



TOWN OF PAONIA
THURSDAY, MARCH 25, 2021
PLANNING COMMISSION MEETING AGENDA
5:00 PM

APPROPRIATE FACE COVERINGS ARE REQUIRED AT ALL TIMES WHILE IN TOWN HALL.

Roll Call

Approval of Agenda

New Business

1. Regular Minutes: June 22, 2020
2. Riverbank Neighborhood Major Subdivision Review Hearing
 - Old World LLC - Submittal Overview Letter
 - Old World LLC - Submittal Overview Letter - With Administrator Comments
 - Town Attorney Letter Regarding Engineer Review
 - Initial Independent Engineering Plan Review
 - Applicants Engineer Plan Review Including Modifications and Responses
 - Community Member Input Letter
 - Application Item 1 - Geotechnical Report - Soils Report
 - Application Items 2 Through 7
 - Application Items 8 Through 14

Adjournment

AGENDA SUMMARY FORM



Regular Minutes: June 22, 2020

Summary:
Approval of regular minutes.

Large empty rectangular area for notes or additional information.

Vote:	Barb Heck:	Karen Budinger:	Monica Foguth:
Lucy Hunter:	Mary Bachran:		

Empty rectangular box at the bottom of the main form area.

Minutes
Planning Commission Meeting
Town of Paonia, Colorado
June 22, 2020

RECORD OF PROCEEDINGS

Roll Call

1. Commission members present were as follows:

Chairperson Barb Heck
 Commissioner Lucy Hunter
 Commissioner Monica Foguth
 Mayor Mary Bachran
 Trustee Karen Budinger

Town staff present were as follows:

Town Administrator/Town Clerk Corinne Ferguson
 Assistant to the Town Administrator Evan Bolt
 Deputy Clerk Amanda Mojarro

A quorum was present, and Chairperson Heck proceeded with the meeting.

Approval of Agenda

Motion to approve agenda as presented by Commissioner Hunter seconded by Mayor Bachran.
 Motion carried unanimously.

Unfinished Business

Minutes: February 27, 2020:

Motion to approve minutes as presented by Commissioner Hunter Seconded by
 Chairperson Heck. Motion failed due to lack of votes.

Mayor Bachran & Trustee Budinger Abstained from voting.

Minutes were tabled until the next meeting.

New Business

Appointment of Chair:

Appointment of chair was tabled until next meeting.

Spiegel Fence Variance:

Fence variance documents were included in the packet.

Motion to recommend that the Board of Trustee approve Deborah Spiegel's fence variance by Commissioner Hunter second by Trustee Budinger. Motion carried una.

6. **Paonia Master Plan Update**

Evan Bolt updated the planning commission members regarding some of the master plan's goals and objectives.

Discussion points:

- Time frame of the assett inventory - preliminary reports will be reviewed in the fall.
- Land use - a public input meeting was held in early spring regarding the land use survey.
- Annexation - Town of Paonia has a (3) three-mile radius to annex.
- Master plan time frame draft documents available in July.

Adjournment

Adjournment:

Chairperson Heck adjourned the meeting at 5:43 pm

Amanda Mojarro, Deputy Clerk

Barb Heck, Chairperson

AGENDA SUMMARY FORM



Riverbank Neighborhood Major Subdivision Review Hearing

Summary:

Large empty rectangular box for writing the summary.

Vote:	Barb Heck:	Karen Budinger:	Monica Foguth:
Lucy Hunter:	Mary Bachran:		

March 24, 2021



ADMINISTRATOR REPORT

TO: PLANNING COMMISSION

FROM: *CORINNE FERGUSON*

SUBJECT: PAONIA RIVERBANK NEIGHBORHOOD

Ivo Renkema, on behalf of Old World, LLC, provided an initial major subdivision application and variance request for review with previous Administrator Knight in 2017/2018. The process had some delays and was re-addressed following my assuming administrator duties in 2019. A joint community work session with the planning commission and Board of Trustees was held and well-received June 4, 2020. The primary areas of concern from the community during the meeting were a walking path to connect the neighborhood to the school property and the inclusion of sidewalks. The application was deemed substantially complete November 25, 2020 and applicant was so notified via e-mail. Subsequent virtual meetings, reviews, and correspondence ensued to bring us to date. The applicant provided updated data and responses to Town engineering reviews and requested the process move forward, as presented, on February 22, 2021.

See below:

Application and Review Per Municipal Code Chapter 17 Articles 5 and 6.

Complete application packet and fee payment. – Reviewed as submitted, deemed substantially complete 11/25/2020.

Deadlines for publication and notifications met.

Requirements for Administrator submittal to Planning Commission for recommendations to the Board of Trustees:

Documents submitted by applicant (Labeled Items 1 through 14)

1. Geotechnical – soils report
2. Sketch Plan
3. List of property owners within 200'
4. Application
5. Covenants for the Riverbank Neighborhood

6. Referral letters from utility companies [Development Review]
7. Engineering work from Odisea
8. Preliminary Plan Reviewed for final concurrent review
9. Subdivision Improvements Agreement
10. Title Commitment and updated title commitment
11. Storm-water drainage report
12. Engineers Cost Estimate
13. Traffic Impact Analysis
14. Proof of Ownership

(1) All such proposed parcels are divided by, or parallel to and part of the original lot, tract or parcel lines on the Town Plat; **Refer to Proposed Site Map C2.0 - COMPLETE**

(2) All the proposed parcels have the applicable yard setbacks which are required for structures; **Existing lot 1 and 2 and Proposed Lots 4 through 16 (lot 3 is required open space) are vacant – lot size permits development within setback requirements.**

(3) All of the proposed areas of the proposed parcels conform to the zoned uses and dimensional characteristics of lots or tracts in the applicable Zone District of the Town regulations; **COMPLETE – Existing and Proposed Lot 1-16 retain current zoning R-2 medium density residential. Required minimum lot size for R-2 permitted by right is 8,000 square feet. All lots exceed required minimum square footage. Water and sewer taps are paid in full for lots 1 and 2 only. Recommendation that approvals will be contingent on the availability of water taps from the Town.**

(4) None of the proposed parcels violates any Section of the Town regulations; **COMPLETE – variance requests are not for parcels and will be addressed later in the report.**

(5) The major subdivision complies with the applicable zoning criteria in Chapter 16 Article 3; **CORRECT (see attached Table 16-1 Schedule of Uses and Table 16-2 Schedule of Requirements – Residential Districts)**

(6) The application has been referred to all Town departments and utility companies (Development Review committee) for review and comment at least fifteen (15) days prior to a decision on the application; **COMPLETE – No objections – Response from Fire Department Included, requesting 8-inch main. Plans call for connection to existing 8-inch main.**

Items to Consider for Planning Commission Review and Recommendation and Subsequent Board Approval:

- (1) Comply with all applicable zoning requirements of the zone district in which the subdivision is located;
- (2) Have a front parcel line on a street only, and such parcel access shall have the following characteristics:

a. Said front parcel line must be at least twenty-five (25) feet long or the minimum lot width for the applicable zone district, whichever is shorter;

b. The vehicular access to any primary structure on a parcel shall be from a street, must be a minimum of twenty-five (25) feet wide along its entire length, and must be owned in fee simple by the owner of the parcel being accessed;

(3) Provide for underground utilities upon each building site;

(4) Provide for adequate fire and flood protection and emergency access;

(5) Not increase the potential for breach of the public safety, or damage to public or private property by fire, flood or erosion;

(6) Not create congestion, automotive or pedestrian safety problems or other traffic hazards;

(7) To be designed in a manner that directs the placement of roads, utilities and structures away from any unstable soils, or mitigates the effect of unstable soils, geologic hazards, and other site conditions so as to minimize the potential for breach of the public safety, or damage to public or private property;

(8) Not create significant adverse effects to public facilities, rights-of-way or utilities;

(9) Not create significant adverse impacts on the use of adjacent property;

(10) Otherwise be consistent and comply with the objectives purposes, conditions and requirements of these subdivision regulations and the zoning ordinance of the Town regulations; and

Comments Specific to Applicant Letter to Planning Commission dated March 9, 2021. Please see additional comments included with the letter later in the packet.

Main Points listed on page 1:

15 residential lots, zoned R-2, - Agreed and recommended.

1 open space lot, approximately 2 acres, - The lot is 1.974 acres in the current plan – this exceeds the required open space area for a major subdivision unless modified for option b included.

An “evergreen buffer” between neighbors and Riverbank – Included as desired by community.

A newly constructed Atlantic Avenue Received confirmation that road name is acceptable for emergency services.

Irrigation water from Feldman and Farmers ditches – Included. No additional comments.

Easements for trails – included 8-ft access trail easement between lots 7 & 9 to school district property as desired by community. Requesting applicant consider inclusion of continuation of the trail easement on rear south-east portion of Riverbank lots 7, 6, & 5 to Town lot 6 for future connection to walking bridge to W. 4th Street near public library.

Having reviewed and confirmed all requirements and information provided, it is my recommendation to the Planning Commission and Board of Trustees the approval of Riverbank Neighborhood Subdivision with the following recommendations specific to variance requests:

Variance 1: Road width and length – Section 17-4-40 (g) cul-de-sac length and Section 17-4-50 paved area or right-of-way

The Road length is approximately 1,700 ft. Code requirement is no more than 500 ft. Staff recommendation to approve variance – suggested modification to emergency turn around location to area between Riverbank lots 2 & 5 which currently have a 35 ft shared utility and ditch easement. This more centrally locates the emergency turn-around. At its current location it is approximately 700 ft beyond the maximum allowed road length.

Variance 2: change in typical road section – Section 17-4-40 (j)

Please see staff notes included in the summary of Final Document submitted by applicant. Staff recommendation is to deny the variance – Staff recognizes the reduction in number of developable parcels, COVID-19, and the moratorium on water tap sales significantly impacts the economics of the neighborhood.

Suggested modification is to defer installation of sidewalk, curb and gutter until such time as 50% of the parcels are sold and/or developed. Storm water runoff should be collected at intermittent collection boxes and piped to detention ponds identified on the plan (see C3.0).

Should the planning commission recommend and the Board of Trustees final approval include option B - the addition of one (1) lot within the open space lot 3, staff recommends the Board acknowledge no reduction of required open space due to the inclusion of trails and accesses in the proposed plan.

Admin Report Attachments:

Attachment A: Street Design and Specifications Sec.17-4-40 through 17-4-110

Attachment B: Zoning Table 16-1 Schedule of Uses for Residential Districts

Attachment C: Zoning Table 16-2 Schedule of Requirements for Residential Districts

Attachment D: SGM Engineering Estimate for curb and gutter installation costs

Sec. 17-4-40. - Street design.

- (a) The street pattern shall be designed to afford safe and convenient access to all lots within the subdivision.
- (b) Streets shall have a logical relationship to the topography and be designed to be parallel to the existing contours as much as possible.
- (c) All streets shall intersect at right angles.
- (d) Streets or alleys shall not be closer than one hundred (100) feet from another street intersection.
- (e) Proposed streets, which are extensions of existing public rights-of-way shall be designed to effect a smooth transition from existing to proposed improvements and shall be named accordingly.
- (f) Where developable but unplatted land is separated by a proposed subdivision from an existing public right-of-way, the street pattern of the proposed subdivision shall include streets extended to the boundary common to both tracts to prevent land locking of the unplatted tract and promote access to future development of adjacent unplatted land.
- (g) Dead-end streets and alleys shall be provided with a cul-de-sac with a minimum radius of fifty (50) feet. The maximum length of a dead-end street shall be five hundred (500) feet measured from the right-of-way line of the connecting street to the center of the turn-around area at the closed end of the cul-de-sac.
- (h) The minimum street gradient shall be five-tenths percent (0.5%) and the maximum street gradient shall be seven percent (7%) for local streets and five percent (5%) for collector and arterial streets. Except where, in the Town's opinion, the terrain requires a greater gradient, streets shall not exceed a gradient of four percent (4%) within one hundred (100) feet of an intersection. Changes in street grades shall be accomplished by vertical curves of sufficient length to maintain safe sight distances.
- (i) Street names. All street names shall be subject to the approval of the Planning Commission. The Planning Commission, subject to the approval of the Board of Trustees, may adopt a uniform street naming policy.
- (j) All public and private streets, curbs and gutters shall be laid out and graded, a base course of gravel installed and an asphalt wearing course installed to the full width of the traveled way, all to the specification of the Town's street design specifications. All alleys shall be laid out and graded, a base course of gravel installed and an all-weather surface installed to the full width of the traveled way, all to the specification of the Town's street design specifications and the Building Specifications and Standard Construction Specifications, as the same may be from time to time amended.
- (k) Minimum street widths and design characteristics are shown on the schedule of requirements, Table 17-1 below.
- (l) Curbs, gutters and sidewalks are required on all streets of subdivisions.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2003-04, 8-12-2003; Ord. No. 2014-04, § 1, 1-13-2015)

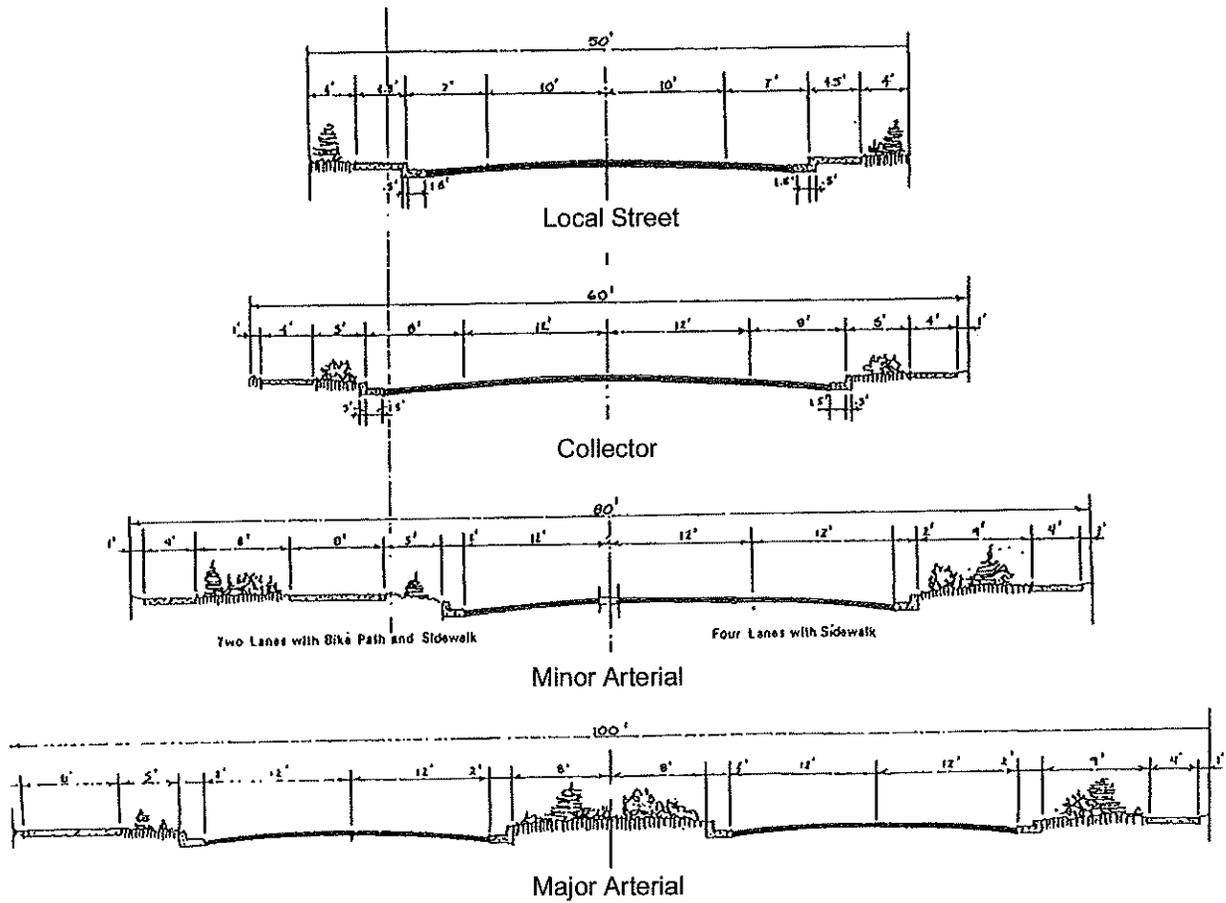
Sec. 17-4-50. - Street design; schedule of requirements.

The following Table sets out the requirements for street design:

Table 17-1
Street Design - Schedule of Requirements ¹

	<i>Local Street</i>	<i>Major and Minor Collector</i>	<i>Minor Arterial</i>	<i>Major Arterial</i>	<i>Alleys</i>
Minimum right-of-way	50 ft.	60 ft.	80 ft.	100 ft.	25 ft.
Travel lanes	2-10 ft.	2-12 ft.	2 or 4 lanes	12 ft.	25 ft.
On-street parking lanes	2-7 ft.	2-8 ft.			
Minimum pavement width curb to curb	34 ft.	40 ft.	See cross-section		
Sidewalk	Attached curbwalk 2-4 ft.	Detached 2-4 ft.	Detached 2-4 ft.	Detached 2-4 ft.	
Minimum radius of curvature	100 ft.	300 ft.	400 ft.	600 ft.	100 ft.
Maximum % of grade	7%	5%	5%	5%	
Radius of cul-de-sac		50 ft. residential	N/A	N/A	
Minimum paved area right-of-way	45 ft.	60 ft. commercial			
Bicycle path	May be designated on selected streets	Selected streets may include required bicycle paths. Minimum 8-10 ft.			

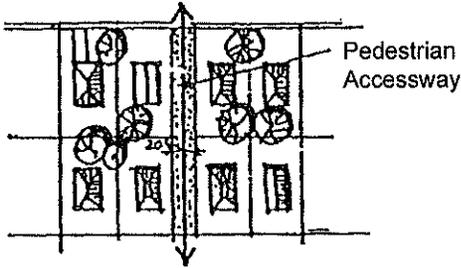
¹ These requirements apply to new developing areas and may not be applicable to older areas of the community. All determinations as to the applicability of these requirements shall be made by the Planning Commission.



(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2003-04, 8-12-2003; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-60. - Lot and block design.

- (a) Each lot shall be designed to provide an adequate accessible building site for a structure devoted to the intended use of the land.
- (b) Each lot shall meet or exceed the minimum requirements of the applicable zone district regulations or PUD plan, whichever applies, and shall have a minimum of twenty-five (25) feet of linear footage on a dedicated public street if access to said lot is by a dedicated public street. For multiple-family townhouse PUDs, the Planning Commission may waive the required twenty-five (25) feet of frontage on a public street.
- (c) Blocks shall not exceed one thousand (1,000) feet, unless a pedestrian walkway is provided through the block. The walkway shall consist of a twenty-foot easement near the middle of the block.



- (d) In tracts containing more than one (1) block, the blocks shall be designated in numerical order. Lots shall be designated numerically beginning with the number 1 in each block. Large tracts of land that are not further subdivided into lots and blocks shall be designated alphabetically beginning with the letter A. Outlots shall also be numbered alphabetically.
- (e) Double-frontage or through lots may be permitted, provided that access control restrictions are provided on the plat.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-70. - Storm drainage.

- (a) Complete drainage systems for the entire subdivision area shall be designed by a professional engineer licensed in the State and qualified to perform such work and shall be shown graphically. All existing drainage features shall be so identified. If the final plat is to be presented in phases, a general drainage plan for the entire area shall be presented with the first phase, and appropriate development stages for the drainage system for each phase shall be indicated.
- (b) The drainage plans shall be designed to permit the unimpeded flow of natural watercourses and to ensure adequate drainage of all low points.
- (c) Drainage plans shall include all proposed surface drainage structures and all appropriate designs, details and dimensions necessary to clearly explain proposed construction materials and elevations.
- (d) The drainage system shall be designed to consider the drainage basin as a whole. All new development shall ensure that surface runoff from the development site shall not, after development, exceed the predevelopment flow for the peak condition of a ten-year storm. Adequate area for retention, percolation and absorption of all surface runoff generated by the project shall be provided either on the site or in cooperation with similar developments in the vicinity. A qualified engineer shall certify such surface runoff control designs.
- (e) All detention ponds shall be designed so that no standing water will remain beyond five (5) days after the end of the storm. The design of the detention facility must include consideration of the off-site runoff based upon present conditions. Detention facility design shall be in conformance with the requirements of the Town Engineer. Design data shall include, but not be limited to, soil boring logs and soils classifications water table elevations.
- (f) Drainage easements shall be provided to assure the perpetuity of detention areas when constructed as permanent drainage facilities.
- (g) Maintenance of drainage easements, detention areas and other structures shall be determined as a part of the subdivision agreement.
- (h) The developer shall make all practical efforts to assure that the water quality of post-development runoff is not less than the predevelopment runoff.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-80. - Erosion control and site grading.

- (a) All new development shall ensure that erosion and sedimentation caused during construction and in the post-construction stage is prevented from causing any off-site effects in excess of what occurred in the predevelopment condition. The universal soil loss equation shall be used to calculate the amount of erosion to be generated by construction, and an interim stabilization and final stabilization plan shall be provided by the developer to ensure the containment of wind and water erosion effects on site during and after construction.
- (b) On slopes greater than ten percent (10%), slope stabilization and revegetation will be required. Plans shall include a description of existing vegetation to be planted and other slope-stabilization measures to be installed. New vegetation should be selected and located to be compatible with the surrounding vegetation, soil and ecological characteristics of the area.
- (c) Slopes shall be finished to match or blend with the natural contours of the adjacent terrain by eliminating sharp grade transitions of cut-and-fill slopes.
- (d) All existing trees that are to be retained and are over three (3) inches in diameter measured three (3) feet above grade shall be protected during construction and grading operations by placing fencing outside of the drip line of the tree.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-90. - Bridges.

Any bridge planned as part of a proposed subdivision shall be designed and constructed and paid for by the subdivider in accordance with American Association of State Highway Officials recommendations, which recommendations are incorporated herein by this reference as if set forth verbatim. Where an existing bridge is a part of a proposed subdivision and does not meet specifications of this Chapter, it is the responsibility of the subdivider to repair or replace such bridge as necessary to meet the requirements of H20 live load prior to acceptance by the Board of Trustees for maintenance. No lot served by such bridge shall be built upon or occupied until such improvements have been completed. The width of such bridge shall not be less than the width of the roadways approaching it on either side.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-100. - Water systems.

Water distribution systems shall be designed to connect with the Town water system and make water available to each lot and proposed site of use in the proposed subdivision. Fire hydrants shall be located to ensure protection of each lot based on utilization of existing Town firefighting equipment. Design and engineering of the system shall be the responsibility of the subdivider, with all plans subject to approval of the Town. Installation of the system shall be to Town specifications. Financial responsibility for the water distribution system shall belong to the subdivider and shall be subject to existing Town regulations and agreements executed by the Town and the subdivider.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 17-4-110. - Sanitary sewer systems.

The sanitary sewer system for the subdivision shall be designed to connect with the Town's system and shall provide service for each lot and proposed building site within the subdivision. Design and installation of the system shall be subject to the approval of the Town and in accordance with the specifications of the Town. The developer shall pay for the sanitary sewage collection system subject to all regulations of the Town, State and federal government.

(Ord. No. 2000-02, Art. XII, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 16-3-20. - Schedule of uses, residential districts.

Table 16-1
Schedule of Uses - Residential Districts

Use	R-1 District	R-2 District	R-3 District	E-1 District	MH District
Single-family dwellings	P	P	P	P	P
Two-family dwellings	X	P	P	S	X
Multiple-family dwellings, apartments/townhouses not exceeding 6 units per lot	X	S	P	X	X
Multiple-family dwellings, apartments/townhouses in excess of 6 units per lot	X	X	S	X	X
Mobile home parks	X	X	X	X	S 1
Mobile home subdivisions	X	X	X	X	P
Parks and recreation areas	P	P	P	P	P
Private schools	S	S	S	S	X
Public or governmental uses	S	S	S	S	X
Group homes for the developmentally disabled	S	S	S	S	S
Churches	S	S	S	S	S
Nursing homes/assisted living apartments	X	S	S	X	X
Rooming houses/bed and breakfasts	X	S	S	S	X
Professional offices 2	X	S	S	X	S
Neighborhood convenience centers 3	S	S	S	S	S

Antenna structures (towers)	S	S	S	S	S
Horses, barns and pastures	X	X	X	P	X
Mobile homes (single unit)	X	X	X	X	P
Neighborhood commercial uses 4	X	X	X	X	P

P = Permit by right

S = Permit by special review

X = Prohibited use

¹ See Article 8 of this Chapter.

² Professional offices as home occupations are permitted in all districts, subject to provisions in Section 16-11-20 of this Chapter.

³ Neighborhood commercial uses may include small food stores, specialty shops, gift, antique shops or similar type uses. Maximum floor area shall be 2,000 square feet total.

⁴ Neighborhood convenience center shall have a maximum total floor area of 10,000 square feet and no single business with a greater total floor area than 2,000 square feet.

(Ord. No. 2000-02, Art. X, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

Sec. 16-3-30. - Schedule of requirements, residential districts.

Table 16-2
Schedule of Requirements ¹ - Residential Districts

Minimum Lot Area Requirements	R-1 District		R-2 District		R-3 District		E-1 District		MH District	
	Dwelling units	Min. lot area (sq. ft.)	Dwelling units	Min. lot area (sq. ft.)	Dwelling units per story	Min. lot area (sq. ft.)	Dwelling units	Min. lot area (sq. ft.)	Dwelling units	Min. lot area (sq. ft.)
Residential uses permitted by right	1	6,000	1	6,000	1	6,000	1	3 acres	1	5,000
			2	8,000	2	6,000	2		N/A	N/A
					3	8,000				
					4	10,000				
					5	12,500				
					6	15,000				
Residential uses permitted by special review			3	12,000	Over 6 units	15,000 sq. ft.				
			4	16,000		+				
			5	20,000		2,500 sq. ft.				
			6	24,000		for each				

						unit over 6				
--	--	--	--	--	--	----------------	--	--	--	--

Yard Requirements ²	R-1 District	R-2 District	R-3 District	E-1 District	MH District
All yard areas adjacent to an arterial street major and minor	50 ft.	35 ft.	35 ft.	75 ft.	50 ft.
Front yard setback					
Collector (major and minor)	25 ft.	25 ft.	25 ft.	50 ft.	25 ft.
Local	20 ft.	20 ft.	20 ft.	35 ft.	20 ft.
Side yard	6 ft.	6 ft.	10 ft. ³	20 ft.	6 ft.
Rear yard	10 ft.	10 ft.	20 ft.	20 ft.	15 ft.
Minimum lot width	50 ft.	50 ft.	50 ft.	200 ft.	50 ft.
Minimum landscaped open space (% of lot area)	-	20%	20%	30%	-
Minimum lot coverage	30%	30%	30%	20%	50%
Maximum building height	25 ft.	25 ft.	35 ft.	30 ft.	25 ft.

¹ See also the following provisions: 16-3-40 to 16-3-60 pertaining to average lot areas, side yard setback variation and front yard variation.

² See supplementary requirements in Section 16-10-60.

³ When a building is 3 stories, a 15-foot setback is required.

(Ord. No. 2000-02, Art. X, 2000; Ord. No. 2014-04, § 1, 1-13-2015)

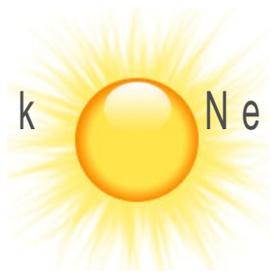


Riverbank Subdivision

Project No. 2013-471.009

Item #	Estimated Quantity	Unit	Description	Unit Price	Total Price
1	3097	LF	Concrete Curb and Gutter	35.00	108,395.00
2	2	EA	Drain Inlet	5,000.00	10,000.00
3	50	LF	12" ADS Drain Pipe	50.00	2,500.00
Total of All Items				Total	120,895.00

Riverbank Neighborhood



YOUR SPOT IN THE SUN

Town of Paonia
Planning & Zoning Commission
Grand Avenue, Paonia, CO

March 9th, 2021

Members of the Planning & Zoning Commission:

We proudly submit the Riverbank proposal for a low density residential neighborhood. This proposal is consistent with our work-session of June 4th, 2020.

main points

The main points are

- » 15 residential lots, zoned R2, each roughly 1 acre,
- » 1 open space lot, approximately 2 acre,
- » an "evergreen buffer" between neighbors and Riverbank,
- » a newly constructed Atlantic Avenue,
- » irrigation water from Feldman and Farmers ditches,
- » easements for trails.

benefits

The Riverbank offers important benefits to its prospective home-owners and the larger town.

The Riverbank slopes to the South, ideal for solar homes. Views of Lamborn and Landsend are also South. And, ... *a river runs through it.*

The proximity to down-town allows for walking or biking as an alternative to the car. The Riverbank will add vitality to Grand Avenue and enhance tax-income for the town. The Riverbank easily ties into in-town water and sewer, while possessing ample irrigation water for outdoor use.

Finally, the Riverbank extends the trail system around the North Fork.

variances

For the Riverbank Neighborhood application, we request the following variances:

- » reduced ROW width (17-4-50),,
- » change in typical road section (17-4-50, 17-4-40 (l) & 17-4-40 (g)).

The preliminary approval of 2010 granted a variance for reduced road-width. One reason is that reduced road-width results in slower traffic, and benefits public safety.

The Riverbank Neighborhood has a reduced density of 15 lots. Previous proposals were for some 50 lots; including the above preliminary approval.

The density has been reduced to make the application more palatable to the town. Consequently, the revenue from lot sales has been substantially reduced. Our investments in infrastructure must similarly be reduced, in order to keep lots affordable. Strict application of the design standards would therefore result in unnecessary hardship.

The Riverbank property is intended have a more rural character than Paonia's down-town. Atlantic Avenue will be a dead-end street, servicing a mere fifteen lots. It extends from Price Road, a county road without curbs, gutters or sidewalks. As Price Road sits in an easement (rather than a right-of-way) it is hard to see how curbs, gutters and/or sidewalks could be added.

The Riverbank won't tie into the Town stormwater system, so the gutters are not needed to direct water into storm sewer inlets. For most of the length of the road, adjacent grades do not drain toward the street, so we would only be capturing runoff from the pavement and areas immediately adjacent to it.

