



Town of Berthoud
807 Mountain Avenue
Berthoud, CO 80513
970.532.2643

TOWN OF BERTHOUD PLANNING COMMISSION
TOWN HALL/ZOOM ONLINE MEETING
807 Mountain Avenue
THURSDAY, December 10, 2020
6:00 P.M.

1. Call to Order

2. Roll Call

Jan Dowker, Chairwoman
Patrick Dillon, Secretary
Matt Rood
Abigail Smith

Jeff Butler, Vice Chair
Sean Murphy
Danielle Trotta

All matters listed under Item 3, Consent Agenda, are considered to be routine by the Planning Commission and will be enacted with a single vote. If discussion is deemed necessary on an item, that item should be removed from the consent Agenda and considered separately.

- 3. Approval of Minutes of the November 12th and August 13th, 2020 Planning Commission Meetings.**
- 4. Public Hearing: Red Horizons Minor Subdivision, Alex Hoime agent**
- 5. Reports.**
- 6. Adjourn.**

The Planning Commission Meeting will be held virtually through Zoom, and can be accessed by the following link or phone number:

<https://us02web.zoom.us/j/89047125527>

Call-in Number: 1-669-900-6833

Meeting ID: 890 4712 5527

Public Hearing Information Guide



1. STAFF PRESENTATION

- The agenda item is introduced by Town Staff, including details of the official request, location, and how the project satisfies the Development Code and Comprehensive Plan.



2. APPLICANT PRESENTATION

- The applicant presents their proposal and makes their case for approval.

3. PUBLIC HEARING

- The Mayor or Chairperson opens the public hearing for citizen testimony.
- One at a time, citizens have an opportunity to speak up for up to three minutes about the project. This time is usually used to ask questions, provide concerns, and offer approval or disapproval of the project.
 - Because the project is being heard as a hearing, public comments are treated as testimony and not as conversation. The Applicant, Staff, and Trustees/Commissioners will not respond to any of the comments until the public hearing is closed.
- Once there are no more citizens wishing to speak, the Mayor/Chairperson will officially close the Public Hearing, which ends the public testimony period.



4. DISCUSSION AND VOTE

- The Trustees/Commissioners confer and have an opportunity to ask the applicant or staff questions that arose during the public hearing period or questions of their own.
- A motion must be made on an item, and if a motion is seconded, a vote is called; a majority must be found for any issue to pass (tie votes do not result in the passage of the item).
- If any citizen disagrees with the decision, they have thirty days to file an appeal with the Town.



Planning Commission Minutes August 13, 2020.

1. Call to Order- The Planning Commission convened a regular meeting on August 13, 2020. Planner Curt Freese began the meeting at 6:06 p.m.

2. Roll Call- Members present: Sean Murphy, Patrick Dillon, Matt Rood, and Danielle Trotta.
Members absent: Jan Dowker Chairman, Jeff Butler Vice Chair, Kelsey Byron.
Staff present: Curt Freese and Adam Olinger.

ELECTION OF TEMPORARY CHAIR- Due to the absence of the Chair, Vice Chair, and Secretary, the Planning Commission was required to elect a Temporary Chair to lead the meeting.

MOTION by Commissioner Dillon to appoint Patrick Dillon as Temporary Chair

Seconded by Commissioner Murphy.

With all in favor THE MOTION CARRIED

3. Consent Agenda- Minutes from the June 23rd, 2020 Planning Commission Meeting. Motion to approve made by Commissioner Trotta. Seconded by Commissioner Dillon. With all in favor, THE MOTION CARRIED.

4. Public Hearing: Berthoud Tech Center Final Plat, Brian Shear agent-

Planner Freese introduced the project as a final plat request to create 10 various sized industrial lots on a property on WCR 7 south of Hwy 56, where BioChar is currently located.

Mr. Shear explained that the final plat is the exact same as the Preliminary Plat the Planning Commission and Board of Trustees both approved in July.

Public hearing opened at 6:22 p.m.

Brain Harning of 2580 Weld County Road 42 asked whether or not the Town had architecture and/or setback requirements, whether Weld County Road 7 would be paved for this project, if the applicant is intending to lease or sell the lots, and if the applicant has looked into weed and prairie dog mitigation.

Public hearing closed at 6:26 p.m.

Planner Freese responded to the public hearing, stating that all buildings would have to be at least 20 feet from the right of way from Weld County Road 7, and that the Town has strict architecture guidelines that will be enforced at the site plan phase of development. Planner Freese also stated that the applicant will be responsible for paving Weld County Road 7 and extending all utility lines to their property.

Todd Loose, the applicant, responded to the public hearing by stating that he has begun work on prairie dog mitigation, and that he would like to work with his neighboring property owners to ensure success.

MOTION made by Commissioner Murphy to recommend approval of the Berthoud Tech Center Final Plat.

Seconded by Commissioner Dillon.

With all in favor, THE MOTION CARRIED.

5. Public Hearing: Prairiestar 5th Filing Final Plats, Scott Sarbaugh agent-

Planner Freese introduced the project as two final plats on the southern and eastern edges of the Prairiestar subdivision.

Mr. Sarbaugh confirmed that the final plats are the exact same as their corresponding portions in the preliminary plat that both the Planning Commission and the Board of Trustees approved in July.

Public Comment was opened at 6:43 p.m.

Anton Camarota of 41 Country Rd wanted to ensure that supervision would be given to builders as they construct the new lots to keep trash, debris, and other issues from arising.

David Gregg of 340 Mountain Ave is a builder in Prairiestar and urged the approval of the final plat so he can continue to build his economically viable houses.

Public comment closed 6:50 p.m.

Planner Freese explained that the Town has hired three new staff members and started contracts with ProCode for building inspections and Baseline Engineering for engineering review all within the last two years, as in the past staff was overwhelmed by the amount of development projects in Berthoud.

Commissioner Dillon again expressed his excitement to see the Prairiestar subdivision completed.

Commissioner Dillon motioned to recommend approval of the Prairiestar 5th Filing Final Plats with the following conditions:

- **Lots 12 and 19 in block 34, and lots 1 and 8 in block 37 must place their driveways at the furthest point from the roadway as possible to meet LCUASS standards.**

Seconded by Commissioner Trotta.

With all in favor, THE MOTION CARRIED

8. Reports -

Planner Freese mentioned that the Comprehensive Plan Committee was going to have another meeting later in the month, and that the specific date and time was still TBD.

9. Adjourn -

Motion to adjourn made by Commissioner Trotta

Seconded by Commissioner Murphy.

The meeting was adjourned at 7:04 p.m.

Planning Commission Minutes November 12, 2020.

1. Call to Order- The Planning Commission convened a regular meeting on November 12, 2020. Chairman Dowker called the meeting to order at 6:02 p.m.

2. Roll Call- Members present: Jan Dowker Chairman, Jeff Butler Vice Chair, Sean Murphy, Patrick Dillon, and Matt Rood
Members absent: Danielle Trotta.
Staff present: Curt Freese and Adam Olinger.

3. Consent Agenda- Minutes from the October 22nd Planning Commission Meeting. Motion to approve the October 22nd meeting minutes was made by Commissioner Butler. Seconded by Commissioner Murphy. **Commissioners Dowker, Butler, Dillon, Murphy, and Rood voted yes. With all in favor, THE MOTION CARRIED.**

Commissioner Dowker left the Zoom meeting after Item 3 in order to avoid a conflict of interest, leaving just Commissioners Butler, Murphy, Dillon, and Rood.

4. Public Hearing: Trails at Creekside Annexation, Neighborhood Master Plan, Rezoning- TB Group, Agent

Planner Freese introduced the project as two annexations, a Neighborhood Master Plan, and various rezonings. The project is asking for two annexations, with one being located at the northwest corner of the property at what is currently 720 S. Berthoud Pkwy and sized at 4.47 acres, and the other being located at the southeast corner of the property at what is currently 616 W County Road 4E and sized at 35.82 acres.

Planner Freese then introduced the Neighborhood Master Plan, which proposed 480 dwelling units on 141.3 acres, a density of roughly 4 dwelling units per acre. The plan called for four different housing types throughout the development: single family attached, rear loaded small cottages, townhouses, and paired homes/duplexes.

Finally, Planner Freese introduced the rezoning of the annexed land and the existing Overlook at Dry Creek PUD to straight zoning, specifically 74.53 acres of R-1 (Single Family) and 45.87 acres of R-2 (Limited Multi-Family).

Planner Freese also explained that due to the large amount of traffic intended to be created by this project, the applicant would be responsible for installing a signalized intersection at County Road 4E and Highway 287 once a home construction trigger was met, per the provided traffic study.

Jim Birdsall and Kristin Turner spoke on behalf of the applicant and explained that they addressed many of the comments at last year's rejected proposal on this land by lowering the overall density of the project, relocating the limited multi-family homes, and by creating more and larger park space.

Public comment was opened at 6:51 p.m.

Residents that spoke at the meeting were Randy Nice (903 Canyonlands), Deb Wilson (1220 S County Road 17), Leslie Tassie (945 N 4th St), Keith and Joann Seisman (569 Capital Reef Ct), Nikaloj Kavallar (604

Kansas Ave), David Sampson (911 Kansas Ave), Sean Cartwright (529 Kansas Ave), Susan Cook (910 Canyonlands), Andy Hrycyk (624 Kansas Ave), and Todd Duval (317 Canyonlands). The main points brought up during the public comment period were a desire to limit growth, concerns with the project's location in relation to Hillsdale Nature Preserve, and a distrust of the developer due to delays in the completion of Heritage Ridge.

Public comment was closed at 7:27 p.m.

Commissioner Murphy voiced his displeasure with some of the project's home locations, as he believed them to be located too close to Hillsdale Park and that they would dominate the southern view from the park.

Commissioner Dillon asked if the project was going to have an HOA and/or a Metro District. Jim Righeimer, the project applicant, stated that they planned to have an HOA.

Commissioner Butler asked for the reasoning of the annexations. Mr. Birdsall stated that part of Annexation #2 would be developed as a part of the subdivision, and that the owners of the rest of Annexation #2 and the owners for Annexation #1 asked to be annexed into the Town along with their former farm, which is the main property in this proposal.

MOTION made by Commissioner Dillon to recommend approval for the PK #1 Annexation, finding that it met the following requirements:

- The proposed annexation must satisfy 1/6 contiguity to existing municipal limits;
- There is a community of interest between the property and the Town of Berthoud; and
- The property is expected to be urbanized in the future.

Seconded by Commissioner Murphy

With all in favor THE MOTION CARRIED

MOTION made by Commissioner Dillon to recommend approval for the PK #2 Annexation, finding that it met the following requirements:

- The proposed annexation must satisfy 1/6 contiguity to existing municipal limits;
- There is a community of interest between the property and the Town of Berthoud; and
- The property is expected to be urbanized in the future.

Seconded by Commissioner Murphy

With all in favor THE MOTION CARRIED

Commissioner Murphy then brought up that he wasn't able to vote to approve the project as is, as did not agree with the close location of the lots to Hillsdale Park. After discussion amongst the Commissioners and a blessing from Mr. Righeimer, Commissioner Murphy added an additional condition for approval.

MOTION made by Commissioner Murphy to recommend approval for Trails at Creekview Neighborhood Master Plan with the following conditions:

- **That the Applicant make every effort to obtain a trail easement for a connection to Hillsdale Park**
- **Consider adding open space or transferring park area to the North, to take advantage of its excellent view corridors and topography and provide buffering to Hillsdale Park**
- **Any improvements to the intersection of Highway 287 and County Road 4E, including a potential signalized intersection, will be the responsibility of the Developer, and must be coordinated with all relevant agencies.**
- **An Eastern road connection is provided**
- **The applicant make every effort to reallocate park or open space from the interior park spaces to the northern edge of the property to act as an extended buffer to Hillsdale Park.**

Seconded by Commissioner Rood

With all in favor THE MOTION CARRIED

MOTION made by Commissioner Dillon to recommend approval for the rezoning of the existing Overlook at Dry Creek PUD to R-1 and R-2, finding that it met the following requirements:

- **The request does satisfy the applicable zoning amendment criteria of Section 30-3-110 B of the Town's Development Code as found on pages 6-7 of this Staff Report, and**
- **Is consistent with the Town of Berthoud's Comprehensive Plan and Preferred land Use Map, and**
- **Is consistent with the Neighborhood Master Plan.**

Seconded by Commissioner Rood

With all in favor THE MOTION CARRIED

4. Reports -

Commissioners Murphy and Dillon gave an update on the ongoing Comprehensive Plan update and spoke of the upcoming Visual Preference Survey, which is expected to go out to the public in the coming days.

Planner Freese announced that Abigail Smith was selected by the Interview Team to fill the vacant seat on the Planning Commission.

8. Adjourn -

Motion to adjourn made by Commissioner Dillon

The meeting was adjourned at 9:11 p.m.



STAFF REPORT RED HORIZONS MINOR SUBDIVISION

DATE: December 10, 2020

GENERAL INFORMATION		
Applicant:	Mary Jo and Kevin Kostka (Alex Hoime agent)	Size: 0.93 acres
Site Location:	712 W County Road 10E	
Applicant's Request:	The Applicant is requesting for a minor subdivision into two (2) new single-family lots sized at 0.39 acres and 0.54 acres.	
Current Zoning:	R-1: Single Family Residential	
ZONING DISTRICT INFORMATION		
	R-1	
Max Density	8 units per acre	
Min. Lot Size	3,500 sq. ft.	
Min. Lot Width	35'	
Front Setback	20' front loaded'; 15' rear loaded	
Side Setback	5'	
Rear Setback	20' Front loaded	
Building Height:	40' principal; 30' accessory	
SURROUNDING ZONING, LAND USE AND REQUIRED BUFFERS		
Adjacent Zoning	Adjacent Land Uses	Setbacks for Adjacent Zoning /Buffer required if rezoned
North: County, FA-1	Buffer to Single-Family Residential	N/A
South: Vantage, R-3	Undeveloped Multi-Family Lots	N/A
East: County FA-1	Agricultural	N/A
West: County, FA-1	Buffer to Single-Family Residential	N/A

PROPOSAL

The applicant is requesting approval for a minor subdivision to subdivide a 0.93 acre lot at 712 W County Road 10E into two lots.

BACKGROUND:

This land heard before the Planning Commission as an annexation request on June 14, 2018 and was approved by the Town Board as the “Kostka Annexation” on July 10, 2018. At the time, the plan was to subdivide the property into three lots, all with a shared access drive off of County Road 10E.

MINOR SUBDIVISION:

The Applicant is requesting to split the 0.93 acre lot into two separate lots, sized 0.39 acres and 0.54 acres respectively. The property currently does not have any permanent structures on the lot. The applicant is proposing the minor subdivision in order to build two new single-family homes with shared access off County Road 10E. The R-1 zoning district allows 3,500 sq. ft. minimum lots with a density of 8 units per acre, which this project would satisfy.

PREFERRED LAND USE

The Town’s Preferred Land Use Map designates this area as Moderate Density Residential (yellow on the map), with residential uses/development at 2–6 units per gross acre. The Preferred Land Use Plan was approved in the 2014 Comprehensive Plan.

- ✓ A density of less than 4 units per acre, the zoning requested would satisfy or be consistent with the Comprehensive Plan.

REZONING CRITERIA/FINDINGS

The criteria in Section 30-6-109 C of the Development Code provides the following review criteria to evaluate the Minor Subdivision (with Staff analysis regarding each point below):

1. The minor subdivision plat is in compliance with this Code, Comprehensive Plan, and the PORT Plan.
 - ✓ The minor subdivision plat is in full compliance with the Code.
 - ✓ The PORT Plan is not applicable, as this is a small development in a mostly undeveloped area.
 - ✓ The Comprehensive Plan is satisfied, as this follows the Preferred Land Use Plan’s density requirements.

-
2. The Planning Commission shall also consider how the Applicant has addressed comments received from the public during the Public Comment portion of the process when considering the request.

✓ This is not applicable, as there was no public comment.

PUBLIC NOTICE AND COMMENT

Notice of the Planning Commission public hearing has been mailed to property owners within 500 feet of the subject property, a legal ad published, and the property was posted as required by the Development Code.

