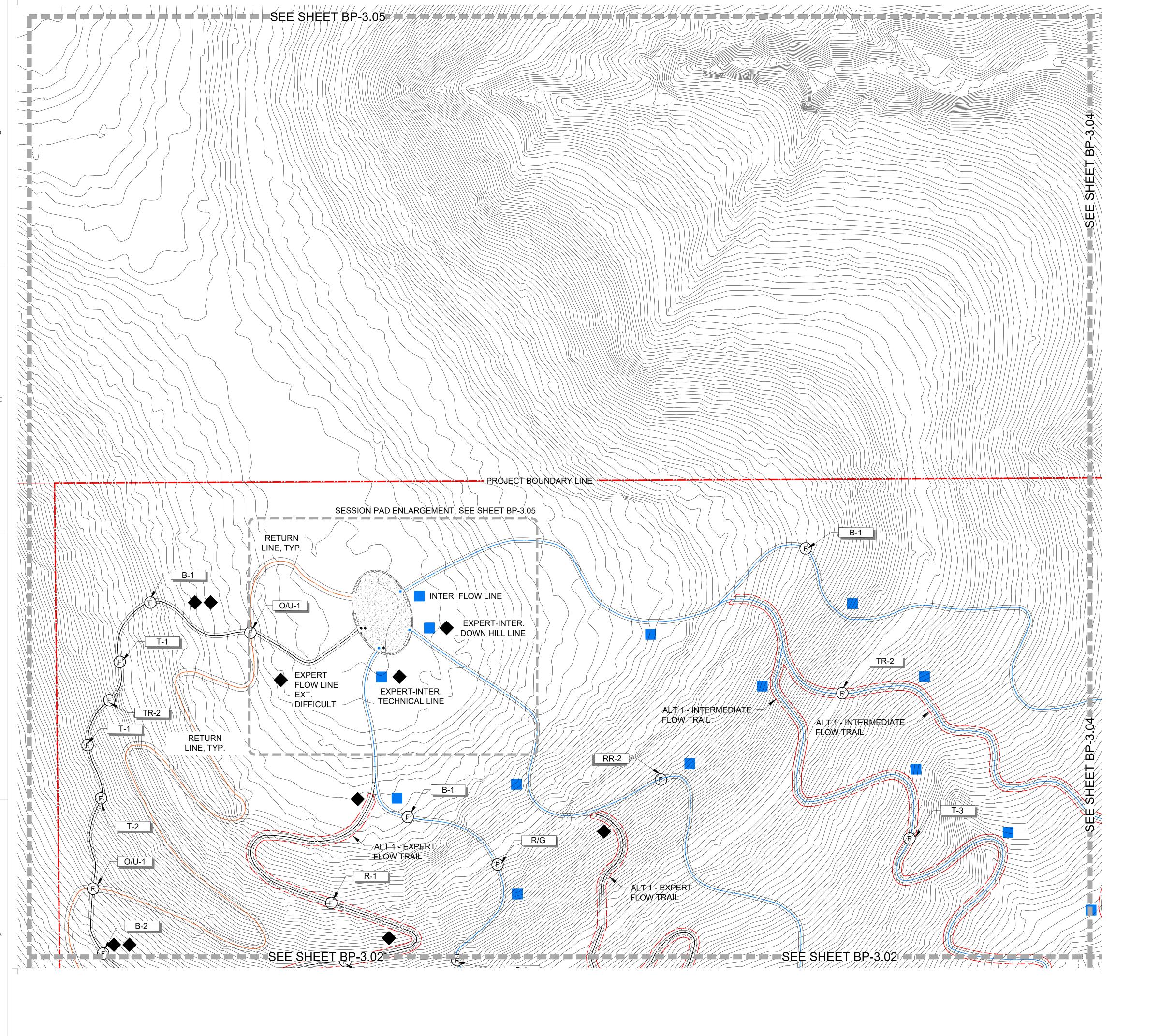
Scale:

SCALE : 1" = 100'-0"

FLOW LINES

MATERIALS PLAN

Dwn. Dsgn. Chkd. YYYY.MM.DD



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' W

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

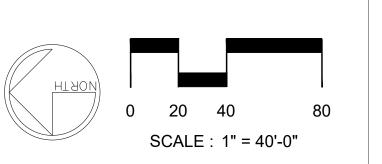
BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH

) FEATURE LOCATION

SYMBOL DESCRIPTION			
D-1	DROP 3'	7	
B-1	BERM 4'	14	
R-1	ROLLERS 2'	8	
R-2	ROLLERS 3'	9	
O/U-1	ELEVATED OVER/UNDER BRIDGE	19	
T-1	TABLE 10'	13	
T-2	TABLE 15'	13	
T-3	TABLE 20'	13	
RD-1	ROLLER DOUBLE 10'	10	
RD-2	ROLLER DOUBLE 20'	11	
DS-1	SIDE-BY-SIDE DUAL SLALOM		
SOSO-1	STEP ON STEP OFF SX STYLE		
RR-1	ROCK ROLL 5'	5	
RR-2	ROCK ROLL 6'	5	
RR-3	ROCK ROLL 15'	5	
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'		
GJ-1	GAP JUMP DOBULE 10'	21	
GJ-2	GAP JUMP DOUBLE 12'	20	
НТ	HIP TABLETOP 8'	20	
RS	RHYTHM SECTION		
TR-1	RECH ROCKS EASY	3	
TR-2	TECH ROCKS INTER	3	
TR-3	TECH ROCKS HARD	7	

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Stantec Consulting Se 70 NE Loop 410 Suite San Antonio TX 78216 Tel: (210) 525-909C www.stantec.com

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02/03/2025

WIDE BICYCLE EATIONAL FACILITIES AT HOWER PARK

ect No.: 222012814

Project No.: 222012814
File Name: BP-1.01-1.06 MATERIALS

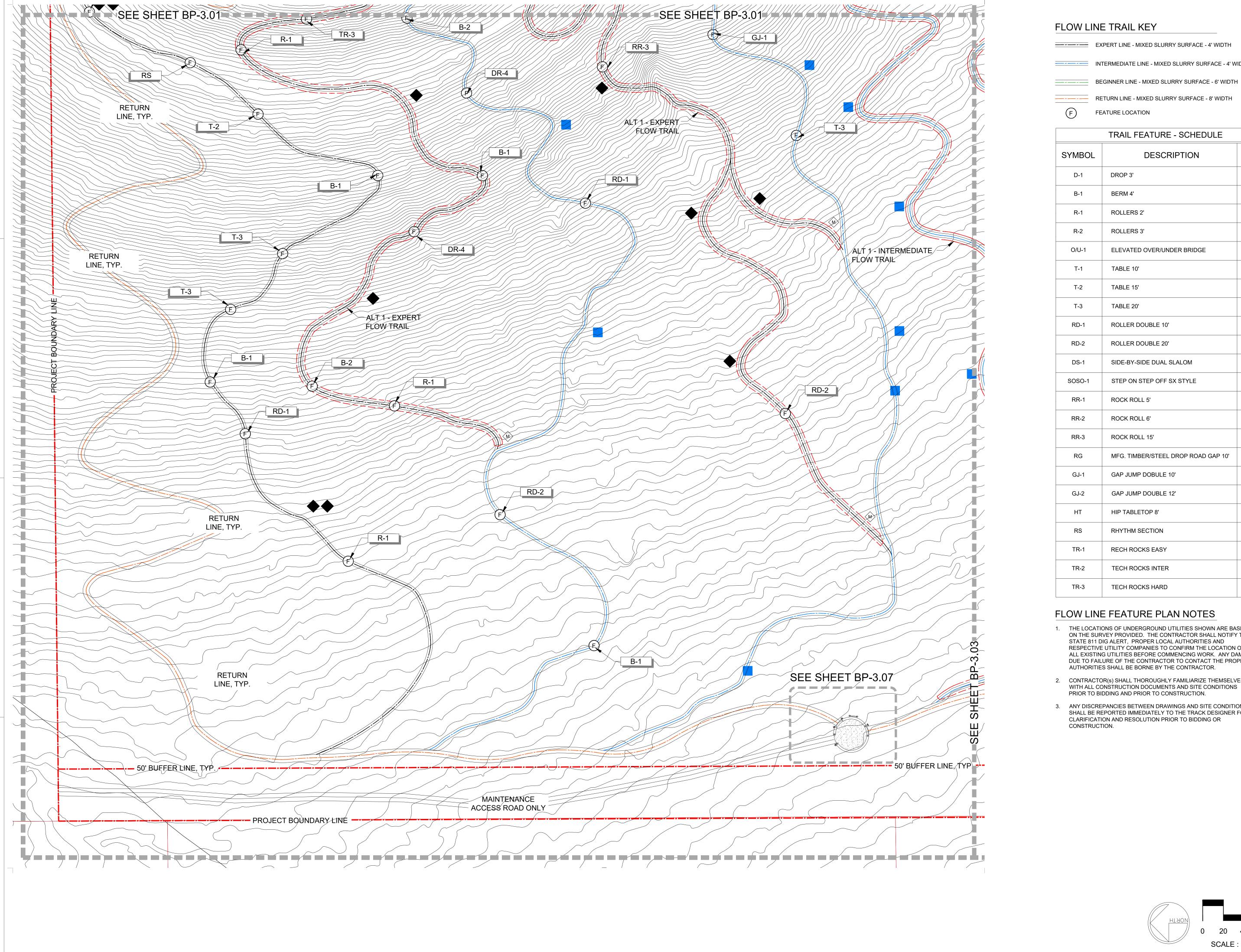
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FLOW LINES

MATERIALS PLAN





EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

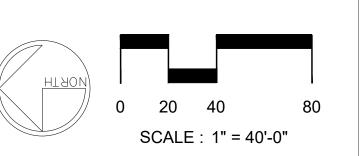
RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

FEATURE LOCATION

TRAIL FEATURE - SCHEDULE		
SYMBOL	DESCRIPTION	DETAIL
D-1	DROP 3'	7
B-1	BERM 4'	
R-1	ROLLERS 2'	8
R-2	ROLLERS 3'	9
O/U-1	ELEVATED OVER/UNDER BRIDGE	19
T-1	TABLE 10'	13
T-2	TABLE 15'	13
T-3	TABLE 20'	13
RD-1	ROLLER DOUBLE 10'	10
RD-2	ROLLER DOUBLE 20'	11
DS-1	SIDE-BY-SIDE DUAL SLALOM	
SOSO-1	STEP ON STEP OFF SX STYLE	
RR-1	ROCK ROLL 5'	5
RR-2	ROCK ROLL 6'	5
RR-3	ROCK ROLL 15'	5
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'	
GJ-1	GAP JUMP DOBULE 10' 21	
GJ-2	GAP JUMP DOUBLE 12'	20
HT	HIP TABLETOP 8'	20
RS	RHYTHM SECTION	
TR-1	RECH ROCKS EASY	3
TR-2	TECH ROCKS INTER	3
TR-3	TECH ROCKS HARD	7

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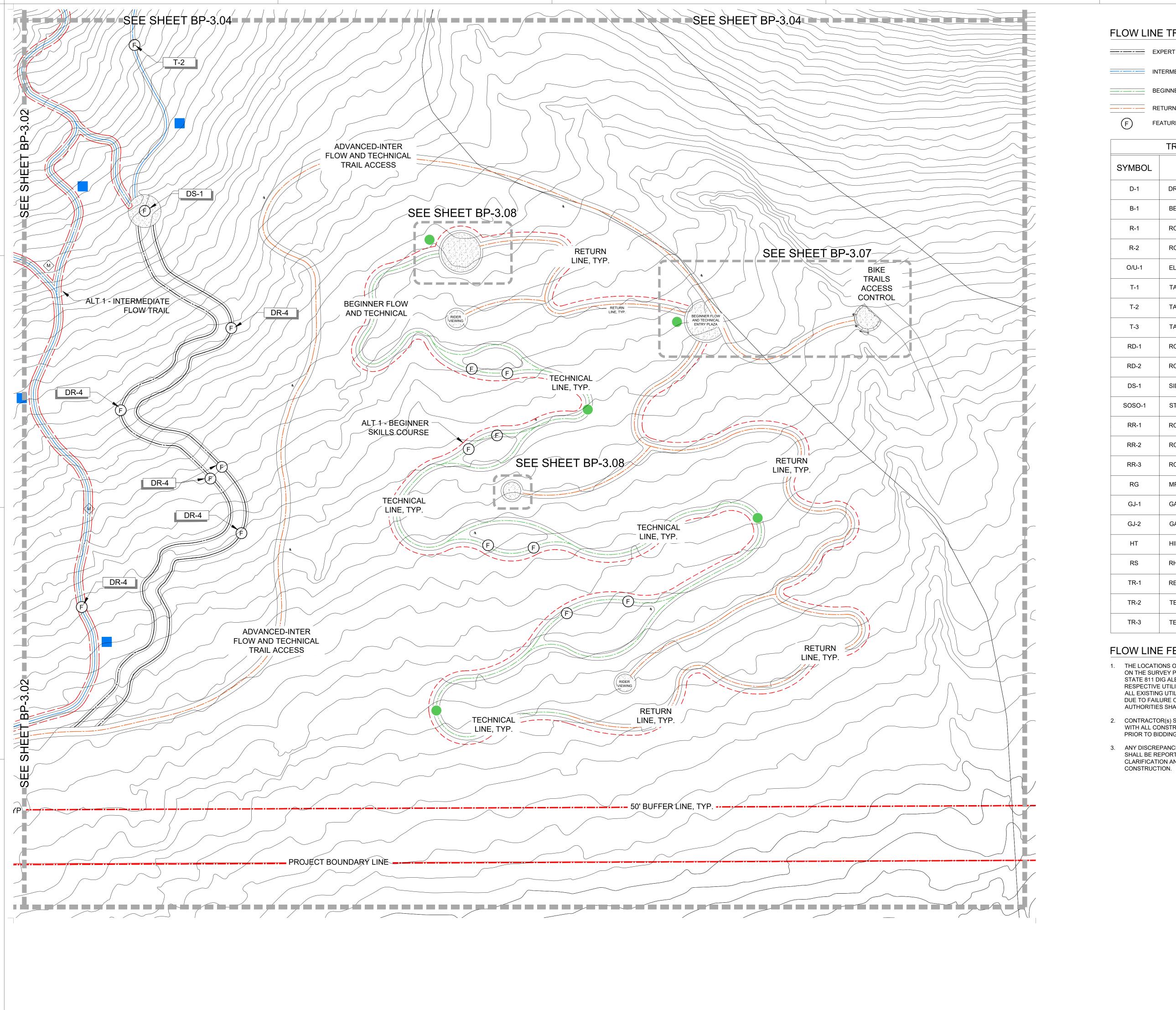
02/03/2025

Project No.: 222012814

File Name: BP-1.01-1.06 MATERIALS

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FLOW LINES MATERIALS PLAN



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH

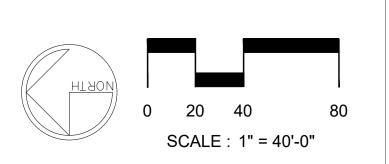
RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