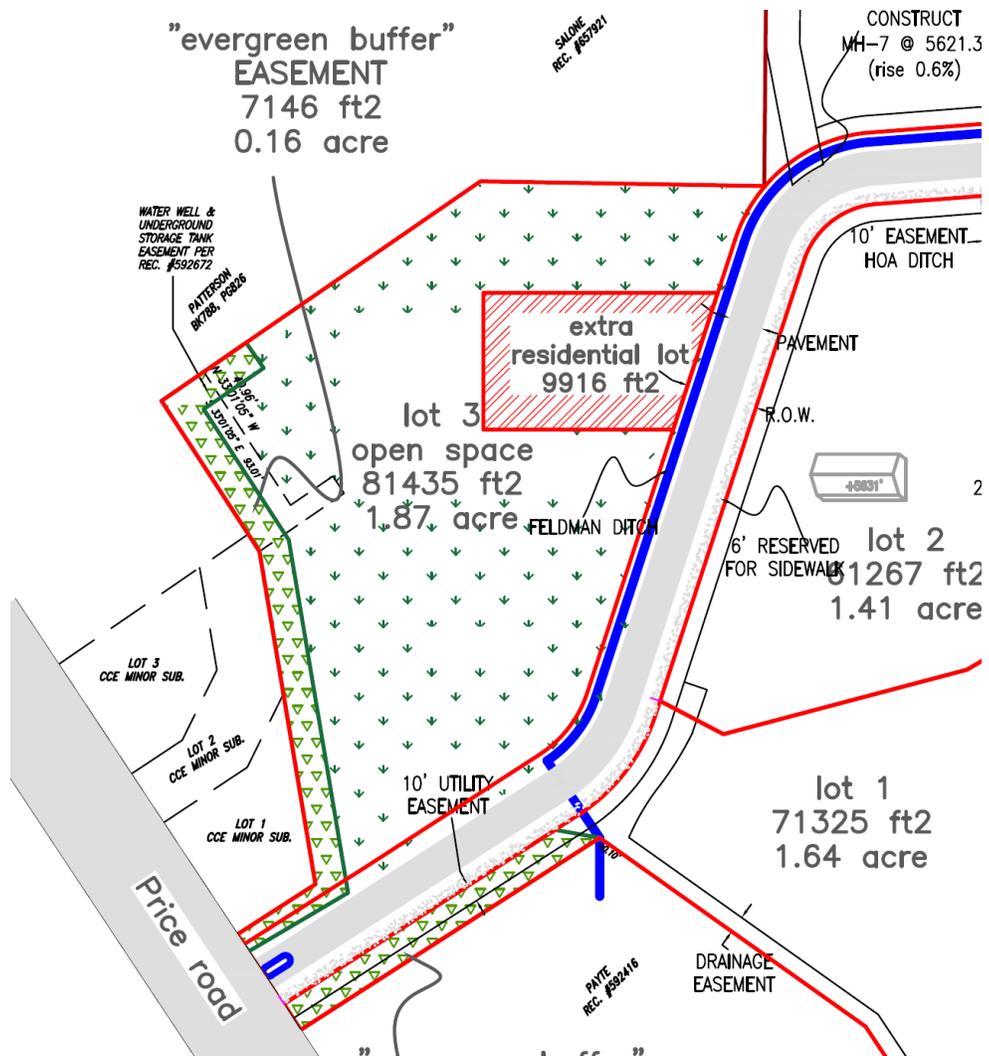
There is nothing wrong with a road without curbs and gutters. C-DOT construct highways in this manner. The same goes for county roads. It appears that only in a medium to high-density environment, do the benefits of curbs & gutters outweigh its costs. Down-town Paonia is such a medium-density environment; with four to six lots per acre. The Riverbank density is less than one lot per acre.

Therefore, curbs & gutters and full road-width are unnecessary and even adverse to the intended character of the Riverbank Neighborhood.

plan B

In case the town does not grant a variance for curb & gutter, we propose a plan B:

- to add one residential lot,
- construction of curbs & gutters be deferred until 50% of the lots are sold.



The extra lot could be a mere 9916 ft², situated within the 1.87 acre open space.

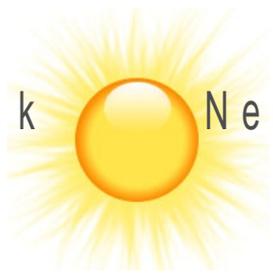
The town's engineer has estimated that just curbs & gutters would cost \$125,000. Experience demonstrates that the actual costs always exceed the estimate. With an extra residential-lot and deferred construction, the developer is partly compensated for these expenses.

Yours Sincerely,

Old World LLC,
Ivo Renkema

A handwritten signature in blue ink, consisting of a large, stylized 'R' followed by a long, sweeping line that extends upwards and to the right.

Riverbank Neighborhood



YOUR SPOT IN THE SUN

Town of Paonia
Planning & Zoning Commission
Grand Avenue, Paonia, CO

March 9th, 2021

Members of the Planning & Zoning Commission:

We proudly submit the Riverbank proposal for a low density residential neighborhood. This proposal is consistent with our work-session of June 4th, 2020.

main points

The main points are

- » 15 residential lots, zoned R2, each roughly 1 acre,
- » 1 open space lot, approximately 2 acre,
- » an "evergreen buffer" between neighbors and Riverbank,
- » a newly constructed Atlantic Avenue,
- » irrigation water from Feldman and Farmers ditches,
- » easements for trails.

4. Summary of Comments on Town of Paonia

This page contains no comments

benefits

The Riverbank offers important benefits to its prospective home-owners and the larger town.

The Riverbank slopes to the South, ideal for solar homes. Views of Lamborn and Landsend are also South. And, ... *a river runs through it.*

The proximity to down-town allows for walking or biking as an alternative to the car. The Riverbank will add vitality to Grand Avenue and enhance tax-income for the town. The Riverbank easily ties into in-town water and sewer, while possessing ample irrigation water for outdoor use.

Finally, the Riverbank extends the trail system around the North Fork.

variances

For the Riverbank Neighborhood application, we request the following variances:

- » reduced ROW width (17-4-50),,
- » change in typical road section (17-4-50, 17-4-40 (l) & 17-4-40 (g)).

The preliminary approval of 2010 granted a variance for reduced road-width. One reason is that reduced road-width results in slower traffic, and benefits public safety.  

The Riverbank Neighborhood has a reduced density of 15 lots. Previous proposals were for some 50 lots; including the above preliminary approval.

Number: 1 Author: TownClerk Subject: Sticky Note Date: 3/22/2021 1:53:21 PM

The original application and any preliminary approvals were formally withdrawn by Old World LLC in 2014. This no longer applies.

The density has been reduced to make the application more palatable to the town. Consequently, the revenue from lot sales has been substantially reduced. Our investments in infrastructure must similarly be reduced, in order to keep lots affordable. Strict application of the design standards would therefore result in unnecessary hardship.

The Riverbank property is intended have a more rural character than Paonia's down-town. Atlantic Avenue will be a dead-end street, servicing a mere fifteen lots. It extends from Price Road, a county road without curbs, gutters or sidewalks. As Price Road sits in an easement (rather than a right-of-way) it is hard to see how curbs, gutters and/or sidewalks could be added.  ¹

The Riverbank won't tie into the Town stormwater system, so the gutters are not needed to direct water into storm sewer inlets. For most of the length of the road, adjacent grades do not drain toward the street, so we would only be capturing runoff from the pavement and areas immediately adjacent to it.  ²

There is nothing wrong with a road without curbs and gutters. C-DOT construct highways in this manner. The same goes for county roads. It appears that only in a medium to high-density environment, do the benefits of curbs & gutters outweigh its costs. Down-town Paonia is such a medium-density environment; with four to six lots per acre. The Riverbank density is less than one lot per acre.  ³

Therefore, curbs & gutters and full road-width are unnecessary and even adverse to the intended character of the Riverbank Neighborhood.

Number: 1 Author: TownClerk Subject: Sticky Note Date: 3/22/2021 1:36:08 PM

As confirmed by independent engineering review, prescriptive easements for roads must still adhere to all applicable road regulations. Should the Town annex Price Road, Town regulations for sidewalks, curb, and gutter would still apply, and feasibility would need to be evaluated.

Number: 2 Author: TownClerk Subject: Sticky Note Date: 3/22/2021 1:40:13 PM

There are several reasons other than the municipal code requirement for sidewalk curb and gutter. Curbs and gutters serve a multitude of functions, including collecting water from crowned pavements and conveying to points of collection, reducing the amount of water that seeps under pavement causing road issues and instability, protects against erosion of the roadside shoulders, outlines the edges of pavement, provides defined borders between traveled and untraveled surfaces and are known to effectively slow speed traffic within the edges of pavements.

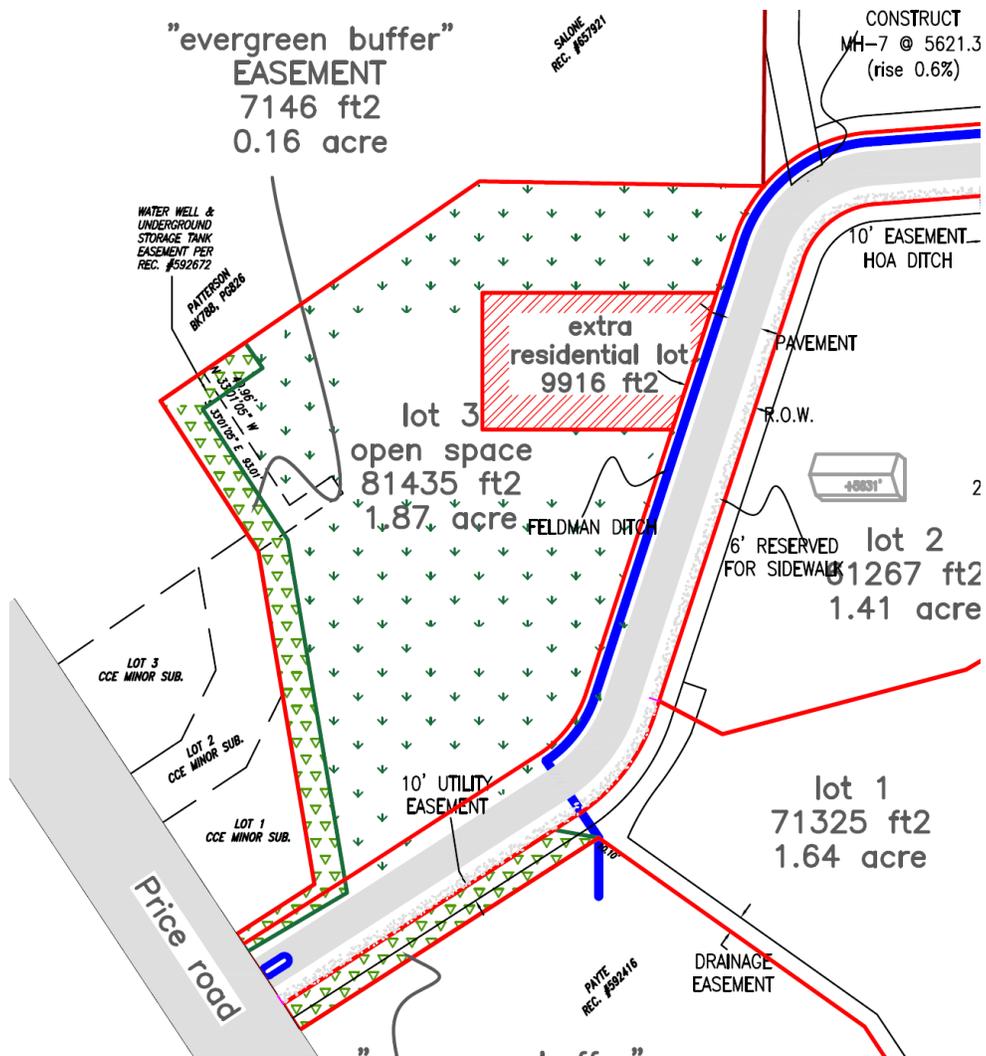
Number: 3 Author: TownClerk Subject: Sticky Note Date: 3/22/2021 1:43:37 PM

Riverbank is zoned R-2 which is medium density. While the current arrangement is approximately 1 to 1.5 acre lots, the Town has to prepare beyond the initial developers plan and include in decision-making the necessary requirements and improvements for the future development of the properties, which could include multiple single family homes and duplexes by right.

plan B

In case the town does not grant a variance for curb & gutter, we propose a plan B:

- to add one residential lot,
- construction of curbs & gutters be deferred until 50% of the lots are sold.



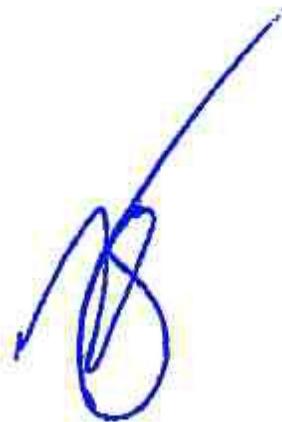
4. This page contains no comments

The extra lot could be a mere 9916 ft², situated within the 1.87 acre open space.

The town's engineer has estimated that just curbs & gutters would cost \$125,000. Experience demonstrates that the actual costs always exceed the estimate. With an extra residential-lot and deferred construction, the developer is partly compensated for these expenses.

Yours Sincerely,

Old World LLC,
Ivo Renkema

A handwritten signature in blue ink, consisting of a large, stylized 'R' followed by a smaller 'e' and a long, sweeping line extending upwards and to the right.

4. This page contains no comments



DEVOR & PLUMHOFF, LLC
Attorneys and Counselors at Law

Bo James Nerlin, Esq.
bo@coloradowestlaw.com

November 25, 2020

via email only

Mr. Ivo Renkema
Old World, LLC

Re: Riverbank Neighborhood Subdivision – Town of Paonia
Subdivision Application

Dear Mr. Renkema,

On behalf of staff of the Town of Paonia, a review of your Application for Subdivision - Final Plan for the Riverbank Neighborhood Subdivision has been completed. At this time, it is the conclusion of staff that all of the required materials for the application process have been appropriately submitted. This is based on the provision of the following materials:

1. Geotechnical – soils report
2. Sketch Plan
3. List of property owners within 200'
4. Application
5. Covenants for the Riverbank Neighborhood
6. Referral letters from utility companies
7. Engineering work from Odisea
8. Preliminary Plan
9. Subdivision Improvements Agreement
10. Title Commitment and updated title commitment
11. Storm-water drainage report
12. Engineers Cost Estimate
13. Traffic Impact Analysis
14. Proof of Ownership

In completing this review, the Town contracted with SGM Civil Engineering of Glenwood Springs Colorado to undertake a substantive review of the engineering work completed by Odisea. On November 16, 2020 SGM provided both staff and your team a preliminary review of the Riverbank Subdivision engineering. Since the 16th, the Town has had an opportunity to evaluate this review and confer with SGM. Based on this review and conferral,

enclosed with this letter is revised Engineering Review dated November 24, 2020 which incorporates comments from Town staff.

While some of the comments included in the updated Engineering Review are relatively minor and simply require clean up or clarification, there are a number of substantive comments that we suggest you and your team further address. Beginning on Page 4 of the report, please have Odies take a substantive review of comments 26 through 39. Coupled with this, please address the dead-end of Atlantic Ave. (comment 41). While it is recognized that the Atlantic Ave dead-end will be a request for a variance from the Town, please provide greater detail as to the need for this variance. In requesting this variance, address the emergency turnarounds and provide assurance from the appropriate responding agencies that these turnarounds are acceptable (comments 43 – 45).

In addition to the November 24, 2020 Engineering Review by SGM, staff is in the process of completing its staff report to the planning commission. In preparing this staff report, we would like to provide you the opportunity to address the issues raised in the November 24 SGM Engineering Review. With the revised SGM Engineering Review and the comments highlighted herein, we look forward to our virtual meeting on November 30th at 12:00 pm Mountain hopefully addressing the concerns provided.

Sincerely,



Bo James Nerlin

Cc: Ms. J. Corinne Ferguson
Mr. Travis Loberg
Mr. Brandyn Bair, PE

November 16, 2020 (**UPDATED 11/24/2020**)

Corinne Ferguson
Town Manager
Town of Paonia
214 Grand Avenue
Paonia, CO 81428

RE: **Engineering Review Comments**
Riverbank Neighborhood Subdivision

Dear Corinne,

At your request, SGM has completed a review of the aforementioned project. In order to conduct this review, we downloaded the materials from the website which included the following:

- A. Geotechnical Report
- B. Sketch Plan
- C. Property Owners with 200'
- D. Application Form
- E. Covenants
- F. Referral Letters
- G. Engineering Drawings by Odisea. The drawing set comprised of a total of 14 sheets dated August 14, 2020 as prepared by Odisea, LLC. The following sheets were included in the set:
 - a. C0.0 - Title Sheet
 - b. C0.1 - Civil Notes
 - c. C0.2 - Civil Notes
 - d. C1.0 - Existing Site Plan
 - e. C2.0 - Proposed Site Plan
 - f. C3.0 - Grading & Drainage
 - g. C4.0 - Atlantic Avenue Plan & Profile
 - h. C5.0 - Sanitary Sewer Plan & Profile
 - i. C6.0 - Water Distribution Plan
 - j. C7.0 - Utility Plan
 - k. C8.0 - Civil Details
 - l. C8.1 - Civil Details
 - m. C8.2 - Civil Details
 - n. C8.3 - Civil Details

I:\2013\2013-471 Town of Paonia\009-RiverbankSub\A-Corresp\L 20201124 UPDATEDRiverbankSubdivisionEngReview.doc

- H. Preliminary Plan
- I. Subdivision Improvements Agreement
- J. Title Commitment
- K. Final Plat
- L. Storm Water Drainage Report by Odisea
- M. Engineer's Cost Estimate by Odisea
- N. Traffic Impact Analysis
- O. Proof of Ownership

Please note SGM focused its review on the engineering drawings, as the other documents met the intent of the subdivision submittal requirements. Please note the following comments and concerns, which are in no particular order.

1. On sheet C0.1, note 21 states 4 foot of cover over waterlines. Town of Paonia's minimum cover over waterlines is 5 feet.
2. On sheet C0.1, note 24 should include requirements regarding the SUE (Subsurface Utility Engineering) requirements for Colorado per Senate Bill 18-167. This project involves excavation over 2 foot deep and more than 1,000 contiguous square feet. Quality levels (A-D) need to be accurately described.
3. On sheet C0.1, text size for the Erosion Control Notes appear to be smaller for the rest of the notes.
4. On sheet C0.1, note #2 under Water System Notes need to be changed to reflect 5 feet of cover over the top of the waterline.
5. On sheet C0.1, notes 1.3 and 3.2 under Water System Appurtenances are very similar, consider deleting note 1.3.
6. On sheet C0.1, delete section 5 under Water System Appurtenances referencing butterfly valves. SGM didn't find any references/use of butterfly valves in the project documents.
7. On sheet C0.1, section 6 under Water System Appurtenances could be deleted, as they're not relevant to the project.
8. On sheet C0.1, section 7 under Water System Appurtenances could be deleted, as they're not relevant to the project.
9. On sheet C0.1, note 8.1 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.
10. On sheet C0.1, section 9 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.
11. On sheet C0.1, note 10.1 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.

I:\2013\2013-471 Town of Paonia\009-RiverbankSub\A-Corresp\L 20201124 UPDATEDRiverbankSubdivisionEngReview.doc

12. On sheet C0.1, note 11.1.2, shall be changed to read “compressive strength of 3,000 psi”. This change will match what is called out in the details.
13. On sheet C0.1, HDPE (High Density Polyethylene) Pipe and Fittings section. Town of Paonia code requires C900 PVC for waterlines and SDR 35 PVC for gravity sewer lines. The Town will allow HDPE for the waterline, however the HDPE must be DIPS sizing to allow the use of ductile iron pipe fittings for future maintenance/repair.
14. On sheet C0.1, notes 2A.02.D and 2B.02.D, references electrofusion saddle/services taps. Electrofusion saddle/service tap will not be accepted. Town of Paonia requires the use of traditional double strap tapping saddles as specified in the current Town of Paonia specifications within the Municipal Code.
15. On sheet C0.1, notes 2A.03.C and 2B.03.C. Details provided in the drawings make no reference to tracer wire. Tracer wire is required on all new pipes per SUE regulations. Town requires tracer wire to be No. 12 gauge solid copper.
16. On sheet C0.2, consider deleting note 3 under the Sanitary Sewer Material Specification for Pipe and Fittings as the proposed sewer line is only 8-inch diameter.
17. On sheet C0.2, consider deleting note 4 under the Sanitary Sewer Material Specification for Pipe and Fittings as there are not pressure sewer lines proposed for the project.
18. On sheet C0.2, note 2 under Sanitary Sewer Installation Specifications, references to subsections 9-3-5 and 9-3-6 need to be updated and/or deleted.
19. On sheet C0.2, note 4 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-4-3 needs to be updated and/or deleted.
20. On sheet C0.2, note 13 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-6 needs to be updated and/or deleted.
21. On sheet C0.2, note 15.1 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-5-10 needs to be updated and/or deleted.
22. On sheet C0.2, suggest changing note 15.3.1 to every 100 linear feet of trench instead of every 400 linear feet. This will ensure the entire trench section will get tested versus large sections of the trench going untested using the 400 foot interval.
23. On sheet C0.2, delete note 15.3.2. Quality assurance testing is in the Town best interests. If testing is not complete the Town could accept a substandard product.
24. On sheet C0.2, note 15.3.3 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-3-7 needs to be updated and/or deleted.
25. On sheet C0.2, note 16 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-2-5 needs to be updated and/or deleted.

26. On sheet C0.2, note 4 under Final Inspection and Acceptance, change reference of Montrose Submittal Standards to Town of Paonia.
27. General comment regarding notes and specific materials/manufacturers. Plans need to reflect/match the Town approved specifications. Refer to Appendix D, Standard Construction Specifications.
28. On sheet C2.0, lots 1 and 4 within the 100 flood zone designation AE. Notes should be provided on the plans as necessary documenting the construction needs to be 1 foot above base flood elevations.
29. On sheet C2.0, 10' drainage easement on the western edge of Lot 1 appears small in width for future maintenance. Unclear in the plans if there is a drainage ditch within this easement. Also unclear if the easement should include maintenance/access descriptions. Same situation applies between lots 5/6 and 13/15.
30. On sheet C2.0, 10' utility easement doesn't seem large enough in width for future maintenance of waterline.
31. On sheet C3.0, plan and profiles should be provided for all culverts.
32. Riprap recommended and inlet/outlet of all culverts to help with erosion/sediment control. Details shall be provided
33. On sheet C3.0, depth of road side ditches are undefined. It appears ditch could have negative impact on shallow utilities and current waterline location. Ditch appears to be approximately 5 foot deep, but hard to tell with no finished contour labels or profiles of culverts.
34. No construction details are provided for the detention basins.
35. Do drainage easements around detention basins need to also be access easements for future maintenance?
36. It appears from the current design all driveways will require culverts. These culverts would all be within the Town's right of way. Covenants need to reflect that the homeowner is responsible for installing and maintaining driveway culverts.
37. Who is maintaining ditches throughout the subdivision? Covenants need to reflect the subdivision/HOA is responsible for maintaining the ditches within the subdivision.
38. On sheet C4.0, what happens to the drainage at low point of road at station 2+72.45? Currently, drainage will sheet flow off the road at this location with consideration to erosion control.
39. No details provided for connecting Atlantic Avenue to Price Road. SGM assumes that sawcutting of at least 1 foot into Price Road for connection. Drawings should include spot elevations, stationing, curve data, etc.

40. SGM recommends curbs, gutter, and sidewalks per Municipal Code section 17-4-40 (l).
41. It appears Atlantic Avenue is a dead end street. Municipal Code Section 17-4-40 (g) requires no more than 500 feet from connecting street (Price Road).
42. SGM recommends cul-de-sac at the end of Atlantic Avenue versus emergency turnaround per Municipal Code Section 17-4-40 (g).
43. If emergency turnarounds are utilized, Developer shall provide information from Fire Department and other emergency services that emergency turnaround are of acceptable size.
44. No details for provided for construction of emergency turnarounds.
45. Appears potential driveway for Lot 16 would be obstructed by emergency turnaround.
46. Road grade shown on profile between station 14+10.11 and station 15+41.52 is 0.39%. Minimum per Municipal Code section 17-4-40 (h) is 0.5%.
47. On all sheets, but noted here on sheet C2.0, existing waterline and existing manhole at station 2+31 appear to be in conflict. Developer should verify location of existing utilities prior to tying in new infrastructure.
48. On sheet C5.0, it is recommended that sanitary sewer should be installed on one side of Atlantic Avenue and potable water should be installed on the other side with a minimum of 10 foot horizontal separation. This recommendation will result in additional manholes to navigate the curves in the road.
49. Water service note in profile of sanitary sewer at station 2+50 is misleading about 5 foot minimum cover as the current details in proposed plan show 4 foot of cover over proposed waterline.
50. Details need to be provided for connecting to existing manhole at station 2+30.
51. Discrepancy between general sewer notes on sheet C0.2 and pipe callouts in profile on sheet C5.0. Sheet C0.2 calls out pipe to conform to ASTM 3034, SDR35. Sheet C5.0 calls out SDR 26 HDPE. Town code requires sanitary sewer pipe be 8-inch SDR 35.
52. On sheet C6.0, waterline needs be installed with the pavement section of Atlantic Avenue. Waterline should not be installed outside of the pavement and underneath underground telephone and fiber optic lines.
53. SGM recommends provided a profile of the waterline to be able to identify any potential piping conflicts with other utilities.
54. Details need to be provided for connecting to existing waterline near station 0+00 of waterline. Why is the waterline stationing different than the road/sanitary sewer stationing?

55. Town of Paonia prefers installing additional hydrant at the end of Atlantic Avenue in lieu of current proposed blow-off. Blow off detail can be deleted. This additional hydrant will also help with unidirectional flushing of the waterlines.
56. Sheet C6.0 doesn't show any utilities besides the waterline. As shown it would appear there are no conflicts with the waterline, however previous comments indicate waterline should be installed underneath telephone and fiber optic lines.
57. On sheet C7.0, telephone pedestals, electric transformers, etc are not shown. Conflicts are not known at this time. Locations should be provided and coordinated with other utilities in final drawings.
58. On sheet C7.0, there appears to be a conflict between the water and sewer services for Lot 4 within the easement. Sewer service shall include cleanout at all bends.
59. Detail 2/C8.0 needs to reflect the 5 foot cover for waterlines.
60. Details 1&2/C8.0, similar to previous comments, it appears roadside ditches could negatively impact road platform and other utilities.
61. Detail 3/C8.0 needs to reflect the 5 foot cover for waterlines.
62. Detail 5/C8.0 needs to reflect the 5 foot cover for waterlines. Restraining glands are not acceptable, megalugs are required. Note 1 needs to reflect the Town's approved manufacturer for the fire hydrant, refer to Appendix D Standard Construction Specifications of the Municipal Code. Note 2 shall change to pipe to PVC. Note 4, bolts to be suitable for MJ fittings. Bolts shall be Cor-Ten or stainless steel. Hot dipped galvanized bolts are not acceptable. Note 4 and 6, reference to rods should be deleted. MJ fittings with thrust blocks should be adequate.
63. Consider deleting detail 6/C8.0, two fire hydrant details are not needed.
64. Detail 1/C8.1. Why is this detail provided? There is no reference/indication in the drawings where tap sleeve is being utilized. If not using detail should be deleted.
65. Detail 4/C8.1 needs reflect the 5 foot cover for waterlines and services. End of water service stub out should be marked with a blue painted 2x4 per the Municipal Code. Meter shall be Badger Meter Recordall Disc Meter with Recordall Transmitter Register and Orion Water Endpoint for mobile meter reading.
66. All details with equipment callouts should be cross referenced with Appendix D Standard Construction Specifications of the Municipal Code. There are many instances that need to updated.
67. On detail 1/C8.3, end of sewer service stub out should be mark with a green painted 2x4 per the Municipal Code.

68. Detail 2/C8.3 should be deleted as all sewer services proposed for this project will be new, therefore requiring a full body wye per the Municipal Code.

69. Additional notes/specifications shall be added to sheets C0.1 and/or C0.2 for pipeline acceptance testing for both sanitary sewer and waterlines. Sanitary sewer lines shall be televised. Sanitary sewer lines shall also be tested using a low-pressure air test. Sanitary sewer manholes shall also be tested for leakage. Waterlines shall be hydrostatically tested and disinfected. Refer to Appendix D Standard Construction Specifications of the Municipal Code for specific requirements.

Upon your receipt and review, if you have any questions, please don't hesitate to call.

Respectfully,
SGM



Brandyn Bair, P.E.
Project Engineer

cc: Travis Loberg, Public Works Director, Town of Paonia
Bo Nerlin, Town Attorney



January 12, 2021

Corinne Ferguson
Town Manager
Town of Paonia
214 Grand Avenue
Paonia, CO 81428

Re: Reply to SGM Engineering Review Comments for Riverbank Neighborhood Subdivision

Ms. Corinne Ferguson:

Thank for providing review comments

- 1. On sheet C0.1, note 21 states 4 foot of cover over waterlines. Town of Paonia’s minimum cover over waterlines is 5 feet.

ODISEA RESPONSE: NOTE STATES 5 FEET INSTEAD OF 4.

- 2. On sheet C0.1, note 24 should include requirements regarding the SUE (Subsurface Utility Engineering) requirements for Colorado per Senate Bill 18-167. This project involves excavation over 2 foot deep and more than 1,000 contiguous square feet. Quality levels (A-D) need to be accurately described.

ODISEA RESPONSE: NOTE REFERENCES ASCE 38-02 AND QUALITY LEVEL DESCRIPTIONS ADDED.

- 3. On sheet C0.1, text size for the Erosion Control Notes appear to be smaller for the rest of the notes.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT

- 4. On sheet C0.1, note #2 under Water System Notes need to be changed to reflect 5 feet of cover over the top of the waterline.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

5. On sheet C0.1, notes 1.3 and 3.2 under Water System Appurtenances are very similar, consider deleting note 1.3.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

6. On sheet C0.1, delete section 5 under Water System Appurtenances referencing butterfly valves. SGM didn't find any references/use of butterfly valves in the project documents.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

7. On sheet C0.1, section 6 under Water System Appurtenances could be deleted, as they're not relevant to the project.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

8. On sheet C0.1, section 7 under Water System Appurtenances could be deleted, as they're not relevant to the project.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

9. On sheet C0.1, note 8.1 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

10. On sheet C0.1, section 9 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

11. On sheet C0.1, note 10.1 under Water System Appurtenances, need to be revised to include the right entity, Town of Paonia, not ACWWA, and the appropriate standard drawing references.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

12. On sheet C0.1, note 11.1.2, shall be changed to read “compressive strength of 3,000 psi”. This change will match what is called out in the details.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

13. On sheet C0.1, HDPE (High Density Polyethylene) Pipe and Fittings section. Town of Paonia code requires C900 PVC for waterlines and SDR 35 PVC for gravity sewer lines. The Town will allow HDPE for the waterline, however the HDPE must be DIPS sizing to allow the use of ductile iron pipe fittings for future maintenance/repair.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

14. On sheet C0.1, notes 2A.02.D and 2B.02.D, references electrofusion saddle/services taps. Electrofusion saddle/service tap will not be accepted. Town of Paonia requires the use of traditional double strap tapping saddles as specified in the current Town of Paonia specifications within the Municipal Code.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

15. On sheet C0.1, notes 2A.03.C and 2B.03.C. Details provided in the drawings make no reference to tracer wire. Tracer wire is required on all new pipes per SUE regulations. Town requires tracer wire to be No. 12 gauge solid copper.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED. NOTE HAS BEEN ADDED TO DETAILS SPECIFYING TRACER WIRE.