FINDINGS AND RECOMMENDATIONS

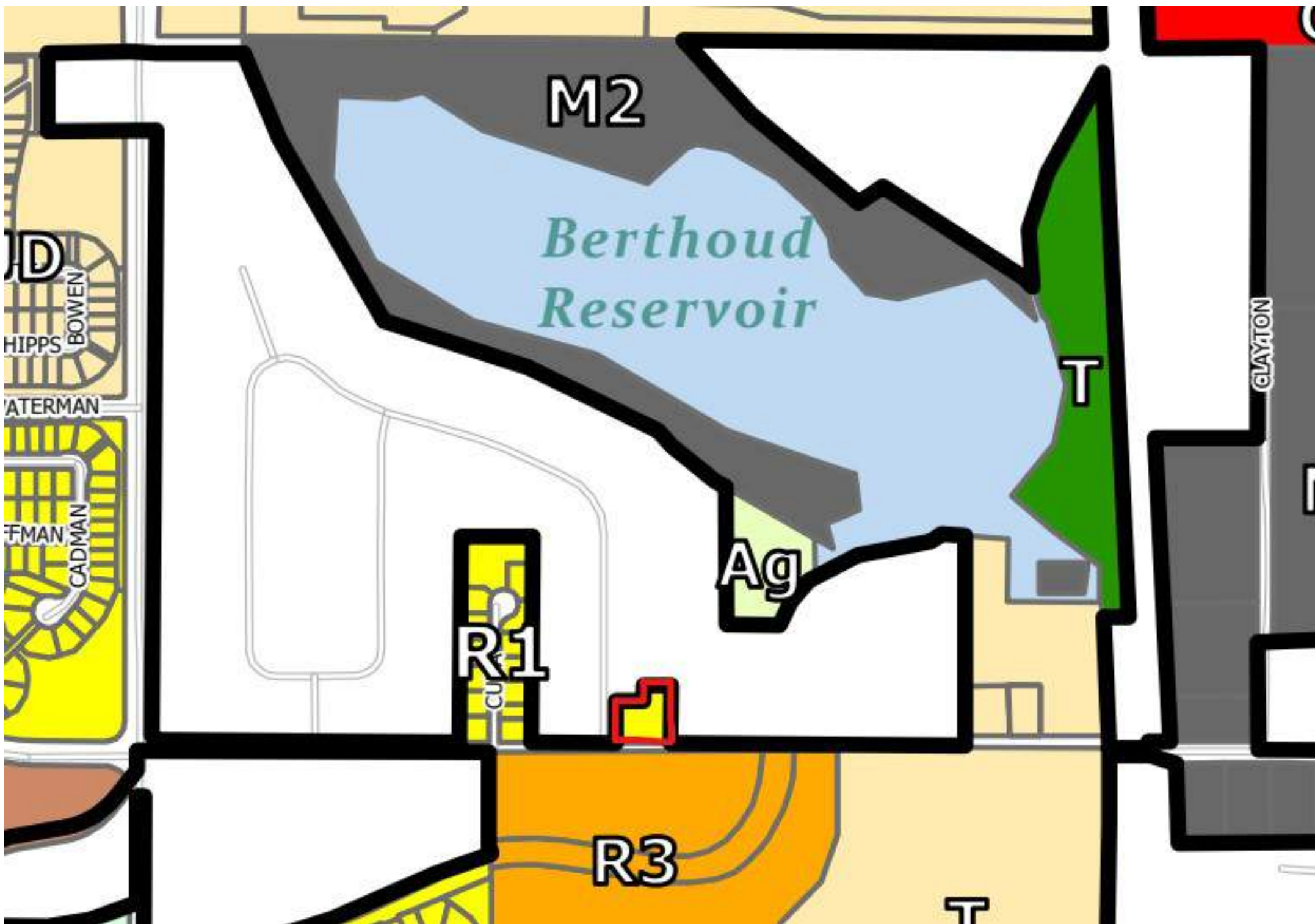
Minor Subdivision

Staff recommends a motion of approval of the Red Horizons Minor Subdivision, finding that:

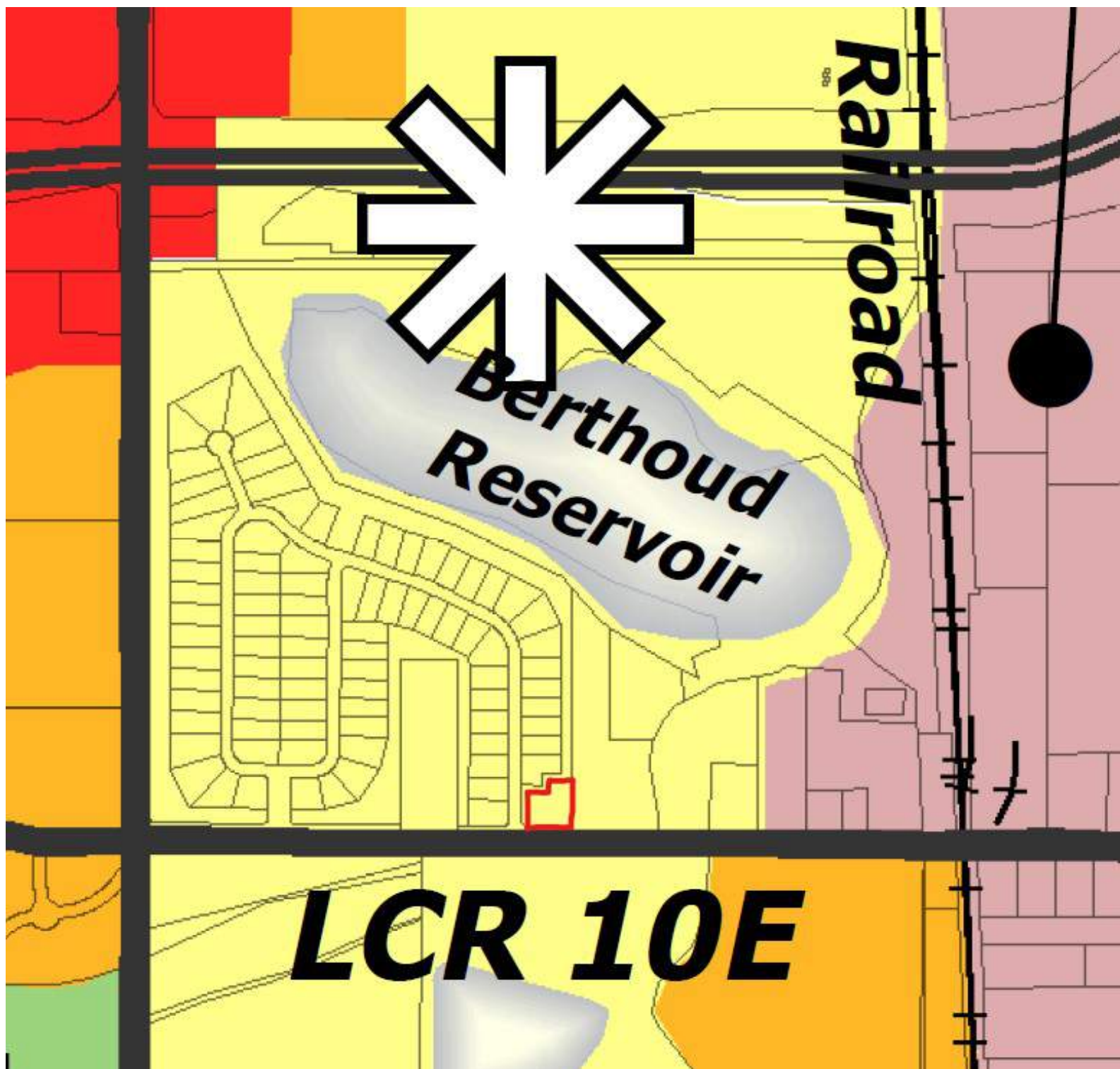
- 1. The Minor Subdivision satisfies all applicable requirements of the Development Code and all applicable requirements of the Zoning Code and Preferred Land Use Plan;**
- 2. Conditioned upon the installation of sidewalks along County Road 10E to Berthoud and ADA standards;**
- 3. Conditioned upon the preservation of as many existing trees on the property as reasonably possible.**

Reminder: When making a motion for or against the minor subdivision, please provide clear findings in support of the proposed motion utilizing either the Development Code/Comprehensive Plan/Preferred Land Use (found on page 2 of this report).

ZONING MAP



PREFERRED LAND USE MAP



MINOR SUBDIVISION

CONSTRUCTION PLANS
RED HORIZONS MINOR SUBDIVISION
IN THE TOWN OF BERTHOUD, COUNTY OF LARIMER, STATE OF COLORADO

SHEET INDEX

- 1 COVER SHEET
2 GENERAL NOTES
3 SITE PLAN
4 GRADING PLAN
5 UTILITY PLAN
6 DETAILS

ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
BCR	BEGIN CURB RETURN
BW	BACK OF WALK
BFP	BACKFLOW PREVENTER
CAB	CABINET
CF	CURB FACE
C&G	CURB & GUTTER
C	CENTER LINE
DI	DRAIN INLET
ECR	END CURB RETURN
EPB	ELECTRICAL PULL BOX
EG	EXISTING GRADE/GROUND
EXIST.	EXISTING
ELEC.	ELECTRIC
ELEV.	ELEVATION
EPB	ELECTRICAL PULL BOX
EP	EDGE OF PAVEMENT
FS	FINISHED SURFACE
FG	FINISHED GRADE
FF	FINISHED FLOOR
FL	FLOWLINE
G	GAS
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
ICV	IRRIGATION CONTROL VALVE
INV.	INVERT
LP	LOW POINT
LAT.	LATERAL
LT.	LIGHT
MAX.	MAXIMUM
MIN.	MINIMUM
MH	MANHOLE
P	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
PE	PAD ELEVATION
R/W	RIGHT OF WAY
RCP	REINFORCED CONCRETE PIPE
SS	SANITARY SEWER
SCO	SEWER CLEANOUT
SWR	SEWER
STA	STATION
SD	STORM DRAIN
SCE	SOUTHERN CALIFORNIA EDISON
T	TELECOMM
TRANS.	TRANSFORMER
TYP.	TYPICAL
TC	TOP OF CURB
TPB	TELEPHONE PULL BOX
TYP.	TYPICAL
TG	TOP OF GRATE
TW	TOP OF WALL
TRW	TOP OF RETAINING WALL
TS	TRAFFIC SIGNAL
W / WTR	WATER
WM	WATER METER
WV	WATER VAVLE

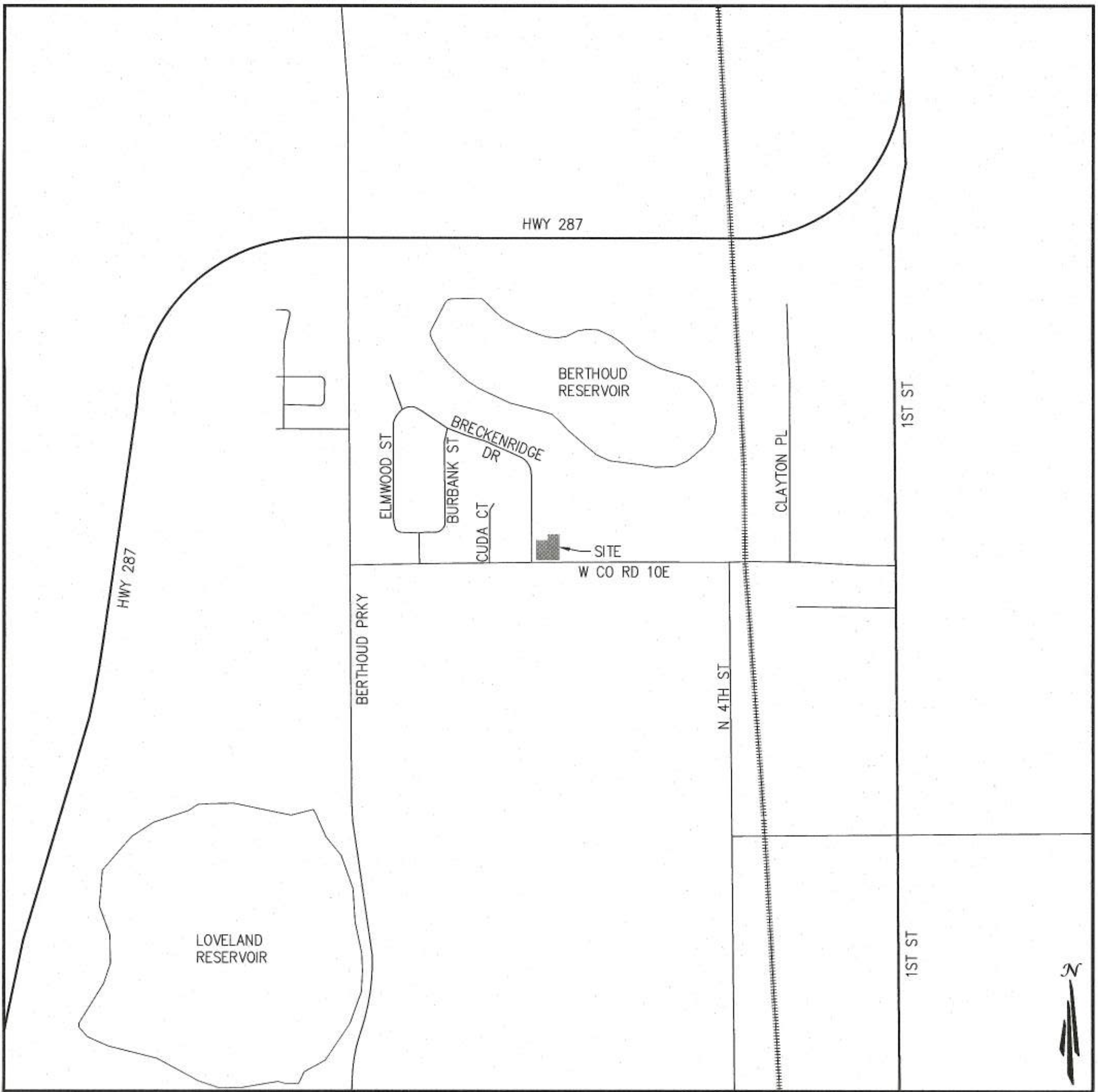
RIGHT TO FARM STATEMENT:

THE TOWN OF BERTHOUD HAS ADOPTED A "RIGHT TO FARM" POLICY. ALL NEW AND EXISTING RESIDENTS ARE EXPECTED TO READ AND UNDERSTAND THE POLICY. FOR A COPY OF THE POLICY, PLEASE CONTACT THE TOWN OF BERTHOUD.

APPROVAL CERTIFICATES:

APPROVED BY THE ENGINEER OF THE TOWN OF BERTHOUD, COLORADO, THIS DAY OF A.D., 2020.

PUBLIC WORKS DIRECTOR



VICINITY MAP
SCALE: 1"=1000'

UTILITY PURVEYORS

WATER TOWN OF BERTHOUD 807 MOUNTAIN AVE BERTHOUD, CO 80513 (970) 532-2643	GAS XCEL ENERGY 4200 S CO RD 15H LOVELAND, CO 80537 (800) 895-4999
SEWER TOWN OF BERTHOUD 807 MOUNTAIN AVE BERTHOUD, CO 80513 (970) 532-2643	POWER PVEA 7649 REA PKWY FORT COLLINS, CO 80528 (800) 432-1012
STORM DRAIN TOWN OF BERTHOUD 807 MOUNTAIN AVE BERTHOUD, CO 80513 (970) 532-2643	PHONE/DATA XFINITY COMCAST 5855 SKY POND DR LOVELAND, CO 80538 (800) 934-6489

CONTACT LIST

OWNER – DEVELOPER
MARY JO AND KEVIN KOSTKA
311 COMMON DRIVE
BERTHOUD, CO 80513
(303) 324-2688
MARYJOKOSTKA@GMAIL.COM
KOSTKA_K@YAHOO.COM

SURVEYOR
INTERMILL LAND SURVEYING, INC.
1301 N. CLEVELAND AVE
LOVELAND, CO 80537
ATTN: STEVE STENCEL
(970) 669-0516
STEVE.ILS@QWESTOFFICE.NET

CIVIL ENGINEER
TAIT & ASSOCIATES, INC.
6163 E. COUNTY ROAD 16
LOVELAND, CO 80537
ATTN: ALEX HOIME, PE
(970) 612-5440
AHOIME@TAIT.COM

ASSESSOR'S PARCEL NUMBER

PARCEL NO. 9411000026 IN THE COUNTY OF LARIMER

SITE INFORMATION

ADDRESS: 712 W COUNTY ROAD 10E
BERTHOUD, CO 80513

DISTURBED AREA: 43,369 SF (0.99 AC)

NO.	DESCRIPTION	REVISIONS	BY	DATE

6163 East County Road 16
Loveland, CO 80537
P: 970.613.1447
WWW.TAIT.COM

TAIT
& ASSOCIATES
ENGINEERING ENVIRONMENTAL BUILDING LAND
Orange County Sacramento Denver
San Luis Obispo Riverside Boile Atlanta

Since 1944

COVER SHEET
RED HORIZONS SUBDIVISION
KEVIN KOSTKA & MARY JO KOSTKA
BERTHOUD, CO

PREPARED UNDER THE SUPERVISION
OF TAIT & ASSOCIATES, INC.

COLORED LICENSED
PROFESSIONAL ENGINEER
#1703
ALEX HOIME

Alex Hoime, P.E.
Colorado P.E. #41703

DRAWN: CG
DATE: 06/22/2020
CHECKED: AH
DATE: 08/11/2020
REVISION #:
DATE:
JOB NO: CO13900

GENERAL IMPROVEMENT NOTES:

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE LARIMER COUNTY URBAN AREA STREET STANDARDS AND APPLICABLE STATE AND FEDERAL REGULATIONS, WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE MOST RESTRICTIVE STANDARD SHALL APPLY. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE LOCAL ENTITY.
2. ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.
3. THESE PUBLIC IMPROVEMENT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF THREE YEARS FROM THE DATE OF APPROVAL BY THE LOCAL ENTITY ENGINEER. USE OF THESE PLANS AFTER THE EXPIRATION DATE WILL REQUIRE A NEW REVIEW AND APPROVAL PROCESS BY THE LOCAL ENTITY PRIOR TO COMMENCEMENT OF ANY WORK SHOWN IN THESE PLANS.
4. THE ENGINEER WHO HAS PREPARED THESE PLANS, BY EXECUTION AND/OR SEAL HEREOF, DOES HEREBY AFFIRM RESPONSIBILITY TO THE LOCAL ENTITY, AS BENEFICIARY OF SAID ENGINEER'S WORK, FOR ANY ERRORS AND OMISSIONS CONTAINED IN THESE PLANS, AND APPROVAL OF THESE PLANS BY THE LOCAL ENTITY ENGINEER SHALL NOT RELIEVE THE ENGINEER WHO HAS PREPARED THESE PLANS OF ALL SUCH RESPONSIBILITY. FURTHER, TO THE EXTENT PERMITTED BY LAW, THE ENGINEER HEREBY AGREES TO HOLD HARMLESS AND INDEMNIFY THE LOCAL ENTITY, AND ITS OFFICERS AND EMPLOYEES, FROM AND AGAINST ALL LIABILITIES, CLAIMS, AND DEMANDS WHICH MAY ARISE FROM ANY ERRORS AND OMISSIONS CONTAINED IN THESE PLANS.
5. ALL SANITARY SEWER, STORM SEWER, AND WATER LINE CONSTRUCTION, AS WELL AS POWER AND OTHER "DRY" UTILITY INSTALLATIONS, SHALL CONFORM TO THE LOCAL ENTITY STANDARDS AND SPECIFICATIONS CURRENT AT THE DATE OF APPROVAL OF THE PLANS BY THE LOCAL ENTITY ENGINEER.
6. THE TYPE, SIZE, LOCATION AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE COMMENCING NEW CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR UNKNOWN UNDERGROUND UTILITIES.
7. THE ENGINEER SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987, AT LEAST 2 WORKING DAYS PRIOR TO BEGINNING EXCAVATION OR GRADING, TO HAVE ALL REGISTERED UTILITY LOCATIONS MARKED. OTHER UNREGISTERED UTILITY ENTITIES (I.E. DITCH / IRRIGATION COMPANY) ARE TO BE LOCATED BY CONTACTING THE RESPECTIVE REPRESENTATIVE. UTILITY SERVICE LATERALS ARE ALSO TO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
8. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATING WITH THE APPROPRIATE UTILITY COMPANY FOR ANY UTILITY CROSSINGS REQUIRED.
9. IF A CONFLICT EXISTS BETWEEN EXISTING AND PROPOSED UTILITIES AND/OR A DESIGN MODIFICATION IS REQUIRED, THE DEVELOPER SHALL COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN. DESIGN MODIFICATION(S) MUST BE APPROVED BY THE LOCAL ENTITY PRIOR TO BEGINNING CONSTRUCTION.
10. THE DEVELOPER SHALL COORDINATE AND COOPERATE WITH THE LOCAL ENTITY, AND ALL UTILITY COMPANIES INVOLVED, TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION AND WITH A MINIMAL DISRUPTION OF SERVICE. THE DEVELOPER SHALL BE RESPONSIBLE FOR CONTACTING, IN ADVANCE, ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE AS WELL AS THE UTILITY COMPANIES.
11. NO WORK MAY COMMENCE WITHIN ANY PUBLIC STORM WATER, SANITARY SEWER OR POTABLE WATER SYSTEM UNTIL THE DEVELOPER NOTIFIES THE UTILITY PROVIDER. NOTIFICATION SHALL BE A MINIMUM OF 2 WORKING DAYS PRIOR TO COMMENCEMENT OF ANY WORK. AT THE DISCRETION OF THE WATER UTILITY PROVIDER, A PRE-CONSTRUCTION MEETING MAY BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORK.
12. THE DEVELOPER SHALL SEQUENCE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO MINIMIZE POTENTIAL UTILITY CONFLICTS. IN GENERAL, STORM SEWER AND SANITARY SEWER SHOULD BE CONSTRUCTED PRIOR TO INSTALLATION OF THE WATER LINES AND DRY UTILITIES.
13. THE MINIMUM COVER OVER WATER LINES IS 5 FEET AND THE MAXIMUM COVER IS 6 FEET UNLESS OTHERWISE NOTED IN THE PLANS AND APPROVED BY THE WATER UTILITY. A STATE CONSTRUCTION DEWATERING WASTEWATER DISCHARGE PERMIT IS REQUIRED IF DEWATERING IS REQUIRED IN ORDER TO INSTALL UTILITIES OR WATER IS DISCHARGED INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH OR ANY WATERS OF THE UNITED STATES.
15. THE DEVELOPER SHALL COMPLY WITH ALL TERMS AND CONDITIONS OF THE COLORADO PERMIT FOR STORM WATER DISCHARGE (CONTACT COLORADO DEPARTMENT OF HEALTH, WATER QUALITY CONTROL DIVISION, (303) 692-3590), THE STORM WATER MANAGEMENT PLAN, AND THE EROSION CONTROL PLAN.
16. THE LOCAL ENTITY SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF STORM DRAINAGE FACILITIES LOCATED ON PRIVATE PROPERTY. MAINTENANCE OF ONSITE DRAINAGE FACILITIES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S).
17. PRIOR TO FINAL INSPECTION AND ACCEPTANCE BY THE LOCAL ENTITY, CERTIFICATION OF THE DRAINAGE FACILITIES, BY A REGISTERED ENGINEER, MUST BE SUBMITTED TO AND APPROVED BY THE STORMWATER UTILITY DEPARTMENT. CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF A CERTIFICATE OF OCCUPANCY FOR SINGLE FAMILY UNITS. FOR COMMERCIAL PROPERTIES, CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF ANY BUILDING PERMITS IN EXCESS OF THOSE ALLOWED PRIOR TO CERTIFICATION PER THE DEVELOPMENT AGREEMENT.
18. THE LOCAL ENTITY SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES OR INJURIES SUSTAINED IN THIS DEVELOPMENT AS A RESULT OF GROUNDWATER SEEPAGE, WHETHER RESULTING FROM GROUNDWATER FLOODING, STRUCTURAL DAMAGE OR OTHER DAMAGE UNLESS SUCH DAMAGE OR INJURIES ARE SUSTAINED AS A RESULT OF THE LOCAL ENTITY FAILURE TO PROPERLY MAINTAIN ITS WATER, WASTEWATER, AND/OR STORM DRAINAGE FACILITIES IN THE DEVELOPMENT.
19. ALL RECOMMENDATIONS OF THE FINAL DRAINAGE AND EROSION CONTROL STUDY BY TAIT & ASSOCIATES, INC. SHALL BE FOLLOWED AND IMPLEMENTED.
20. TEMPORARY EROSION CONTROL DURING CONSTRUCTION SHALL BE PROVIDED AS SHOWN ON THE EROSION CONTROL PLAN. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE DEVELOPER, UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS IS STABILIZED WITH HARD SURFACE OR LANDSCAPING.
21. THE DEVELOPER SHALL BE RESPONSIBLE FOR INSURING THAT NO MUD OR DEBRIS SHALL BE TRACKED ONTO THE EXISTING PUBLIC STREET SYSTEM. MUD AND DEBRIS MUST BE REMOVED WITHIN 24 HOURS BY AN APPROPRIATE MECHANICAL METHOD (I.E. MACHINE BROOM SWEEP, LIGHT DUTY FRONT-END LOADER, ETC.) OR AS APPROVED BY THE LOCAL ENTITY STREET INSPECTOR.
22. NO WORK MAY COMMENCE WITHIN ANY IMPROVED OR UNIMPROVED PUBLIC RIGHT-OF-WAY UNTIL A RIGHT-OF-WAY PERMIT OR DEVELOPMENT CONSTRUCTION PERMIT IS OBTAINED, IF APPLICABLE.
23. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR ALL APPLICABLE AGENCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE DEVELOPER SHALL NOTIFY THE LOCAL ENTITY ENGINEERING INSPECTOR AND THE LOCAL ENTITY EROSION CONTROL INSPECTOR AT LEAST 2 WORKING DAYS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY, OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS. IF THE LOCAL ENTITY ENGINEER IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE DEVELOPER MAY COMMENCE WORK IN THE ENGINEER ABSENCE. HOWEVER, THE LOCAL ENTITY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.
24. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING SOILS TESTS WITHIN THE PUBLIC RIGHT-OF-WAY AFTER RIGHT OF WAY GRADING AND ALL UTILITY TRENCH WORK IS COMPLETE AND PRIOR TO THE PLACEMENT OF CURB, GUTTER, SIDEWALK AND PAVEMENT. IF THE FINAL SOILS/PAVEMENT DESIGN REPORT DOES NOT CORRESPOND WITH THE RESULTS OF THE ORIGINAL GEOTECHNICAL REPORT, THE DEVELOPER SHALL BE RESPONSIBLE FOR A RE-DESIGN OF THE SUBJECT PAVEMENT SECTION OR, THE DEVELOPER MAY USE THE LOCAL ENTITY'S DEFAULT PAVEMENT THICKNESS SECTION(S), REGARDLESS OF THE OPTION USED, ALL FINAL SOILS/PAVEMENT DESIGN REPORTS SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER. THE FINAL REPORT SHALL BE SUBMITTED TO THE INSPECTOR A MINIMUM OF 10 WORKING DAYS PRIOR TO PLACEMENT OF BASE AND ASPHALT. PLACEMENT OF CURB, GUTTER, SIDEWALK, BASE AND ASPHALT SHALL NOT OCCUR UNTIL THE LOCAL ENTITY ENGINEER APPROVES THE FINAL REPORT.
25. THE CONTRACTOR SHALL HIRE A LICENSED ENGINEER OR LAND SURVEYOR TO SURVEY THE CONSTRUCTED ELEVATIONS OF THE STREET SUBGRADE AND THE GUTTER FLOWLINE AT ALL INTERSECTIONS, INLETS, AND OTHER LOCATIONS REQUESTED BY THE LOCAL ENTITY INSPECTOR. THE ENGINEER OR SURVEYOR MUST CERTIFY IN A LETTER TO THE LOCAL ENTITY THAT THESE ELEVATIONS CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS. ANY DEVIATIONS SHALL BE NOTED IN THE LETTER AND THEN RESOLVED WITH THE LOCAL ENTITY BEFORE INSTALLATION OF BASE COURSE OR ASPHALT WILL BE ALLOWED ON THE STREETS.
26. ALL UTILITY INSTALLATIONS WITHIN OR ACROSS THE ROADBED OF NEW RESIDENTIAL ROADS MUST BE COMPLETED PRIOR TO THE FINAL STAGES OF ROAD CONSTRUCTION. FOR THE PURPOSES OF THESE STANDARDS, ANY WORK EXCEPT C/G ABOVE THE SUBGRADE IS CONSIDERED FINAL STAGE WORK. ALL SERVICE LINES MUST BE STUBBED TO THE PROPERTY LINES AND MARKED SO AS TO REDUCE THE EXCAVATION NECESSARY FOR BUILDING CONNECTIONS.
27. PORTIONS OF LARIMER COUNTY ARE WITHIN OVERLAY DISTRICTS. THE LARIMER COUNTY FLOODPLAIN RESOLUTION SHOULD BE REFERRED TO FOR ADDITIONAL CRITERIA FOR ROADS WITHIN THESE DISTRICTS.
28. ALL ROAD CONSTRUCTION IN AREAS DESIGNATED AS WILD FIRE HAZARD AREAS SHALL BE DONE IN ACCORDANCE WITH THE CONSTRUCTION CRITERIA AS ESTABLISHED IN THE WILD FIRE HAZARD AREA MITIGATION REGULATIONS IN FORCE AT THE TIME OF FINAL PLAT APPROVAL.
29. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE LOCAL ENTITY FORESTER TO SCHEDULE A SITE INSPECTION FOR ANY TREE REMOVAL REQUIRING A PERMIT, IF APPLICABLE.
30. THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING, BUT NOT LIMITED TO, EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY. REFER TO OSHA PUBLICATION 2226, EXCAVATING AND TRENCHING.
31. THE DEVELOPER SHALL SUBMIT A CONSTRUCTION TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH MUTCD, TO THE APPROPRIATE RIGHT-OF-WAY AUTHORITY, TOWN OF BERTHOUD, FOR APPROVAL, PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN, OR AFFECTING, THE RIGHT-OF-WAY. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY THE CONSTRUCTION ACTIVITIES.
32. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION THAT WILL AFFECT TRAFFIC SIGNS OF ANY TYPE, THE CONTRACTOR SHALL CONTACT LOCAL ENTITY TRAFFIC OPERATIONS DEPARTMENT, WHO WILL TEMPORARILY REMOVE OR RELOCATE THE SIGN AT NO COST TO THE CONTRACTOR; HOWEVER, IF THE CONTRACTOR MOVES THE TRAFFIC SIGN THEN THE CONTRACTOR WILL BE CHARGED FOR THE LABOR, MATERIALS AND EQUIPMENT TO REINSTALL THE SIGN AS NEEDED.
33. THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS FOR THE INITIAL INSTALLATION OF TRAFFIC SIGNING AND STRIPING FOR THE DEVELOPMENT RELATED TO THE DEVELOPMENTS LOCAL STREET OPERATIONS. IN ADDITION, THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS FOR TRAFFIC SIGNING AND STRIPING RELATED TO DIRECTING TRAFFIC ACCESS TO AND FROM THE DEVELOPMENT.
34. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE LOCAL ENTITY ENGINEER, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE LOCAL ENTITY.
35. THE DEVELOPER IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS, SHOWN ON THESE DRAWINGS, OR DESIGNATED TO BE PROVIDED, INSTALLED, OR CONSTRUCTED, UNLESS SPECIFICALLY NOTED OTHERWISE.
36. DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. IF PERTINENT DIMENSIONS ARE NOT SHOWN, CONTACT THE DESIGNER FOR CLARIFICATION, AND ANNOTATE THE DIMENSION ON THE AS-BUILT RECORD DRAWINGS.
37. THE DEVELOPER SHALL HAVE, ONSITE AT ALL TIMES, ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB.
38. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE DEVELOPER SHALL CONTACT THE DESIGNER AND THE LOCAL ENTITY ENGINEER IMMEDIATELY.
39. THE DEVELOPER SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT INFORMATION ON A SET OF RECORD DRAWINGS KEPT ON THE CONSTRUCTION SITE, AND AVAILABLE TO THE LOCAL ENTITY'S INSPECTOR AT ALL TIMES. UPON COMPLETION OF THE WORK, THE CONTRACTOR(S) SHALL SUBMIT RECORD DRAWINGS TO THE LOCAL ENTITY ENGINEER.
40. BENCHMARK: LOCATED AT THE SOUTHEAST CORNER OF THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN A WARRANTY DEED RECORDED NOVEMBER 29, 2017 IN THE REAL PROPERTY RECORDS OF LARIMER COUNTY, COLORADO AT RECEPTION NUMBER 20170080302 AND BEING A REBAR WITH CAP, STAMPED: LS 34174 TOP OF CAP ELEVATION = 5124.59' (NAVD 88).
41. ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.
42. DAMAGED CURB, GUTTER AND SIDEWALK EXISTING PRIOR TO CONSTRUCTION, AS WELL AS EXISTING FENCES, TREES, STREETS, SIDEWALKS, CURBS AND GUTTERS, LANDSCAPING, STRUCTURES, AND IMPROVEMENTS DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT, SHALL BE REPLACED OR RESTORED IN LIKE KIND AT THE DEVELOPER'S EXPENSE, UNLESS OTHERWISE INDICATED ON THESE PLANS, PRIOR TO THE ACCEPTANCE OF COMPLETED IMPROVEMENTS AND/OR PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.
43. WHEN AN EXISTING ASPHALT STREET MUST BE CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. THE EXISTING STREET CONDITION SHALL BE DOCUMENTED BY THE LOCAL ENTITY CONSTRUCTION INSPECTOR BEFORE ANY CUTS ARE MADE. PATCHING SHALL BE DONE IN ACCORDANCE WITH THE LOCAL ENTITY STREET REPAIR STANDARDS. THE FINISHED PATCH SHALL BLEND IN SMOOTHLY INTO THE EXISTING SURFACE. ALL LARGE PATCHES SHALL BE PAVED WITH AN ASPHALT LAY-DOWN MACHINE. IN STREETS WHERE MORE THAN ONE CUT IS MADE, AN OVERLAY OF THE ENTIRE STREET WIDTH, INCLUDING THE PATCHED AREA, MAY BE REQUIRED. THE DETERMINATION OF NEED FOR A COMPLETE OVERLAY SHALL BE MADE BY THE LOCAL ENTITY ENGINEER AND/OR THE LOCAL ENTITY INSPECTOR AT THE TIME THE CUTS ARE MADE.
44. UPON COMPLETION OF CONSTRUCTION, THE SITE SHALL BE CLEANED AND RESTORED TO A CONDITION EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED BEFORE CONSTRUCTION, OR TO THE GRADES AND CONDITION AS REQUIRED BY THESE PLANS.
45. STANDARD HANDICAP RAMPS ARE TO BE CONSTRUCTED AS SHOWN ON PLANS.
46. AFTER ACCEPTANCE BY THE LOCAL ENTITY, PUBLIC IMPROVEMENTS DEPICTED IN THESE PLANS SHALL BE GUARANTEED TO BE FREE FROM MATERIAL AND WORKMANSHIP DEFECTS FOR A MINIMUM PERIOD OF TWO YEARS FROM THE DATE OF ACCEPTANCE.
47. THE LOCAL ENTITY SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF ROADWAY AND APPURTENANT IMPROVEMENTS, INCLUDING STORM DRAINAGE STRUCTURES AND PIPES, FOR THE FOLLOWING PRIVATE STREETS: NOT APPLICABLE.
48. APPROVED VARIANCES ARE LISTED AS FOLLOWS: PENDING APPROVAL ON DRIVEWAY SPACING VARIANCE AT NEXT PUBLIC HEARING.

DEMOLITION NOTES:

1. ALL DEMOLITION SHALL BE STRICTLY IN CONFORMANCE WITH THE REGULATIONS, AS SET FORTH BY THE TOWN.
2. CONTRACTOR SHALL PAY FOR ALL PERMITS, LICENSES OR FEES, AS REQUIRED BY THE TOWN.
3. EXTENT OF DEMOLITION WORK AS SHOWN ON DRAWINGS. DEMOLITION INCLUDES COMPLETE WRECKING OF EXISTING IMPROVEMENTS, REMOVAL AND DISPOSAL OF DEMOLISHED MATERIALS.
4. TRAFFIC: CONDUCT DEMOLITION OPERATIONS AND REMOVAL OF DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM THE TOWN.
5. PROTECTIONS: ENSURE SAFE PASSAGE OF PERSONS AROUND AREA OF DEMOLITION. CONDUCT OPERATIONS TO PREVENT INJURY TO ADJACENT BUILDINGS, STRUCTURES, OTHER FACILITIES, AND PERSONS.
6. DAMAGES: PROMPTLY REPAIR DAMAGES CAUSED TO ADJACENT FACILITIES BY DEMOLITION OPERATIONS AT NO COST TO OWNER.
7. UTILITY SERVICES: RELOCATE, DISCONNECT AND SEAL (AT POINT OF CONNECTION) UTILITIES SERVING STRUCTURES TO BE DEMOLISHED PRIOR TO START OF DEMOLITION WORK. GENERAL CONTRACTOR TO NOTIFY TELEPHONE, GAS AND ELECTRICAL COMPANIES.
8. POLLUTION CONTROLS: USE WATER SPRINKLING, TEMPORARY ENCLOSURES, AND OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING IN AIR TO LOWEST PRACTICAL LEVEL. COMPLY WITH GOVERNMENTAL REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
9. BELOW-GRADE CONSTRUCTION: DEMOLISH AND REMOVE BELOW-GRADE CONSTRUCTION AND ALL FOOTINGS, CONCRETE SLAB AND UNDERGROUND UTILITY LINES, UNLESS OTHERWISE NOTED.
10. FILLING BELOW-GRADE VOIDS: COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF EXISTING STRUCTURES.
A. USE SATISFACTORY SOIL MATERIALS CONSISTING OF STONE GRAVEL, AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER, AS RECOMMENDED BY SOILS REPORT.
B. PRIOR TO PLACEMENT OF FILL MATERIALS, ENSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, TRASH AND DEBRIS.
C. PLACE FILL MATERIALS IN HORIZONTAL LAYERS NOT EXCEEDING 8" IN LOOSE DEPTH. COMPACT EACH LAYER AT OPTIMUM MOISTURE CONTENT OF FILL MATERIAL TO A DENSITY EQUAL TO ORIGINAL ADJACENT GROUND, UNLESS SUBSEQUENT EXCAVATION FOR NEW WORK IS REQUIRED.
D. AFTER FILL PLACEMENT AND COMPACTION, GRADE SURFACE TO MEET ADJACENT CONTOURS. CONTRACTOR IS RESPONSIBLE FOR SOILS COMPACTION TESTS. COMPACTION TEST SHALL MEET ALL REQUIREMENTS OF THE TOWN.
11. DISPOSAL: REMOVE FROM SITE ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS. BURNING OF REMOVED MATERIALS FROM DEMOLISHED STRUCTURE WILL NOT BE PERMITTED ON SITE.
12. SITE CLEARING: REMOVE TREES, SHRUBS, GRASS, AND OTHER VEGETATION, INCLUDING ALL ROOT SYSTEMS, IMPROVEMENTS, OR OBSTRUCTIONS AS INDICATED.
13. FINISH SITE CONDITION: THE FINISH GROUND SURFACES SHALL BE LEFT IN SMOOTH, UNIFORM GRADED CONDITION.
14. THIS DEMOLITION PLAN IS NOT INTENDED TO, AND DOES NOT DETERMINE THE METHOD, DETAILS, AND MEANS OF PERFORMING THE DEMOLITION. THIS PLAN MAKES NO INQUIRY OR DETERMINATION AS TO THE EXISTENCE OF ANY HAZARDOUS OR TOXIC MATERIALS EXISTING ON THE SITE OR IN THE BUILDINGS. IT IS RECOMMENDED THAT AN INDEPENDENT INVESTIGATION BE PERFORMED PRIOR TO DEMOLITION TO DETERMINE THE EXISTENCE OF ANY POTENTIAL HAZARDOUS OR TOXIC RISK.