FEATURE LOCATION

SYMBOL	DESCRIPTION	DETAIL
D-1	DROP 3'	7
B-1	B-1 BERM 4'	
R-1	ROLLERS 2'	8
R-2	ROLLERS 3'	9
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RR-3	ROCK ROLL 15'	5
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'	
GJ-1	GJ-1 GAP JUMP DOBULE 10' GJ-2 GAP JUMP DOUBLE 12'	
GJ-2		
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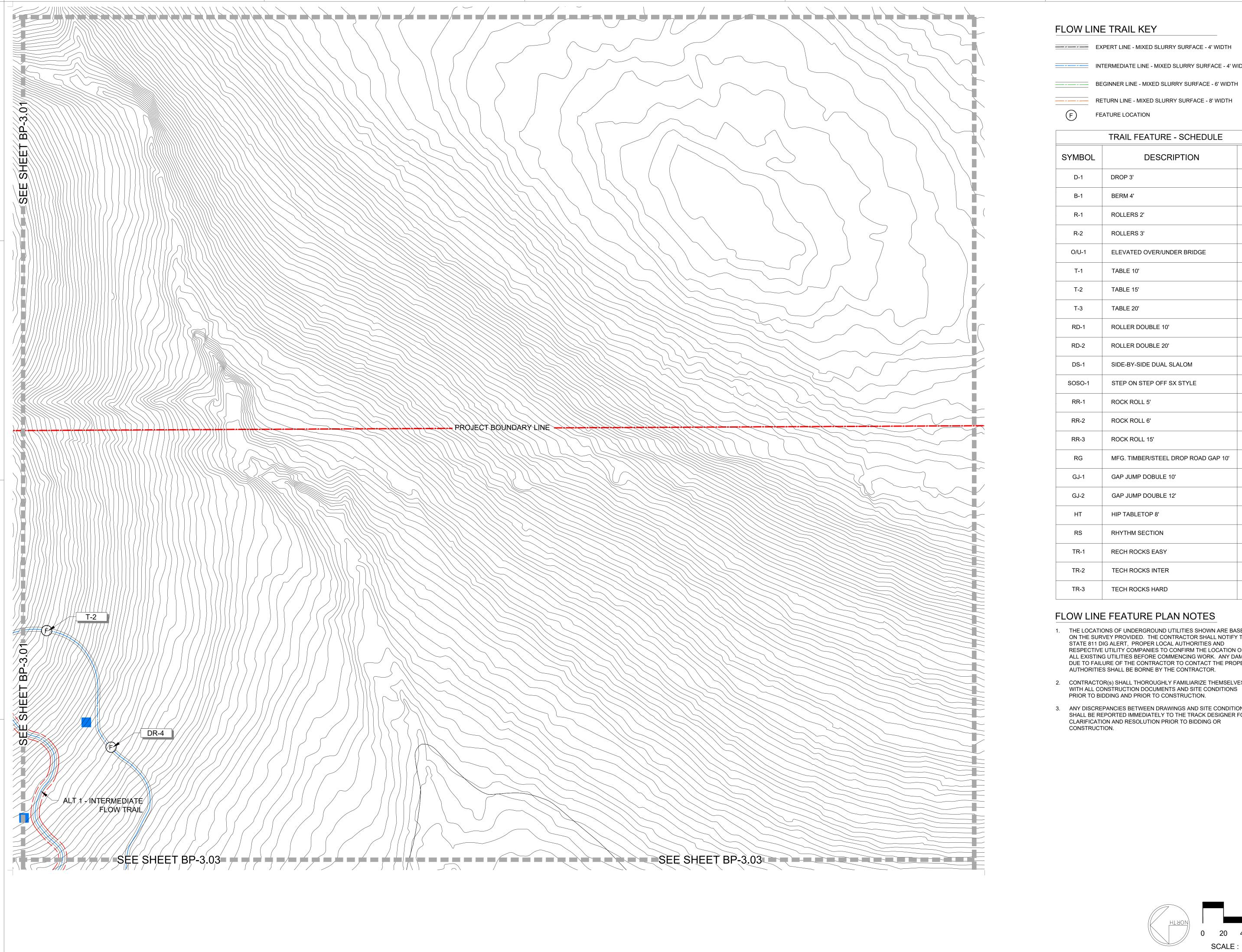
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FLOW LINES MATERIALS PLAN

Revision: Sheet: of

Drawing No.
BP-03.03



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

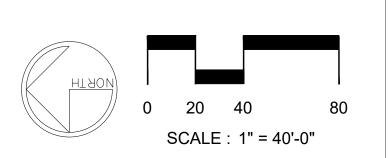
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T-1	TABLE 10'	13
T-2	TABLE 15'	13
T-3	TABLE 20'	13
RD-1	ROLLER DOUBLE 10'	10
RD-2	ROLLER DOUBLE 20'	11
DS-1	SIDE-BY-SIDE DUAL SLALOM	
SOSO-1	STEP ON STEP OFF SX STYLE	
RR-1	ROCK ROLL 5'	5
RR-2	ROCK ROLL 6'	5
RR-3	ROCK ROLL 15'	5
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'	
GJ-1	GAP JUMP DOBULE 10'	21
GJ-2	GAP JUMP DOUBLE 12'	20
НТ	HIP TABLETOP 8'	20
RS	RHYTHM SECTION	
TR-1	RECH ROCKS EASY	3
TR-2	TECH ROCKS INTER	3
TR-3	TECH ROCKS HARD	7

### FLOW LINE FEATURE PLAN NOTES

- 1. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY PROVIDED. THE CONTRACTOR SHALL NOTIFY THE STATE 811 DIG ALERT, PROPER LOCAL AUTHORITIES AND RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
- 2. CONTRACTOR(s) SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
- 3. ANY DISCREPANCIES BETWEEN DRAWINGS AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE TRACK DESIGNER FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR



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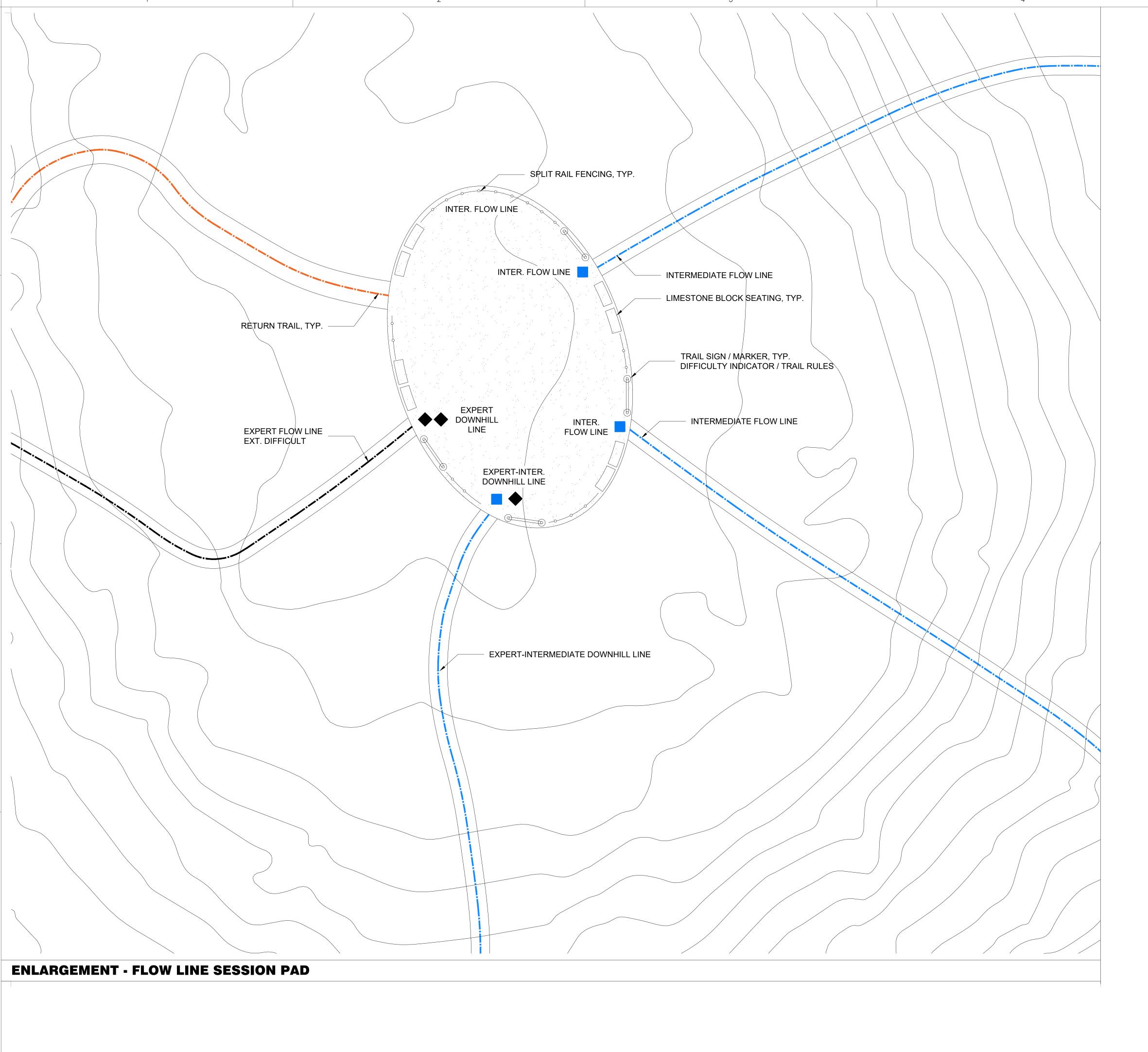


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Project No.: 222012814 File Name: BP-1.01-1.06 MATERIALS

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FLOW LINES MATERIALS PLAN



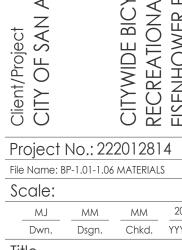
EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

FEATURE LOCATION

SYMBOL	DESCRIPTION	DETAI	
D-1	DROP 3'	7	
B-1	BERM 4'	14	
R-1	ROLLERS 2'	8	
R-2	ROLLERS 3'	9	
O/U-1	ELEVATED OVER/UNDER BRIDGE	19	
T-1	TABLE 10'	13	
T-2	TABLE 15'	13	
T-3	TABLE 20'	13	
RD-1	ROLLER DOUBLE 10'	10	
RD-2	ROLLER DOUBLE 20'	11	
DS-1	SIDE-BY-SIDE DUAL SLALOM		
SOSO-1	STEP ON STEP OFF SX STYLE		
RR-1	ROCK ROLL 5'	5	
RR-2	ROCK ROLL 6'	5	
RR-3	ROCK ROLL 15'	5	
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'		
GJ-1	GAP JUMP DOBULE 10'	21	
GJ-2	GAP JUMP DOUBLE 12'		
нт	HIP TABLETOP 8'	20	
RS	RHYTHM SECTION		
TR-1	RECH ROCKS EASY	3	
TR-2	TECH ROCKS INTER	3	
TR-3	TECH ROCKS HARD	7	

### FLOW LINE FEATURE PLAN NOTES

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FLOW LINES MATERIALS PLAN

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SCALE : 1" = 10'-0"

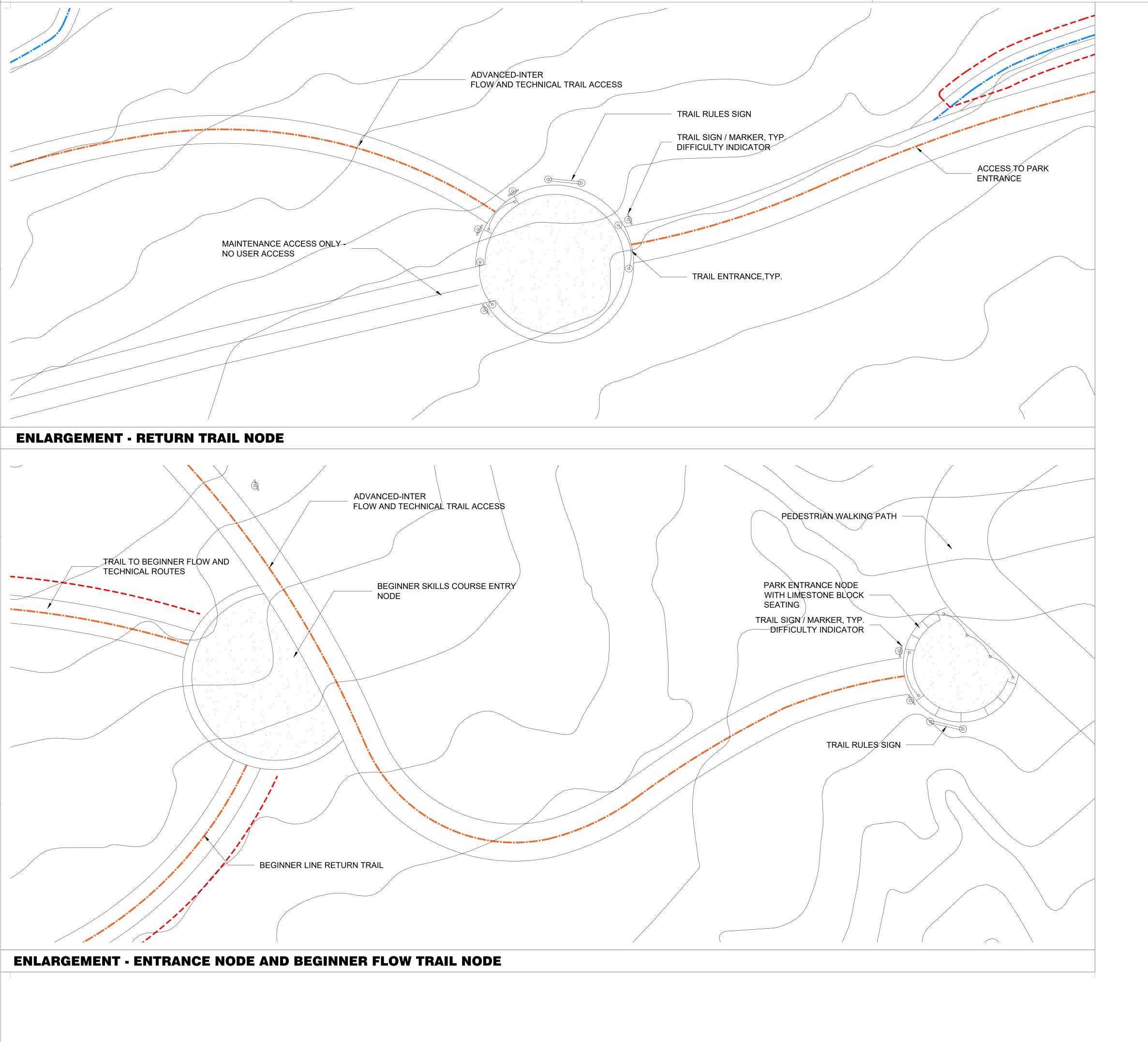
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Drawing No.
BP-03.05



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH

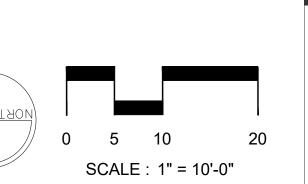
RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

FEATURE LOCATION

SYMBOL	DESCRIPTION	DETAIL	
D-1	DROP 3'	7	
B-1	BERM 4'	14	
R-1	ROLLERS 2'	8	
R-2	ROLLERS 3'	9	
O/U-1	ELEVATED OVER/UNDER BRIDGE	19	
T-1	TABLE 10'	13	
T-2	TABLE 15'	13	
T-3	TABLE 20'	13	
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DS-1	SIDE-BY-SIDE DUAL SLALOM		
SOSO-1	STEP ON STEP OFF SX STYLE		
RR-1	ROCK ROLL 5'	5	
RR-2	ROCK ROLL 6'	5	
RR-3	ROCK ROLL 15'	5	
RG	MFG. TIMBER/STEEL DROP ROAD GAP 10'		
GJ-1	GJ-1 GAP JUMP DOBULE 10'		
GJ-2	GAP JUMP DOUBLE 12'	20	
НТ	HIP TABLETOP 8'	20	
RS	RHYTHM SECTION		
TR-1	RECH ROCKS EASY	3	
TR-2	TECH ROCKS INTER	3	
TR-3	TECH ROCKS HARD	7	

