

**AGENDA for a Work Session and Special Meeting
of the Board of Trustees of the Town of Fairplay, Colorado
Thursday, February 24, 2022, at 5:00 p.m. at the Fairplay Town Hall Board Room
901 Main Street, Fairplay Colorado**

5:00 PM – WORK SESSION

Continued Discussion Regarding Regulation of Short-term Rental (STR) Units within the corporate limits of the Town of Fairplay, Colorado. Specifically, review of application checklist and proposed fee structure.

6:00 PM – REGULAR MEETING

- I. CALL TO ORDER**
- II. PLEDGE OF ALLEGIANCE**
- III. ROLL CALL**
- IV. APPROVAL OF AGENDA**
- V. PUBLIC HEARINGS**

- A.** Should the Board approve an application from Summit Habitat for Humanity to subdivide and replat .49 acres of land at 521 Castello Avenue into eight (8) lots for the purpose of constructing eight (8) single-family homes.”?

VI. ADJOURNMENT

Upcoming Meetings/Important Dates

Fairplay Mountain Mardi Gras
Fairplay Board of Trustees Regular Meeting
Fairplay Board of Trustees Regular Meeting

February 26, 2022
March 7, 2022 @ 6 PM
March 21, 2022 @ 6 PM



Town of Fairplay
400 Front Street • P.O. Box 267
Fairplay, Colorado 80440
(719) 836-2622 phone
(719) 836-3279 fax
www.fairplayco.us

STAFF REPORT

TO: Mayor and Board of Trustees
FROM: Janell Sciacca, Town Administrator
RE: Regulation of Short-Term Rentals; Policy Options
DATE: February 24, 2022

BACKGROUND/INFORMATION:

At the last Work Session the Board of Trustees held on February 14, 2022 to discuss regulation of Short-term Rental Units (STRs), Staff was directed to prepare and present a checklist for applicants' use when completing their application for a STR license in Fairplay. Staff has prepared and attached the following for the Board's review:

1. DRAFT Application Form for new STR units
2. DRAFT Checklist for applicants to use when making application for an STR Permit
3. DRAFT Fire & Safety Checklist

The application form was created using the proposed ordinance as a starting point and then reviewing forms from other Colorado municipalities. Again, this is the initial draft and once finalized would be made fillable so applicants can easily enter information and print it for applying. It will also be easier for Staff to read if completed electronically. The checklist was also created using the proposed ordinance and other municipalities' forms. Again, this form would also be easily filled in online and then printed for delivery to the Town with all the required items.

On February 14, Staff was also directed to prepare a recommendation for licensing fees associated with both new and renewal applications. In researching what other similar municipalities charge, Staff has found applications fees vary greatly. Some charge a small business license fee while others charge as much as \$600. Park County is charging \$605 for its initial application. Staff does believe a significant amount of time will be spent reviewing each application and supporting materials, conducting individual unit inspections, confirming, requesting, or following up on information as well as updating the Town website with licensing details. Therefore, it is Staff's recommendation that \$300.00 is a more than reasonable application fee. Research also found that many municipalities do not differentiate between new and renewal applications and assess the same fee each year. Staff does anticipate spending a similar amount of time processing a renewal application. Therefore, Staff recommends there be no reduction in annual fees for a renewal application and for the benefit the applicant gains from being one of the limited licenses available in Fairplay. However, Staff will support a lower renewal application fee if the Board chooses to adopt such. Fees can be further discussed at a future Work Session as the Town may need to assess additional amounts for outside consultants or the Fire Protection District should it request an inspection related fee.

“Where History Meets the High Country”



TOWN OF FAIRPLAY, COLORADO

SHORT TERM RENTAL (STR) PERMIT INITIAL/NEW UNIT APPLICATION

VALID FOR 1 CALENDAR YEAR FROM DATE OF ISSUANCE

NEW LICENSE FEE \$250.00

TOWN STAFF USE ONLY

Date Received: _____
Pmt Amt / Rcp#: _____
Type of STR: _____
Approved: _____
STR Permit #: _____

APPLICANT AND PROPERTY OWNER INFORMATION								
PROPERTY OWNER: <i>*Must match deed</i>								
PHYSICAL PROPERTY ADDRESS:								
OWNER'S PHYSICAL ADDRESS:								
OWNER'S MAILING ADDRESS:								
OWNER'S PHONE #S:	CELL:	HOME:			OTHER: _____			
OWNER'S EMAIL:								
STR BUSINESS NAME: <i>(Ad/Listing Name)</i>								
STATE SALES TAX ID#:								
LOCAL / EMERGENCY CONTACT INFORMATION								
LOCAL / EMERGENCY CONTACT NAME:								
PHONE #S:								
EMAIL(S):								
LOCAL / EMERGENCY CONTACT NAME:								
PHONE #S:								
EMAIL(S):								
SHORT-TERM RENTAL (STR) PROPERTY DETAILS								
TYPE OF STR:	<input type="checkbox"/> Entire Home	<input type="checkbox"/> 1 Room	<input type="checkbox"/> 2 Rooms or More (____)	<input type="checkbox"/> Mixed-Use Structure				
	<input type="checkbox"/> Other – Please Explain:							
Please provide a diagram for the property that includes at a minimum: Dimensions, sidewalks, parking, adjacent roads, entrances/exits, pathways, kitchens, bedrooms, bathrooms, trash and recycling areas, snow storage areas, outdoor fire amenities, pet facilities, and off-street parking spaces identified.								
ONLINE LISTINGS: <i>*If none, please explain.</i>	URL:		URL:			URL:		

APPLICANT ACKNOWLEDGMENT

The signature(s) below certifies that the information provided on this form is in all respects true and accurate to the best of my (our) knowledge and belief and I/we affirm the following under penalty of law:

- I (we) have read a copy of the Ordinance requirements concerning Short Term Rentals, understand the described regulations and agree to abide by them;
- I (we) also understand that should the Short-Term Rental become a nuisance, hazard or unreasonably interfere with the quiet enjoyment of other people’s premises, in accordance with 16-7-160, that this Short-Term Rental Permit will be revoked by the Town of Fairplay;
- I (we) understand that providing false information in this application shall be a violation of the Town of Fairplay Municipal Code, and shall be grounds to deny the application, void the approval, and revoke a Short-Term Rental unit permit issued for the property.

SIGNATURE OF APPLICANT		DATE:	
SIGNATURE OF APPLICANT		DATE:	

TOWN STAFF USE ONLY

SUBMITTAL REQUIREMENTS (N/A if not applicable)

- Applicant / property owner information complete.
- Copy of driver’s license provided.
- Colorado Secretary of State registration provided.
- Local contact person / designated agent or representative identified and contact information complete.
- Copy of recorded warranty deed, special warranty deed, or quitclaim deed for the subject property provided.
(Applicant and owner identified on the deed are one in the same).
- STR Type Identified _____.
- Diagram of Property provided with all required items identified.
- Certificates of Inspection provided for stoves, furnaces, boilers, etc.
- Proof of Fire Department inspection provided.
- Copy of Property-Liability Insurance in an amount not less than \$500,000.
- Copy of Certificate of Occupancy.
- Copy of State Sales Tax License.
- Applicant(s) acknowledgement signed.
- Other: _____.
- Other: _____.

Staff Notes:



Town of Fairplay

901 Main Street • P.O. Box 267

Fairplay, Colorado 80440

(719) 836-2622 phone

(719) 836-3279 fax

www.fairplayco.us

SHORT-TERM RENTAL UNIT APPLICATION CHECKLIST

- Applicant clearly identified, including the corporate owner if applicable.
- Copy of driver's license if the property owner is an individual.
- Copy of registration with Colorado Secretary of State if the property owner is an entity.
- Applicant contact information complete and any additional emergency contact information provided.
- Local contact person / designated agent or representative for identified and contact information complete. If same as the applicant, write in "Same As Applicant."
- Copy of recorded warranty deed, special warranty deed, or quitclaim deed for the subject property (applicant and owner identified on the deed must be one in the same).
- Copy of Property-Liability Insurance in an amount not less than \$500,000.
- Copy of Certificate of Occupancy.
- Copy of State Sales Tax License.
- Proof of Payment of Park County Property Taxes.
- Type of STR identified – Entire Residence, 1 Room or Multiple Rooms in a Residence, Unit in a Mixed-Use Structure, or Other with an explanation.
- Diagram of premises, that includes at a minimum: Dimensions, sidewalks, parking, adjacent roads, entrances/exits, pathways, kitchens, bedrooms, bathrooms, heating units, trash and recycling areas, snow storage areas, outdoor fire amenities, pet facilities, and off-street parking spaces identified.
- Copies of annual inspection certificates for wood burning, wood pellet, lp, or natural gas stoves, furnaces or boiler units.
- Copies of certificate(s) for Fire & Safety Inspection Checklist. **See attached list. (Another one may be provided by NWFPD or other inspecting authority)*
- Town sign-off that property is in compliance with all planning, zoning, building and other municipal codes.

ADDITIONAL FORM(S) REQUIRED FOR RENEWAL APPLICATION

- Affidavit, signed by the licensee and notarized, attesting, under penalty of perjury, to the duration and frequency of the prior year's short-term rental history, including the specific number of rooms and nights rented in the prior year, as well as confirmation of payment of all applicable sales and lodging occupation taxes

DRAFT



TOWN OF FAIRPLAY, COLORADO
SHORT-TERM RENTAL UNIT
FIRE & SAFETY INSPECTION CHECKLIST

- Address numbers are visible and easy to read from the road to the front of the building. (Code requires a height of each number to be __ inches or larger).
- All exit doors are free of obstructions inside and out, including personal items, shrubbery, snow and ice, etc; lock from the inside without a key or special instructions; and open/close easily.
- All storage/housekeeping is neat and orderly.
- Extension cords are not used as a substitute for permanent wiring and do not extend through walls, ceiling, floors, under doors or floor coverings, or anywhere they may be subject to damage.
- Approved covers are in place on all electrical switch, light fixtures, and outlet boxes; working GFCI outlets in kitchens and bathrooms.
- All circuit breakers are labeled (in English) to show what they control, and access to circuit breaker panels is not obstructed in any manner.
- All multi-plug adaptors and surge protectors are UL listed and plugged directly into a wall outlet.
- All water heaters have a pressure relief valve, relief valve discharge pipe, and at least 3 feet of clear space all around.
- All natural-gas appliances have individual shut-off valves.
- All combustibles are stored at least 3 feet away from gas appliances.
- An approved smoke detector is present in each sleeping room, as well as in the area immediately adjacent to sleeping rooms and in the basement and attic (if applicable). Batteries are installed, functioning, and regularly tested.
- Sleeping rooms have two means of egress and 2nd story rooms have fire safety ladders.
- In buildings with any appliances supplied by natural gas, LP gas, or any type of wood-burning or wood-pellet stove or fireplace, an approved carbon monoxide detector is present no more than 15 feet from the sleeping area. Batteries are installed, functioning, and regularly tested. Note that ONE carbon monoxide detector per group of bedrooms in a sleeping area is adequate, but if there are sleeping areas on multiple levels, there must be one per level. There is at least 3 feet of clear space on all sides.
- A 2A (ABC) fire extinguisher in the kitchen, near any wood-burning device, and in any garages. Must be mounted in a visible location or have a "fire extinguisher inside" sticker affixed to the cabinet containing it.
- A clear Emergency Evacuation Plan is posted.

Fairplay Planning Department
 Fairplay Town Hall
 901 Main Street
 Fairplay, Colorado 80440



Fairplay Board of Trustees
 Mayor – Frank Just
 Mayor Pro Tem - Scott Dodge
 Peter Lynn
 Eve Stapp
 Josh Voorhis

Town Board of Trustees Hearing

Summit Habitat for Humanity Final Plan and Final Plat 521 Castello Ave.

Hearing Date:	February 24, 2022
File Name and Process:	Summit Habitat for Humanity – Final Plan and Final Plat
Owner/Applicant:	Summit Habitat for Humanity & Park County
Representative:	April-Dawn Knudsen & Thomas Begley
Legal Description:	521 Castello Ave. / Lots 23, 24, 25, 26 and East ½ 27, Block 13 Clark & Bogues Addition to the Town of Fairplay
Zoning:	Transitional (T) Zone District
Staff Member:	Scot Hunn, Town Planner

Staff Report

I. Summary of Request:

The Applicant, Summit Habitat for Humanity, represented by Habitat Executive Director April-Dawn Knudsen and Thomas Begley of Breckenridge Lands, is requesting approval of a Final Plat to subdivide a previously subdivided parcel located at 521 Castello Avenue in the Transitional Zone District to create eight (8) new lots, along with easements for access, utilities, drainage, and parking. This is a Major Subdivision in accordance with the Town of Fairplay Unified Development Code.

This subdivision will facilitate the review of development plans by the applicant that include:

- The phased construction of 8 single-family residential units.
- The construction of common access, parking, and drainage improvements.
- Improvement (grading and road base) of a portion of the alley on the south side of the subject property to create a 20-foot emergency access for fire and emergency services.

The Town Board of Trustees reviewed the preliminary plat on June 15, 2020. The Final Plat that has been presented is in substantial conformance with the preliminary plat.

Staff is recommending the Board allow the Town Attorney to draft the Subdivision Improvements Agreement (SIA) for all public improvements according to the detailed, final construction documents for all site prep and site work and associated cost estimates that were provided. All site engineering and construction documents have been reviewed by SGM on behalf of the Town.

Staff is **recommending approval** of the Final Plat, with conditions.

II. **Background:**

The original application packet was submitted in March 2020 and the applicant has been working with the Town toward final plan and final plat submission since that time. Some of the outstanding issues that have taken time to work through have been the completion of construction documents and cost estimates for a Subdivision Improvements Agreement (SIA); receiving engineering details sufficient to allow the Town's engineering consultant, SGM, to complete its review; and getting referral comments from the Fire District. All issues have now been resolved to the satisfaction of Town staff and consultants, will be addressed via the SIA, or are recommended as conditions of Final Plan/Final Plat approval.

III. **Summary of Process and Code Requirements:**

Final Plat Requirements and Procedures

The following sections of the Unified Development Code (UDC) are applicable to the review of this Final Plat review for a Major Subdivision:

Section 16-14-20. Final subdivision plan/plat approval.

(F) Board of Trustees action.

1. *The Board of Trustees shall consider the application for final subdivision plan/plat approval at a noticed public hearing conducted not later than thirty (30) days from the date on which the application was deemed complete and ready for*

approval by the Town Administrator of her/his designee and the Department of Public Works, or as soon thereafter as can be accommodated on the Board of Trustees' meeting schedule. The hearing may be continued for up to forty (40) days to allow for the gathering and submission of additional information deemed necessary to complete the Board of Trustees' review, inclusive of referring the matter, or any particular item associated therewith, to the Town Planner for additional study and recommendation. At the conclusion of the hearing, and after discussion and deliberation thereon, the Board of Trustees shall vote to approve, approve with conditions or deny the application and final plat, and shall thereafter direct staff to prepare a written resolution with supporting findings reflecting the Board of Trustees' decision for review and approval at the Board of Trustees' next regularly scheduled meeting.

2. *The Board of Trustees may approve minor modifications to the approved preliminary plat when all of the following conditions exist:*
 - a. *Any rearrangement of lot lines does not substantially alter the general lot and street layout of the approved preliminary plat, and remains compatible with surrounding development;*
 - b. *The requested modification is in compliance with the zoning regulations and regulations of this Chapter, and other applicable Town ordinances; and*
 - c. *The requested modification does not conflict with established policies of the Department of Public Works or other agency, public and private utilities, school district, recreation and park district.*
3. *The Board of Trustees may only grant final subdivision plan/plat approval upon finding that the application substantially complies with the Town's comprehensive plan and the applicable criteria set forth in this Chapter, and that the proposed subdivision will not adversely impact the public health, safety and welfare. The burden to demonstrate the application's and plan/plat's compliance with all applicable criteria shall rest with the applicant.*

Staff Response:

Staff is recommending approval with conditions because the plat has been prepared according to the Town's subdivision standards and criteria; the accompanying documentation (final construction plans, cost estimates, and technical reports) have been found to meet the Town's applicable standards and requirements; and the proposed subdivision will not adversely impact the public health, safety, and welfare.

Additionally, the following Comprehensive Plan goals and policy statements generally support the proposed subdivision:

Community Character, Design & Identity

Goal CCDI-2

- A. Support development of existing lots and areas within existing municipal limits with techniques such as in-fill guidelines, accessory dwelling units and development on existing or new small lots.

Goal CCDI-4

- B. Trustees should make a finding of “substantial compliance” with the comprehensive plan based upon staff recommendations and application information as part of development review.

Transportation

Goal T-1

- A. Improve alleys to support access by motorized and non-motorized users in pleasant environment.
- B. Construct unbuilt alleys or reclaim areas encroached upon by adjacent owners to ensure accessibility by the community at large.
- C. Ensure that new development delivers well-designed trails and sidewalks networks that serves the development and includes linkages to surrounding areas.

Environment

Goal E-1

- E. New or expanded existing development shall avoid areas of known sensitive wildlife habitat and mitigate such areas to avoid adverse impacts.

Goal E-4

- C. Development will conduct site-specific hazard studies on potential natural hazard areas and propose effective mitigation actions.

Housing

Goal H-1

- C. Development with 5 or more residential units should include a variety of housing types, densities, and sizes to ensure a diversity of unit type and pricing which serves the community.

Goal H-2

- B. Support creation of small lots in new development along with a variety of housing types to create unit diversity and construction of smaller single-family homes that are more affordable in free market setting.

- C. Harmonious infill development that fits the traditional development pattern and architectural character is encouraged.

Economy

Goal E-2

- B. Maintain infrastructure to support existing businesses and plan new infrastructure to support business growth.

IV. Zoning Analysis:

Zoning

The subject property is located within the Transitional (T) Zone District.

“Transitional encompasses most of the original town-site lots and includes single-family uses, home offices, small-scale retail, cafés and businesses which coexist with residential neighborhoods. Business use is on the ground-level and do not require much off-street parking. Sidewalks and alleys are important features.”

- Town of Fairplay UDC Section 16-5-20 – Description of Zone Districts



Figure 1: Town of Fairplay Zoning Map – Transitional (T) Zone

V. Staff Findings:

The following observations summarize staff’s findings in support of the Summit Habitat Final Plat:

- The Town’s Future Land Use Map goals and policies that are supported by Summit Habitat for Humanity subdivision and development plans include:
 - Ensuring a variety and mix of uses “that complement the existing Town of Fairplay land use patterns.”
 - “Maintain community character.”
 - “Ensure compatibility between uses.”
 - “Maintain a balanced mix of housing types that create a broad range of pricing within the market.”
 - “Concentrate development in areas where there is good access, efficiently provided services and cost-effective utility extensions.”

- The plat not only creates lots that comply with the minimum lot size in the Transitional Zone District, but the associated development plans demonstrate that lot coverage maximums, setbacks, building height, and required on-site parking can be met.
- Technical and legal requirements for the plat, construction documents, and cost estimates necessary to allow the Town to successfully negotiate an SIA have been met.
- The 2013 Comprehensive Plan – specifically the economy, community character, and housing policies - generally supports this proposal.
- The site is served by adequate vehicular access and this project represents logical and cost-effective provision of existing services where no major extensions are necessary.
- The Transitional Multi-Use Future Land Use category in the 2013 Comprehensive Plan is intended to encourage slightly higher residential density along with the mixing of “small-scale” commercial and residential uses on lots that range from 2,500 to 5,000 square feet; where single-family, duplex and multi-family uses are permitted, and architectural character reflects the historic features of Fairplay “with peaked roofs, porches, balconies and similar elements.”
- The proposed single-family residential structures to be constructed on the 8 lots created by this final plat appear to adhere to the principles and desired qualities listed in the Town’s Comprehensive Plan Transitional Multi-Use Future Land Use designation.

VI. **Staff Recommendation and Suggested Conditions:**

Staff suggests that the proposed Final Plat substantially conforms the Preliminary Plat approved by the Town Board, conforms with the Town’s Comprehensive Plan, and meets a preponderance of the Town’s Subdivision criteria.

Staff is **recommending approval** with conditions.

In the event the Town Board of Trustees votes to approve the Final Plat request for Summit Habitat for Humanity, staff respectfully suggests the following conditions of approval.

1. The Town Attorney is directed to draft the appropriate Subdivision Improvements and Development Agreement associated with this approval to secure the construction and installation of required public improvements.
2. As a demonstration of the Town of Fairplay’s vesting in the completion of this important community housing project, the Board of Trustees hereby waives all / or a portion of planning (Hunn Planning & Policy, LLC) engineering (SGM) and legal (Wilson Williams, LLP consultant review fees as requested by the applicant in the amount of \$ _____.

VII. Attachments:

1. Application Form and Letter of Intent
2. Final Plat
3. Construction Documents Plan Set
4. Construction Cost Estimate Report
5. Drainage Report
6. Utility Report
7. Applicant Request to Waive Professional Consulting Fees
8. Public Notices



TOWN OF FAIRPLAY
 P.O. BOX 267
 FAIRPLAY, CO 80440
 (719) 836-2622
www.fairplayco.us

DEVELOPMENT APPLICATION

APPLICATION TYPE

- | | |
|---|--|
| <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Variance |
| <input type="checkbox"/> Minor Subdivision | <input type="checkbox"/> Site Plan |
| <input type="checkbox"/> Major Subdivision | <input type="checkbox"/> Lot Line Adjustment / Elimination |
| <input type="checkbox"/> Zoning / Rezoning | <input type="checkbox"/> Architectural Review |
| <input type="checkbox"/> Special Use Permit | <input type="checkbox"/> Other: _____ |

APPLICANT INFORMATION

Applicant: _____ Date: _____
 Applicant's Address: _____

 Applicant's Phone: _____ Fax: _____
 Email Address: _____

OWNER INFORMATION

Owner: _____ Relationship to Applicant: _____
 Owner's Address: _____

 Owner's Phone _____ Fax: _____
 Email Address: _____

PROPERTY INFORMATION

Physical Address: _____
 Parcel No.: _____
 Subdivision: _____
 Lot: _____ Block: _____
 Number of Acres: _____
 Existing Zoning: _____

PROJECT PROPOSAL

General Description of Project:

[Empty box for project description]

SIGNATURES

I declare under penalty of perjury that the information in this application is true and correct to the best of my knowledge.

Thomas M. Begley

Natalie Donovan

2/20/22

Applicant

Date

Owner

Date

The owner and/or applicant must be present at all meetings and hearings. All public hearings must be properly notices according to the Fairplay Municipal Code and Uniform Development Code (Sec.). Development Application must be signed by Applicant and Owner and all submittal requirements must be met before application will be accepted by the Town of Fairplay. Partnerships or Corporations may have the authorized general partner or other applicable corporate officer sign. *Additional pages may be attached as necessary in order to meet application requirements.*

AGREEMENT TO PAY COSTS FOR PROFESSIONAL SERVICES

No application will be accepted or processed unless it is complete and associated fees/deposits are paid. Depending on the application type, it is the Town’s policy and practice to retain outside professional services to process or evaluate an application and the applicant shall bear the costs of same, inclusive of planning, land planning, engineering and legal. A deposit to cover reasonable anticipated costs for outside professional services may be required at the time of application (See Town of Fairplay Fee Schedule). All applications shall be evaluation under the standards and requirements set forth in Chapter 16 of the Fairplay Municipal Code / Uniform Development Code and must be accompanied by the required copies set forth therein.

- I hereby certify that I am the applicant named above and that the information contained herein and, on any attachments hereto, is in all respects true and accurate to the best of my knowledge and belief.
- I further certify that I understand and agree to the aforementioned policy and practice of the Town of Fairplay regarding payment of professional service costs associated with this development application.
- I also understand that no building permit will be issued for the property which is the subject of this application until the application receives final approval by the Board of Trustees and any associated legal timelines have been met/passed.

Thomas M. Begley _____
 Applicant Date

FOR TOWN USE ONLY

Sec. 16-3-20. Common submittal requirements.

- Application form, signed by the owner(s) of the property, in the format provided by the Town Clerk. If the applicant is not the owner of the property, a notarized letter of consent signed by the property owner or owners authorizing the applicant to process the specific land use application on the property owner's behalf shall be delivered with the submittal; *(Available online at Town of Fairplay website)*
- Legal description of the subject property;
- Proof of legal ownership and the names and addresses of the owners of the property and any lienholder(s). This can be in the form of a deed, current title policy (not older than 90 days), or a letter from the owner's attorney affirming ownership of the property;
- Names and addresses of any owners or lessees of mineral rights as listed in the records of Park County for the property; *(Visit <https://maps.parkco.us/>)*
- Names and addresses of any property owners of adjacent property including properties across a public street, public right-of-way or alley along with stamped and addressed envelopes for each; *(Visit <https://maps.parkco.us/>)*
- Statement of the purpose of the application and a description of the proposal; *(Attachment to application)*
- Vicinity map indicating the location of the property included in the land use application;
- Agreement to pay form to cover the costs of any outside consultants to assist the Town with review of the application;
- Application fee. *(See Fee Schedule)*

**Per Section 16-3-50 of the Municipal Code and UDC, in addition to the common submittal requirements listed above, additional submittal items are required based upon the type of application. SEE ADDITIONAL REQUIREMENTS CHECKLIST*

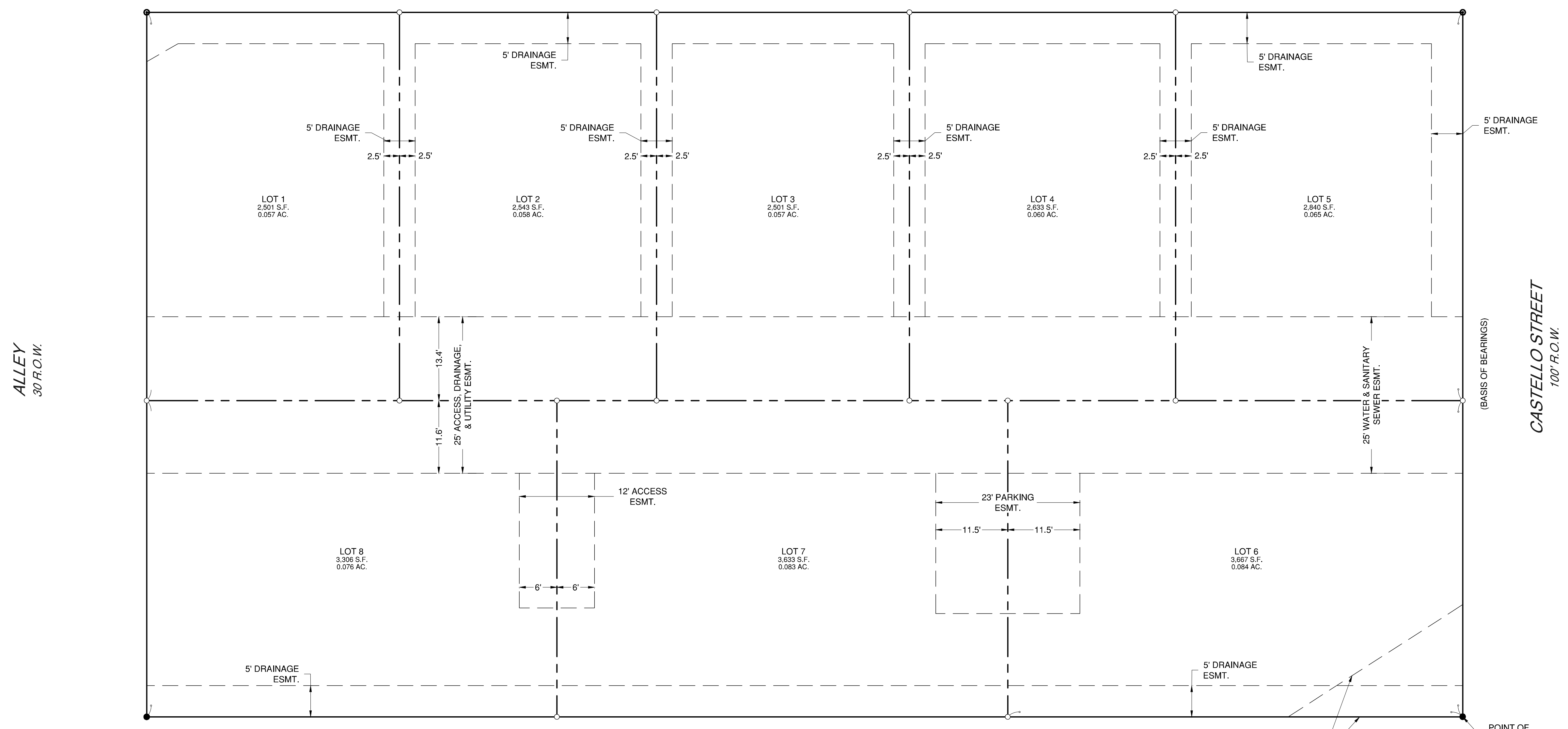
Application Submitted: _____	Fee Paid: _____
Public Hearing: _____	Deposit Received: _____
Property Posted: _____	SIA / DIA Required: <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> RECEIVED _____
Notices Mailed to Adjacent Owners: _____	Other: _____
Notice Printed in Newspaper: _____	_____

CTB: PCL_2017_MONO-COLOR.CTB
BY: THOMAS DINGWALL
PLOT DATE: 2/3/2022 4:14 PM
DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT_3 ENGINEERING\DRAWINGS\FINAL PLAT\20-017 FINAL-PLAT SHEET.DWG

SUMMIT HABITAT FOR HUMANITY

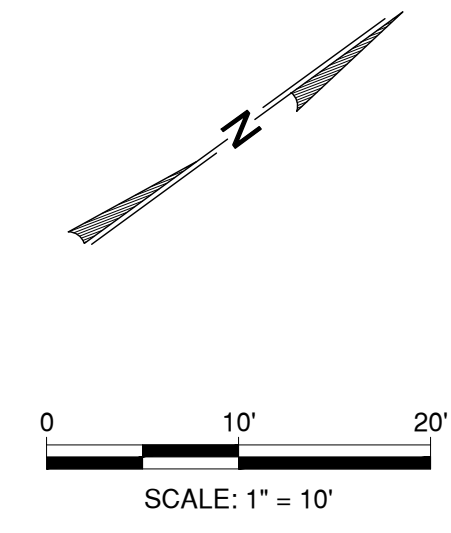
A REPLAT OF LOTS 23, 24, 25, 26 AND THE EAST HALF OF LOT 27, BLOCK 13, CLARK AND
BOGUE'S ADDITION TO THE TOWN OF FAIRPLAY
LOCATED IN THE NORTHEAST QUARTER OF SECTION 33, TOWNSHIP 9 SOUTH, RANGE 77 WEST
OF THE 6TH P.M., TOWN OF FAIRPLAY, COUNTY OF PARK, STATE OF COLORADO
SHEET 2 OF 2

BLOCK 13, LOTS 28, 29 & W2 27
FAIRPLAY CLARK AND BOGUES
REC. NO. BOOK 900 PAGE 37

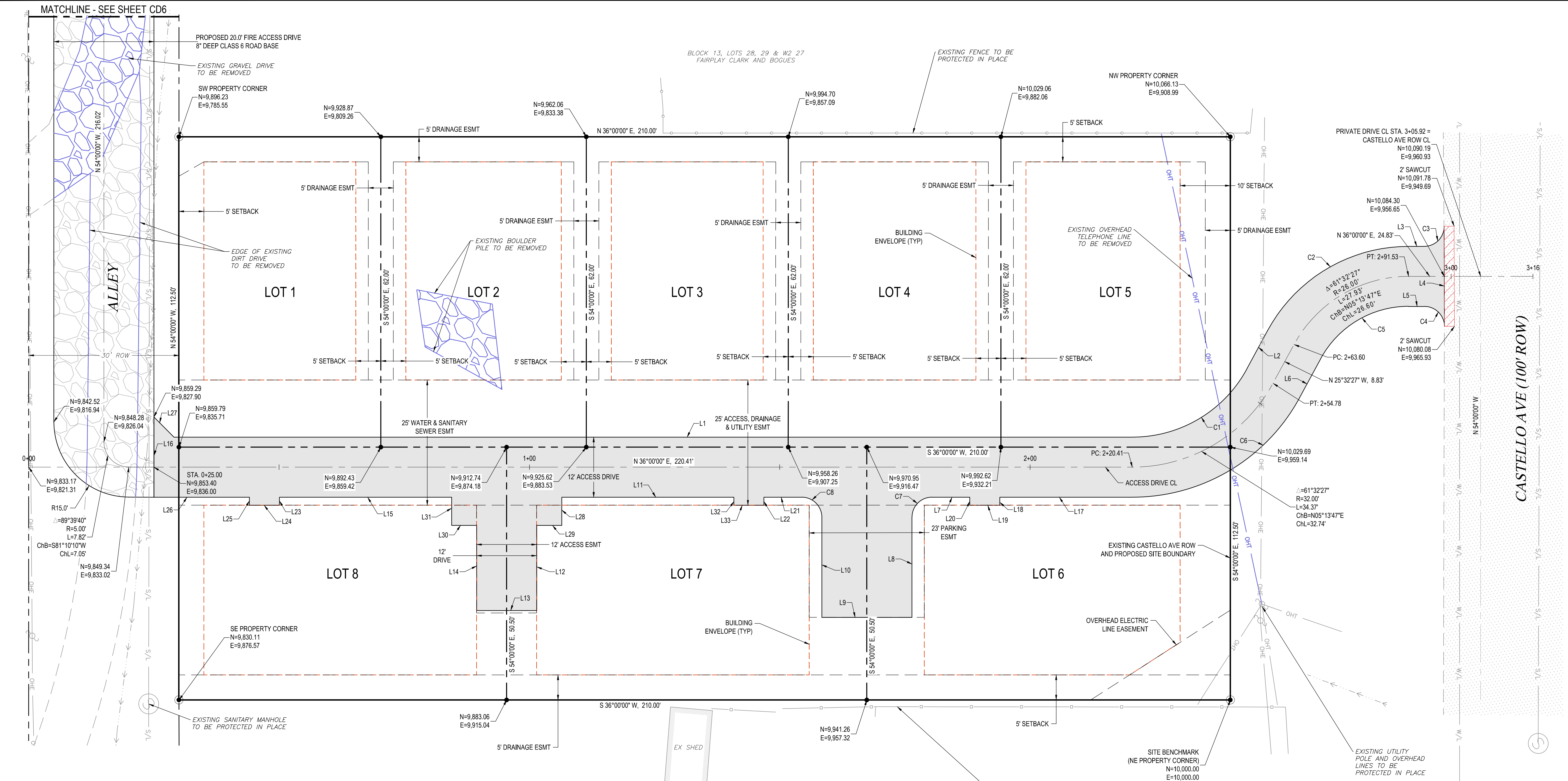


BLOCK 13, LOTS 21 & 22
FAIRPLAY CLARK AND BOGUES
REC. NO. BOOK 900 PAGE 37

- LEGEND**
- SET 5/8" REBAR WITH 1.5" DIA. ALUMINUM CAP STAMPED "PLS 18991"
 - FOUND 5/8" REBAR WITH 1.5" ALUMINUM CAP
 - FOUND 1/2" REBAR NO CAP
- ABBREVIATIONS**
- | | |
|--------|--------------|
| AC. | ACRE |
| ESMT. | EASEMENT |
| R.O.W. | RIGHT OF WAY |
| S.F. | SQUARE FEET |
- PROPERTY LINE**
 ——— PROPOSED TRACT / LOT LINE
 - - - - PROPOSED EASEMENT
 - - - - SURVEY TIE LINE



DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT\3. ENGINEERING\DRAWINGS\FINAL SUBDIVISION PLAN\270.002 HORIZONTAL CONTROL.DWG



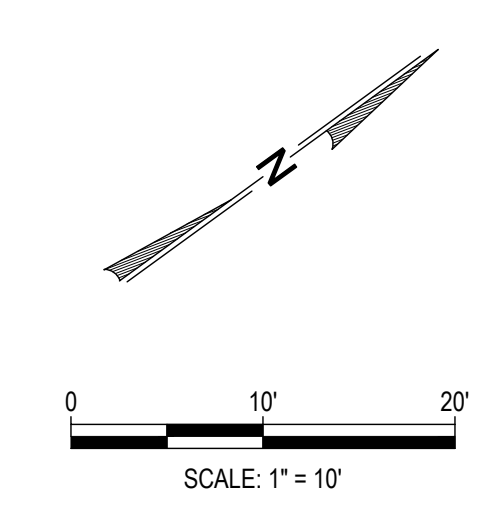
LINE #	LENGTH	DIRECTION	START POINT (N,E)	END POINT (N,E)
L1	191.41	S36°00'00"W	(10015.01, 9946.01)	(9860.16, 9833.50)
L2	8.83	S25°32'22"E	(10049.47, 9944.63)	(10041.50, 9948.43)
L3	3.08	S36°00'00"W	(10084.56, 9949.42)	(10082.07, 9947.61)
L4*	20.00	N54°14'22"W	(10078.47, 9964.75)	(10090.16, 9948.52)
L5	3.16	N36°00'00"E	(10075.02, 9957.32)	(10077.58, 9959.18)
L6	8.83	N25°32'22"W	(10046.68, 9959.26)	(10054.64, 9955.46)
L7	7.56	N36°00'00"E	(9975.59, 9932.20)	(9981.70, 9936.64)
L8	20.00	N54°00'00"W	(9958.24, 9949.26)	(9970.00, 9933.08)
L9	18.00	N36°00'00"E	(9943.68, 9938.68)	(9958.24, 9949.26)
L10	20.00	S54°00'00"E	(9955.44, 9922.50)	(9943.68, 9938.68)
L11	34.38	N36°00'00"E	(9915.76, 9888.73)	(9943.58, 9908.94)
L12	17.00	N54°00'00"W	(9898.42, 9904.09)	(9908.42, 9890.34)
L13	12.00	N36°00'00"E	(9888.72, 9897.04)	(9898.42, 9904.09)
L14	17.00	S54°00'00"E	(9898.71, 9883.29)	(9888.72, 9897.04)
L15	34.39	N36°00'00"E	(9870.14, 9855.59)	(9897.97, 9875.80)
L16	16.02	S54°00'00"E	(9859.29, 9827.90)	(9849.87, 9840.86)
L17	26.45	N36°00'00"E	(9886.56, 9940.17)	(10007.96, 9955.72)