EROSION CONTROL NOTES:

1. CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROL DEVICES BEFORE COMMENCING GRADING ACTIVITIES. THE CONTRACTOR SHALL LIMIT TOPSOIL STRIPPING OPERATIONS TO WITHIN THE AREAS IN WHICH THEY WILL BE IMMEDIATELY WORKING. THE CONSTRUCTION OF UNDERGROUND UTILITIES SHALL BE INCLUDED AS A LAND DISTURBING ACTIVITY. ALL EXCAVATED MATERIAL SHALL BE PLACED WHERE SEDIMENT WILL ERODE BACK INTO THE TRENCH. ALL TRENCHES SHALL BE BACKFILLED BY THE END OF THE DAYS WORK. BACKFILL SHALL BE PERMANENTLY STABILIZED BEFORE CONSTRUCTION IS CONSIDERED COMPLETE.
2. ALL DISTURBED AREAS AND SOIL STOCKPILES SHALL BE ADEQUATELY STABILIZED. ALL DISTURBED SOILS AND SOIL STOCKPILES SHALL BE WATERED AND MAINTAINED IN A ROUGHENED CONDITION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES TO PREVENT WIND-CAUSED EROSION. ALL LAND DISTURBING ACTIVITIES WILL BE IMMEDIATELY DISCONTINUED WHEN FUGITIVE DUST IMPACTS ADJACENT PROPERTIES, AS DETERMINED BY THE CITY INSPECTOR. IF DISTURBED AREAS OR STOCKPILES ARE NOT BROUGHT TO FINAL GRADE WITHIN 30 DAYS FOLLOWING THE INITIAL DISTURBANCE, OR RE-DISTURBANCE, TEMPORARY STABILIZATION MEASURES SHALL BE REQUIRED. NO SOIL STOCKPILE SHALL EXCEED TEN (10) FEET IN HEIGHT. ALL SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED A SLOPE OF 4V:1H.
3. ALL STORM SEWER INLETS SHALL BE PROTECTED FROM THE ENTRY OF SEDIMENT-LADEN WATER.
4. INSPECTION OF ALL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE REQUIRED AT THE END OF EACH DAY'S WORK, WITH NECESSARY MAINTENANCE AND REPAIRS PROVIDED IMMEDIATELY. ALL PUBLIC RIGHT-OF-WAY POLLUTED WITH DIRT, MUD, OR DEBRIS SHALL BE SWEEP CLEAN AT THE END OF EACH DAYS WORK OR AFTER STORM EVENTS, AS NECESSARY. ALL TEMPORARY AND PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AS SOON AS THEIR FUNCTION HAS BEEN FULFILLED. SEDIMENT TRAPS/BASINS SHALL BE CLEANED AND REMOVED, OR STABILIZED WHEN ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED. THE SITE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL SILT FROM THE SITE, IF IT IS NOT REUSABLE ON SITE.
5. ALL CONSTRUCTION SUPPLIES OR MATERIALS USED OR STORED ON SITE MUST BE DISPOSED OF PROPERLY AND MUST MEET ALL APPLICABLE MATERIALS SAFETY DATA SHEET CRITERIA.
6. THE STATE STORMWATER DISCHARGE PERMIT HOLDER MAY BE LIABLE FOR ANY VIOLATIONS RESULTING FROM THE ACTIONS TAKEN BY SITE CONTRACTORS, SUBCONTRACTORS, MAINTENANCE CREWS, ETC.
7. THERE ARE NO WATER BODIES ON-SITE.

STORMWATER GENERAL NOTES:

1. THE TOWN OF BERTHOUD SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF STORM DRAINAGE FACILITIES LOCATED ON PRIVATE PROPERTY. MAINTENANCE OF ONSITE DRAINAGE FACILITIES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S).
2. ALL RECOMMENDATIONS OF THE FINAL DRAINAGE STUDY DRAINAGE REPORT FOR RED HORIZONS MINOR SUBDIVISION BY TAIT AND ASSOCIATES SHALL BE FOLLOWED AND IMPLEMENTED.
3. PRIOR TO FINAL INSPECTION AND ACCEPTANCE BY THE TOWN OF BERTHOUD, CERTIFICATION OF THE DRAINAGE FACILITIES, BY A REGISTERED ENGINEER, MUST BE SUBMITTED TO AND APPROVED BY THE STORMWATER UTILITY DEPARTMENT. CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF A CERTIFICATE OF OCCUPANCY FOR SINGLE FAMILY UNITS. FOR COMMERCIAL PROPERTIES, CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF ANY BUILDING PERMITS IN EXCESS OF THOSE ALLOWED PRIOR TO CERTIFICATION PER THE DEVELOPMENT AGREEMENT.

BERTHOUD WATER AND SEWER NOTES:

1. ALL WATER MATERIALS, CONSTRUCTION, AND TESTING SHALL MEET THE REQUIREMENTS OF DENVER WATER STANDARDS AND SPECIFICATIONS AND THE BERTHOUD FIRE PROTECTION DISTRICT SPECIFICATIONS.
2. FIRE HYDRANT SPECIFICATIONS:
A. ALL FIRE HYDRANTS WILL BE A24015 MUELLER IMPROVED. A423 AWWA MUELLER CENTURION, OR APPROVED EQUAL.
B. ALL HYDRANTS WILL HAVE A FIVE AND ONE-QUARTER (5-1/4) INCH OR LARGER VALVE OPENING, TWO (2) TWO AND ONE-HALF (2-1/2) INCH HOSE NOZZLES, ONE (1) PUMPER NOZZLE AND SIX (6) INCH OR LARGER MECHANICAL JOINT INLET.
C. ALL NOZZLES SHALL HAVE NATIONAL STANDARD THREADS.
D. THE HYDRANT SHALL BE OF TRAFFIC HAZARD TYPE WITH SAFETY FEATURES WHICH WILL PREVENT BARREL BREAKAGE.
E. SPECIFICATIONS FOR THE OPERATING NUT AND STUBS AND CUPS SHALL BE ONE (1) INCH SQUARE OR PENTAGON AND OPEN RIGHT.
3. WATER SERVICE LINE SPECIFICATIONS:
A. CORPORATION STOPS SHALL HAVE INLET THREADED CC TYPE, OUTLET COPPER COMPRESSION OR FLARE, NO SOLDERING WILL BE ALLOWED.
B. SERVICE SADDLES SHALL BE "O" RING GASKET, DOUBLE BAND, OR HINGE PIN CC THREAD, 1/4 INCH - 2 INCH COPPER.
C. CURB STOP STYLE SHALL BE COMPRESSION OR FLARED COPPER BOTH ENDS, MINNEAPOLIS PATTERN VALVE-THREADS AROUND TO ALLOW MINNEAPOLIS STYLE CURB BOX.
D. CURB BOX SHALL HAVE MINNEAPOLIS BASE EXTENSION TYPE CURB BOXES, CAST IRON LID AND BASE WITH BRASS PENTAGON HEAD PLUG USING A 1 1/2 INCH UPPER SECTION.
4. ALL WATER VALVES SHALL OPEN LEFT.
5. THE MINIMUM COVER OVER THE WATER LINE IS 5 FEET AND THE MAXIMUM COVER IS 6 FEET UNLESS OTHERWISE NOTED IN THE PLANS AND APPROVED BY THE TOWN.
6. PRIOR TO INSTALLATION OF WATER MAINS, ROAD/DRIVE CONSTRUCTION MUST HAVE PROGRESSED TO AT LEAST THE "SUB-GRADE" STATE. SUB-GRADE IS DEFINED AS AN ELEVATION OF IF MORE THAN SEVEN (7) INCHES BELOW THE FINISHED STREET GRADE. ALL VALVE BOXES AND FIRE HYDRANTS WILL BE ADJUSTED TO THE FINAL FINISHED GRADE BY THE CONTRACTOR. BEFORE ANY TAPS ARE MADE FROM MAINS, APPLICATIONS FOR THE TAPS MUST BE RECEIVED AND APPROVED BY THE TOWN.
7. TRACER WIRE SHALL BE USED FOR ALL NON-METALLIC WATER MAINS. TRACER WIRE SHALL BE BROUGHT UP TO TEST STATIONS AT ALL FIRE HYDRANTS.
9. PVC WATER MAINS SHALL BE C900 CLASS 150.
10. ALL WATER SERVICES SHALL BE TYPE K COPPER.
11. DEVELOPER IS RESPONSIBLE TO PLACE ALL WATER METERS FOR SUBSTANTIAL COMPLETION ACCEPTANCE.
12. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE CITY OF DENVER "SANITARY SEWER CONSTRUCTION STANDARDS". ALL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY AUTHORIZED TOWN OF BERTHOUD PERSONNEL.
13. NEW SEWER MAINS SHALL BE PVC SDR-35 PIPE AND IN ACCORDANCE WITH THE ABOVE REFERENCED SPECIFICATIONS.
14. THE CONTRACTOR SHALL FURNISH THE ENGINEER "AS-CONSTRUCTED" LOCATIONS OF INSTALLED FACILITIES AND THIS IN TURN SHALL BE SUBMITTED TO THE TOWN OF BERTHOUD ON "AS-BUILT" PLANS, PREPARED BY THE ENGINEER.
15. A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR AND THE TOWN OF BERTHOUD PRIOR TO ANY WATER AND/OR SANITARY SEWER CONSTRUCTION.
16. THE CONTRACTOR SHALL CONSTRUCT THE SEWER SERVICES TO THE BACK OF THE SANITARY EASEMENT AND SHALL MARK THE LOCATION OF THE END OF THE SERVICE WITH A 4"x4" WOOD POST EXTENDING FROM THE SANITARY SEWER SERVICE TO 2 FEET ABOVE THE FINISHED GRADE.
17. THE CONTRACTOR SHALL CAMERA AND VIDEO ALL NEW SANITARY MAINS PRIOR TO THE TOWN'S FINAL ACCEPTANCE.

DRAINAGE, EROSION CONTROL/DUST NOTES

1. DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. EROSION OF THE GROUND IN THE AREA OF DISCHARGE SHALL BE PREVENTED BY INSTALLATION OF NON-EROSIVE DOWN DRAINS OR OTHER DEVICES.
2. THE GROUND SURFACE IMMEDIATELY ADJACENT TO THE BUILDING FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10% SLOPE) FOR A MINIMUM DISTANCE OF TEN (10) FEET MEASURED PERPENDICULAR TO THE FACE OF THE FOUNDATION.
3. NO OBSTRUCTION OF NATURAL WATER COURSES SHALL BE PERMITTED.
4. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMP'S) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DRAINAGE TO ADJACENT PROPERTIES.
5. DUST CONTROL SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
6. CONSTRUCTION SITES SUBJECT PM10 FUGITIVE DUST MITIGATION SHALL COMPLY WITH AQMD RULE 403.1.
7. STANDBY CREW FOR EMERGENCY WORK SHALL BE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES OR TO REPAIR ANY DAMAGED EROSION CONTROL MEASURES WHEN RAIN IS IMMINENT.
8. DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE TOWN INSPECTOR.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE FIVE-DAY RAIN PROBABILITY FORECAST EXCEEDS 40 PERCENT.
10. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERM AND DESILTING BASINS AND THE BASINS PUMPED DRY. ANY GRADED SLOPE SURFACE PROTECTION MEASURES DAMAGED DURING A RAINSTORM SHALL BE IMMEDIATELY REPAIRED.
11. FILL SLOPES AT THE CONSTRUCTION AREA PERIMETER MUST DRAIN AWAY FROM THE TOP OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
12. A GUARD SHALL BE POSTED ON THE SITE WHENEVER THE DEPTH OF WATER IN ANY DEVICES EXCEEDS TWO FEET.
13. DURING GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES TEMPORARY DRAINAGE CONTROL SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.

POST CONSTRUCTION BMP GENERAL NOTES

1. THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.
2. CONSTRUCT THE STORM WATER TREATMENT FACILITIES AFTER ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED AND TO THE SATISFACTION OF THE ENGINEER OF RECORD.
3. DO NOT USE THE DEVICES AS TEMPORARY SEDIMENT CONTROL FACILITIES DURING CONSTRUCTION.
4. REFER TO THE PROJECT'S APPROVED STORMWATER MANAGEMENT PLAN (SWMP) FOR ADDITIONAL BMP'S AND OPERATION AND MAINTENANCE DETAIL.

Sep 23, 2020 - 9:50am by cspg K:\Drawings\CO\CO13900 - Red Horizons - Berthoud, CO\ENG\Construction Drawings\CO13900_CS.dwg

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GENERAL NOTES

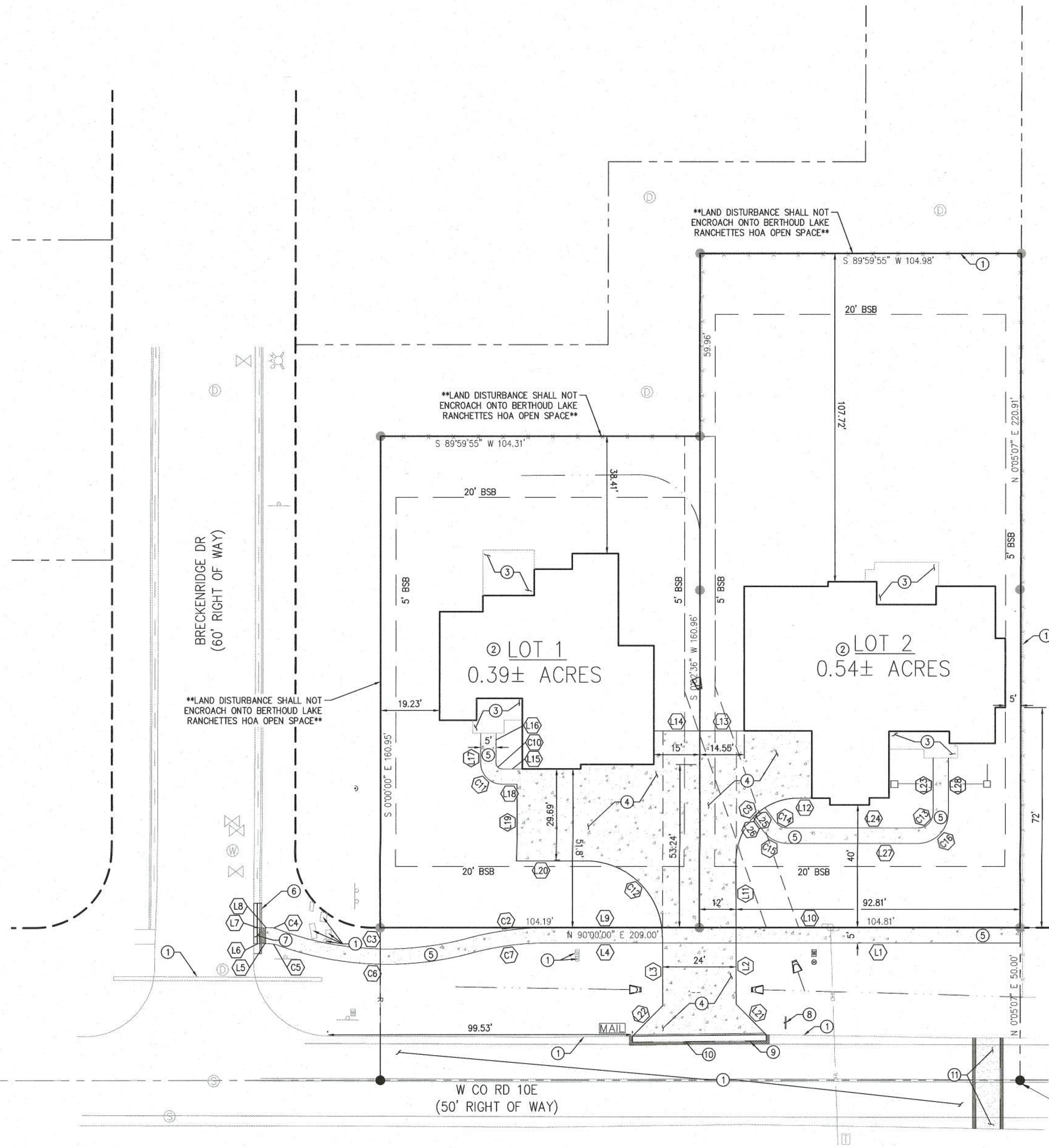
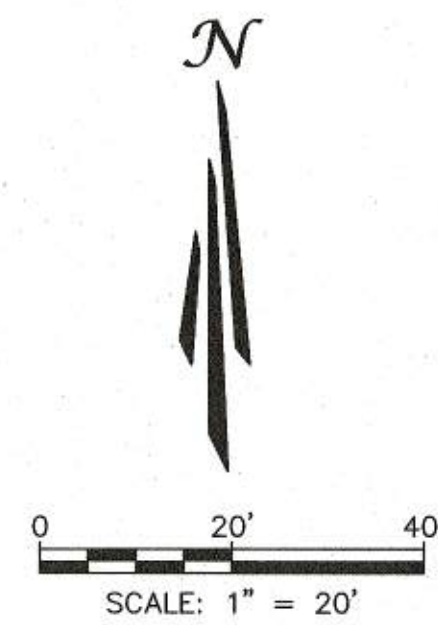
RED HORIZONS SUBDIVISION
KEVIN KOSTKA & MARY JO KOSTKA
BERTHOUD, CO

PREPARED UNDER THE SUPERVISION
OF TAIT & ASSOCIATES, INC.