16. On sheet C0.2, consider deleting note 3 under the Sanitary Sewer Material Specification for Pipe and Fittings as the proposed sewer line is only 8-inch diameter.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

17. On sheet C0.2, consider deleting note 4 under the Sanitary Sewer Material Specification for Pipe and Fittings as there are not pressure sewer lines proposed for the project.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

18. On sheet C0.2, note 2 under Sanitary Sewer Installation Specifications, references to subsections 9-3-5 and 9-3-6 need to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

19. On sheet C0.2, note 4 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-4-3 needs to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

20. On sheet C0.2, note 13 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-6 needs to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

21. On sheet C0.2, note 15.1 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-5-10 needs to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

22. On sheet C0.2, suggest changing note 15.3.1 to every 100 linear feet of trench instead of every 400 linear feet. This will ensure the entire trench section will get tested versus large sections of the trench going untested using the 400 foot interval.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

23. On sheet C0.2, delete note 15.3.2. Quality assurance testing is in the Town best interests. If testing is not complete the Town could accept a substandard product.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

24. On sheet C0.2, note 15.3.3 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-3-7 needs to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

25. On sheet C0.2, note 16 under Removals, Excavation, Backfilling and Restoration Specifications, reference to subsection 9-2-5 needs to be updated and/or deleted.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

26. On sheet C0.2, note 4 under Final Inspection and Acceptance, change reference of Montrose Submittal Standards to Town of Paonia.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

27. General comment regarding notes and specific materials/manufacturers. Plans need to reflect/match the Town approved specifications. Refer to Appendix D, Standard Construction Specifications.

ODISEA RESPONSE: CONFLICTING SPECS WITH TOWN HAVE BEEN REMOVED AND TOWN STANDARDS ARE REFERENCED.

28. On sheet C2.0, lots 1 and 4 within the 100 flood zone designation AE. Notes should be provided on the plans as necessary documenting the construction needs to be 1 foot above base flood elevations.

ODISEA RESPONSE: NOTE ADDED TO SHEET C2.0, UNDER PROJECT LEGEND.

29. On sheet C2.0, 10' drainage easement on the western edge of Lot 1 appears small in width for future maintenance. Unclear in the plans if there is a drainage ditch within this easement. Also unclear if the easement should include maintenance/access descriptions. Same situation applies between lots 5/6 and 13/15.

ODISEA RESPONSE: DRAINAGE EASEMENTS HAVE BEEN INCREASED TO 15'.

30. On sheet C2.0, 10' utility easement doesn't seem large enough in width for future maintenance of waterline.

ODISEA RESPONSE: WATERLINE HAS BEEN MOVED WITHIN ROADWAY.

31. On sheet C3.0, plan and profiles should be provided for all culverts.

ODISEA RESPONSE: INVERT ELEVATIONS, PIPE MATERIAL, AND LENGTH ARE CALLED OUT ON SHEET C3.0. ALONG WITH SPOT ELEVATIONS, THIS LEVEL OF DETAIL ALONG WITH DETAIL 03/C8.3 IS SUFFICIENT.

32. Riprap recommended and inlet/outlet of all culverts to help with erosion/sediment control. Details shall be provided

ODISEA RESPONSE: RIPRAP HAS BEEN ADDED TO ALL CULVERTS.

33. On sheet C3.0, depth of road side ditches are undefined. It appears ditch could have negative impact on shallow utilities and current waterline location. Ditch appears to be approximately 5 foot deep, but hard to tell with no finished contour labels or profiles of culverts.

ODISEA RESPONSE: SPOT ELEVATIONS HAVE BEEN ADDED TO DITCHES.

34. No construction details are provided for the detention basins.

ODISEA RESPONSE: SEE SHEET C8.3 FOR DETENTION BASIN DETAILS.

35. Do drainage easements around detention basins need to also be access easements for future maintenance?

ODISEA RESPONSE: EASEMENT HAVE BEEN ADDED FOR THE DETENTION BASIN II, BASIN I IS WITHIN A PROPOSED 20' IRRIGATION-UTILITY EASEMENT.

36. It appears from the current design all driveways will require culverts. These culverts would all be within the Town's right of way. Covenants need to reflect that the homeowner is responsible for installing and maintaining driveway culverts.

ODISEA RESPONSE: HOA WILL ADOPT A RESOLUTION OR COVENANTS WILL BE AMENDED TO REFLECT HOMEOWNER RESPONSIBILITY FOR INSTALLING AND MAINTAINING DRIVEWAYS.

37. Who is maintaining ditches throughout the subdivision? Covenants need to reflect the subdivision/HOA is responsible for maintaining the ditches within the subdivision.

ODISEA RESPONSE: FELDMAN DITCH MAINTAINED BY FELDMAN, HOA DITCH MAINTAINED BY HOA WHICH IS IN THE CONVENANTS.

38. On sheet C4.0, what happens to the drainage at low point of road at station 2+72.45? Currently, drainage will sheet flow off the road at this location with consideration to erosion control.

ODISEA RESPONSE: ROADSIDE DITCHES HAVE BEEN ADDED.

39. No details provided for connecting Atlantic Avenue to Price Road. SGM assumes that saw cutting of at least 1 foot into Price Road for connection. Drawings should include spot elevations, stationing, curve data, etc.

ODISEA RESPONSE: SAW CUT AND MILLING DETAIL HAS BEEN ADDED, SEE DETAIL 04/C8.0

40. SGM recommends curbs, gutter, and sidewalks per Municipal Code section 17-4-40 (l).

ODISEA RESPONSE: DEVELOPER SEEKING VARIANCE FROM TOWN OF PAONIA.

41. It appears Atlantic Avenue is a dead end street. Municipal Code Section 17-4-40 (g) requires no more than 500 feet from connecting street (Price Road).

ODISEA RESPONSE: DEVELOPER SEEKING VARIANCE FROM TOWN OF PAONIA FOR EXCEEDING MAXIMUM DEAD LENGTH, ADDING 50' RADIUS CUL-DE-SAC TO DESIGN

42. SGM recommends cul-de-sac at the end of Atlantic Avenue versus emergency turnaround per Municipal Code Section 17-4-40 (g).

ODISEA RESPONSE: CUL-DE-SAC ADDED TO DESIGN

43. If emergency turnarounds are utilized, Developer shall provide information from Fire Department and other emergency services that emergency turnaround are of acceptable size.

ODISEA RESPONSE: NEED COORDINATION AND LOCAL FIRE DEPARTMENT APPROVAL.

44. No details for provided for construction of emergency turnarounds.

ODISEA RESPONSE: EMERGENCY TURNAROUND TO BE CONSTRUCTED PER ROAD SECTION DETAIL 01/C8.0, RADIUS DIMENSIONS ADDED TO PLANS.

45. Appears potential driveway for Lot 16 would be obstructed by emergency turnaround.

ODISEA RESPONSE: CUL-DE-SAC HAS BEEN ADDED.

46. Road grade shown on profile between station 14+10.11 and station 15+41.52 is 0.39%. Minimum per Municipal Code section 17-4-40 (h) is 0.5%.

ODISEA RESPONSE: ROAD GRADE ADJUSTED AND CUL-DE-SAC ADDED.

47. On all sheets, but noted here on sheet C2.0, existing waterline and existing manhole at station 2+31 appear to be in conflict. Developer should verify location of existing utilities prior to tying in new infrastructure.

ODISEA RESPONSE: CALLOUT HAS BEEN ADDED TO SHEET C2.0 TO VERIFY LOCATION OF UTILITIES BEFORE INSTALLATION OF NEW INFRASTRUCTURE

48. On sheet C5.0, it is recommended that sanitary sewer should be installed on one side of Atlantic Avenue and potable water should be installed on the other side with a minimum of 10 foot horizontal separation. This recommendation will result in additional manholes to navigate the curves in the road.

ODISEA RESPONSE: SANITARY SEWER AND WATER LINE LAYOUT UPDATED PER REVIEW RECOMMENDATIONS.

49. Water service note in profile of sanitary sewer at station 2+50 is misleading about 5 foot minimum cover as the current details in proposed plan show 4 foot of cover over proposed waterline.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT.

50. Details need to be provided for connecting to existing manhole at station 2+30.

ODISEA RESPONSE: SEE DETAIL 03/C8.2.

51. Discrepancy between general sewer notes on sheet C0.2 and pipe callouts in profile on sheet C5.0. Sheet C0.2 calls out pipe to conform to ASTM 3034, SDR35. Sheet C5.0 calls out SDR 26 HDPE. Town code requires sanitary sewer pipe be 8-inch SDR 35.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT, SDR 26 HDPE HAS BEEN REMOVED

52. On sheet C6.0, waterline needs be installed with the pavement section of Atlantic Avenue. Waterline should not be installed outside of the pavement and underneath underground telephone and fiber optic lines.

ODISEA RESPONSE: WATERLINE RELOCATED TO UNDER ROADWAY.

53. SGM recommends provided a profile of the waterline to be able to identify any potential piping conflicts with other utilities.

ODISEA RESPONSE: WATERLINE RELOCATED TO UNDER ROADWAY.

54. Details need to be provided for connecting to existing waterline near station 0+00 of waterline. Why is the waterline stationing different than the road/sanitary sewer stationing?

ODISEA RESPONSE: ANNOTATION ON SHEET C6.0 STATES CONNECTION TO EXISTING WATER LINE IN ACCORDANCE WITH TOWN CODE AND PUBLIC WORKS DIRECTOR. WATERLINE STATIONING NOW REFERENCES ROADWAY STATIONING.

55. Town of Paonia prefers installing additional hydrant at the end of Atlantic Avenue in lieu of current proposed blow-off. Blow off detail can be deleted. This additional hydrant will also help with unidirectional flushing of the waterlines.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT.

56. Sheet C6.0 doesn't show any utilities besides the waterline. As shown it would appear there are no conflicts with the waterline, however previous comments indicate waterline should be installed underneath telephone and fiber optic lines.

ODISEA RESPONSE: CONFLICTS SHOWN ON SHEET C7.0, WATERLINE HAS BEEN MOVED WITHIN ROADWAY

57. On sheet C7.0, telephone pedestals, electric transformers, etc are not shown. Conflicts are not known at this time. Locations should be provided and coordinated with other utilities in final drawings.

ODISEA RESPONSE: TELEPHONE PEDESTALS, ELECTRICAL TRANSFORMERS HAVE BEEN ADDED, LOCATIONS NEED TO BE VERIFIED WITH UTILITY COMPANIES.

58. On sheet C7.0, there appears to be a conflict between the water and sewer services for Lot 4 within the easement. Sewer service shall include cleanout at all bends.

ODISEA RESPONSE: REVISED

59. Detail 2/C8.0 needs to reflect the 5 foot cover for waterlines.

ODISEA RESPONSE: UPATED PER REVIEW COMMENT.

60. Details 1&2/C8.0, similar to previous comments, it appears roadside ditches could negatively impact road platform and other utilities.

ODISEA RESPONSE: UTILITIES REMOVED FROM DITCH AREA OTHER THAN UTILITY CROSSINGS UNDER DITCHES.

61. Detail 3/C8.0 needs to reflect the 5 foot cover for waterlines.

ODISEA RESPONSE: REVISED

62. Detail 5/C8.0 needs to reflect the 5 foot cover for waterlines. Restraining glands are not acceptable, megalugs are required. Note 1 needs to reflect the Town's approved manufacturer for the fire hydrant, refer to Appendix D Standard Construction Specifications of the Municipal code. Note 2 shall change to pipe to PVC. Note 4, bolts to be suitable for MJ fittings. Bolts shall be Cor-Ten or stainless steel. Hot dipped galvanized bolts are not acceptable. Note 4 and 6, reference to rods should be deleted. MJ fittings with thrust blocks should be adequate.

ODISEA RESPONSE: REVISED, THIS IS NOW DETAIL 06/C8.0.

63. Consider deleting detail 6/C8.0, two fire hydrant details are not needed.

ODISEA RESPONSE: DELETED

64. Detail 1/C8.1. Why is this detail provided? There is no reference/indication in the drawings where tap sleeve is being utilized. If not using detail should be deleted.

ODISEA RESPONSE: DELETED

65. Detail 4/C8.1 needs reflect the 5 foot cover for waterlines and services. End of water service stub out should be marked with a blue painted 2x4 per the Municipal Code. Meter shall be Badger Meter Recordall Disc Meter with Recordall Transmitter Register and Orion Water Endpoint for mobile meter reading.

ODISEA RESPONSE: REVISED, THIS IS NOW DETAIL 03/C8.1.

66. All details with equipment callouts should be cross referenced with Appendix D Standard Construction Specifications of the Municipal Code. There are many instances that need to be updated.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT.

67. On detail 1/C8.3, end of sewer service stub out should be mark with a green painted 2x4 per the Municipal Code.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT. SEE DETAIL 05/C8.2.

68. Detail 2/C8.3 should be deleted as all sewer services proposed for this project will be new, therefore requiring a full body wye per the Municipal Code.

ODISEA RESPONSE: UPDATED PER REVIEW COMMENT.

69. Additional notes/specifications shall be added to sheets C0.1 and/or C0.2 for pipeline acceptance testing for both sanitary sewer and waterlines. Sanitary sewer lines shall be televised. Sanitary sewer lines shall also be tested using a low-pressure air test. Sanitary sewer manholes shall also be tested for leakage. Waterlines shall be hydrostatically tested and disinfected. Refer to Appendix D Standard Construction Specifications of the Municipal Code for specific requirements.

ODISEA RESPONSE: NOTES HAVE BEEN REVISED TO INCLUDE TESTING METHODS IN ACCORDANCE WITH TOWN OF PAONIA MUNICIPAL CODE.

Please call with any question or further clarification regarding responses to engineering review comments.

Very Respectfully,



Jeff Ruppert, P.E.
Principal

(970) 527-9540
jeff@odiseanet.com

Corinne Ferguson

From: Paul Murrill <paulmurrill@gmail.com>
Sent: Friday, March 19, 2021 11:51 AM
To: Corinne Ferguson
Subject: Riverbank Neighborhood PUD Final Plat

Dear Sirs, I would like to see an easement and eventually trail to connect the subdivision road to the school property along the river.

This would allow the children north of the river and the subdivision to access the school directly on foot or bicycle. Paul Murrill.

5273384

**GEOTECHNICAL INVESTIGATION
SUBGRADE INVESTIGATION AND PAVEMENT DESIGN
Backhouse Subdivision
Residential Buildings and Pavement
Paonia, Colorado**

Prepared For:

**Mr. Russel Backhouse
23 Alder Court
Paonia, Colorado 81416**

Job No. 2,287

**April 24, 2006
Revised: July 20, 2006**

Geotechnical, Environmental and Materials Testing Consultants
Grand Junction - Montrose - Moab - Crested Butte
(970) 245-4078 • fax (970) 245-7115 • geotechnicalgroup.com
2308 Interstate Avenue, Grand Junction, Colorado 81505

SCOPE1

SUMMARY OF CONCLUSIONS1

SITE CONDITIONS2

PROPOSED CONSTRUCTION.....3

SUBSURFACE CONDITIONS4

SITE DEVELOPMENT.....6

BURIED UTILITIES8

FOUNDATIONS9

SPREAD FOOTING FOUNDATIONS.....10

FLOOR SYSTEMS12

BELOW-GRADE CONSTRUCTION.....14

PAVEMENT15

CONCRETE.....20

SURFACE DRAINAGE20

CONSTRUCTION MONITORING.....22

LIMITATIONS22

FIG. 1 – VICINITY MAP

FIG. 2 – LOCATION OF EXPLORATORY TEST PITS

FIGS. 3 THROUGH 5 – LOGS OF EXPLORATORY TEST PITS

FIG. 6 – LEGEND OF LOGS OF EXPLORATORY TEST PITS

FIGS. 7 THROUGH 12 – SWELL/CONSOLIDATION TEST RESULTS

FIGS. 13 THROUGH 16 – GRADATION TEST RESULTS

FIGS. 17 AND 18 – MOISTURE/DENSITY RELATIONSHIPS

FIGS. 19 AND 20 – CALIFORNIA BEARING RATIO (CBR) TEST RESULTS

FIG. 21 – ROADWAY DRAIN SYSTEM CONCEPT

FIGS. 22 AND 23 – TYPICAL INTERIOR FOUNDATION DRAIN DETAIL

TABLES I AND II – SUMMARY OF LABORATORY TEST RESULTS

APPENDIX A – SAMPLE SITE GRADING SPECIFICATIONS

APPENDIX B – PAVEMENT DESIGN CALCULATIONS

**APPENDIX C – CONSTRUCTION RECOMMENDATIONS FOR FLEXIBLE
AND RIGID PAVEMENT**

SCOPE

This report presents the results of a Geotechnical Investigation for the proposed Backhouse Subdivision in Paonia, Colorado. This investigation was conducted to explore subsurface conditions and provide foundation and pavement recommendations for the proposed construction. The report includes a site description, descriptions of subsoil and groundwater conditions found in twelve exploratory test pits, recommended pavement sections and discussion of details influenced by the subsurface conditions. Testing for commercial structures and Geologic Hazards study were not within the scope of this investigation.

This report was prepared from data developed during our field exploration, laboratory testing, engineering analysis and experience with similar conditions. A brief summary of our conclusions and recommendations follows. Detailed criteria are presented within the report.

SUMMARY OF CONCLUSIONS

1. Variable subsurface conditions included approximately 10 feet of clay soils in exploratory test pits 1 through 5. Test pits 6 through 9 consisted of approximately 4 to 6 feet of sandy to silty, sandy clay underlain by cobbly to sandy to clayey gravel to the to the maximum depths explored of 8 to 10

feet below the ground surface. We encountered approximately 10 feet of clayey sand in exploratory test pits TP-10 and 11 and approximately 9 feet of cobbly gravel in TP-12. Groundwater was noted the day of observation at 5 to 8 feet below the ground surface in exploratory test pits TP-6, 7 and 8.

2. Utility trench backfill should be placed in a well-compacted manner and tested during construction. Site drainage should be carefully planned and maintained to direct water away from pavements and proposed building areas.
3. We believe shallow, spread footing, type foundations can be constructed to perform satisfactorily for the proposed residential structures. A discussion including detailed design and construction criteria are included in the text of the report.
4. Slab-on-grade construction supported by the native soils encountered will involve potential for movement.
5. Surface drainage should be designed for rapid runoff of surface water away from the proposed construction.
6. An asphalt thickness of 6 inches or 3 inches asphalt over 10 inches base course over well compacted subgrade soils are recommended for residential streets, based on an ESAL of 36,500. An asphalt thickness of 7 $\frac{3}{4}$ inches or 3 inches asphalt over 15 $\frac{1}{2}$ inches base course over well-compacted subgrade soils are recommended for interior streets, ESAL of 146,000. Additional pavement section alternatives and design and construction criteria are presented in the text of the report.

SITE CONDITIONS

The subject site was an approximately 32-acre parcel located $\frac{1}{2}$ mile northwest of the central portion of Paonia, Colorado, Fig. 1. The subject site was being developed for residential construction. Existing corrals and associated outbuildings were noted near the

north portion of the subject site. Major portions of the subject site were irrigated, agricultural land with hay/pasture grasses as the primary ground cover. The subject site generally sloped down toward the south at approximately 5 to 10 percent. Southern portions of the subject site were relatively flat and nearly level and appeared to be river bottomland. The North Fork of the Gunnison River was south of the subject site with river water elevations approximately 10 feet lower than the subject site at the time of our visit. Colorado Highway 133 was north of the subject site with upslopes to Pitkin Mesa beyond. Paonia High School was east of the site. The previously mention North Fork of the Gunnison River was south with Paonia beyond. Irrigated agricultural land and scattered single-family residences were west. The vicinity sloped down toward the south and southwest at 3 to 5 percent (USGS Paonia, Colorado topographical quadrangle, dated 1965, revised 1979).

PROPOSED CONSTRUCTION

We understand proposed development will consist of subdivision about 80 lots, construction of single and multi-family residential units and approximately 4,000 to 5,000 lineal feet of pavement. We further understand that the residential construction will consist of 1 and 2 story, structures with variable superstructures. No below grade construction will be included on the south portion of the site. Other construction and

**Backhouse Subdivision
Residential Buildings and Pavement
GEG Job No. 2,287**

grading plans are indefinite at this time. We anticipate foundation loads may range from 1,500 to 2,000 pounds per lineal foot of foundation wall. No offsite improvements or soil retention area type testing is requested. If proposed construction is different from what is stated, we should be contacted to review actual construction and our recommendations.

SUBSURFACE CONDITIONS

Subsurface conditions at the site were investigated by observing and sampling twelve exploratory test pits. Locations of the exploratory test pits are shown on Fig. 2. Graphic logs and legend of the soils encountered in the test pits and field penetration resistance test results are presented on Figs. 3 through 6. Variable subsurface conditions included approximately 10 feet of clay soils in exploratory test pits 1 through 5. Test pits 6 through 9 consisted of approximately 4 to 6 feet of sandy to silty, sandy clay underlain by cobbly to sandy to clayey gravel to the maximum depths explored of 8 to 10 feet below the ground surface. Virtual backhoe refusal was encountered in exploratory boring TP-7 at 8 feet below the ground surface in loose, caving gravels/cobbles. We encountered approximately 10 feet of clayey sand in exploratory test pits TP-10 and 11 and approximately 9 feet of cobbly gravel in TP-12. The clay soils were sandy to silty, sandy to gravelly, very soft to medium stiff, moist to very moist and brown. The sand soils

were clayey to gravelly, loose to very loose, moist to wet and brown. The gravels were cobbly to sandy to clayey, loose, moist to wet, brown with boulders noted. Groundwater was noted the day of observation at 5 to 8 feet below the ground surface in exploratory test pits TP-6, 7 and 8.

Thirteen clay samples tested had moisture contents of 6.4 to 44.7 percent. Six clay samples tested had dry densities of 76 to 113 pcf. We tested six clay samples for one-dimensional swell/consolidation characteristics. These samples exhibited movement potential which ranged from no movement to 0.8 percent swell when wetted under confining pressures of 250 or 500 psf. Six clay samples tested had liquid limits 25 to 38 and plasticity indices which ranged from non-plastic properties to 17. These samples had 0 to 6 percent retained on the No. 4 sieve (gravel sized particles) and 64 to 90 percent passing the No. 200 sieve (clay and silt sized particles). Five clayey sand samples tested had moisture contents of 6.4 to 13.6 percent. Three clayey sand samples tested had dry densities of 85 to 93 pcf. Three clayey sand samples tested exhibited 0.6 to 3.7 percent consolidation when wetted under confining pressures of 250 or 500 pcf. Two clayey sand samples tested exhibited non-liquid / non-plastic characteristics, had 0 to 1 percent retained on the No. 4 sieve and 20 to 48 percent passing the No. 200 sieve. One clayey, sandy gravel sample tested had a moisture content of 12.7 percent, a liquid limit of 32, plasticity index of 10, 61 percent retained on the No. 4 sieve and 20 percent

passing the No. 200 sieve. Results of the laboratory testing are shown on Figs. 7 through 20 and summarized on Tables I and II.

SITE DEVELOPMENT

Site grading plans were not available at the time of this report. All pavement and building areas should be stripped of existing fill, organic layers and deleterious materials prior to construction. All pavement and building pad subgrade soils should be scarified a depth of 10-inches, moisture conditioned to within optimum moisture content to 2 percent over optimum moisture content and compacted to at least 95 percent of maximum dry density (ASTM D698). Local code may also influence the compaction requirements. Existing fill, if encountered, will require complete removal and reworking to confirm proper compaction. Structural fill material, as required, should be placed in maximum 10-inch loose lifts, moisture conditioned and compacted as stated above. On-site soils free of deleterious materials, organics and particles over 2-inches diameter can be moisture conditioned and compacted as discussed above for reuse during reworking of existing fill. Our representative should be called to confirm complete removal of any existing fill and organic layers and to verify compaction of fill placement. Sample site grading specifications are included in Appendix A for purposes of reworking existing fill.

Shallow groundwater was noted the day of observation at 5 feet below the ground surface in exploratory test pits TP-7 and 8 and at 8 feet below the ground surface in TP-6. We anticipate the groundwater elevation may fluctuate with seasonal and other varying conditions. We do not recommend below grade construction for portions of the subject site due to shallow groundwater and soft, loose soil conditions. Roadway subgrade in portions of the subject site may require subgrade stabilization. Subgrade stabilization may include over excavating 2 or more feet below subgrade elevation, placing a subgrade stabilization fabric or a geotextile reinforcing grid and backfilling with a compacted granular structural fill material to subgrade elevation. The depth of overexcavation should be determined at the time of construction and is dependent on the subgrade conditions at the time of construction.

We anticipate ground water elevation variations associated with varying seasonal and site use conditions. If ground water rise is sufficient to saturate pavement subgrade and pavement structure components, the integrity of the pavement section may be reduced. For this reason we recommend a subsurface drain constructed in the roadway be considered. The drain may be constructed beneath water or sewer utilities or adjacent to each edge of the roadway. The drain should be constructed at a depth of at least 5 feet below the planned elevation of the road surface or the existing ground surface, whichever is deeper. The drain should consist of a 4 inch or larger diameter perforated pipe surrounded by at least 4 cubic feet per linear foot of drain of free draining aggregate,

wrapped by an appropriate geotextile filter fabric. The pipe size should be sufficient to carry the maximum anticipated volume of collected water. The drain should be sloped to discharge at an all weather outlet, which is protected from becoming frozen or a storm drain as appropriate. If the drain is sloped to discharge at an all weather outlet, the outlet should be equipped to prevent entry by small animals. The drain concept is shown on Fig. 21.

Buried Utilities

We anticipate groundwater levels may fluctuate seasonally. As a result, there may be groundwater and/or soft to very soft soil concerns during construction, which were not identified by this investigation. Stabilization may be necessary. It may be necessary to dewater utility trench excavations and other deep excavations in the areas of shallow groundwater during construction. Further investigation of groundwater levels may be required.

Organic layers and other deleterious materials should be striped and completely removed. We believe utility installation in the natural clays, silts and sands can be accomplished using conventional excavation equipment. Utility trenches should be sloped or shored to meet local, State and Federal safety regulations. Based on our

investigation, we believe soils at this site may be classified as either Type B or Type C, based on OSHA standards. Excavation slopes specified by OSHA are dependent upon types of soils and groundwater conditions encountered. Contractors should identify the conditions encountered in the excavation and refer to OSHA standards to determine appropriate slopes.

We anticipate water and sewer lines will be constructed beneath pavements. Compaction of trench backfill can have a significant effect on the life and serviceability of pavements. We recommend trench backfill be placed in thin, loose lifts, moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 95 percent of standard Proctor maximum dry density (ASTM D 698). The placement and compaction of utility trench backfill should be observed and tested by a geotechnical engineer during construction.

FOUNDATIONS

This investigation indicated conditions at shallow foundation levels will likely consist of very soft to medium stiff clays and/or loose to very loose sands/gravels. Groundwater was noted the day of observation at 5 to 8 feet below the ground surface in exploratory test pits TP-6, 7 and 8. We do not recommend below grade construction for

portions of the subject site due to shallow groundwater and soft, loose soil conditions. In our experience, shallow foundations have been used in this area for similar construction with satisfactory performance for conditions similar to those identified at this site.

We anticipate shallow foundations will bear 2 to 4 feet below existing grade. Existing fill, if encountered, should be removed full depth. We recommend foundations bottom as shallow as practical to help mitigate potential of encountering soft and/or wet conditions. Stabilization may be necessary. We also recommend foundations bear on at least 3 feet of an engineered structural fill. We recommend at least a 3 foot depth of soils be overexcavated below and beyond (horizontally) foundation areas and replaced with a section of moisture conditioned, well compacted engineered structural fill to help reduce potential of movement concerns beneath foundations. We present design and construction criteria for shallow footing foundations below. These criteria were developed from analysis of field and laboratory data and our experience. The additional requirements (if any) of the structural engineer and structural warrantor should also be considered.

Spread Footing Foundations

1. Footing foundations bearing on the well-compacted clay, sand or gravel soils and at least 3 feet of well compacted engineered structural fill can be designed for a maximum soils bearing pressure of 1,000 psf. Loose soils

and existing fill, if encountered, should be completely removed from foundation bearing areas, prior to placing concrete.

2. Footing foundation areas should be overexcavated 3 feet. Footing foundations should be supported on a 3-foot thick layer of compacted engineered structural fill. The engineered structural fill should extend at least 3 feet beyond each edge of the footings. This structural fill should consist of a non-expansive granular material with a maximum particle size of 1.5 inches, a maximum of 15 percent passing the No. 200 sieve and a maximum liquid limit of 30. A CDOT Class 5 or 6 type material would be suitable for use and is recommended. The engineered structural fill should be moisture conditioned to within 2 percent of optimum and compacted to at least 95 percent standard Proctor maximum dry density (ASTM D698). Prior to fill placement, the completed excavation, within 3 feet horizontally of footing areas, should be scarified a depth of 10 inches, moisture conditioned to within 2 percent of optimum moisture content and recompacted to at least 95 percent of standard Proctor maximum dry density (ASTM D698). If loose or yielding conditions are encountered in the open excavation then stabilization may be necessary. Our representative should be called to test compaction of subgrade prior to forming.
3. We recommend a minimum width of 18 inches for continuous footings. Isolated pads should be at least 30 inches by 30 inches. Foundation walls should be well-reinforced top and bottom. We recommend reinforcement sufficient to span an unsupported distance of at least 12 feet. Reinforcement should be designed by the structural engineer.
4. If the footings are designed and constructed as discussed above, we estimate that the post construction total settlement will be less than 1/3 inch for footings supported on 3 feet of structural fill over the compacted clayey, gravelly sand soils. The estimated settlement is dependent on foundation bearing pressure, soil conditions supporting the footings and footing width. If the foundation bearing pressures, soil conditions or the footing widths are different than discussed above, we should be contacted to provide additional settlement considerations.
5. Exterior walls must be protected from frost action. Refer to the local building codes for details.
6. The completed foundation excavation should be observed by our representative prior to placing forms, to verify the foundation bearing conditions and test compaction.