### FLOW LINE FEATURE PLAN NOTES

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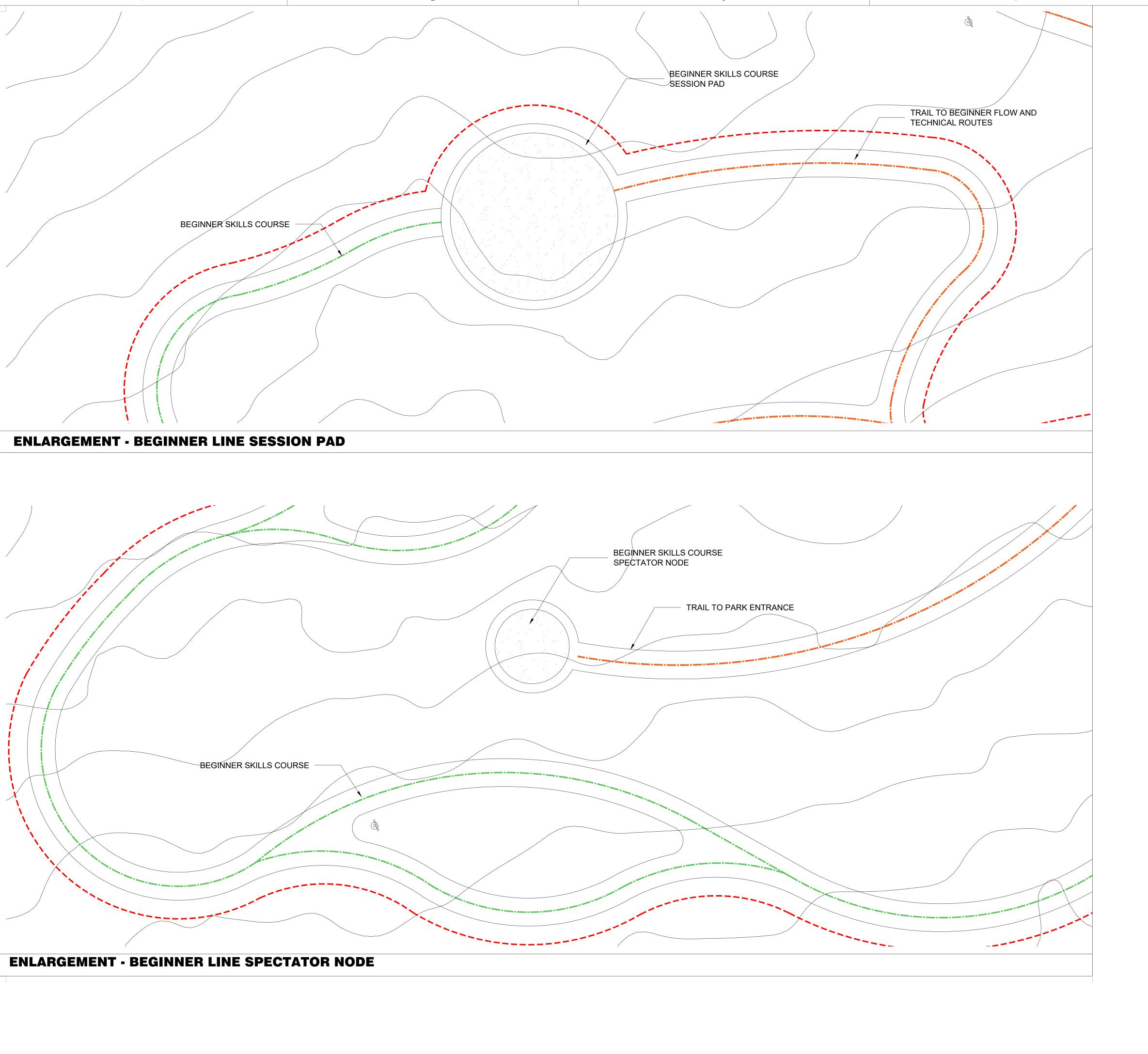
Project No.: 222012814 File Name: BP-1.01-1.06 MATERIALS

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FLOW LINES MATERIALS PLAN

Revision: Sheet: of

Drawing No.
BP-03.06



EXPERT LINE - MIXED SLURRY SURFACE - 4' WIDTH

INTERMEDIATE LINE - MIXED SLURRY SURFACE - 4' WIDTH

BEGINNER LINE - MIXED SLURRY SURFACE - 6' WIDTH

RETURN LINE - MIXED SLURRY SURFACE - 8' WIDTH

) FEATURE LOCATION

	TRAIL FEATURE - SCHEDULE	T
SYMBOL	DESCRIPTION	DETAIL
D-1	DROP 3'	7
B-1	BERM 4'	14
R-1	ROLLERS 2'	8
R-2	ROLLERS 3'	9
O/U-1	ELEVATED OVER/UNDER BRIDGE	19
T-1	TABLE 10'	13
T-2	TABLE 15'	13
T-3	TABLE 20'	13
RD-1	ROLLER DOUBLE 10'	10
RD-2	ROLLER DOUBLE 20'	11
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НТ	HIP TABLETOP 8'	20
RS	RHYTHM SECTION	
TR-1	RECH ROCKS EASY	3
TR-2	TECH ROCKS INTER	3
TR-3	TECH ROCKS HARD	7

### FLOW LINE FEATURE PLAN NOTES

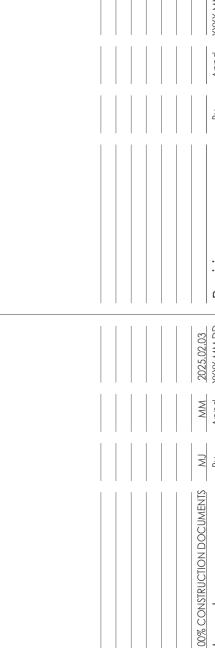
- 1. THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ARE BASED ON THE SURVEY PROVIDED. THE CONTRACTOR SHALL NOTIFY THE STATE 811 DIG ALERT, PROPER LOCAL AUTHORITIES AND RESPECTIVE UTILITY COMPANIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. ANY DAMAGE DUE TO FAILURE OF THE CONTRACTOR TO CONTACT THE PROPER AUTHORITIES SHALL BE BORNE BY THE CONTRACTOR.
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Stantec Consider Stantec Consider Standard Stand

12400 W Hwy 71, Suite 350-348 Austin, TX 78738 Phone: 1(512) 387-5827



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CITYWIDE BICYCLE
RECREATIONAL FACILITIES AT
EISENHOWER PARK

Project No.: 222012814

File Name: BP-1.01-1.06 MATERIALS

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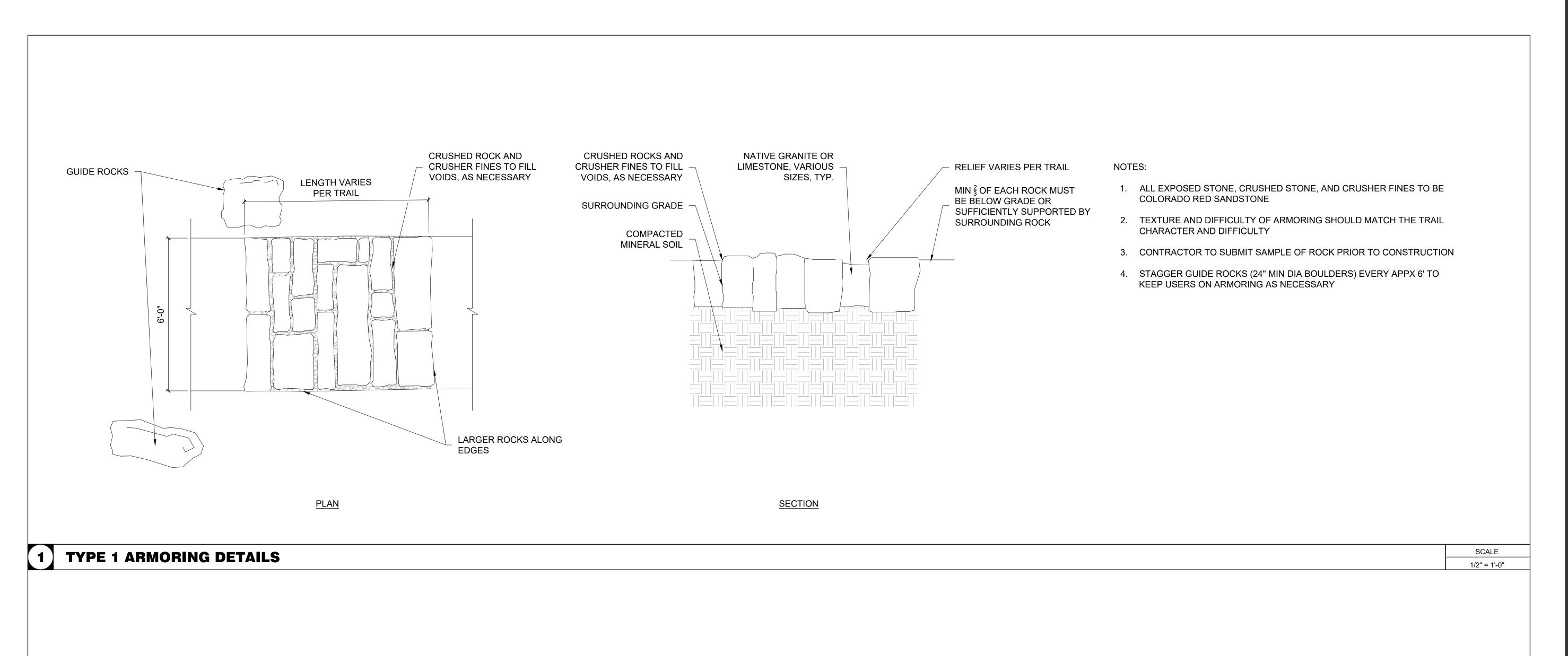
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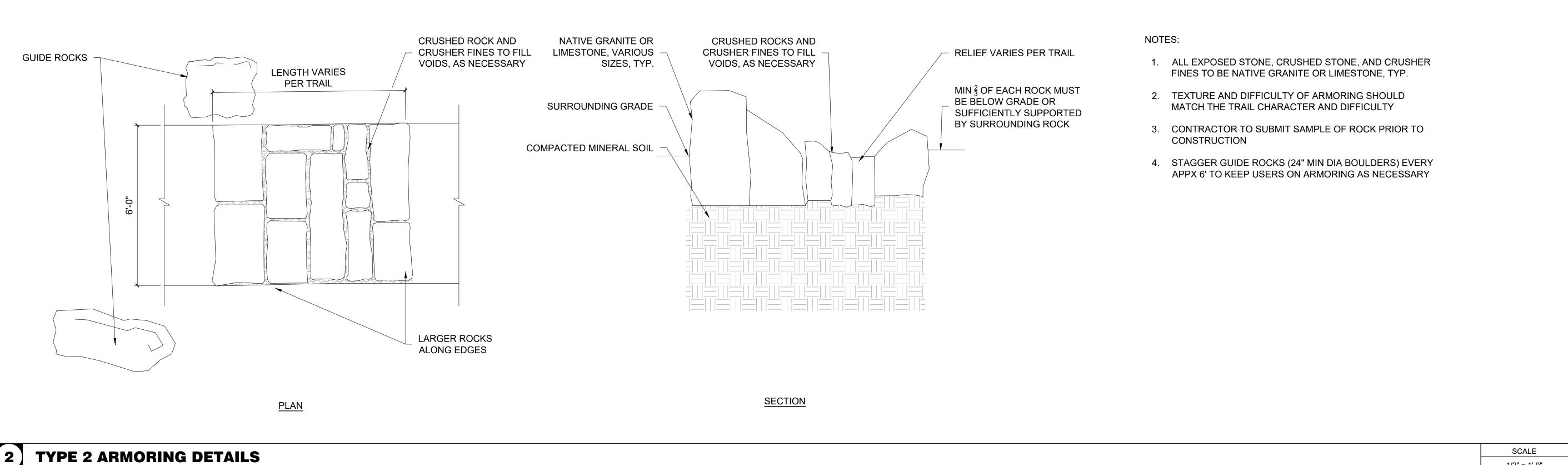
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FLOW LINES

MATERIALS PLAN





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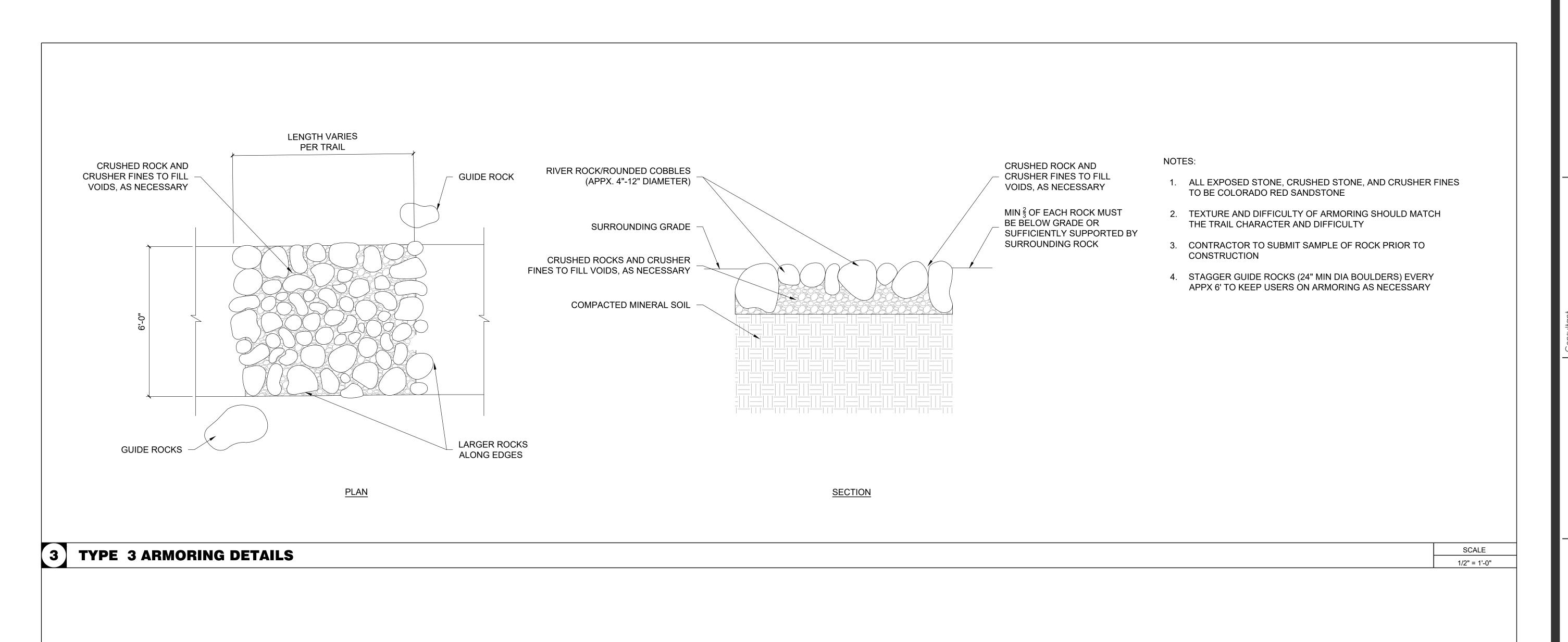
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SKILLS COURSE DETAILS

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1/2" = 1'-0"

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BP-06.00

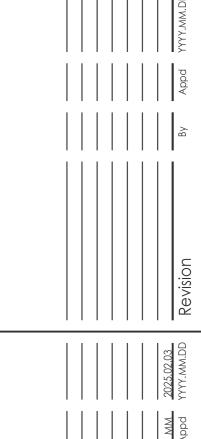


VARIES- SEE SCHEDULE 50% OF ZIG ZAG ROCKS MASS UNDER THE SURROUNDING GRADE. <u>PLAN</u> **SECTION** 

NOTES:

- 1. HEIGHT SHOULD NOT EXCEED WIDTH. EXIT MAY BE A DROP UP TO 12" HIGH. ENTRANCE MAY BE A STEP UP TO 8" HIGH.
- 2. A 48" BYPASS OF TRAIL TREAD SHALL BE PROVIDED AROUND EACH FEATURE.