LINE #	LENGTH	DIRECTION	START POINT (N,E)	END POINT (N,E)
L18	1.60	N54°00'00"W	(9885.62, 9941.46)	(9886.56, 9940.17)
L19	6.00	N36°00'00"E	(9980.76, 9937.94)	(9985.62, 9941.46)
L20	1.60	S54°00'00"E	(9981.70, 9936.64)	(9980.76, 9937.94)
L21	7.56	N36°00'00"E	(9948.43, 9912.47)	(9954.55, 9916.91)
L22	1.60	S54°00'00"E	(9948.43, 9912.47)	(9947.49, 9913.76)
L23	1.60	N54°00'00"W	(9869.20, 9856.88)	(9870.14, 9855.59)
L24	6.00	N36°00'00"E	(9864.35, 9853.36)	(9869.20, 9856.88)
L25	1.60	S54°00'00"E	(9865.29, 9852.06)	(9864.35, 9853.36)
L26	19.06	N36°00'00"E	(9849.87, 9840.86)	(9865.29, 9852.06)
L27	5.67	S81°09'31"W	(9860.16, 9833.50)	(9859.29, 9827.90)
L28	5.62	N54°00'00"W	(9912.46, 9893.28)	(9915.76, 9888.73)
L29	5.00	N36°00'00"E	(9908.42, 9890.34)	(9912.46, 9893.28)
L30	5.00	S36°00'00"W	(9898.71, 9883.29)	(9894.66, 9880.35)
L31	5.62	N54°00'00"W	(9894.66, 9880.35)	(9897.97, 9875.80)
L32	1.60	S54°00'00"E	(9943.58, 9908.94)	(9942.64, 9910.24)
L33	6.00	N36°00'00"E	(9942.64, 9910.24)	(9947.49, 9913.76)

CURVE #	RADIUS	LENGTH	DELTA	STARTING POINT (N,E)	END POINT (N,E)
C1	26.00	27.93	61°32'27"	(10015.01, 9946.01)	(10041.50, 9948.43)
C2	32.00	34.37	61°32'27"	(10082.07, 9947.61)	(10049.47, 9944.63)
C3	4.00	6.30	90°14'26"	(10084.56, 9949.42)	(10090.16, 9948.52)
C4	4.00	6.27	89°45'34"	(10078.47, 9964.75)	(10077.58, 9959.18)
C5	20.00	21.48	61°32'27"	(10075.02, 9957.32)	(10054.64, 9955.46)
C6	38.00	40.82	61°32'27"	(10077.58, 9959.18)	(10046.68, 9959.26)
C7	4.00	6.28	90°00'00"	(9975.59, 9932.20)	(9970.00, 9933.08)
C8	4.00	6.28	90°00'00"	(9954.55, 9916.91)	(9954.44, 9922.50)

BLOCK 13, LOTS 21 & 22
FAIRPLAY CLARK AND BOGUES

DEMOLITION LEGEND
— TO BE REMOVED



THE CONTRACTOR SHALL LOCATE AND
VERIFY ALL EXISTING UTILITY
LOCATIONS PRIOR TO CONSTRUCTION

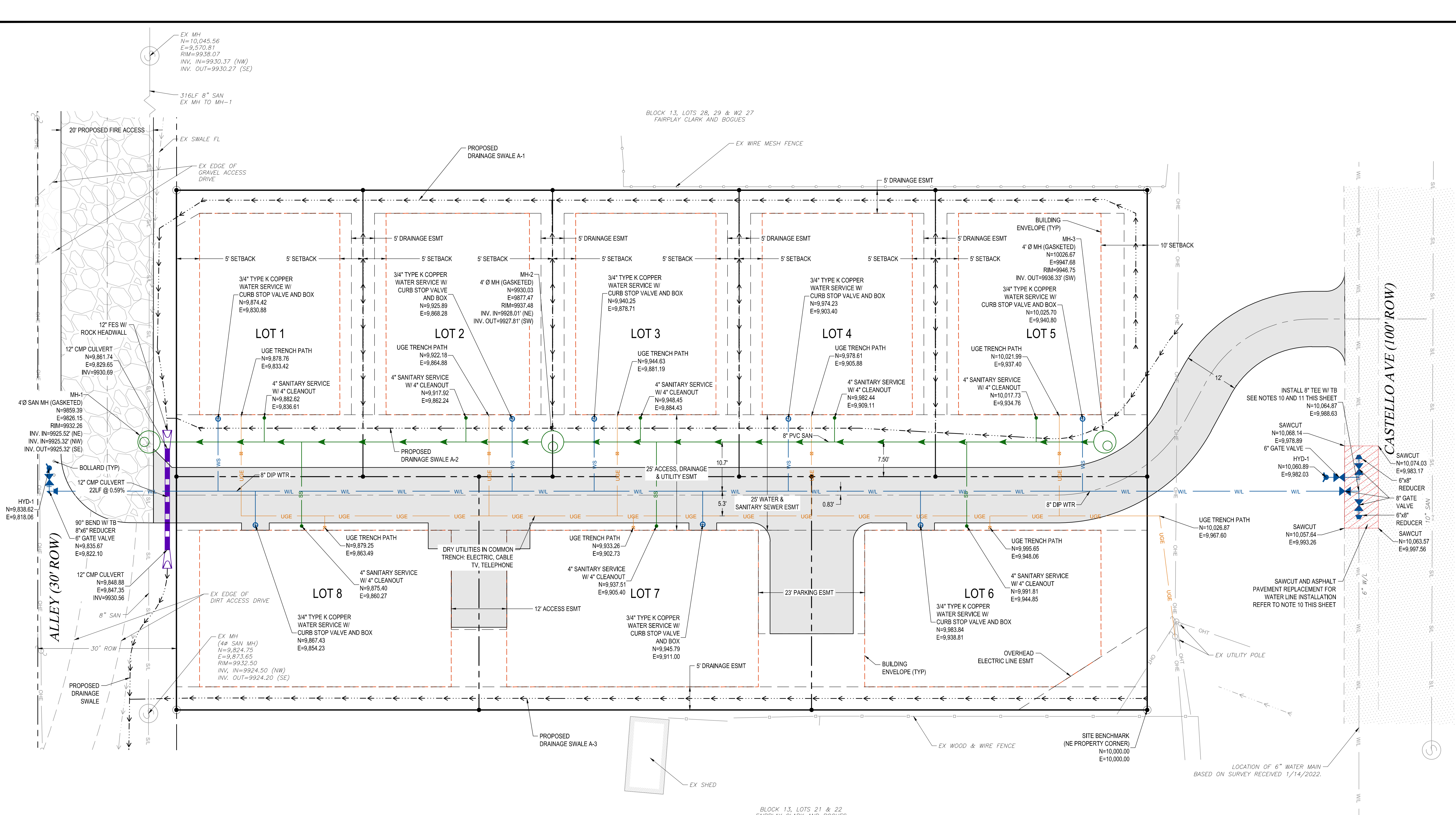
REV.	DATE	DESCRIPTION
3	01/17/2023	TOWN COMMENTS
2	11/30/2021	TOWN COMMENTS
1	10/28/2021	TOWN COMMENTS

PREPARED FOR: BRECKENRIDGE LANDS

SHEET TITLE: SUMMIT HABITAT FOR HUMANITY
CONSTRUCTION DOCUMENTS
HORIZONTAL CONTROL

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.:	CD2
SHEET 2 OF 9	

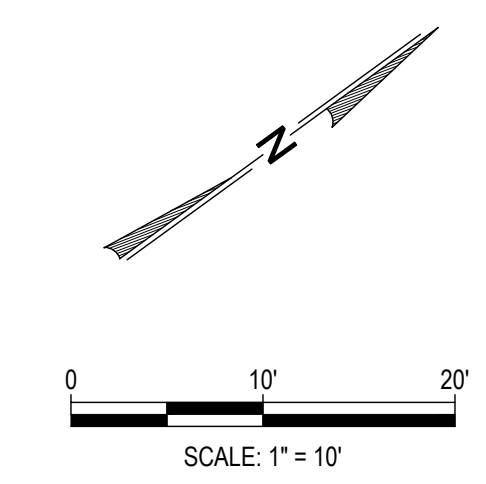
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UTILITY PLAN NOTES:

1. WATER AND SANITARY SEWER SERVICES SHALL BE INSTALLED A MINIMUM OF 8' DEEP, PER TOWN OF FAIRPLAY MUNICIPAL CODE SECTION 13-1-150 AND STANDARD DETAIL S-1.
2. THE SITE/DEVELOPMENT PLAN HAS BEEN PREPARED IN ACCORDANCE WITH APPLICABLE DEVELOPMENT CODE REQUIREMENTS.
3. THE SUBJECT PROPERTY LIES WITHIN ZONE X (OTHER AREAS) AND IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA ACCORDING TO THE MAP PUBLISHED BY FEMA. COMMUNITY NUMBERS 08093C0505C AND 08093C0485C, EFFECTIVE DATE OF 12-18-2009.
4. THE PROPERTY IS ZONED T - TRANSITIONAL.
5. BUILDINGS TO BE CONSTRUCTED IN COMPLIANCE WITH IRC BUILDING CODE.
6. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND UTILITY LINES BEFORE COMMENCING CONSTRUCTION.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING UTILITY LOCATES. CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987.
8. ALL PROPOSED STORM PIPE AND STRUCTURES, INCLUDING ROOF DRAIN LINES, PROPOSED INLETS AND DRAINAGE SWALES ARE PRIVATE UNLESS NOTED OTHERWISE, AND SHALL BE MAINTAINED BY THE OWNER.
9. ROOF DRAINS TO BE DISCHARGED AT THE SURFACE WELL BEYOND THE LIMITS OF ALL BACKFILL PER GEOTECHNICAL ENGINEER RECOMMENDATION.
10. SAWCUT AND PAVEMENT REPLACEMENT AREA SHOWN WERE DETERMINED FROM EXISTING 6" WATER LINE LOCATION PER SURVEY RECEIVED 1/14/2022. CONTRACTOR IS RESPONSIBLE FOR DETERMINING FINAL SAWCUT AND ASPHALT REPLACEMENT AREA BASED ON FIELD CONDITIONS.
11. CONTRACTOR IS RESPONSIBLE FOR VERIFYING TIMING AND SHUT OFF PROCEDURES FOR CONNECTION TO CASTELLO AVE WATER MAIN WITH TOWN OF FAIRPLAY.
12. CONTRACTOR MUST PROVIDE A TRAFFIC CONTROL PLAN FOR TOWN REVIEW AND APPROVAL TWO WEEKS PRIOR TO CONSTRUCTION. A STREET CUT PLAN AND ANY OTHER REQUIRED ADDITIONAL PLAN CAN BE COMPLETED PRIOR TO CONSTRUCTION. CONTACT FAIRPLAY PUBLIC WORKS TWO WEEKS PRIOR TO CONSTRUCTION.

SUMMIT HABITAT FOR HUMANITY SANITARY SERVICES								
LOT NO.	D/S SSMH	MAIN INV ELEV	SERVICE INV AFTER WYE	SERVICE INV @ END ELEV	SERVICE SIZE (IN.)	SERVICE SLOPE (%)	SERVICE LENGTH (FT.)	WATERLINE CROSSING
1	MH-1	9926.09	9926.76	9926.86	4	2.00	5.2	N
2	MH-1	9927.32	9927.99	9928.09	4	2.00	5.2	N
3	MH-2	9929.33	9930.00	9930.10	4	2.00	5.2	N
4	MH-2	9932.26	9932.93	9933.03	4	2.00	5.2	N
5	MH-2	9935.30	9935.97	9936.07	4	2.00	5.2	N
6	MH-2	9934.25	9934.92	9935.28	4	2.00	18.2	Y
7	MH-2	9929.57	9930.24	9930.60	4	2.00	18.2	Y
8	MH-1	9926.38	9927.05	9927.41	4	2.00	18.2	Y



THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.	CD3
SHEET 3 OF 9	

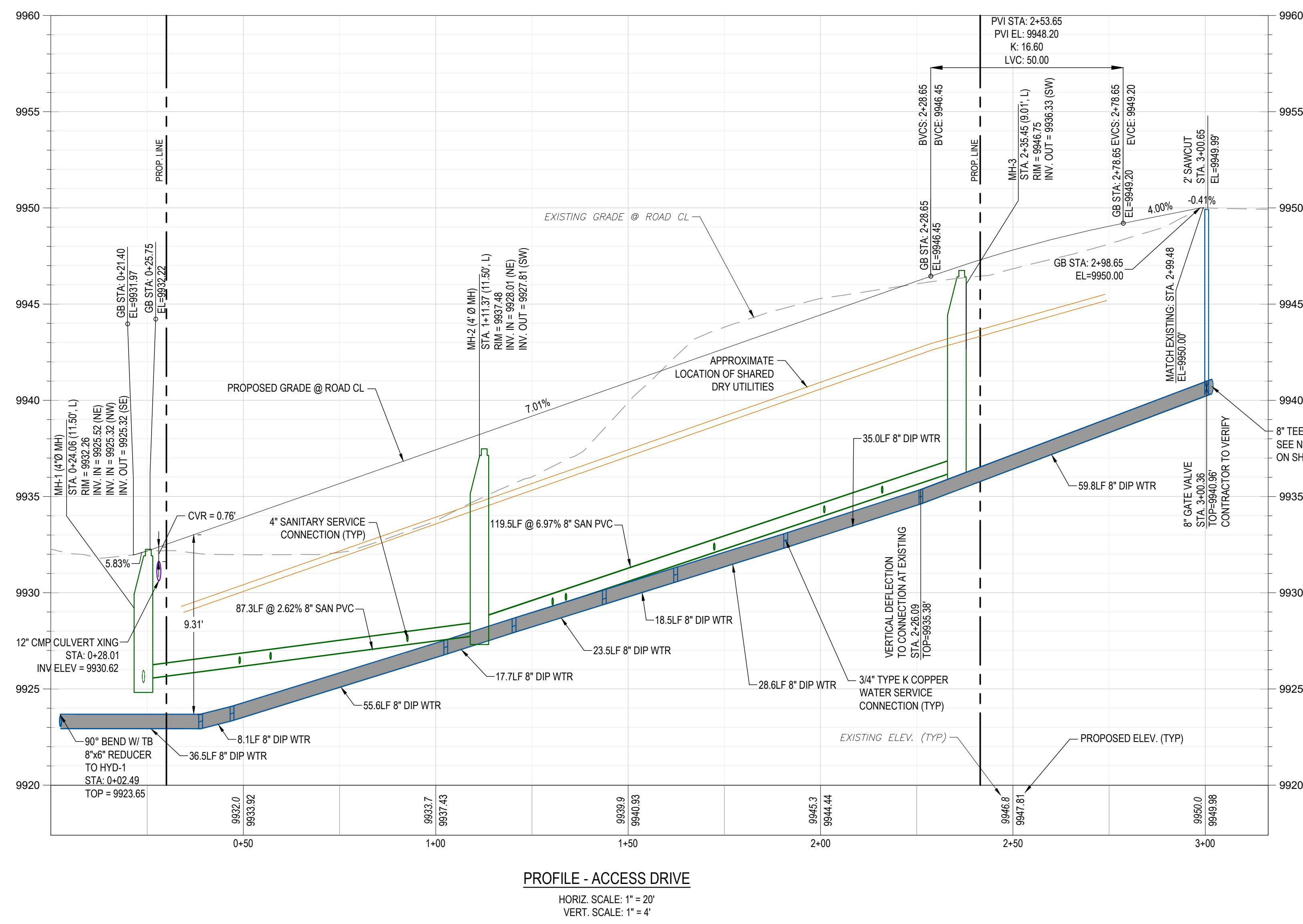
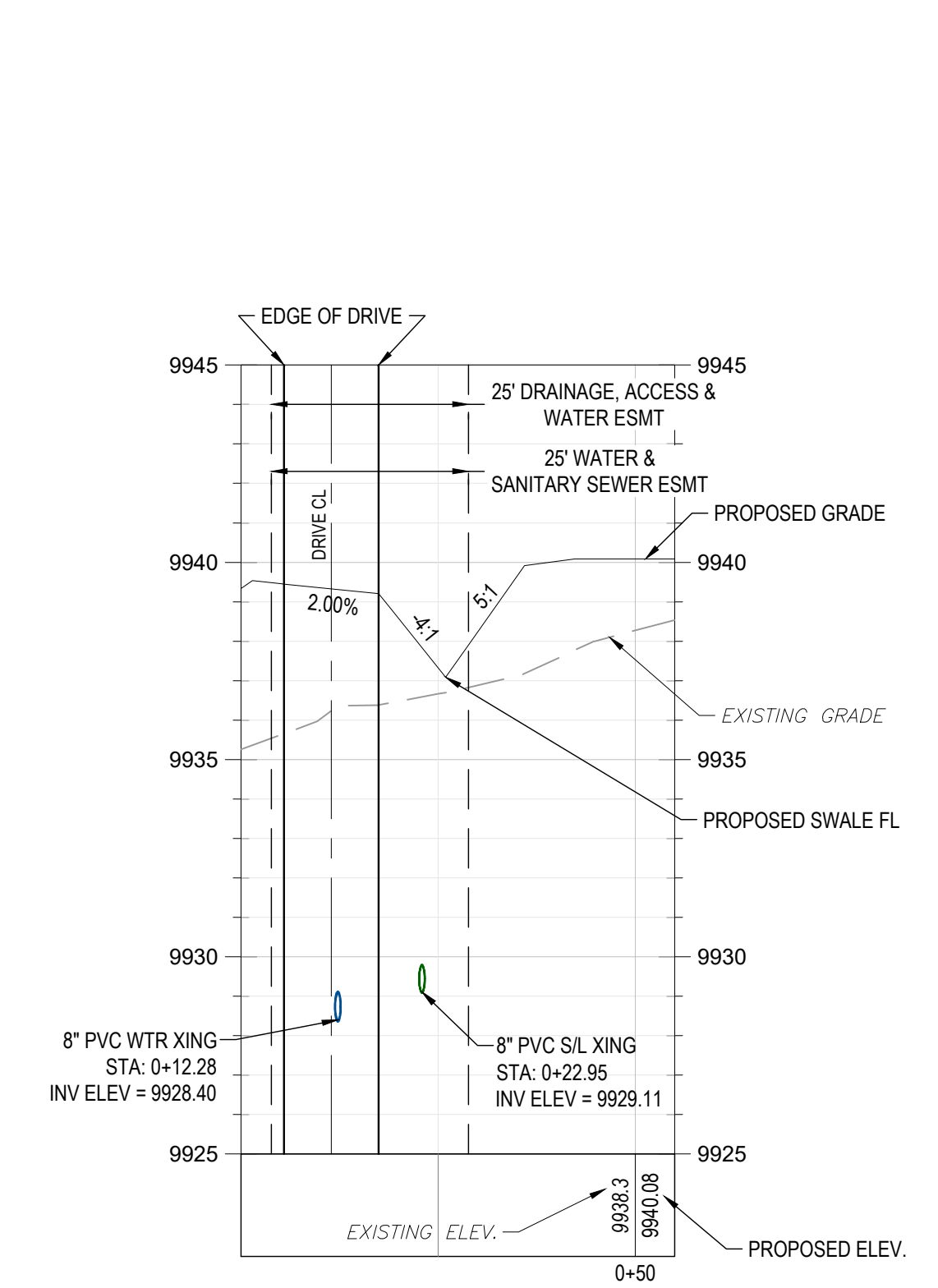
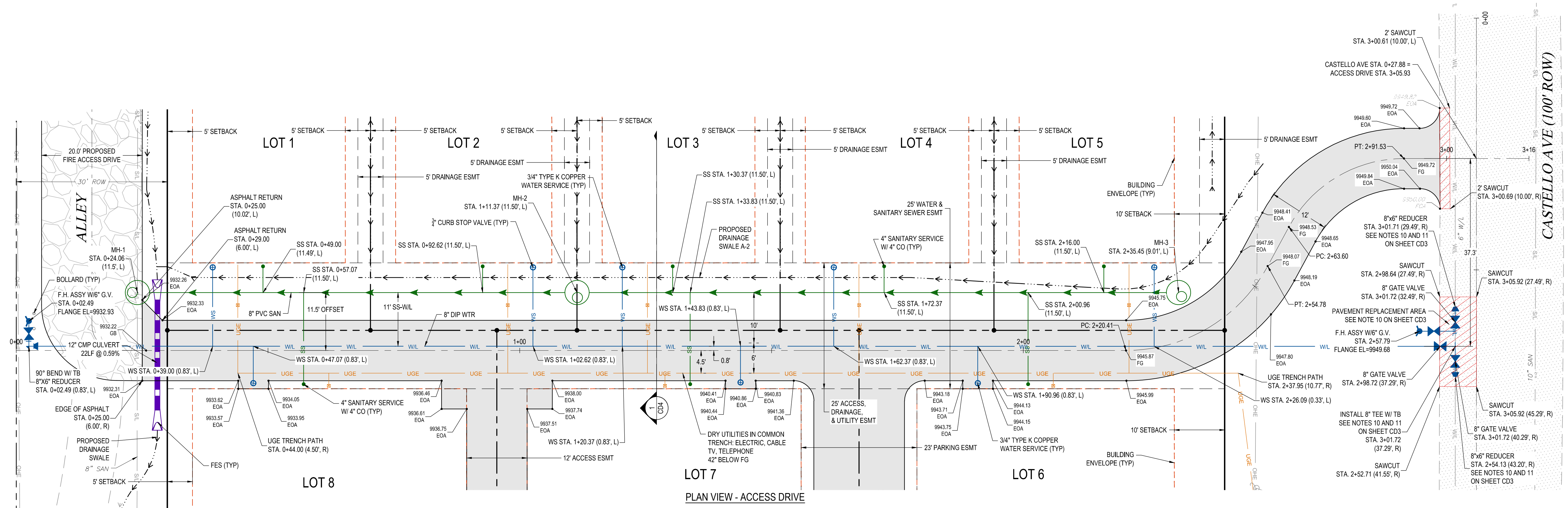
PREPARED FOR: BRECKENRIDGE LANDS
 SHEET TITLE: SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS UTILITY PLAN

REVISION BLOCK

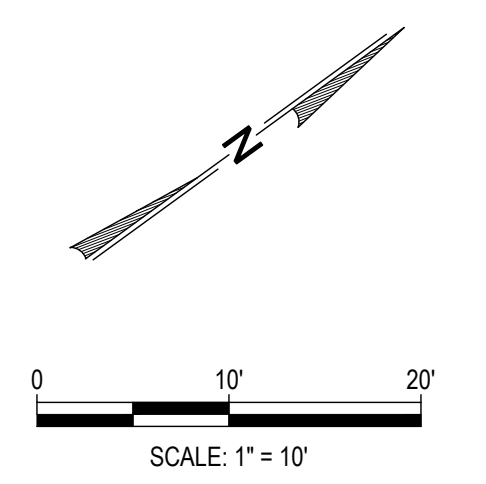
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PLOT DATE: 1/18/2022 3:28 PM BY: THOMAS DINGWALL

DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT\3. ENGINEERING\DRAWINGS\FINAL SUBDIVISION PLAN\270.002 PLAN & PROFILE.DWG



- NOTES**
1. WATER AND SANITARY SEWER SERVICES SHALL HAVE A MINIMUM 10' HORIZONTAL SPACING AND MINIMUM 1.5' VERTICAL SEPARATION.
 2. THESE CONSTRUCTION DOCUMENTS HAVE BEEN PREPARED IN ACCORDANCE WITH TOWN OF FAIRPLAY DESIGN STANDARDS AND SPECIFICATIONS.
 3. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UNDERGROUND UTILITY LINES BEFORE COMMENCING CONSTRUCTION.
 4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING UTILITY LOCATES. CALL THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987.
 5. ALL PROPOSED SANITARY SEWER MAIN IS 8" AND ALL SERVICES ARE 4".
 6. ALL SANITARY SEWER SERVICES SHALL BE SLOPED AT 2% UNLESS OTHERWISE NOTED.
 7. ALL SANITARY SEWER SHALL CONFORM TO THE TOWN OF FAIRPLAY PUBLIC IMPROVEMENT CONSTRUCTION SPECIFICATIONS.
 8. SEE SHEET CD3 FOR SANITARY SEWER SERVICE TABLE.



REV.	DATE	DESCRIPTION
1	10/28/2021	TOWN COMMENTS
2	11/30/2021	TOWN COMMENTS
3	01/17/2022	TOWN COMMENTS



permontergroup

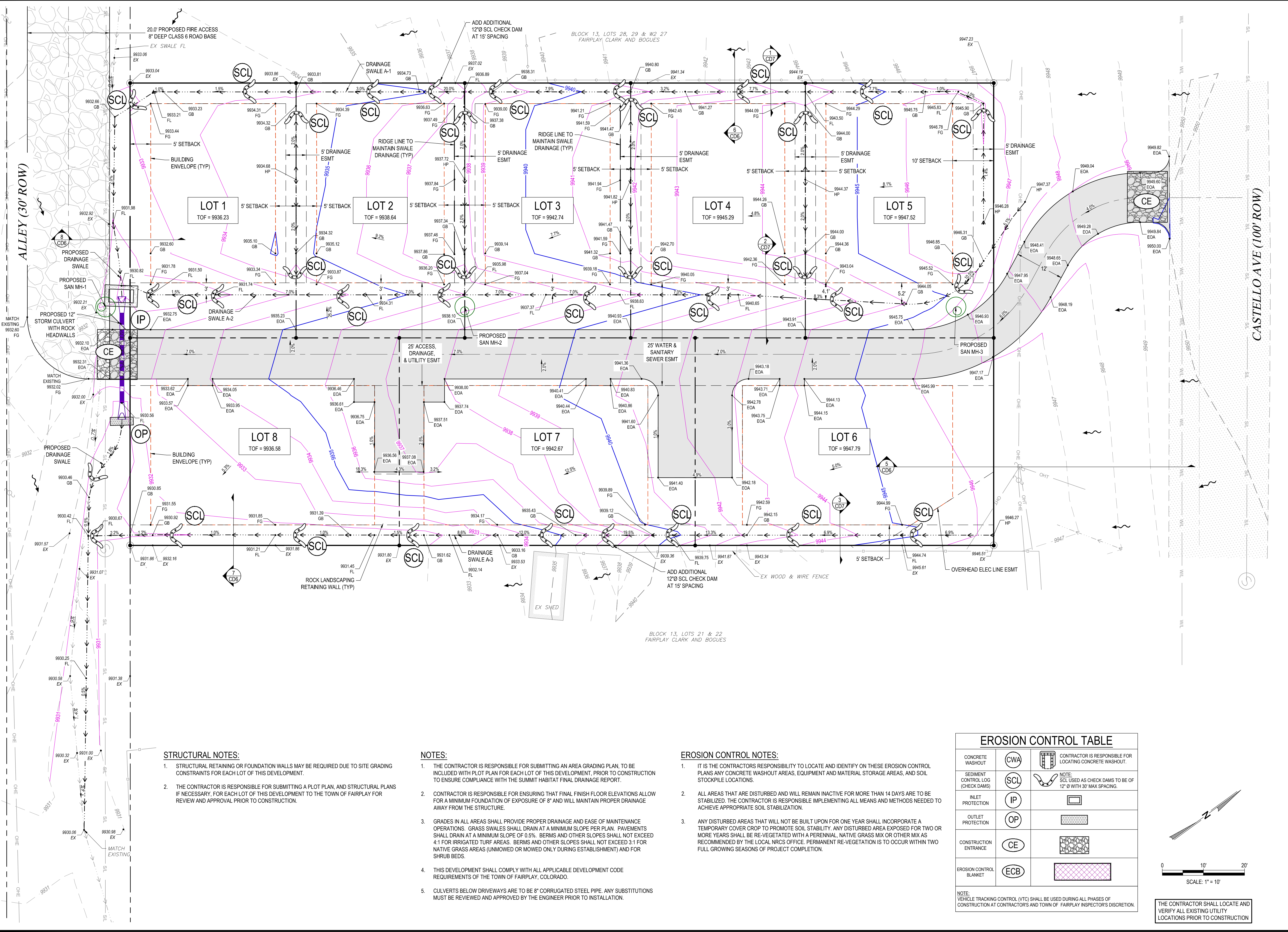
105 S. Sunset St., Unit H
Longmont, CO 80501
T: (720) 684-4981
F: (720) 463-0689
www.permontergroup.com

PREPARED FOR: **BRECKENRIDGE LANDS**

SHEET TITLE: **SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS PLAN & PROFILE**

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.:	CD4
SHEET 4 OF 9	

DRAWING FILE: Z:\SHARED\DRAWINGS\FINAL SUBDIVISION PLANS\270.002 GRADING PLAN.DWG
PLOT DATE: 1/18/2022 3:05 PM BY: THOMAS DINGWALL
CIB: PCL_2017_INNO-COLOR.CTB



STRUCTURAL NOTES:

- STRUCTURAL RETAINING OR FOUNDATION WALLS MAY BE REQUIRED DUE TO SITE GRADING CONSTRAINTS FOR EACH LOT OF THIS DEVELOPMENT.
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PLOT PLAN, AND STRUCTURAL PLANS IF NECESSARY, FOR EACH LOT OF THIS DEVELOPMENT TO THE TOWN OF FAIRPLAY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

NOTES:

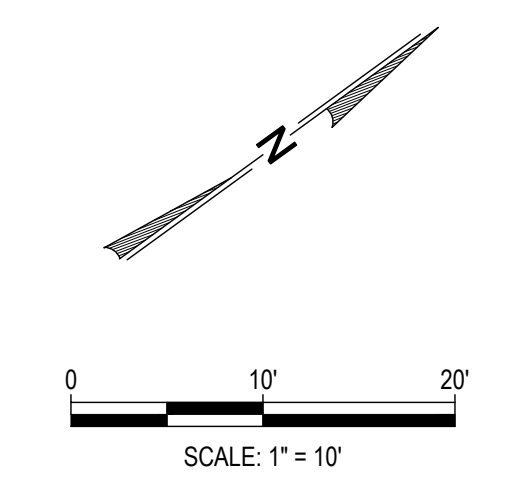
- THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN AREA GRADING PLAN, TO BE INCLUDED WITH PLOT PLAN FOR EACH LOT OF THIS DEVELOPMENT, PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE WITH THE SUMMIT HABITAT FINAL DRAINAGE REPORT.
- CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT FINAL FINISH FLOOR ELEVATIONS ALLOW FOR A MINIMUM FOUNDATION OF EXPOSURE OF 8" AND WILL MAINTAIN PROPER DRAINAGE AWAY FROM THE STRUCTURE.
- GRADES IN ALL AREAS SHALL PROVIDE PROPER DRAINAGE AND EASE OF MAINTENANCE OPERATIONS. GRASS SWALES SHALL DRAIN AT A MINIMUM SLOPE PER PLAN. PAVEMENTS SHALL DRAIN AT A MINIMUM SLOPE OF 0.5%. BERMS AND OTHER SLOPES SHALL NOT EXCEED 4:1 FOR IRRIGATED TURF AREAS. BERMS AND OTHER SLOPES SHALL NOT EXCEED 3:1 FOR NATIVE GRASS AREAS (UNMOWED OR MOWED ONLY DURING ESTABLISHMENT) AND FOR SHRUB BEDS.
- THIS DEVELOPMENT SHALL COMPLY WITH ALL APPLICABLE DEVELOPMENT CODE REQUIREMENTS OF THE TOWN OF FAIRPLAY, COLORADO.
- CULVERTS BELOW DRIVEWAYS ARE TO BE 8" CORRUGATED STEEL PIPE. ANY SUBSTITUTIONS MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

EROSION CONTROL NOTES:

- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND IDENTIFY ON THESE EROSION CONTROL PLANS ANY CONCRETE WASHOUT AREAS, EQUIPMENT AND MATERIAL STORAGE AREAS, AND SOIL STOCKPILE LOCATIONS.
- ALL AREAS THAT ARE DISTURBED AND WILL REMAIN INACTIVE FOR MORE THAN 14 DAYS ARE TO BE STABILIZED. THE CONTRACTOR IS RESPONSIBLE IMPLEMENTING ALL MEANS AND METHODS NEEDED TO ACHIEVE APPROPRIATE SOIL STABILIZATION.
- ANY DISTURBED AREAS THAT WILL NOT BE BUILT UPON FOR ONE YEAR SHALL INCORPORATE A TEMPORARY COVER CROP TO PROMOTE SOIL STABILITY. ANY DISTURBED AREA EXPOSED FOR TWO OR MORE YEARS SHALL BE RE-VEGETATED WITH A PERENNIAL, NATIVE GRASS MIX OR OTHER MIX AS RECOMMENDED BY THE LOCAL NRCS OFFICE. PERMANENT RE-VEGETATION IS TO OCCUR WITHIN TWO FULL GROWING SEASONS OF PROJECT COMPLETION.