FLOOR SYSTEMS

We believe the near surface soils which will support slab-on-grade floors exhibit movement potential. Some movement must be assumed from an increase in moisture by development / use and associated landscaping and irrigation. To our knowledge, the only reliable solution to control slab movement is the construction of a structurally supported floor with at least a 12-inch air space between the floor and the subgrade. In our opinion, structural floors should be used in all finished areas. A slab-on-grade floor can be used provided the builder and the owner are aware of and accept risk of potential movement. Driveways, sidewalks and exterior patios slabs are also generally constructed as slabs-on-grade.

We recommend the following precautions for construction of slabs-on-grade at this site. These precautions will not prevent movement in the event the underlying conditions become wetted; they tend to reduce damage if movement occurs.

1. Existing fill, if encountered should be removed full depth. Concrete slab on grade floors should be placed on a layer of compacted structural fill at least 2 feet thick. The area of the slab on grade floors should be over-excavated to a depth of at least 2 feet below the bottom of the floor slab elevation and extending 2 feet beyond (horizontally) where possible. The resulting exposed subgrade should be scarified 10-inches, moisture conditioned to within 2 percent of optimum moisture content and compacted to at least 95 percent of maximum dry density (ASTM D698). Structural fill soils should consist of a non-expansive granular material with maximum particle sized of 1.5-inches, a maximum of 15 percent passing the No. 200 sieve and a

maximum liquid limit of 30. Structural fill should be moisture conditioned and compacted in maximum 10-inch loose lifts and should be tested every 1 foot lift. Additionally we recommend a 4-inch perforated pipe perimeter drain be placed at the bottom of the fill. The drain should daylight to drain away from the building or outlet to a sump where water can be removed by pumping, Figs. 22 and 23.

2. Slabs should be separated from exterior walls and interior bearing members with a slip joint, which allows for free vertical movement of slabs.
3. The use of slab-bearing partitions should be minimized. Where such partitions are necessary, a slip joint allowing at least 2 inches of free vertical slab movement should be used. The owner should be advised of potential movement and re-establish this void if it closes. Doorways and stairwells should also be designed for this movement. Sheetrock should not extend to or over slab-on-grade floors.
4. Underslab plumbing should be eliminated where feasible. Where such plumbing is unavoidable, it should be thoroughly pressure tested during construction for leaks and should be provided with flexible couplings. Gas and water lines leading to slab-supported appliances should be constructed with flexibility.
5. Plumbing and utilities, which pass through slabs, should be isolated from the slabs. Heating and air conditioning systems supported by the slabs should be provided with flexible connections capable of at least 2 inches of vertical movement so that slab movement is not transmitted to the ductwork.
6. Frequent control joints should be provided to reduce problems associated with shrinkage and curling. The American Concrete Institute (ACI) and Portland Cement Association (PCA) recommend a maximum panel size of 8 to 15 feet depending upon concrete thickness and slump, and the maximum aggregate size. We advocate additional control joints 3 feet off and parallel to grade beams and foundation walls.
7. Exterior slabs should be designed to function as independent units. Movement of slabs-on-grade should not be transmitted directly to the structure foundations. Stucco finish (if any) should terminate at least 6 inches above any flatwork.

BELOW-GRADE CONSTRUCTION

Construction plans are incomplete at this time. Shallow groundwater and soft, loose soil conditions were encountered in the south portions of the site. We do not recommend below grade construction, for portions of the subject site below the maximum anticipated groundwater level. Crawl space areas should be sloped so that potential moisture will not collect in these areas, but flow out of the crawl space. Crawl space areas (where applicable) should also be well ventilated to help reduce the potential for humid conditions. Foundation drain details are included as Figs. 22 and 23.

We understand basements may be included in the north (higher elevation areas) of the site. Basement walls and/or retaining walls should be designed for lateral earth pressures. Walls that are restrained, such as basement walls, not allowing movement and mobilization of the internal soil strengths should be designed for at-rest lateral earth pressures. Walls that are allowed to deflect, such as retaining walls, to mobilize internal soil strengths may be designed for active lateral earth pressures. Lateral earth pressure values are presented below and should be treated as equivalent fluid pressures.

- At-rest lateral earth pressure = 75 pcf
- Active lateral earth pressure = 55 pcf
- Passive lateral earth pressure = 220 pcf
- Coefficient of friction between soil and concrete = 0.24

The lateral earth pressures are dependent upon the type of backfill materials. The above lateral earth pressures are for walls backfilled with compacted onsite soils. The structural engineer should provide structural reinforcing design for walls supporting lateral soil loads.

Water from surface irrigation of lawns and landscaping or subsurface origins frequently flows through relatively permeable backfill placed adjacent to a structure and tends to saturate backfill materials. This can cause wet or moist basement conditions after construction. The lateral earth pressures presented above do not include hydrostatic pressures from saturated backfill. For these reasons a foundation drain should be included in the design and construction of the below grade structure components. The provision of a drain will not eliminate potential slab movement. The drain should consist of a 4-inch diameter open joint or slotted pipe encased in free draining gravel which is wrapped by an appropriate geotechnical filter fabric. The drain should lead to a positive gravity outlet or to a sump where water can be removed by pumping. Typical foundation drain details are included as Figs. 22 and 23.

PAVEMENT

The pavement subgrade soils were variable to include clay, sand and gravel soils.

We tested samples between 1 and 4 feet below the ground surface from exploratory test

Backhouse Subdivision
Residential Buildings and Pavement
GEG Job No. 2,287

pits TP-1 and TP-2 (bulk combined) for collector streets and accel/decel lanes and a bulk sample from TP-5 for interior residential pavement design. These samples were tested for Atterberg limits, standard Proctor and California Bearing Ratio (CBR). These samples tested exhibited maximum dry densities of 124.5 and 121.0 pcf, optimum moistures of 11.0 and 13.0 percent and California Bearing Ratios of 2.5 and 5.1. We used a design CBR value of 2.5 for pavement design purposes. The results of laboratory testing (Pavement Design) are shown on Table II and included in Figs. 17 through 20.

Our design utilized the computer program WinPAS, based on the 1993 AASHTO Guide for Design of Pavements Structures, a 20-year design period and our experience. We understand pavements will be used for residential/collector streets and accel/decel lanes. We used a flexible design Equivalent Single Axle Load (ESAL) of 36,500 for residential streets, an ESAL of 73,000 for residential/collector streets and an ESAL of 146,000 for collector streets and accel/decel lanes. The ESAL values were calculated using a daily 18 kip axle load of 5, 10 and 20 over a 20-year period. If the anticipated traffic loading will be different than used in our analysis we should be contacted to provide pavement design recommendations for the anticipated traffic loading. We used a regional factor of 2.0, a design serviceability index of 2.0 for ESALs of 36,500 and 73,000 and a design serviceability index of 2.5 for ESAL = 146,000. We used an AASHTO developed, non-linear relationship to relate the CBR value to the subgrade resilient modulus (M_r), for flexible pavement. Using this relationship, we calculated a M_r value of

3,630 psi for parking pavements and interior streets. We used this M_r value for flexible pavement design. We calculated modulus of subgrade reaction (k) value of 187 psi/in. We used this value in our calculations. Table A below shows our recommendations. Pavement design calculations are shown in Appendix B. We are available to provide additional pavement section thickness alternatives for varying anticipated traffic volumes if needed.

TABLE A
SUMMARY OF RECOMMENDED PAVEMENT SECTIONS

Traffic Type	Asphaltic Concrete	Asphalt and Aggregate Base Course	Asphalt, Aggregate Base Course and Aggregate Sub Base Course	Portland Cement Concrete
Residential Streets ESAL = 36,500	6"	3" + 10" 4" + 7"	—	5"
Residential/Collector Streets ESAL = 73,000	6 ¾"	3" + 12 ½" 4" + 9"	3" + 6" + 8"	5"
Collector Streets and Accel/Decel Lanes ESAL = 146,000	7 ¾"	3" + 15 ½" 4" + 12"	3" + 6" + 12" 4" + 6" + 8"	5"

Prior to construction of the recommended section, the resulting subgrade should be stripped free of organics and deleterious materials, scarified at least 10-inches depth, moisture conditioned to within 2 percent of optimum moisture and compacted to at least

95 percent standard Proctor (ASTM D698) maximum dry density. These pavement thickness alternatives are provided based on a geotextile subgrade stabilization fabric placed on the prepared subgrade soils prior to placement of aggregate base course material.

The design of a pavement system is as much a function of paving materials as supporting characteristics of the subgrade. The quality of each construction material is reflected by the strength coefficient used in the calculations. If the pavement system is constructed of inferior material, then the life and serviceability of the pavement will be substantially reduced.

The asphalt component of the pavement was designed assuming at least 1,650 pounds Marshall stability. Normally, an asphaltic concrete should be relatively impermeable to moisture and should be designed with a well-graded sand/gravel mix. The oil content, void ratio, flow and gradation need to be considered in the design. We recommend a job mix design be performed and periodic checks made to verify compliance with these specifications.

If construction materials cannot meet the above requirements, then the pavement design should be evaluated based upon available materials. We recommend the materials and placement methods conform to the requirements listed in the Colorado

Department of Transportation "Standard Specifications for Road and Bridge Construction". All materials planned for construction should be submitted and tested to confirm their compliance with these specifications.

A primary cause of early pavement deterioration is water infiltration into the pavement system. The addition of moisture usually results in softening of untreated base course and subgrade and eventual failure of the pavement. We recommend drainage be designed for rapid removal of surface runoff. Curb and gutter should be backfilled and the backfill compacted to reduce ponding adjacent to pavements. Final grading of the subgrade should be carefully controlled so that design cross-slope is maintained and low spots in the subgrade, which could trap water, are eliminated. Seals should be provided between curb and pavement and at all joints to reduce moisture infiltration. Landscaped areas and detention ponds in pavement areas should be avoided. All utility trench backfill should be placed in a well-compacted manner.

If traffic volume varies significantly from that presented in this report, we should be contacted to provide additional pavement recommendations.

We have included construction recommendations for flexible and rigid pavement construction in Appendix C. Routine maintenance, such as sealing and repair of cracks annually and overlays at 5 to 7-year intervals, are necessary to achieve the long-term life

of an asphalt pavement system. If the design and construction recommendations cannot be followed or anticipated traffic loads change considerably, we should be contacted to review our recommendations.

CONCRETE

Nine samples from across the subject site were tested for water-soluble sulfate concentration. These samples ranged from 1 to 110 ppm water-soluble sulfate concentration. Sulfate concentrations in this range typically have a negligible effect on concrete. Our experience in the area indicates higher sulfate concentrations may be present. We recommend a Type II (sulfate resistant) cement be used for concrete that comes into contact with the subsoils. In addition, the concrete should have a water cement ratio of 0.50.

SURFACE DRAINAGE

Performance of foundations and concrete flatwork is influenced by surface moisture conditions. Risk of wetting foundation soils can be reduced by carefully planned and maintained surface drainage. Surface drainage should be designed to

provide rapid runoff of surface water away from the proposed residence. We recommend the following precautions be observed during construction and maintained at all times after the construction is completed.

1. The ground surface surrounding the exterior of the building should be sloped to drain away from the building in all directions. We recommend a slope of at least 12 inches in the first 10 feet around the residence, where possible. In no case should the slope be less than 6 inches in the first 5 feet. The ground surface should be sloped so that water will not pond adjacent to the residence.
2. Backfill around foundation walls should be moistened and compacted.
3. Roof downspouts and drains should discharge well beyond the limits of all backfill. Splash blocks and downspout extenders should be provided at all discharge points.
4. Landscaping should be carefully designed to minimize irrigation. Plants used close to foundation walls should be limited to those with low moisture requirements; irrigated grass should not be located within 5 feet of the foundation. Sprinklers should not discharge within 5 feet of foundations. Irrigation should be limited to the minimum amount sufficient to maintain vegetation; application of more water will increase likelihood of slab and foundation movements.
5. Impervious plastic membranes should not be used to cover the ground surface immediately surrounding the residence. These membranes tend to trap moisture and prevent normal evaporation from occurring. Geotextile fabrics can be used to limit the weed growth and allow for evaporation.

CONSTRUCTION MONITORING

Geotechnical Engineering Group, Inc. should be retained to provide general review of construction plans for compliance with our recommendations. Geotechnical Engineering Group, Inc. should be retained to provide construction-monitoring services during all earthwork and foundation construction phases of the work. This is to observe the construction with respect to the geotechnical recommendations, to enable design changes in the event that subsurface conditions differ from those anticipated prior to start of construction and to give the owner a greater degree of confidence that the development is constructed in accordance with the geotechnical recommendations.

LIMITATIONS

The subject site contains soils with significant collapse potential. For this reason we suggest that, in compliance with Senate Bill 13, you provide a copy of this geotechnical engineering report and a copy of Special Publication 11, "Home Construction on Shrinking and Swelling Soils" to the owner and/or future owners. We are available to discuss this with you.

The scope of services for this study does not include either specifically or by implication any environmental or biological (such as radon, mold, fungi, bacteria, etc.) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be performed.

Twelve exploratory test pits were observed. The exploratory test pits are representative of conditions encountered only at the exact test pit locations. Variations in the subsoil conditions not indicated by the test pits are always possible. Subgrade soils compaction and fill (if any) compaction should be tested during construction. Pavement subgrade soils and construction materials should be tested during construction. Utility trench backfill compaction should be tested during placement.

The scope of work performed is specific to the proposed construction and the client identified by this report. Any other use of the data, recommendations and design parameters (as applicable) provided within this report are not appropriate applications. Other proposed construction and/or reliance by other clients will require project specific review by this firm. Changes in site conditions can occur with time. Changes in standard of practice also occur with time. This report should not be relied upon after a period of three years from the date of this report and is subject to review by this firm in light of new information which may periodically become known.

We believe this investigation was conducted in a manner consistent with that level of care and skill ordinarily used by geotechnical engineers practicing in this area at this time. No other warranty, express or implied, is made. If we can be of further service in discussing the contents of this report or the analysis of the influence of the subsurface conditions on the design of the proposed construction, please call.

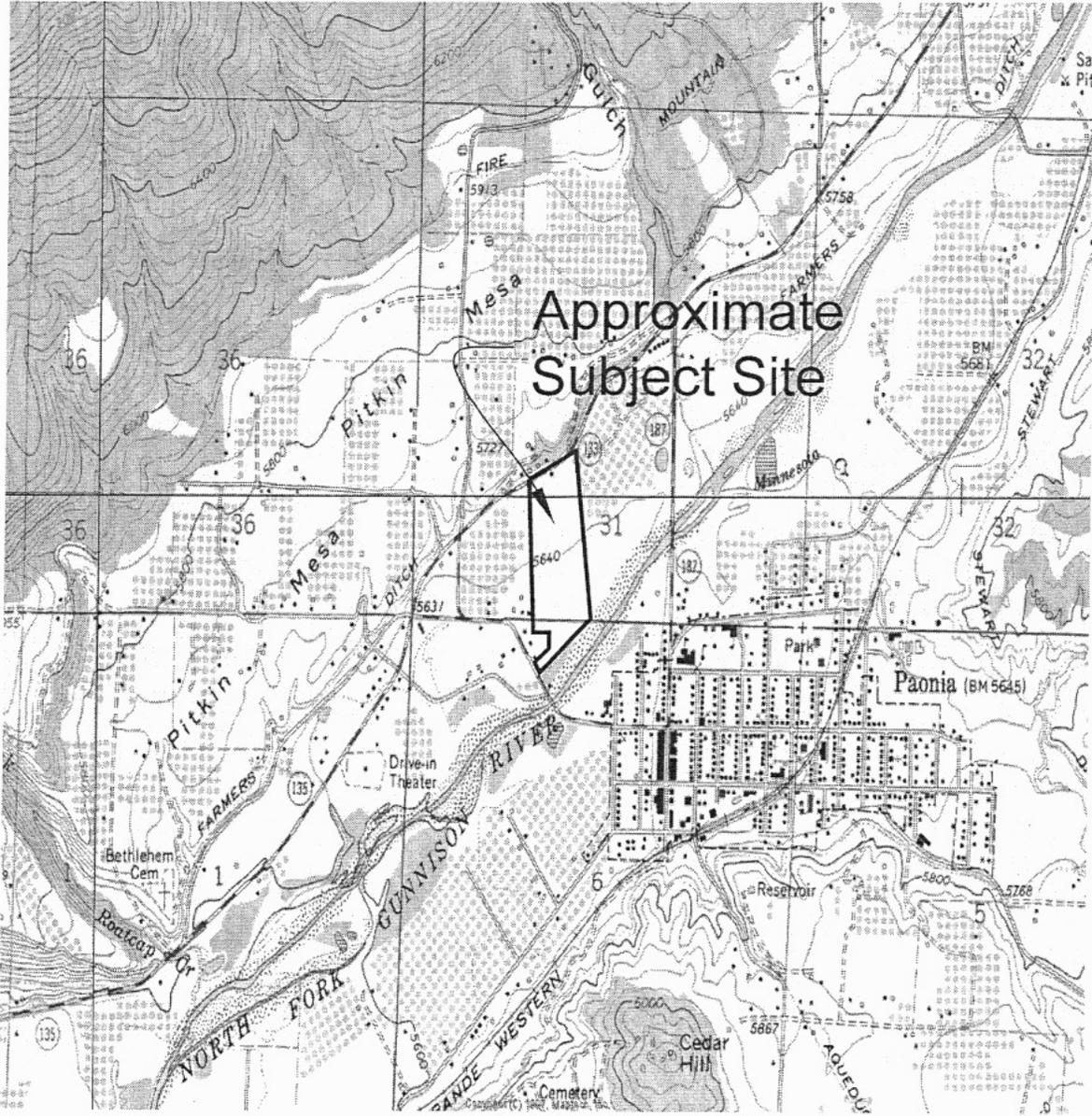
**Sincerely,
GEOTECHNICAL ENGINEERING GROUP, INC.**

Norman W. Johnston
**Norman W. Johnston, P.E.
Senior Engineer**



NWJ:cb
(3 copies sent)

Geotechnical Investigation Subgrade Investigation and Pavement Design Backhouse Subdivision Paonia, Colorado



Job No. 2,287

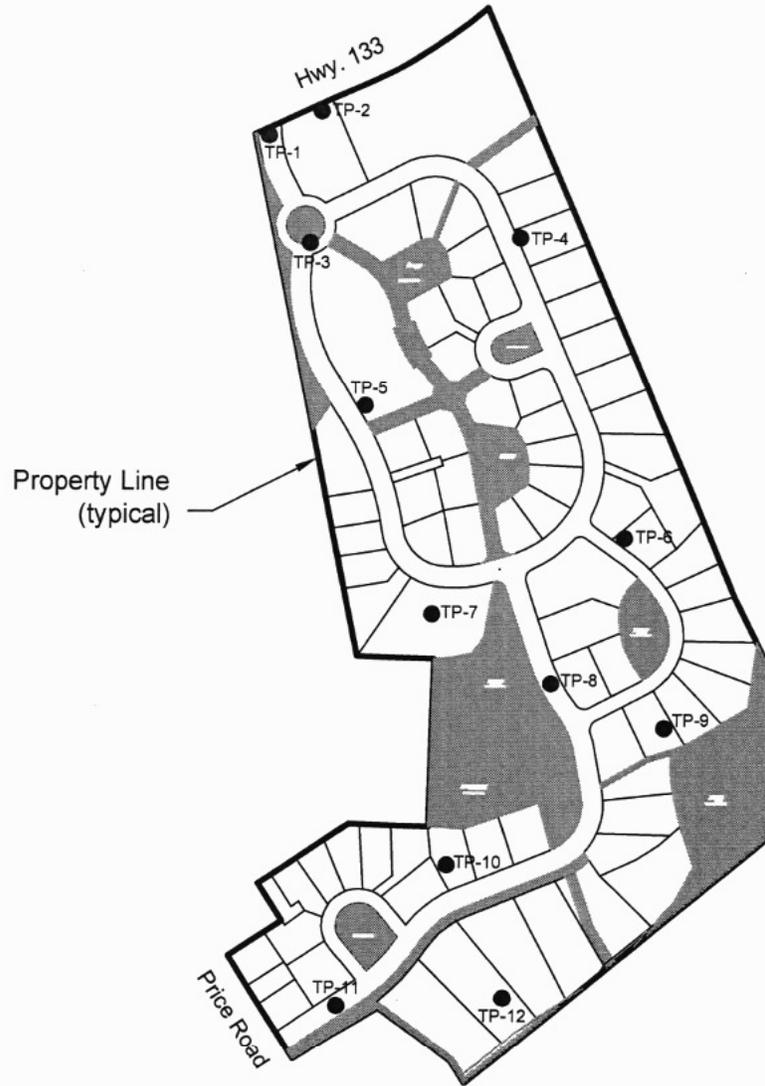
Vicinity Map

Fig. 1

Note: This figure was prepared based on a site plan provided by Wilmore & Company Professional Land Surveying, Inc.

9.

N
Scale: 1" = 400'



Legend

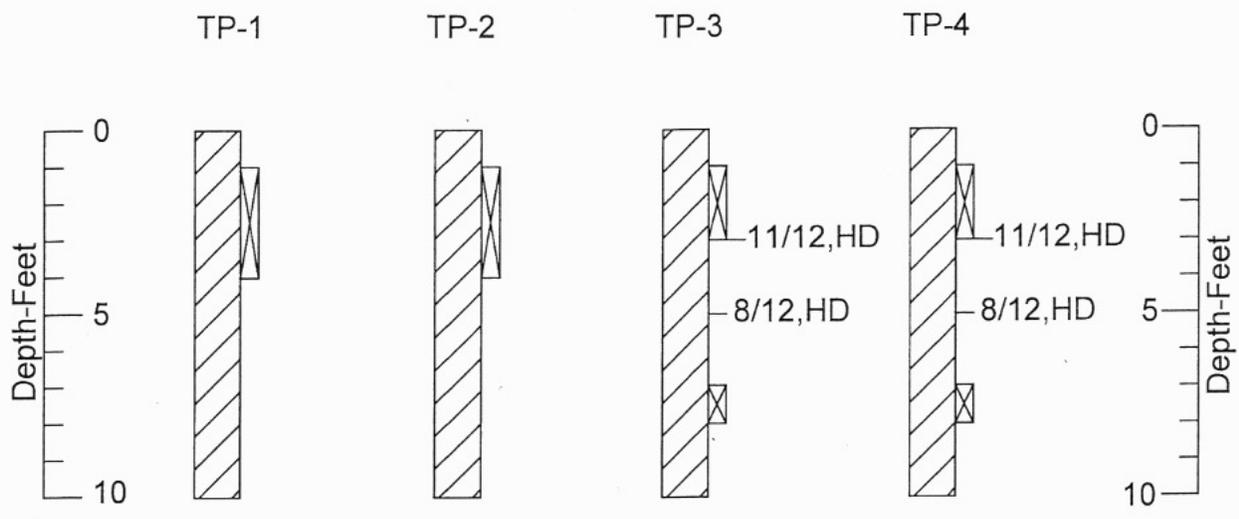
- Indicates location of exploratory test pit.

Job No. 2,287

Location of Exploratory Test Pits

Fig. 2

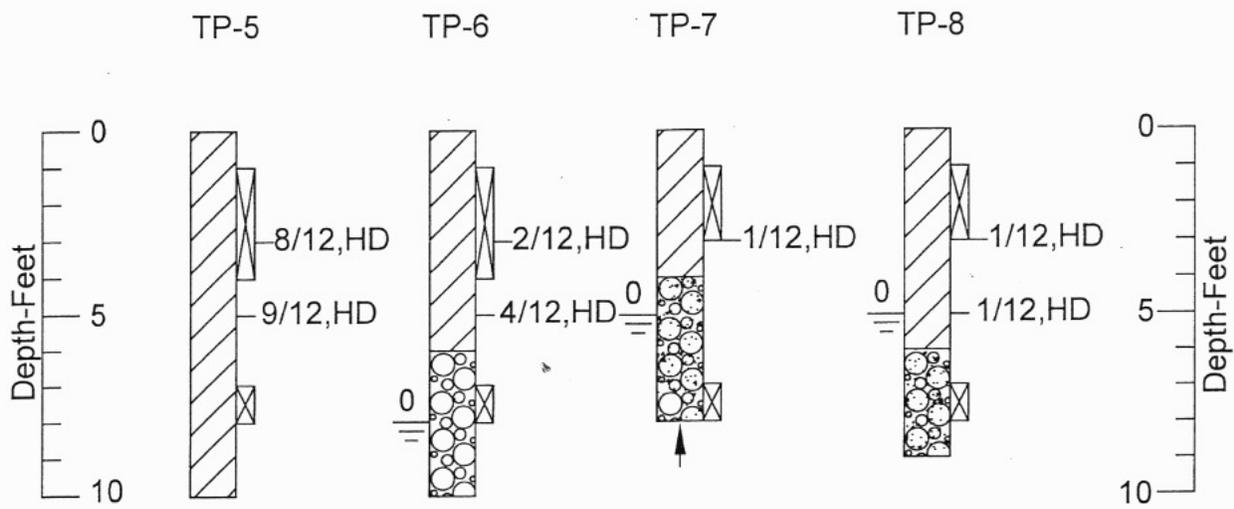
84



Job No. 2,287

Logs of Exploratory Pits

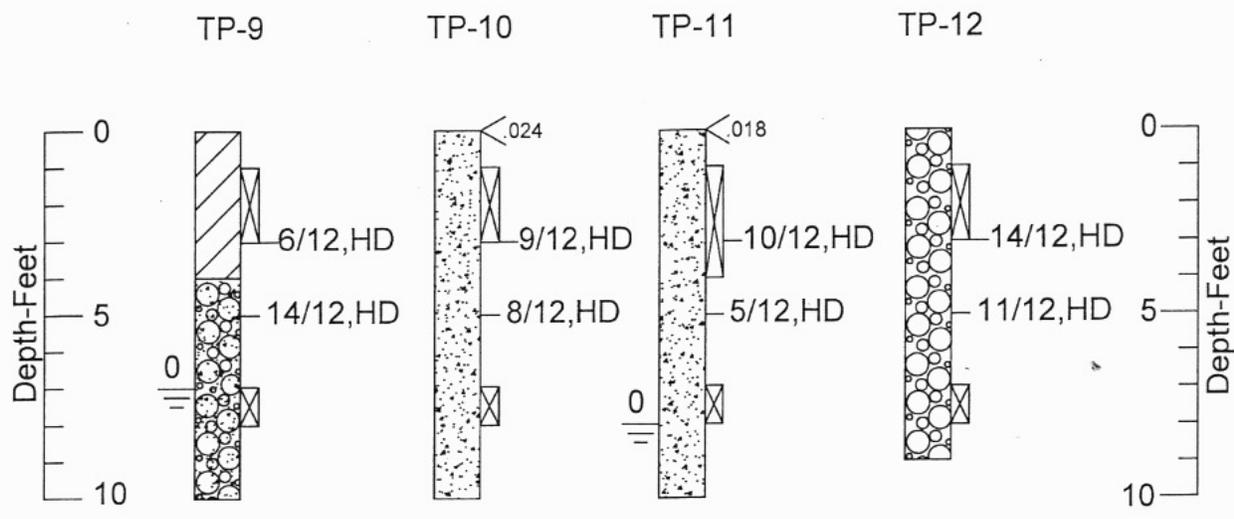
Fig. 3



Job No. 2,287

Logs of Exploratory Pits

Fig. 4



Job No. 2,287

Logs of Exploratory Pits

Fig. 5

Legend



Clay, sandy to silty, sandy to gravelly, very soft to medium stiff, moist to very moist, brown. (CL)



Sand, clayey to gravelly, loose to very loose, moist to wet, brown. (SC,SW)



Gravel, cobbly to sandy to clayey, loose, moist to wet, brown with boulders noted. (GC,GW)



Indicates location of penetration test. The symbol 11/12 indicates that 11 blows of a 15 pound hammer falling 26 inches were required to drive a 1.0 inch diameter penetrometer 12 inches. The symbol HD indicates hand drive using modified California (2.0-inch O.D.) liner.



Indicates bag sample collected from test pit walls.



Indicates free water level. Numeral indicates number of days after drilling that measurement was taken.



Indicates practical backhoe refusal. Test pits terminated.



Indicates location of background radiation measurement. The number .024 indicates measured background radiation in mR/hr.

Notes

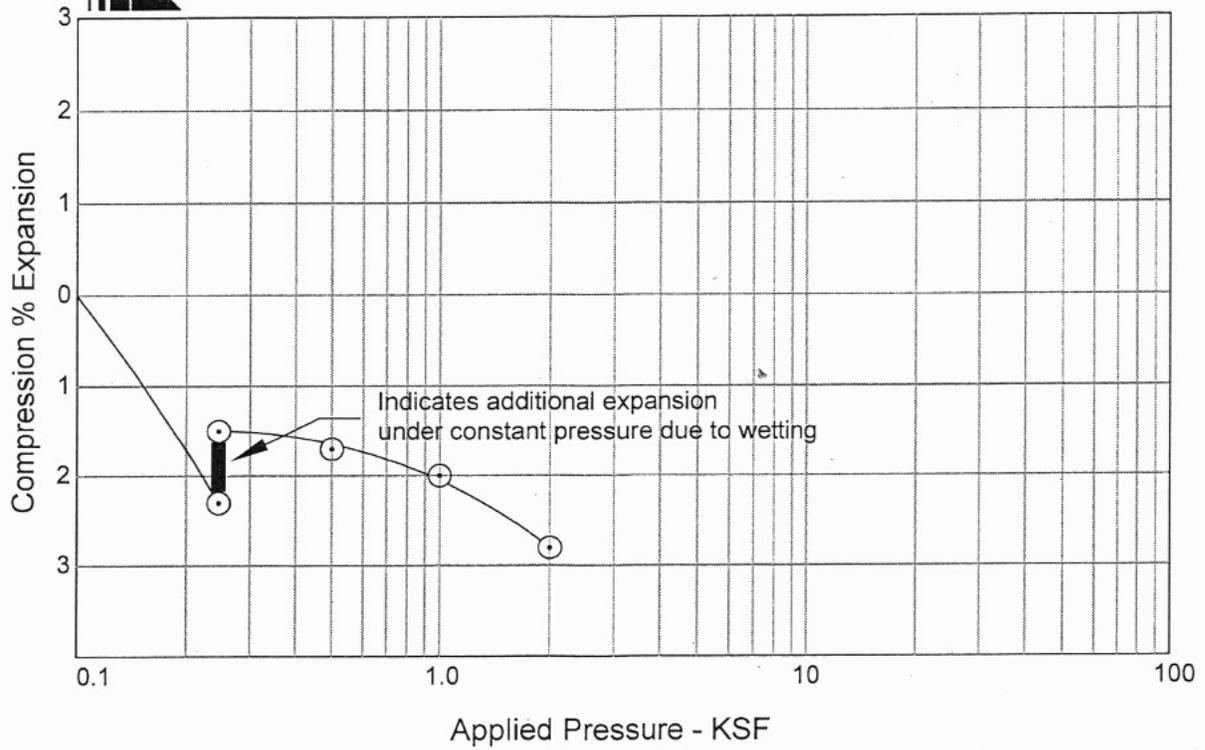
1. Test pits were excavated and sampled February 23, 2006.
2. These logs are subject to the explanations, limitations and conclusions as contained in this report.