**ROCK ZIG ZAG** SCALE 3/8" = 1'-0" Stantec



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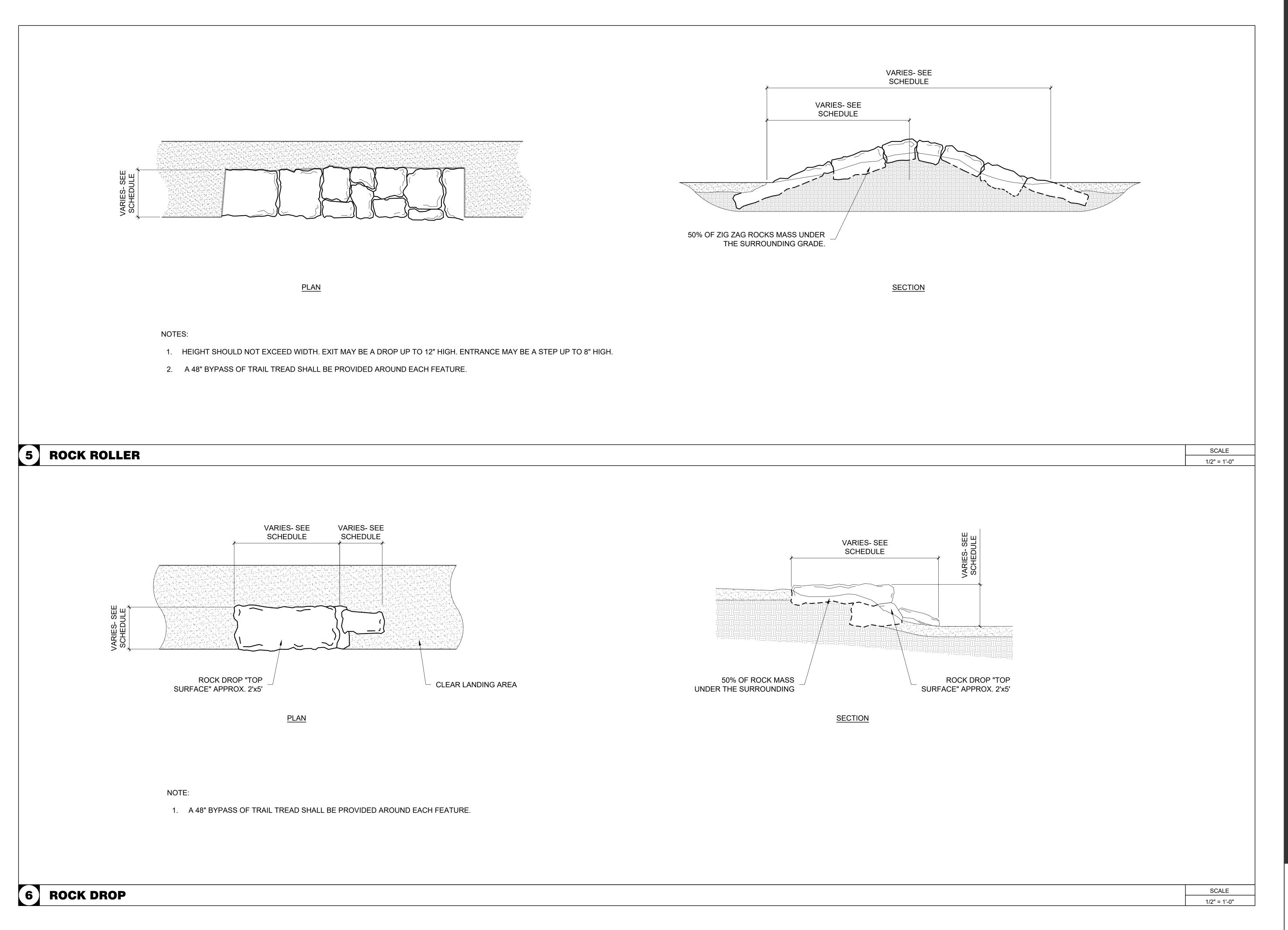


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SKILLS COURSE DETAIL



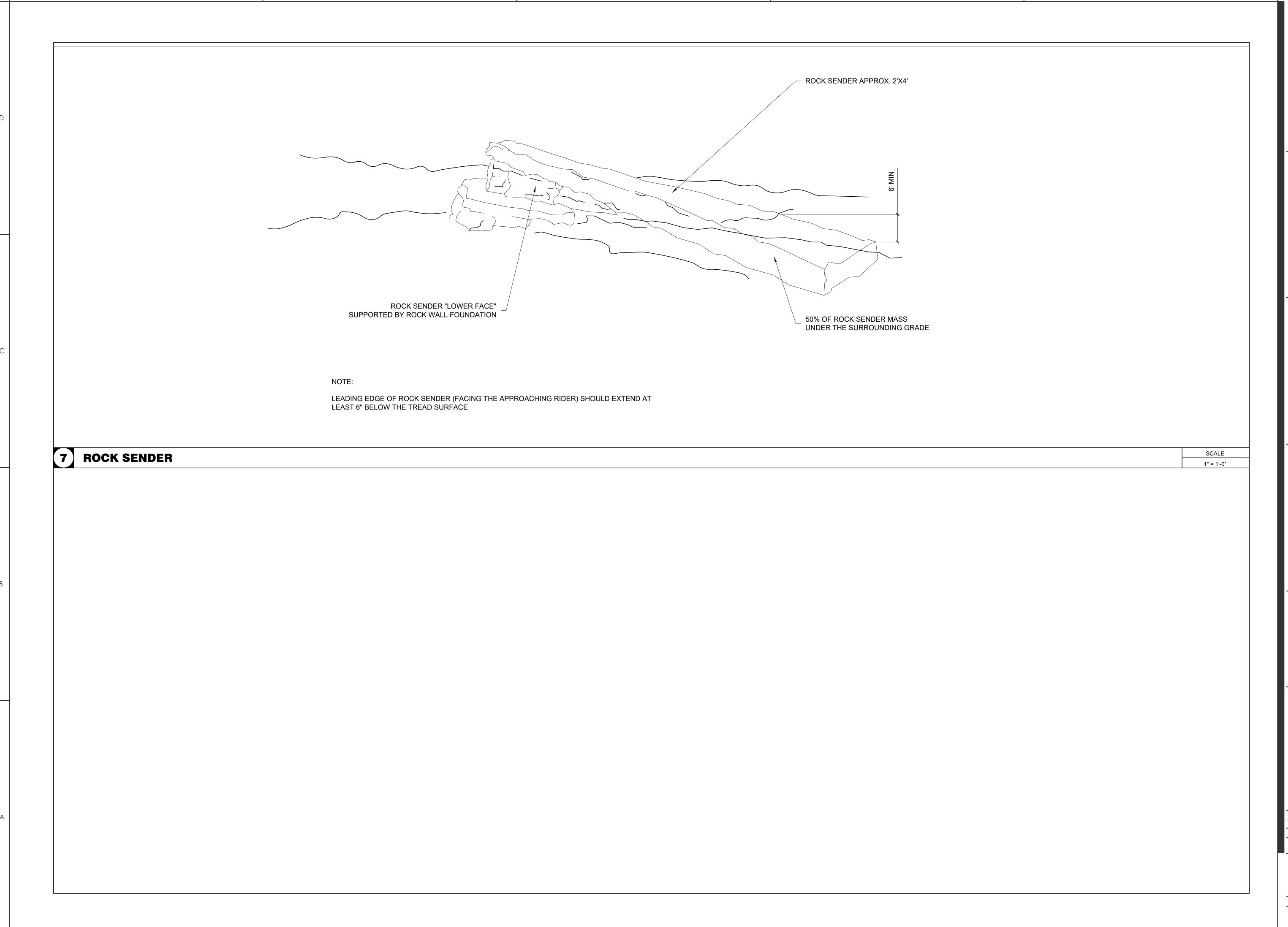
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> SKILLS COURSE DETAIL





Stantec Consulting S 70 NE Loop 410 Suite San Antonio TX 7821 Tel: Tel: (210) 525-909

> Action Sports Design, LLC 12400 W Hwy 71, Suite 350-348 Austin, TX 78738 Phone: 1(512) 387-5827

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Project No.: 222012814

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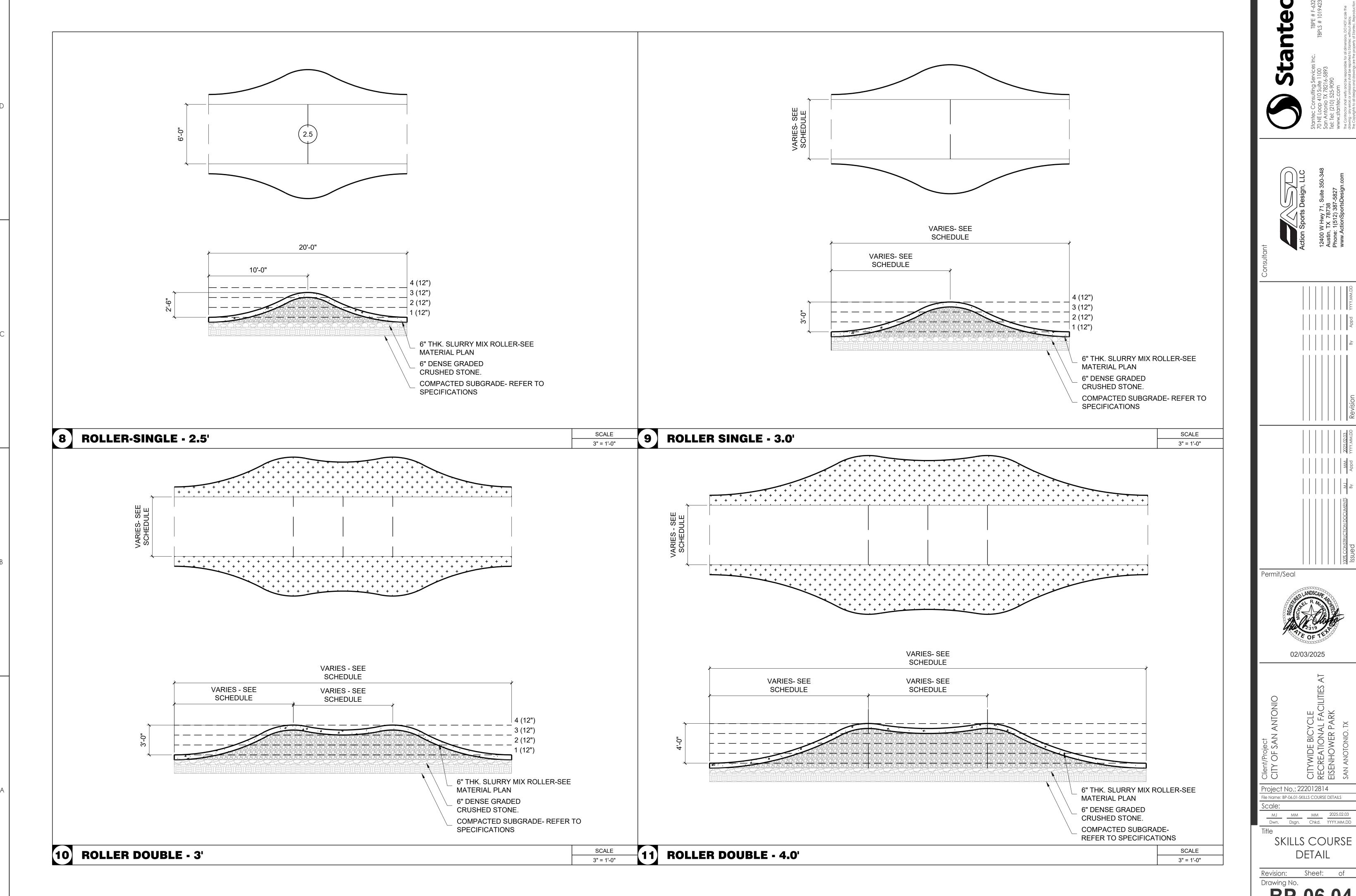
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SKILLS COURSE

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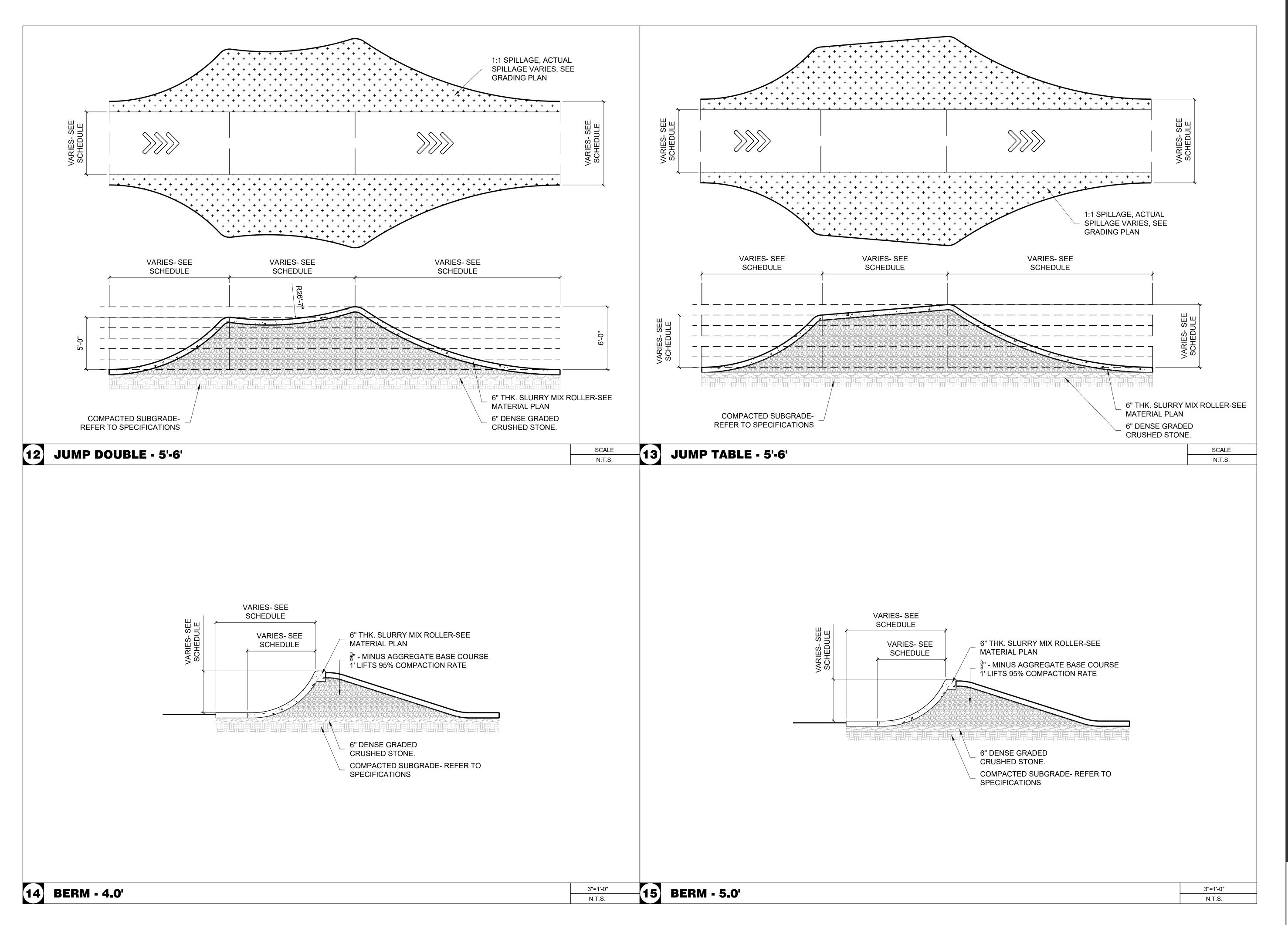






Project No.: 222012814

SKILLS COURSE DETAIL



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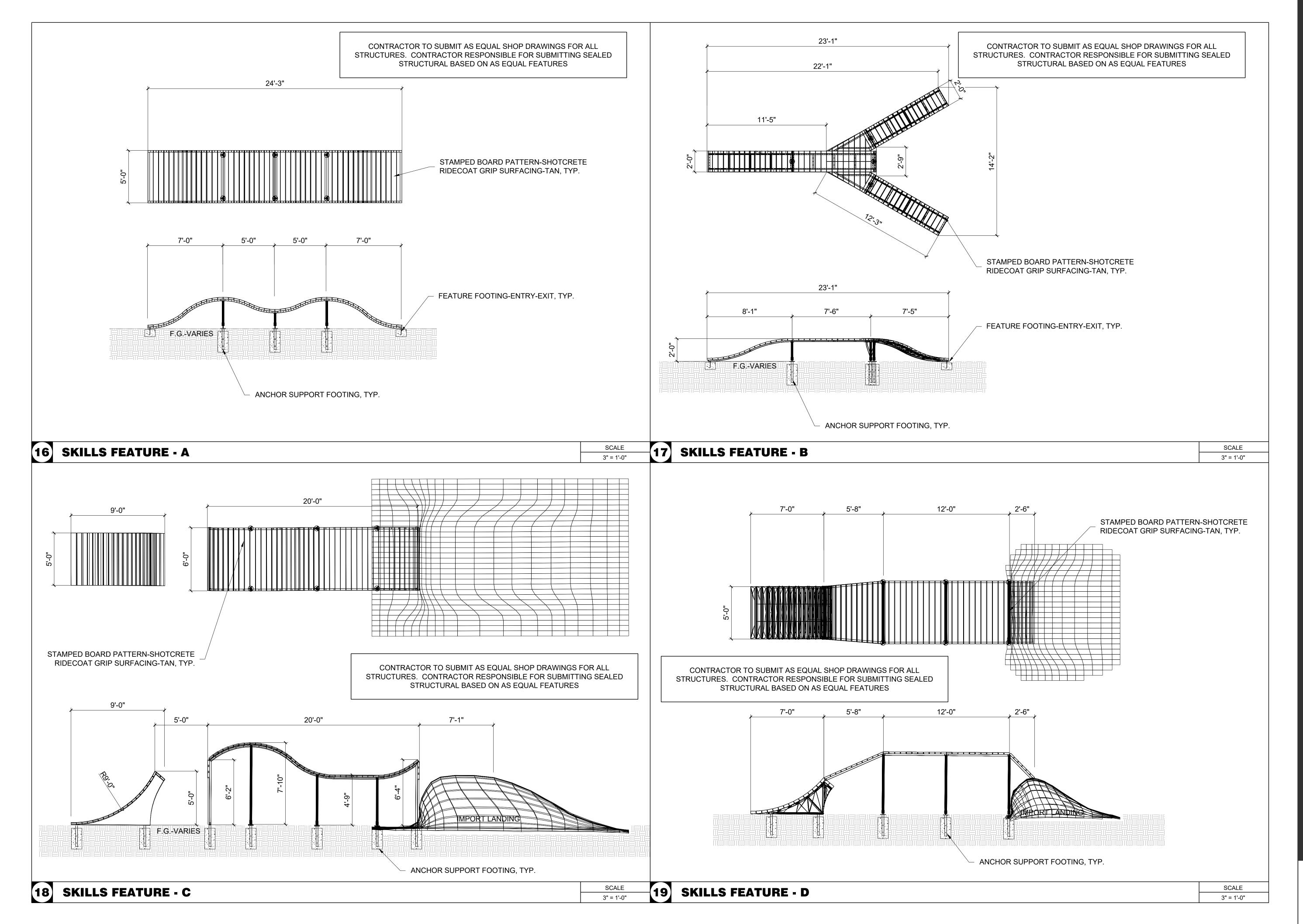