EROSION CONTROL TABLE		
CONCRETE WASHOUT	(CWA)	CONTRACTOR IS RESPONSIBLE FOR LOCATING CONCRETE WASHOUT.
SEDIMENT CONTROL LOG (CHECK DAMS)	(SCL)	NOTE: SCL USED AS CHECK DAMS TO BE OF 12" Ø WITH 30" MAX SPACING.
INLET PROTECTION	(IP)	
OUTLET PROTECTION	(OP)	
CONSTRUCTION ENTRANCE	(CE)	
EROSION CONTROL BLANKET	(ECB)	

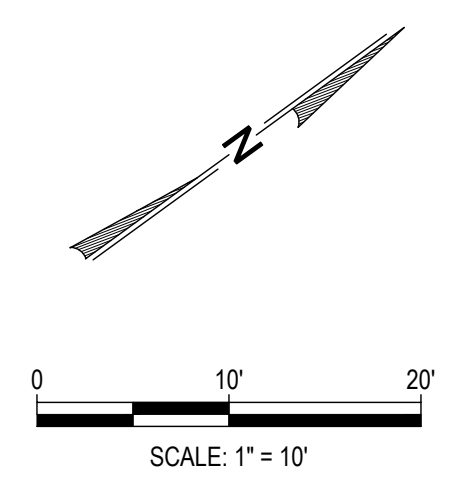
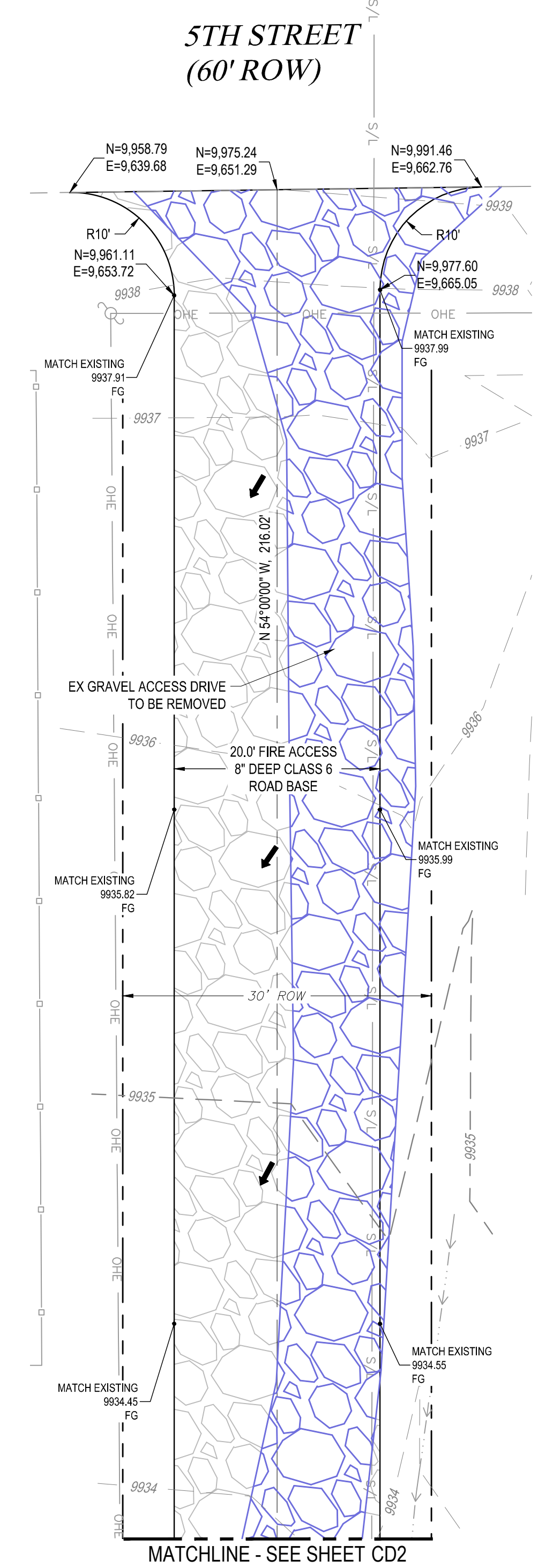
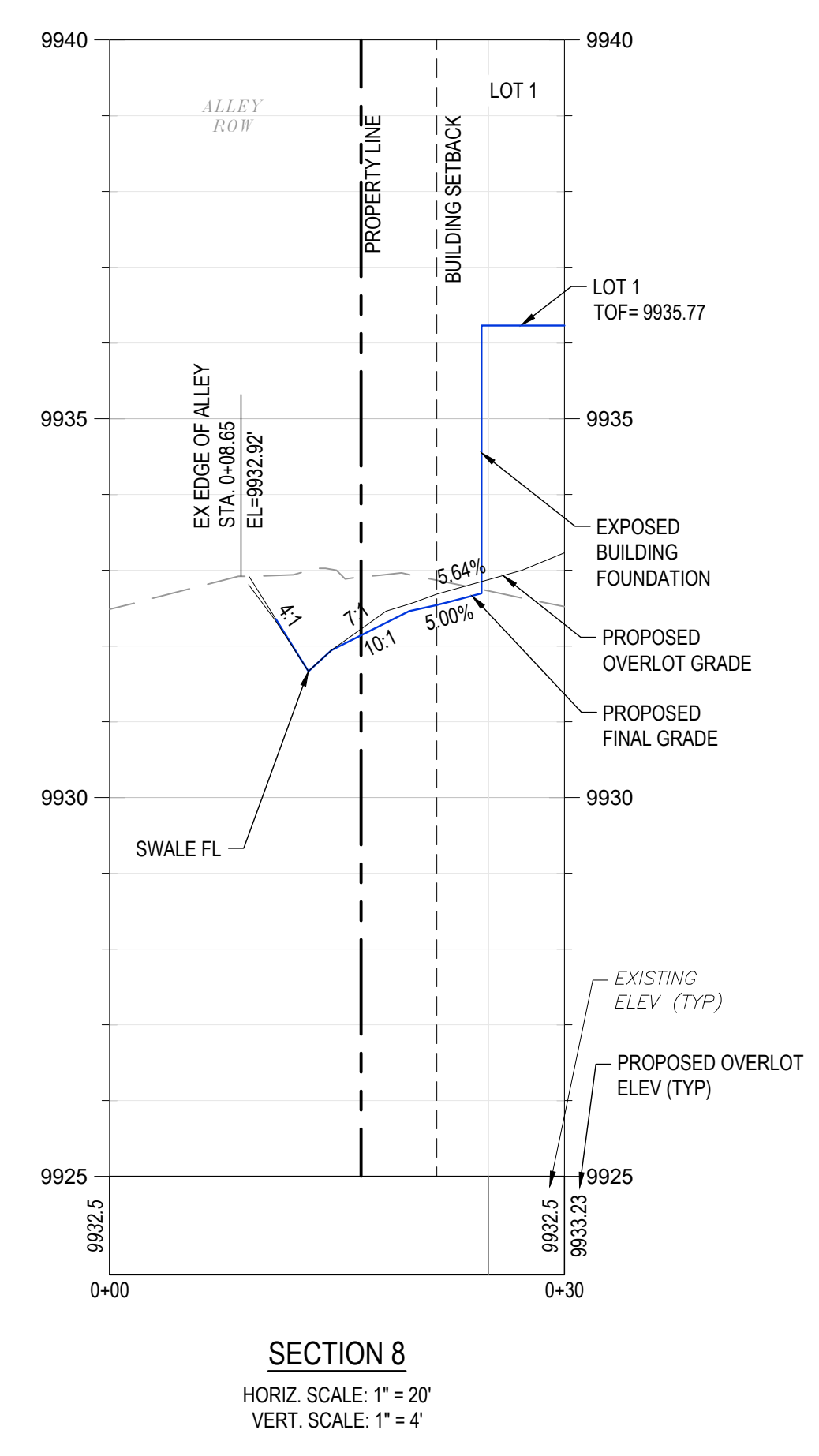
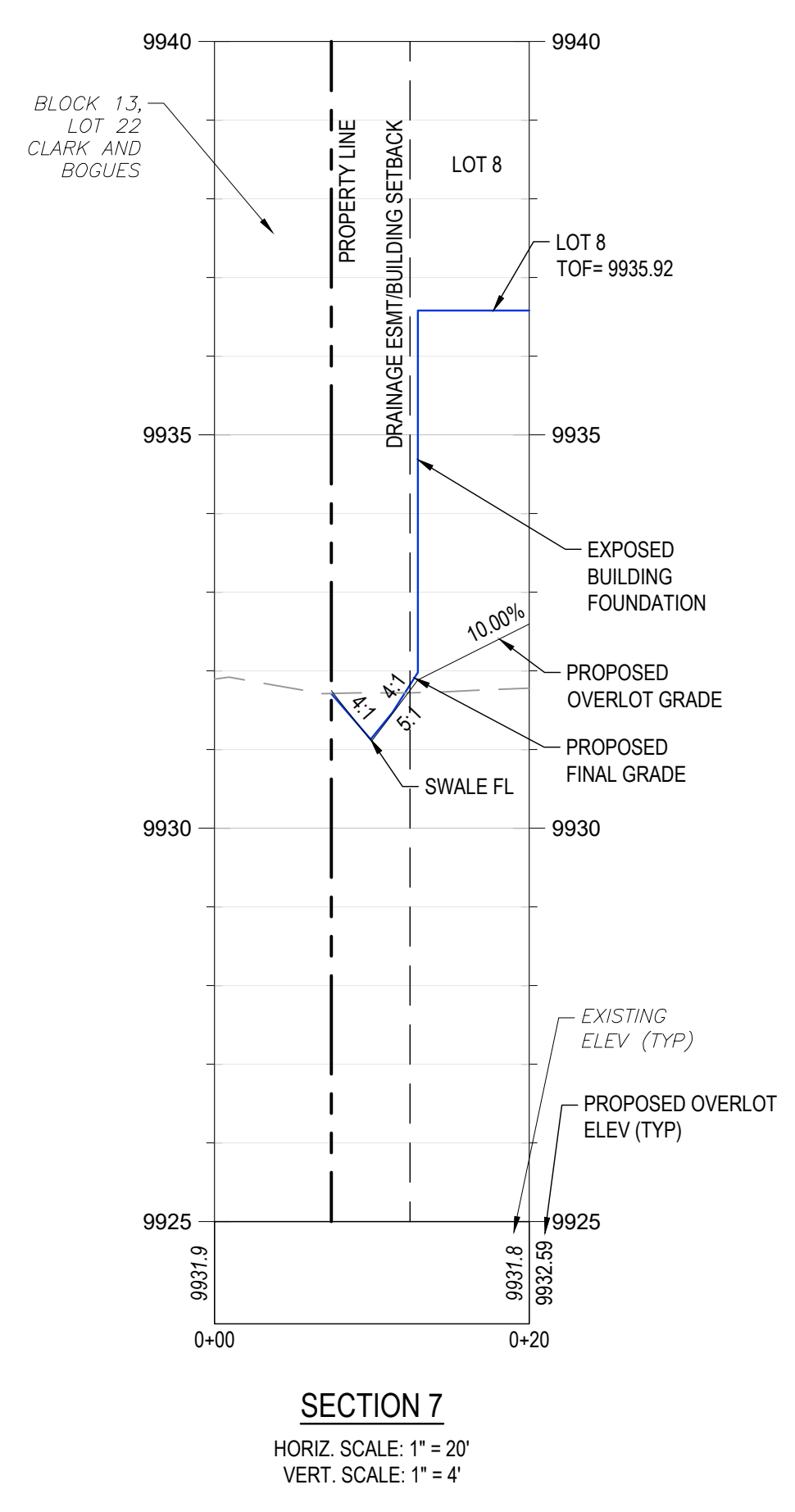
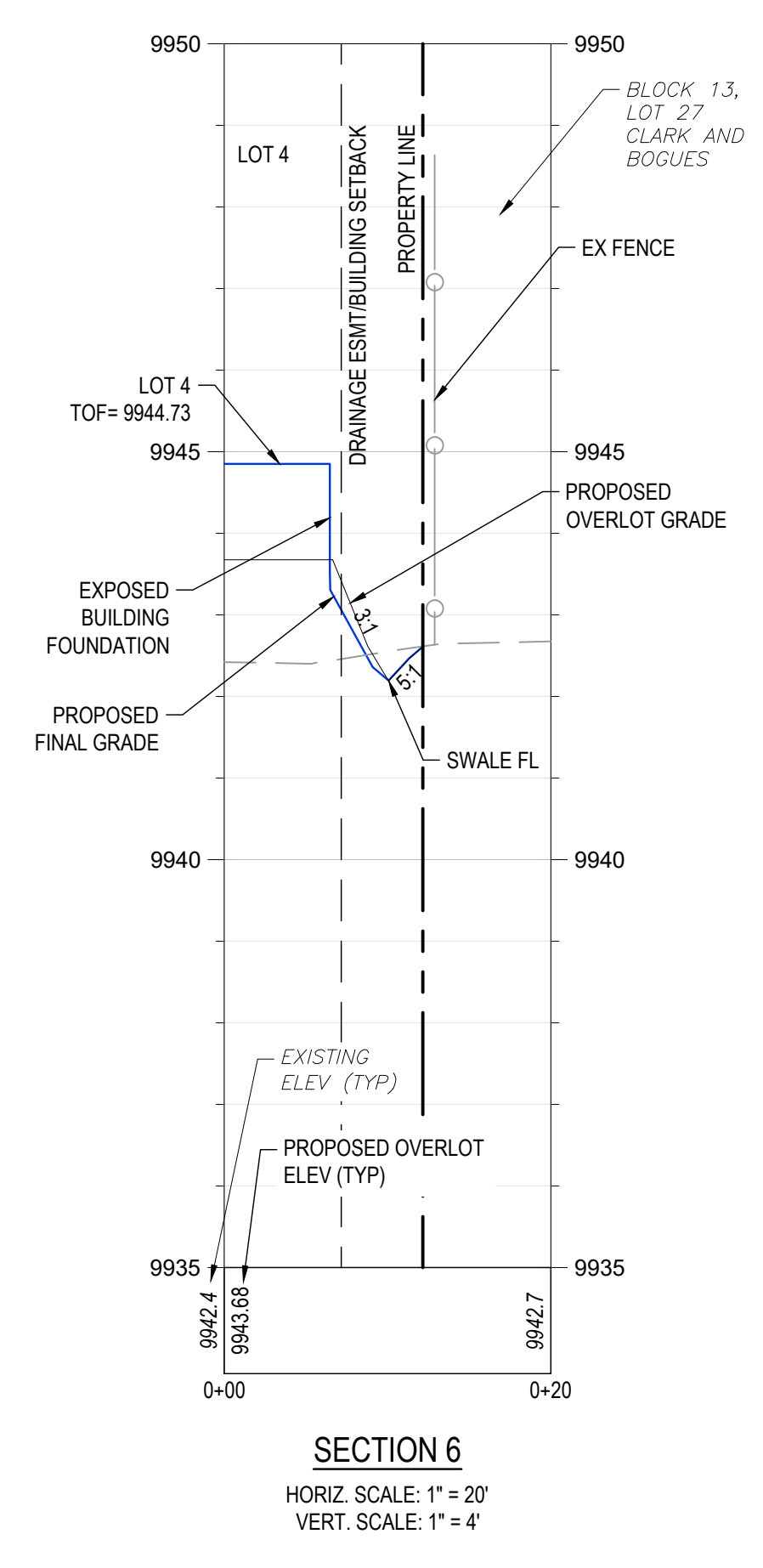
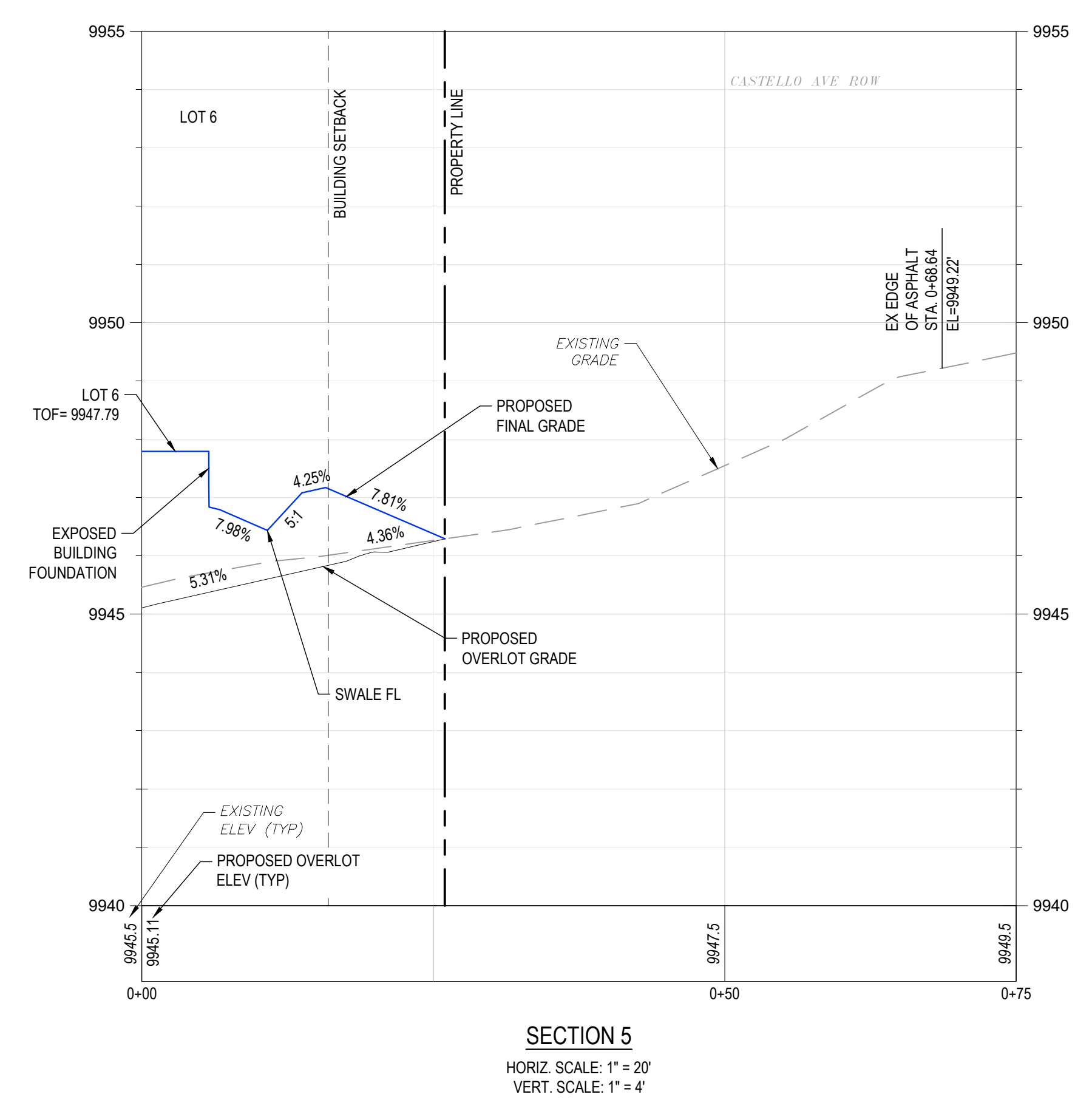
NOTE: VEHICLE TRACKING CONTROL (VTC) SHALL BE USED DURING ALL PHASES OF CONSTRUCTION AT CONTRACTORS AND TOWN OF FAIRPLAY INSPECTOR'S DISCRETION.



THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION

PREPARED FOR: BRECKENRIDGE LANDS	SHEET TITLE: SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS OVERLOT GRADING & EROSION CONTROL PLAN
DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.	CD5
SHEET 5 OF 9	

DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT\3. ENGINEERING\DRAWINGS\FINAL SUBDIVISION PLAN\270.002 AREA GRADING.DWG
 PLOT DATE: 1/18/2022 3:33 PM BY: THOMAS DINGWALL CIB: PCL_2017_MONO-COLOR.CTB



THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION

REV.	DATE	DESCRIPTION	REVISION BLOCK
3	01/17/2022	TOWN COMMENTS	
2	11/30/2021	TOWN COMMENTS	
1	10/28/2021	TOWN COMMENTS	

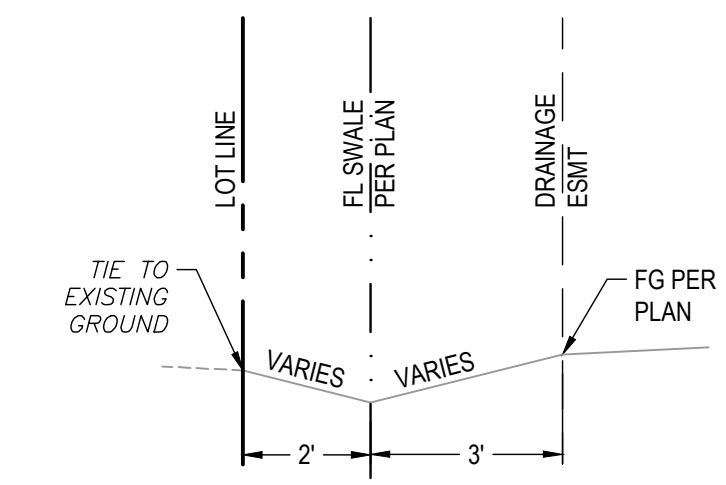
PREPARED FOR: **BRECKENRIDGE LANDS**
 SHEET TITLE: **SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS PROPERTY LINE SECTIONS**

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.	CD6
	SHEET 6 OF 9

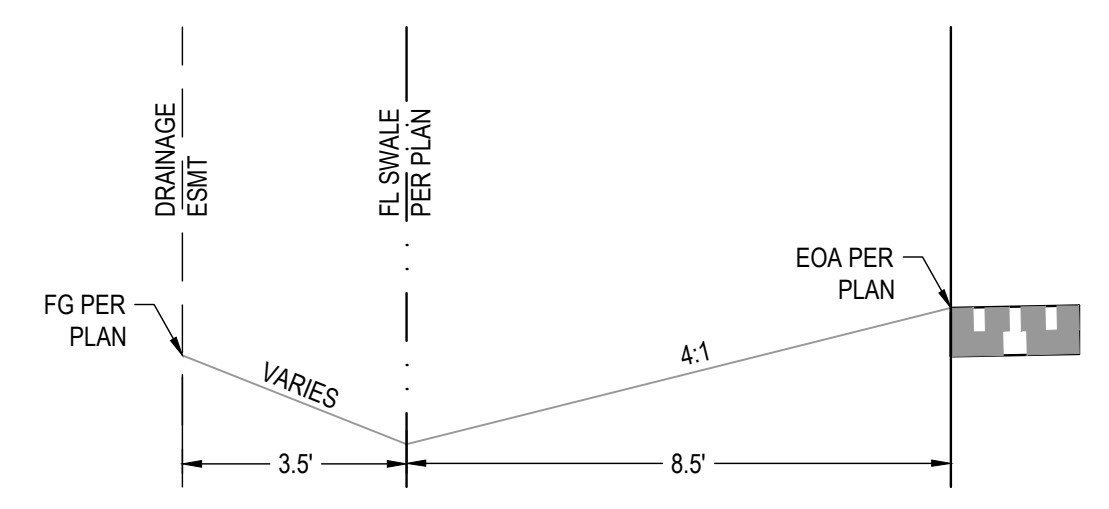
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PLOT DATE: 10/28/2021 1:10 PM BY: THOMAS DINGWALL

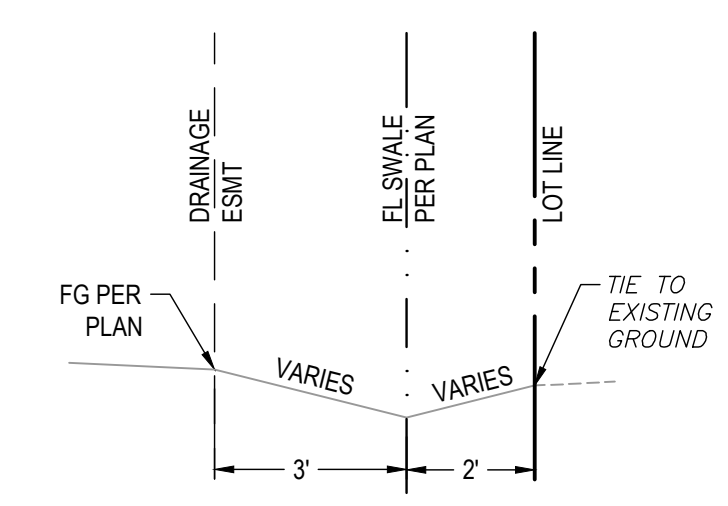
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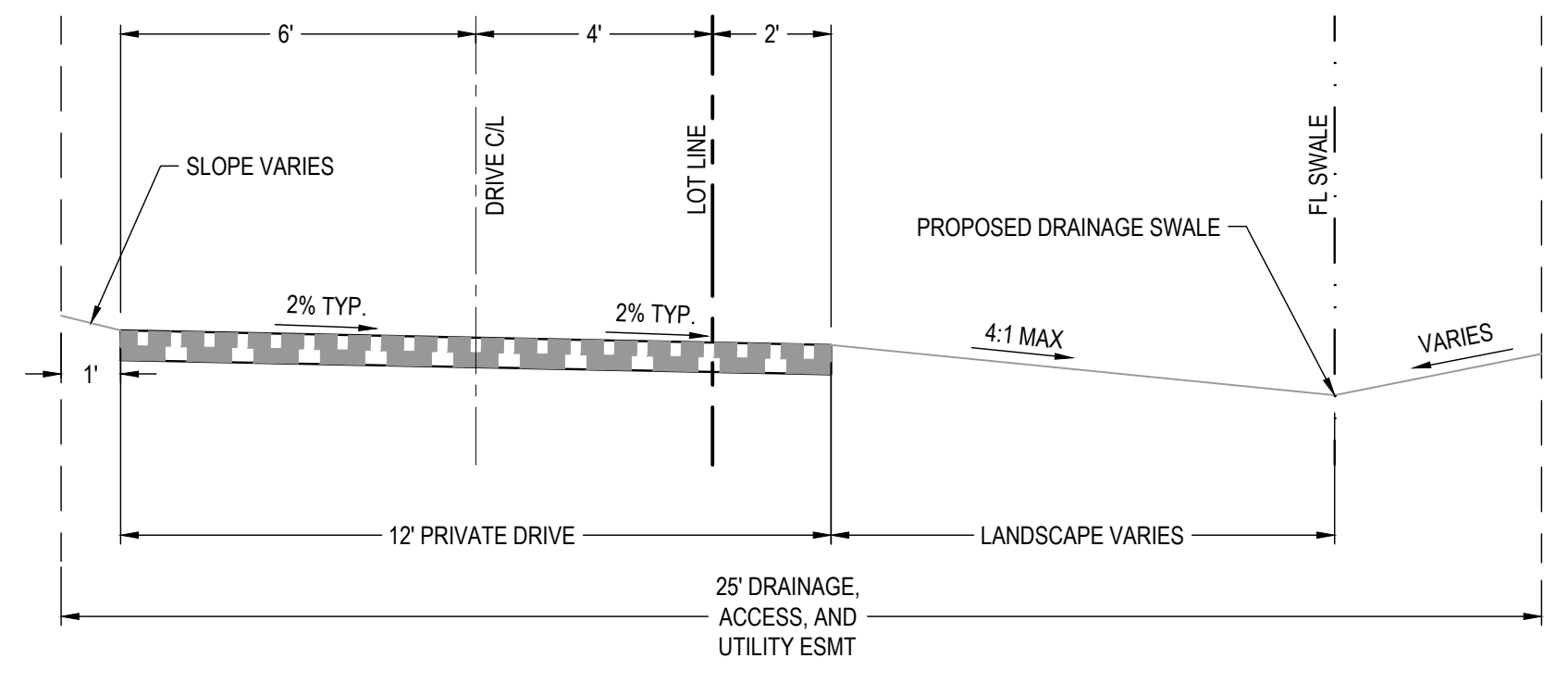
1 GRASSED DRAINAGE SWALE (A-1) - TYPICAL SECTION
SCALE: 1" = 3'



2 GRASSED DRAINAGE SWALE (A-2) - TYPICAL SECTION
SCALE: 1" = 3'



3 GRASSED DRAINAGE SWALE (A-3) - TYPICAL SECTION
SCALE: 1" = 3'



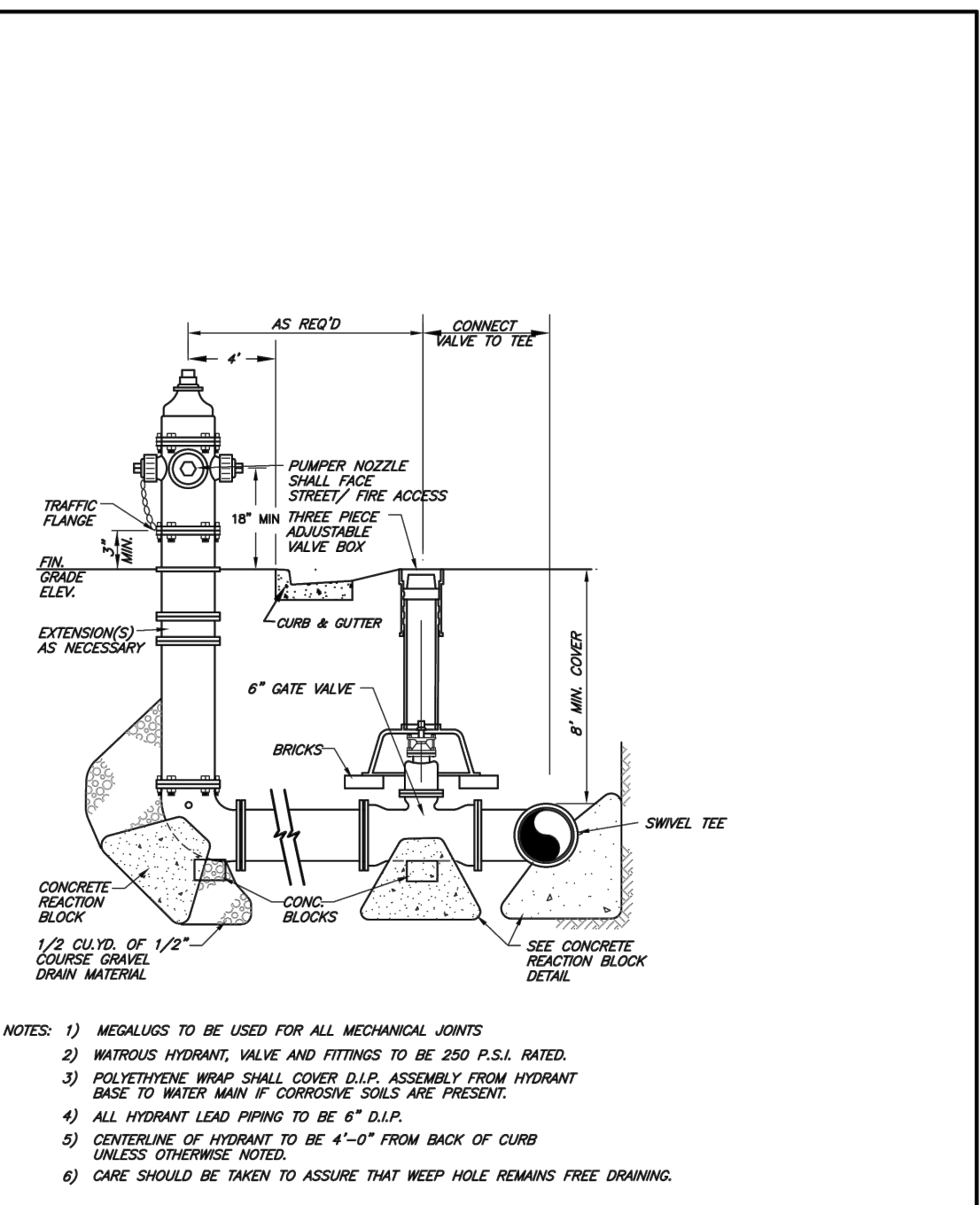
4 12' PRIVATE ACCESS DRIVE - TYPICAL SECTION
SCALE: 1" = 3'

SIZE (INCHES)	ELBOWS				TEES & DEAD ENDS		GATE VALVES	
	90° (SQ. FT.)	45° (SQ. FT.)	22.5° (SQ. FT.)	11.25° (SQ. FT.)	(SQ. FT.)	(SQ. FT.)	(SQ. FT.)	(SQ. FT.)
4	1.8	1.0	0.5	0	1.3	0.5		
6	4.0	2.2	1.1	0	2.8	0.7		
8	7.1	3.8	2.0	1.0	5.0	2.4		
10	11.1	6.0	3.0	1.5	7.8	4.5		
12	16.0	8.6	4.4	2.2	11.3	7.3		
14	21.7	11.8	6.0	3.0	15.4	11.0		
16	28.4	15.3	8.0	4.0	20.0	16.6		
18	36.0	19.4	10.0	5.0	25.4	24.9		

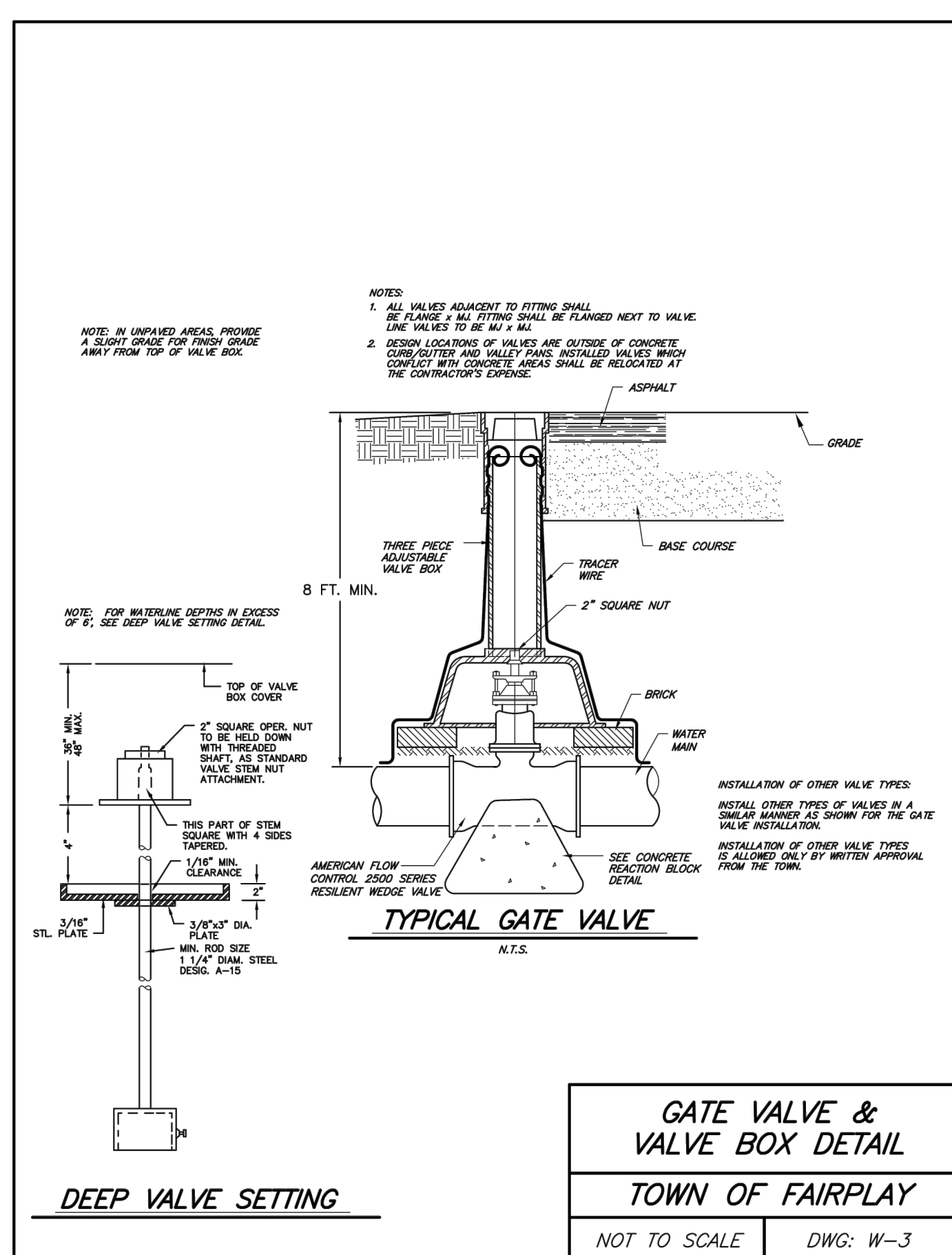
NOTES:
1) MEGALUGS ARE REQUIRED ON ALL MECHANICAL JOINTS.
2) REACTION BLOCKS ARE REQUIRED ON ALL MECHANICAL JOINTS.