Alex Holme, P.E.
Colorado P.E. #41703

DRAWN: CG
DATE: 06/22/2020
CHECKED: AH
DATE: 08/11/2020
REVISION #:
DATE:
JOB NO: CO13900



CONSTRUCTION NOTES:

- PROTECT EXISTING IMPROVEMENTS IN PLACE.
- PROPOSED RESIDENTIAL STRUCTURE, REFER TO ARCHITECTURAL PLANS FOR DETAILS.
- PROPOSED PATIO, REFER TO ARCHITECTURAL PLANS FOR DETAILS.
- PROPOSED CONCRETE DRIVEWAY. PROVIDE 2" UP AND 2" WIDE GUTTER PAN. PAVEMENT SECTION AND GRADE REQUIREMENTS SHALL MATCH LCUASS DRAWING 706.1 AND 1601 ON SHEET 6.
- PROPOSED 5' CONCRETE SIDEWALK PER LCUASS DRAWING 1601 AND 1602 ON SHEET 6.
- PROPOSED ROLL OVER CURB AND GUTTER PER LCUASS DRAWING 702 ON SHEET 6.
- PROPOSED ACCESS RAMP PER CDOT STANDARD DETAIL M-608-1 ON SHEET 7.
- RELOCATE EXISTING "SCHOOL BUS STOP AHEAD" PER LCUASS DRAWING 1401 ON SHEET 6.
- PROPOSED SAWCUT 2' FROM EDGE OF PAVEMENT.
- PROPOSED 1" WIDE AND 2" DEEP GRIND AND OVERLAY OF EXISTING PAVEMENT AS SHOWN HEREON.
- PROPOSED ASPHALT PATCH TO MATCH THE EXISTING SECTION PLUS AN ADDITIONAL 2" OF ASPHALT. PATCH CONSTRUCTION SHALL MEET LARIMER COUNTY URBAN STREET STANDARDS.

LEGEND

- PROPOSED PROPERTY LINE
- EXISTING RIGHT OF WAY
- EXISTING ADJACENT PROPERTY LINE
- SECTION LINE
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED SAWCUT
- PROPOSED GRIND AND OVERLAY
- PROPOSED AREA OF CONCRETE
- PROPOSED AREA OF ASPHALT
- EXISTING IMPROVEMENTS
- EXISTING FENCE
- EXISTING OVERHEAD LINE
- PROPOSED SHARED MAILBOX
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING WATER MANHOLE
- EXISTING STORM MANHOLE

LINE TABLE		
NUMBER	BEARING	LENGTH
L1	S89° 59' 59"W	92.81'
L2	S0° 00' 00"E	25.14'
L3	S0° 00' 00"E	22.37'
L4	N89° 59' 59"E	37.44'
L9	N89° 59' 59"E	37.27'
L10	S89° 59' 59"W	64.29'
L11	S0° 00' 00"E	22.19'
L12	N90° 00' 00"W	4.66'
L13	N90° 00' 00"E	14.55'
L14	N90° 00' 00"E	15.01'
L15	N90° 00' 00"W	6.60'
L16	N0° 00' 00"E	9.73'
L17	N0° 00' 00"E	9.73'
L18	N90° 00' 00"W	4.84'
L19	S0° 00' 00"E	25.00'
L20	N90° 00' 00"E	22.66'
L21	S44° 32' 11"E	14.03'
L22	S44° 36' 32"W	14.05'
L23	N0° 00' 00"E	17.99'
L24	N90° 00' 00"E	42.51'
L25	S36° 24' 19"E	5.75'
L26	S35° 56' 19"E	5.50'
L27	N90° 00' 00"E	42.51'
L28	N0° 00' 00"E	17.99'

CURVE TABLE					
CURVE	DELTA	LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C2	15° 04' 29"	26.57'	101.00	N82° 27' 45"E	26.50'
C3	35° 55' 29"	63.51'	101.30	S87° 06' 45"E	62.48'
C4	20° 50' 59"	1.82'	5.00	S79° 34' 30"E	1.81'
C5	19° 43' 56"	3.44'	10.00	S80° 08' 02"E	3.43'
C6	34° 18' 56"	63.01'	105.20	S87° 25' 32"E	62.07'
C7	15° 40' 31"	26.26'	96.00	N82° 09' 43"E	26.18'
C9	90° 00' 00"	31.42'	20.00	S45° 00' 00"W	28.28'
C10	90° 00' 00"	3.14'	2.00	N45° 00' 00"W	2.83'
C11	90° 00' 00"	11.00'	7.00	N45° 00' 00"W	9.90'
C12	90° 00' 00"	39.27'	25.00	N45° 00' 00"W	35.36'
C13	90° 00' 00"	7.85'	5.00	N45° 00' 00"E	7.07'
C14	53° 35' 41"	4.68'	5.00	S63° 12' 09"E	4.51'
C15	53° 35' 41"	9.35'	10.00	S63° 12' 09"E	9.02'
C16	90° 00' 00"	15.71'	10.00	N45° 00' 00"E	14.14'

P.O.B.
East Quarter Corner
Section 11-T4N-R69W

T.P.O.B.
Found Rebar with Cap
Stamped: LS 34174
PROJECT BENCHMARK
EL. = 5124.59

UNAUTHORIZED CHANGES & USES

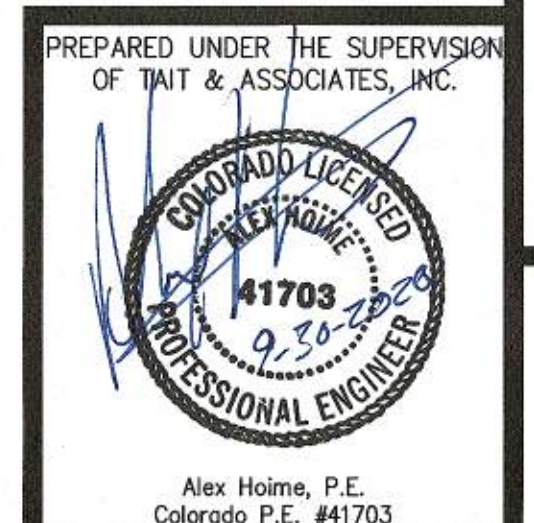
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NOTE TO CONTRACTOR

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES, PIPES, AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THERE MAYBE EXISTING UTILITIES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION OF THOSE UNDERGROUND UTILITIES TO BE USED PRIOR TO CONSTRUCTION AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

BASE OF BEARINGS:
BASED ON A RECORD BEARING OF EAST-WEST ON THE CENTERLINE OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 69. RECORD BEARING DERIVED FROM THAT CERTAIN WARRANTY DEED AS FILED FOR RECORD IN THE REAL PROPERTY RECORDS OF THE OFFICE OF THE CLERK AND RECORDER OF LARIMER COUNTY, COLORADO AT RECEPTION NUMBER 2017008032 AND NOVEMBER 29TH, 2017.

BENCHMARK:
LOCATED AT THE SOUTHEAST CORNER OF THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN A WARRANTY DEED RECORDED NOVEMBER 29, 2017 IN THE REAL PROPERTY RECORDS OF LARIMER COUNTY, COLORADO AT RECEPTION NUMBER 20170080302 AND BEING A REBAR WITH CAP, STAMPED: LS 34174 TOP OF CAP ELEVATION = 5124.59' (NAVD 88).



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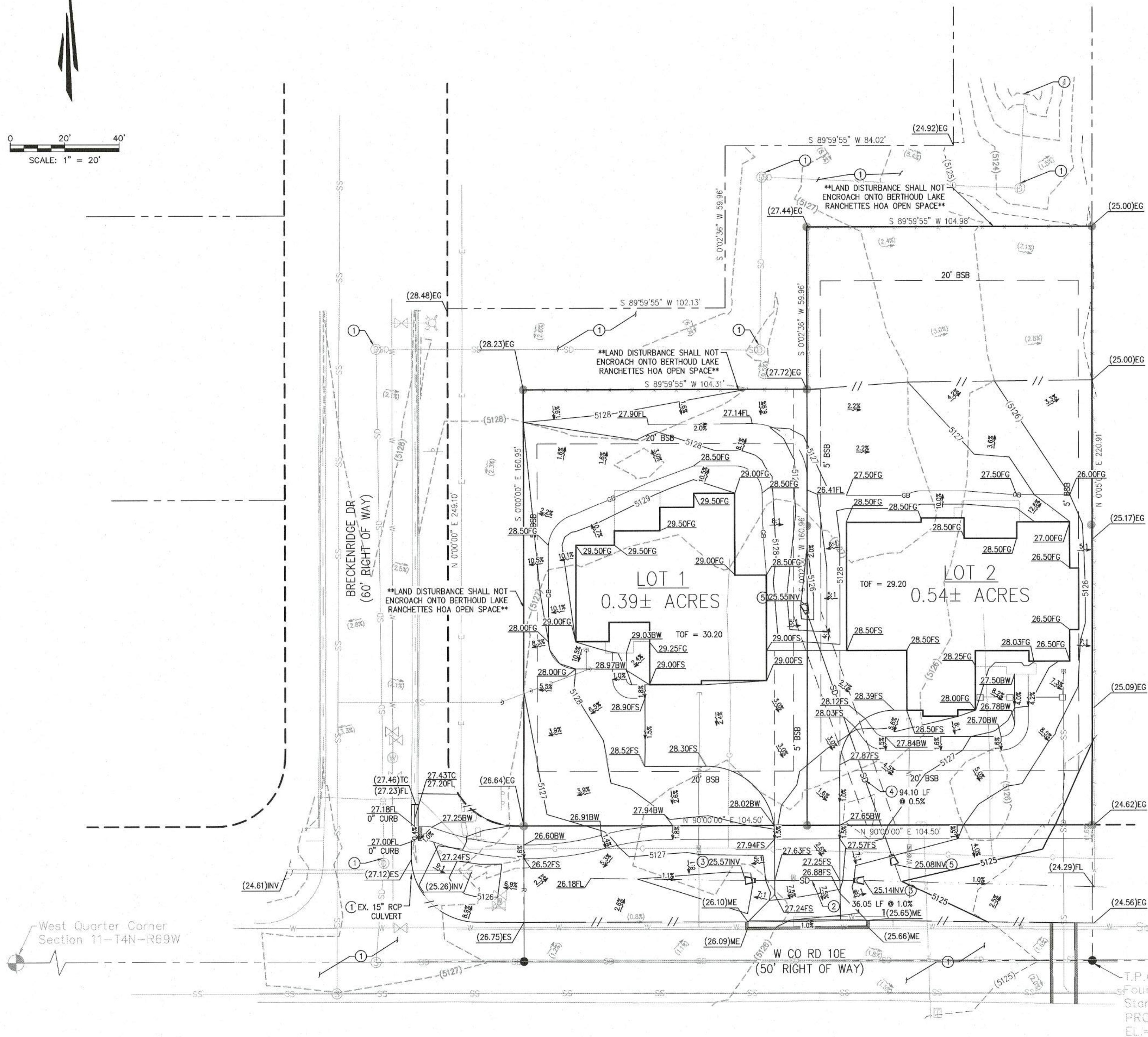
SITE PLAN
RED HORIZONS SUBDIVISION
KEVIN KOSTKA & MARY JO KOSTKA
BERTHOUD, CO

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NO.	DESCRIPTION	REVISIONS	BY	DATE



CONSTRUCTION NOTES:

1. PROTECT EXISTING IMPROVEMENTS IN PLACE.
2. PROPOSED 12" X 18" RCP ELLIPTICAL PIPE AT GRADES SHOWN HEREON. DRIVEWAY TO BE POURED WITH ADDITIONAL THICKNESS OVER THE WIDTH OF THE PIPE PLUS 6" ON EACH SIDE DOWN TO SPRINGLINE ELEVATION.
3. PROPOSED 12" X 18" REINFORCED CONCRETE FLARED END SECTION.
4. PROPOSED 8" CORRUGATED STEEL PIPE AT GRADES SHOWN HEREON.
5. PROPOSED 8" STEEL FLARED END SECTION.

ADA NOTE:

ALL PATHS OF TRAVEL ARE TO ABIDE BY THE FOLLOWING PARAMETERS:

- CROSS-SLOPE NOT TO EXCEED 2%
- LONGITUDINAL SLOPE NOT TO EXCEED 5%
- LONGITUDINAL RAMP SLOPE NOT TO EXCEED 8.33%
- RAMP LANDINGS NOT TO EXCEED 2% (LANDING PLACEMENT PER RAMP DETAILS)
- PATHWAYS EXCEEDING THESE STANDARDS WILL BE REPLACED AT THE CONTRACTORS EXPENSE
- GUTTER SLOPES SHALL NOT EXCEED 5% WITHIN A PEDESTRIAN ACCESS ROUTE.

LEGEND

(95.00XX)	EXISTING ELEV.
95.00XX	PROPOSED ELEV.
(1.5%)	EXISTING FLOW ARROW
1.5%	PROPOSED FLOW ARROW
---4945---	EXISTING CONTOUR
---4945---	PROPOSED CONTOUR
---	PROPOSED PROPERTY LINE
---	EXISTING RIGHT OF WAY
---	EXISTING ADJACENT PROPERTY LINE
---	BUILDING SETBACK
GB	GRADE BREAK
R	RIDGE
---	LIMITS OF DISTURBANCE
SD	EXISTING STORM DRAIN
SD	PROPOSED STORM DRAIN
⊙	EXISTING STORM MANHOLE
▽	PROPOSED FLARED END SECTION
BOR	BOTTOM OF RAMP
BS	BOTTOM OF STEP
BW	BACK OF WALK
EF	EXPOSED FOUNDATION
ES	EXISTING SURFACE
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FL	FLOWLINE
FS	FINISHED SURFACE
MH	MANHOLE
R	RIDGE
SW	SIDEWALK
TC	TOP OF CURB
TOR	TOP OF RAMP
TS	TOP OF STEP

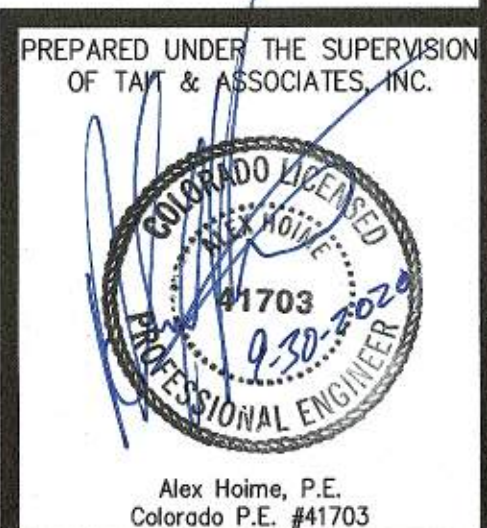
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GRADING PLAN
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UNAUTHORIZED CHANGES & USES

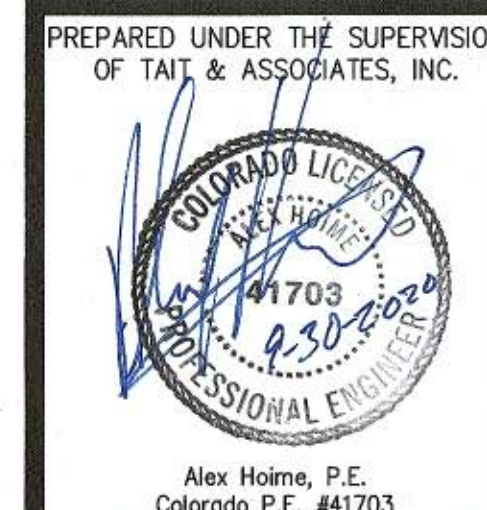
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NOTE TO CONTRACTOR