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> SKILLS COURSE DETAIL



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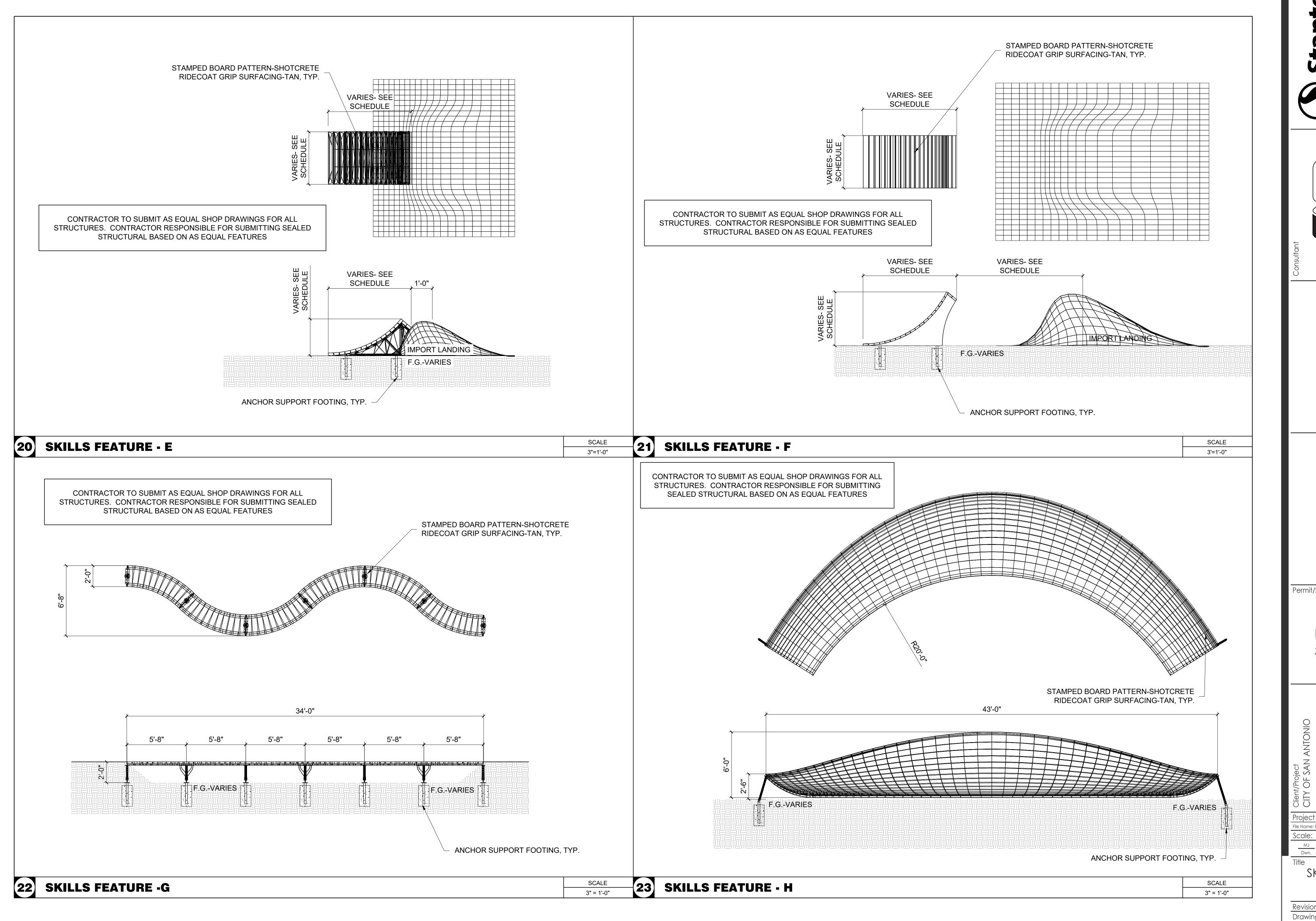
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SKILLS COURSE DETAIL

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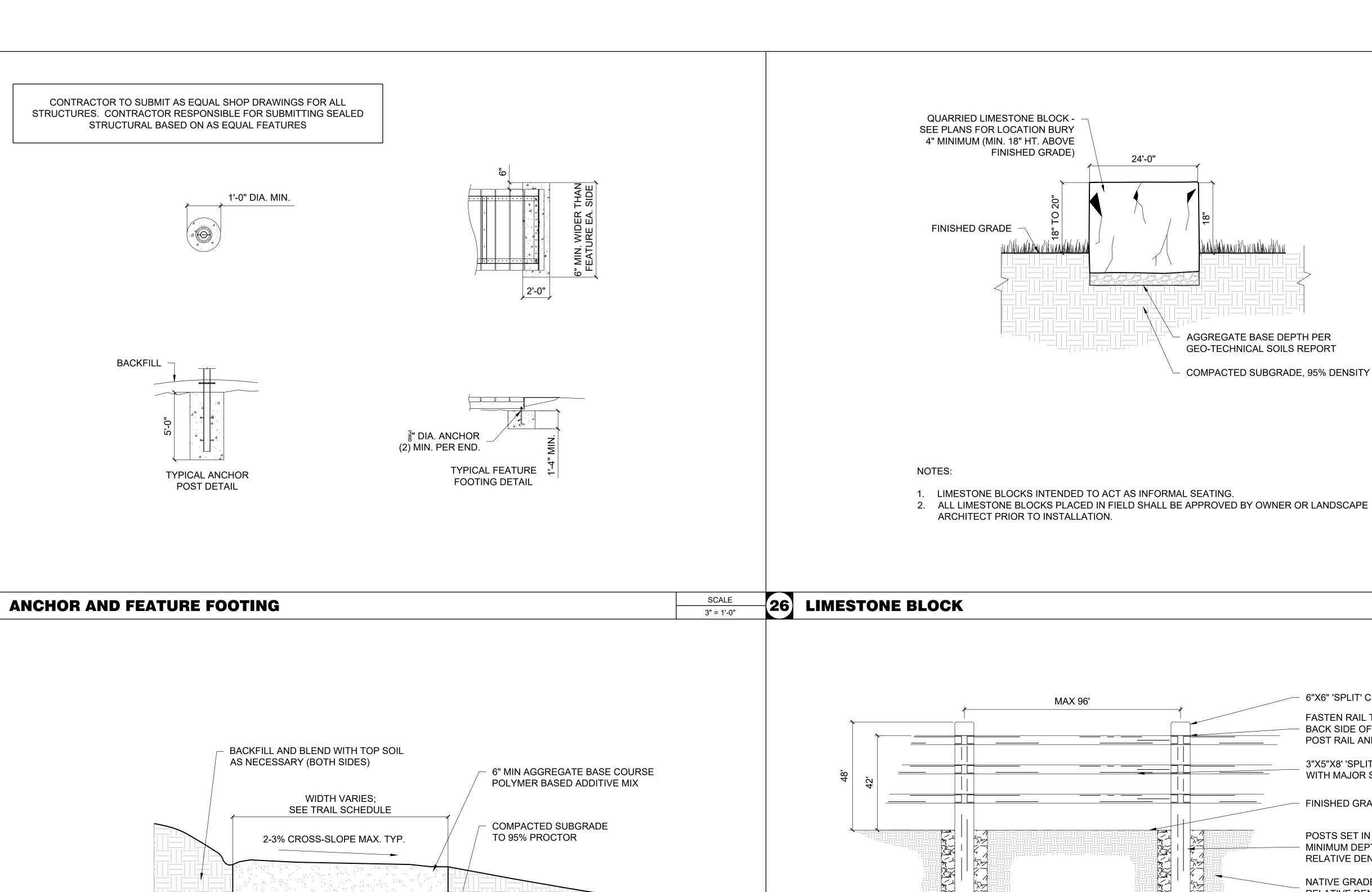
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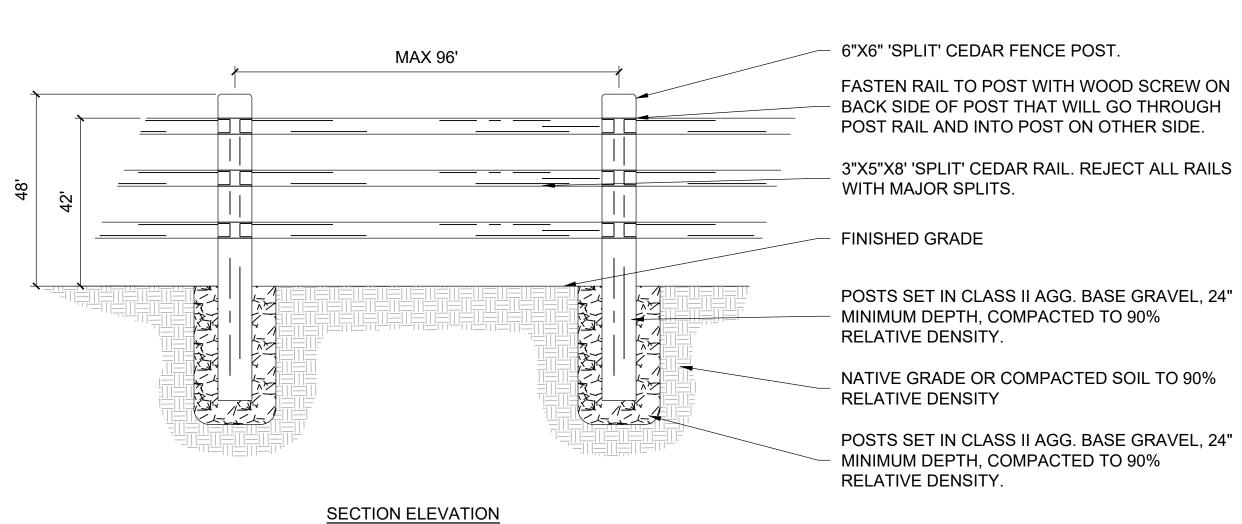
SKILLS COURSE DETAIL

Revision: Sheet: of

Drawing No. **BP-06.07** 



9'-0"



### NOTE:

- 1. APPLY WATER REPELLENT WOOD PRESERVATIVE TO POSTS AND RAILS, AFTER FINAL CUTS AND PRIOR TO INSTALLATION. (PROVIDE CUT SHEET FOR PRODUCT APPROVAL)
- 2. ALL DIMENSIONS ARE APPROX., AND WILL VARY W/ POST INSTALLATION DEPTH. POST SPACING WILL VARY WITH LENGTH OF RAILS AND INSTALLATION PROCEDURE.

SCALE SCALE **SLURRY MIX - TYPICAL SPLIT RAIL FENCING** 1" = 1'-0" 1/2" = 1'-0"

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SCALE

1" = 1'-0"



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Project No.: 222012814

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SKILLS COURSE DETAIL

Revision: Sheet: of

Drawing No. **BP-06.08** 

THIS DOCUMENT HAS BEEN ASSEMBLED BY ACTION SPORTS DESIGN, LLC WITH THE EXPECTATION THAT THE FABRICATOR WILL MEET THE FOLLOWING QUALITY AND PERFORMANCE REQUIREMENTS. THE ACCEPTANCE OF THESE DRAWINGS BY THE FABRICATOR CONSTITUTES AGREEMENT TO COMPLY WITH THE FOLLOWING CONDITIONS. THE OWNER WILL HOLD THE FABRICATOR TO THESE REQUIREMENTS AS PART OF THEIR CONTRACT OBLIGATIONS.

#### I. GENERAL

A. PROPRIETARY INFORMATION NON-DISCLOSURE AGREEMENT:
ALL IDEAS, DESIGNS, ARRANGEMENTS AND PLANS INDICATED OR PRESENTED BY
THESE DRAWINGS ARE THE PROPERTY OF THE OWNER, AND WERE CREATED FOR USE IN
CONNECTION WITH THE SPECIFIED PROJECT. THE INFORMATION IN THIS DOCUMENT IS
CONFIDENTIAL AND SHALL NOT BE DISSEMINATED TO ANYONE OTHER THAN ACTION SPORTS DESIGN, LLC,
THE OWNER, OR THE FABRICATOR'S PERSONNEL NECESSARY TO EXECUTE THE CONTRACT,
WITHOUT THE WRITTEN PERMISSION OF ACTION SPORTS DESIGN, LLC AND THE OWNER.

IN ADDITION, THE FABRICATOR MUST REQUEST AND RECEIVE WRITTEN APPROVALS FROM BOTH THE OWNER AND ACTION SPORTS DESIGN, LLC TO USE IMAGES OF ANY COMPLETED ELEMENT. THE FABRICATOR IS RESPONSIBLE FOR ENSURING THAT CREDIT INDICATING ACTION SPORTS DESIGN, LLC AS THE DESIGNER WILL ACCOMPANY ALL IMAGES AND ARTICLES RELATED TO THE PROJECT. THE OWNER MAY HAVE ADDITIONAL REQUIREMENTS OR RESTRICTIONS FOR WHICH THE FABRICATOR IS ALSO RESPONSIBLE.

#### B. DESIGN INTENT DRAWINGS

THE "DESIGN INTENT" DRAWINGS CONTAINED IN THIS DOCUMENT ARE FOR THE SOLE PURPOSE OF EXPRESSING VISUAL DESIGN INTENT AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES. ALL ASPECTS OF FABRICATION, INSTALLATION, AND ANY RESULTING WORKING DRAWINGS, SHOP DRAWINGS, SUBMITTALS AND CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE FABRICATOR.

#### WITHIN THE DESIGN INTENT DRAWINGS:

• ALL WRITTEN DIMENSIONS TAKE PRECEDENCE OVER DIMENSIONS OTHERWISE IMPLIED BY DRAWING SCALE, FIGURES, ETC.

• LARGE SCALE DETAILS TAKE PRECEDENCE OVER THE SMALLER SCALE DRAWINGS.

• SPECIFIC RECOMMENDATIONS FOR MATERIALS, COLORS, AND CONTENT TAKE PRECEDENCE OVER REPRESENTATIONS SHOWN IN DRAWINGS.

### II. PRE-FABRICATION REQUIREMENTS

#### A PROPOSA

COPIES OF ALL PRICING AND BID INFORMATION SHALL BE SENT TO THE OWNER AND ACTION SPORTS DESIGN, LLC. THE FABRICATOR SHALL BASE THEIR PROPOSAL ON THE PERFORMANCE OF ALL ITEMS OF SERVICE INCLUDING LABOR, MATERIALS, EQUIPMENT, AND RESOURCES REQUIRED TO COMPLETE FABRICATION AND INSTALLATION OF THE SPECIFIED WORK. FULL COMPLIANCE WITH THE THESE FABRICATOR PERFORMANCE AND MATERIAL REQUIREMENTS WILL BE REQUIRED.