Legend of Logs of Exploratory Test Pits

Job No. 2,287

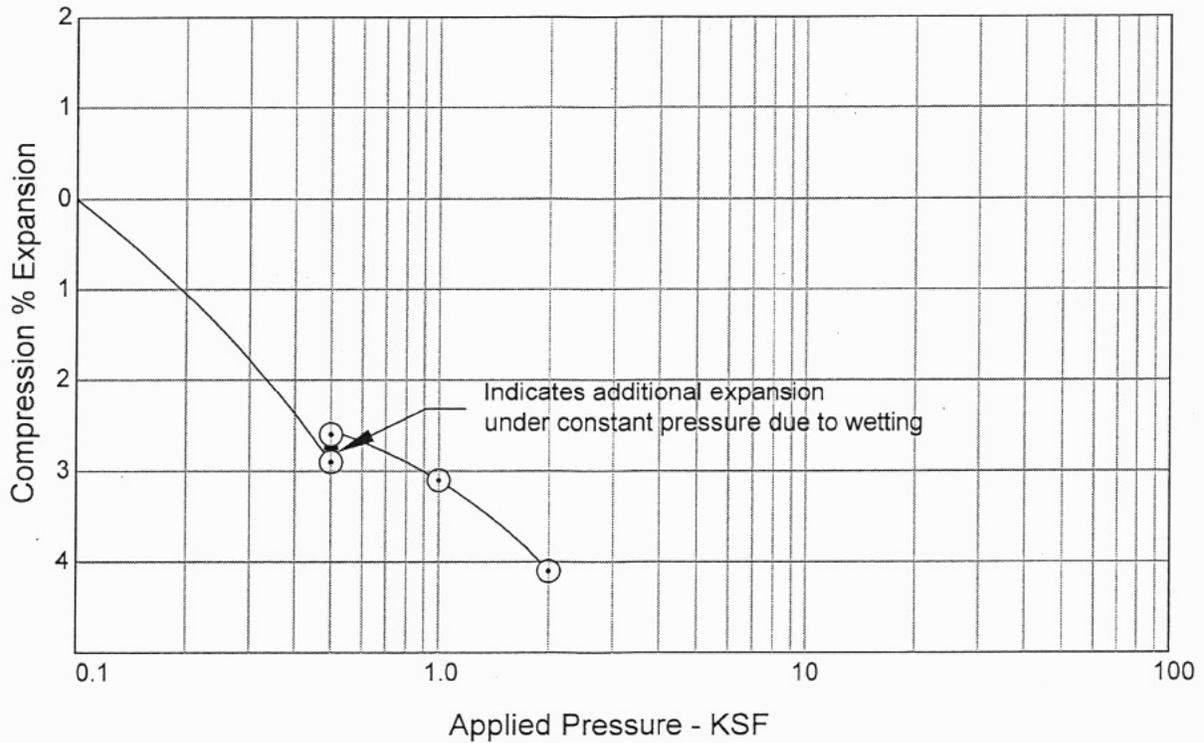
Fig. 6

9.



Sample of: Clay
From: TP-3 @ 3 foot depth

Dry Unit Weight= 113 PCF
Moisture Content= 16.3 %



Sample of: Clay
From: TP-3 @ 5 foot depth

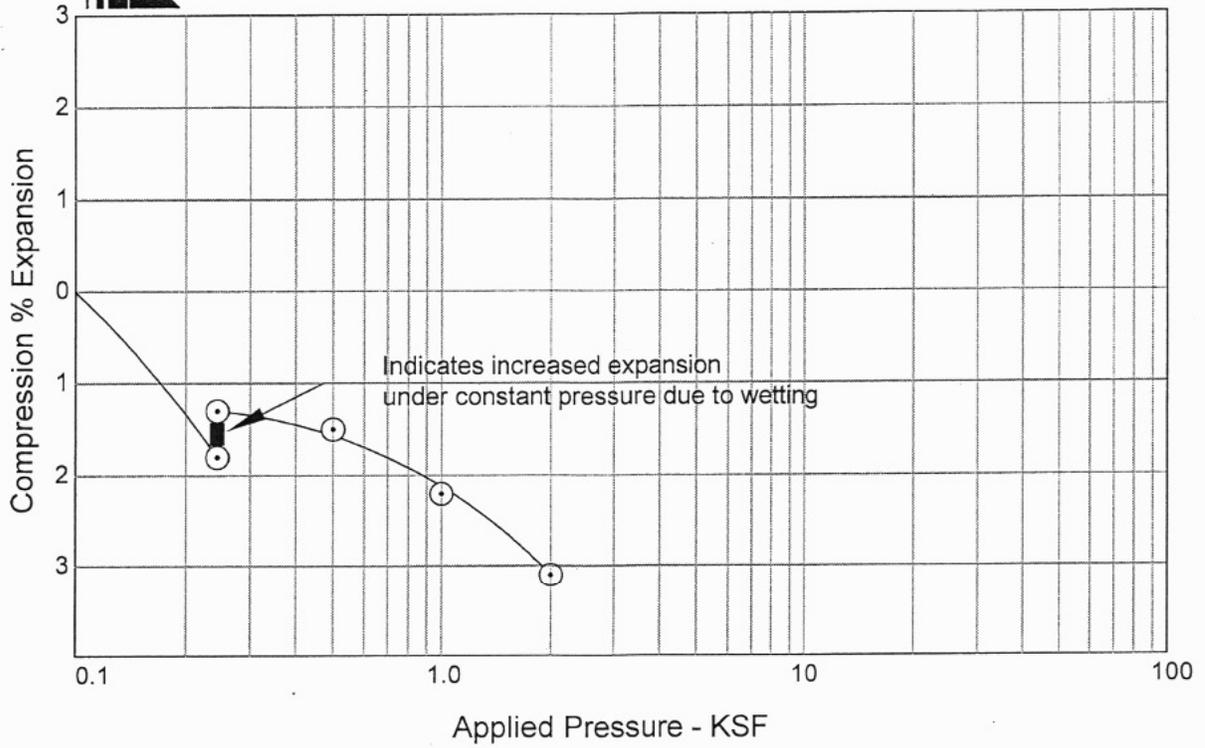
Dry Unit Weight= 103 PCF
Moisture Content= 20.6 %

Job No. 2,287

Swell Consolidation Test Results

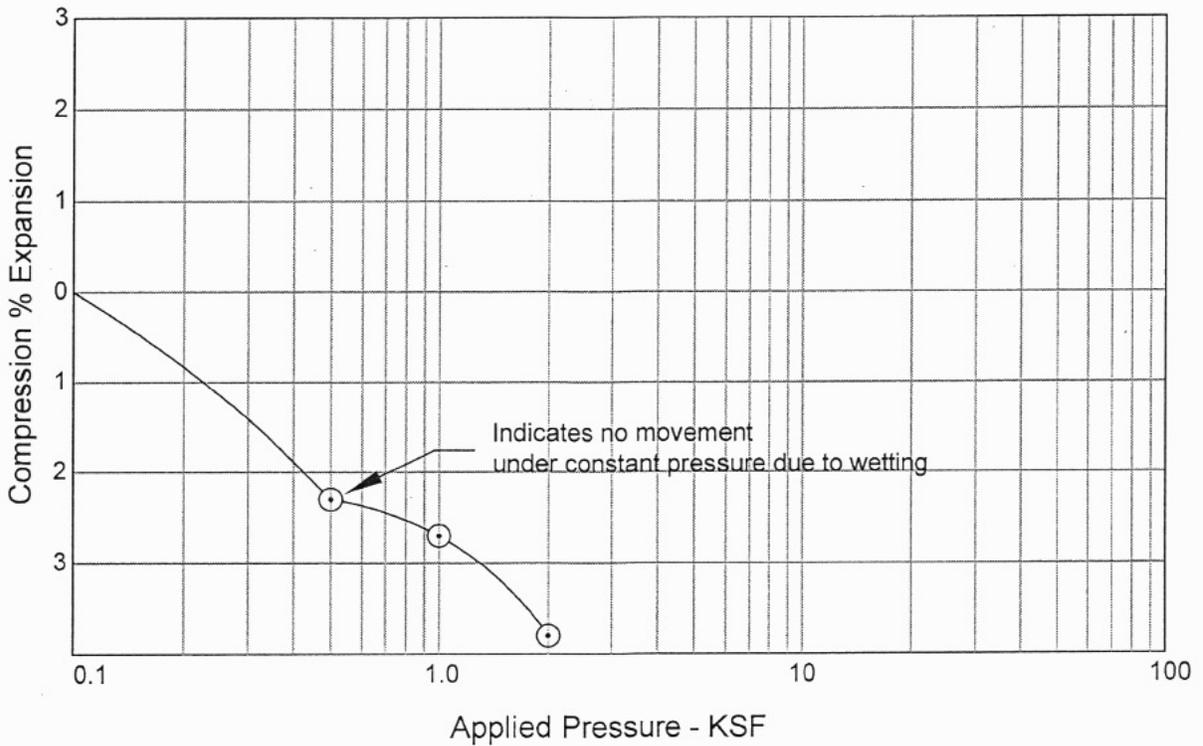
Fig. 7

9.



Sample of: Clay
From: TP-4 @ 3 foot depth

Dry Unit Weight= 109 PCF
Moisture Content= 18.5 %



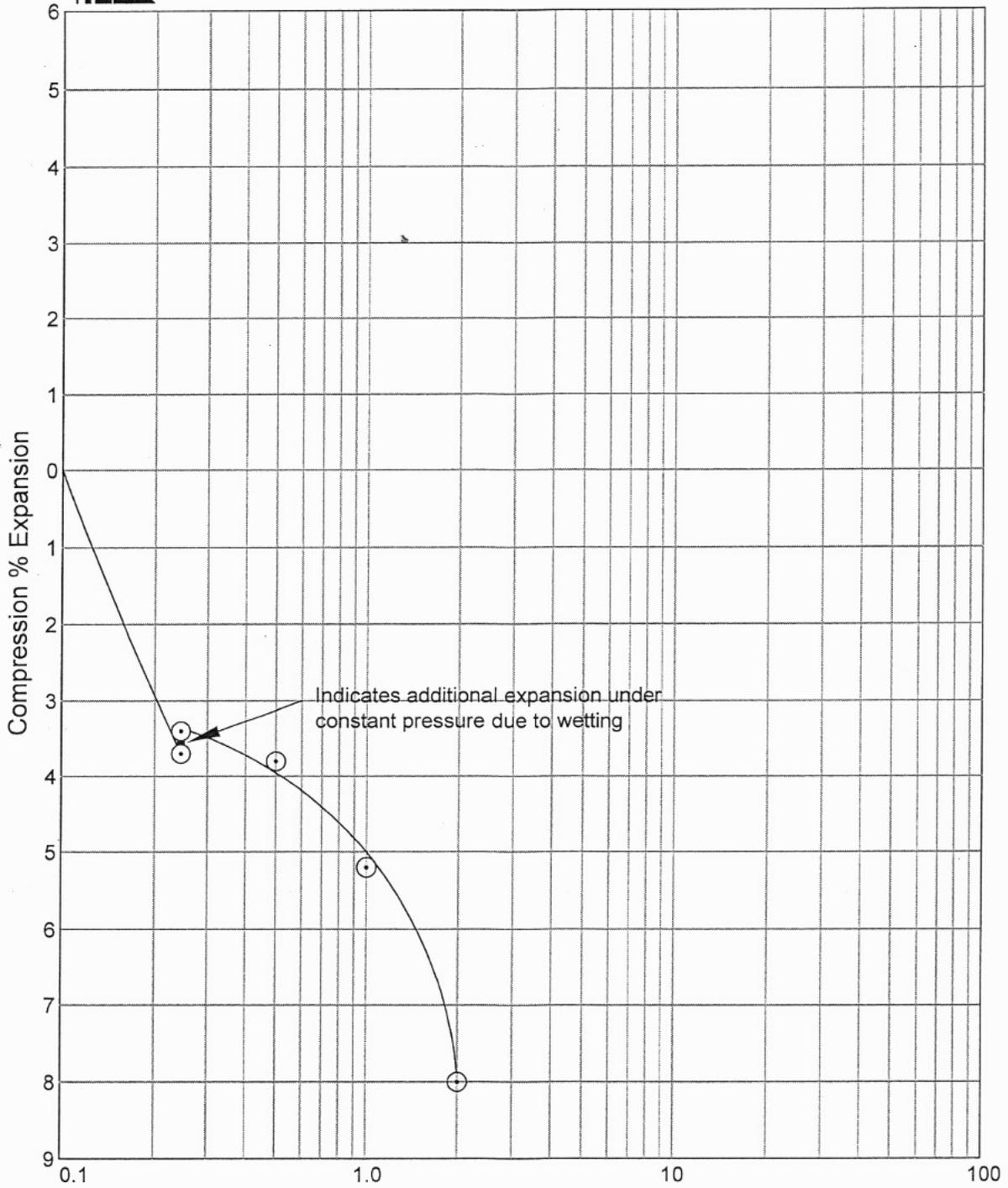
Sample of: Clay
From: TP-5 @ 5 foot depth

Dry Unit Weight= 100 PCF
Moisture Content= 23.8 %

Job No. 2,287

Swell Consolidation Test Results

Fig. 8



Applied Pressure - KSF

Sample of: Clay, silty, sandy
From: TP-6 @ 3 foot depth

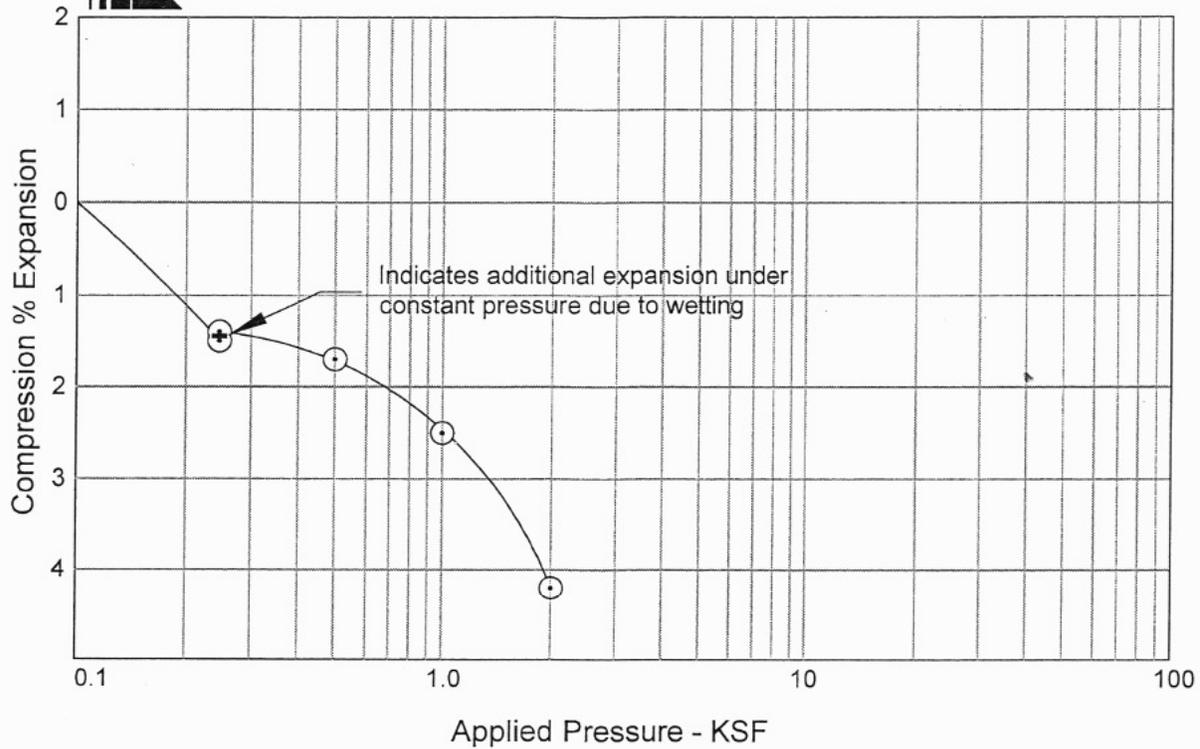
Dry Unit Weight= 82 PCF
Moisture Content= 32.1 %

Job No. 2,287

Swell Consolidation Test Results

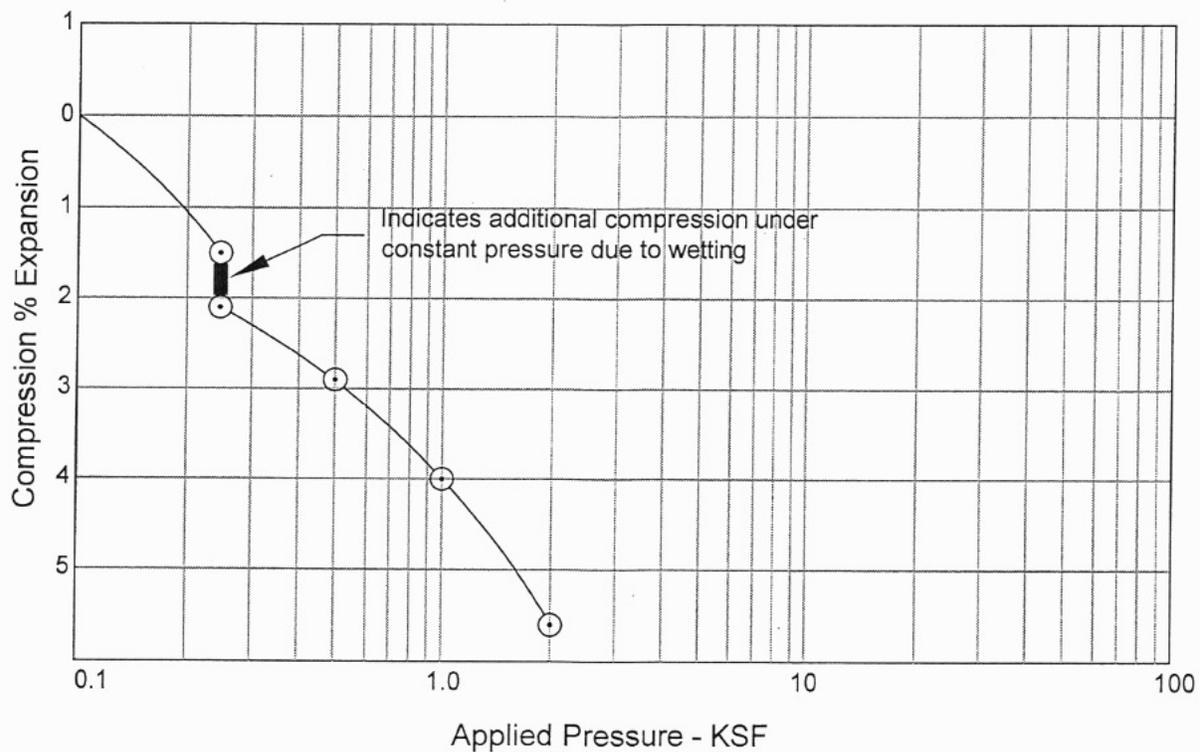
Fig. 9

9.



Sample of: Clay, sandy
From: TP-8 @ 3 foot depth

Dry Unit Weight= 76 PCF
Moisture Content= 44.7 %



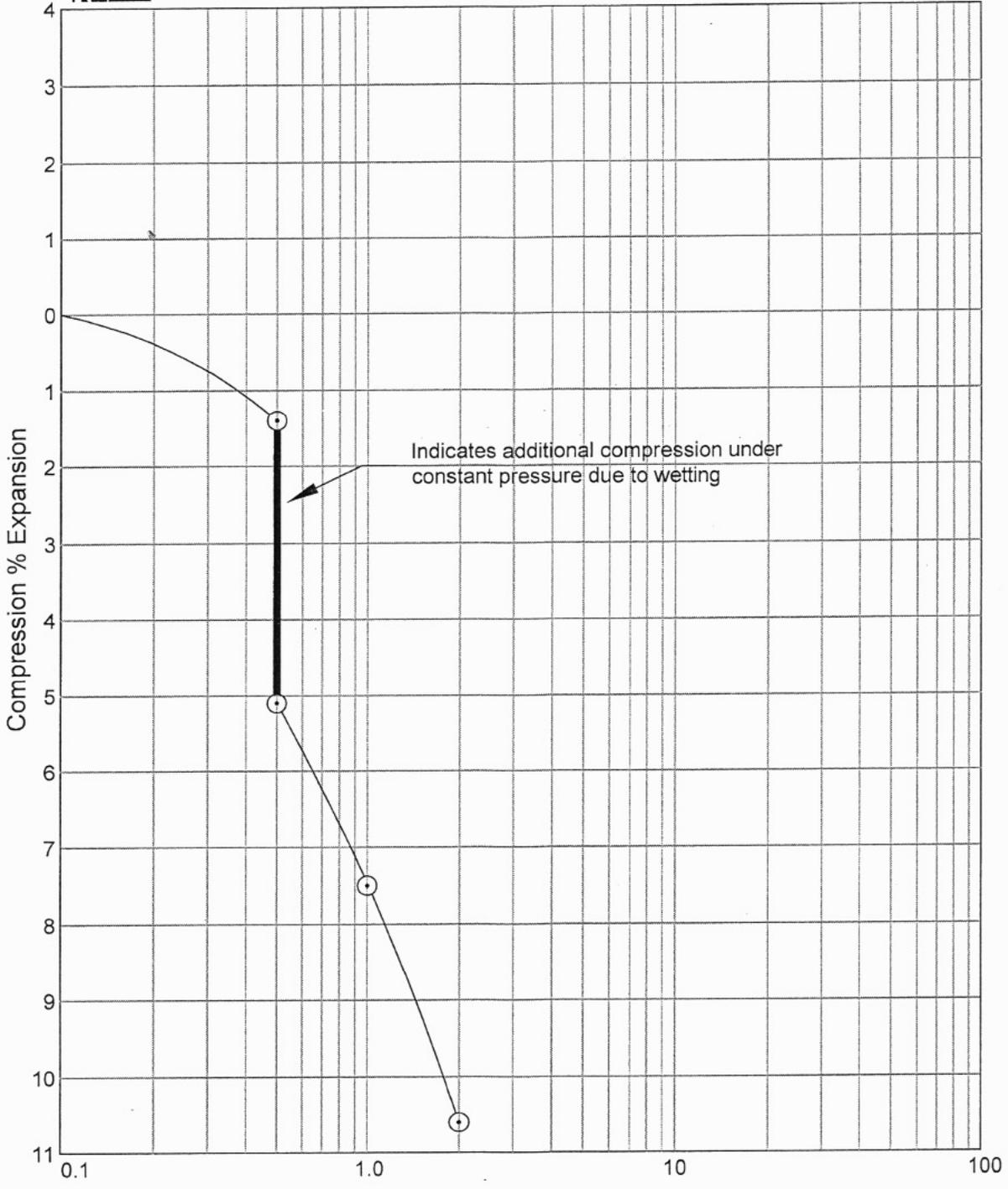
Sample of: Sand, clayey
From: TP-10 @ 3 foot depth

Dry Unit Weight= 85 PCF
Moisture Content= 9.3 %

Job No. 2,287

Swell Consolidation Test Results

Fig. 10



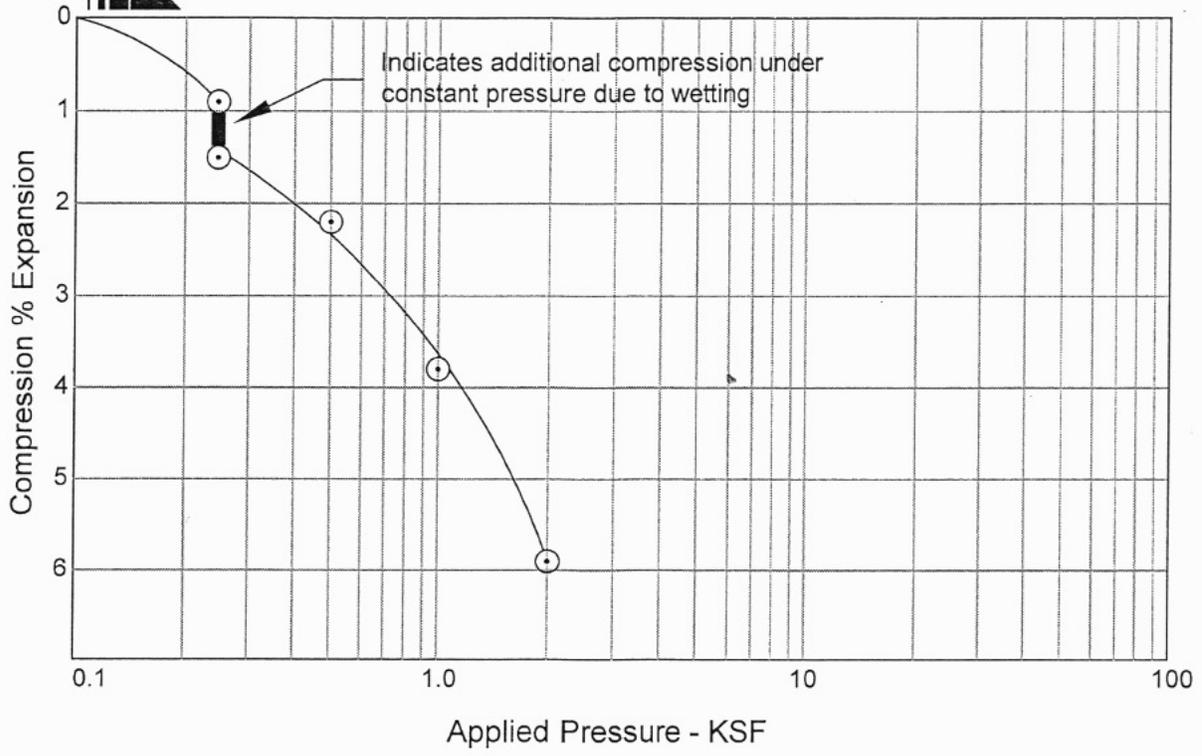
Applied Pressure - KSF

Sample of: Sand, clayey
From: TP-10 @ 5 foot depth

Dry Unit Weight= 86 PCF
Moisture Content= 12.6 %

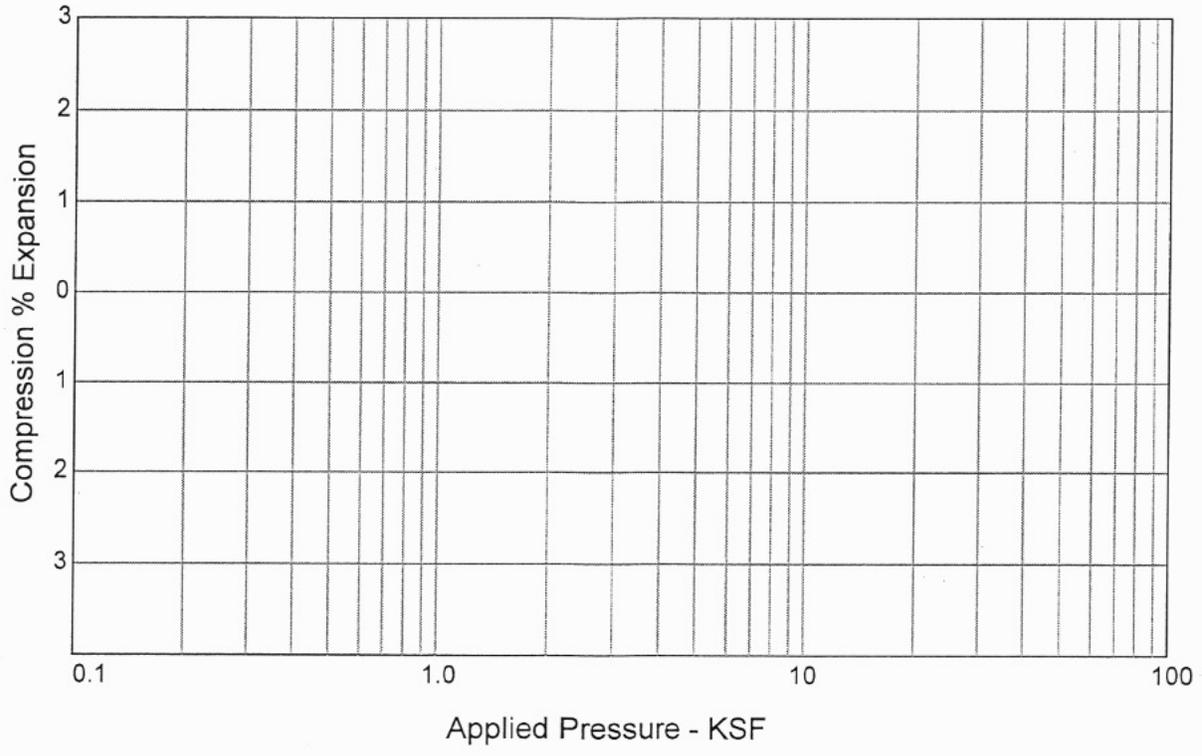
Job No. 2,287 Swell Consolidation Test Results Fig. 11

9.