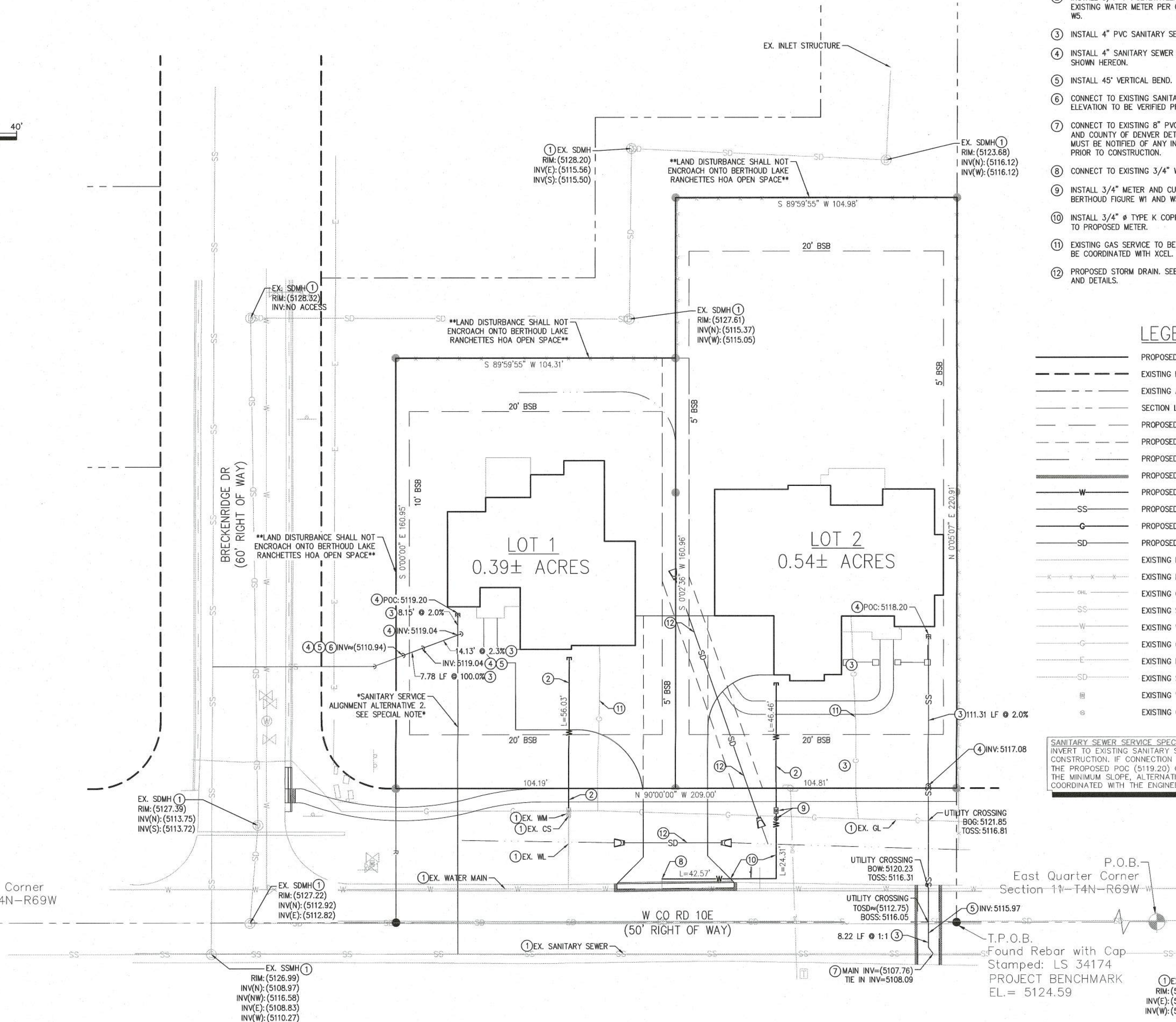
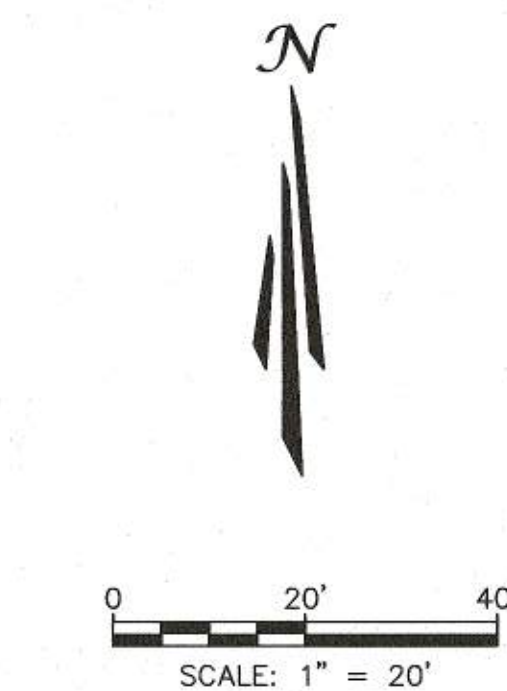
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BASIS OF BEARINGS:
BASED ON A RECORD BEARING OF EAST-WEST ON THE CENTERLINE OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 69, RECORD BEARING DERIVED FROM THAT CERTAIN WARRANTY DEED AS FILED FOR RECORD IN THE REAL PROPERTY RECORDS OF THE OFFICE OF THE CLERK AND RECORDER OF LARIMER COUNTY, COLORADO UNDER RECEPTION NUMBER 2017008032 AND NOVEMBER 29TH, 2017.

BENCH MARK:
LOCATED AT THE SOUTHEAST CORNER OF THAT CERTAIN PARCEL OF LAND AS DESCRIBED IN A WARRANTY DEED RECORDED NOVEMBER 29, 2017 IN THE REAL PROPERTY RECORDS OF LARIMER COUNTY, COLORADO AT RECEPTION NUMBER 20170080302 AND BEING A REBAR WITH CAP, STAMPED: LS 34174 TOP OF CAP ELEVATION = 5124.59' (NAVD 88).



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UTILITY CONSTRUCTION NOTES:

1. PROTECT EXISTING IMPROVEMENTS IN PLACE.
2. INSTALL 3/4" Ø POLYETHYLENE SERVICE LINE FROM EXISTING WATER METER PER CITY OF BERTHOUD DETAIL W5.
3. INSTALL 4" PVC SANITARY SEWER SERVICE LINE.
4. INSTALL 4" SANITARY SEWER CLEANOUT AT INVERTS SHOWN HEREON.
5. INSTALL 45" VERTICAL BEND.
6. CONNECT TO EXISTING SANITARY SERVICE. INVERT ELEVATION TO BE VERIFIED PRIOR TO CONSTRUCTION.
7. CONNECT TO EXISTING 8" PVC SEWER MAIN PER CITY AND COUNTY OF DENVER DETAIL S-450. ENGINEER MUST BE NOTIFIED OF ANY INVERT DISCREPANCIES PRIOR TO CONSTRUCTION.
8. CONNECT TO EXISTING 3/4" WATER SERVICE.
9. INSTALL 3/4" METER AND CURB STOP PER TOWN OF BERTHOUD FIGURE W1 AND W5.
10. INSTALL 3/4" Ø TYPE K COPPER FROM EXISTING LINE TO PROPOSED METER.
11. EXISTING GAS SERVICE TO BE REALIGNED FOR USE TO BE COORDINATED WITH XCEL.
12. PROPOSED STORM DRAIN. SEE SHEET 4 FOR DESIGN AND DETAILS.

UTILITY NOTES:

1. ALL WATER WORK, MATERIALS, INSTALLATION AND TESTING SHALL CONFORM TO THE CITY OF DENVER WATER ENGINEERING STANDARDS, LATEST EDITION, EXCEPT FOR THE STANDARDS RELATED TO THE WATER SERVICES, WHICH SHALL BE PER TOWN OF BERTHOUD STANDARDS.
2. ALL SEWER CONSTRUCTION SHALL BE PER CITY & COUNTY OF DENVER DEPARTMENT OF PUBLIC WORKS SANITARY SEWER DESIGN TECHNICAL CRITERIA MANUAL, LATEST EDITION.
3. NEW UTILITY EASEMENTS WILL BE DEDICATED BY SEPARATE DOCUMENTS.
4. CONTRACTOR TO EXTEND ALL SERVICE LINES TO WITHIN 5' OF THE BUILDING ENVELOPE.
5. CONTRACTOR TO VERIFY ALL BUILDING SERVICES WITH ARCHITECTURAL PLANS.
6. SANITARY SEWER SHALL HAVE 2% MINIMUM SLOPE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING UTILITY LOCATES.
7. THE CONTRACTOR SHOULD ORGANIZE THE UTILITY CONSTRUCTION FROM DEEPEST TO SHALLOWEST; THIS INCLUDES PRIVATE LIGHTING AND IRRIGATION.
8. CONCRETE TRANSFORMER PADS ARE PROVIDED BY THE DEVELOPER/CONTRACTOR. THE OWNERSHIP AND MAINTENANCE OF THE PAD IS THE OWNER'S RESPONSIBILITY.
9. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING.

ABBREVIATIONS

E	ELECTRIC LINE
G	GAS LINE
POC	POINT OF CONNECTION
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
W	WATER LINE
WM	WATER METER
WV	WATER VALVE

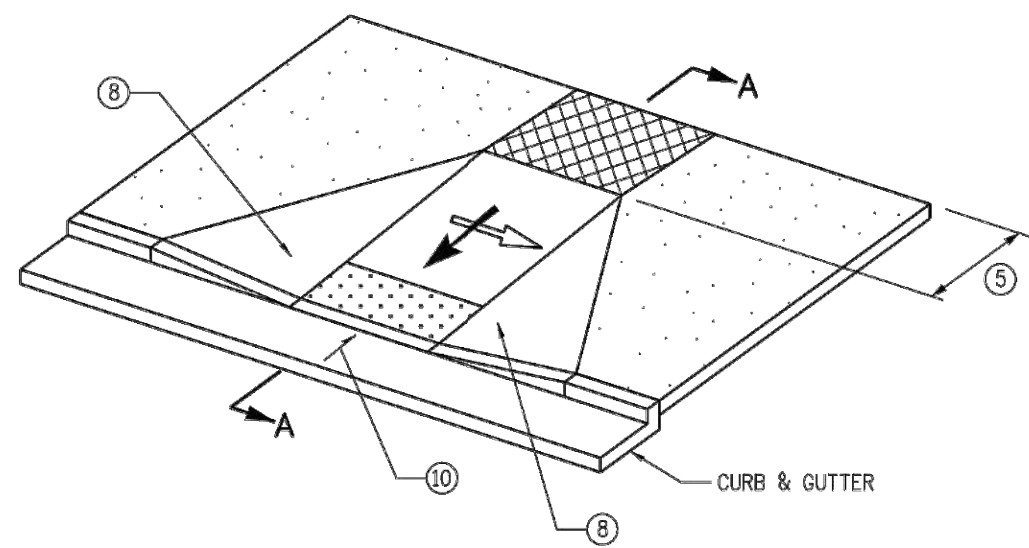
LEGEND

---	PROPOSED PROPERTY LINE
---	EXISTING RIGHT OF WAY
---	EXISTING ADJACENT PROPERTY LINE
---	SECTION LINE
---	PROPOSED SETBACK
---	PROPOSED EASEMENT
---	PROPOSED SAWCUT
---	PROPOSED GRIND AND OVERLAY
W	PROPOSED WATER LINE
SS	PROPOSED SANITARY SEWER
G	PROPOSED GAS LINE
SD	PROPOSED STORM DRAIN
---	EXISTING IMPROVEMENTS
---	EXISTING FENCE
---	EXISTING OVERHEAD LINE
SS	EXISTING SANITARY SEWER
W	EXISTING WATER LINE
G	EXISTING GAS LINE
E	EXISTING ELECTRICAL LINE
SD	EXISTING STORM DRAIN LINE
WM	EXISTING WATER METER
WV	EXISTING CURB STOP

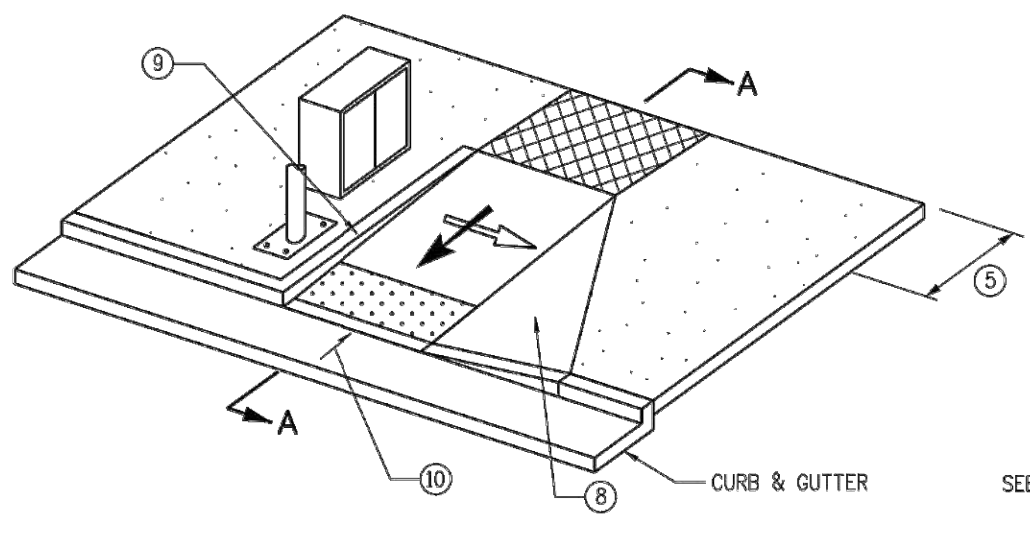
SANITARY SEWER SERVICE SPECIAL NOTE:
INVERT TO EXISTING SANITARY SERVICE STUB PRIOR TO CONSTRUCTION. IF CONNECTION INVERT IS HIGHER THAN THE PROPOSED POC (5119.20) OR TOO HIGH TO PROVIDE THE MINIMUM SLOPE, ALTERNATIVE ALIGNMENT 2 SHALL BE COORDINATED WITH THE ENGINEER OF RECORD.

UTILITY PLAN
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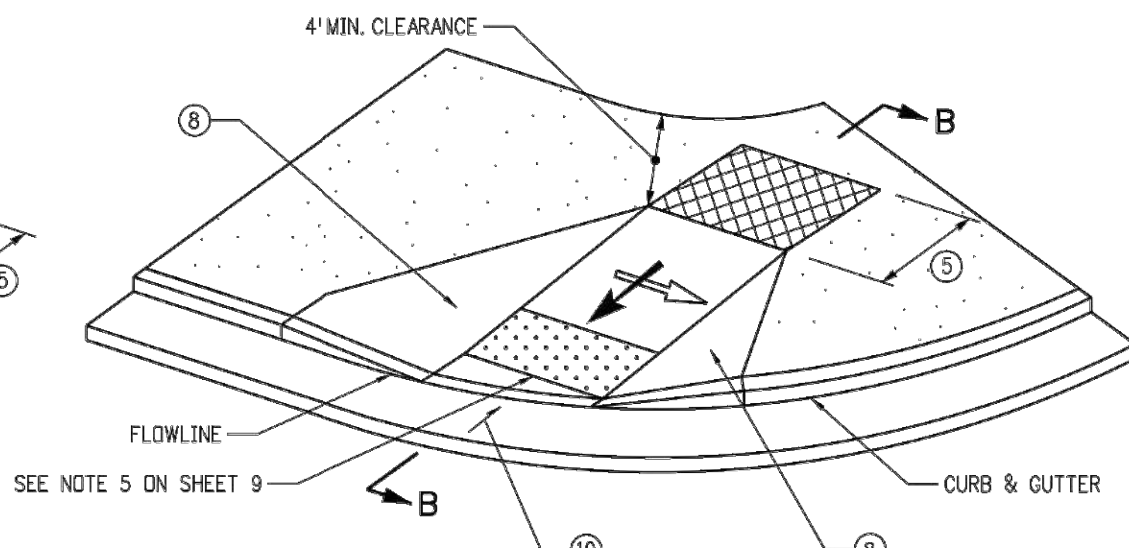
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PERPENDICULAR RAMP
(TYPICAL)



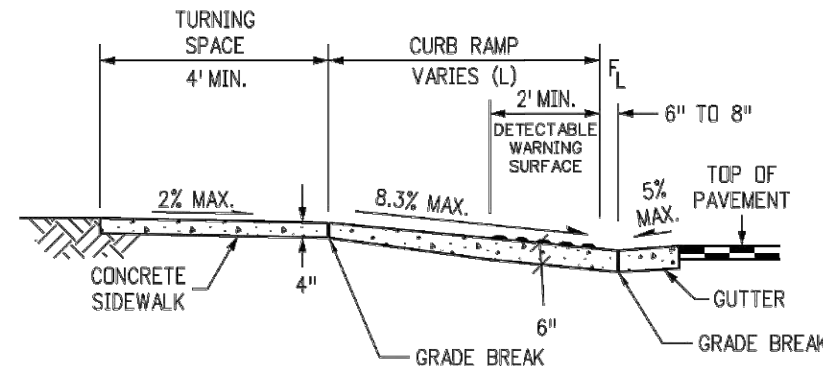
PERPENDICULAR RAMP
(WITH VERTICAL RETURN CURB)



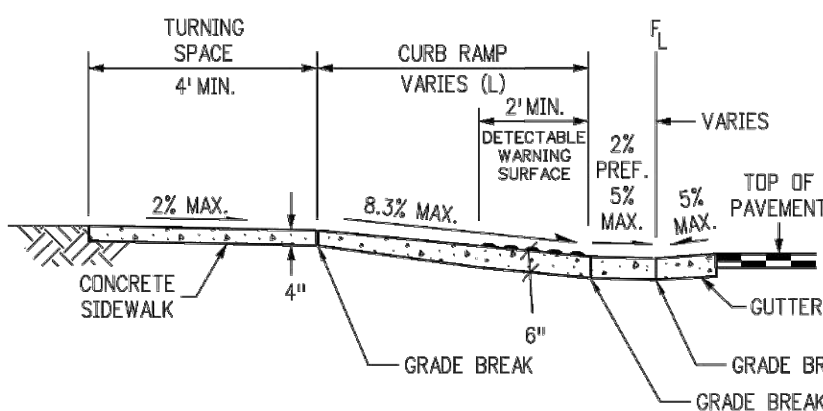
PERPENDICULAR RAMP
(DIRECTIONAL)