THE FABRICATOR IS ENCOURAGED TO MAKE RECOMMENDATIONS FOR SPECIFIC CHANGES IF THEY WILL IMPROVE THE QUALITY OR COST-EFFECTIVENESS OF FABRICATION WHILE PRESERVING STANTETS' VISUAL DESIGN INTENT. HOWEVER, ANY SUCH RECOMMENDATIONS MUST BE APPROVED IN WRITING BY THE OWNER AND ACTION SPORTS DESIGN, LLC AT THE TIME OF BID. SHOULD THE FABRICATOR BE CONTRACTED BASED ON A PROPOSAL THAT ASSUMES SUBSTITUTIONS THAT HAVE NOT BEEN PROPERLY APPROVED, THE FABRICATOR SHALL BE RESPONSIBLE FOR PROVIDING ALL ELEMENTS AS ORIGINALLY INDICATED AT THEIR OWN EXPENSE.

### B. SHOP DRAWINGS

THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS OF ALL FABRICATED ITEMS TO THE OWNER AND ACTION SPORTS DESIGN, LLC. THIS SUBMISSION SHALL CONSIST OF THREE HARD COPY SETS OF DETAILED DRAWINGS THAT INDICATE ALL MATERIALS, FINISHES, CONSTRUCTION DETAILS, LIGHTING REQUIREMENTS, INSTALLATION DETAILS, AND ARTWORK, INCLUDING LOCATIONS OF ALL MATERIAL SEAMS. DRAWINGS SHALL INCLUDE ELEVATIONS, PLANS, SECTIONS, AND NOTES AS REQUIRED TO CLEARLY CONVEY FABRICATION INTENT. ACTION SPORTS DESIGN, LLC WILL REVIEW SAMPLES FOR AESTHETIC APPEARANCE AND COMPATIBILITY WITH ADJACENT CONDITIONS. COMPLIANCE WITH OTHER REQUIREMENTS IS THE EXCLUSIVE RESPONSIBILITY OF THE FABRICATOR.

UPON REVIEW, THE FABRICATOR SHALL MAKE ALL REQUESTED REVISIONS AND RESUBMIT AS REQUIRED. A COMPLETE SET OF APPROVED SHOP DRAWINGS (NOTED "NO EXCEPTIONS TAKEN" OR "EXCEPTIONS AS NOTED") MUST BE RECEIVED FROM BOTH THE OWNER AND ACTION SPORTS DESIGN, LLC BEFORE PRODUCTION MAY BEGIN.

### C. SUBMITTALS

THE FABRICATOR IS RESPONSIBLE FOR PROVIDING SUBMITTALS TO THE OWNER AND ACTION SPORTS DESIGN, LLC AS REQUIRED PER "QUANTITIES & SUBMITTALS" SECTION OF THIS DOCUMENT. ACTION SPORTS DESIGN, LLC WILL REVIEW SAMPLES FOR AESTHETIC APPEARANCE AND COMPATIBILITY WITH ADJACENT CONDITIONS. COMPLIANCE WITH OTHER REQUIREMENTS IS THE EXCLUSIVE RESPONSIBILITY OF THE FABRICATOR.

ALL MATERIALS, FINISHES, AND CONTENT ARE SUBJECT TO REVISION UNTIL FINAL SUBMITTALS HAVE BEEN APPROVED. A COMPLETE SET OF APPROVED SUBMITTALS MUST BE RECEIVED FROM BOTH THE OWNER AND ACTION SPORTS DESIGN, LLC BEFORE FABRICATION MAY BEGIN. REQUIRED SUBMITTALS MUST BE ISSUED IN AN ADEQUATE TIME FRAME TO ALLOW REVIEW, ADJUSTMENTS, AND APPROVAL WITHOUT DELAYING THE PROJECT SCHEDULE.

### III. FABRICATION & INSTALLATION REQUIREMENTS

### A PERMITTING & REGULATION COMPLIANC

A. PERMITTING & REGULATION COMPLIANCE
THE FABRICATOR IS RESPONSIBLE FOR SECURING AND PAYING FOR ALL PERMITS,
INSURANCES, INSPECTIONS, AND TESTS REQUIRED BY GOVERNMENTAL AGENCIES.
THE FABRICATOR IS ALSO RESPONSIBLE FOR VERIFYING AND ENSURING COMPLIANCE
WITH ALL ADA, OSHA, ENVIRONMENTAL REGULATIONS, AND ALL OTHER APPLICABLE
GOVERNING CODE REQUIREMENTS. ALL REQUIRED RESOLUTIONS OR REVISIONS TO

CONSTRUCTION DETAILS MUST BE APPROVED BY THE OWNER AND ACTION SPORTS DESIGN, LLC PRIOR TO PRODUCTION.

#### B. STRUCTURAL REQUIREMENTS

THE FABRICATOR SHALL FOLLOW ACTION SPORTS DESIGN, LLCS' DRAWINGS FOR EXTERIOR VISUAL APPEARANCE, BUT DESIGNS OF INTERNAL STRUCTURE, ENGINEERED CONNECTIONS, MOUNTING ASSEMBLIES, AND FOUNDATIONS ARE BY THE FABRICATOR. STRUCTURAL DESIGN SHALL UTILIZE SELF-SUPPORTIVE FRAMING AND PREVENT IRREGULARITIES IN EXPOSED SURFACES.

#### DELIVERABLES:

• THE FABRICATOR SHALL PROVIDE THE OWNER AND/OR THE GENERAL CONTRACTOR (GC) WITH A LIST OF SUPPORT AND/OR BLOCKING REQUIREMENTS, AND APPROXIMATE WEIGHTS FOR EACH ELEMENT AS REQUIRED NO LATER THAN TWENTYONE DAYS AFTER FINAL SHOP DRAWING APPROVAL.

• THE FABRICATOR SHALL PROVIDE THE OWNER AND/OR THE GC WITH CALCULATIONS FOR ALL STRUCTURAL MEMBERS AND FOUNDATIONS SEALED BY CERTIFIED ENGINEERS REGISTERED IN THE STATE OF INSTALLATION, PRIOR TO FABRICATION.

#### D. LABELING

VISIBLE LABELS, MANUFACTURER'S OR OTHERWISE, CODE PERMITTING, SHALL NOT APPEAR ON ANY COMPLETED ELEMENT. THE PLACEMENT OF ANY REQUIRED LABELS MUST BE APPROVED BY ACTION SPORTS DESIGN, LLC PRIOR TO APPLICATION AND INSTALLATION.

#### E. ARTWORK & FONTS

ACTION SPORTS DESIGN, LLC WILL PROVIDE THE FABRICATOR WITH LAYOUT GUIDELINES AND ELECTRONIC ARTWORK AS REQUIRED, HOWEVER ALL FINAL COPY LAYOUTS ARE THE RESPONSIBILITY OF THE FABRICATOR.

THE FABRICATOR SHALL LEGALLY ACQUIRE AT THEIR OWN EXPENSE ALL PROJECT FONTS FROM THE SPECIFIED DISTRIBUTORS. ACTION SPORTS DESIGN, LLC WILL NOT PROVIDE COPIES OF LICENSED FONTS.

WHEN STOCK IMAGERY IS USED, ACTION SPORTS DESIGN, LLC WILL PROVIDE THE FABRICATOR WITH THE IMAGE SPECIFICATIONS AND A LOW RESOLUTION ELECTRONIC FILE FOR PLACEMENT. THE PURCHASING OF HIGH RESOLUTION FINAL IMAGES, LICENSING, AND ALL APPLICABLE FEES ARE THE RESPONSIBILITY OF THE OWNER OR THE FABRICATOR. ALL ACQUIRED IMAGES SHALL BE REGISTERED IN THE OWNER'S NAME.

#### F. ON-SITE COORDINATION

ALL LOCATIONS SHOWN IN THE ENCLOSED LOCATION PLANS ARE APPROXIMATE. THE FABRICATOR IS RESPONSIBLE FOR FIELD VERIFICATION AND COORDINATION OF ALL FINAL LOCATIONS. THE FABRICATOR SHALL NOTIFY THE OWNER AND ACTION SPORTS DESIGN, LLC OF ANY DISCREPANCIES BETWEEN ACTION SPORTS DESIGN, LLC' DRAWINGS, LOCATION PLANS, OR MESSAGE SCHEDULE, AND FIELD CONDITIONS PRIOR TO INSTALLATION. ALL REQUIRED RESOLUTIONS OR REVISIONS TO CONSTRUCTION DETAILS MUST BE APPROVED BY THE OWNER AND ACTION SPORTS DESIGN, LLC PRIOR TO PRODUCTION.

THE FABRICATOR'S INSTALLATION RESPONSIBILITIES INCLUDE THE PROVISION OF ANY REQUIRED FOOTINGS, ANCHOR BOLTS, OR FASTENINGS. ALL POINT-OF-CONNECTION COORDINATION IS THE RESPONSIBILITY OF THE FABRICATOR,

### DELIVERABLES:

• THE FABRICATOR SHALL PROVIDE THE OWNER AND/OR THE GC WITH TEMPLATES AND PATTERNS AS REQUIRED NO LATER THAN TWENTY-ONE DAYS AFTER FINAL SHOP DRAWING APPROVAL.

### G. SAFETY & RESPONSIBILITY

THE FABRICATOR SHALL BE RESPONSIBLE FOR PROVIDING BARRICADE OR PROTECTIVE COVERINGS AS NECESSARY TO SAFEGUARD THE PUBLIC AND PROPERTY DURING THE PERFORMANCE AND DURATION OF THEIR WORK. THE FABRICATOR SHALL BE FULLY RESPONSIBLE FOR ANY INJURIES TO THE PUBLIC OR DAMAGE TO THE BUILDINGS, SITE, AND ADJACENT OBJECTS DURING INSTALLATION. THE FABRICATOR SHALL BE RESPONSIBLE FOR CLEANING UP ALL WORK AREAS UPON THE COMPLETION OF WORK ON A DAILY BASIS.

ALL INSTALLED ITEMS SHALL BE LEFT IN A CLEAN AND AS-NEW CONDITION. THE FABRICATOR SHALL BE FULLY RESPONSIBLE FOR THE SECURITY AND QUALITY OF ALL EQUIPMENT, MATERIALS, AND INSTALLED COMPONENTS UNTIL THEY HAVE BEEN REVIEWED AND ACCEPTED BY THE OWNER.

### III. MATERIAL STANDARDS

ALL MATERIALS, HARDWARE, AND FINISHES USED TO FABRICATE ANY AND ALL COMPONENTS SHALL BE NEW (I.E. NOT PREVIOUSLY USED OR OPERATED IN ANY OTHER APPLICATION) AND FROM THE MOST RECENT MANUFACTURER'S PRODUCTION SUPPLY.

### A. PAINTS & FINISHES

ALL PAINTS AND FINISHES SHALL MATCH EXACTLY THE COLOR, FINISH, AND TEXTURE NOTED. UNLESS OTHERWISE NOTED, ALL PRETREATS, PRIMERS, COATINGS, AND FINISHES SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S SPECIFICATIONS TO PROVIDE THE HIGHEST LEVEL OF ULTRAVIOLET LIGHT RESISTANCE, WEATHERABILITY, AND OVERALL LONGEVITY FOR BOTH THE MATERIALS INDICATED, AND THE ENVIRONMENTAL CONDITIONS OF THE FINAL INSTALL LOCATIONS.

PAINTS & FINISHES SHALL BE WARRANTED AGAINST COLOR FADING, UV DAMAGE, CRACKING, PEELING, BLISTERING, AND OTHER DEFECTS IN MATERIALS OR WORKMANSHIP FOR A MINIMUM OF FIVE YEARS FROM DATE OF OWNER'S ACCEPTANCE.

### B. METALS

METALS SHALL BE THE BEST COMMERCIAL QUALITY FOR THE PURPOSES SPECIFIED AND

FREE FROM DEFECTS IMPAIRING STRENGTH, DURABILITY, OR APPEARANCE. UNLESS OTHERWISE NOTED, ALL VISIBLE SEAMS ARE TO BE CONTINUOUSLY WELDED, FILLED AND GROUND SMOOTH. ALL SHEET METAL SHALL HAVE BRAKE FORMED EDGES WITH RADII NOT GREATER THAN SHEET THICKNESS. ALL METALS MUST BE TREATED TO PREVENT CORROSION AND STAINING OF OTHER FINISHES.

### C. FASTENERS

UNLESS OTHERWISE NOTED, ALL EXPOSED FASTENERS SHALL BE TAMPER-PROOF, RESISTANT TO OXIDATION AND OTHER CORROSION, AND PAINTED TO MATCH ADJACENT SURFACES. CONCEALED FASTENERS MUST BE RESISTANT TO OXIDATION AND OTHER CORROSION TO PREVENT STAINING OF OTHER FINISHES.

ALL VINYL SHEETING SHALL MATCH EXACTLY THE COLOR, FINISH, AND DURABILITY OF THE MANUFACTURERS PRODUCT AS NOTED. UNLESS OTHERWISE NOTED, ALL VINYL SHEETING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS TO PROVIDE THE HIGHEST LEVEL OF ULTRAVIOLET LIGHT RESISTANCE, WEATHERABILITY, AND OVERALL LONGEVITY FOR BOTH THE MATERIALS INDICATED, AND THE ENVIRONMENTAL CONDITIONS OF THE FINAL INSTALL LOCATIONS.

VINYL SHEETING SHALL BE WARRANTED AGAINST COLOR FADING, UV DAMAGE, DE-LAMINATION, OR PEELING FOR A PERIOD OF FIVE YEARS FROM DATE OF OWNER'S ACCEPTANCE.

#### E. DIGITAL PRINTS

ALL HIGH RESOLUTION DIGITAL OUTPUT MUST PROVIDE THE HIGHEST LEVEL OF ULTRAVIOLET LIGHT RESISTANCE, WEATHERABILITY, AND OVERALL LONGEVITY FOR BOTH THE MATERIALS INDICATED AND THE ENVIRONMENTAL CONDITIONS OF THE FINAL INSTALL LOCATIONS. UNLESS OTHERWISE NOTED, DIGITAL PRINTS SHALL HAVE A MINIMUM RESOLUTION OF 200 DPI.

PRINTED PRODUCTS SHALL BE WARRANTED AGAINST COLOR FADING, UV DAMAGE, DELAMINATION, OR PEELING FOR A MINIMUM OF FIVE YEARS FROM DATE OF THE OWNER'S ACCEPTANCE.

### IV. PROJECT COMPLETION

#### A. REVIEW & PUNCH LIST

THE FABRICATOR SHALL NOTIFY BOTH ACTION SPORTS DESIGN, LLC AND THE OWNER IN WRITING WHEN ALL WORK IS COMPLETED. UPON NOTICE, ACTION SPORTS DESIGN, LLC WILL REVIEW ALL WORK ACCORDING TO THEIR CONTRACT WITH THE OWNER AND PREPARE A PUNCH LIST OUTLINING INCOMPLETE OR UNSATISFACTORY ITEMS. THE REPAIR OR REPLACEMENT OF WORK OUTLINED ON THE PUNCH LIST SHALL BE COORDINATED BETWEEN THE FABRICATOR AND THE OWNER.

#### B. FINAL DELIVERABLES

UPON THE OWNER'S ACCEPTANCE OF THE WORK, THE FABRICATOR SHALL PROVIDE THE OWNER WITH THREE COPIES OF A COMPLETE SERVICE AND MAINTENANCE MANUAL FOR ALL PRODUCTS AND FINISHES INSTALLED UNDER THEIR CONTRACT. THIS MANUAL SHALL INCLUDE, BUT IS NOT LIMITED TO, PRODUCT SPECIFICATIONS SUCH AS MANUFACTURER INFORMATION, CONTACT NAMES AND ADDRESSES, WARRANTY INFORMATION, TECHNICAL DATA, AND ROUTINE MAINTENANCE RECOMMENDATIONS, PAINT, FINISHES, AND ALL OTHER APPLICABLE ITEMS.