Sample of: Sand, clayey
From: TP-11 @ 3 foot depth

Dry Unit Weight= 93 PCF
Moisture Content= 12.7 %



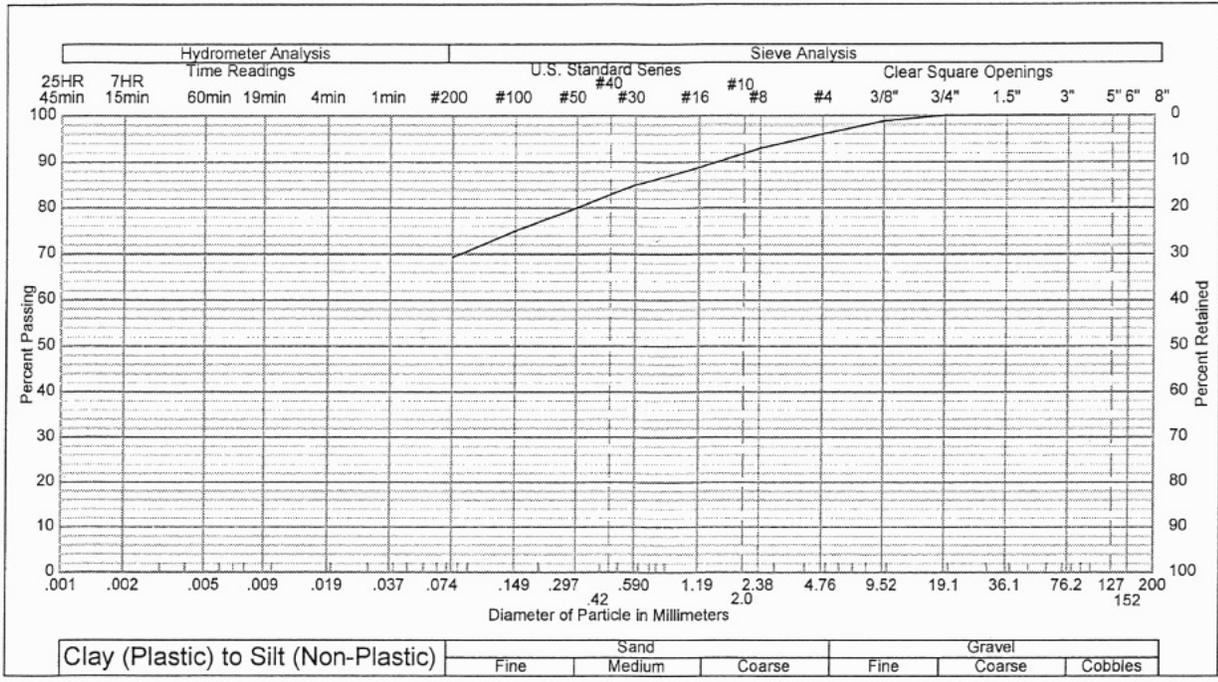
Sample of:
From: foot depth

Dry Unit Weight= PCF
Moisture Content= %

Job No. 2,287

Swell Consolidation Test Results

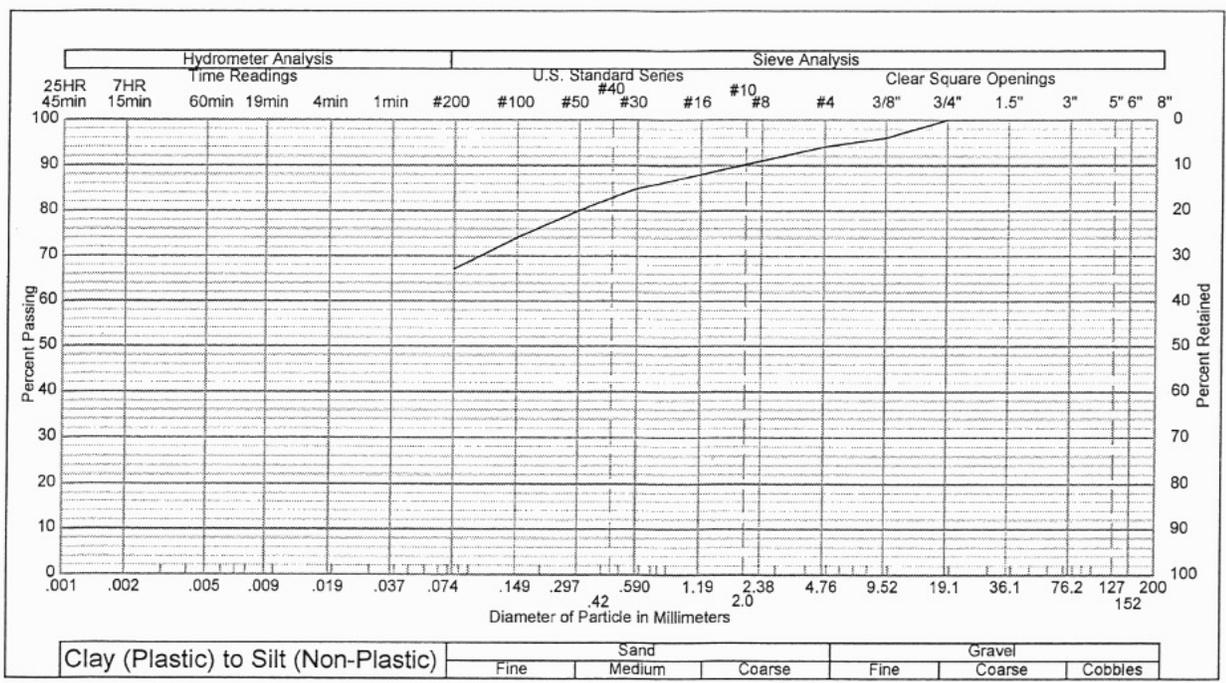
Fig. 12



Sample of: Clay, silty, sandy
 From: TP-1 @ 1-4 foot depth

Gravel: 4 %
 Silt & Clay: 69 %
 Plasticity Index: 9

Sand: 27 %
 Liquid Limit: 27



Sample of: Clay, silty, sandy
 From: TP-1,2 @ 1-4 foot depth
 (Bulk Combined)

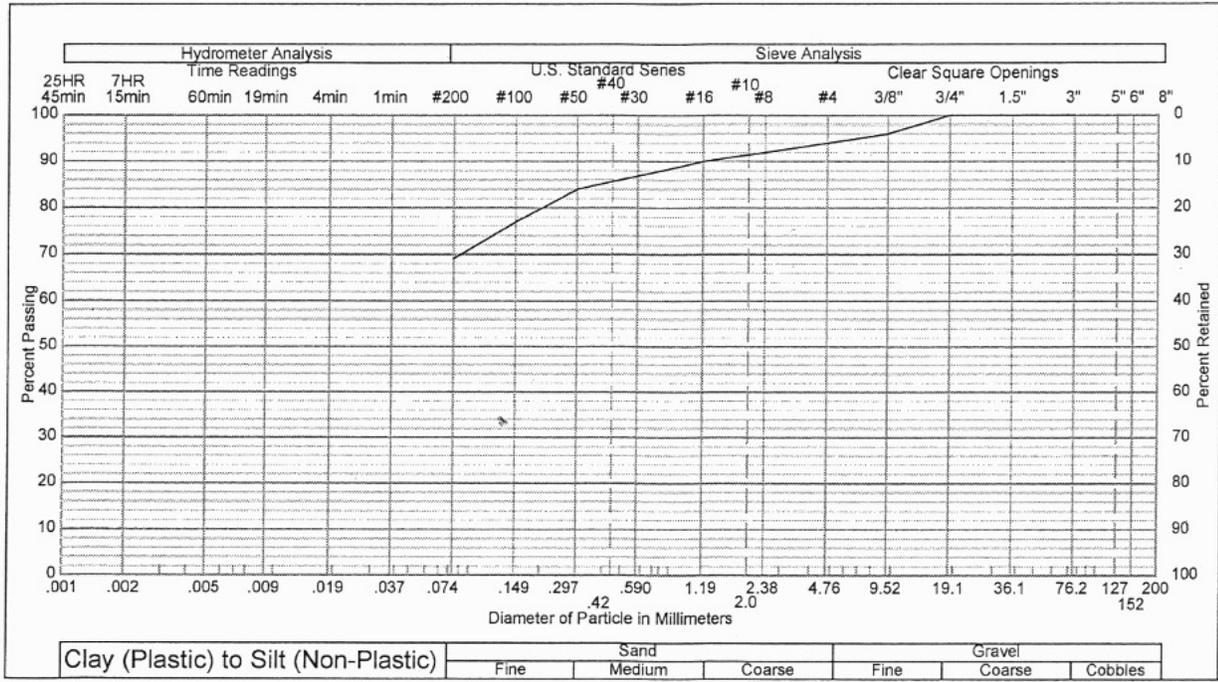
Gravel: 6 %
 Silt & Clay: 67 %
 Plasticity Index: 10

Sand: 27 %
 Liquid Limit: 28

Gradation Test Results

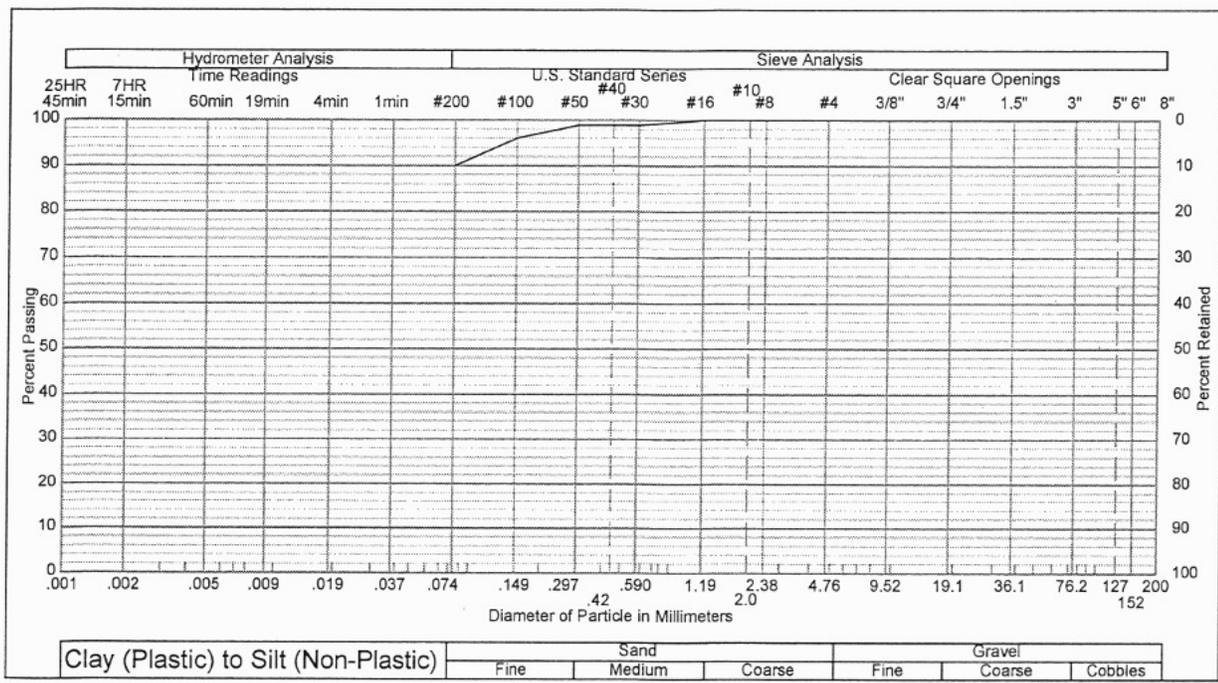


Job No. 2,287
 Date: April, 2006
 Fig. 13



Sample of: Clay, silty, sandy
 From: TP-2 @ 1-4 foot depth

Gravel: 6 %
 Silt & Clay: 69 %
 Plasticity Index: 13
 Sand: 25 %
 Liquid Limit: 34



Sample of: Clay, sandy
 From: TP-5 @ 1-4 foot depth

Gravel: 0 %
 Silt & Clay: 90 %
 Plasticity Index: 17
 Sand: 10 %
 Liquid Limit: 38