PERPENDICULAR RAMP NOTES

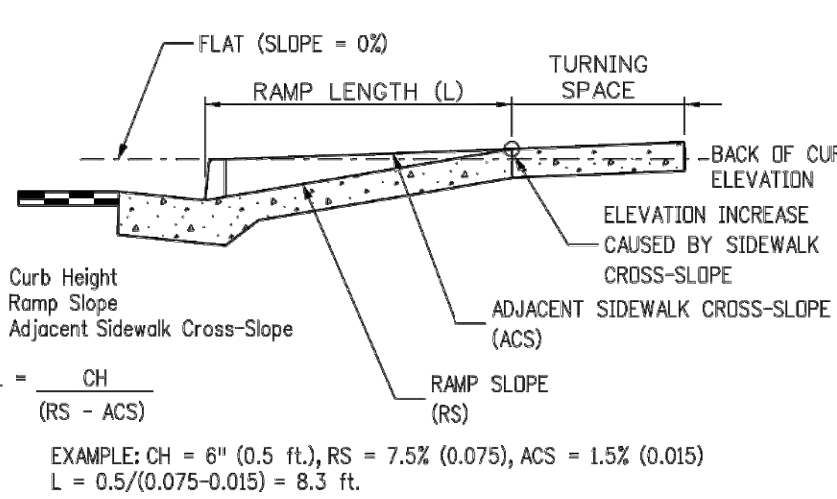
- 1 RAMP WIDTH - PROVIDE 5 FT. OR GREATER WHERE POSSIBLE. IF SITE CONSTRAINTS DO NOT PERMIT, PROVIDE 4 FT. MINIMUM. RAMP SERVICING SHARED USE PATHS SHALL MATCH THE WIDTH OF THE PATH.
- 2 RAMP RUNNING SLOPE - 8.3% MAX.
- 3 TURNING SPACE RUNNING SLOPE - 2.0% MAX. TURNING SPACE RUNNING SLOPE IS MEASURED IN THE SAME DIRECTION AS THE RAMP RUNNING SLOPE.
- 4 RAMP AND TURNING SPACE CROSS SLOPE - 2.0% TYPICAL. AT CROSSINGS WITHOUT YIELD OR STOP CONTROL, OR WITH A SIGNAL WHERE VEHICLES CAN PROCEED THROUGH THE INTERSECTION WITHOUT SLOWING OR STOPPING, THE CROSS SLOPE OF RAMPS AND TURNING SPACES MAY EQUAL THE HIGHWAY GRADE. AT MIDBLOCK PEDESTRIAN STREET CROSSINGS THE RAMP AND TURNING SPACE CROSS SLOPE MAY EQUAL THE HIGHWAY GRADE.
- 5 TURNING SPACE DIMENSIONS - PROVIDE A TURNING SPACE AT THE TOP OF PERPENDICULAR RAMPS WITH A WIDTH EQUAL TO THE WIDTH OF THE CURB RAMP. TURNING SPACE LENGTH MUST BE 4 FT. MINIMUM, MEASURED IN THE DIRECTION OF THE RAMP RUN. WHEN A TURNING SPACE IS CONSTRAINED AT THE BACK OF SIDEWALK, INCREASE LENGTH TO 5 FT. MINIMUM IN THE DIRECTION OF THE RAMP RUN.
- 6 RAMP ALIGNMENT - RAMPS SHALL BE ALIGNED TO BE FULLY CONTAINED WITHIN THE CROSSWALK OR STREET CROSSING THEY SERVE. PROVIDE ONE RAMP FOR EACH STREET CROSSING DIRECTION. IN ALTERATIONS, WHERE EXISTING PHYSICAL CONSTRAINTS PREVENT PROVIDING ONE CURB RAMP FOR EACH CROSSING DIRECTION, A SINGLE DIAGONAL CURB RAMP (ON THE APEX OF A CORNER) SHALL BE PERMITTED TO SERVE BOTH PEDESTRIAN STREET CROSSINGS. IF A DIAGONAL RAMP IS USED, A CLEAR SPACE 4 FT. X 4 FT. MUST BE PROVIDED AT THE BASE OF THE RAMP. THE CLEAR SPACE MUST BE WITHIN BOTH CROSSWALKS AND WHOLLY OUTSIDE OF ANY ADJACENT VEHICULAR TRAVEL LANES. DIAGONAL RAMPS ARE NOT ACCEPTABLE IN NEW CONSTRUCTION, OR FULL-DEPTH RECONSTRUCTION.
- 7 RAMP LENGTH - PERPENDICULAR RAMP LENGTH IS DEPENDENT UPON THE RAMP SLOPE, HEIGHT OF CURB, AND ADJACENT SIDEWALK CROSS-SLOPE WHICH MUST BE INTERCEPTED. SEE DETAIL A FOR CALCULATING RAMP LENGTH WHEN CHASING SIDEWALK CROSS-SLOPE. WHERE TERRAIN IS SLOPING A RAMP IS NOT REQUIRED TO CHASE GRADE MORE THAN 15 FT. REGARDLESS OF THE RESULTING RAMP SLOPE.
- 8 RAMP FLARES - WHERE A RAMP EDGE ABUTS A WALKABLE SURFACE, A FLARED SIDE SHALL BE PROVIDED. RAMP FLARE SLOPES SHALL NOT EXCEED 10.0%.
- 9 VERTICAL CURB RETURNS - VERTICAL CURB RETURNS MAY BE USED ONLY WHERE A RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE A RAMP IS PROTECTED FROM PEDESTRIAN CROSS TRAFFIC (FOR EXAMPLE BY A SIGNAL CABINET OR UTILITY POLE WHICH BLOCKS PASSAGE).
- 10 GUTTER COUNTER SLOPE - 5.0% MAX.



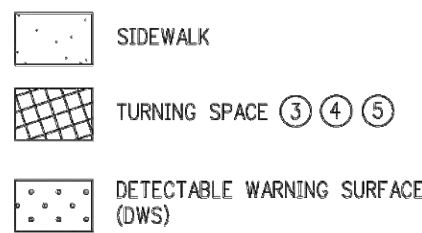
SECTION A-A



SECTION B-B

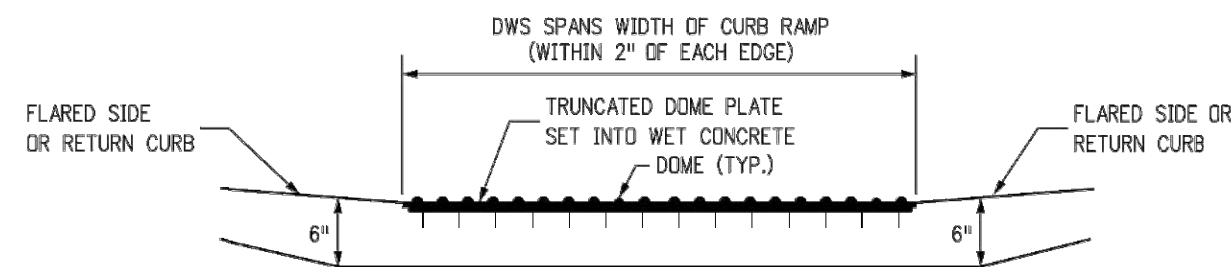


DETAIL A - RAMP LENGTH

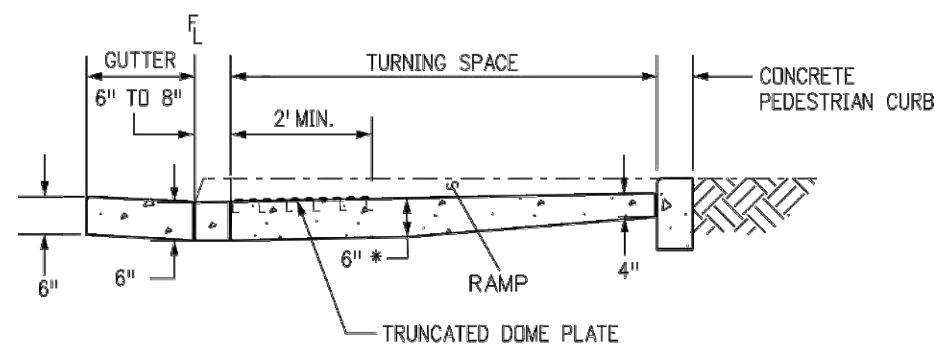


TYPE 1 PERPENDICULAR CURB RAMPS

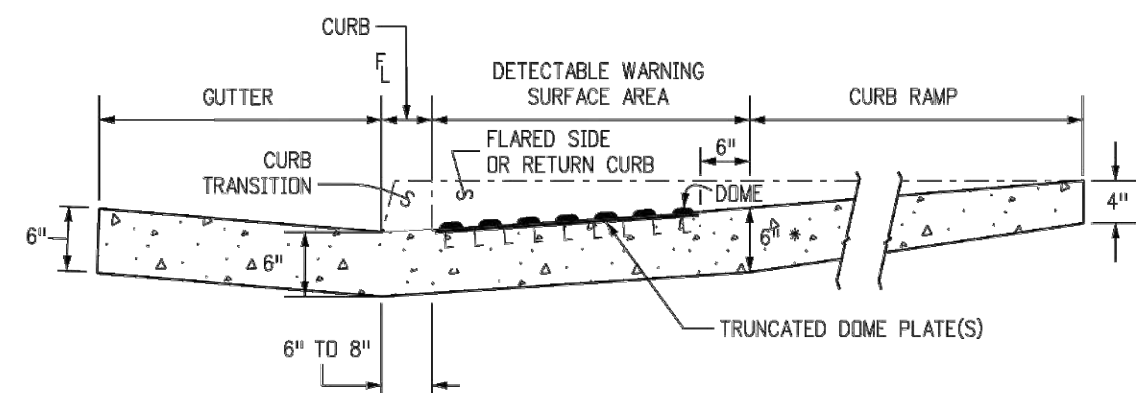
Computer File Information		Sheet Revisions		Colorado Department of Transportation		STANDARD PLAN NO.	
Creation Date: 07/31/19		Date:	Comments		2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868	M-608-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 2 of 10	
Last Modification Date: 07/31/19	(R-X)						
Detailer Initials: LTA	(R-X)						
CAD Ver: MicroStation V8	Scale: Not to Scale	Units: English		Project Development Branch		JBK	
				Issued by the Project Development Branch: July 31, 2019		Project Sheet Number:	



SECTION VIEW OF DETECTABLE
WARNING SURFACE PLATE
(LOOKING AT PERPENDICULAR RAMP
RUN FROM STREET)

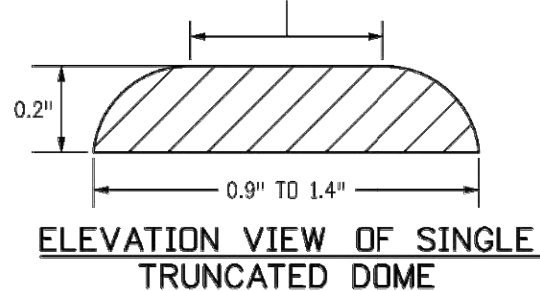


SECTION VIEW FOR PARALLEL
CURB RAMP TYPES
(LOOKING PERPENDICULAR TO TURNING SPACE)

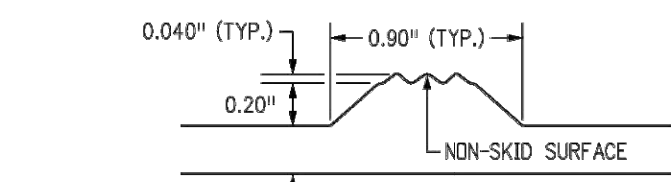


SECTION VIEW FOR PERPENDICULAR
CURB RAMP TYPES
(LOOKING PERPENDICULAR TO RAMP RUN)

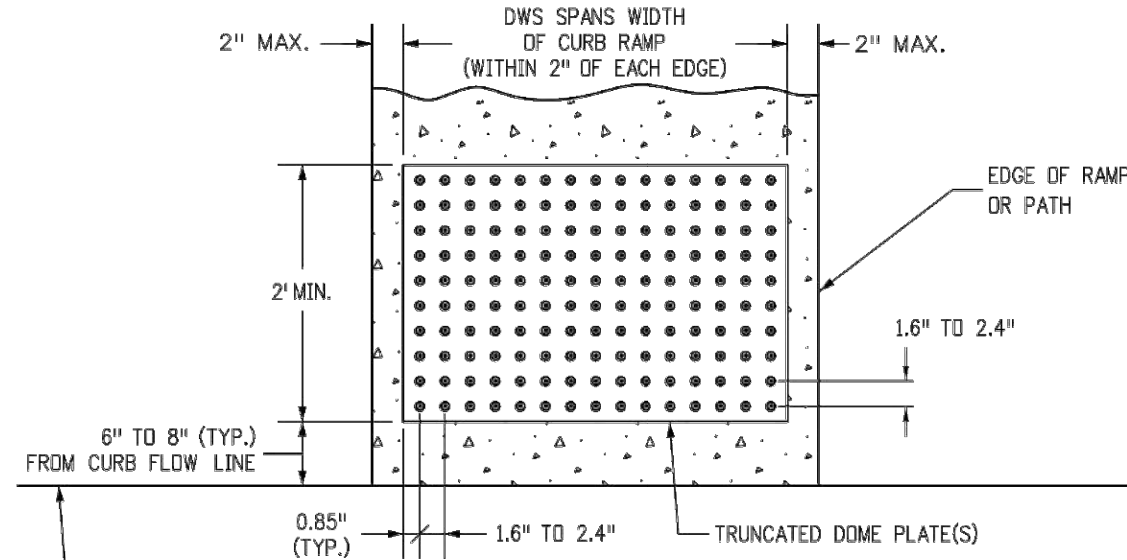
THE TOP DIAMETER OF THE TRUNCATED DOMES
SHALL BE 50% TO 65% OF THE BASE DIAMETER



ELEVATION VIEW OF SINGLE
TRUNCATED DOME



ELEVATION VIEW OF TRUNCATED DOME
FOR DETECTABLE WARNING PLATE



PLAN VIEW OF DETECTABLE WARNING
SURFACE PLATE

DETECTABLE WARNING SURFACE DETAILS

Computer File Information		Sheet Revisions		 Colorado Department of Transportation 2829 West Howard Place CDOT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch JBK	CURB RAMPS	STANDARD PLAN NO.	
Creation Date: 07/31/19		Date:	Comments			M-608-1	
Designer Initials: JBK	(R-X)					Standard Sheet No. 10 of 10	
Last Modification Date: 07/31/19	(R-X)					Project Sheet Number:	
Detailer Initials: LTA	(R-X)						
CAD Ver: MicroStation V8 Scale: Not to Scale Units: English		(R-X)					

NO.		DESCRIPTION	BY	DATE
		REVISIONS		

6143 East County Road 16 Loveland, CO 80537 p: 970.613.1447 www.tait.com	ENGINEERING ENVIRONMENTAL BUILDING LAND DESIGN SUSTAINABILITY Since 1964	Denver Boulder Aurora
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DETAILS
RED HORIZONS SUBDIVISION
KEVIN KOSTKA & MARY JO KOSTKA
BERTHOUD, CO

DRAWING: CP DATE: 09/21/2020 CHECKED: AH DATE: 09/30/2020 REVISION #: DATE: JOB NO: CO13900



p:970/613/1447 www.tait.com

6163 E. County Road 16, Loveland, CO 80537

September 18, 2020

Stephanie Brothers, PE
Public Works Director
Town of Berthoud
807 Mountain Ave
Berthoud, CO 80513

RE: Drainage Letter for Red Horizons Minor Subdivision at the Northeast Corner of County Road 10E and Breckenridge Drive.

Mrs. Brothers,

This drainage letter certifies that the proposed Red Horizon Subdivision will follow the existing drainage patterns that were present with the existing structures and will not significantly alter downstream waterways. The proposed development is located in the NW $\frac{1}{4}$ of Section 11, Township 4 North, Range 69 West of the Principal Meridian, Town of Berthoud, County of Larimer, State of Colorado.

Proposed improvements to the site include the splitting of the property into 2 lots with two residential homes, a shared access drive, utility services, storm drainage, and landscaping.

The 0.93 acre site is currently a vacant, graded lot with existing gravel drives, trees and landscaping. The project site is covered with native soil, loose gravel and generally slopes to the east and southeast at 1-4%. Runoff is sheet drained to the neighboring properties to the east and the northern Right-of-Way of County Road 10E. The lots to the east then drain to the northeast which eventually discharges into an irrigation canal 400 feet east of the subject property. The current site does not contain any major storm drainage improvements and relies on natural sheet drainage. The existing lot was analyzed incorporating the gravel drives, two houses and one outbuilding that existed at the time the initial application for this project was made to illustrate that the proposed development will not significantly alter or affect downstream waterways.

The developed drainage concept for the site will mimic the current drainage patterns while improving the overall drainage of the site. Runoff will be conveyed via sheet flow, concentrated flows, and underground storm drain to County Road 10E Right-of-Way into a proposed roadside ditch.



The site is to be divided into two lots described as follows:

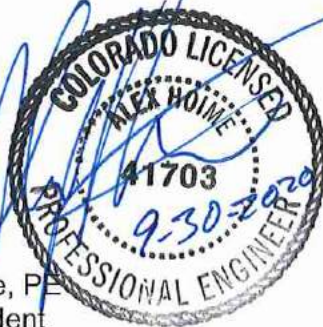
Lot 1 will be the western lot with a size of 0.39 acres. The lots frontage consisting of landscape and driveway will sheet flow into a proposed roadside ditch in the County Road 10E's northern Right-of-Way which drains to the east. The lot's backyard will be conveyed via landscape swale which drains to a proposed storm drain between the two houses. The storm drain conveys flows across the eastern lot and discharges to the roadside ditch within County Road 10E Right-of-Way. The flows ultimately discharge to an irrigation canal 400 feet east of the subject property.

Lot 2 will be the eastern lot of the two with a size of 0.54 acres. The lots consisting of landscape and driveway will sheet flow into a proposed roadside ditch in the County Road 10E's northern Right-of-Way which drains to the east. The lot's backyard will hold its natural drainage pattern of sheet flowing to the eastern property which will drain to the northeast. Both the flows passing to the roadside ditch and the flows passing through the adjacent property ultimately discharge into an irrigation canal 400 feet east of the subject property.

The proposed drainage design for the proposed Red Horizons Subdivision will be consistent with the existing drainage patterns while improving the overall drainage of the subject property with proposed landscaped swales and storm drain. The proposed improvements will not significantly impact adjacent properties or downstream waterways.

Sincerely,

Alex Hoime, PE
Vice President



Enclosed: Runoff Coefficient Calculations, 10-yr Individual Basin Flows, 100-yr Individual Basin Flows, Post Development Drainage Exhibit, and Hydroflow Analysis for Drainage Infrastructure.