THRUST BLOCKING DETAILS
TOWN OF FAIRPLAY
NOT TO SCALE DWG: W-7

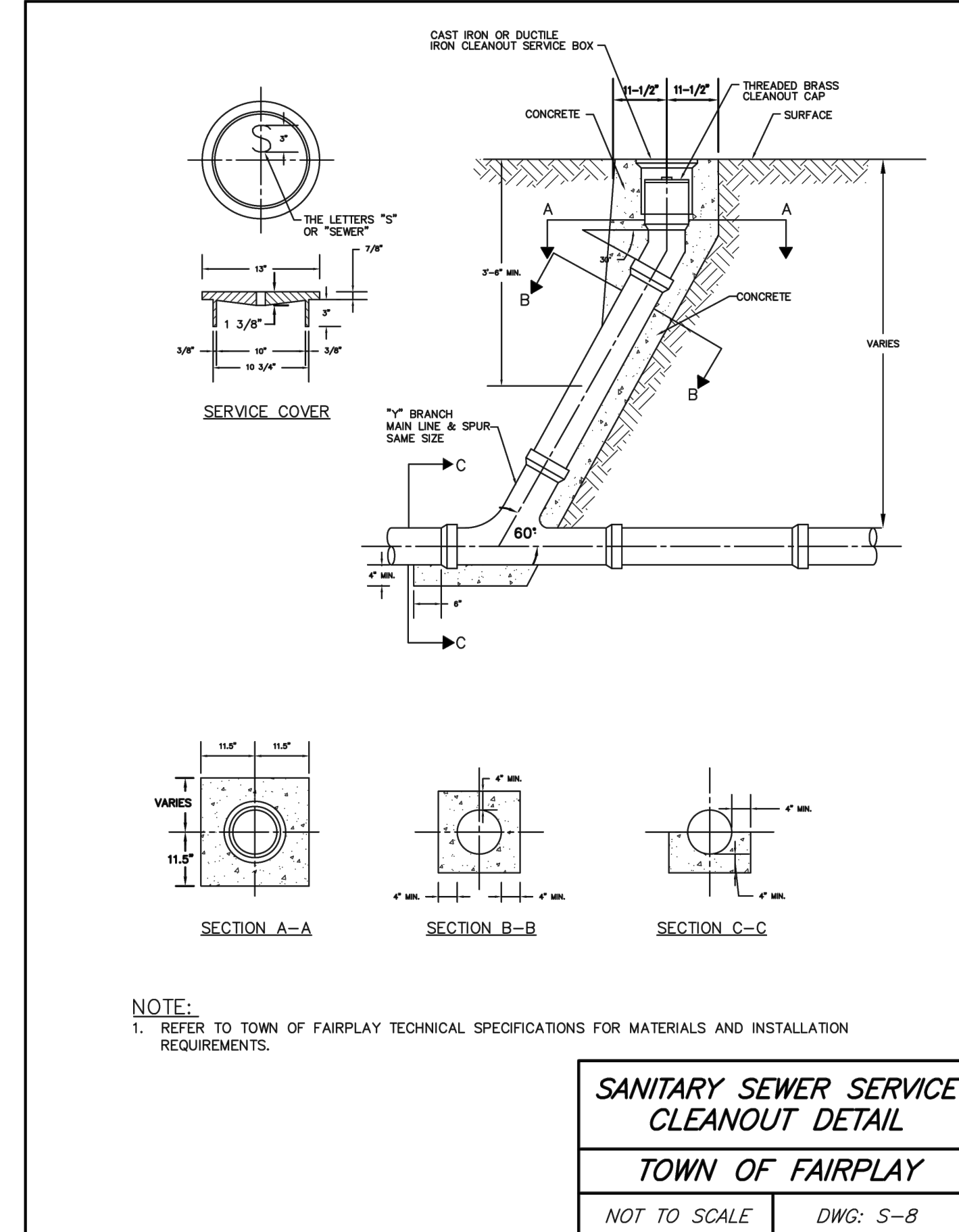
permontesgroup
T: (720) 684-4981
F: (720) 463-0689
www.permontesgroup.com



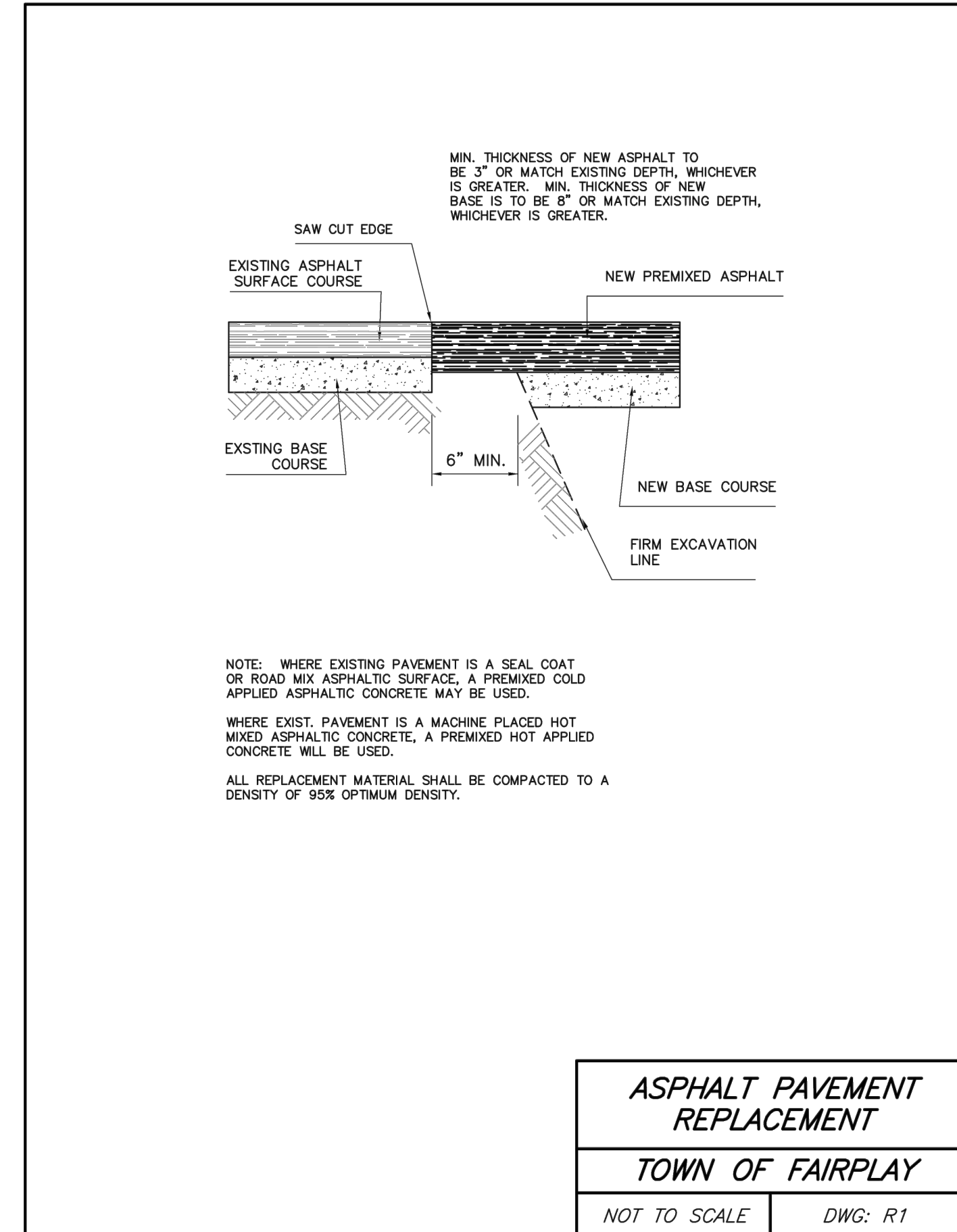
FIRE HYDRANT ASSEMBLY INSTALLATION DETAIL
TOWN OF FAIRPLAY
NOT TO SCALE DWG: W-4



GATE VALVE & VALVE BOX DETAIL
TOWN OF FAIRPLAY
NOT TO SCALE DWG: W-3



SANITARY SEWER SERVICE CLEANOUT DETAIL
TOWN OF FAIRPLAY
NOT TO SCALE DWG: S-8



ASPHALT PAVEMENT REPLACEMENT
TOWN OF FAIRPLAY
NOT TO SCALE DWG: R1

BRECKENRIDGE LANDS

PREPARED FOR: SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS

SHEET TITLE: DETAILS 1 OF 3

DESIGNED BY: LTF

DRAWN BY: PGI

CHECKED BY: LTF

APPROVED BY: ML/LTF

PROJECT NO.: 270.002

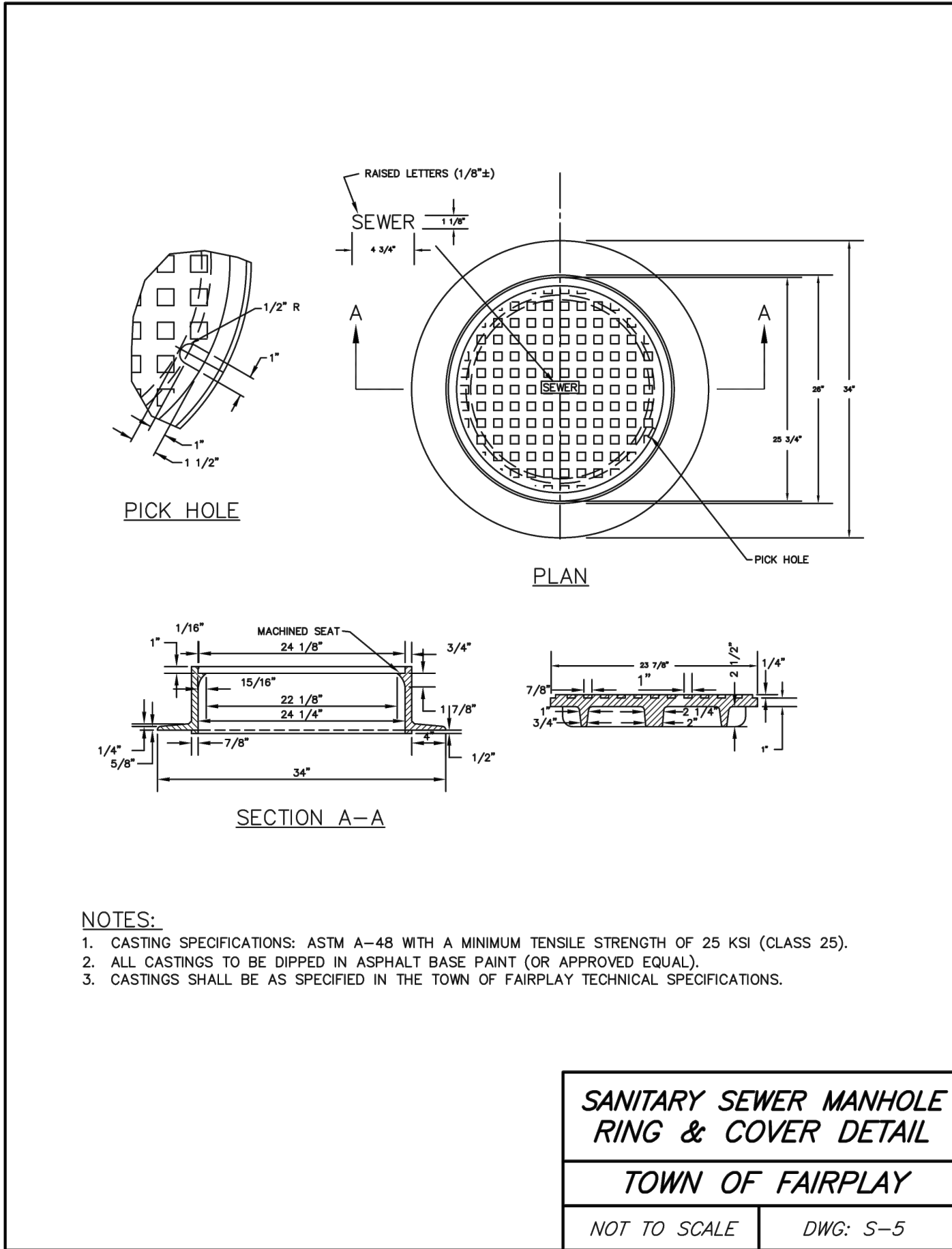
DATE: 08/24/21

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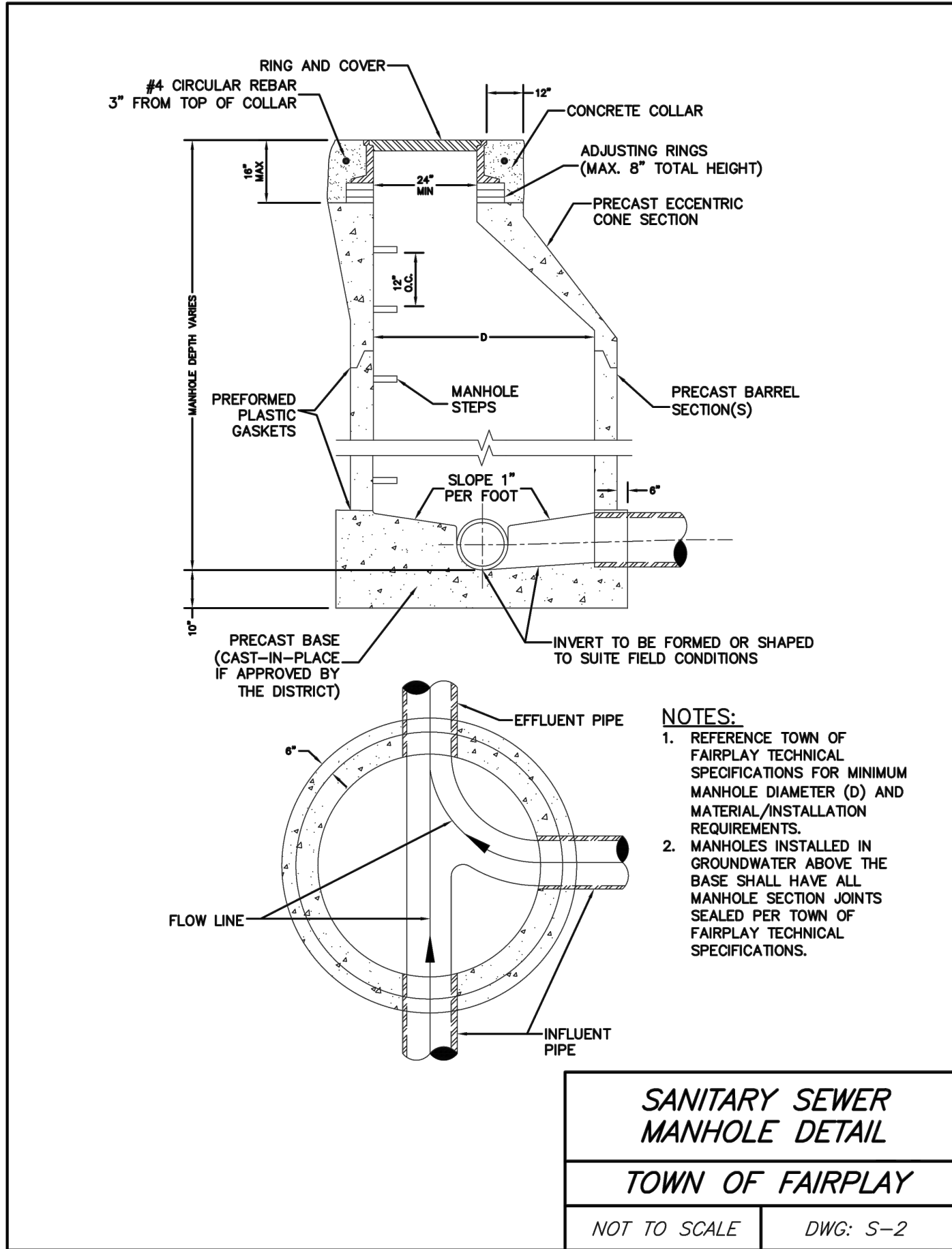
SHEET NO. CD7

SHEET 7 OF 9

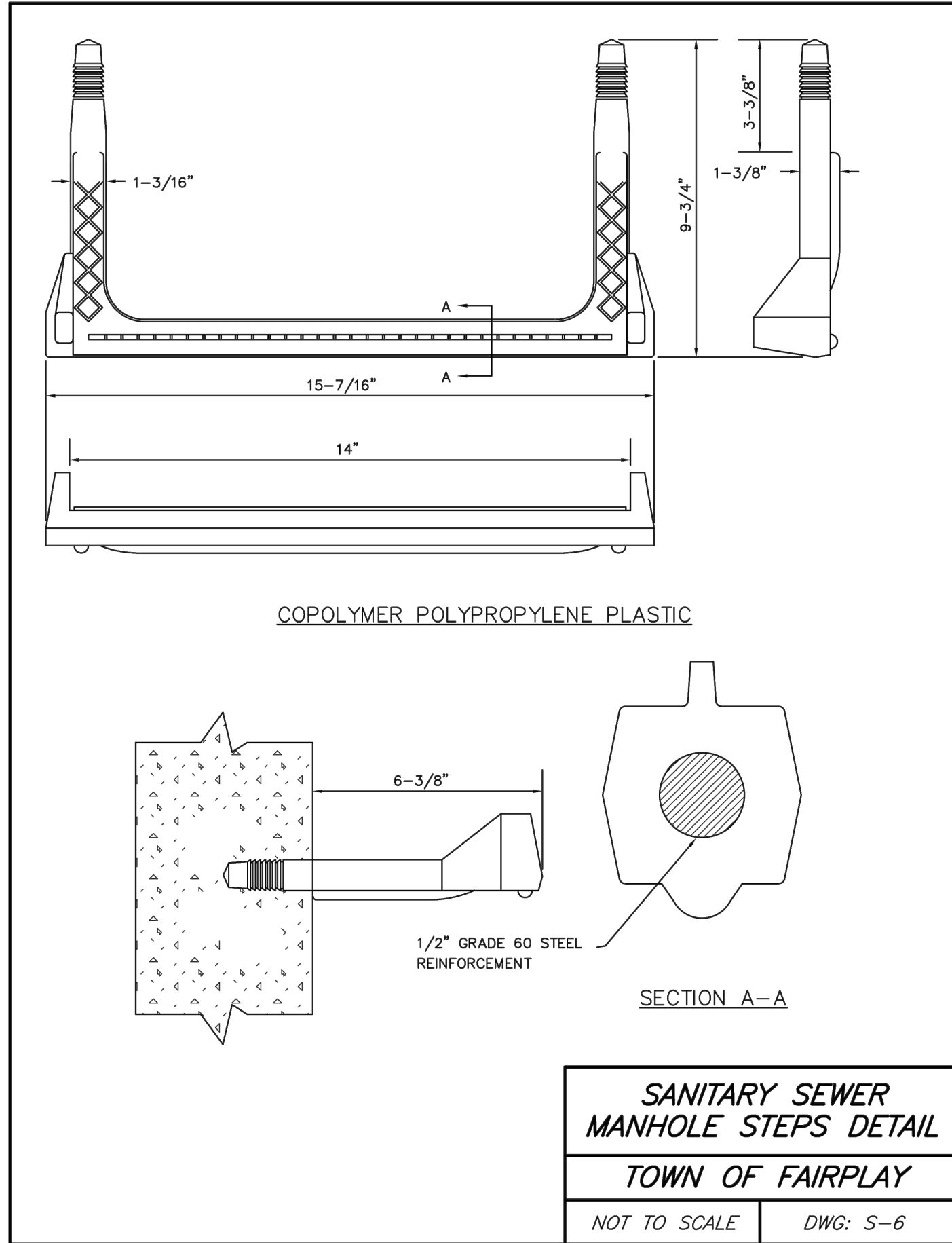
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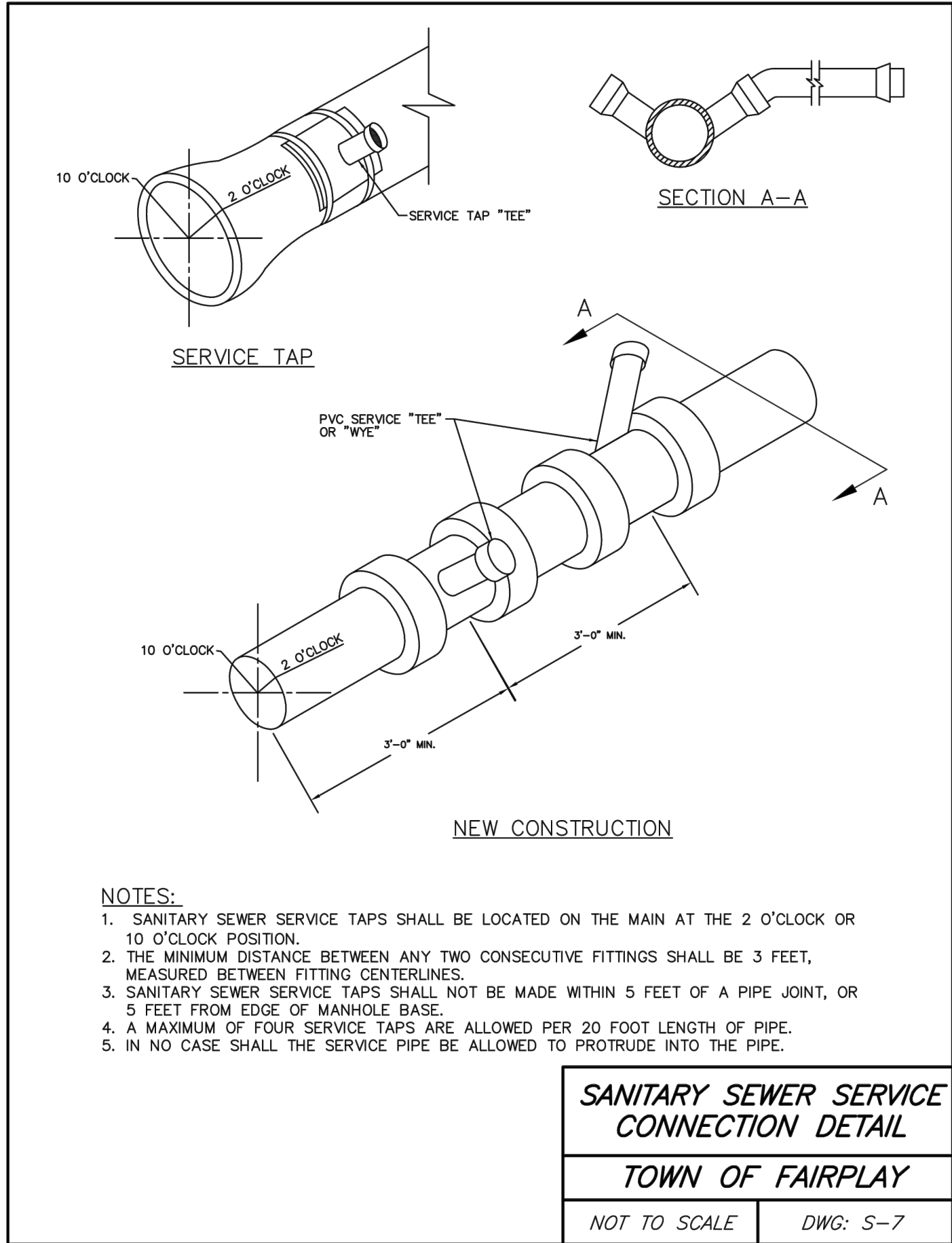
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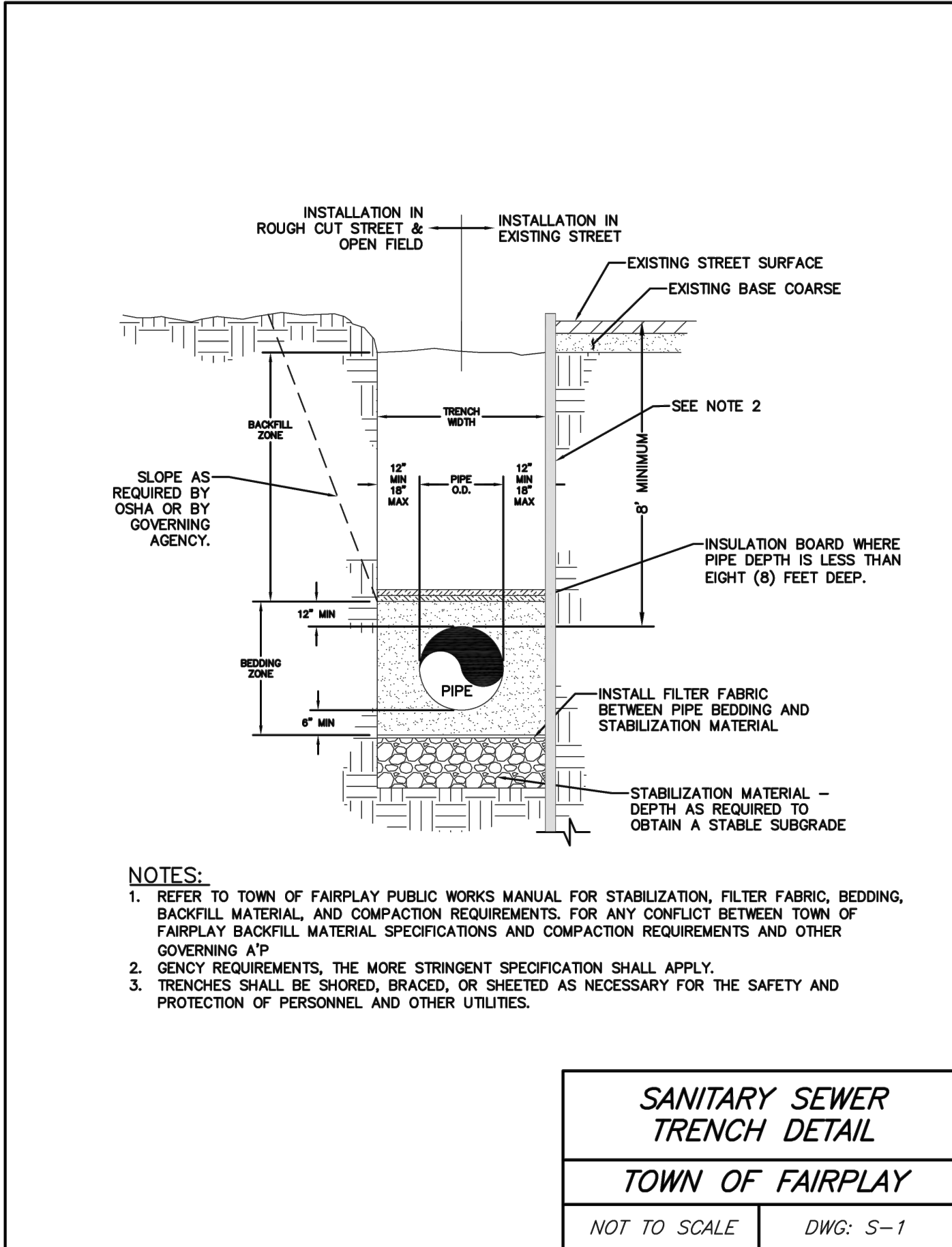
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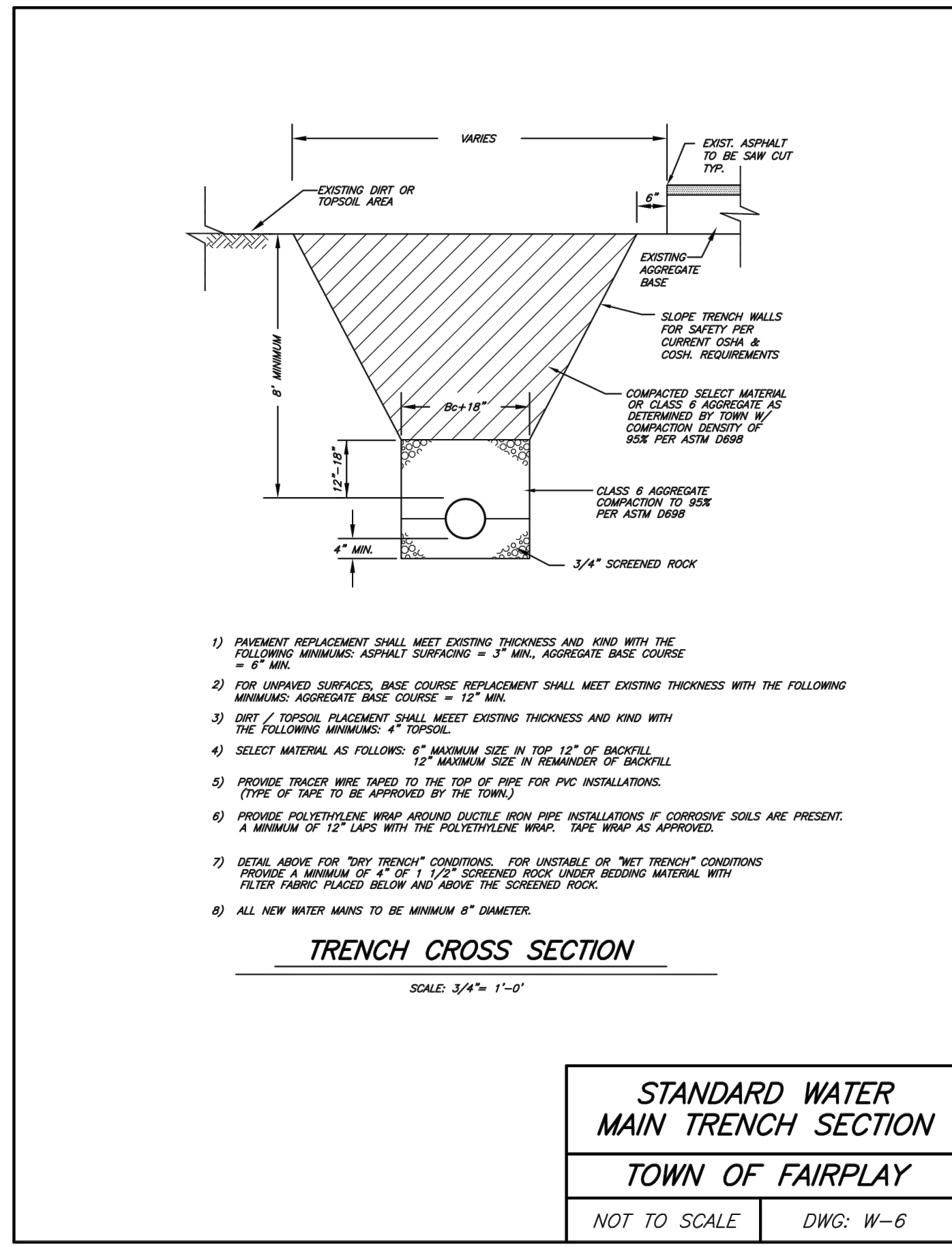
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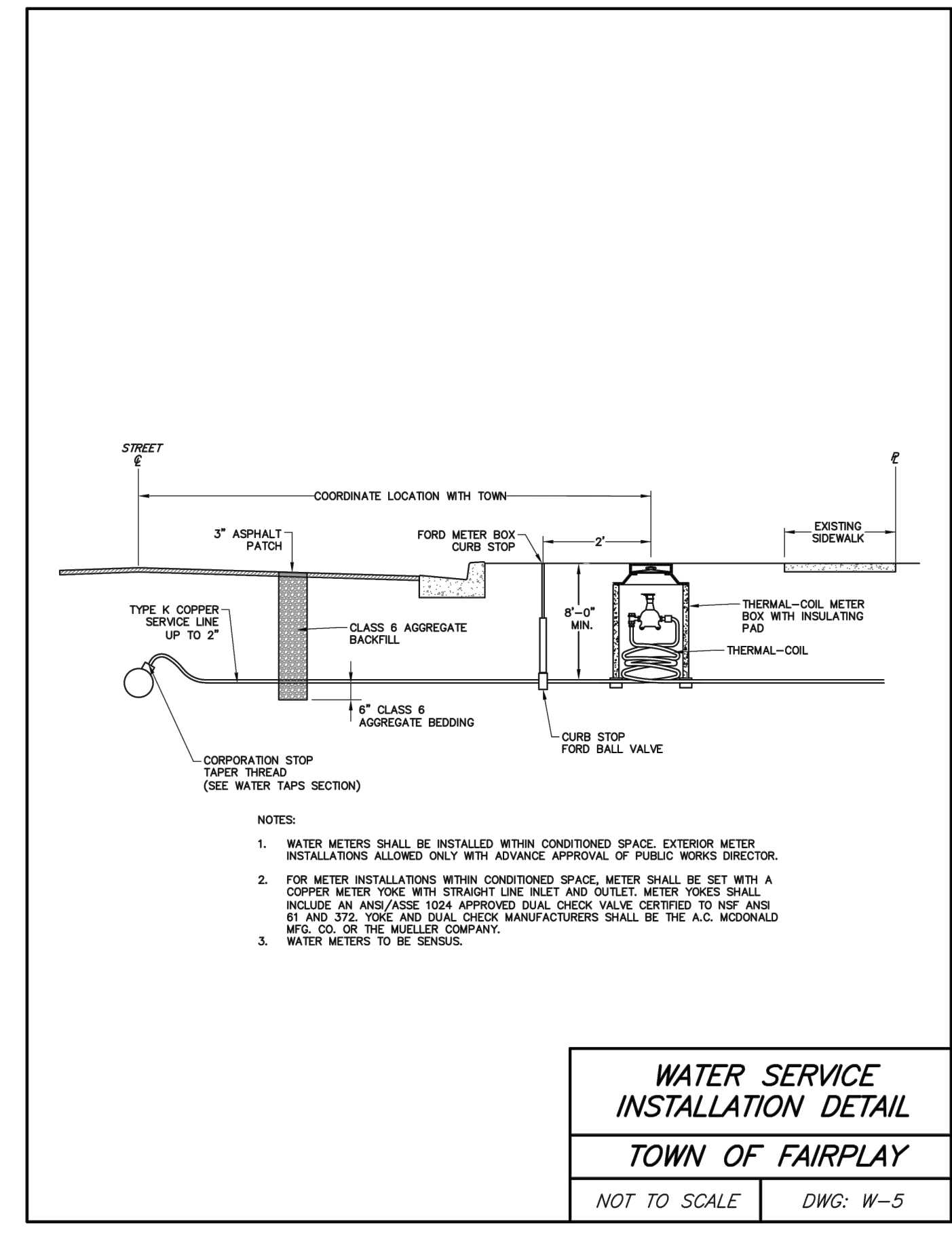
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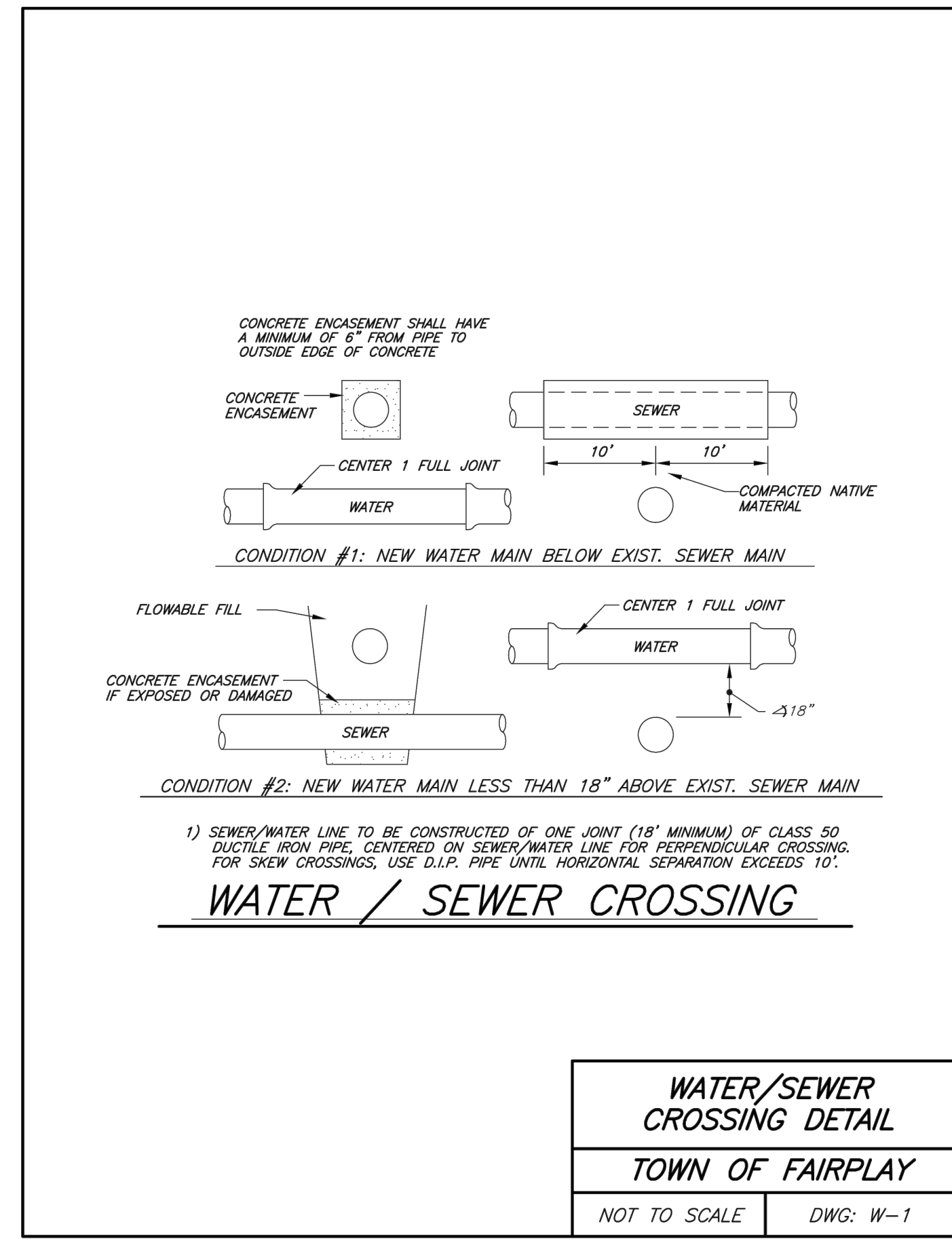
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7



8

REV.	DATE	DESCRIPTION	REVISION BLOCK
3	01/17/2022	TOWN COMMENTS	
2	11/30/2021	TOWN COMMENTS	
1	10/28/2021	TOWN COMMENTS	

PREPARED FOR: BRECKENRIDGE LANDS

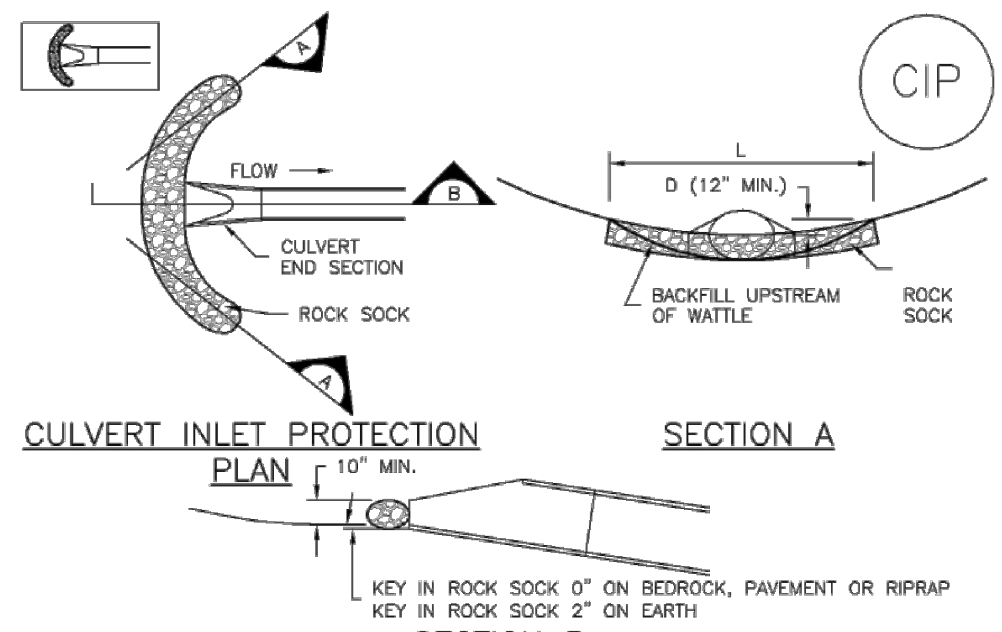
SHEET TITLE: SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS DETAILS 2 OF 3

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN

SHEET NO. **CD8**
SHEET 8 OF 9

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Inlet Protection (IP) SC-6



CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION.
- SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
- CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 IP-7