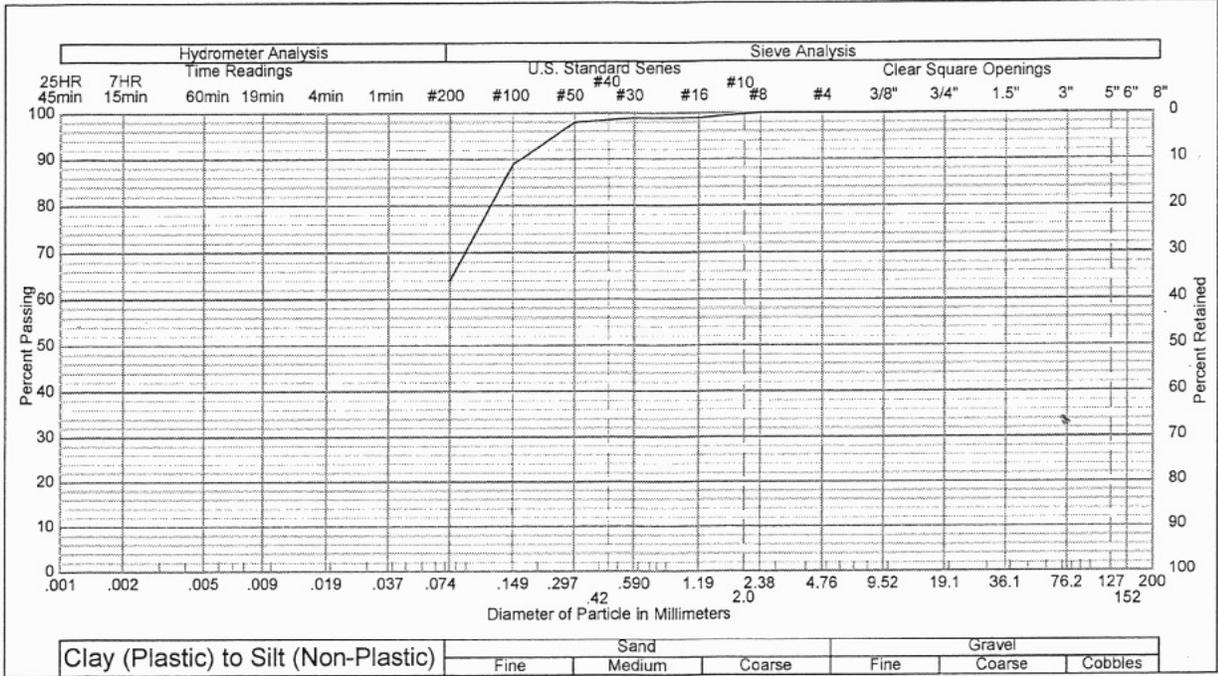
Gradation Test Results



Job No. 2,287

Date: April, 2006

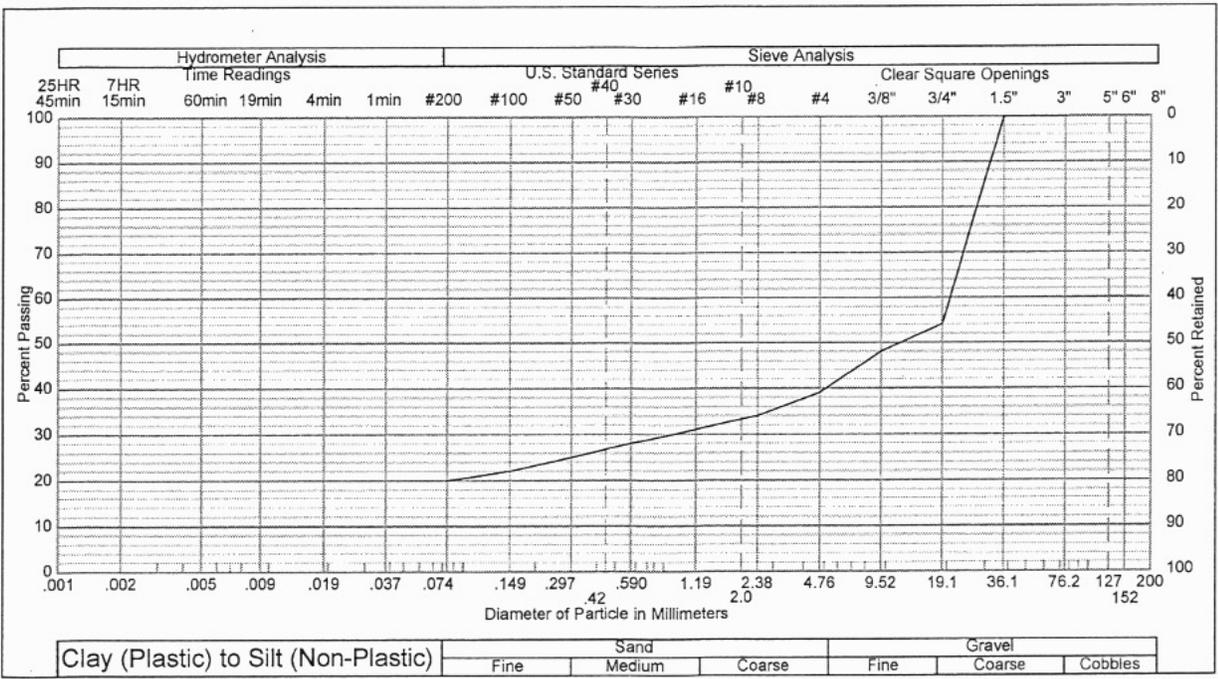
Fig. 14



Sample of: Clay, silty, sandy
 From: TP-6 @ 1-3 foot depth

Gravel: 0 %
 Silt & Clay: 64 %
 Plasticity Index: NP

Sand: 36 %
 Liquid Limit: 25



Sample of: Gravel, clayey, sandy
 From: TP-6 @ 7-8 foot depth

Gravel: 61 %
 Silt & Clay: 20 %
 Plasticity Index: 10

Sand: 19 %
 Liquid Limit: 32

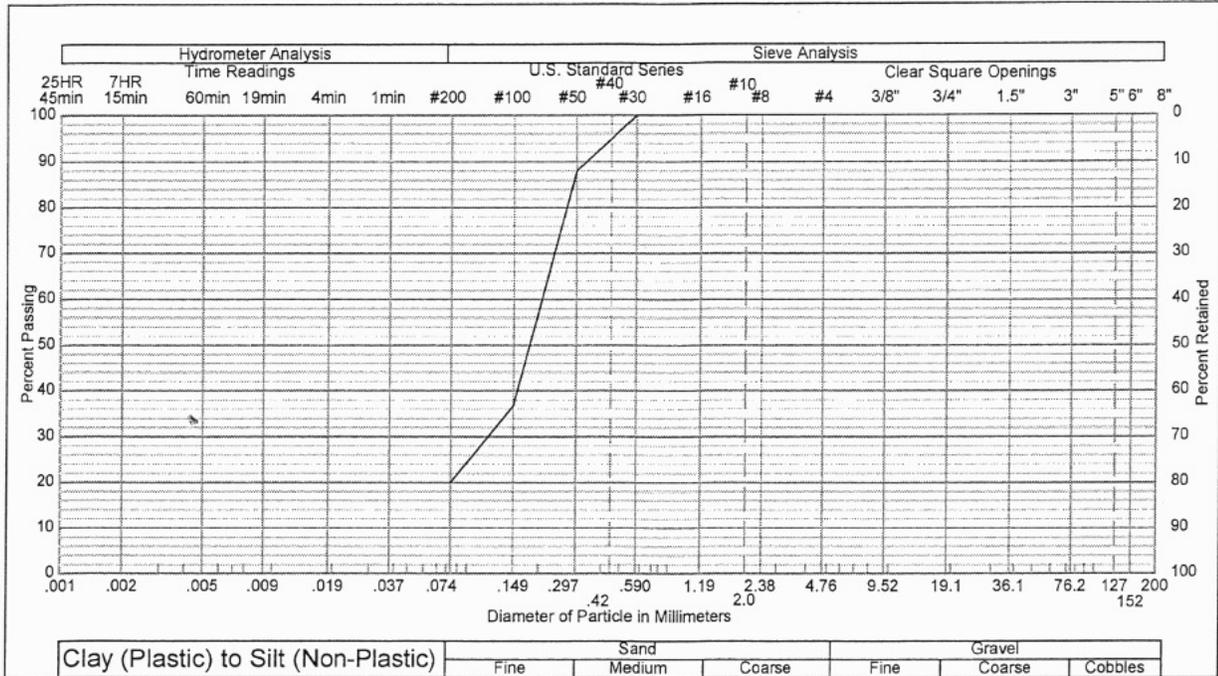
Gradation Test Results



Job No. 2287

Date: April, 2006

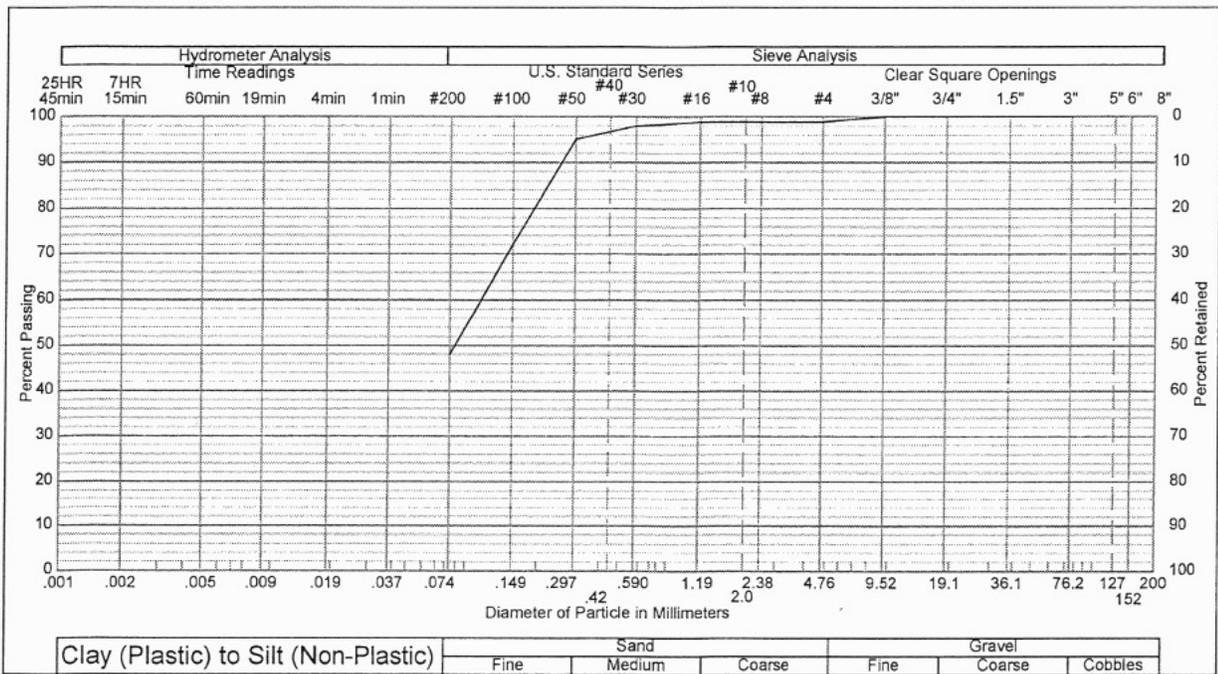
Fig. 15



Sample of: Sand, clayey
 From: TP-10 @ 1-3 foot depth

Gravel: 0 %
 Silt & Clay: 20 %
 Plasticity Index: NP

Sand: 80 %
 Liquid Limit: NL



Sample of: Sand, clayey
 From: TP-11 @ 1-3 foot depth

Gravel: 1 %
 Silt & Clay: 48 %
 Plasticity Index: NP

Sand: 51 %
 Liquid Limit: NL

Gradation Test Results



Job No. 2,287

Date: April, 2006

Fig. 16

Project Name: Backhouse Subdivision

Sample Location: TP-1,2 @ 1-4 feet

Sample Description: Clay, silty, sandy

Test Method: ASM D1557, method A

Maximum Dry Density: 124.5 pcf

Optimum Moisture: 11.0 %

Rock Corrected

Maximum Dry Density: n/a

Optimum Moisture: n/a

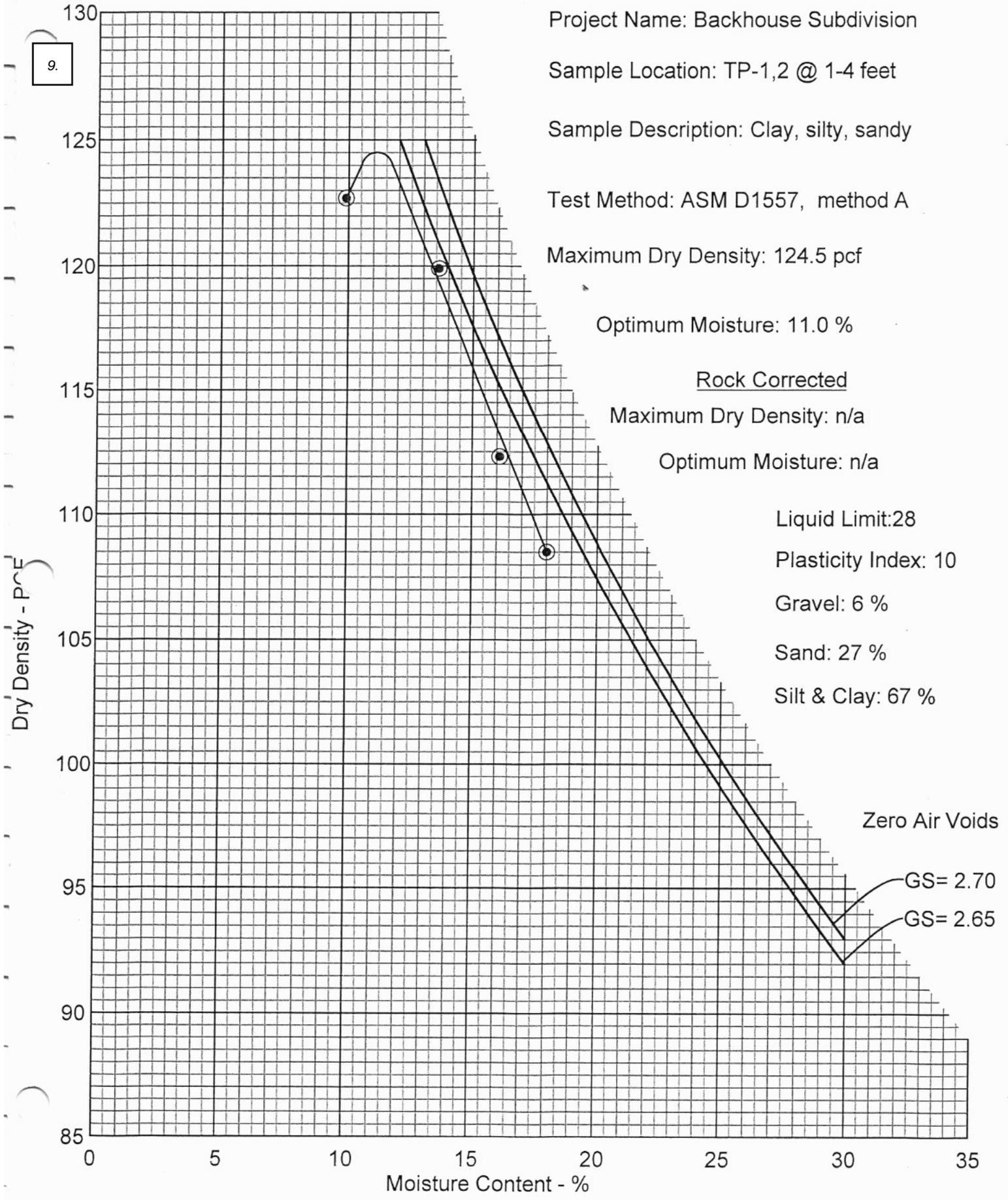
Liquid Limit: 28

Plasticity Index: 10

Gravel: 6 %

Sand: 27 %

Silt & Clay: 67 %



Project Name: Backhouse Subdivision

Sample Location: TP-5 @ 1-4 feet

Sample Description: Clay, sandy

Test Method: ASM D1557, method A

Maximum Dry Density: 121 pcf

Optimum Moisture: 13.0 %

Rock Corrected

Maximum Dry Density: n/a

Optimum Moisture: n/a

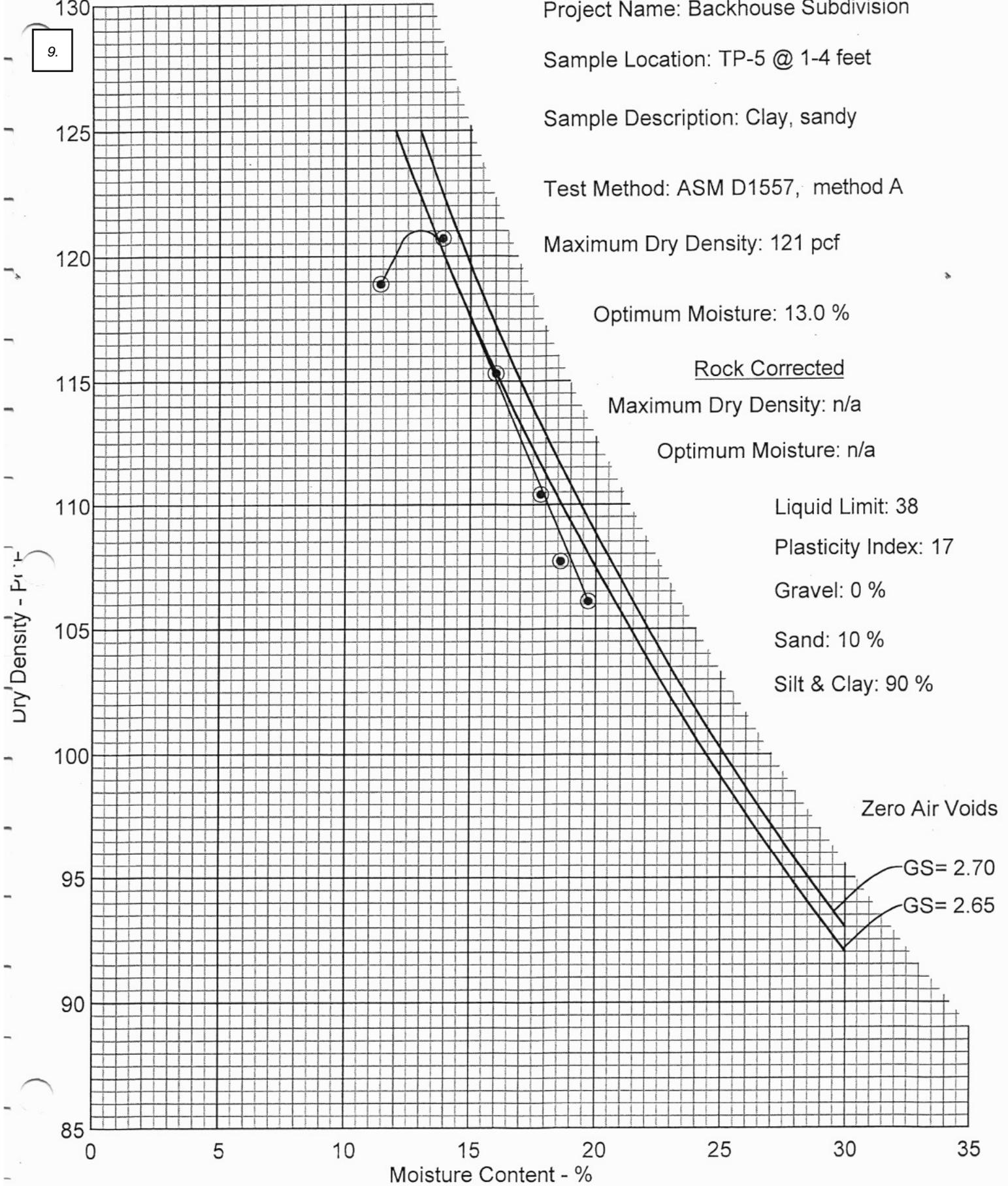
Liquid Limit: 38

Plasticity Index: 17

Gravel: 0 %

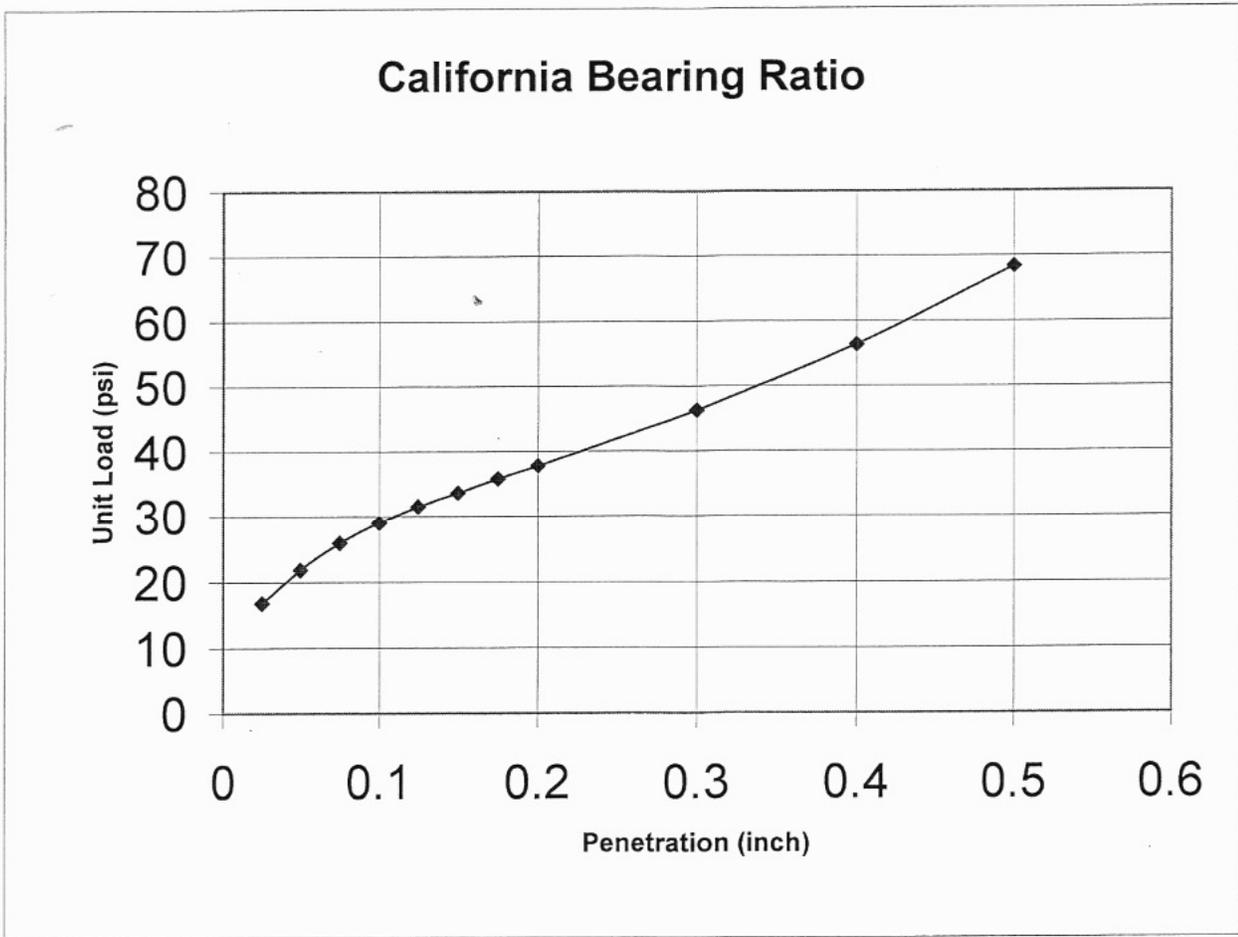
Sand: 10 %

Silt & Clay: 90 %



Job No. 2,287

Fig. 18

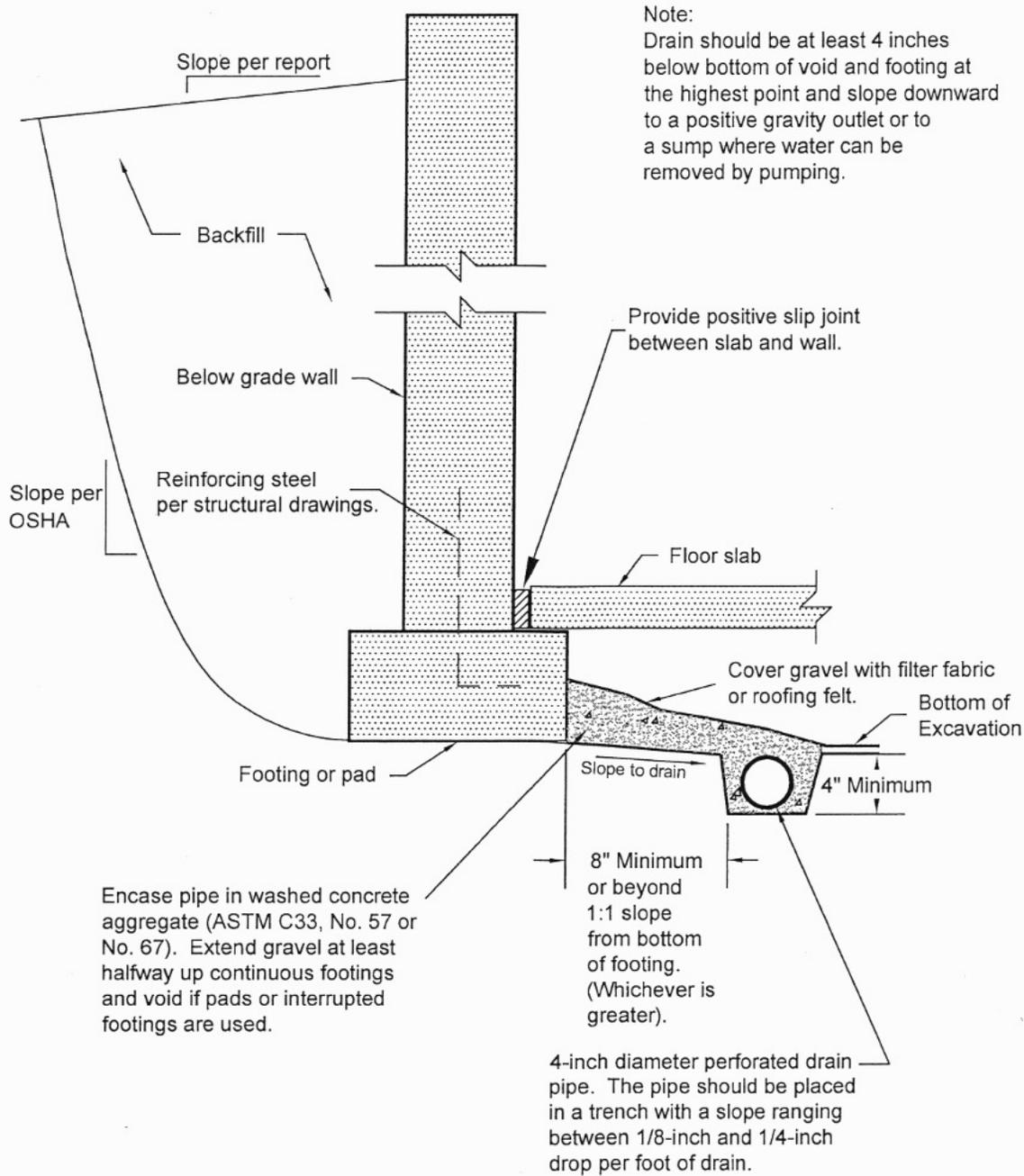


Sample: TP- 1, 2 @ 1- 4 foot depth

CBR @ 0.1" Penetration	2.9
CBR @ 0.2" Penetration	2.5
Maximum Dry Density (pcf)	124.5
Optimum Moisture Content (%)	11.0
Dry Density (pcf)	117.7
Dry Density (% Maximum)	95
Surcharge Weight (lbs)	12.6
Swell (%)	0.9
Before Soaking Moisture Content	10.4
After Soaking Moisture Content:	
Top Inch	
Average	15.7

Job No. 2,287

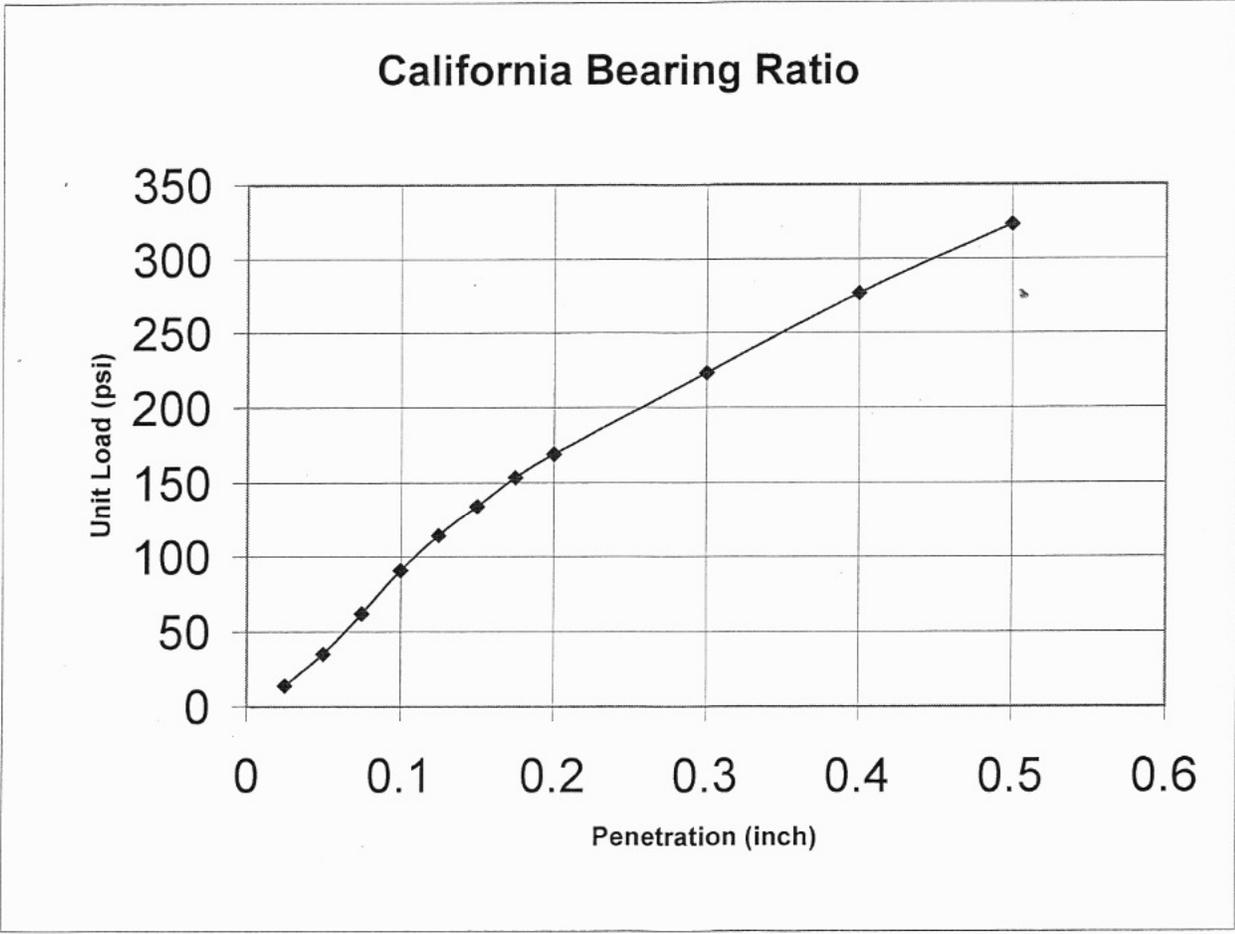
Fig. 19



Job No. 2,287

Interior Foundation Wall Drain

Fig. 23



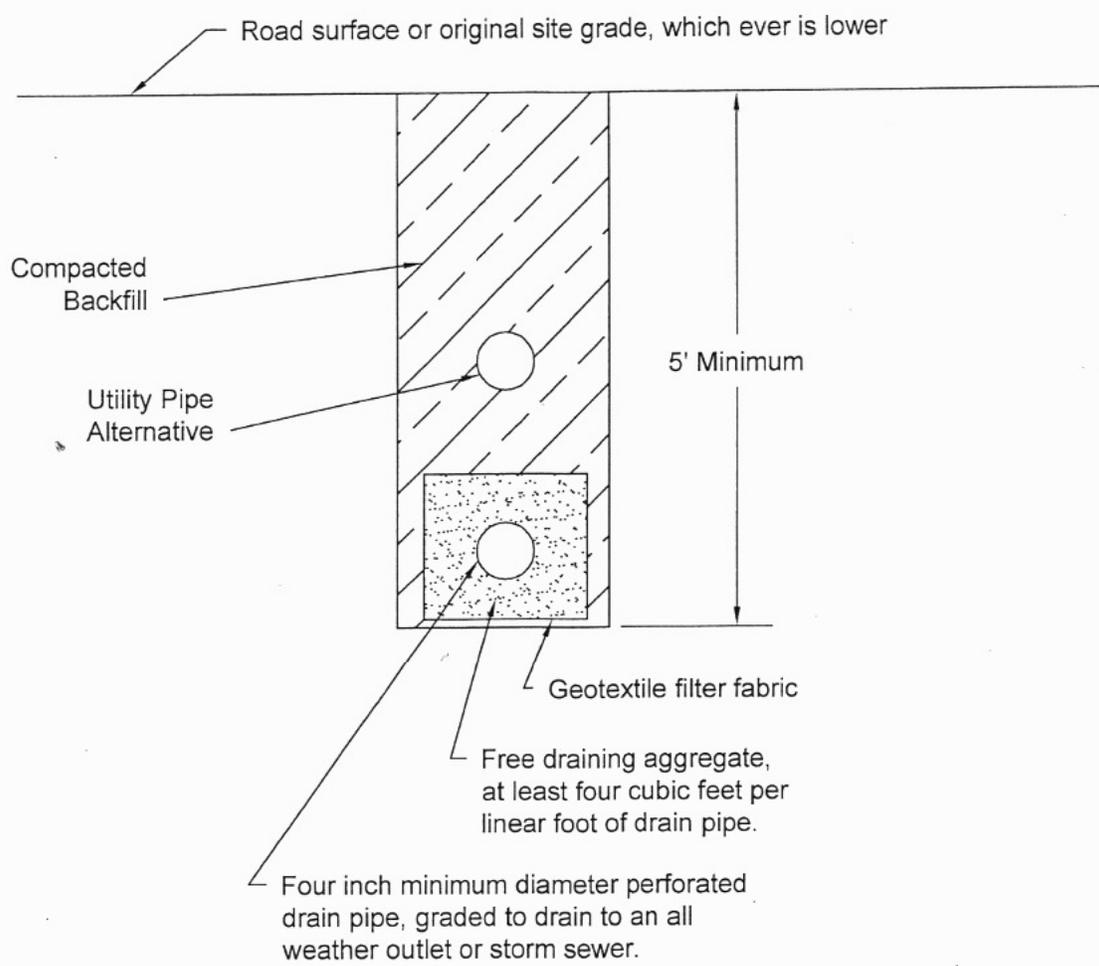
Sample: TP- 5 @ 1- 4 foot depth

CBR @ 0.1" Penetration	9.1
CBR @ 0.2" Penetration	11.3
Maximum Dry Density (pcf)	121.0
Optimum Moisture Content (%)	13.0
Dry Density (pcf)	110.2
Dry Density (% Maximum)	91
Surcharge Weight (lbs)	12.8
Swell (%)	1.1
Before Soaking Moisture Content	14.2
After Soaking Moisture Content:	
Top Inch	23.5
Average	16.0

Job No. 2,287

Fig. 20

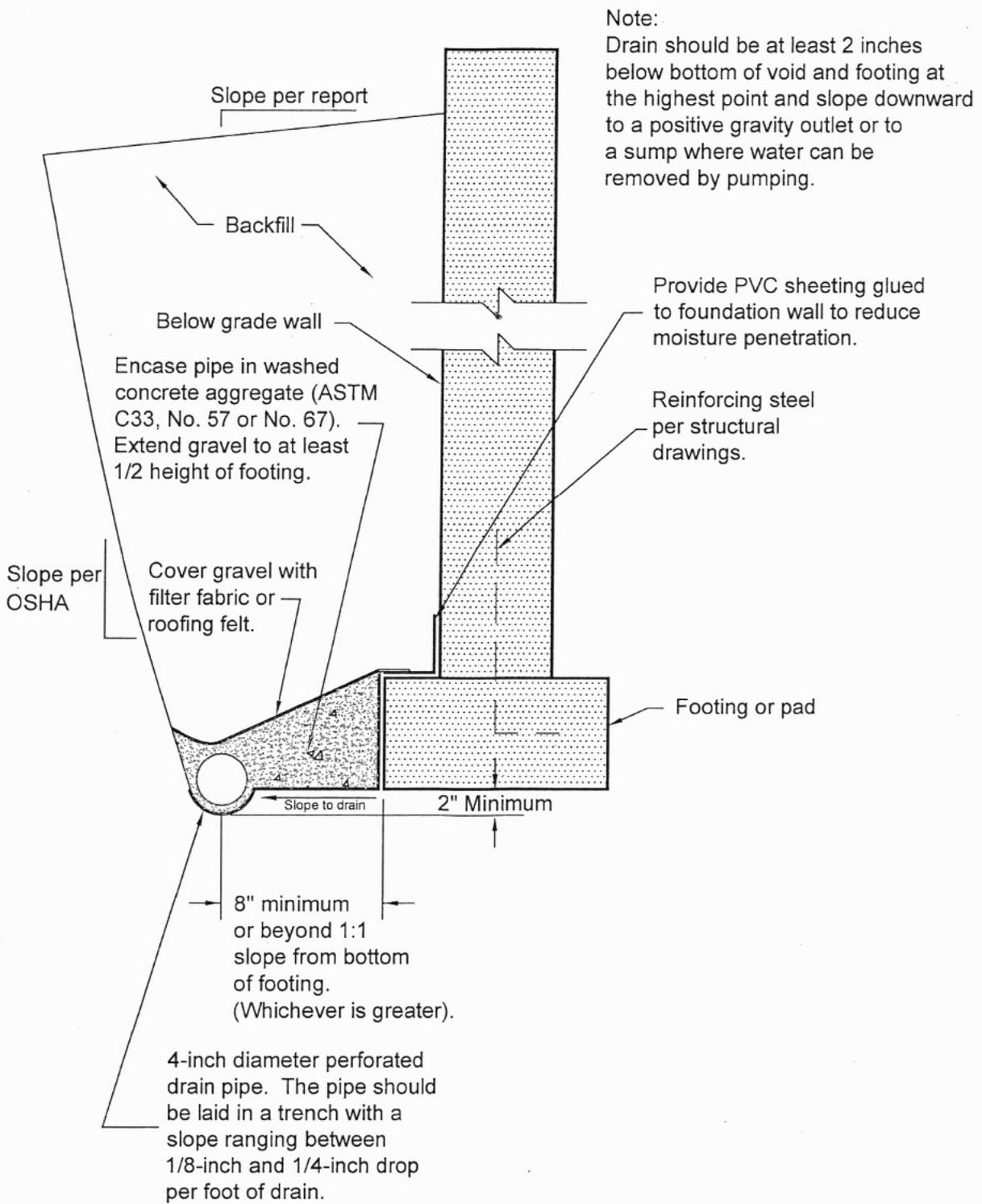
9.



Job No. 2,287

Roadway Drain System Concept

Fig. 21



Job No. 2,287

Exterior Foundation Wall Drain

Fig. 22

**APPENDIX A
SAMPLE SITE GRADING SPECIFICATIONS**

**Backhouse Subdivision
Residential Buildings and Pavement
Paonia, Colorado
Job No. 2,287**

Note: Appendix A presents sample specifications. These sample specifications are not project specific. The sample specifications should be modified by the architect, civil engineer or structural engineer as needed to reflect project specific requirements.

1. DESCRIPTION

This item shall consist of the excavation, transportation, placement and compaction of materials from locations indicated on the plans, or staked by the Engineer, as necessary to achieve preliminary street and overlot elevations. These specifications shall also apply to compaction of excess cut materials that may be placed outside of the subdivision and/or filing boundaries.

2. GENERAL

The Soils Engineer shall be the Owner's representative. The Soils Engineer shall approve fill materials, method of placement, moisture contents and percent compaction, and shall give written approval of the completed fill.

3. CLEARING JOB SITE

The Contractor shall remove all trees, brush and rubbish before excavation or fill placement is begun. The Contractor shall dispose of the cleared material to provide the Owner with a clean, neat appearing job site. Cleared material shall not be placed in areas to receive fill or where the material will support structures of any kind.

4. REMOVAL OF PREVIOUS FILL

The contractor shall expose fill subgrade entirely and remove all existing previous fill, organics and deleterious materials. These materials shall be completely removed from the proposed fill area. These materials shall be removed until the removal is as deemed satisfactory by the Soils Engineer.

5. SCARIFYING AREA TO BE FILLED

All topsoil and vegetable matter shall be removed from the ground surface upon which fill is to be placed. The surface shall then be plowed or scarified until the surface is free from ruts, hummocks or other uneven features, which would prevent uniform compaction by the equipment to be used.

Job No. 2,287

A-1

6. COMPACTING AREA TO BE FILLED

After the foundation for the fill has been cleared and scarified, it shall be disked or bladed until it is free from large clods, brought to the proper moisture content (within 2 percent above or below optimum) and compacted to not less than 100 percent of maximum density as determined in accordance with ASTM D 698.

7. FILL MATERIALS

Fill soils shall be free from vegetable matter or other deleterious substances, and shall not contain rocks or lumps having a diameter greater than six (6) inches. Fill materials shall be obtained from cut areas shown on the plans or staked in the field by the Engineer.

On-site materials classifying as CL, CH, SC, SM, SW, SP, GP, GC and GM are acceptable. Concrete, asphalt, organic matter and other deleterious materials or debris shall not be used as fill.

8. MOISTURE CONTENT

Fill materials shall be moisture treated to within 2 percent below to 2 percent above optimum moisture content specified for soils classifying as CH. Non-expansive soils classifying as CL, SC, SM, SP, GP, GC and GM shall be moisture treated to within $2 \pm$ percent of optimum moisture content as determined from Proctor compaction tests. Sufficient laboratory compaction tests shall be made to determine the optimum moisture content for these various soils encountered in borrow areas.

The Contractor may be required to add moisture to the excavation materials in the borrow area if, in the opinion of the Soils Engineer, it is not possible to obtain uniform moisture content by adding water on the fill surface. The Contractor may be required to rake or disk the fill soils to provide uniform moisture content through the soils.

The application of water to embankment materials shall be made with any type of watering equipment approved by the Soils Engineer, which will give the desired results. Water jets from the spreader shall not be directed at the embankment with such force that fill materials are washed out.

Should too much water be added to any part of the fill, such that the material is too wet to permit the desired compaction from being obtained, rolling and all work on that section of the fill shall be delayed until the material has been allowed to dry to the required moisture content. The Contractor will be permitted to rework wet material in an approved manner to hasten its drying.

Job No. 2,287**A-2**

9. COMPACTION OF FILL AREAS

Selected fill material shall be placed and mixed in evenly spread layers. After each fill layer has been placed, it shall be uniformly compacted to not less than the specified percentage of maximum density. Expansive soils classifying as CL, CH, or SC shall be compacted to at least 95 percent of the maximum dry density as determined in accordance with ASTM D 698 (100 percent for fill deeper than 15 feet below final grade). At the option of the Soils Engineer, soils classifying as SW, SP, GP, GC or GM may be compacted to 90 percent of the maximum density as determined in accordance with ASTM D 1557 (95 percent for fill deeper than 15 feet below final grade). Fill materials shall be placed such that the thickness of loose material does not exceed 10 inches and the compacted lift thickness does not exceed 6 inches.

Compaction, as specified above, shall be obtained by the use of sheepsfoot rollers, multiple-wheel pneumatic-tired rollers or other equipment approved by the Engineer for soils classifying as CL, CH, or SC. Granular fill shall be compacted using vibratory equipment or other equipment approved by the Soils Engineer. Compaction shall be accomplished while the fill material is at the specified moisture content. Compaction of each layer shall be continuous over the entire area. Compaction equipment shall make sufficient trips to insure that the required density is obtained.

10. COMPACTION OF SLOPES

Fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until slopes are stable, but not too dense for planting, and there is no appreciable amount of loose soil on the slopes. Compaction of slopes may be done progressively in increments of three to five feet (3' to 5') in height or after the fill is brought to its total height. Permanent fill slopes shall not exceed 3:1 (horizontal to vertical).

11. DENSITY TESTS

Field density tests shall be made by the Soils Engineer at locations and depths of his choosing. Where sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted material below the disturbed surface. When density tests indicate that the density or moisture content of any layer of fill or portion thereof is below that required, the particular layer or portion shall be reworked until the required density or moisture content has been achieved.

12. COMPLETED PRELIMINARY GRADES

All areas of cut and fill, shall be finished to a level surface and shall meet the following limits of construction:

- A. Overlot cut or fill areas shall be within plus or minus 2/10 of one foot.
- B. Street grading shall be within plus or minus 1/10 of one foot.

The civil engineer, or duly authorized representative, shall check all cut and fill areas to observe that the work is in accordance with the above limits.

13. SUPERVISION AND CONSTRUCTION STAKING

Observation by the Soils Engineer shall be continuous during the placement of fill and compaction operations so that he can declare that the fill was placed in general conformance with specifications. All inspections necessary to test the placement of fill and observe compaction operations will be at the expense of the Owner. All construction staking will be provided by the Civil Engineer or his duly authorized representative. Initial and final grading staking shall be at the expense of the owner. The replacement of grade stakes through construction shall be at the expense of the contractor.

14. SEASONAL LIMITS

No fill material shall be placed, spread or rolled while it is frozen, thawing, or during unfavorable weather conditions. When work is interrupted by heavy precipitation, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed materials are as specified.

15. NOTICE REGARDING START OF GRADING

The contractor shall submit notification to the Soils Engineer and Owner advising them of the start of grading operations at least three (3) days in advance of the starting date. Notification shall also be submitted at least 3 days in advance of any resumption dates when grading operations have been stopped for any reason other than adverse weather conditions.

16. REPORTING OF FIELD DENSITY TESTS

Density tests made by the Soils Engineer, as specified under "Density Tests" above, shall be submitted progressively to the Owner. Dry density, moisture content, of each test taken and percentage compaction shall be reported for each test taken.

Job No. 2,287

A-4

17. DECLARATION REGARDING COMPLETED FILL

The Soils Engineer shall provide a written declaration stating that the site was filled with acceptable materials, or was placed in general accordance with the specifications.

18. DECLARATION REGARDING COMPLETED GRADE ELEVATIONS

A registered Civil Engineer or licensed Land Surveyor shall provide a declaration stating that the site grading has been completed and resulting elevations are in general conformance with the accepted detailed development plan.

Job No. 2,287

A-5

9.