RUNOFF COEFFICIENT CALCULATIONS

Project Name: CO13900 Red Horizons Minor Subdivision

Calculated By: CP

Check By: AH

Date: 8/18/2020

RECOMMENDED RUNOFF COEFFICIENT AND PERCENT IMPERVIOUS ¹			
LAND USE	% IMPERVIOUS	C Value	
		10-YEAR	100 YEAR
LANDSCAPE	2	0.07	0.44
GRAVEL	40	0.38	0.61
DRIVES AND WALKS	90	0.78	0.84
ROOFS	90	0.78	0.78

PRE-DEVELOPMENT CONDITIONS:

AREA DESIGN	A(LAND.) AC	A(GRAVEL) AC	A(D&W) AC	A(ROOFS) AC	A(TOTAL) AC	C10	C100	% IMPERVIOUS
ENTIRE LOT	0.67	0.18	0.00	0.08	0.93	0.19	0.50	17
OFF1	0.13	0.04	0.07	0.00	0.24	0.32	0.58	33
OFF2	0.04	0.00	0.00	0.00	0.04	0.07	0.44	2
TOTAL:					1.21	0.21	0.51	20

POST-DEVELOPMENT CONDITIONS:

AREA DESIGN	A(LAND.) AC	A(GRAVEL) AC	A(D&W) AC	A(ROOFS) AC	A(TOTAL) AC	C10	C100	% IMPERVIOUS
A1	0.10	0.00	0.04	0.08	0.22	0.45	0.63	49
B1	0.16	0.00	0.00	0.00	0.16	0.07	0.44	2
C1	0.28	0.00	0.00	0.00	0.28	0.07	0.44	2
D1	0.08	0.00	0.08	0.10	0.27	0.56	0.69	63
OFF1	0.13	0.00	0.11	0.00	0.24	0.40	0.63	43
OFF2	0.04	0.00	0.01	0.00	0.04	0.16	0.49	14
TOTAL:					1.21	0.32	0.57	33

¹ Runoff coefficients and percent impervious per Urban Drainage and Flood Control District, Chapter 6, Table 6-5 for Soil Group B, Volume 1 - Dated August 2018

10-YEAR INDIVIDUAL BASIN FLOWS

Project Name: CO13900 Red Horizons Minor Subdivision

Calculated By: CP

Check By: AH

Date: 8/18/2020

PRE-DEVELOPMENT CONDITIONS:

SUB-BASIN DATA					DIRECT RUNOFF	
CONTRIBUTING BASINS	BASIN AREA (acre)	C10	EFFECTIVE AREA (acre)	SUB BASIN Tc (min)	I (in/hr)	SUB BASIN Q (cfs)
ENTIRE LOT	0.93	0.19	0.18	5.00	5.90	1.05
OFF1	0.24	0.32	0.08	5.00	5.90	0.45
OFF2	0.04	0.07	0.00	5.00	5.90	0.02
					TOTAL:	1.51

POST-DEVELOPMENT CONDITIONS:

SUB-BASIN DATA					DIRECT RUNOFF	
CONTRIBUTING BASINS	BASIN AREA (acre)	C10	EFFECTIVE AREA (acre)	SUB BASIN Tc (min)	I (in/hr)	SUB BASIN Q (cfs)
A1	0.22	0.45	0.10	5.00	5.90	0.60
B1	0.16	0.07	0.01	5.00	5.90	0.07
C1	0.28	0.07	0.02	5.00	5.90	0.11
D1	0.27	0.56	0.15	5.00	5.90	0.88
OFF1	0.24	0.40	0.10	5.00	5.90	0.57
OFF2	0.04	0.16	0.01	5.00	5.90	0.04
					TOTAL:	2.27

Intensity per Larimer County Stormwater Design Standards Figure RA-3 (2005) Rainfall Intensity - Duration Curve for Are

$$Q_{10} = C \cdot I \cdot A$$

100-YEAR INDIVIDUAL BASIN FLOWS

Project Name: CO13900 Red Horizons Minor Subdivision

Calculated By: CP

Check By: AH

Date: 8/18/2020

PRE-DEVELOPMENT CONDITIONS:

SUB-BASIN DATA					DIRECT RUNOFF	
CONTRIBUTING BASINS	BASIN AREA (acre)	C100	EFFECTIVE AREA (acre)	SUB BASIN Tc (min)	I (in/hr)	SUB BASIN Q (cfs)
ENTIRE LOT	0.93	0.50	0.47	5.00	9.00	4.20
OFF1	0.24	0.58	0.14	5.00	9.00	1.24
OFF 2	0.04	0.44	0.02	5.00	9.00	0.15
					TOTAL:	5.59

POST-DEVELOPMENT CONDITIONS:

SUB-BASIN DATA					DIRECT RUNOFF	
CONTRIBUTING BASINS	BASIN AREA (acre)	C100	EFFECTIVE AREA (acre)	SUB BASIN Tc (min)	I (in/hr)	SUB BASIN Q (cfs)
A1	0.22	0.63	0.14	5.00	9.00	1.28
B1	0.16	0.44	0.07	5.00	9.00	0.65
C1	0.28	0.44	0.12	5.00	9.00	1.10
D1	0.27	0.69	0.18	5.00	9.00	1.66
OFF1	0.24	0.63	0.15	5.00	9.00	1.35
OFF2	0.04	0.49	0.02	5.00	9.00	0.19
					TOTAL:	6.23

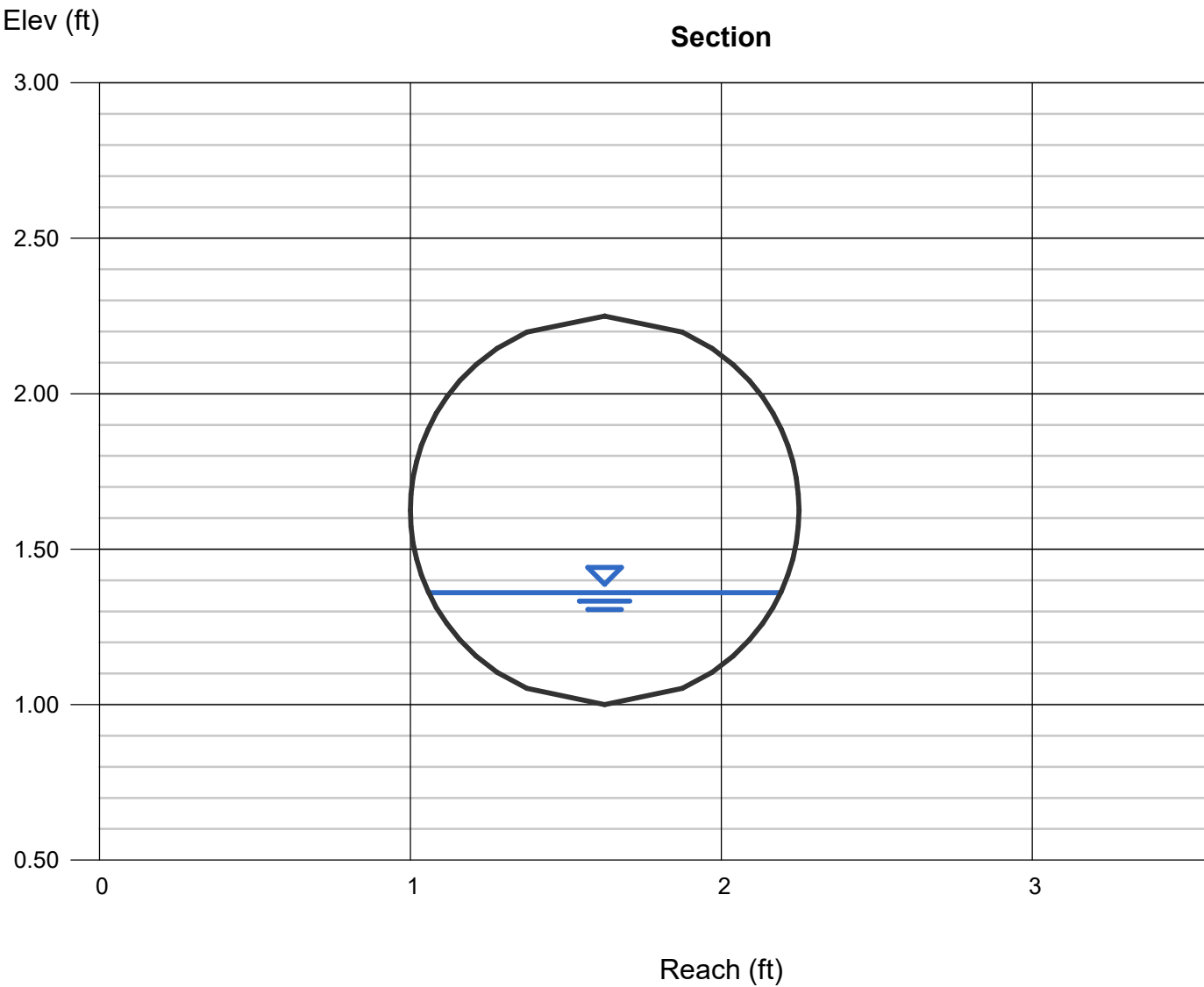
Intensity per Larimer County Stormwater Design Standards Figure RA-3 (2005) Rainfall Intensity - Duration Curve for Area

$$Q_{100} = C \cdot I \cdot A$$

Channel Report

Basin A1 and Basin OFF1 - 10-Year Flow for 15in RCP

Circular		Highlighted	
Diameter (ft)	= 1.25	Depth (ft)	= 0.36
		Q (cfs)	= 1.170
		Area (sqft)	= 0.29
Invert Elev (ft)	= 1.00	Velocity (ft/s)	= 3.98
Slope (%)	= 1.00	Wetted Perim (ft)	= 1.42
N-Value	= 0.013	Crit Depth, Yc (ft)	= 0.43
		Top Width (ft)	= 1.13
		EGL (ft)	= 0.61
Calculations			
Compute by:	Known Q		
Known Q (cfs)	= 1.17		



Channel Report

Basin B1 - 10-Year Flow Culvert Analysis

Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1.00

Slope (%) = 0.50

N-Value = 0.023

Calculations

Compute by: Known Q

Known Q (cfs) = 0.07

Highlighted

Depth (ft) = 0.18

Q (cfs) = 0.070

Area (sqft) = 0.08

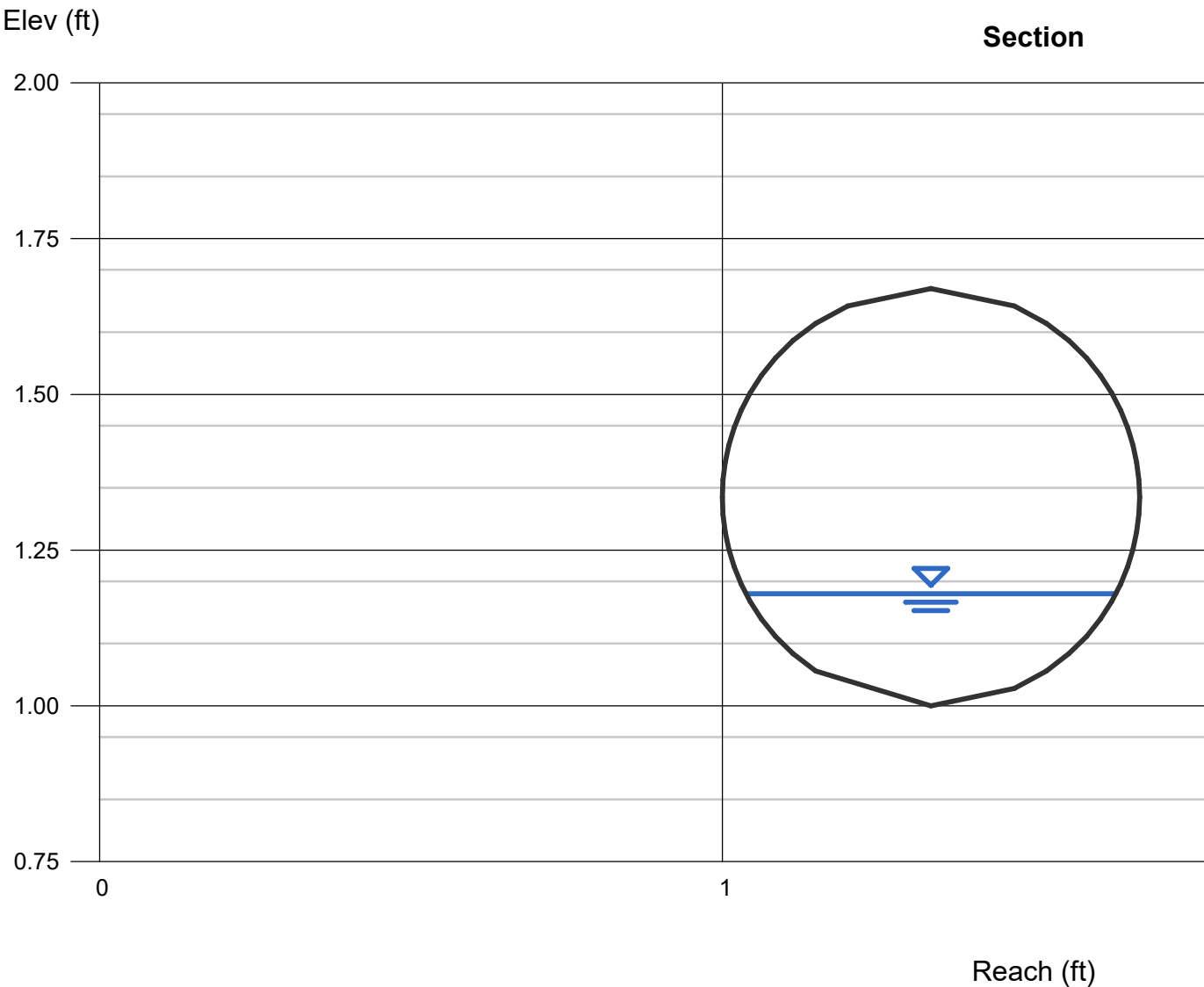
Velocity (ft/s) = 0.92

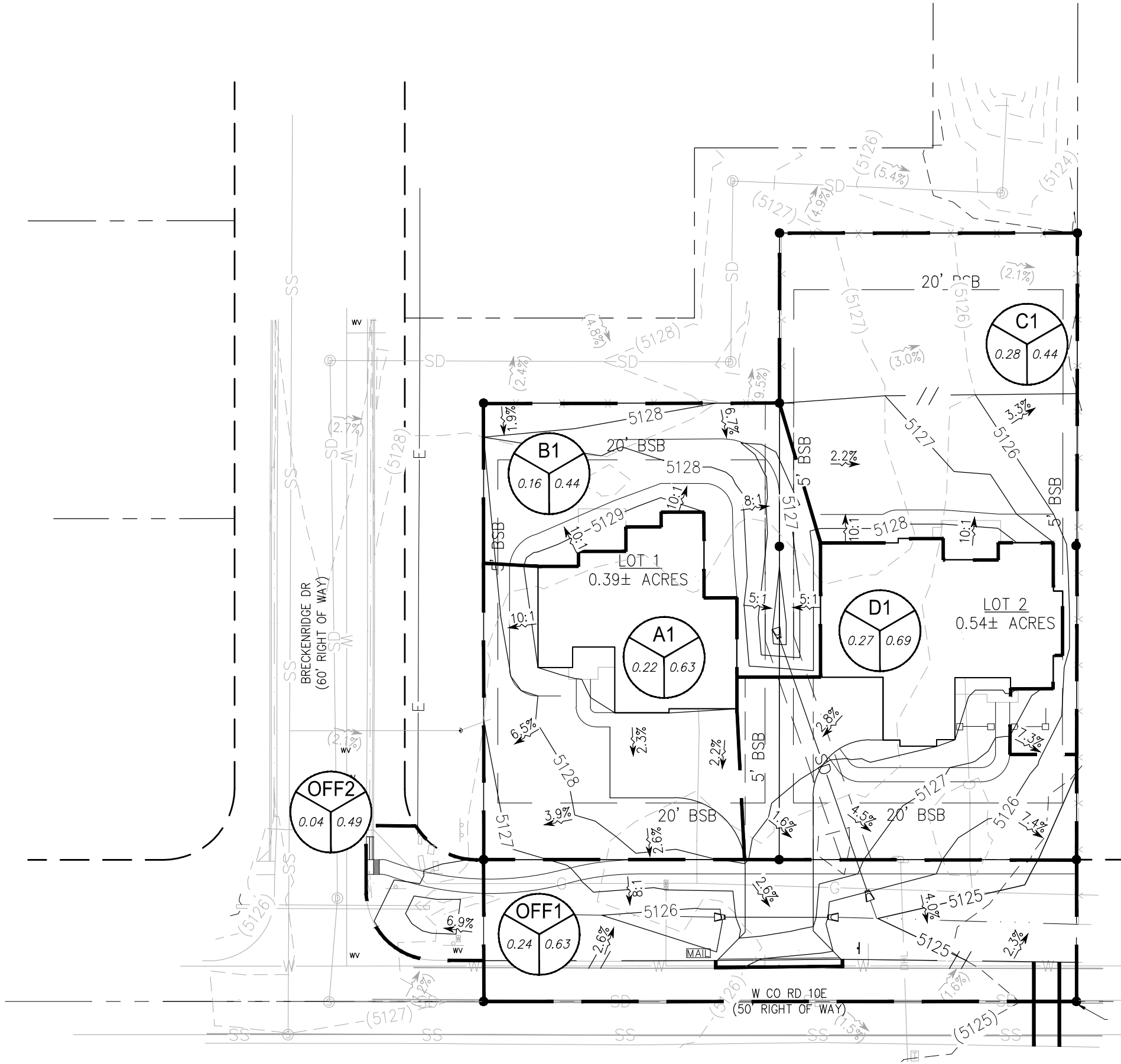
Wetted Perim (ft) = 0.73

Crit Depth, Yc (ft) = 0.12

Top Width (ft) = 0.59

EGL (ft) = 0.19





STORMWATER RUNOFF NOTES:

TOTAL DISTURBED AREA (ONSITE): 0.78 ACRES
TOTAL DISTURBED AREA (OFFSITE): 0.21 ACRES
PRE-DEVELOPMENT 100-YR STORM RUNOFF (ONSITE): 4.20 CFS
POST-DEVELOPMENT 100-YR STORM RUNOFF (ONSITE): 4.69 CFS
PRE-DEVELOPMENT 100-YR STORM RUNOFF (OFFSITE): 1.39 CFS
POST-DEVELOPMENT 100-YR STORM RUNOFF (OFFSITE): 1.54 CFS

DRAINAGE LEGEND:

PROPOSED SLOPE 2.0%
EXISTING SLOPE (1.0%)
BASIN LIMITS
LIMITS OF DISTURBANCE
A = BASIN DESIGNATION
B = AREA IN ACRES
C = 100-YR RUNOFF COEFFICIENT

SUMMARY RUNOFF TABLE

BASIN ID	CONTRIBUTING AREA (ACRES)	PEAK 100YR (CFS)
A1	0.22	1.28
B1	0.16	0.65
C1	0.28	1.10
D1	0.27	1.66
OFF1	0.24	1.35
OFF2	0.04	0.19