EC-8 Temporary Outlet Protection (TOP) OP

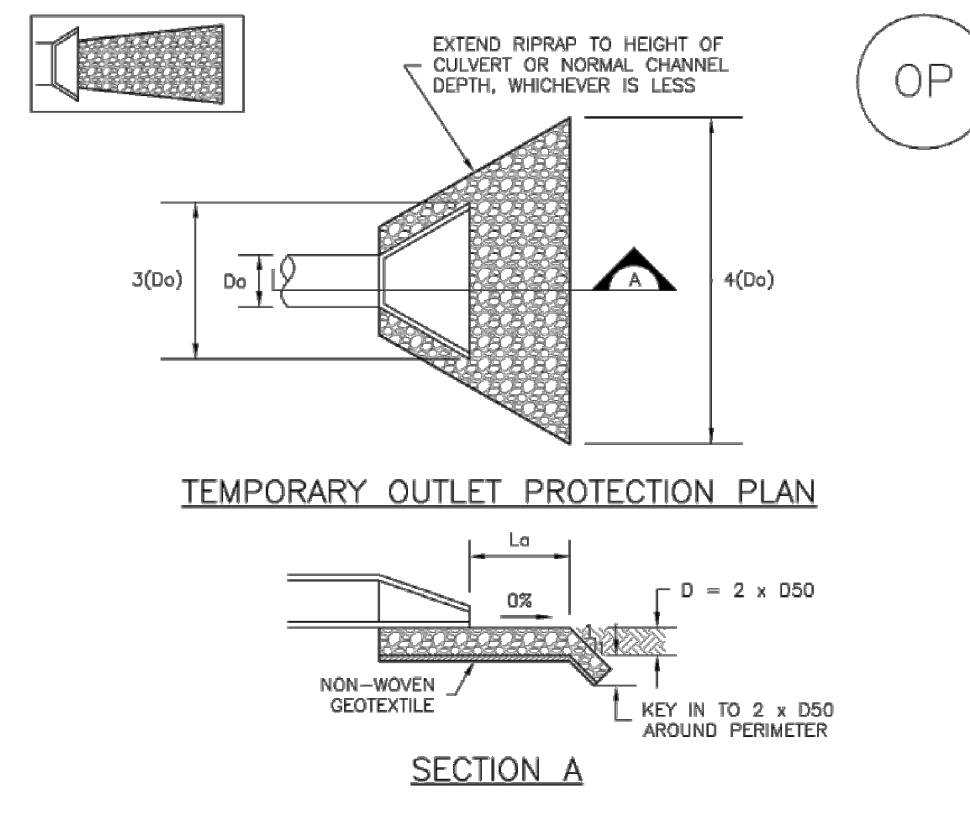


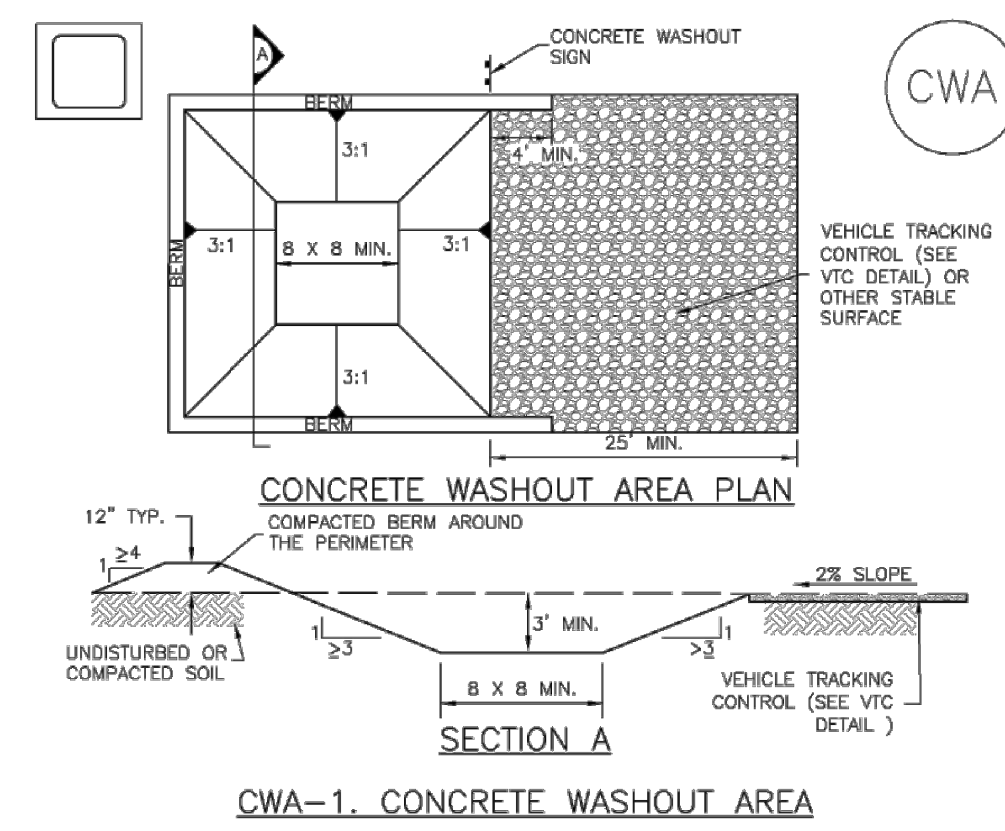
TABLE OP-1. TEMPORARY OUTLET PROTECTION SIZING TABLE

PIPE DIAMETER, Do (INCHES)	DISCHARGE Q (CFS)	APRON LENGTH, La (FT)	RRIPRAP DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
	10	10	6
	20	16	9
18	30	23	12
	40	28	16
	30	16	9
	40	28	12
24	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

TOP-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Concrete Washout Area (CWA) MM-1



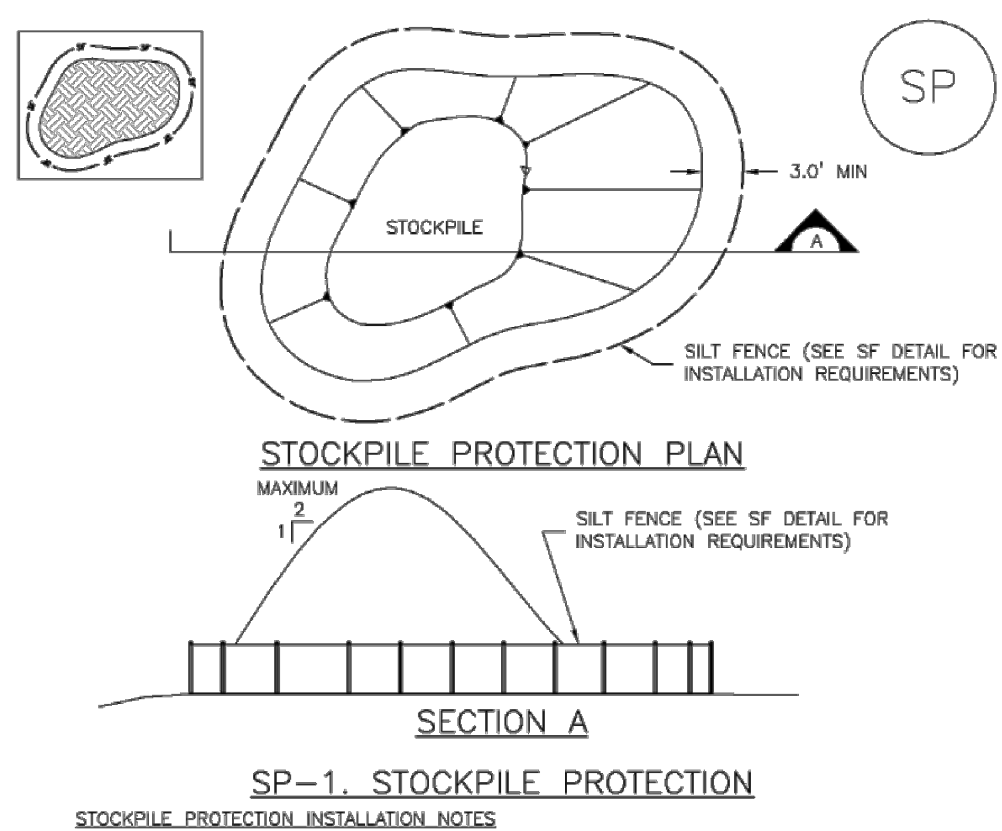
CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (1/8 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8" BY 8" SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CWA-3

Stockpile Management (SP) MM-2



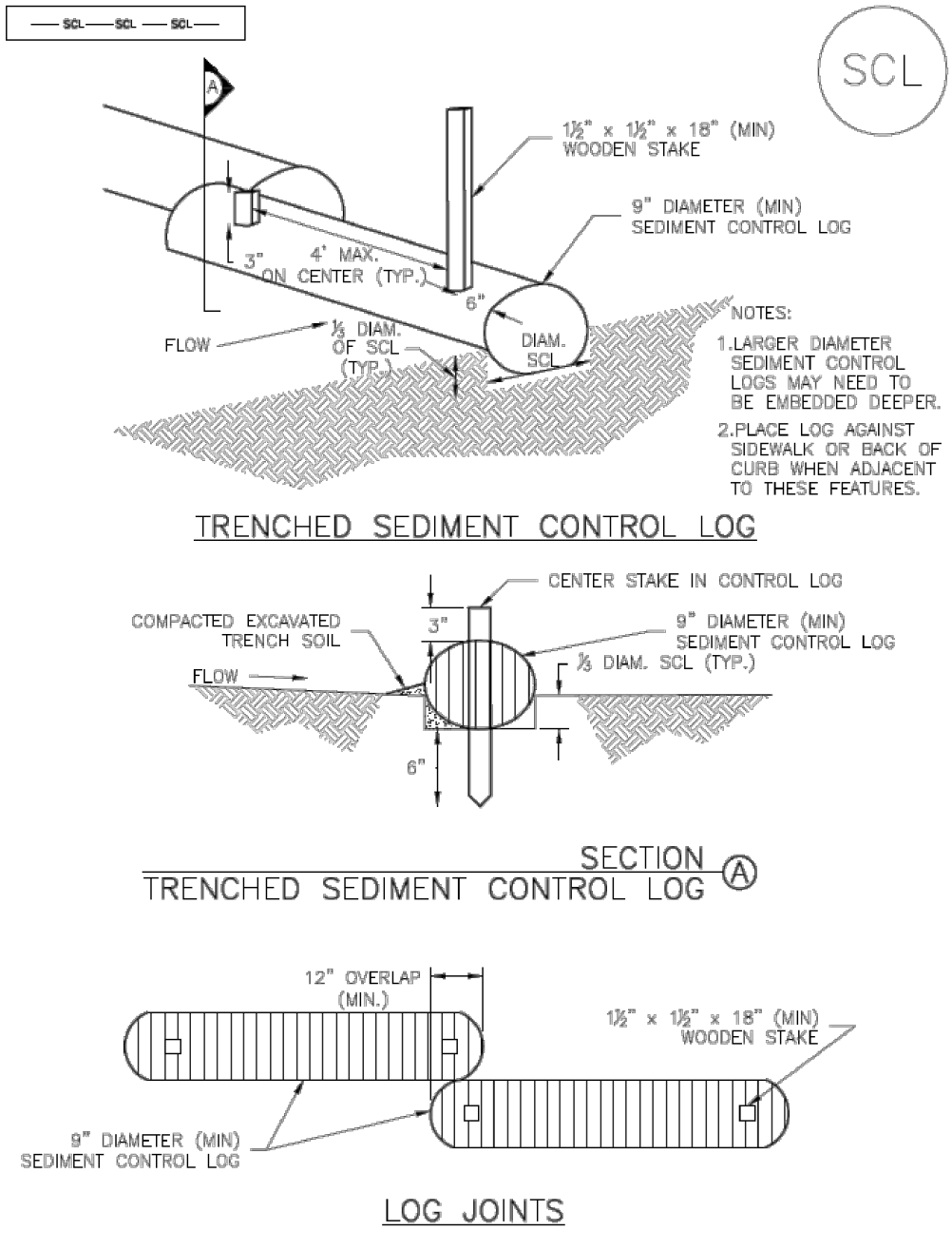
SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF STOCKPILES. TYPE OF STOCKPILE PROTECTION.
- INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PEROUS OR IMPEROUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDING AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SP-3

Sediment Control Log (SCL) SC-2



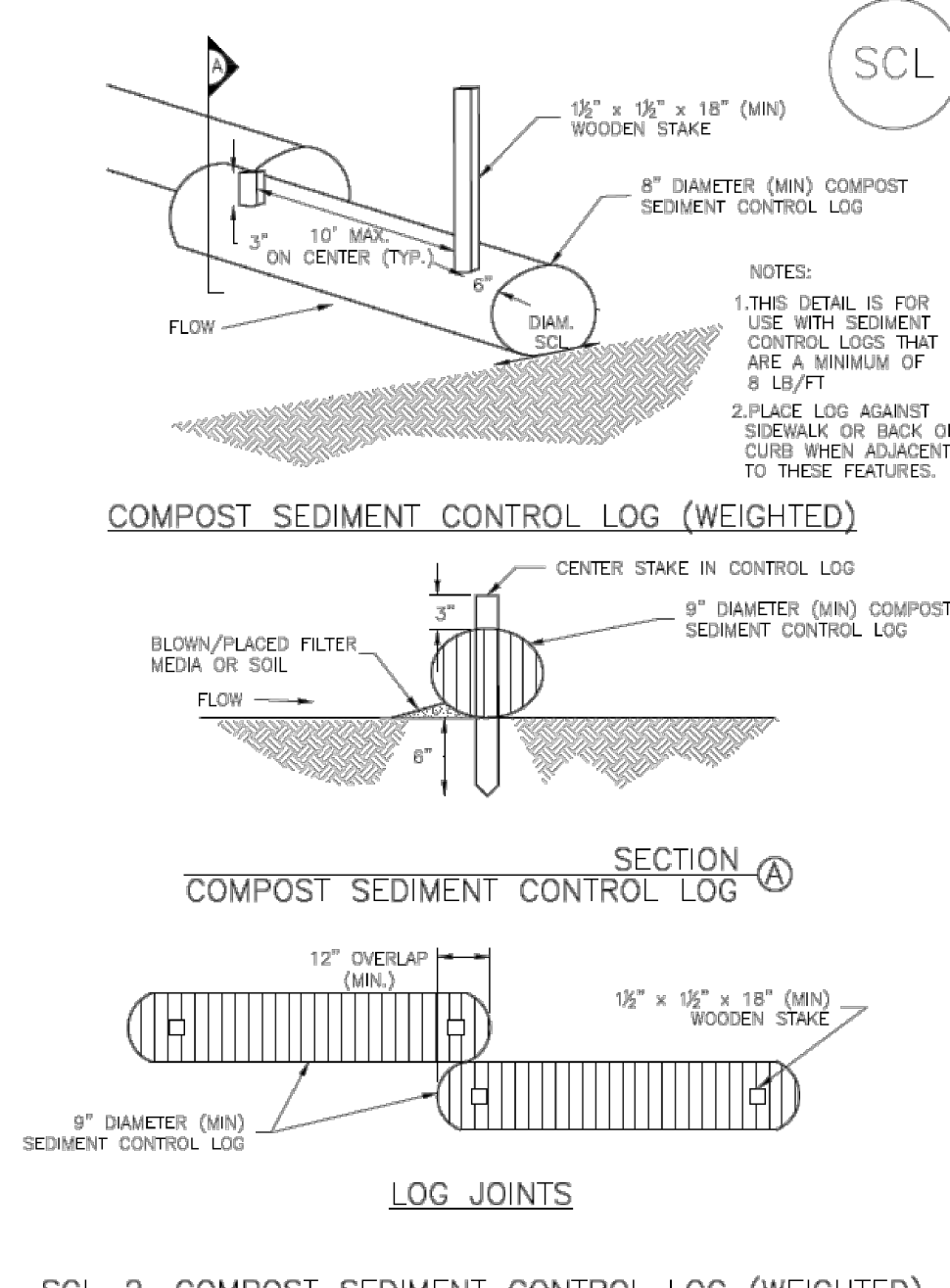
SCL-1. TRENCHED SEDIMENT CONTROL LOG

NOTES:

- LARGER DIAMETER SEDIMENT CONTROL LOGS MAY NEED TO BE EMBEDDED DEEPER.
- PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.

November 2015 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-3

SC-2 Sediment Control Log (SCL) SCL



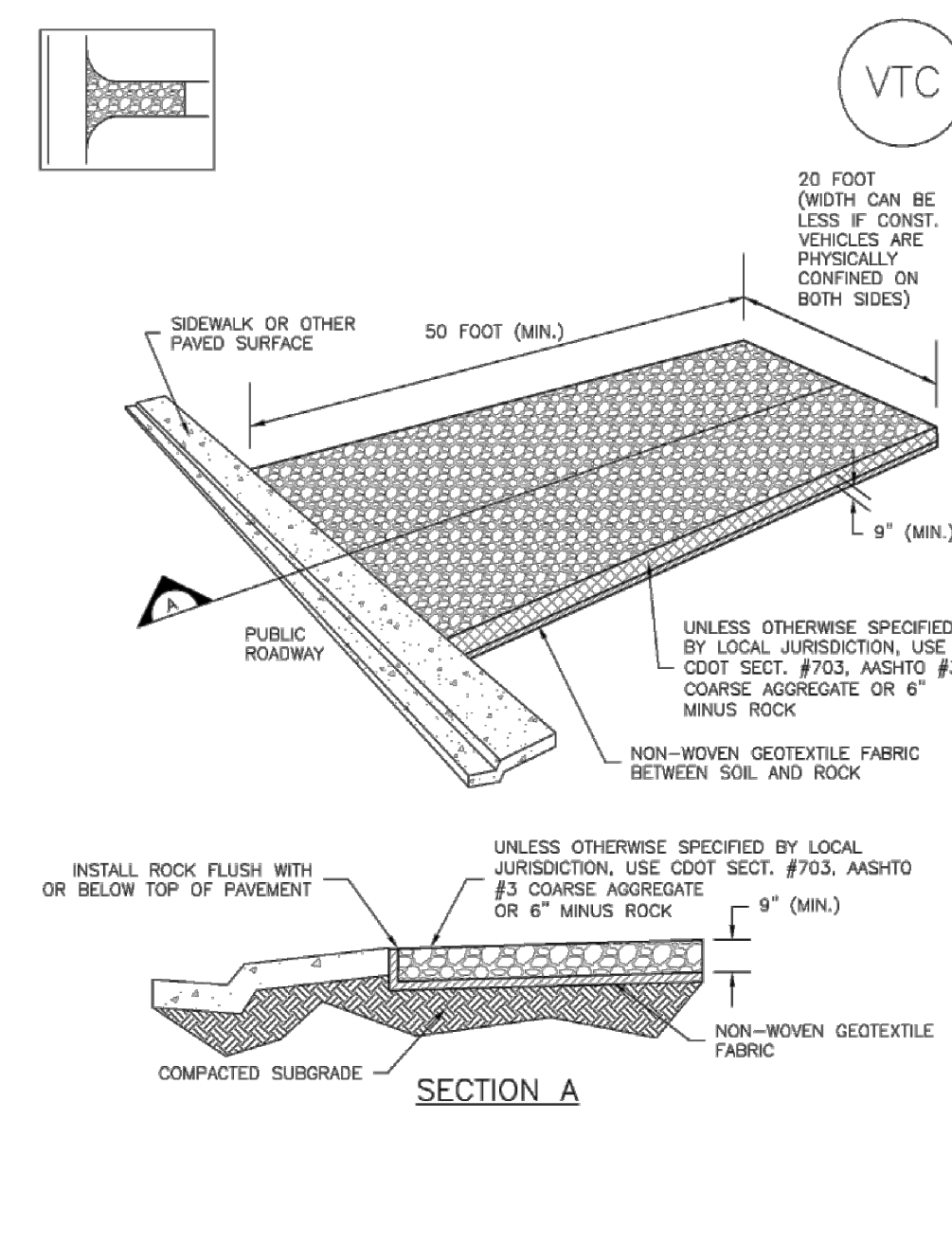
SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

NOTES:

- THIS DETAIL IS FOR USE WITH SEDIMENT CONTROL LOGS THAT ARE A MINIMUM OF 8 LB/FT.
- PLACE LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.

SCL-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2015

Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, USE COOT SECT. #703, MSHTO #3 COURSE AGGREGATE OR 6" MINUS ROCK

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 VTC-3

REV.	DATE	DESCRIPTION
3	01/17/2021	TOWN COMMENTS
2	11/30/2021	TOWN COMMENTS
1	10/28/2021	TOWN COMMENTS

permonitesgroup
T: (720) 684-4981
F: (720) 463-0689
www.permonitesgroup.com

PREPARED FOR: **BRECKENRIDGE LANDS**

SHEET TITLE: **SUMMIT HABITAT FOR HUMANITY CONSTRUCTION DOCUMENTS**

DETAILS 3 OF 3

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	08/24/21
SCALE:	AS SHOWN
SHEET NO.:	CD9
SHEET 9 OF 9	

Project: Summit Habitat for Humanity
PGI Project No.: 270.002

Date Prepared: 01/17/2022

EXHIBIT A
PUBLIC IMPROVEMENTS

ITEMS INCLUDED IN THE COST ESTIMATE

1. All site Demolition for the Summit Habitat for Humanity project.
2. All Erosion Control and BMPs for the Summit Habitat for Humanity project.
3. All Sanitary Sewer, Water, and Storm Sewer improvements for the Summit Habitat for Humanity project.
4. All overlot grading activities for the Summit Habitat for Humanity project.
5. All top soil clearing and removal, sub-grade preparation for the private asphalt driveway, and construction activities for the public alley.

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

Date Prepared: 01/17/2022

**EXHIBIT A
 PUBLIC IMPROVEMENTS**

DESCRIPTION		COST
1. DEMOLITION & MISCELLANEOUS		
1a. DEMOLITION	Subtotal	\$3,346
1b. MISCELLANEOUS	Subtotal	\$2,940
	Subtotal	\$6,286
2. EROSION CONTROL & BMPs		
	Subtotal	\$6,975
3. SITE WORK & GRADING		
3a. SITE WORK	Subtotal	\$27,999
3b. GRADING	Subtotal	\$49,366
	Subtotal	\$77,365
4. SANITARY SEWER		
	Subtotal	\$46,110
5. WATER SYSTEM		
	Subtotal	\$72,980
6. STORM SEWER		
	Subtotal	\$4,770
CONSTRUCTION TOTAL		\$214,486
ADD 10% CONTINGENCY		\$21,449
TOTAL COST		\$235,935

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

Date Prepared: 01/17/2022

**EXHIBIT A
 PUBLIC IMPROVEMENTS**

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
1. Demolition & Miscellaneous				
1a. Demolition				
A SITE DEMO	1	LS	\$2,500.00	\$2,500.00
B SAWCUT AND REMOVE ASPHALT	188	SF	\$4.50	\$846.00
<i>Demolition Subtotal</i>				\$3,346.00
1b. Miscellaneous				
A ASPHALT PATCH BACK	188	SF	\$5.00	\$940.00
B TRAFFIC CONTROL OPERATIONS	1	LS	\$2,000.00	\$2,000.00
<i>Miscellaneous Subtotal</i>				\$2,940.00
<i>Demolition & Miscellaneous Subtotal</i>				\$6,286.00
2. Erosion Control & BMPs				
A VEHICLE TRACKING CONTROL (VTC) AREAS	2	EA	\$1,500.00	\$3,000.00
B CONCRETE WASHOUT AREA	1	EA	\$600.00	\$600.00
C INLET PROTECTION	1	EA	\$150.00	\$150.00
D OUTLET PROTECTION	1	EA	\$350.00	\$350.00
E SEDIMENT CONTROL LOGS	35	EA	\$25.00	\$875.00
F BMP MAINTENANCE	1	LS	\$2,000.00	\$2,000.00
<i>Erosion Control and BMPs Subtotal</i>				\$6,975.00
3. Site Work & Grading				
3a. Site Work				
A STRIP AND HAUL TOP SOIL	290	CY	\$27.42	\$7,951.80
B INSTALL 6" OF 3/4" ROAD BASE FOR DRIVEWAY	150	TN	\$65.73	\$9,859.50
C INSTALL 6" OF 3/4" ROAD BASE FOR ALLEY	155	TN	\$65.73	\$10,188.15
<i>Site Work Subtotal</i>				\$27,999.45
3b. Grading				
A OVERLOT GRADING	1,380	CY	\$28.12	\$38,805.60
B INSTALL SITE DRAINAGE SWALES	880	LF	\$12.00	\$10,560.00
<i>Grading Subtotal</i>				\$49,365.60
<i>Site Work & Grading Subtotal</i>				\$77,365.05

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
4. Sanitary Sewer Improvements				
A 8" MAIN LINE W/ TESTING, JET & CAMERA	205	LF	\$45.00	\$9,225.00
B 4' DIAMETER MANHOLE (COATED w/ CUTOFF)	2	EA	\$8,442.50	\$16,885.00
C 4" SERVICE CONNECTION (INCLUDES 8"X4" WYE)	8	EA	\$2,500.00	\$20,000.00
<i>Sanitary Sewer Improvements Subtotal</i>				\$46,110.00
5. Water Line Improvements				
A WET TAP TO EXISTING 6" DIP	1	EA	\$2,500.00	\$2,500.00
B FIRE HYDRANT ASSEMBLY	2	EA	\$7,500.00	\$15,000.00
C 8" DIP MAIN LINE	290	LF	\$50.00	\$14,500.00
D 8" GATE VALVE W/ VALVE BOX	3	EA	\$2,825.00	\$8,475.00
E 8" X 6" REDUCER W/ THRUST RESTRAINT	3	EA	\$1,000.00	\$3,000.00
F 6" BEND (90°) W/ THRUST RESTRAINT	1	EA	\$4,000.00	\$4,000.00
G 3/4" WATER SERVICE	8	EA	\$3,188.13	\$25,505.04
<i>Water Line Improvements Subtotal</i>				\$72,980.04
6. Storm Sewer Improvements				
A 12" CMP CULVERT	22	LF	\$35.00	\$770.00
B 12" FES W/ ROCK HEADWALL	2	EA	\$2,000.00	\$4,000.00
<i>Storm Sewer Improvements Subtotal</i>				\$4,770.00

Subtotal	\$214,486.09
10% Contingency	\$21,448.61
TOTAL	\$235,934.70

The opinion of probable construction costs was based on approximate quantity estimates based on the [Summit Habitat for Humanity Final Subdivision Plans prepared by Permontes Group, Inc.](#), latest revision dated 01/17/2022.

Quantities were multiplied by current construction industry prices. The opinion of probable costs shown, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation and implementation from the information available at the time the opinion was prepared. The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. As a result, the project costs will vary from the opinion of the probable costs presented herein.

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS

Date Prepared: 01/17/2022

DEMOLITION & MISCELLANEOUS

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
1. Demolition				
A SITE DEMO	1	LS	\$2,500.00	\$2,500.00
B SAWCUT AND REMOVE ASPHALT	188	SF	\$4.50	\$846.00
<i>Subtotal</i>				\$3,346.00
2. Miscellaneous				
A ASPHALT PATCH BACK	188	SF	\$5.00	\$940.00
B TRAFFIC CONTROL OPERATIONS	1	LS	\$2,000.00	\$2,000.00
<i>Subtotal</i>				\$2,940.00
<i>Subtotal</i>				\$6,286.00
<i>10% Contingency</i>				\$628.60
TOTAL COST				\$6,914.60

Project: Summit Habitat for Humanity
PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS
EROSION CONTROL AND BMP

Date Prepared: 01/17/2022

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
Erosion Control & BMPs				
A VEHICLE TRACKING CONTROL (VTC) AREAS	2	EA	\$1,500.00	\$3,000.00
B CONCRETE WASHOUT AREA	1	EA	\$600.00	\$600.00
C INLET PROTECTION	1	EA	\$150.00	\$150.00
D OUTLET PROTECTION	1	EA	\$350.00	\$350.00
E SEDIMENT CONTROL LOGS	35	EA	\$25.00	\$875.00
F BMP MAINTENANCE	1	LS	\$2,000.00	\$2,000.00
<i>Subtotal</i>				\$6,975.00
			<i>Subtotal</i>	\$6,975.00
			<i>10% Contingency</i>	\$697.50
			TOTAL COST	\$7,672.50

Project: Summit Habitat for Humanity
PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS
SITE WORK AND GRADING

Date Prepared: 01/17/2022

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
1. Site Work				
A STRIP AND HAUL TOP SOIL	290	CY	\$27.42	\$7,951.80
B INSTALL 6" OF 3/4" ROAD BASE FOR DRIVEWAY	150	TN	\$65.73	\$9,859.50
C INSTALL 6" OF 3/4" ROAD BASE FOR ALLEY	155	TN	\$65.73	\$10,188.15
<i>Subtotal</i>				\$27,999.45
2. Grading				
A OVERLOT GRADING	1,380	CY	\$28.12	\$38,805.60
B INSTALL SITE DRAINAGE SWALES	880	LF	\$12.00	\$10,560.00
<i>Subtotal</i>				\$49,365.60
<i>Subtotal</i>				\$77,365.05
<i>10% Contingency</i>				\$7,736.51
TOTAL COST				\$85,101.56

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS
SANITARY SEWER

Date Prepared: 01/17/2022

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
2. SANITARY SEWER				
A 8" MAIN LINE W/ TESTING, JET & CAMERA	205	LF	\$45.00	\$9,225.00
B 4' DIAMETER MANHOLE (COATED w/ CUTOFF)	2	EA	\$8,442.50	\$16,885.00
C 4" SERVICE CONNECTION (INCLUDES 8"X4" WYE)	8	EA	\$2,500.00	\$20,000.00
<i>Subtotal</i>				\$46,110.00
			<i>Subtotal</i>	<i>\$46,110.00</i>
			<i>10% Contingency</i>	<i>\$4,611.00</i>
			TOTAL COST	\$50,721.00

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS
POTABLE WATER SYSTEM

Date Prepared: 01/17/2022

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
1. WATER				
A WET TAP TO EXISTING 6" DIP	1	EA	\$2,500.00	\$2,500.00
B FIRE HYDRANT ASSEMBLY	2	EA	\$7,500.00	\$15,000.00
C 8" DIP MAIN LINE	290	LF	\$50.00	\$14,500.00
D 8" GATE VALVE W/ VALVE BOX	3	EA	\$2,825.00	\$8,475.00
E 8" X 6" REDUCER W/ THRUST RESTRAINT	3	EA	\$1,000.00	\$3,000.00
F 6" BEND (90°) W/ THRUST RESTRAINT	1	EA	\$4,000.00	\$4,000.00
G 3/4" WATER SERVICE	8	EA	\$3,188.13	\$25,505.04
				\$72,980.04
			<i>Subtotal</i>	<i>\$72,980.04</i>
			<i>10% Contingency</i>	<i>\$7,298.00</i>
			TOTAL COST	\$80,278.04

Project: Summit Habitat for Humanity
 PGI Project No.: 270.002

EXHIBIT A
PUBLIC IMPROVEMENTS
STORM WATER SYSTEM

Date Prepared: 01/17/2022

Engineers Estimate of Probable Costs

DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	COST
1. STORM DRAINAGE				
A 12" CMP CULVERT	22	LF	\$35.00	\$770.00
B 12" FES W/ ROCK HEADWALL	2	EA	\$2,000.00	\$4,000.00
<i>Subtotal</i>				\$4,770.00
			<i>Subtotal</i>	\$4,770.00
			<i>10% Contingency</i>	\$477.00
			TOTAL COST	\$5,247.00



SUMMIT HABITAT FINAL DRAINAGE REPORT

Prepared for:
Breckenridge Lands
P.O. Box 7
Breckenridge, CO 80424

Date Prepared:
August 2021

Date Revised:
October 2021
January 2022

CERTIFICATION OF COMPLIANCE

"I hereby certify that this final report for the drainage design of the Summit Habitat project was prepared by me (or under my direct supervision) in accordance with the provisions of the *Mile High Flood District Storm Drainage Criteria* for the owners thereof."

Lucas T. Flax
Registered Professional Engineer
State of Colorado No. 55357

The following members of Permontes Group, Inc. staff contributed to the study and preparation of this report:

Project Manager: Mickey Leyba
Project Engineer: Lucas T. Flax, PE

Table of Contents

1.0	INTRODUCTION	4
1.1	Location	4
1.2	Description of Property and Soils	4
1.3	Discussion of Proposed Construction	4
2.0	DESCRIPTION OF BASINS	5
2.1	Historic Drainage Basins	5
2.2	Developed Drainage Sub-basins	5
3.0	DRAINAGE ANALYSIS & DESIGN CRITERIA	5
3.1	Regulations	5
3.2	Hydrological Criteria	5
	Table 1 – Sub-Basin Flow Summary	6
3.3	Hydraulic Criteria	6
4.0	POST CONSTRUCTION STORMWATER MANAGEMENT	6
4.1	Stormwater Quality Control Measures	6
4.2	Storm Sewer – Ownership and Maintenance	6
5.0	CONCLUSIONS	7
6.0	REFERENCES	7
	APPENDICES	A
	Appendix A: HYDROLOGIC CALCULATIONS	A
	Appendix B: HYDRAULIC CALCULATIONS	B
	Appendix C: REPORT FIGURES	C
	Historic Drainage Plan	C
	Developed Drainage Plan	C
	Appendix D: RESOURCES	D
	NOAA Atlas 14 – Precipitation Data	D
	NRCS Websoil Survey	D

1.0 INTRODUCTION

1.1 Location

The Summit Habitat for Humanity project site is located in the NE ¼ of Section 33, Township 9 South, Range 77 West of the Sixth Principal Meridian, Park County Colorado. The site is situated on the southwest side of Costello Avenue between 5th and 6th Streets, within the Town of Fairplay.

1.2 Description of Property and Soils

The site is approximately 0.542 acres, further described and recorded as lots 23, 24, 25, 26 and the east half of lot 27, block 13, of the Clark and Bogue's Addition to the Town of Fairplay.

The site is currently undeveloped, sloping from the northeast side of the site adjacent to Costello Avenue to the southwest side of the site adjacent to a public alley at an average slope of 7%. An existing drainage swale runs northwest to southeast within the alley right-of-way. The site outfall point is at the south corner, where storm water flow continues southeast to a low spot next to 6th Avenue. Based on aerial and site visit photos, storm drain improvements are located on the southeast side of 6th Avenue, but there is no evidence of it extending to the aforementioned swale and low point.

The NRCS Websoil Survey, dated May 2021 (see Appendix D) identifies the onsite soils classification for the property as primarily Bassel-Reinecker Complex which is generally a very gravelly sandy loam and is further described as Hydrologic Soil Group B.

The geotechnical report was also reviewed – which identified that the six (6) soil test borings mostly encountered sandy gravel with clay and cobbles, up to the max depth explored of six (6) feet. Groundwater was not encountered within these soil test borings.

1.3 Discussion of Proposed Construction

This Summit Habitat for Humanity project is for the purpose of creating workforce housing. Breckenridge Lands intends to replat the property into eight (8) Habitat for Humanity lots. Site improvements include a main 12' wide drive aisle and driveway parking. Developed storm runoff flows from the site will be intercepted and conveyed to the existing aforementioned swale via surface flow and grass swales, maintaining historic drainage patterns. No storm sewer is proposed for the development.

Historical runoff amounts are to be maintained to prevent property damage generally attributed to runoff rates and velocity increases. Due to the half acre site size, the construction of a conventional detention basin would limit the usability of the development. Per the Town's Development Code, runoff can be maintained by detention storage or other devices, or suitable channelization with erosion protection. In an effort to reduce the increased runoff rate from the 100-year design storm after development, BMP swales are proposed to be utilized. BMP swales will be per the Mile High Flood District Urban Storm Drainage Criteria Manual Volume 3, detail T-2. The developed site consists of three (3) onsite drainage basins, defined as A-1, A-2, A-3. The three drainage basins each will be provided with BMP swales reducing proposed runoff by 100% in those areas.

2.0 DESCRIPTION OF BASINS

2.1 Historic Drainage Basins

The site is defined by a single historic drainage basin bounded by the site property lines (0.54 ac, 2% impervious). An additional offsite historic basin is defined by the Costello Avenue right-of-way frontage (0.17 ac, 37% impervious) for offsite contributing flow calculations.

2.2 Developed Drainage Sub-basins

The onsite historic basin will be divided into three (3) sub-basins, with runoff from each being conveyed by a separate BMP grassed swale, described more in Section 3.3.

A-1 (0.12 ac, 39%) consists of the west side of the site including roof and landscaped areas.

A-2 (0.28 ac, 64%) consists of the central portion of the site including the main asphalt drive, roof, and landscaped areas.

A-3 (0.14 ac, 43%) consists of the east side of the site including driveways, roof, and landscaped areas.

The offsite historic basin will be divided into three (3) sub-basins.

OS-1 (0.03 ac, 38%) consists of the west side of the basin and is conveyed through onsite sub-basin A-1.

OS-2 (0.09 ac, 59%) consists of the main drive within the right-of-way and is conveyed through onsite sub-basin A-2.

OS-3 (0.05 ac, 50%) consists of the central portion of the basin and is conveyed through onsite sub-basin A-3.