### C. WARRANTIES

ALL WARRANTY PERIODS SHALL BEGIN ON THE DATE OF THE OWNER'S ACCEPTANCE OF THE WORK. ALL WARRANTIES SHALL INCLUDE THE MATERIALS AND LABOR REQUIRED TO REPLACE DEFECTIVE COMPONENTS. UNLESS OTHERWISE STATED ABOVE, ALL INSTALLED ELEMENTS SHALL BE WARRANTED AGAINST MANUFACTURER DEFECTS FOR A MINIMUM OF ONE YEAR, AND ALL INSTALLED ELEMENTS SHALL BE WARRANTED AGAINST DEFECTS IN INSTALLATION OR WORKMANSHIP FOR A MINIMUM OF THREE YEARS.

tantec Consulting Services Ir O NE Loop 410 Suite 1100 can Antonio TX 78216-5893 el: Tel: (210) 525-9090

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n Sports Design, LLC 0 W Hwy 71, Suite 350-348 n. TX 78738

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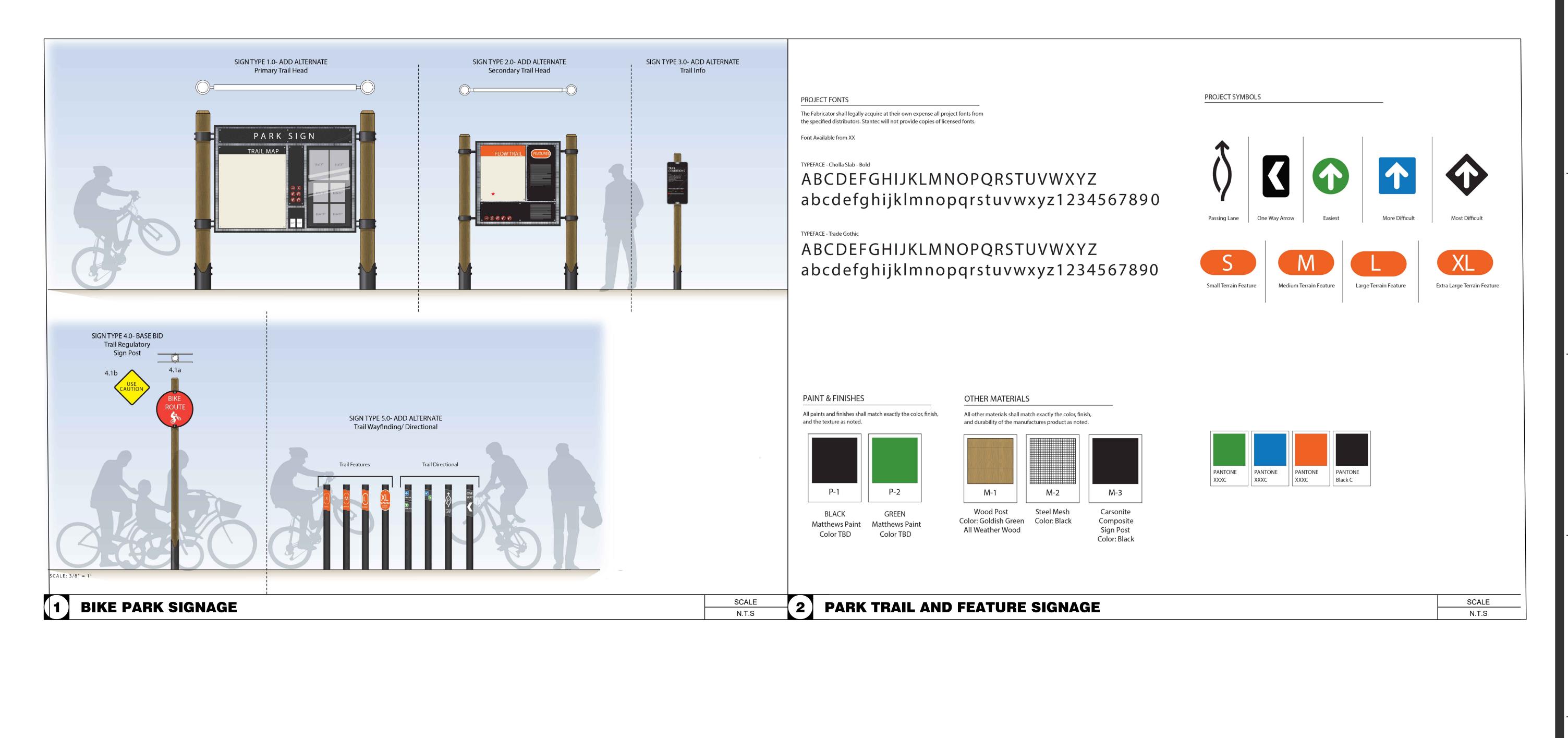
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WAY FINDING

NOTES

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SKILLS COURSE DETAIL

WF-08.01

## LANDSCAPE DRAWINGS FOR EISENHOWER PARK PLAYGROUND

SAN ANTONIO, TEXAS

100% BID AND PERMIT SET OCTOBER 24, 2024

### SHEET INDEX

GENERAL

COVER SHEET GENERAL NOTES AND LEGEND

TREE PRESERVATION PLAN DEMOLITION PLAN

HARDSCAPE

LH 1.00 HARDSCAPE PLAN

LH 1.01 HARDSCAPE LAYOUT PLAN LH 2.00 HARDSCAPE DETAILS

GRADING

LG 1.00 GRADING PLAN

### LOCATION MAP



### PROJECT INFORMATION

CLIENT

PHONE: 210-207-2874 SAN ANTONIO, TX

CONTACT: MARK WITTLINGER

LANDSCAPE ARCHITECT

CONTACT: MARK MALDONADO

STANTEC 70 NE LOOP 410 **SUITE 1100** SAN ANTONIO, TX PHONE: 210-525-9090

SURVEY STANTEC 70 NE LOOP 410

**SUITE 1100** SAN ANTONIO, TX PHONE: 210-714-9990 **CONTACT: JONATHAN PEREZ** 

### DOCUMENT ISSUE

DATE	NO.	REVISION	APPROVAL
2024.01.17	01	CLIENT REVIEW	
2024.07.16	02	95% CONSTRUCTION DOCUMENTS REVIEW	
2024.09.27	03	PERMIT SET	
2024.10.24	04	100% BID AND PERMIT SET	



Project No.: 222012817

**COVER SHEET** 

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2. CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT FOR DIRECTION ON HOW TO PROCEED IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS.

3. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES TO REMAIN.

4. EXCAVATION IN THE VICINITY OF UTILITIES SHALL BE UNDERTAKEN WITH CARE. CONTRACTOR BEARS FULL RESPONSIBILITY FOR THIS WORK. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL SITE UTILITIES PRIOR TO BEGINNING EXCAVATION.

BASE INFORMATION INCLUDING THE LOCATION OF PROPERTY LINES, EASEMENTS, BUILDINGS, ROADS, CURBS AND UTILITIES HAVE BEEN PROVIDED FROM A SURVEY PROVIDED BY THE OWNER.

CONTRACTOR SHALL NOTIFY LOCAL UTILITY OR CITY AUTHORITIES FOR PROVISION OF ALL LOCATIONS OF EXISTING UNDERGROUND UTILITIES. POT HOLE EXCAVATE AS NECESSARY TO CONFIRM LOCATIONS PRIOR TO ANY EXCAVATIONS.

CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND MAINTAINING ALL FEDERAL STATE AND LOCAL PERMITS INCLUDING BUT NOT LIMITED TO STORMWATER POLLUTION PREVENTION, TREE REMOVAL, GRADING AND UTILITY, ETC.

CONTRACTOR IS REQUIRED TO REPAIR OR REPLACE WITH APPROVED IN KIND MATERIALS ANY DAMAGE DONE TO BUILDINGS, STRUCTURES, UTILITIES, PAVING, PLANTING OR ANY OTHER SITE IMPROVEMENTS TO REMAIN. ANY DAMAGE BY THE CONTRACTOR DURING THE EXECUTION OF WORK OF UTILITIES OR ELEMENTS TO REMAIN IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

### GENERAL SITE SLEEVING NOTES:

ALL SITE/LANDSCAPE SLEEVE LOCATIONS AND SIZES NOTED ARE FOR IRRIGATION, ELECTRICAL, AND FUTURE OR MISCELLANEOUS SCOPE OF WORK ONLY.

CONTRACTOR IS RESPONSIBLE TO COORDINATE AND VERIFY ALL OTHER CONSULTANTS AND SUB-CONTRACTOR SLEEVING REQUIREMENTS AND PLACE SUCH SLEEVES PRIOR TO HARDSCAPE INSTALLATION.

3. ALL SLEEVES INSTALLED SHALL BE FIELD MARKED PER SPECIFICATIONS AND AS-BUILTS WITH +/-6" OF LOCATIONS PROVIDED TO CLIENT.

4. ALL SLEEVES TO BE SCHEDULE 40 PVC MIN. UNDER HARDSCAPE SYSTEMS.

### GENERAL PLAYGROUND NOTES:

1. CONTRACTOR TO COORDINATE WITH WHIRLIX ON CONSTRUCTION SCHEDULING FOR IMPLEMENTATION OF PLAY STRUCTURE POST WITH SITE IMPROVEMENTS.

2. CONTRACTOR TO COORDINATE WITH WHIRLIX ON FINAL SPECIFICATIONS & ELEVATIONS OF SUB-BASE FOR POURED-IN-PLACE SURFACING & ENGINEERED WOOD FIBER

WHIRLIX DESIGN, INC. Mindy Long, CSI Business Development Manager O: (800) 975-2147 M: (210) 620-6300 mlong@whirlix.com www.whirlix.com

### ABBREVIATIONS:

ABBREVIATION EXTENSION ADA AMERICANS WITH DISABILITIES ACT ADJ. ADJACENT (LAYOUT, MEASUREMENT)  $\mathsf{AM}$ APICAL MERISTEM (PALM TREE REFERENCE) ARCH ARCHITECT

BOTTOM OF CURB BS **BOTTOM OF STEP** ВW **BOTTOM OF WALL** CAD COMPUTER-AIDED DESIGN

CIP OR C.I.P. CAST-IN-PLACE (CONCRETE APPLICATIONS) CIVIL ENGINEER CIVIL  $\mathsf{CL}$ CENTERLINE (LAYOUT, MEASUREMENT)

CLS CENTER LINE OF SWALE (GRADIENT) CLR

CMU CONCRETE MASONRY UNIT CONC. CONCRETE

DIA DIAMETER (LAYOUT, MEASUREMENT) EJ EXPANSION JOINT (CONCRETE APPLICATIONS)

EQ EQUAL (LAYOUT, MEASUREMENT)

EXT. EXTERIOR F.O.B. FACE OF BUILDING

FG OR F.G. FINISHED GRADE (TOP OF SOIL GRADIENT)

FS OR F.S. FINISHED SURFACE (HARD SURFACES) GALV. GALVANIZED **GEOTECH** GEOTECHNICAL ENGINEER

GALLONS PER HOUR (IRRIGATION) GPH GPM GALLONS PER MINUTE (IRRIGATION) HEX. HEXAGONAL HIGHT POINT (GRADIENT) HP HSS HOLLOW STRUCTURAL SECTION

LA OR L.A. LANDSCAPE ARCHITECT LED OR L.E.D. LIGHT-EMITTING DIODE (ELECTRICAL FIXTURE)

INVERT ELEVATION

LOW OR L.O.W. LIMIT OF WORK LP LOW POINT (GRADIENT) MAX. MAXIMUM

MIN. MINIMUM NAP OR N.A.P. NOT A PART

OC OR O.C. ON-CENTER (LAYOUT, MEASUREMENT) OD OR O.D. OUTSIDE DIAMETER (LAYOUT, MEASUREMENT)

PA OR P.A. PLANTING AREA PERFORATED PERF. POB OR P.O.B. POINT OF BEGINNING (LAYOUT, MEASUREMENT)

PLPROPERTY LINE PSI POUNDS PER SQUARE INCH (IRRIGATION) PRESSURE-TREATED

RADIUS (LAYOUT, MEASUREMENT) REF REFERENCE OR REFER TO REINF. REINFORCEMENT

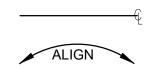
SE STRUCTURAL ENGINEER CONTRACT SPECIFICATIONS SPECS S/S OR SS STAINLESS STEEL

TO BE DETERMINED

TOP OF CURB (GRADIENT ELEVATION) TG TOP OF GRATE (GRADIENT ELEVATION) TOP OF STEP (GRADIENT ELEVATION) TOP OF WALL (GRADIENT ELEVATION)

TYP TYPICAL W/ WITH

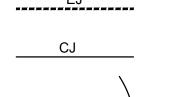
### LEGEND:



**CENTER LINE** 

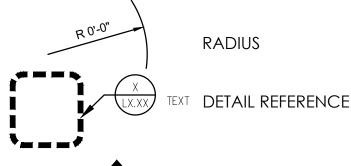


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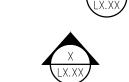


**EXPANSION JOINT** CONTROL OR CONSTRUCTION

JOINTS

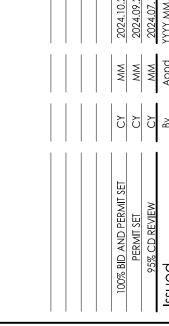


SECTION REFERENCE



**ELEVATION REFERENCE** 

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 GENERAL NOTES AND LEGEND

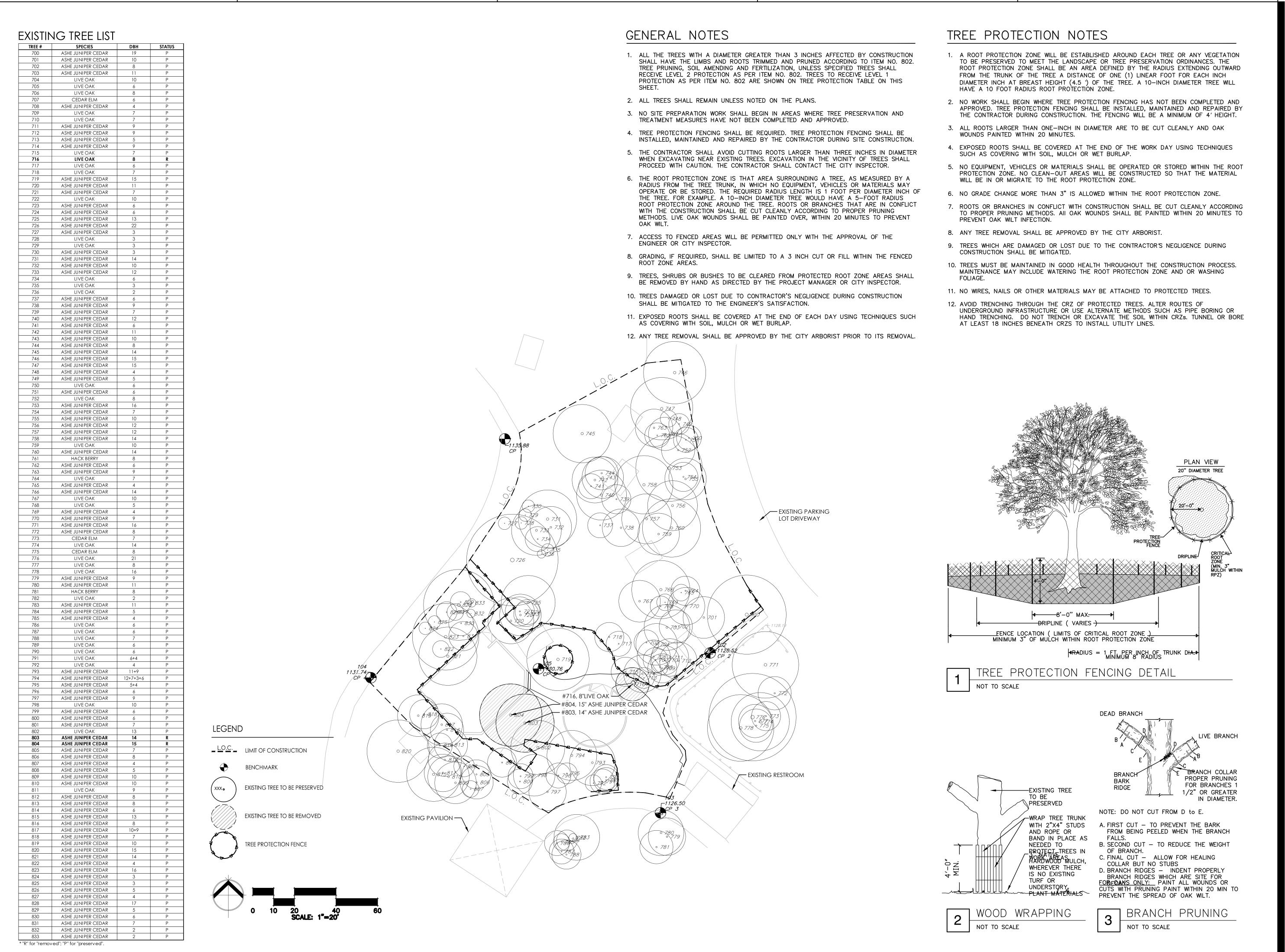
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 TREE PRESERVATION