Sub-basin runoff calculations are located in Appendix A. Swale calculations are located in Appendix B. Drainage Maps are located in Appendix C.

3.0 DRAINAGE ANALYSIS & DESIGN CRITERIA

3.1 Regulations

This project will adhere to MHFD standards and provide general conformance to Section 16-17-40, 'Storm drainage', of the Town of Fairplay Unified Development Code, for approval with the Town of Fairplay, Colorado. Runoff flows for the ten (10) one hundred (100) year rainfall events were analyzed per section 2.03 of the Town of Fairplay's Draft Public Works Manual.

3.2 Hydrological Criteria

The Rational Method was utilized to determine runoff for each sub-basin, Rainfall distributions were obtained from the National Weather Service NOAA Atlas 14.

The Sub-Basin runoff for the site for the 5-yr (minor) & 100-yr storm (major) events are tabulated below. Offsite flows from the Costello Avenue right-of-way are included in this analysis.

Table 1 – Sub-Basin Flow Summary

SUB-BASIN	AREA	DESIGN	C -10 YR	C -100 YR	Q -10 YR	Q -100 YR
NAME	ACRE	POINT	-	-	CFS	CFS
Ex Onsite	0.54	H-1	0.07	0.44	0.09	1.03
Ex Offsite	0.17	H-1	0.36	0.60	0.17	0.52
	Historic Composite		0.14	0.48	0.26	1.55
A-1	0.121	A-1	0.37	0.61	0.14	0.41
A-2	0.278	A-2	0.57	0.72	0.49	1.13
A-3	0.144	A-3	0.40	0.62	0.18	0.50
	Onsite Composite		0.49	0.67	0.82	2.06
OS-1	0.033	A-1	0.36	0.61	0.03	0.10
OS-2	0.086	A-2	0.53	0.70	0.14	0.33
OS-3	0.053	A-3	0.46	0.66	0.07	0.19
	Offsite Composite		0.47	0.67	0.24	0.62

3.3 Hydraulic Criteria

The project site is designed to convey storm runoff via surface flow captured by grassed swales. A culvert will maintain the existing drainage pattern along the alley under the proposed driveway. The swale and pipe calculations can be found in Appendix B.

The grassed swales incorporated into this project will be designed per MHFD standards for runoff reduction and water quality per BMP detail T-2. These swales include: A-1, A-2, and A-3. All three (3) swales reduce the WQCV by 100%. Therefore, downstream properties will be protected from additional development runoff. Calculations can be found in Appendix B.

4.0 POST CONSTRUCTION STORMWATER MANAGEMENT

4.1 Stormwater Quality Control Measures

Water Quality Control is being managed for all basins according to the WQCV design standards as described in Mile High Flood District standards. In addition to the aforementioned BMP swales, roof drains are disconnected and runoff is directed to flow across lawns to grassed swales to encourage infiltration and filtration prior to entering the public right-of-way.

4.2 Storm Sewer – Ownership and Maintenance

Private storm drainage improvements on this project site include the aforementioned drainage swales. Public storm drainage improvements include the storm culvert at the alley driveway and associated rock headwalls – which are located inside the public rights-of-way. All private drainage systems will be owned and maintained by the Owner, including the collection and removal of silt and debris from the swales.

5.0 CONCLUSIONS

The intent of this Drainage Report is to identify the existing runoff condition in comparison to the proposed site design for the Summit Habitat project. The project will not provide full detention; to prevent the proposed drainage improvements from having no adverse effects on adjacent properties or downstream outflowing swales and public storm facilities, BMP swales will be utilized to reduce runoff.

6.0 REFERENCES

1. Urban Storm Drainage Criteria Manual, Vol. 1, Mile High Flood District, updated August 2018.
2. Urban Storm Drainage Criteria Manual, Vol. 2, Mile High Flood District, updated September 2017.
3. Urban Storm Drainage Criteria Manual, Vol. 3, Mile High Flood District, updated October 2019.
4. Park County Land Use regulations, Section 7-602.
5. National Weather Service NOAA Atlas 14, Volume 8, Version 2.
6. Websoil Survey, websoilsurvey.nrcs.usda.gov.

APPENDICES

Appendix A: HYDROLOGIC CALCULATIONS



Developed Runoff Coefficients
 Type "C" Soils

BASIN	DESIGN POINT	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
<i>Developed</i>								
A-1	A-1	Residential	0.121	39	0.32	0.33	0.37	0.61
A-2	A-2	Residential	0.278	64	0.53	0.54	0.57	0.72
A-3	A-3	Residential	0.144	43	0.35	0.36	0.40	0.62
Onsite Composite (Developed Basins):			0.542	53	0.44	0.45	0.48	0.67
OS-1	A-1	Residential	0.033	38	0.32	0.32	0.36	0.61
OS-2	A-2	Residential	0.086	59	0.49	0.51	0.53	0.70
OS-3	A-3	Residential	0.053	50	0.42	0.43	0.46	0.66
Offsite Composite (Developed Basins):			0.172	52	0.44	0.45	0.47	0.67
Composite (Developed Basins):			0.71	52.81	0.44	0.45	0.48	0.67
<i>Historic</i>								
Ex Onsite	H-1	Undeveloped	0.54	2	0.01	0.01	0.07	0.44
Ex Offsite	H-1	Undeveloped	0.17	37	0.31	0.32	0.36	0.60
Composite (Historic Basins)			0.71	10.5	0.082	0.08	0.14	0.48

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
A-1	A-1	Lawns, clayey soil	3030.50	2	0.01	0.01	0.07	0.44
		Roofs	2150.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	87.50	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	0.00	100	0.84	0.86	0.86	0.89
		Total Area:	5268.000					
Composite:				39.4	0.32	0.33	0.37	0.61

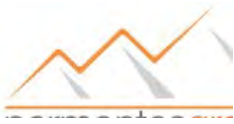
BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
A-2	A-2	Lawns, clayey soil	4046.00	2	0.01	0.01	0.07	0.44
		Roofs	3522.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	340.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	4195.00	100	0.84	0.86	0.86	0.89
		Total Area:	12103.000					
Composite:				64.0	0.53	0.54	0.57	0.72

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
A-3	A-3	Lawns, clayey soil	3414.00	2	0.01	0.01	0.07	0.44
		Roofs	1881.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	255.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	704.00	100	0.84	0.86	0.86	0.89
		Total Area:	6254.000					
Composite:				43.1	0.35	0.36	0.40	0.62

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
OS-1	A-1	Lawns, clayey soil	917.00	2	0.01	0.01	0.07	0.44
		Roofs	0.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	0.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	534.00	100	0.84	0.86	0.86	0.89
		Total Area:	1451.000					
Composite:				38.1	0.32	0.32	0.36	0.61

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
OS-2	A-2	Lawns, clayey soil	1556.00	2	0.01	0.01	0.07	0.44
		Roofs	0.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	0.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	2175.00	100	0.84	0.86	0.86	0.89
		Total Area:	3731.000					
Composite:				59.1	0.49	0.51	0.53	0.70

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
OS-3	A-3	Lawns, clayey soil	1182.00	2	0.01	0.01	0.07	0.44
		Roofs	0.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	0.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	1133.00	100	0.84	0.86	0.86	0.89
		Total Area:	2315.000					
Composite:				50.0	0.42	0.43	0.46	0.66



Developed Runoff Coefficients

Type "C" Soils

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
Ex Onsite	H-1	Lawns, clayey soil	23625.00	2	0.01	0.01	0.07	0.44
		Roofs	0.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	0.00	90	0.74	0.76	0.78	0.83
		Streets-Paved (Asphalt)	0.00	100	0.84	0.86	0.86	0.89
		Total Area:	23625.000					
		Composite:		2.0	0.01	0.01	0.07	0.44

BASIN	DESIGN PT.	LAND USE	AREA (ac.)	I(%)	C ₂	C ₅	C ₁₀	C ₁₀₀
Ex Offsite	H-1	Lawns, clayey soil	4792.00	2	0.01	0.01	0.07	0.44
		Roofs	0.00	90	0.74	0.76	0.78	0.83
		Concrete Drive and Walks	0.00	90	0.74	0.76	0.78	0.83
		Streets-Gravel (Packed)	0.00	40	0.29	0.32	0.38	0.55
		Streets-Paved (Asphalt)	2707.00	100	0.84	0.86	0.86	0.89
		Total Area:	7499.00					
		Composite:		37.4	0.31	0.32	0.36	0.60



TIME OF CONCENTRATION

DEVELOPED - ONSITE BASINS

DESIGN PT.	BASIN DATA			INITIAL/OVERLAND			TRAVEL TIME					T _c CHECK			USE
	BASIN ID:	AREA	C _s	TIME (T _i)			(T _t)					(Urbanized Basins)			T _c
				LENGTH	AVG. SLOPE	T _i	LENGTH	AVG. SLOPE	C _v	VEL.	T _t	T _i + T _t	TOTAL	T _c = (L/180)+10	
	(acres)	(ft)	(ft / ft)	(min)	(ft)	(ft / ft)			(min)	T _c	LENGTH (ft)	(min)	(min)		
A-1	A-1	0.121	0.33	0	0.000	0.0	241	0.065	15	3.8	1.1	1	241	11	5
A-2	A-2	0.278	0.54	32	0.077	2.9	188	0.063	20	5.0	0.6	4	220	11	5
A-3	A-3	0.144	0.36	32	0.060	4.2	194	0.075	15	4.1	0.8	5	226	11	5
A-1	OS-1	0.033	0.32	68	0.052	6.8	241	0.065	15	3.8	1.1	8	309	12	8
A-2	OS-2	0.086	0.51	68	0.072	4.7	188	0.063	20	5.0	0.6	5	256	11	5
A-3	OS-3	0.053	0.43	67	0.071	5.3	188	0.063	15	3.8	0.8	6	255	11	6
H-1	Site	0.714	0.45	365	0.052	13.2	0	0.055	15	3.5	0.0	13	365	12	12
	Ex Onsite	0.54	0.01	198	0.076	14.3	0	0.005	15	1.1	0.0	14	198	11	11
	Ex Offsite	0.17	0.32	100	0.076	7.3	0	0.005	15	1.1	0.0	7	100	11	7
H1	Site	0.71	0.08	298	0.076	16.4	0	0.005	15	1.1	0.0	16	298	12	12

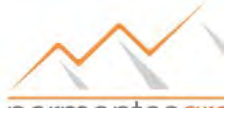
C_v - Conveyance Coefficients

- 2.5 Heavy Meadow
- 5 Tillage / Field
- 7 Short pasture & lawns
- 10 Nearly bare ground
- 15 Grassed waterway
- 20 Paved areas and shallow paved swales

$$t_t = \frac{L}{60V}$$

$$V = C_v * S^{1/2}$$

$$t_i = \frac{0.395(1.1 - C_s) L^{1/2}}{s^{1/3}}$$



DEVELOPED RUNOFF
 (RATIONAL METHOD PROCEDURE)
 2 - YEAR

CALCULATED BY: LF

DESIGN POINT	DIRECT RUNOFF							CHANNEL				PIPE			TRAVEL TIME				ADJUSTED RUNOFF				COMMENTS
	AREA DESIG.	AREA (Acres)	C = RUNOFF COEFF.	INITIAL Tc (min)	CA (Acres)	I (in/hour)	Q (cfs)	FLOW (CFS)	SLOPE (ft/ft)	LENGTH (ft)	VELOCITY (fps)	PIPE DIA. & TYPE (in.)	SLOPE (%)		Cv	LENGTH (ft)	VELOCITY (fps)	Tt (min)	*Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	
<i>Developed</i>																							
A-1	A-1	0.12	0.32	5.0	0.04	1.85	0.07												5.0	0.04	1.85	0.07	
A-2	A-2	0.28	0.53	5.0	0.15	1.85	0.27												5.0	0.15	1.85	0.27	
A-3	A-3	0.14	0.35	5.0	0.05	1.85	0.09												5.0	0.05	1.85	0.09	
A-1	OS-1	0.03	0.32	7.8	0.01	1.61	0.02												7.8	0.01	1.61	0.02	
A-2	OS-2	0.09	0.49	5.3	0.04	1.82	0.08												5.3	0.04	1.82	0.08	
A-3	OS-3	0.05	0.42	6.1	0.02	1.75	0.04												6.1	0.02	1.75	0.04	
SUBTOTAL AREA (AC) =		0.71																	SUBTOTAL FLOW (cfs)			0.6	
<i>Historic</i>																							
	Ex Onsite	0.54	0.01	11.1	0.01	1.41	0.01												11.1	0.01	1.41	0.01	
	Ex Offsite	0.17	0.31	7.3	0.05	1.65	0.09												7.3	0.05	1.65	0.09	
SUBTOTAL AREA (AC) =		0.71																	SUBTOTAL FLOW (cfs)			0.10	



DEVELOPED RUNOFF
 (RATIONAL METHOD PROCEDURE)
 5 - YEAR

CALCULATED BY: LF

DESIGN POINT	DIRECT RUNOFF							CHANNEL				PIPE			TRAVEL TIME				ADJUSTED RUNOFF				COMMENTS
	BASIN	AREA (Acres)	C = RUNOFF COEFF.	INITIAL Tc (min)	CA (Acres)	I (in/hour)	Q (cfs)	FLOW (CFS)	SLOPE (ft/ft)	LENGTH (ft)	VELOCITY (fps)	PIPE DIA. & TYPE (in.)	SLOPE (%)		Cv	LENGTH (ft)	VELOCITY (fps)	Tt (min)	*Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	
	<i>Developed</i>																						
A-1	A-1	0.121	0.33	5.0	0.040	2.50	0.10												5.0	0.04	2.50	0.10	
A-2	A-2	0.278	0.54	5.0	0.151	2.50	0.38												5.0	0.15	2.50	0.38	
A-3	A-3	0.144	0.36	5.0	0.052	2.50	0.13												5.0	0.05	2.50	0.13	
A-1	OS-1	0.033	0.32	7.8	0.011	2.18	0.02												7.8	0.01	2.18	0.02	
A-2	OS-2	0.086	0.51	5.3	0.043	2.46	0.11												5.3	0.04	2.46	0.11	
A-3	OS-3	0.053	0.43	6.1	0.023	2.37	0.05												6.1	0.02	2.37	0.05	
SUBTOTAL AREA (AC) =		0.71					0.79												SUBTOTAL FLOW (cfs)			0.79	
H-1	Ex Onsite	0.54	0.01	11.1	0.01	1.91	0.01												11.1	0.01	1.91	0.01	
H-1	Ex Offsite	0.17	0.32	7.3	0.05	2.23	0.12												7.3	0.05	2.23	0.12	
SUBTOTAL AREA (AC) =		0.71					0.13												SUBTOTAL FLOW - HISTORIC (cfs)			0.13	



DEVELOPED RUNOFF
 (RATIONAL METHOD PROCEDURE)
 10 - YEAR

CALCULATED BY: LF

DESIGN POINT	DIRECT RUNOFF							CHANNEL				PIPE		TRAVEL TIME				ADJUSTED RUNOFF				COMMENTS		
	AREA DESIG.	AREA (Acres)	C = RUNOFF COEFF.	INITIAL Tc (min)	CA (Acres)	I (in/hour)	Q (cfs)	FLOW (CFS)	SLOPE (ft/ft)	LENGTH (ft)	VELOCITY (fps)	PIPE DIA. & TYPE (in.)	SLOPE (%)	Cv	LENGTH (ft)	VELOCITY (fps)	Tt (min)	*Tc (min)	C-A (Acres)	I (in/hour)	Q (cfs)			
<i>Developed</i>																								
A-1	A-1	0.12	0.37	5.0	0.04	3.10	0.14											5.0	0.04	3.10	0.14			
A-2	A-2	0.28	0.57	5.0	0.16	3.10	0.49											5.0	0.16	3.10	0.49			
A-3	A-3	0.14	0.40	5.0	0.06	3.10	0.18											5.0	0.06	3.10	0.18			
A-1	OS-1	0.03	0.36	7.8	0.01	2.71	0.03											7.8	0.01	2.71	0.03			
A-2	OS-2	0.09	0.53	5.3	0.05	3.06	0.14											5.3	0.05	3.06	0.14			
A-3	OS-3	0.05	0.46	6.1	0.02	2.93	0.07											6.1	0.02	2.93	0.07			
SUBTOTAL AREA (AC)		0.71																TOTAL FLOW -DEVELOPED (cfs)		1.1				
<i>Historic</i>																								
	Ex Onsite	0.54	0.07	11.1	0.04	2.37	0.09											11.1	0.04	2.37	0.09			
	Ex Offsite	0.17	0.36	7.3	0.06	2.77	0.17											7.3	0.06	2.77	0.17			
SUBTOTAL AREA (AC)		0.71																TOTAL FLOW - HISTORIC (cfs)		0.3				

DEVELOPED RUNOFF
 (RATIONAL METHOD PROCEDURE)
 100 - YEAR

CALCULATED BY: LF

DESIGN POINT	DIRECT RUNOFF							CHANNEL				PIPE		TRAVEL TIME				ADJUSTED RUNOFF				COMMENTS
	BASIN	AREA (Acres)	C = RUNOFF COEFF.	INITIAL Tc (min)	CA (Acres)	I (in/hour)	Q (cfs)	FLOW (CFS)	SLOPE (ft/ft)	LENGTH (ft)	VELOCITY (fps)	PIPE DIA. & TYPE (in.)	SLOPE (%)	Cv	LENGTH (ft)	VELOCITY (fps)	Tt (min)	*Tc (min)	C-A (Acres)	I (in/hour)	Q (cfs)	
<i>Developed</i>																						
A-1	A-1	0.12	0.61	5.0	0.07	5.63	0.41											5.0	0.07	5.63	0.41	
A-2	A-2	0.28	0.72	5.0	0.20	5.63	1.13											5.0	0.20	5.63	1.13	
A-3	A-3	0.14	0.62	5.0	0.09	5.63	0.50											5.0	0.09	5.63	0.50	
A-1	OS-1	0.03	0.61	7.8	0.02	4.91	0.10											7.8	0.02	4.91	0.10	
A-2	OS-2	0.09	0.70	5.3	0.06	5.55	0.33											5.3	0.06	5.55	0.33	
A-3	OS-3	0.05	0.66	6.1	0.04	5.33	0.19											6.1	0.04	5.33	0.19	
TOTAL AREA (AC)		0.71					2.66											TOTAL FLOW - DEVELOPED (cfs)			2.66	

<i>Historic</i>																						
DESIGN POINT	BASIN	AREA (Acres)	C = RUNOFF COEFF.	INITIAL Tc (min)	CA (Acres)	I (in/hour)	Q (cfs)	FLOW (CFS)	SLOPE (ft/ft)	LENGTH (ft)	VELOCITY (fps)	PIPE DIA. & TYPE (in.)	SLOPE (%)	Cv	LENGTH (ft)	VELOCITY (fps)	Tt (min)	*Tc (min)	C-A (Acres)	I (in/hour)	Q (cfs)	COMMENTS
	Ex Onsite	0.54	0.44	11.1	0.24	4.31	1.03											11.1	0.24	4.31	1.03	
	Ex Offsite	0.17	0.60	7.3	0.10	5.03	0.52											7.3	0.10	5.03	0.52	
TOTAL AREA (AC)		0.71					1.55											TOTAL FLOW - HISTORIC (cfs)			1.55	

Appendix B: HYDRAULIC CALCULATIONS

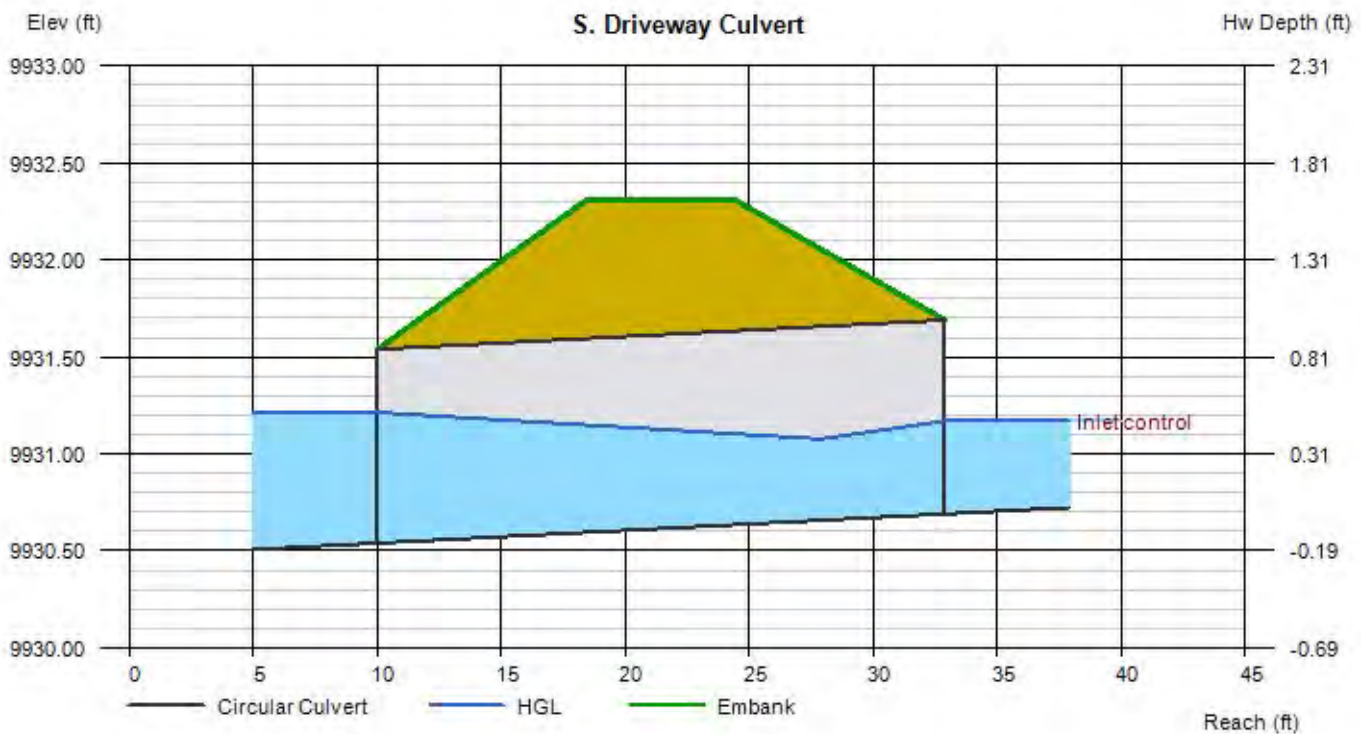
S. Driveway Culvert

Invert Elev Dn (ft)	= 9930.54
Pipe Length (ft)	= 22.87
Slope (%)	= 0.66
Invert Elev Up (ft)	= 9930.69
Rise (in)	= 12.0
Shape	= Circular
Span (in)	= 12.0
No. Barrels	= 1
n-Value	= 0.012
Culvert Type	= Circular Corrugate Metal Pipe
Culvert Entrance	= Headwall
Coeff. K,M,c,Y,k	= 0.0078, 2, 0.0379, 0.69, 0.5

Embankment	
Top Elevation (ft)	= 9932.31
Top Width (ft)	= 6.00
Crest Width (ft)	= 20.00

Calculations	
Qmin (cfs)	= 0.70
Qmax (cfs)	= 1.90
Tailwater Elev (ft)	= (dc+D)/2

Highlighted	
Qtotal (cfs)	= 0.70
Qpipe (cfs)	= 0.70
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 1.24
Veloc Up (ft/s)	= 2.87
HGL Dn (ft)	= 9931.21
HGL Up (ft)	= 9931.04
Hw Elev (ft)	= 9931.17
Hw/D (ft)	= 0.48
Flow Regime	= Inlet Control



Channel Report

DRAINAGE SWALE A-1

Triangular

Side Slopes (z:1) = 4.00, 4.00
Total Depth (ft) = 0.50

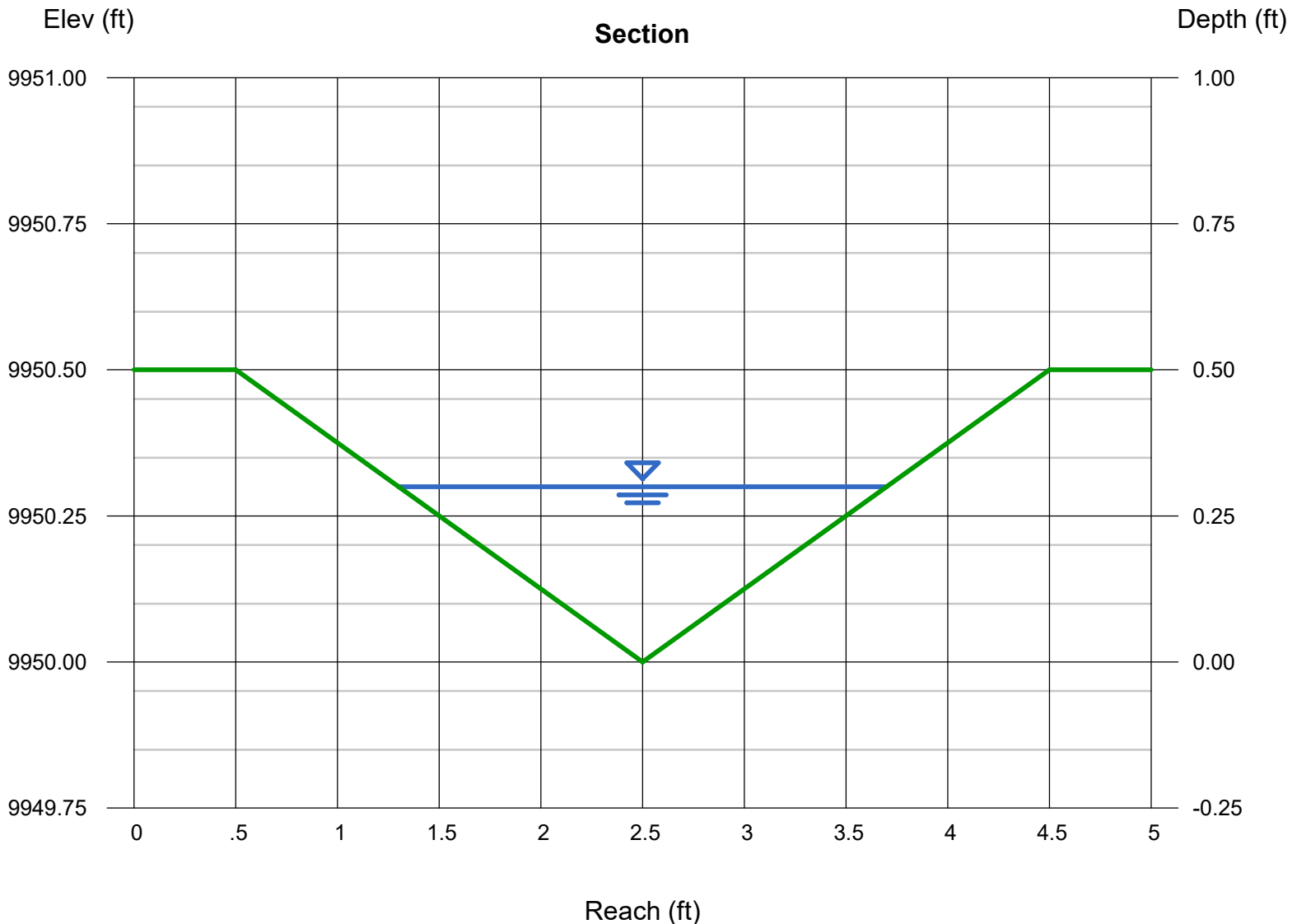
Invert Elev (ft) = 9950.00
Slope (%) = 1.00
N-Value = 0.027

Calculations

Compute by: Known Q
Known Q (cfs) = 0.51

Highlighted

Depth (ft) = 0.30
Q (cfs) = 0.510
Area (sqft) = 0.36
Velocity (ft/s) = 1.42
Wetted Perim (ft) = 2.47
Crit Depth, Yc (ft) = 0.26
Top Width (ft) = 2.40
EGL (ft) = 0.33



Design Procedure Form: Grass Swale (GS)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Lucas Flax, PE
Company: Permontes Group, Inc.
Date: October 27, 2021
Project: Summit Habitat for Humanity
Location: 521 Costello Avenue, Fairplay, CO - Basin A-1

1. Design Discharge for 2-Year Return Period	$Q_2 = $ <input type="text" value="0.09"/> cfs
2. Hydraulic Residence Time A) : Length of Grass Swale B) Calculated Residence Time (based on design velocity below)	$L_S = $ <input type="text" value="241.0"/> ft $T_{HR} = $ <input type="text" value="7.1"/> minutes
3. Longitudinal Slope (vertical distance per unit horizontal) A) Available Slope (based on site constraints) B) Design Slope	$S_{avail} = $ <input type="text" value="0.070"/> ft / ft $S_D = $ <input type="text" value="0.020"/> ft / ft
4. Swale Geometry A) Channel Side Slopes ($Z = 4$ min., horiz. distance per unit vertical) B) Bottom Width of Swale (enter 0 for triangular section)	$Z = $ <input type="text" value="4.00"/> ft / ft $W_B = $ <input type="text" value="0.00"/> ft
5. Vegetation A) Type of Planting (seed vs. sod, affects vegetal retardance factor)	Choose One <input checked="" type="radio"/> Grass From Seed <input type="radio"/> Grass From Sod
6. Design Velocity (0.803 ft / s maximum for desirable 5-minute residence time)	$V_2 = $ <input type="text" value="0.56"/> ft / s
7. Design Flow Depth (1 foot maximum) A) Flow Area B) Top Width of Swale C) Froude Number (0.50 maximum) D) Hydraulic Radius E) Velocity-Hydraulic Radius Product for Vegetal Retardance F) Manning's n (based on SCS vegetal retardance curve E for seeded grass) G) Cumulative Height of Grade Control Structures Required	$D_2 = $ <input type="text" value="0.20"/> ft $A_2 = $ <input type="text" value="0.2"/> sq ft $W_T = $ <input type="text" value="1.6"/> ft $F = $ <input type="text" value="0.31"/> $R_H = $ <input type="text" value="0.10"/> $VR = $ <input type="text" value="0.05"/> $n = $ <input type="text" value="0.080"/> $H_D = $ <input type="text" value="12.10"/> ft
8. Underdrain (Is an underdrain necessary?)	Choose One <input type="radio"/> YES <input checked="" type="radio"/> NO
9. Soil Preparation (Describe soil amendment)	_____ _____ _____
10. Irrigation	Choose One <input type="radio"/> Temporary <input type="radio"/> Permanent

Notes:

DRAINAGE SWALE A-2

Triangular

Side Slopes (z:1) = 5.00, 10.00
 Total Depth (ft) = 0.50

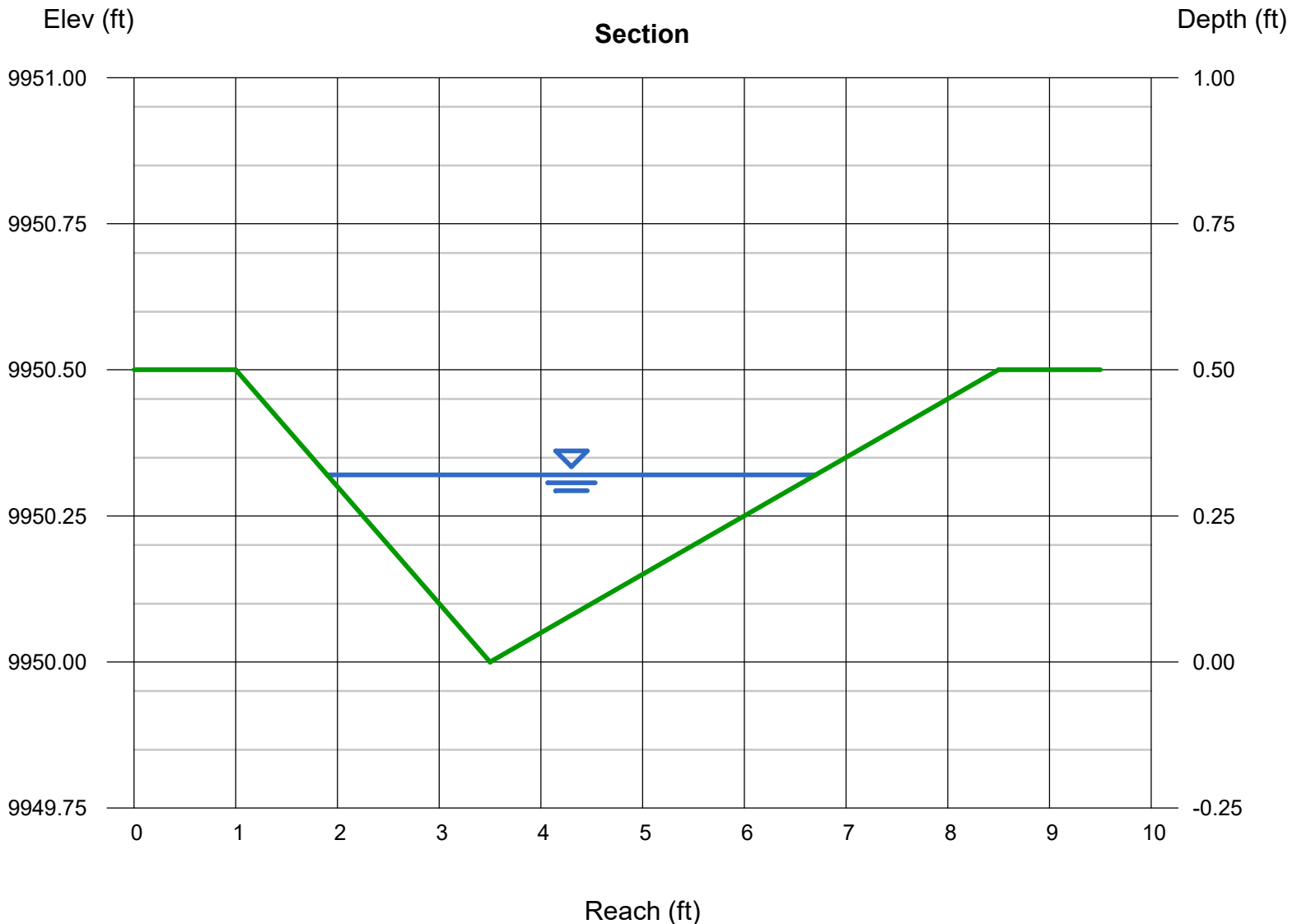
Invert Elev (ft) = 9950.00
 Slope (%) = 1.50
 N-Value = 0.027

Calculations

Compute by: Known Q
 Known Q (cfs) = 1.46

Highlighted

Depth (ft) = 0.32
 Q (cfs) = 1.460
 Area (sqft) = 0.77
 Velocity (ft/s) = 1.90
 Wetted Perim (ft) = 4.85
 Crit Depth, Yc (ft) = 0.30
 Top Width (ft) = 4.80
 EGL (ft) = 0.38



Design Procedure Form: Grass Swale (GS)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Lucas Flax, PE
Company: Permontes Group, Inc.
Date: October 27, 2021
Project: Summit Habitat for Humanity
Location: 521 Costello Avenue, Fairplay, CO - Basin A-2

1. Design Discharge for 2-Year Return Period	$Q_2 = $ <input style="width: 50px;" type="text" value="0.35"/> cfs
2. Hydraulic Residence Time A) : Length of Grass Swale B) Calculated Residence Time (based on design velocity below)	$L_S = $ <input style="width: 50px;" type="text" value="188.0"/> ft $T_{HR} = $ <input style="width: 50px;" type="text" value="3.7"/> minutes
3. Longitudinal Slope (vertical distance per unit horizontal) A) Available Slope (based on site constraints) B) Design Slope	$S_{avail} = $ <input style="width: 50px;" type="text" value="0.070"/> ft / ft $S_D = $ <input style="width: 50px;" type="text" value="0.020"/> ft / ft
4. Swale Geometry A) Channel Side Slopes ($Z = 4$ min., horiz. distance per unit vertical) B) Bottom Width of Swale (enter 0 for triangular section)	$Z = $ <input style="width: 50px;" type="text" value="4.00"/> ft / ft $W_B = $ <input style="width: 50px;" type="text" value="0.00"/> ft
5. Vegetation A) Type of Planting (seed vs. sod, affects vegetal retardance factor)	Choose One <input checked="" type="radio"/> Grass From Seed <input type="radio"/> Grass From Sod
6. Design Velocity (0.627 ft / s maximum for desirable 5-minute residence time)	$V_2 = $ <input style="width: 50px;" type="text" value="0.85"/> ft / s
7. Design Flow Depth (1 foot maximum) A) Flow Area B) Top Width of Swale C) Froude Number (0.50 maximum) D) Hydraulic Radius E) Velocity-Hydraulic Radius Product for Vegetal Retardance F) Manning's n (based on SCS vegetal retardance curve E for seeded grass) G) Cumulative Height of Grade Control Structures Required	$D_2 = $ <input style="width: 50px;" type="text" value="0.32"/> ft $A_2 = $ <input style="width: 50px;" type="text" value="0.4"/> sq ft $W_T = $ <input style="width: 50px;" type="text" value="2.6"/> ft $F = $ <input style="width: 50px;" type="text" value="0.38"/> $R_H = $ <input style="width: 50px;" type="text" value="0.16"/> $VR = $ <input style="width: 50px;" type="text" value="0.13"/> $n = $ <input style="width: 50px;" type="text" value="0.073"/> $H_D = $ <input style="width: 50px;" type="text" value="9.40"/> ft
8. Underdrain (Is an underdrain necessary?)	Choose One <input type="radio"/> YES <input checked="" type="radio"/> NO
9. Soil Preparation (Describe soil amendment)	_____ _____ _____
10. Irrigation	Choose One <input type="radio"/> Temporary <input type="radio"/> Permanent

Notes: _____

Channel Report

61

DRAINAGE SWALE A-3

Triangular

Side Slopes (z:1) = 4.00, 4.00
Total Depth (ft) = 0.50

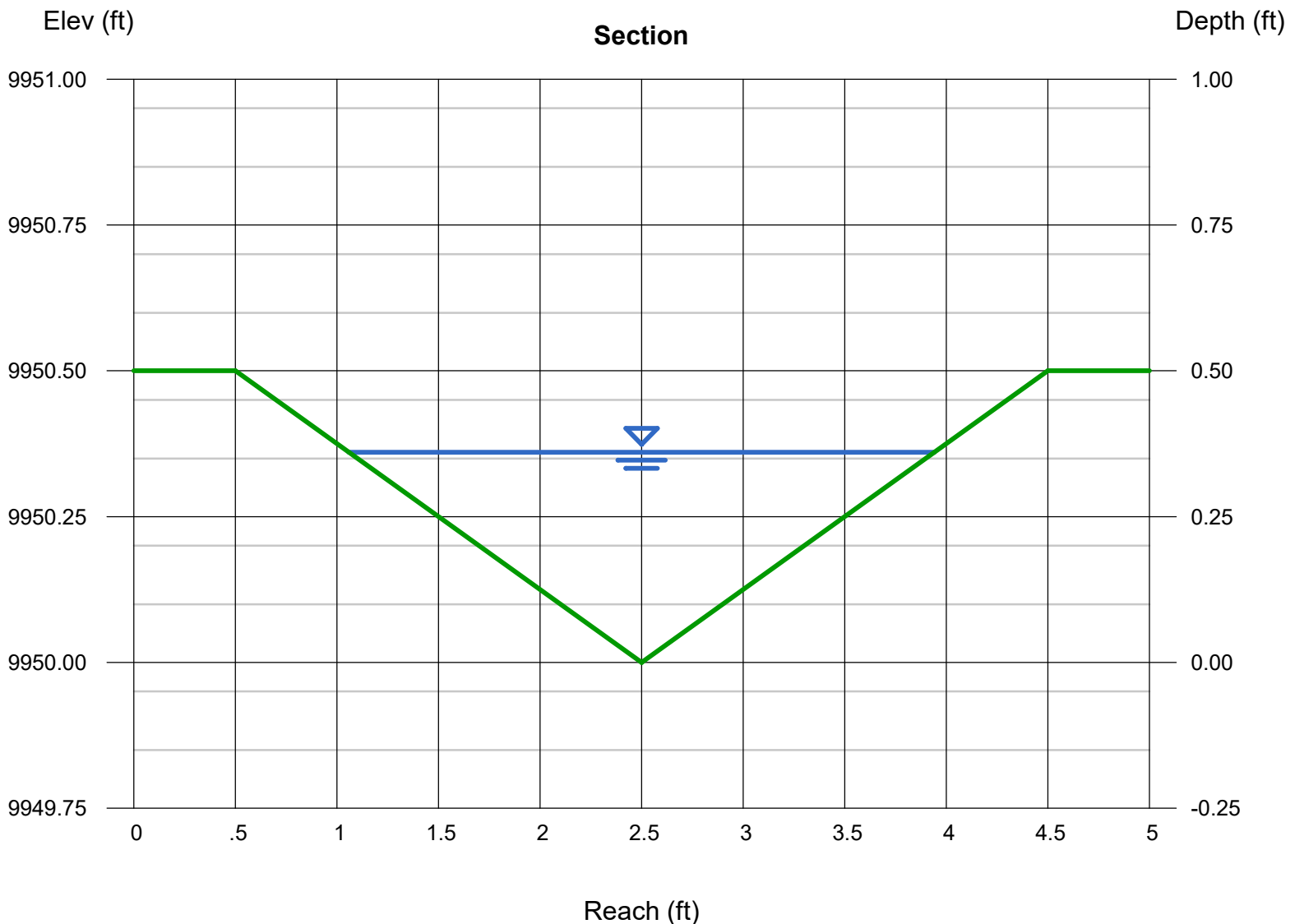
Invert Elev (ft) = 9950.00
Slope (%) = 0.60
N-Value = 0.027

Calculations

Compute by: Known Q
Known Q (cfs) = 0.69

Highlighted

Depth (ft) = 0.36
Q (cfs) = 0.690
Area (sqft) = 0.52
Velocity (ft/s) = 1.33
Wetted Perim (ft) = 2.97
Crit Depth, Yc (ft) = 0.29
Top Width (ft) = 2.88
EGL (ft) = 0.39



Design Procedure Form: Grass Swale (GS)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Lucas Flax, PE
Company: Permontes Group, Inc.
Date: October 26, 2021
Project: Summit Habitat for Humanity
Location: 521 Costello Avenue, Fairplay, CO - Basin A-3

1. Design Discharge for 2-Year Return Period	$Q_2 = $ <input type="text" value="0.13"/> cfs
2. Hydraulic Residence Time A) : Length of Grass Swale B) Calculated Residence Time (based on design velocity below)	$L_S = $ <input type="text" value="194.0"/> ft $T_{HR} = $ <input type="text" value="5.3"/> minutes
3. Longitudinal Slope (vertical distance per unit horizontal) A) Available Slope (based on site constraints) B) Design Slope	$S_{avail} = $ <input type="text" value="0.070"/> ft / ft $S_D = $ <input type="text" value="0.020"/> ft / ft
4. Swale Geometry A) Channel Side Slopes ($Z = 4$ min., horiz. distance per unit vertical) B) Bottom Width of Swale (enter 0 for triangular section)	$Z = $ <input type="text" value="4.00"/> ft / ft $W_B = $ <input type="text" value="0.00"/> ft
5. Vegetation A) Type of Planting (seed vs. sod, affects vegetal retardance factor)	Choose One <input checked="" type="radio"/> Grass From Seed <input type="radio"/> Grass From Sod
6. Design Velocity (0.647 ft / s maximum for desirable 5-minute residence time)	$V_2 = $ <input type="text" value="0.61"/> ft / s
7. Design Flow Depth (1 foot maximum) A) Flow Area B) Top Width of Swale C) Froude Number (0.50 maximum) D) Hydraulic Radius E) Velocity-Hydraulic Radius Product for Vegetal Retardance F) Manning's n (based on SCS vegetal retardance curve E for seeded grass) G) Cumulative Height of Grade Control Structures Required	$D_2 = $ <input type="text" value="0.23"/> ft $A_2 = $ <input type="text" value="0.2"/> sq ft $W_T = $ <input type="text" value="1.8"/> ft $F = $ <input type="text" value="0.32"/> $R_H = $ <input type="text" value="0.11"/> $VR = $ <input type="text" value="0.07"/> $n = $ <input type="text" value="0.080"/> $H_D = $ <input type="text" value="9.70"/> ft
8. Underdrain (Is an underdrain necessary?)	Choose One <input type="radio"/> YES <input checked="" type="radio"/> NO
9. Soil Preparation (Describe soil amendment)	_____ _____ _____
10. Irrigation	Choose One <input type="radio"/> Temporary <input type="radio"/> Permanent

Notes: _____

Appendix C: REPORT FIGURES

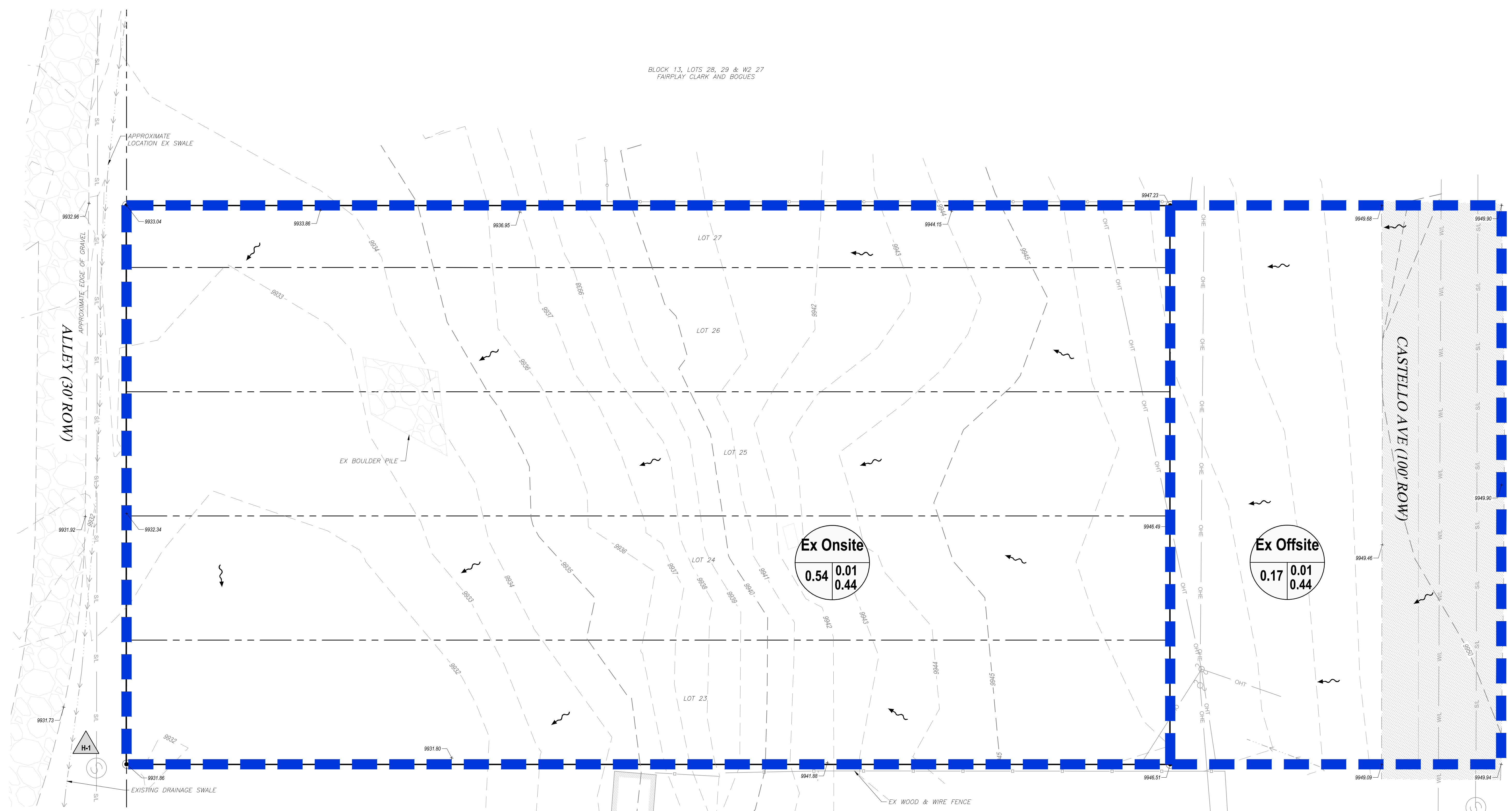
Historic Drainage Plan

Developed Drainage Plan

DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT\3. ENGINEERING\DRAWINGS\DRAINAGE\270.002 HISTORIC DRAINAGE PLANDWG CIB: 6/23/2021 1:22 PM BY: LUCAS FLAX

BLOCK 13, LOTS 28, 29 & W2 27
FAIRPLAY CLARK AND BOGUES

BLOCK 13, LOTS 21 & 22
FAIRPLAY CLARK AND BOGUES

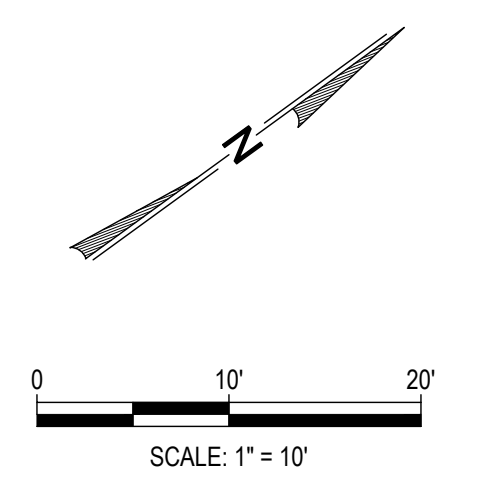


DRAWING LEGEND

- EXISTING**
- SITE BOUNDARY LINE
 - ROW OR PROPERTY LINE
 - CENTER LINE
 - CONTOURS
 - SANITARY SEWER LINE
 - WATER LINE
 - OVERHEAD ELEC LINE
 - OVERHEAD TEL LINE
 - DRAINAGE SWALE
 - BARB-WIRE FENCE
 - WIRE MESH FENCE
 - WOOD & WIRE FENCE
 - ASPHALT PAVING
 - CONCRETE PAVEMENT
 - BUILDING

DRAINAGE LEGEND

- HISTORIC MAJOR DRAINAGE BASIN
- HISTORIC OVERLAND FLOW ARROW
- DEVELOPED DESIGN POINT (DP)
- BASIN DESIGNATION (D1)
- RUNOFF COEFFICIENT (MINOR 10-YEAR) (C10)
- RUNOFF COEFFICIENT (MAJOR 100-YEAR) (C100)
- AREA (ACRES)



THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION

REV.	DATE	DESCRIPTION	REVISION BLOCK

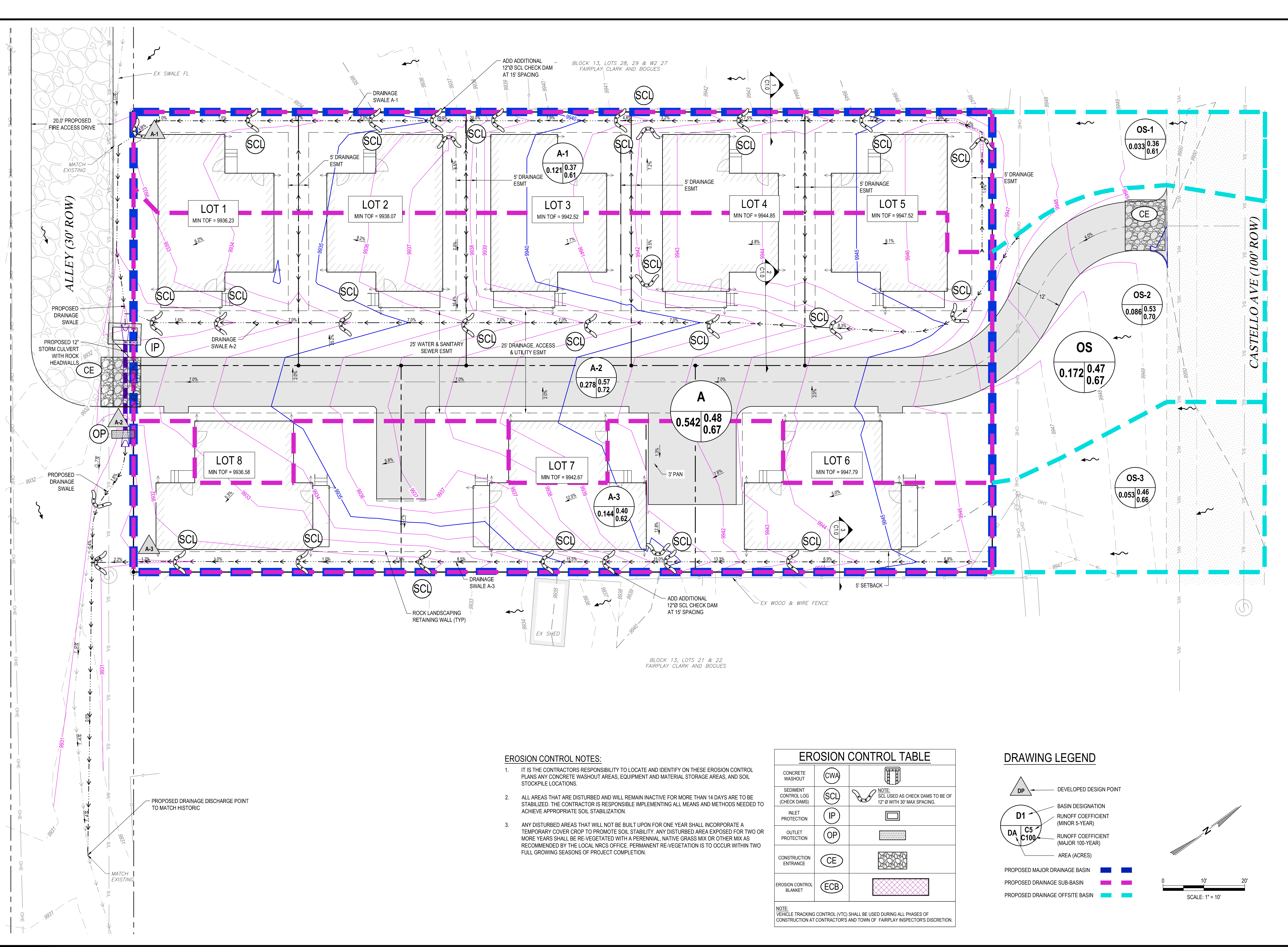


permontesgroup
 T: (720) 684-4881
 F: (720) 463-0689
 www.permontesgroup.com

PREPARED FOR: BRECKENRIDGE LANDS
 SHEET TITLE: SUMMIT HABITAT FOR HUMANITY DRAINAGE PLAN
 HISTORIC DRAINAGE PLAN

DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	06/24/2021
SCALE:	AS SHOWN
DP-EX	
SHEET # OF 2	

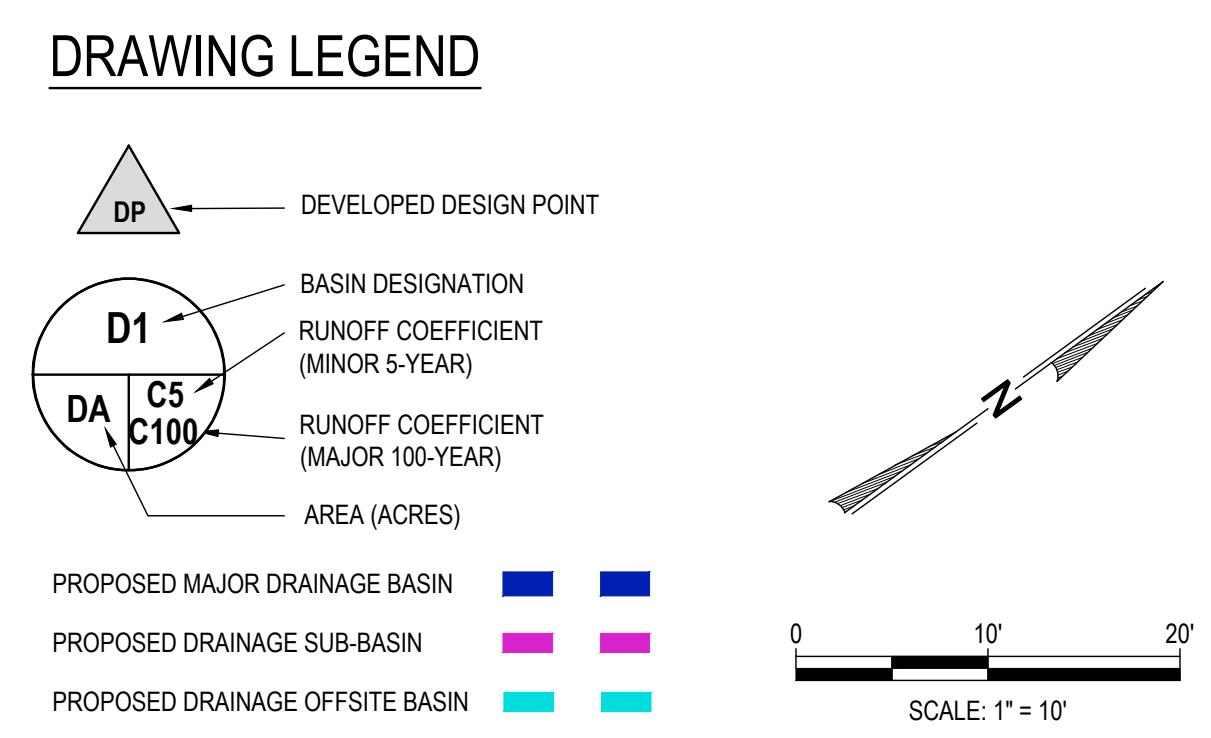
DRAWING FILE: Z:\SHARED\270.002 SUMMIT HABITAT\3. ENGINEERING\DRAWINGS\270.002 GRADING & DRAINAGE PLAN.DWG



- EROSION CONTROL NOTES:**
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND IDENTIFY ON THESE EROSION CONTROL PLANS ANY CONCRETE WASHOUT AREAS, EQUIPMENT AND MATERIAL STORAGE AREAS, AND SOIL STOCKPILE LOCATIONS.
 - ALL AREAS THAT ARE DISTURBED AND WILL REMAIN INACTIVE FOR MORE THAN 14 DAYS ARE TO BE STABILIZED. THE CONTRACTOR IS RESPONSIBLE IMPLEMENTING ALL MEANS AND METHODS NEEDED TO ACHIEVE APPROPRIATE SOIL STABILIZATION.
 - ANY DISTURBED AREAS THAT WILL NOT BE BUILT UPON FOR ONE YEAR SHALL INCORPORATE A TEMPORARY COVER CROP TO PROMOTE SOIL STABILITY. ANY DISTURBED AREA EXPOSED FOR TWO OR MORE YEARS SHALL BE RE-VEGETATED WITH A PERENNIAL, NATIVE GRASS MIX OR OTHER MIX AS RECOMMENDED BY THE LOCAL NRCS OFFICE. PERMANENT RE-VEGETATION IS TO OCCUR WITHIN TWO FULL GROWING SEASONS OF PROJECT COMPLETION.

EROSION CONTROL TABLE		
CONCRETE WASHOUT	(CWA)	
SEDIMENT CONTROL LOG (CHECK DAMS)	(SCL)	NOTE: SCL USED AS CHECK DAMS TO BE OF 12" @ WITH 30' MAX SPACING.
INLET PROTECTION	(IP)	
OUTLET PROTECTION	(OP)	
CONSTRUCTION ENTRANCE	(CE)	
EROSION CONTROL BLANKET	(ECB)	

NOTE: VEHICLE TRACKING CONTROL (VTC) SHALL BE USED DURING ALL PHASES OF CONSTRUCTION AT CONTRACTORS AND TOWN OF FAIRPLAY INSPECTOR'S DISCRETION.



 Know what's below. Call before you dig.	
 T: (720) 684-4981 105 S. Sunset St., Unit H Longmont, CO 80501 F: (720) 463-0689 www.permontesgroup.com	
PREPARED FOR: BRECKENRIDGE LANDS	SHEET TITLE: SUMMIT HABITAT FOR HUMANITY FINAL SITE DEVELOPMENT PLAN DRAINAGE & EROSION CONTROL PLAN
FOR REVIEW ONLY, NOT FOR CONSTRUCTION	
DESIGNED BY:	LTF
DRAWN BY:	PGI
CHECKED BY:	LTF
APPROVED BY:	ML/LTF
PROJECT NO.:	270.002
DATE:	01/12/2022
SCALE:	AS SHOWN
C5.1 SHEET 8 OF 9	

Appendix D: RESOURCES

NOAA Atlas 14 – Precipitation Data

NRCS Websoil Survey



NOAA Atlas 14, Volume 8, Version 2
Location name: Fairplay, Colorado, USA*
Latitude: 39.2254°, Longitude: -105.9999°
Elevation: 9941.72 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

PF tabular

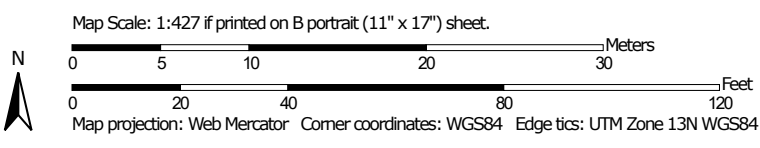
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.72 (1.33-2.23)	2.16 (1.68-2.81)	2.99 (2.32-3.90)	3.76 (2.89-4.92)	4.93 (3.73-6.91)	5.95 (4.37-8.41)	7.04 (4.99-10.2)	8.24 (5.60-12.4)	9.96 (6.50-15.4)	11.4 (7.20-17.7)
10-min	1.25 (0.978-1.63)	1.58 (1.23-2.06)	2.19 (1.69-2.86)	2.75 (2.12-3.61)	3.61 (2.73-5.06)	4.36 (3.20-6.16)	5.15 (3.65-7.49)	6.04 (4.10-9.05)	7.30 (4.76-11.3)	8.32 (5.27-13.0)
15-min	1.02 (0.796-1.33)	1.29 (1.00-1.68)	1.78 (1.38-2.32)	2.24 (1.72-2.93)	2.94 (2.22-4.11)	3.54 (2.60-5.00)	4.19 (2.97-6.10)	4.90 (3.34-7.36)	5.93 (3.88-9.17)	6.77 (4.28-10.5)
30-min	0.710 (0.552-0.922)	0.888 (0.690-1.15)	1.22 (0.942-1.59)	1.52 (1.17-2.00)	1.99 (1.51-2.79)	2.40 (1.76-3.39)	2.84 (2.01-4.13)	3.32 (2.26-4.98)	4.01 (2.62-6.21)	4.58 (2.90-7.13)
60-min	0.437 (0.340-0.568)	0.544 (0.423-0.707)	0.737 (0.570-0.961)	0.914 (0.704-1.20)	1.19 (0.894-1.65)	1.42 (1.04-2.00)	1.66 (1.18-2.41)	1.93 (1.31-2.90)	2.32 (1.52-3.58)	2.63 (1.67-4.10)
2-hr	0.260 (0.204-0.334)	0.322 (0.252-0.414)	0.432 (0.338-0.559)	0.534 (0.415-0.693)	0.687 (0.522-0.945)	0.816 (0.603-1.14)	0.954 (0.682-1.37)	1.10 (0.756-1.63)	1.32 (0.868-2.01)	1.49 (0.952-2.29)
3-hr	0.190 (0.150-0.243)	0.232 (0.183-0.297)	0.306 (0.241-0.393)	0.374 (0.292-0.483)	0.477 (0.364-0.651)	0.563 (0.418-0.778)	0.655 (0.471-0.931)	0.755 (0.521-1.11)	0.897 (0.595-1.36)	1.01 (0.651-1.54)
6-hr	0.115 (0.092-0.145)	0.138 (0.110-0.175)	0.178 (0.141-0.226)	0.214 (0.168-0.273)	0.267 (0.205-0.359)	0.311 (0.233-0.424)	0.358 (0.259-0.501)	0.408 (0.284-0.589)	0.478 (0.320-0.712)	0.534 (0.348-0.805)
12-hr	0.072 (0.058-0.090)	0.085 (0.068-0.106)	0.107 (0.086-0.135)	0.127 (0.101-0.161)	0.156 (0.121-0.207)	0.180 (0.136-0.242)	0.205 (0.150-0.284)	0.232 (0.163-0.331)	0.270 (0.183-0.396)	0.300 (0.197-0.446)
24-hr	0.045 (0.037-0.056)	0.052 (0.042-0.065)	0.065 (0.052-0.081)	0.076 (0.061-0.095)	0.092 (0.072-0.121)	0.106 (0.081-0.140)	0.120 (0.089-0.163)	0.135 (0.096-0.190)	0.156 (0.107-0.226)	0.173 (0.115-0.254)
2-day	0.027 (0.022-0.033)	0.031 (0.026-0.038)	0.038 (0.031-0.047)	0.044 (0.036-0.055)	0.053 (0.042-0.069)	0.061 (0.047-0.080)	0.069 (0.051-0.093)	0.077 (0.056-0.107)	0.089 (0.062-0.128)	0.099 (0.066-0.143)
3-day	0.020 (0.017-0.025)	0.023 (0.019-0.028)	0.028 (0.023-0.035)	0.033 (0.027-0.041)	0.040 (0.032-0.051)	0.045 (0.035-0.059)	0.051 (0.038-0.068)	0.057 (0.041-0.078)	0.065 (0.046-0.093)	0.072 (0.049-0.104)
4-day	0.017 (0.014-0.020)	0.019 (0.016-0.023)	0.023 (0.019-0.028)	0.027 (0.022-0.033)	0.032 (0.026-0.041)	0.037 (0.028-0.047)	0.041 (0.031-0.055)	0.046 (0.033-0.063)	0.052 (0.037-0.074)	0.058 (0.039-0.082)
7-day	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.016 (0.013-0.019)	0.018 (0.015-0.022)	0.021 (0.017-0.027)	0.024 (0.019-0.031)	0.027 (0.020-0.035)	0.030 (0.022-0.040)	0.034 (0.024-0.047)	0.037 (0.025-0.052)
10-day	0.009 (0.008-0.011)	0.010 (0.009-0.013)	0.013 (0.010-0.015)	0.014 (0.012-0.017)	0.017 (0.013-0.021)	0.019 (0.015-0.024)	0.021 (0.016-0.027)	0.023 (0.017-0.031)	0.026 (0.018-0.036)	0.028 (0.019-0.040)
20-day	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.010)	0.009 (0.008-0.011)	0.011 (0.009-0.014)	0.012 (0.010-0.015)	0.013 (0.010-0.017)	0.015 (0.011-0.020)	0.016 (0.012-0.022)	0.018 (0.012-0.025)
30-day	0.005 (0.004-0.006)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.008 (0.006-0.009)	0.009 (0.007-0.011)	0.010 (0.008-0.012)	0.011 (0.008-0.014)	0.012 (0.009-0.015)	0.013 (0.009-0.017)	0.014 (0.010-0.019)
45-day	0.004 (0.004-0.005)	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.006 (0.005-0.007)	0.007 (0.006-0.009)	0.008 (0.006-0.010)	0.009 (0.007-0.011)	0.009 (0.007-0.012)	0.010 (0.007-0.013)	0.011 (0.008-0.015)
60-day	0.004 (0.003-0.004)	0.004 (0.003-0.005)	0.005 (0.004-0.006)	0.005 (0.005-0.006)	0.006 (0.005-0.007)	0.007 (0.005-0.008)	0.007 (0.006-0.009)	0.008 (0.006-0.010)	0.008 (0.006-0.011)	0.009 (0.006-0.012)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

Custom Soil Resource Report
Soil Map



Teller-Park Area, Colorado, Parts of Park and Teller Counties

8—Bassel-Reinecker complex, 15 to 55 percent slopes

Map Unit Setting

National map unit symbol: k11y
Elevation: 9,300 to 9,800 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 35 to 39 degrees F
Frost-free period: 50 to 80 days
Farmland classification: Not prime farmland

Map Unit Composition

Bassel and similar soils: 50 percent
Reinecker and similar soils: 45 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bassel

Setting

Landform: Hills, mountains
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium derived from sandstone and/or conglomerate

Typical profile

A - 0 to 4 inches: very gravelly sandy loam
Bt1 - 4 to 9 inches: very gravelly sandy clay loam
Bt2 - 9 to 14 inches: very gravelly sandy clay loam
Bt3 - 14 to 22 inches: very gravelly sandy clay loam
Bk1 - 22 to 36 inches: very gravelly sandy loam
Bk2 - 36 to 44 inches: extremely gravelly loamy coarse sand
Cr - 44 to 54 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.03 to 0.09 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Available water capacity: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY377CO - Skeletal Loam
Hydric soil rating: No

Description of Reinecker**Setting**

Landform: Hills, mountains
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium derived from sandstone and/or conglomerate

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: gravelly sandy loam
E - 3 to 7 inches: very gravelly sandy loam
Bt1 - 7 to 16 inches: very gravelly sandy clay loam
Bt2 - 16 to 21 inches: very gravelly sandy loam
Bw - 21 to 27 inches: very gravelly sandy loam
Bk1 - 27 to 44 inches: very gravelly coarse sandy loam
Bk2 - 44 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 15 to 55 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
 (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Other vegetative classification: Douglas-fir/kinnikinnick-common juniper (PSME/
 ARUV-JUCO6) (C1219)
Hydric soil rating: No

Minor Components**Rogert**

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side
 slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY230CO
Hydric soil rating: No

Lanswick

Percent of map unit: 2 percent
Landform: Hills, drainageways
Landform position (three-dimensional): Base slope

Custom Soil Resource Report

Ecological site: R048BY280CO

Hydric soil rating: No

47—Hodden sandy loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: k0y9

Elevation: 9,000 to 9,600 feet

Mean annual precipitation: 10 to 16 inches

Mean annual air temperature: 35 to 39 degrees F

Frost-free period: 50 to 80 days

Farmland classification: Not prime farmland

Map Unit Composition

Hodden and similar soils: 93 percent

Minor components: 7 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hodden

Setting

Landform: Outwash terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Outwash derived from granite and gneiss and/or outwash derived from sedimentary rock

Typical profile

A - 0 to 4 inches: sandy loam

Bt - 4 to 8 inches: very gravelly sandy loam

Bk1 - 8 to 12 inches: very gravelly sandy clay loam

Bk2 - 12 to 18 inches: very gravelly sandy loam

Bk3 - 18 to 30 inches: very gravelly coarse sandy loam

Bk4 - 30 to 60 inches: extremely gravelly coarse sandy loam

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water capacity: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Ecological site: R048BY225CO - Mountain Loam 10-16" South Park

Hydric soil rating: No

Minor Components**Temdille**

Percent of map unit: 3 percent

Landform: Bajadas

Ecological site: R048BY225CO - Mountain Loam 10-16" South Park

Hydric soil rating: No

Lanswick

Percent of map unit: 2 percent

Landform: Hills, drainageways

Landform position (three-dimensional): Base slope

Ecological site: R048BY225CO - Mountain Loam 10-16" South Park

Hydric soil rating: No

Gebson

Percent of map unit: 2 percent

Landform: Fan remnants

Ecological site: R048BY225CO - Mountain Loam 10-16" South Park

Hydric soil rating: No

GEOTECHNICAL ENGINEERING STUDY
521 CASTELLO AVENUE
FAIRPLAY, COLORADO
80440

PROJECT NUMBER 20-1221
SEPTEMBER 17, 2020

PREPARED FOR
APRIL-DAWN KNUDSEN
EXECUTIVE DIRECTOR
SUMMIT HABITAT
P.O. BOX 4330
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80424

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Table of Contents

EXECUTIVE SUMMARY.....	3
PURPOSE AND SCOPE OF WORK.....	4
PROPOSED CONSTRUCTION.....	4
SITE CONDITIONS.....	4
FIELD EXPLORATION	4
SUBSURFACE CONDITIONS.....	4
FOUNDATION DESIGN RECOMMENDATIONS.....	5
FLOOR SLABS	7
SEISMIC CONSIDERATIONS	7
SURFACE DRAINAGE.....	7
UNDERDRAIN SYSTEM.....	8
HOMEOWNER PRECAUTIONS.....	8
DESIGN AND CONSTRUCTION SUPPORT SERVICES.....	8
LIMITATIONS.....	8
TABLE 1	
FIGURE 1 – LOCATION AND SITE MAP	
FIGURE 2 – LOCATION OF EXPLORATORY PIT	
FIGURE 3 – PIT LOG	
FIGURE 4 – LEGEND AND NOTES	

EXECUTIVE SUMMARY

Best Engineering Solutions and Technologies, LLC (BEST) completed a geotechnical engineering study for the project located at 521 Castello Avenue in Fairplay, Colorado. Design parameters and a discussion of geotechnical engineering considerations related to construction of the proposed residences are included in this report. A summary of the findings includes:

1. Subsurface explorations encountered, natural medium dense, sandy gravel to gravelly sand with clay and cobbles. Groundwater was not encountered during excavation of the test pits. Fluctuations of the groundwater may occur seasonally or with precipitation events.
2. Based on the subsurface conditions encountered in the test pits and the nature of the proposed construction, we recommend the proposed structures be founded with spread footings bearing on native soils. Spread footings bearing as recommended should be designed for an allowable bearing pressure of 2,500 pounds per square foot (psf).
3. Native soils or imported structural fill are suitable for support of concrete slab construction.
4. A representative of our office should observe the construction operations discussed in this report.
5. Keep any exposed soils from excessive drying or wetting during the construction process.
6. More detailed recommendations are made throughout this report. These must be reviewed to assure proper consideration in the design.

PURPOSE AND SCOPE OF WORK

This report presents the results of a geotechnical engineering study for the project located at 521 Castello Avenue in Fairplay, Colorado. The project site is shown on Figure 1. The study was conducted to provide foundation design and support of slabs-on-grade recommendations.

A field exploration study consisting of six exploratory test pits was conducted to collect information on the subsurface conditions. Samples of the subsoils collected during the field exploration were tested in the laboratory to determine their classification and engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths, and allowable pressures for the proposed building foundations.

This report has been prepared to summarize the data obtained during this study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction of the proposed residences are included in this report.