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PLAN







Project No.: 222012817

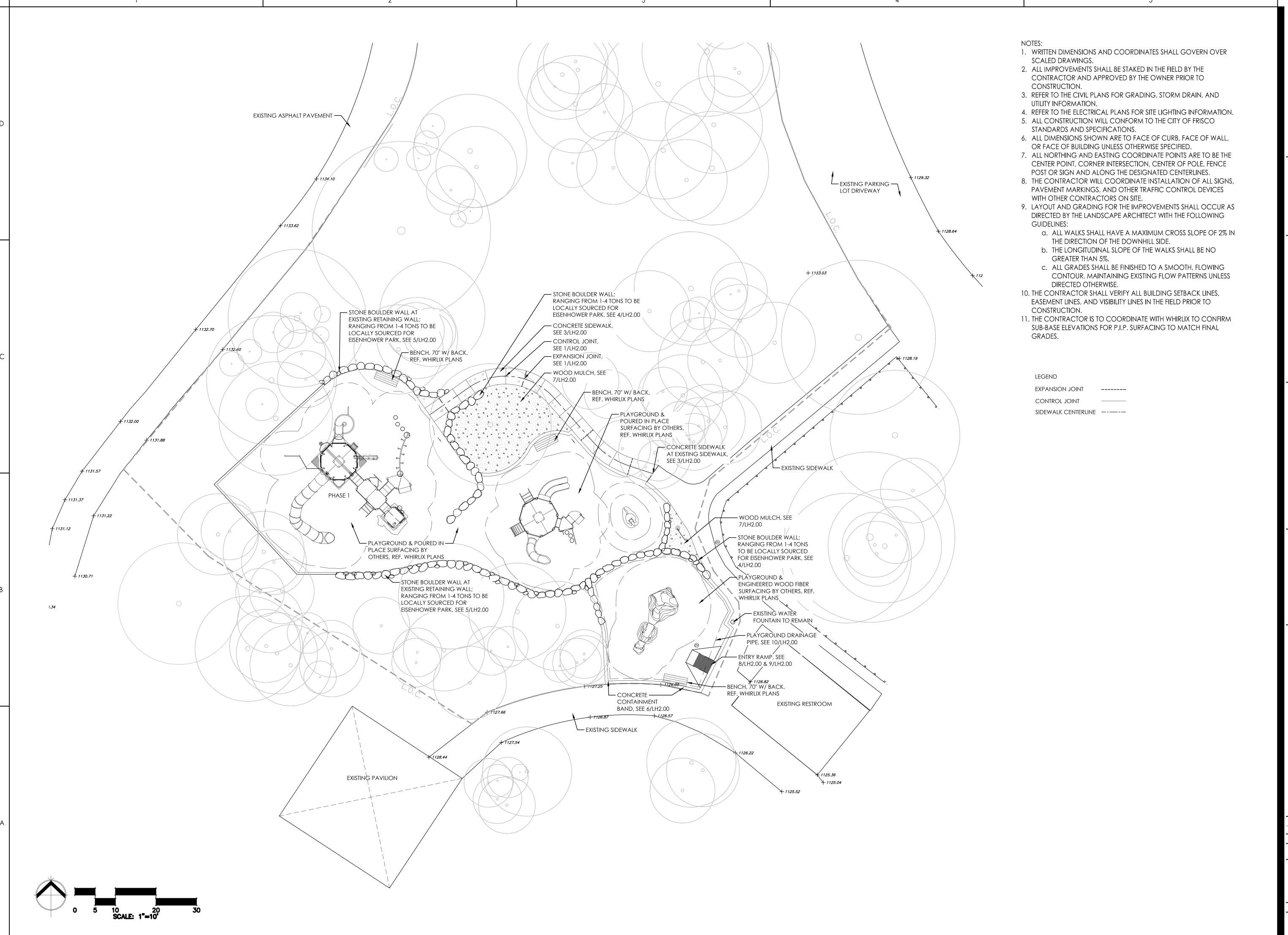
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DEMOLITION PLAN

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Stantec Consulting S 70 NE Loop 410 Suite San Antonio TX 7821 Tel: (210) 525-9090 www.stantec.com The Contractor shall verify and Edawing - any errors or omissions The Copyrights to all designs and

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SAN ANTONIO

:ISENHOWER PLAYGROUND

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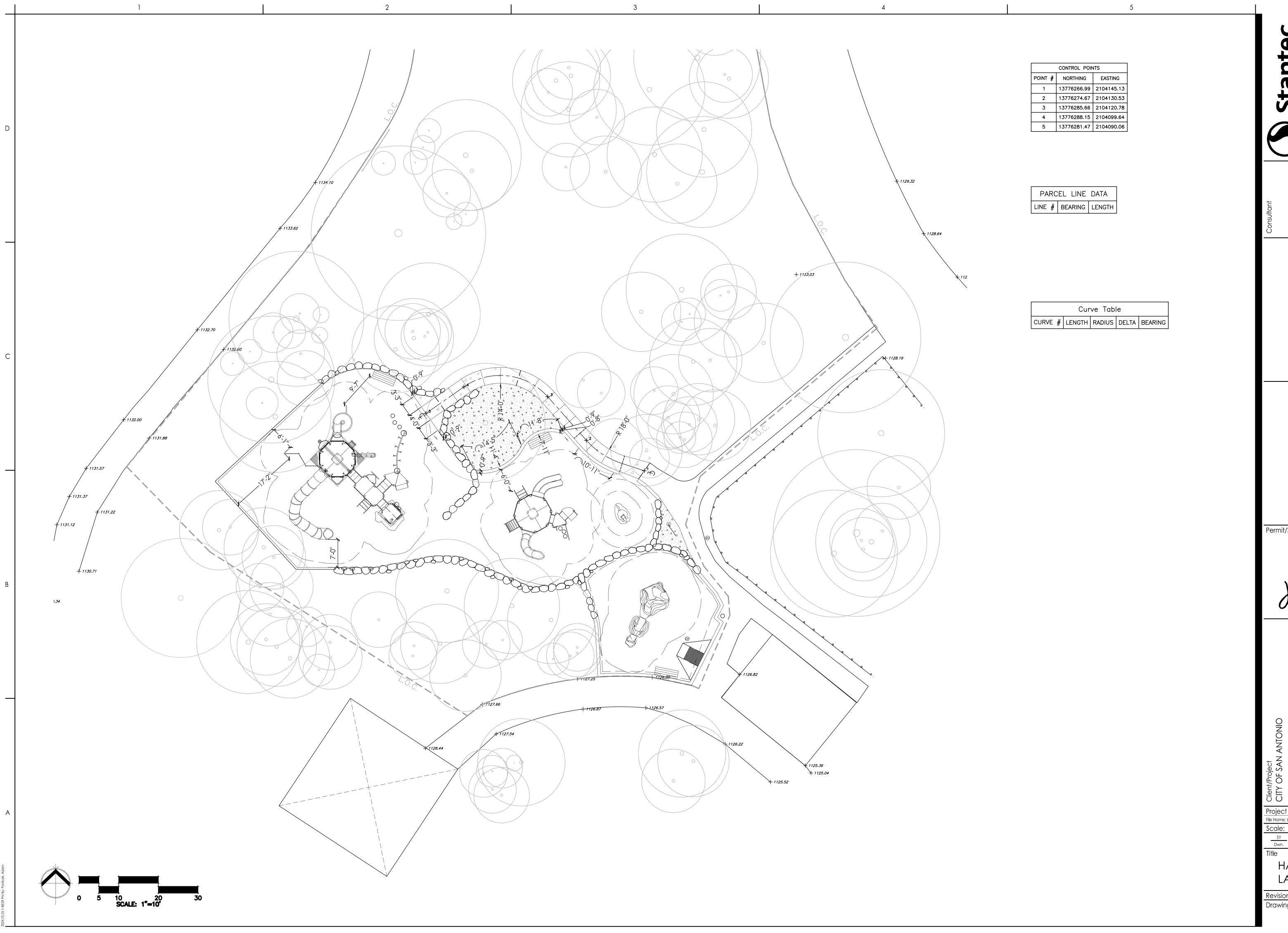
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HARDSCAPE PLAN

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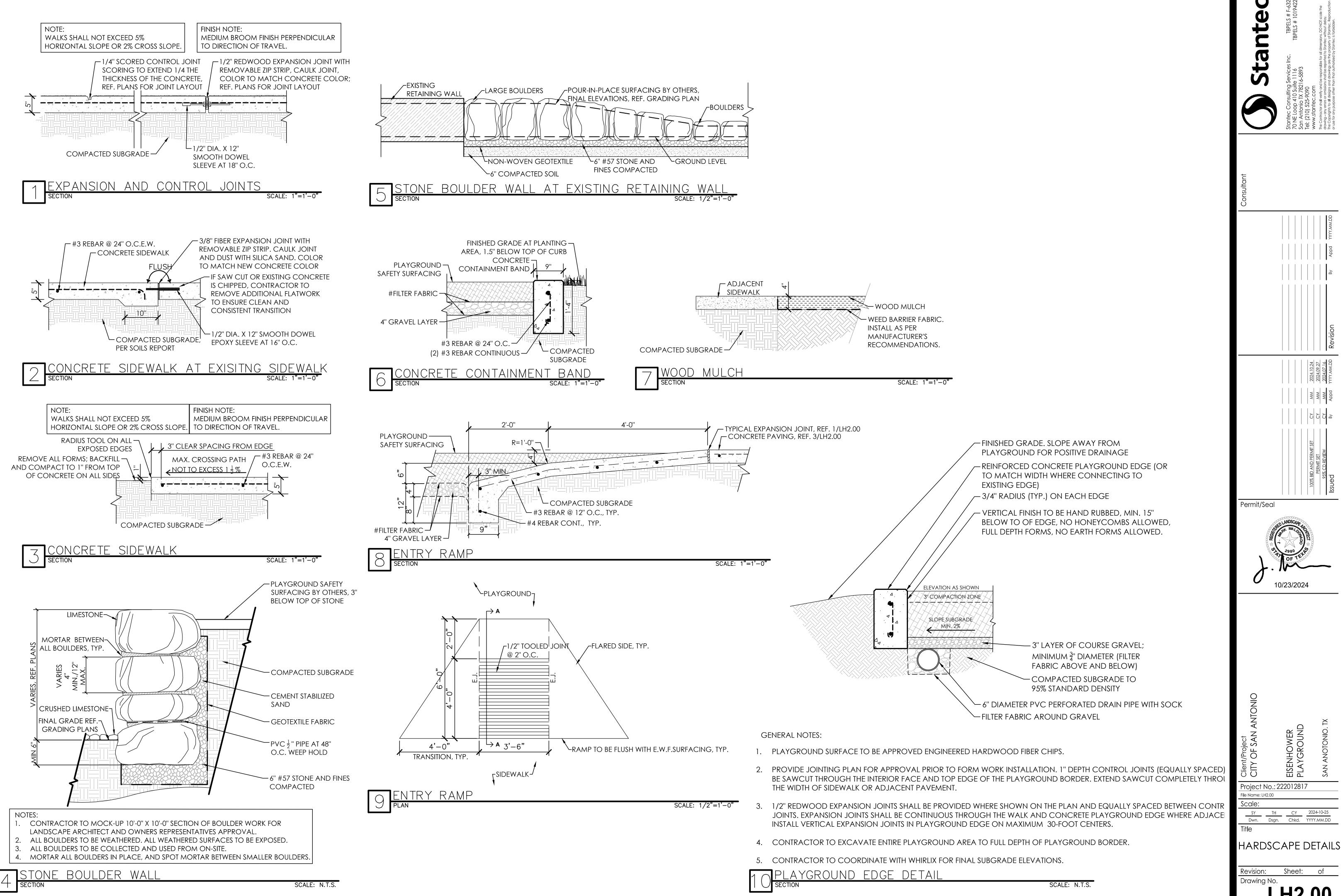
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HARDSCAPE LAYOUT PLAN

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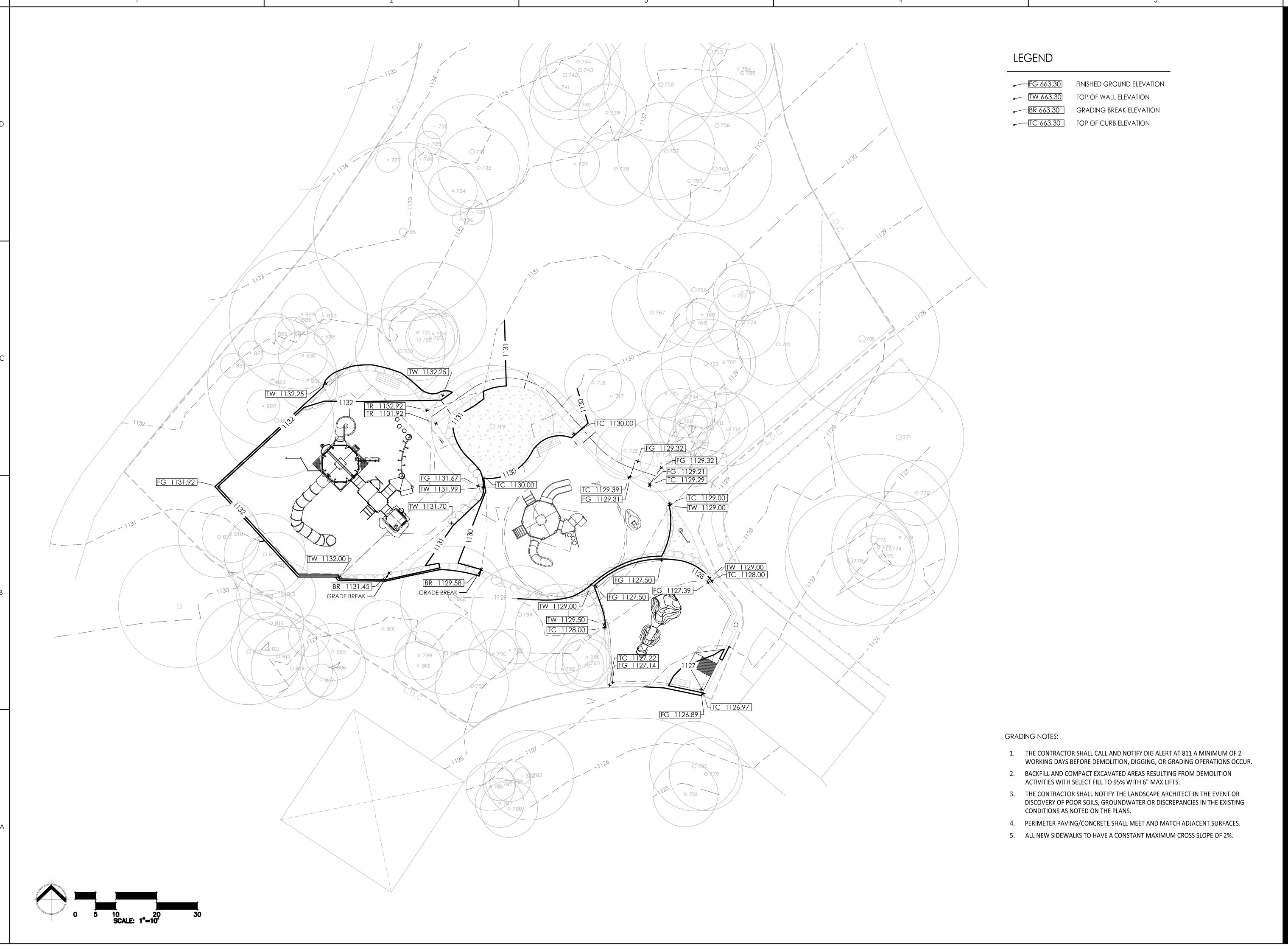
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GRADING PLAN

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