PROPOSED CONSTRUCTION

We understand that the proposed construction will consist of construction of two duplex buildings (Buildings 1 & 3) and four single-family homes (Buildings 2, 4, 5, and 6) with attached garages. Conventional wood frame construction, with column loads expected to be low to moderate and typical of this type of structure, will be used above grade with cast-in-place concrete foundations below grade. Ground floors will be slab-on-grade. Site development is expected to include sidewalk and landscaped areas. Local utilities will generally be underground, except for surface storm runoff and overhead electric.

If the loadings, locations, or grading plans for the structures change significantly from those described above, we should be notified to re-evaluate the recommendations contained in this report.

SITE CONDITIONS

At the time of our field exploration, the property consisted of a single-family residence. The site is bounded by residential single-family homes. The topography in the area slopes toward the north and east and is at an approximate elevation range of 9,951 feet to 9,963 feet MSL.

FIELD EXPLORATION

The exploratory pits were excavated on August 12, 2020, approximately at the location shown on Figure 2 to evaluate the subsurface conditions. The test pits were excavated using a mini excavator and was logged by a representative of BEST. Samples of the soils were taken with undisturbed sampling methods and the depth of the pits and samples are shown on the Pit Log, Figure 3 and Legend and Notes, Figure 4.

SUBSURFACE CONDITIONS

Test Pits 1 encountered, natural medium dense, sandy gravel with clay and cobbles to the maximum depth explored of 5 feet. Test Pits 2 encountered, natural medium dense, gravelly sand with clay and cobbles to the maximum depth explored of 5 feet. Test Pit 3 encountered man-placed fill, medium dense sandy gravel with clay to a depth of 4 feet. Natural, medium dense, sandy gravel with clay and cobbles was encountered to the maximum depth explored of 6 feet. Test Pits 4 encountered, natural medium dense, clayey sand with gravel and cobbles to the maximum depth explored of 4 feet. Test Pits 5 encountered, natural medium dense, clayey sand with gravel and cobbles to the maximum depth explored of 5 feet. Test Pits 6 encountered, natural

[4]

medium dense, sandy gravel with clay and cobbles to the maximum depth explored of 5 feet. The soils encountered were slightly moist to moist. Groundwater was not encountered during excavation of the test pits. Fluctuations in the groundwater levels may occur seasonally or with precipitation events.

Samples taken from the exploratory pits were obtained for laboratory testing and inspected by the project engineer. The results of the tests performed on the samples obtained from the test pits are shown on Table 1. Laboratory testing included index property tests, such as moisture content and density, swell/consolidation testing and gradation analysis. The testing was performed on relatively undisturbed drive samples and were in general conformance with recognized test procedures, primarily, ASTM and Colorado Department of Transportation (CDOT).

FOUNDATION DESIGN RECOMMENDATIONS

The native soils are suitable to support lightly to moderately loaded slab-on-grade construction. Based on the subsoil conditions encountered in the exploratory pits and the nature of the proposed construction, we recommend that the structures be founded with spread footings bearing on native soils. The design and construction criteria presented below should be observed for a spread footing foundation system.

1. Footings placed on the native soils should be designed for an allowable soil bearing pressure of 2,500 pounds per square foot (psf). Based on experience it is expected that movement of the footings, designed and constructed as discussed in this section, would be approximately 1.5-inch or less. Differential movements are estimated to be approximately $\frac{1}{2}$ to $\frac{3}{4}$ of the total settlement. Most of this settlement will occur during the construction phase. If man-placed fill is encountered, we recommend that it be removed and reworked in accordance with the backfill recommendations below.
2. Spread footings placed on native soils should have a minimum footing width of 18 inches for continuous footings and 24 inches for isolated pads.
3. Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 24 inches below exterior grade is required by the Park County.
4. Continuous foundation walls should be reinforced top and bottom to span local anomalies by assuming an unsupported length of at least 10 feet.
5. A grounding system (Ufer Ground) may be installed where the grounding system is contained within the exterior building wall and the concrete foundation wall. This is in place of having a copper ground rod installed adjacent to the foundation wall.
6. The lateral resistance of a spread footing placed on undisturbed native soils or properly compacted granular structural fill material will be a combination of the sliding resistance of the footing on the foundation materials and passive earth pressure against the side of the footing. Based on the soil characteristics, the resistance to sliding at the bottoms of the footings can be calculated based on a coefficient of friction of 0.50. Passive pressure against the sides of the footings can be calculated using an equivalent fluid unit weight of 420 pounds per cubic foot (pcf). The at-rest lateral pressures on the walls can be calculated using an equivalent fluid density of 50 psf per foot of depth. The active lateral earth pressures should use and

- equivalent fluid density of about 35 psf per foot of depth. These lateral resistance values are working values.
7. All loose or soft soils should be removed, and the footing bearing level placed on native soils or properly compacted structural fill. The disturbed surface of the native soils should be compacted prior to concrete placement.
 8. Interior backfill should consist of onsite native soils and should be placed in uniform lifts not to exceed 10 inches thick and compacted to at least 98% of the standard Proctor (ASTM D 698) maximum dry density and within 2 percentage points of the optimum moisture content. Interior backfill should extend laterally beyond the edges of the footings at a distance at least equal to the depth of the fill below the footing subgrade. Prior to the fill placement, any loose subgrade soils should be compacted. Any wet and soft subgrade soils should be removed prior to fill placement. The backfill material should be free of snow and ice, vegetation, topsoil, organics, trash, construction debris, oversized rocks greater than 8 inches in diameter, and other deleterious material.
 9. Exterior backfill may consist of the onsite native soils or imported structural fill and should be properly placed and compacted to reduce the risk of settlement and distress. Onsite backfill material placed on the exterior of the structure should be placed and compacted to at least 95% of the standard Proctor (ASTM D 698) maximum dry density within 2 percentage points of the optimum moisture content.
 10. Backfill in pavement and walkway areas should also be compacted to at least 95% of the standard Proctor (ASTM D 698) maximum dry density and within 2 percentage points of the optimum moisture content. Care should be taken when compacting around the foundation walls and underground structures to avoid damage to the structure. Hand compaction procedures may be used to prevent excessive lateral pressures from exceeding the design values.
 11. Backfill in landscaped areas may consist of native onsite soils or imported structural fill. It should be placed in uniform lifts and compacted to at least 90% of the standard Proctor (ASTM D 698) maximum dry density within 2 percentage points of the optimum moisture content.
 12. Utility backfill should be compacted as appropriate for the proposed surface uses (landscape, building, pavement, etc.).
 13. All foundation and retaining structures should be designed for appropriate hydrostatic and surcharge pressures, such as adjacent footings, traffic, construction materials, and equipment. The buildup of water behind a wall or an upward sloping backfill surface will increase the lateral pressure imposed on a foundation wall or retaining structure. An underdrain system should be provided to prevent hydrostatic pressure buildup behind the walls. The lateral resistance values identified above assume drained conditions behind the walls and a horizontal backfill surface. Refer to the Underdrain System section for further information. Minor cracking of concrete foundation walls should be expected.
 14. Based on our experience, we recommend all concrete exposed to the onsite materials meet the cement requirements for Class 0 exposure of sulfate attack on concrete as presented in ACI 318-14. Alternatively, the concrete could meet the CDOT requirements for Class 0 exposure as presented in Section 601.04 of the CDOT Standard Specifications for Road and Bridge Construction (2017).

15. Depending upon depth of excavation and seasonal conditions, groundwater may be encountered within excavations on the site. Pumping from sumps may be utilized to control water within excavations, if necessary. BEST is available to provide further dewatering recommendations if this issue arises.
16. A BEST representative should observe all footing excavations prior to concrete placement to evaluate bearing conditions.

FLOOR SLABS

The native soils are suitable to support lightly to moderately loaded slab-on-grade construction. To reduce the effects of differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints, which allow unrestrained vertical movement. Interior non-bearing partitions resting on floor slabs should be provided with slip joints so that, if the slabs move, the movement cannot be transmitted to the upper structure. This detail is also important for wallboards, stairways and door frames. Slip joints which will allow at least 1.5 inches of vertical movement are recommended.

Floor slab control joints should be used to reduce damage due to shrinkage cracking. Joint spacing is dependent on slab thickness, concrete aggregate size, and slump, and should be consistent with recognized guidelines such as those of the Portland Cement Association (PCA) and American Concrete Institute (ACI). The joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use.

Fill placed beneath floor slabs may consist of native onsite soils, an imported structural fill, or non-expansive, predominantly granular material. The geotechnical engineer should evaluate the suitability of fill materials prior to placement.

Slab performance is greatly dependent on the amount of moisture introduced to the underlying soils, which could result in potential excessive movement causing uneven slabs and cracking. Proper surface grading and foundation drain installation will help to reduce water infiltration in the sub-slab soils. Recommendations within the Surface Drainage and the Underdrain System sections below, should be followed. Recommendations provided in this section are meant to reduce the possible distress caused by slab movement but will not completely eliminate risk. A structurally supported floor system should be used if the owner cannot tolerate potential movement.

SEISMIC CONSIDERATIONS

This area of Fairplay is located in Seismic Design Category “B”. The soil at the foundation level has a very dense soil profile. The average soil profile in the top one-hundred feet provides an overall “stiff soil” profile, which provides a Site Class of “D”. Based on the subsurface profile, site seismicity, and the anticipated ground conditions; liquefaction is not a design consideration.

SURFACE DRAINAGE

Proper surface drainage is very important for acceptable performance of the slab-on-grade during construction and after the construction has been completed. The following recommendations should be used as guidelines and changes should be made only after consultation with the geotechnical engineer.

1. Excessive wetting or drying of the excavation and underslab areas should be avoided during construction.

2. The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet in unpaved areas and a minimum slope of 3 inches in the first 10 feet in paved areas. Free-draining wall backfill should be capped with approximately 2 feet of the onsite finer graded soils to facilitate surface drainage. Site drainage beyond the 10-foot zone should be designed to promote runoff and reduce infiltration. These slopes may be changed as required for handicap access points in accordance with the Americans with Disabilities Act.
3. Xeriscaping should be considered with limited irrigation within 4 feet of the foundation walls. Roof downspouts and drains should discharge well beyond the limits of all backfill and onto splash blocks.

UNDERDRAIN SYSTEM

The slab-on-grade construction precludes the need for an underdrain system. It is recommended that an impermeable plastic sheet be placed beneath the floor slab in any living spaces to reduce moisture migration through the concrete slab. The sheet should be secured to the interior of the foundation walls. There should be a minimum one-foot side lap and at least two-feet of end lap.

HOMEOWNER PRECAUTIONS

All new construction has an adjustment period after construction is completed. Exterior and interior observation should be performed on a regular basis. The exterior backfill should be checked for positive drainage away from the foundation. No ponding of water should be observed. Roof downspouts and splash blocks should direct water away from the foundation. The discharge of any sump should be free of blockage and discharge away from the foundation.

DESIGN AND CONSTRUCTION SUPPORT SERVICES

Please consider retaining BEST to provide the following services:

1. Review of the project plans and specifications for conformance with the recommendations provided in this report.
2. Observation and testing to document that the intent of this report and that the requirements of the plans and specifications are being followed during construction.
3. Identification of possible variations in subsurface conditions from those encountered in this study, so that recommendations can be re-evaluated, if needed.
4. Preparation of a shoring plan, if necessary, for the protection of adjacent structures.

BEST is also available to assist the design team in preparing specifications for the geotechnical aspects of the project and performing additional studies if necessary, to accommodate possible changes in the proposed construction.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering practices in this area for exclusive use by the client for design purposes. Copying of this report or portions of this report

without the express written permission of Best Engineering Solutions and Technologies, LLC (BEST), is specifically prohibited. We make no warranty either express or implied. The conclusions and recommendations submitted in this report are based upon data obtained from the exploratory test pits at the locations indicated on Fig. 2, and the proposed construction. This report may not reflect subsurface variations that occur between the explorations. The nature and extent of variations across the site may not become evident until site grading and excavations are performed. If fill, soil, rock or water conditions appear to be different from those described herein, BEST should be advised at once so that a re-evaluation of the recommendations presented in this report can be made. BEST is not responsible for liability associated with interpretation of subsurface data by others.

The scope of services for this project does not include any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. In addition, this study does not include determination of the presence, prevention, or possibility of mold or other biological contaminants developing in the future. If the owner is concerned about the potential for such contamination, other studies should be undertaken.

Matthew A. Best, P.E.
Project Engineer

TABLE 1.1
SUMMARY OF LABORATORY TEST RESULTS

PROJECT: 521 Castello Avenue
LOCATION: Fairplay, CO

PROJECT NO: 20-1221
SOURCE: Field Test Boring / Lab Testing

DATE: September 17, 2020

Boring No.	Depth	Sample Type (Note 1)	Nat. Dry Density (PCF)	Natural Moist. (%)	ATTERBERG LIMITS		GRADATION			% Swell and Consolidation	Additional Test Results (Note 3)	Soil Description
					LL	PI	% Gravel +No. 4	% Sand -No. 4 +No. 200	% Fines -No. 200			
1	0-5	BS		1			54	33	13			Sandy gravel with clay and cobbles
2	0-5	BS		2			35	43	22			Gravelly sand with clay and cobbles
3	0-6	BS		1			47	36	18			Sandy gravel with clay and cobbles
4	0-4	BS		4			15	57	28			Clayey sand with gravel and cobbles
5	0-5	BS		3			23	54	23			Clayey sand with gravel and cobbles
6	0-5	BS		2			59	33	8			Sandy gravel with clay and cobbles

NOTE 1- Sample Type

BS=Bag Sample
AS=Auger Sample
ST=Shelby Tube
CA=California Sample
RM=Remolded Sample
HD=Hand Drive
AD=Air Dried
SS=Split Spoon Sample

NOTE 2-Shear Strength Tests

C1= Unconfined Compression
C2=Miniature Compression
C3=Pocket Penetrometer
C4=Pocket Value

NOTE 3- Additional Test Results

TT=Triaxial Test
PT=Proctor
CT=Consolidation Test
RA=Radon Testing (pCi/L)
pH = pH of soil
OR = Organic content of soil
WSS=Water Soluble Sulfates

TABLE: 1
Page 1 of 1

SITE MAP

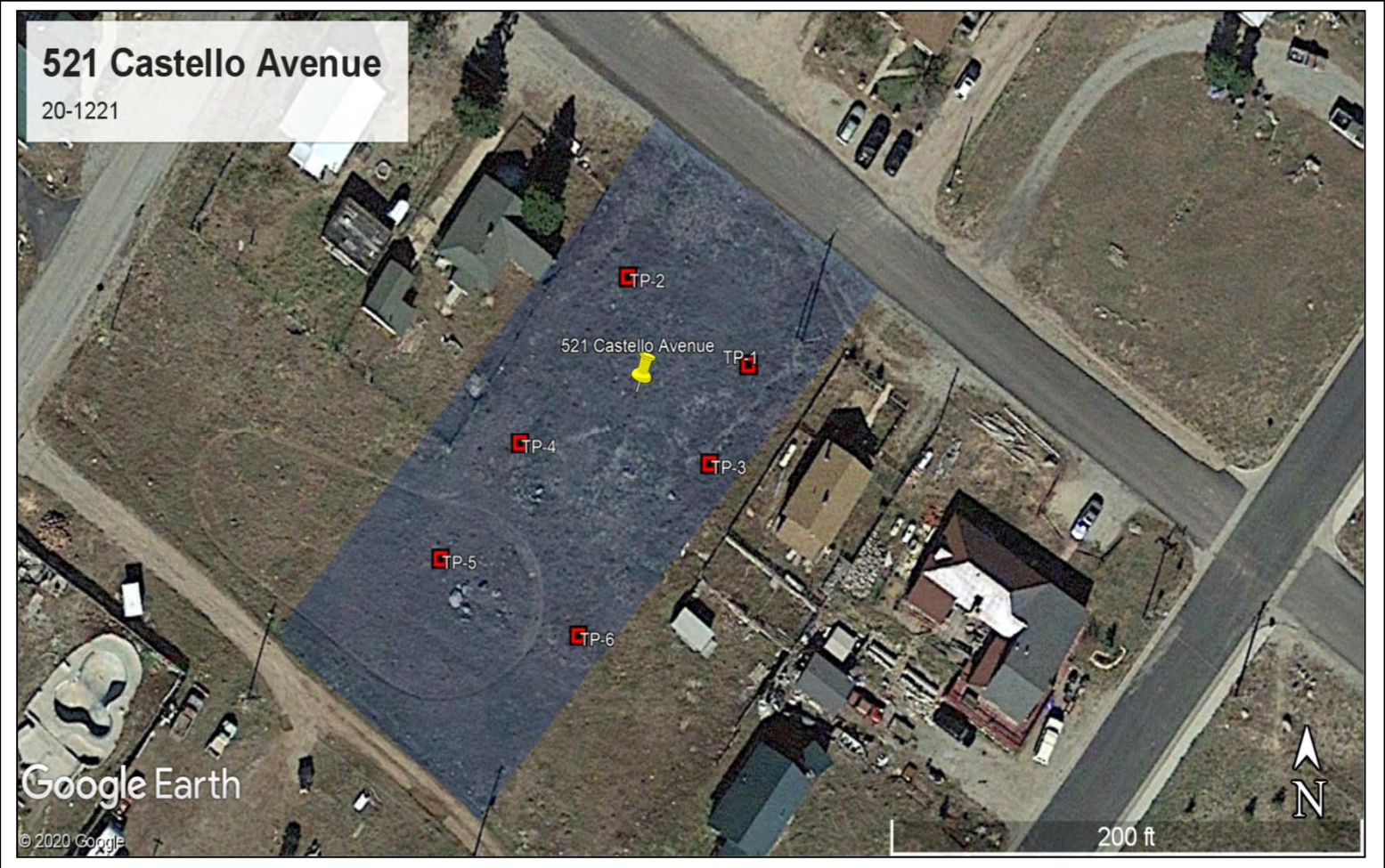


↑ N
Not to Scale

Project Number 20-1221

Figure 1

PIT LOCATION



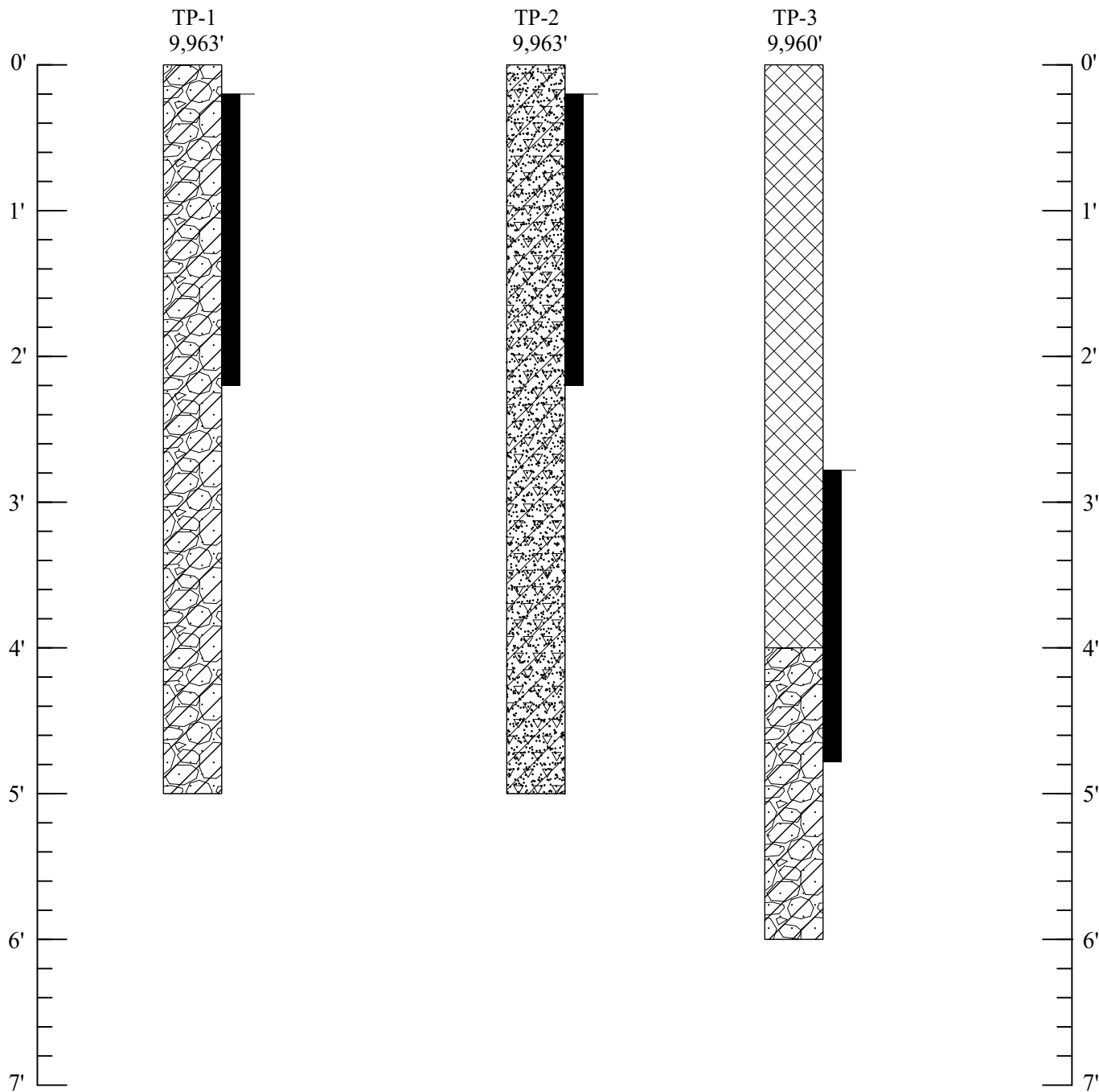
↑ N
Not to Scale

LEGEND: TP-1 to 6 – Indicate approximate location of exploratory pits

Project Number 20-1221

Figure 2

APPROXIMATE
PITS ELEVATION



PIT LOG



*Lakewood Office:
747 Sheridan Blvd, Unit 2A
Lakewood, CO 80214*

Project Location:
521 Castello Avenue
Fairplay, Colorado

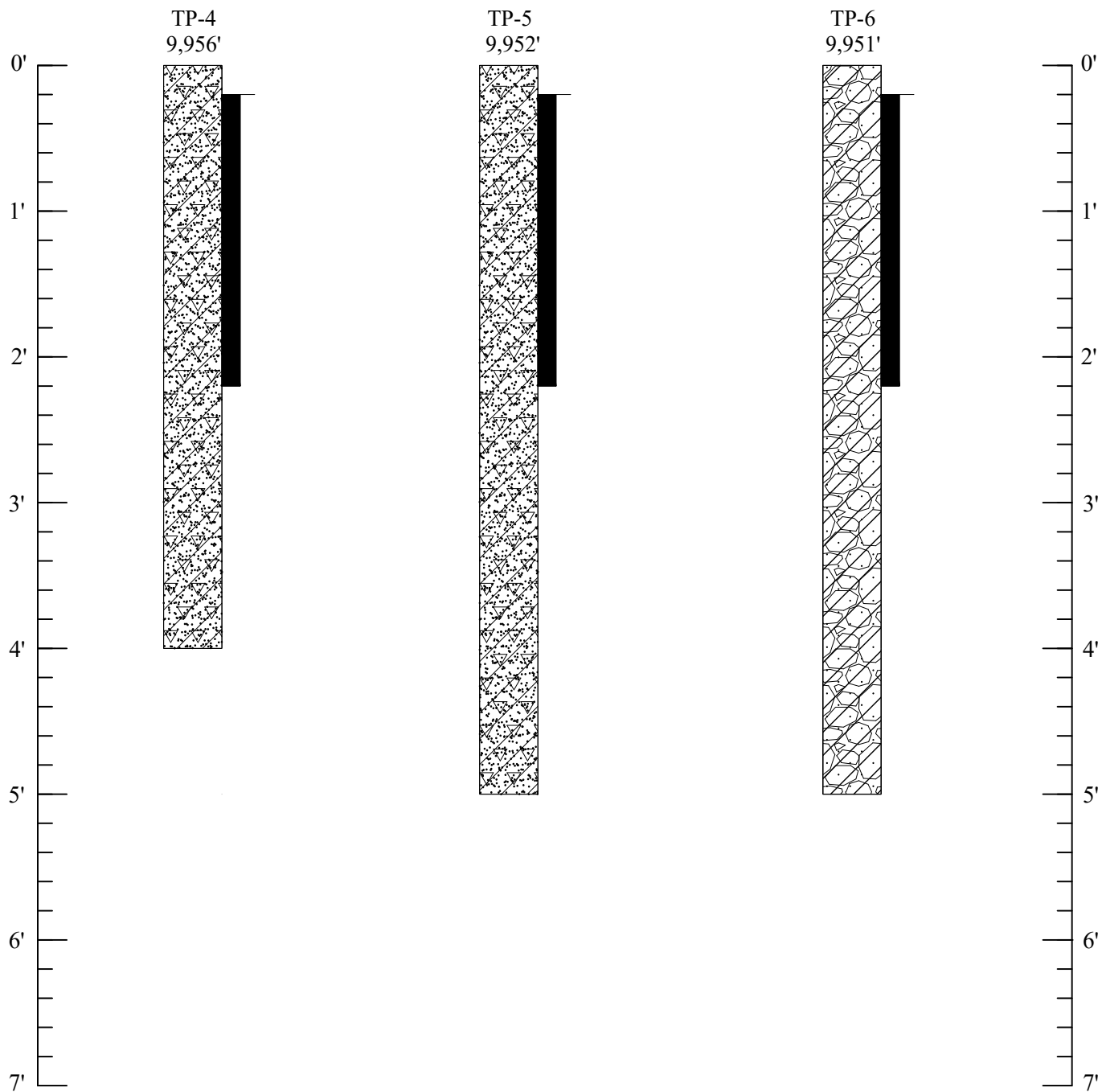
DRAWN BY: KMH
REVIEWED BY: MAB
DATE: September 17, 2020

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 20-1221

FIGURE: 3A

APPROXIMATE
PITS ELEVATION



PIT LOG



*Lakewood Office:
747 Sheridan Blvd, Unit 2A
Lakewood, CO 80214*

Project Location:
521 Castello Avenue
Fairplay, Colorado

DRAWN BY: KMH
REVIEWED BY: MAB
DATE: September 17, 2020

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 20-1221

FIGURE: 3B



Sandy gravel with clay and cobbles, medium dens, light brown, moist



Man-Placed Fill, sandy gravel with clay, medium dens, light brown, moist



Clayey sand with gravel and cobbles, medium dens, light brown, moist



Gravelly sand with clay and cobbles, medium dens, light brown, moist



Water Level, Time After Drilling (0 = At Time of Drilling)



Disturbed Sample Collected



Undisturbed Sample Collected

X/12"

Blow Counts; Number of Blows to Drive the Sampler 12-Inches (ASTM D-1586)

((X))

Depth of Caving Soils



Practical Auger Refusal

NOTES:

1. The samples were collected on August 12, 2020 with a mini excavator.
2. The stratification lines represent the approximate boundary between soil types and the transition may be gradual.
3. The pit log(s) show subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations or times.
4. Elevations are provided by Google Earth© and are considered approximate.

LEGEND & NOTES
Geotechnical Engineering Study



*Lakewood Office:
747 Sheridan Blvd, Unit 2A
Lakewood, CO 80214*

Project Location:
521 Castello Avenue
Fairplay, Colorado

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REVIEWED BY: MAB
DATE: September 17, 2020

SCALE:
Vertical: N/A
Horizontal: N/A

PROJECT NO: 20-1221

FIGURE: 4



Building Strength, Stability, and
Self-Reliance through Shelter

02/07/2022

Request to Waive Professional Consulting Fees for the Park Workforce Housing Project

Summit Habitat for Humanity (SHFH) is requesting that Professional Consulting Fees/Services be waived or donated, as a showing of support from the Town of Fairplay for the Park County Workforce Housing Project.

Thank you for your generosity and consideration.

I am looking forward to connecting with you about all that is possible.

A handwritten signature in black ink, appearing to read "April-Dawn Knudsen".

April-Dawn Knudsen, Executive Director
Summit Habitat for Humanity, Inc.

Summit Habitat for Humanity is a 501(c)3 tax exempt organization:
Tax ID Number: 84-1312622

Mailing Address:
PO Box 4330
Breckenridge, CO 80424



Physical Address:
1291 Blue River Parkway
Silverthorne, CO 80424

DISTRICT

§1-13.5-501, 1-13.5-1102(3), 32-1-905(2), C.R.S.

TO WHOM IT MAY CONCERN, and, particularly, to the electors of the Southern Park County Fire Protection District of Park County, Colorado.

NOTICE IS HEREBY GIVEN that an election will be held on the 3rd day of May, 2022, between the hours of 7:00 a.m. and 7:00 p.m. At that time, 3 directors will be elected to serve 3-year terms. Eligible electors of the Southern Park County Fire Protection District interested in serving on the board of directors may obtain a Self-Nomination and Acceptance form from the District Designated Election Official (DEO):

Carla Dabney
1745 County Road 102
Guffey, CO 80820
(719) 689-9479
carladabney@yahoo.com

The Office of the DEO is open on the following days: Monday-Friday from 9:00 a.m. to 3:00 p.m.

The deadline to submit a Self-Nomination and Acceptance is close of business - 3:00 p.m. - February 25, 2022 (not less than 67 days before the election).

Affidavit of Intent To Be A Write-In-Candidate forms must be submitted to the office of the designated election official by the close of business on Monday, February 28, 2022 (the

719-836-4242

**PUBLIC NOTICE
TAX LIEN SALE NUMBER 2018-00529
NOTICE OF PURCHASE OF PROPERTY
AT TAX LIEN SALE
AND OF APPLICATION FOR ISSUANCE
OF TREASURER'S DEED**

To Every Person in Actual Possession or Occupancy of the hereinafter Described Land, Lot or Premises, and to the Person in Whose Name the same was Taxed or Specially Assessed, and to all Persons having Interest of Title of Record in or to the said Premises and To Whom It May Concern, and more especially to: **HARTSEL SPRINGS RANCH OF COLORADO INC and MOUNTAIN LARK INVESTMENTS LLC**

You and each of you are hereby notified that on the 9th day of November 2018, the then County Treasurer of Park County, in the State of Colorado, sold at public tax lien sale to **MOUNTAIN LARK INVESTMENTS LLC** the following described property situate in the County of Park, State of Colorado, to-wit: **Schedule Number: 24588**

Legal Description: HARTSEL RANCH UNIT 103 LOT 5393 and said County Treasurer issued a certificate of purchase therefore to **MOUNTAIN LARK INVESTMENTS LLC**. That said tax lien sale was made to satisfy the delinquent property (and special

a deed to said property;

That a Treasurer's Deed will be issued for said property to **MOUNTAIN LARK INVESTMENTS LLC** at 2:00 o'clock p.m., on the 13th day of June 2022 unless the same has been redeemed;

Said property may be redeemed from said sale at any time prior to the actual execution of said Treasurer's Deed.

This Notice of Purchase will be published in The Flume on February 11, 2022, February 18, 2022 and February 25, 2022.

Witness my hand this 2nd day of February 2022

Michelle A. Miller
Park County Treasurer

Rebekah McCarver

Rebekah McCarver, Deputy II of Park County, Colorado
719-836-4242

**PUBLIC NOTICE
TAX LIEN SALE NUMBER 2018-00539
NOTICE OF PURCHASE OF PROPERTY
AT TAX LIEN SALE
AND OF APPLICATION FOR ISSUANCE
OF TREASURER'S DEED**

To Every Person in Actual Possession or Occupancy of the hereinafter Described Land, Lot or Premises, and to the Person in Whose Name the same was Taxed or Specially As-

**PUBLIC NOTICE
NOTICE OF PUBLIC HEARING
BEFORE THE FAIRPLAY BOARD OF
TRUSTEES REGARDING THE PROPOSED
HABITAT FOR HUMANITY SUBDIVISION
521 CASTELLO AVENUE, FAIRPLAY,
COLORADO**

TO ALL MEMBERS OF THE PUBLIC AND INTERESTED PERSONS:

PLEASE TAKE NOTICE that on Thursday, February 24, 2022 at 6 PM, a Public Hearing will be held before the Fairplay Board of Trustees in the Board Room at Fairplay Town Hall, 901 Main Street, Fairplay, Colorado concerning a proposed Summit Habitat for Humanity project. The proposed re-subdivision encompasses a .52 acre parcel of vacant land located at 521 Castello Avenue. Specifically, the re-subdivision would allow the applicant to replat the property dividing it into 8 lots for the purpose of constructing eight (8) single-family homes. The applicant for the Re-Subdivision is Summit Habitat for Humanity as agent for the property owner, Park County Government. For further information, please contact the Fairplay Town Clerk's Office by calling (719) 836-2822 x-102 or stopping at Town Hall located at 901 Main Street, Fairplay, CO.

As published in the Park County Republican and Fairplay Flume on February 11, 2022

Submitting Legal Publications

DEADLINE FOR LEGAL NOTICES IS 3 P.M. FRIDAY

the following Friday's paper. Legals may be delivered by Email:

tyoung@avpsalida.com.

Best you call to confirm receipt of legal notices 719-539-6691

Deadline for LEGALS 3 p.m. on Fridays

**Town of Fairplay**

901 Main Street • P.O. Box 267

Fairplay, Colorado 80440

(719) 836-2622 phone

(719) 836-3279 fax

www.fairplayco.us

February 10, 2022

**Notice of Public Hearing
Regarding the land use application for the proposed
Summit Habitat for Humanity Subdivision
located at 521 Castello Avenue in the Town of Fairplay, CO:**

This is to advise you that on Thursday, February 24, 2022, at 6:00 PM, the Board of Trustees for the Town of Fairplay will conduct a Public Hearing in the Board Room at Town Hall, 901 Main Street, Fairplay, Colorado, concerning:

The Proposed Summit Habitat Subdivision application requesting to subdivide and replat the existing .49 acre parcel of land located at 521 Castello into eight lots for the purpose of constructing eight single-family(8) homes.

The applicant is Summit Habitat for Humanity.

As an adjacent property owner, you have the right to voice your agreement with, or objection to, the requested land use application by appearing at Town Hall for the above-listed hearing, or you may express your opinion in writing by submitting a letter addressed to Mayor and Board of Trustees, Town of Fairplay, PO Box 267, Fairplay, CO 80440.

Questions may be addressed to (719) 836-2622 x-102.

Attachments:

- Certificate of Mailing
- Plat Map

CERTIFICATE OF MAILING

I hereby certify that a true and correct copy of the foregoing Notice of Public Hearing Regarding the land use application for the proposed Habitat Subdivision was placed in the United States mail, postage prepaid, first-class, on the 10th day of February 2022, addressed to:

SOUTH PARK COMMUNITY CHURCH
PO BOX 488
FAIRPLAY, CO 804400488

MCCOMB JOHN WINSOR
PO BOX 333
FAIRPLAY, CO 804400333

ST JOSEPH'S CATHOLIC CHURCH
228 N CASCADE AVE
COLORADO SPRINGS, CO 809031385

OBRIEN DEBORAH & THOMAS
PO BOX 176
ALMA, CO 804200176

SMITH RICHARD J
PO BOX 44
FAIRPLAY, CO 804400044

RODGERS EDWARD W
4608 S SHERMAN ST
ENGLEWOOD, CO 80110

MAUDSLEY JOHN C
PO BOX 3872
CRESTED BUTTE, CO 812243872

PALMER PHILIP SHAWN
PO BOX 2267
BRECKENRIDGE, CO 80424

REEVES WILLIAM
PO BOX 10
FAIRPLAY, CO 80440

CURRY KIMBERLY R
PO BOX 1745
FAIRPLAY, CO 804401745

LODGE DORIC
PO BOX 554
FAIRPLAY, CO 80440

WHITE KATHLEEN F
PO BOX 601
FAIRPLAY, CO 804400601

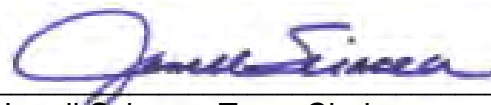
BOSCHEE ANDRIA L
2409 10TH ST SW
LOVELAND, CO 805376683

DARRON DANIEL
PO BOX 1022
FAIRPLAY, CO 80440

PARK COUNTY SCHOOL DISTRICT
PO BOX 188
FAIRPLAY, CO 80440

O'NEILL ROBERT
PO BOX 49882
LOS ANGELES, CA 90049

REESE, SHARON L
PO BOX 734
PALMER LAKE, CO 80133



Janell Sciacca, Town Clerk

AFFIDAVIT

Regarding the Required Posting of Property for Subdivision & Re-Plat

HEARING ON:

Subdivision and Re-Plat of .49 Acres into Eight (8) Lots for building Eight (8) Single-family Homes.

Property Address if applicable:

521 Castello Avenue, Fairplay, CO 80440

Public Hearing Schedule For: Thursday, February 24, 2022 at 6PM

I, Alex Wagner, hereby certify that I have posted the property located as stated above, with the proper notice for:

Date of Posting: 2/11/2022

Alex Wagner Crew Chief 2/11/2022
Signature, Title Date

Attachment: Photo of Posted Hearing Sign