**APPENDIX B
PAVEMENT DESIGN CALCULATIONS**

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.39	Soil Resilient Modulus	3,630.00	psi
Design ESALs	36,500.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	5.98	2.39
Crushed Stone Base	0.12	1.00	0.00	0.00
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.39

Job No. 2,287

Pavement Design Calculations

Fig. B-1

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.39	Soil Resilient Modulus	3,630.00	psi
Design ESALs	36,500.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	3.00	1.20
Crushed Stone Base	0.12	1.00	9.94	1.19
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.39

Job No. 2,287

Pavement Design Calculations

Fig. B-2

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.39	Soil Resilient Modulus	3,630.00	psi
Design ESALs	36,500.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	4.00	1.60
Crushed Stone Base	0.12	1.00	6.61	0.79
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.39

Job No. 2,287

Pavement Design Calculations

Fig. B-3

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Rigid Design Inputs

Agency:
Company: Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential Streets
Location: Grand Junction, Colorado

Rigid Pavement Design/Evaluation

PCC Thickness	4.00	inches	Load Transfer, J	3.20
Design ESALs	36,500.00		Mod. Subgrade Reaction, k	187 psi/in
Reliability	80.00	percent	Drainage Coefficient, Cd	1.00
Overall Deviation	0.35		Initial Serviceability	4.50
Modulus of Rupture	500	psi	Terminal Serviceability	2.00
Modulus of Elasticity	3,375,000	psi		

Modulus of Subgrade Reaction (k-value) Determination

Resilient Modulus of the Subgrade	5,100.00	psi
Resilient Modulus of the Subbase	0.00	psi
Subbase Thickness	0.00	inches
Depth to Rigid Foundation	0.00	feet
Loss of Support Value (0,1,2,3)	0.00	

Modulus of Subgrade Reaction	187.00	psi/in
------------------------------	--------	--------

Job No. 2,287

Pavement Design Calculations

Fig. B-4

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential / Collector Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.66	Soil Resilient Modulus	3,630.00	psi
Design ESALs	73,000.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	6.65	2.66
Crushed Stone Base	0.12	1.00	0.00	0.00
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.66

Job No. 2,287

Pavement Design Calculations

Fig. B-5

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential / Collector Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.66	Soil Resilient Modulus	3,630.00	psi
Design ESALs	73,000.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	3.00	1.20
Crushed Stone Base	0.12	1.00	12.16	1.46
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.66

Job No. 2,287

Pavement Design Calculations

Fig. B-6

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential / Collector Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.66	Soil Resilient Modulus	3,630.00	psi
Design ESALs	73,000.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	4.00	1.60
Crushed Stone Base	0.12	1.00	8.80	1.06
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.66

Job No. 2,287

Pavement Design Calculations

Fig. B-7

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential / Collector Streets
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	2.66	Soil Resilient Modulus	3,630.00	psi
Design ESALs	73,000.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.00	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	3.00	1.20
Crushed Stone Base	0.12	1.00	6.00	0.72
Granular Subbase	0.10	1.00	7.39	0.74
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	2.66

Job No. 2,287

Pavement Design Calculations

Fig. B-8

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Rigid Design Inputs

Agency:
Company: Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Residential / Collector Streets
Location: Grand Junction, Colorado

Rigid Pavement Design/Evaluation

PCC Thickness	4.21	inches	Load Transfer, J	3.20	
Design ESALs	73,000.00		Mod. Subgrade Reaction, k	187	psi/in
Reliability	80.00	percent	Drainage Coefficient, Cd	1.00	
Overall Deviation	0.35		Initial Serviceability	4.50	
Modulus of Rupture	500	psi	Terminal Serviceability	2.00	
Modulus of Elasticity	3,375,000	psi			

Modulus of Subgrade Reaction (k-value) Determination

Resilient Modulus of the Subgrade	5,100.00	psi
Resilient Modulus of the Subbase	0.00	psi
Subbase Thickness	0.00	inches
Depth to Rigid Foundation	0.00	feet
Loss of Support Value (0,1,2,3)	0.00	

Modulus of Subgrade Reaction	187.00	psi/in
------------------------------	--------	--------

Job No. 2,287

Pavement Design Calculations

Fig. B-9

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	3.03	Soil Resilient Modulus	3,630.00	psi
Design ESALs	146,000.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.50	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	7.57	3.03
Crushed Stone Base	0.12	1.00	0.00	0.00
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	3.03

Job No. 2,287

Pavement Design Calculations

Fig. B-10

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
 American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
 Company: GEG Job No. 2,287
 Contractor:
 Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
 Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	3.03	Soil Resilient Modulus	3,630.00	psi
Design ESALs	146,000.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.50	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	3.00	1.20
Crushed Stone Base	0.12	1.00	15.23	1.83
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	3.03

Job No. 2,287

Pavement Design Calculations

Fig. B-11

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	3.03	Soil Resilient Modulus	3,630.00	psi
Design ESALs	146,000.00	Initial Serviceability	4.50	
Reliability	80.00 percent	Terminal Serviceability	2.50	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	4.00	1.60
Crushed Stone Base	0.12	1.00	11.90	1.43
Granular Subbase	0.10	1.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	3.03

Job No. 2,287

Pavement Design Calculations

Fig. B-12

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	3.03	Soil Resilient Modulus	3,630.00	psi
Design ESALs	146,000.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.50	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	3.00	1.20
Crushed Stone Base	0.12	1.00	6.00	0.72
Granular Subbase	0.10	1.00	11.07	1.11
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	3.03

Job No. 2,287

Pavement Design Calculations

Fig. B-13

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Flexible Design Inputs

Agency:
Company: GEG Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
Location: Grand Junction, Colorado

Flexible Pavement Design/Evaluation

Structural Number	3.03	Soil Resilient Modulus	3,630.00	psi
Design ESALs	146,000.00	Initial Serviceability	4.50	
Reliability	80.00	Terminal Serviceability	2.50	
Overall Deviation	0.45			

Layer Pavement Design/Evaluation

Layer Material	Layer Coefficient	Drainage Coefficient	Layer Thickness	Layer SN
Asphalt Cement Concrete	0.40	1.00	4.00	1.60
Crushed Stone Base	0.12	1.00	6.00	0.72
Granular Subbase	0.10	1.00	7.07	0.71
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
			Σ SN	3.03

Job No. 2,287

Pavement Design Calculations

Fig. B-14

WinPAS

Pavement Thickness Design According to
1993 AASHTO Guide for Design of Pavements Structures
American Concrete Pavement Association

9.

Rigid Design Inputs

Agency:
Company: Job No. 2,287
Contractor:
Project Description: Backhouse Subdivision, Collector Streets / Accel/Decel Lane
Location: Grand Junction, Colorado

Rigid Pavement Design/Evaluation

PCC Thickness	4.92	inches	Load Transfer, J	3.20
Design ESALs	146,000.00		Mod. Subgrade Reaction, k	187 psi/in
Reliability	80.00	percent	Drainage Coefficient, Cd	1.00
Overall Deviation	0.35		Initial Serviceability	4.50
Modulus of Rupture	500	psi	Terminal Serviceability	2.50
Modulus of Elasticity	3,375,000	psi		

Modulus of Subgrade Reaction (k-value) Determination

Resilient Modulus of the Subgrade	5,100.00	psi
Resilient Modulus of the Subbase	0.00	psi
Subbase Thickness	0.00	inches
Depth to Rigid Foundation	0.00	feet
Loss of Support Value (0,1,2,3)	0.00	

Modulus of Subgrade Reaction	187.00	psi/in
------------------------------	--------	--------

Job No. 2,287

Pavement Design Calculations

Fig. B-15

**APPENDIX C
CONSTRUCTION RECOMMENDATIONS
FOR FLEXIBLE AND RIGID PAVEMENT**

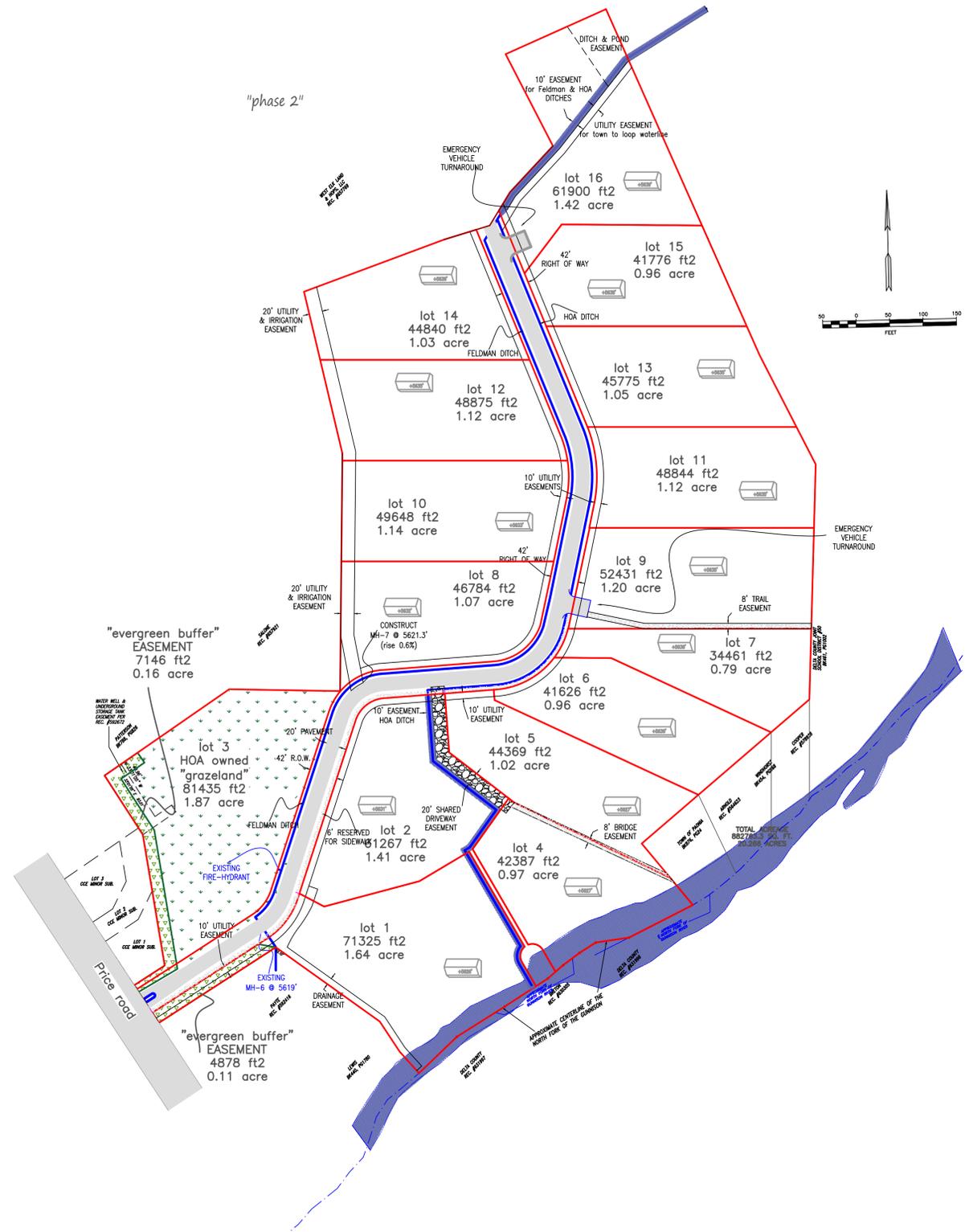
Experience has shown that construction methods can have a significant effect on the life and serviceability of a pavement system. We recommend the proposed pavement be constructed in the following manner:

1. The subgrade should be stripped of organic matter and deleterious materials, scarified, moisture treated, and compacted. Soils should be moisture treated to within 2 percent of optimum moisture content and compacted to at least 95 percent of maximum standard Proctor dry density (ASTM D 698).
2. After final subgrade elevation has been reached and the subgrade compacted, the area should be proof-rolled with a heavy pneumatic-tired vehicle (i.e., a loaded 10-wheel dump truck). Subgrade that is pumping or deforming excessively should be stabilized.
3. If areas of soft or wet subgrade soils are encountered, the material should be subexcavated and replaced with properly compacted structural backfill. Where extensively soft, yielding subgrade is encountered, we recommend the excavation be inspected by a representative of our office.
4. Aggregate base course should be laid in thin, loose lifts, moisture treated to within 2 percent of optimum moisture content, and compacted to at least 95 percent of maximum modified Proctor dry density (ASTM D 1557, AASHTO T 180).
6. Asphaltic concrete should be hot plant-mixed material compacted to at least 95 percent of maximum Marshall density. The temperature at laydown time should be at least 235 degrees F. The maximum compacted lift should be 3.0 inches and joints should be staggered.
7. The subgrade preparation and the placement and compaction of all pavement material should be observed and tested. Compaction criteria should be met prior to the placement of the next paving lift. The additional requirements of the Colorado Department of Transportation Specifications and local requirements should apply.

Rigid pavement sections are not as sensitive to subgrade support characteristics as flexible pavement. Due to the strength of the concrete, wheel loads from traffic are distributed over a large area and the resulting subgrade stresses are relatively low. The critical factors affecting the performance of a rigid pavement are the strength and quality of the concrete, and the uniformity of the subgrade. We recommend subgrade preparation and construction of the rigid pavement section be completed in accordance with the following recommendations:

1. Subgrade areas should be stripped of organics and deleterious materials. The pavement subgrade shall be compacted within 2% of optimum moisture content to at least 95% of maximum standard Proctor dry density (ASTM D 698). Moisture treatment and compaction recommendations also apply where additional fill is necessary.
2. The resulting subgrade shall be checked for uniformity and all soft or yielding materials should be replaced prior to paving. Concrete should not be placed on soft, spongy, frozen or otherwise unsuitable subgrade.
3. The subgrade shall be kept moist prior to paving.
4. Concrete should not be placed in cold weather or on frozen subgrade
5. Curing procedures should protect the concrete against moisture loss, rapid temperature change, freezing, and mechanical injury for at least 3 days after placement. Traffic should not be allowed on the pavement for at least one week.
6. A white, liquid membrane curing compound, applied at the rate of 1 gallon per 150 square feet, should be used.
7. Construction joints, including longitudinal joints and transverse joints, should be formed during construction or should be sawed shortly after the concrete has begun to set, but prior to uncontrolled cracking. All joints should be sealed.
8. Construction control and inspection shall be carried out during the subgrade preparation and paving procedures. Concrete shall be carefully monitored for quality control. The additional requirements of the Colorado Department of Transportation Specifications and local requirements should apply.
9. Deicing salts should not be used for the first year after placement.

ITEM 2



Paonia Riverbank Neighborhood
low density: phase 2

scale
1" = 100'

June 6, 2020

318731307003 200 ft Parcel Buffer

TaxPIN	Owner Name
324506210002	RUBY MOUNTAIN PARTNERS INC (1/2 INT)
324506200009	SMITH CHARLES BARRY
324506211002	CHOI REGAN E
324506200007	PAYTE LINDA
318731400008	PAONIA TOWN OF
318731400010	DEPT OF HWYS STATE OF COLO
324506209010	LAGNIAPPE PROPERTIES WEST LLC
324506208007	AG GLOGAL COOLING LLC
324506201006	PAONIA TOWN OF
318731300047	GARVER RICHARD D
324506204001	SMITH CHARLES BARRY
318731300070	ZIMMERMAN MARTIN TIGHE
324506200006	LEWIS ROBERT B
324506202002	KIRSTATTER ARNOLD J
324506201005	ARNOLD MICHAEL P
324506109004	WINDHORST CAROL M
324506174003	COOPER MARK
324506204004	MOORE MURRILL FAMILY TRUST
318731303002	WEST ELK LAND & HOPS LLC
324506200023	CUMPSTON MICHELLE
324506211001	BRETON PEARL M
324506200010	PATTERSON CHRISTINA M
324506210001	HINYARD PATRICK W
324506210003	BURGE STEVE
318731400007	DELTA COUNTY JOINT SCHOOL DIST 50
318731300048	SALONE DAPHNE A
324506203004	CHISHOLM DANIEL E
318731307003	OLD WORLD LLC

10.

TaxPIN	Owner_Name
318731307001	OLD WORLD LLC
318731307002	OLD WORLD LLC

TOWN OF PAONIA
APPLICATION FOR SUBDIVISION
FINAL PLAN
Code Section - Article XIII, Section 13.03

For Town Use Only
Date App. Received: June 5, 2020
Fee \$: paid-online
Deposit Paid \$: not app
Application Received by: [Signature]

Important - Please Read the Following Information Carefully

Applicants are encouraged to prepare a separate project narrative to accompany all submitted materials. This narrative should be well organized and include a table of contents, page numbers and similar information to facilitate review by town staff and elected/appointed commissions. If a separate narrative is submitted, this application form shall reference the narrative as necessary.

It is the applicant's responsibility to obtain, read and understand all of the relevant sections of the Paonia Municipal Code applicable to this procedure. Please keep in mind that more than one section of the code may apply to your application. These regulations are available through the Town of Paonia municipal offices at a nominal cost. If you do not understand portions of the Code concerning your application, please ask questions. Failure to complete the application, submit all of the required materials or answer questions completely and accurately may result in a delay and processing or a rejection of the application as incomplete. All fees must be paid in full at the time of application. Public meetings or public hearings will not be scheduled for an application until it is deemed complete by the Town. Each applicant should take the time necessary to submit a complete and comprehensive application. Town staff is available to direct the applicant to appropriate sources of information.

APPLICANT

Date: June 6th, 2020

Name: Old World LLC Owner Agent

Mailing Address: [Redacted]

Mailing Address for Notices, if different from above: phone [Redacted]

Telephone: _____ Fax: _____ Cell: _____ E-mail: _____

PROPERTY SUBJECT TO APPLICATION

Street Address: _____

Practical Property Description: _____

Legal Description (may attach): Lots 1, 2 and 3 of Riverbank minor subdivision #2.

SUBDIVISION/PROJECT NAME Riverbank Neighborhood

BRIEF DESCRIPTION OF SUBDIVISION PROPOSAL (include number of proposed lots and land use(s), (e.g., residential, commercial, etc.): Attach additional sheet(s) as necessary)

15 residential lots, zoned R2
1 open space lot

Proposed Number of Lots and Type of Units (single-family, duplex, other): 15 residential

Acreage or Square Feet of Parcel: 20 acre Existing Zoning: R2

Surrounding Zoning - North: R2, South: R1, East: P, West: n/a,

Present Use of Subject Property: agricultural

- vacant open land-

Uses Surrounding Subject Parcel - North: Ag, South: residential, East: high school
West: residential

UTILITY INFORMATION

Existing utility main lines currently serving subdivision property:

Water & sewer on lot 1 & 2 only

Water Sewer Electric Gas

Proposed utility main line extensions to serve subdivision property:

Water Sewer Electric Gas

Proposed number of new utility service connections within subdivision property:

Water 15 Sewer 15 Electric 15 Gas

STREET INFORMATION

Existing street(s) serving subdivision property: Price Road

Are new streets/alleys or street/alley extensions proposed to serve subdivision? Yes No Explain:

Atlantic Avenue

need county approval for emergency services

MISCELLANEOUS

Variance/exception/waiver requested* Yes No * Separate application required

Development/subdivision improvements agreement required/requested Yes No

variances - street length & curb, gutter, SW

Other:

Property owner(s) if different from applicant (inclusive of mineral owners/lessees in accordance with C.R.S. § 24-65.5-103.):

Name	Mailing Address	Telephone
1.		
2.		
3.		
4.		

Attach additional sheets if necessary.

NOTE: In the event the town must retain outside professional services to process or evaluate an application, the applicant shall bear the costs of same, inclusive of land planning, engineering and legal fees, in addition to the base application fee. A deposit to cover the reasonable anticipated costs for outside professional services will be required at the time of application.

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 also acknowledge that I must notify all owners of any severed mineral estates associated with the real property subject to this application in accordance with C.R.S. § 24-65.5-103.**

Applicant(s) [Signature] Date: June 6th, 2020

Applicant(s) _____ Date: _____

For Town Use Only

Application Checklist

Written Information. This information shall be provided with the application including the following:

Proof of ownership for project property.

Complete, Incomplete – Comments: _____

Written authorization from property owner(s) for agent (if applicable).

Complete, Incomplete – Comments: n/a

Purpose.

The final plat shall include all binding agreements between the owner(s) and the Town.

Complete, Incomplete – Comments: _____

Written Information.

All information required for preliminary plat.

Title under which the subdivision is to be recorded.

Names and addresses of all property owners within 200 feet of the property.

Surveyor's Certificate signed by licensed Colorado Surveyor.

Planning Commission Certificate.

Town Board certificate.

Clerk and Recorder's certificate.

Three (3) copies of protective covenants or restrictions.

The name and address of the person to whom the notice of public hearing should be sent.

Subdivision agreement

Covenant and agreement to convey ownership to the Town of any or all public improvements or facilities subject to the acceptance of the Town and guarantees.

Title policy indicating property is free and clear of all encumbrances and verification all owners and lien holders have signed final plat.

Complete, Incomplete – Comments: _____

Final Plat - dual review w/ preliminary

The final map or plat drawn in ink on a permanent reproducible Mylar sheet 24x26 inches.

Scale of at least 1"=100'.

Key diagram provided if area requires more than one sheet

8 1/2" x 11" reduction of the final plat.

Accurate dimensions for all lines, angles, curves used to describe lot boundaries, streets, alleys, easements, areas reserved for public use, and other important features.

All curves shall be circular arcs and shall be defined by radius, central angle, tangent, arc and chord lengths.

Dimensions, linear and angular, determined by an accurate control survey in the field within a limit of one in ten thousand.

The name of adjoining subdivisions with dotted lines for abutting lots.

All lots or blocks properly numbered.

Identification of the streets, alleys, easements, parks, other facilities as shown on the plat, and a dedication thereof to public use.

Areas reserved for future public acquisition.

A legal description of the area to be subdivided or annexed with reference to its location in the records of Delta County.

Total area of each lot created by the subdivision.

Names of all streets within the subdivision.

Description of all monuments, both found and set, marking property boundaries.

Description of all control monuments including tie to section corner.

Final Engineering documents prepared by Colorado registered professional engineer for Streets, Water, Sewer and Drainage.

Engineer's cost estimates for all improvements to be installed.

Complete, Incomplete – Comments: _____

Fee.

Complete, Incomplete – Comments:

paid to date - ongoing fees to be paid timely

Other

Referred to Planning and Zoning Commission for review and recommendation on: 2.22.2021

Notice of meeting sent to applicant on: 2.23.2021

Recommendation of Planning and Zoning Commission entered on: _____

Approved

Denied

Conditions: _____

Date of hearing before Board of Trustees: 4.13.2021

Notice of hearing sent to applicant on: _____

Posted notice provided on: _____

Mailed notice sent on: _____

Notice published in newspaper on: _____

Proof of notice to mineral estate owners (if applicable): _____

Date of decision of Board of Trustees: _____

Approved

Denied

Conditions: _____

Declaration of
Covenants, conditions and Restrictions
for
Riverbank Neighborhood, a planned community in Delta County, CO
administered by the non profit corporation
Riverbank Property Owners Association, Inc.

THIS DECLARATION OF COVENANTS CONDITIONS AND RESTRICTIONS ("**Declaration**") is made as of this 3rd day of May, 2018, by Old World LLC, a Colorado limited liability company, hereafter referred to as the "**Declarant**".

article 1**general**

Section 1.1. Community. Declarant is the owner of Lot 1 of the Riverbank Neighborhood Minor Subdivision, as recorded March 21st, 2012 under reception number 657278 in Delta, CO, which is defined in this Declaration as the "**(Common Interest) Community**." Declarant intends to develop the Community as a neighborhood of single family residential lots (collectively, "**Lots**") in accordance with the terms and provisions of the Colorado Common Interest Ownership Act, C.R.S., § 38-33.3-101 *et seq.* ("**Act**"). The Community is named and is sometimes referred to in this Declaration as the **Riverbank Neighborhood**.

Section 1.2. Purposes of Declaration. This Declaration is executed:

- (a) in furtherance of a common and general plan for the Community;
- (b) to protect and enhance the value, aesthetics, desirability and attractiveness of the Community;
- (c) to provide for an Association as an entity to hold, maintain, care for and manage Association Properties that will benefit all owners of Lots;
- (d) to define the duties, powers and rights of the Association, including, without limitation, performance of certain maintenance obligations with respect to Improvements to Association Properties, irrigation systems, surface water detention ponds, off site drainage and Association Properties, and such other obligations, whether similar or dissimilar, that the Association elects to undertake in accordance with the provisions hereof;
- (e) to define certain duties, powers and rights of owners of property within the Community; and
- (f) to comply with and effectuate the terms and provisions of the Act. Unless specifically identified otherwise, all Covenants, Conditions and Restrictions set forth herein shall pertain to all Lots in the Community.

Section 1.3. Declaration. Declarant, for itself, its successors and assigns, hereby declares that all property that becomes subject to this Declaration in the manner hereinafter provided, and each part thereof, shall, from the date the same becomes subject to this Declaration, be owned, held, transferred, conveyed, sold, leased, rented, hypothecated, encumbered, used, occupied, maintained, altered and improved subject to the covenants, conditions, restrictions, limitations, reservations, exceptions, equitable servitudes and other provisions set forth in this Declaration, for the duration hereof, all of which are declared to be part of, pursuant to, and in furtherance of a common and

general plan of development, improvement, enhancement and protection of the Community. The provisions of this Declaration are intended to and shall run with the land and, until their expiration in accordance with the terms hereof, shall bind, be a charge upon and inure to the mutual benefit of:

- (a) all of the property that becomes part of the Community and each part or parcel thereof,
- (b) Declarant and its successors and assigns,
- (c) the Association and its successors and assigns, and
- (d) all Persons having or acquiring any right or title to, or interest in, any property that becomes part of the Community or any part or parcel thereof or any Improvement thereon and their heirs, personal representatives, successors and assigns.

This Declaration shall be recorded in the real estate records section of the office of the Delta County Clerk and Recorder.

article 2

definitions

Unless otherwise expressly provided herein, the following words and phrases when used in this Declaration shall have the meanings specified in this article.

Section 2.1. Act. "**Act**" shall mean the Colorado Common Interest Ownership Act as provided in C.R.S., § 38-33.3-101, *et seq.*, as the same may be amended from time to time. In the event that the Act is repealed, the Act as it exists as of July 1, 2011 shall remain applicable.

Section 2.2. Administrative Functions. "**Administrative Functions**" shall mean all functions as are necessary and proper under this Declaration and shall include, without limitation, management and administration of the Association.

Section 2.3. Articles of Incorporation. "**Articles of Incorporation**" shall mean the Articles of Incorporation of Riverbank Property Owners Association, Inc., which has been or will be filed in the office of the Secretary of State of the state of Colorado, as the same may be amended from time to time.

Section 2.4. Assessment. "**Assessment**" shall mean a Common Assessment, a Special Assessment, or a Reimbursement Assessment.

Section 2.5. Association. "**Association**" shall mean the Riverbank Property Owners Association, a Colorado nonprofit corporation, its successors and assigns.

Section 2.6. Association Properties. "**Association Properties**" shall mean all real and personal property, including Improvements, now or hereafter owned by the Association or with respect to which the Association holds an easement for the use, care, or maintenance thereof, or for which the Association has a right or duty to maintain, held for the common use and enjoyment of certain or all of the Community's Unit Owners as provided herein, and for other purposes as may be permitted by this Declaration.

Section 2.7. Budget. "**Budget**" shall mean a written itemized estimate of the expenses to be incurred by the Association in performing its functions under this Declaration as prepared pursuant to Article 15.

Section 2.8. Bylaws. "**Bylaws**" shall mean the Bylaws of the Association that have been or will be adopted by the Executive Board of the Association, as the same may be amended from time to time.

Section 2.9. County. "**County**" shall mean Delta County, Colorado.

Section 2.10. Commercial Unit. "**Commercial Unit**" shall mean each Unit, within the Community, which is designated for commercial use in a Supplemental Declaration covering the Unit, with the Supplemental Declaration to control in the event of any conflict in designation between the Supplemental Declaration and this Declaration.

Section 2.11. Common Assessment. "**Common Assessment**" shall mean the assessments made for the purpose of covering the portion of the annual costs of operating the Association, including expenses incurred in connection with any authorized function of the Association, that are to be paid by each Unit Owner to the Association for purposes provided herein and charged to each such Unit Owner and to the Unit of each such Owner. In addition to the definition included in the Act, Common Assessment, as defined herein, shall include late charges, attorney's fees, fines and interest charged by the Association at a rate determined by the Executive Board. Common Assessment, as defined herein, shall not include any separate obligations of individual Unit Owners.

Section 2.12. Community. "**Community**" shall mean the collective reference to the Real Estate and all Improvements thereon developed in furtherance of the General Development Plan.

Section 2.13. Completed sub-phase. "**Completed Sub-phase**" shall mean that portion of the Community which has been developed and in which Units have been conveyed to Persons other than the Declarant.

Section 2.14. Declaration. "**Declaration**" shall mean this instrument as it may be amended from time to time.

Section 2.15. Declarant. "**Declarant**" shall mean Old World LLC, its successors, assigns, and affiliates. A Person shall be deemed to be a "successor and assign" of Old World LLC, as Declarant, only if such Person is specifically designated in a duly Recorded instrument as a successor or assign of Declarant under this Declaration, and shall be deemed a successor and assign of Declarant only as to the particular rights or interests of Declarant under this Declaration that are specifically designated in such Recorded instrument.

Section 2.16. Declarant Control. "**Declarant Control**" shall mean the reserved power of Declarant pursuant to C.R.S., § 38-33.3-303(5)(a)(I) to appoint and remove officers and members of the Executive Board.

Section 2.17. Declarant Control Period. "**Declarant Control Period**" shall mean the period of time during which the Declarant retains control over the administration of the Association, pursuant to C.R.S., § 38-33.3-303(5)(a)(I) and as more specifically described in Article 13.

Section 2.18. Deed of Trust. "**Deed of Trust**" shall mean all security interests identified in C.R.S., § 38-33.3-103(28).

Section 2.19. Design Review Committee; DRC. "**Design Review Committee**" and "**DRC**" shall both mean the Committee provided for in Article 6.

Section 2.20. Design Guidelines. "**Design Guidelines**" shall mean such written, signed and dated standards for Improvements, building construction and landscaping upon a Unit as may be issued and updated from time to time by the Design Review Committee.

Section 2.21. Executive Board. "**Executive Board**" and "**Board**" shall both mean the board of directors of the Association established in accordance with the Colorado Nonprofit Corporations Act.

Section 2.22. General Development Plan. "**General Development Plan**" shall mean the collective

reference to site plans, planned unit developments, development improvement agreements, zoning, and other information and documentation (including Governing Documents) which establishes Declarant's general development scheme and master plan for the development of the Real Estate.

Section 2.23. Governing Documents. "**Governing Documents**" shall collectively mean those documents which govern the operation of the Association, including: (a) its Articles of Incorporation; (b) its Bylaws; (c) its Rules and Regulations (including Design Guidelines); and (d) this Declaration, as one or more of the same may be amended from time to time. Each and every provision of the Governing Documents shall be incorporated herein by this reference as though set forth in full herein.

Section 2.24. Improvements. "**Improvements**" shall include all structures and any appurtenances thereto of every type or kind, including, but not limited to: buildings; outbuildings; swimming pools; tennis courts; patios; patio covers; awnings; painting of any exterior surface structure; relocation, installation or replacement of windows; additions; walkways; outdoor sculptures or artwork; sprinkler pipes; garages or carports; roads; driveways; parking areas; fences; screening walls; retaining walls; stairs; decks; dog runs and dog houses; recreational equipment; fixtures; landscaping; hedges; windbreaks; plantings; planted trees and shrubs; basketball courts or poles; light or flag poles; signs; exterior tanks; solar equipment; wind turbines; exterior air conditioning; and water softener fixtures.

Section 2.25. Improvement to Property. "**Improvement to Property**" shall mean any change, alteration, or addition to any property within the Community. Improvement to Property shall include, but is not limited to those improvements more particularly described in Article 6.

Section 2.26. In Writing. "**In Writing**" shall mean communications either via mail, e-mail or via the Association's website. The Association may elect to restrict certain communications (for example: architectural review applications) to e-mail or to its website.

Section 2.27. Lease. "**Lease**" shall mean and refer to any agreement for the leasing or rental of a Residential Unit, a Commercial Unit, a Live/Work Unit or a Multi-Family Residential Unit.

Section 2.28. Live/Work Unit. "**Live/Work Unit**" shall mean each Unit, within the Community, which is designated for a combination of residential and commercial use in a Supplemental Declaration covering the Unit, with the Supplemental Declaration to control in the event of any conflict in designation between the Supplemental Declaration and this Declaration.

Section 2.29. Manager. "**Manager**" shall mean one or more persons employed by the Association pursuant to its Governing Documents who is engaged to perform any of the duties, powers or functions of the Association.

Section 2.30. Member. "**Member**" shall mean each Unit Owner or his, her or their duly authorized representative(s) belonging to the Riverbank Property Owners Association.

Section 2.31. Mortgage. "**Mortgage**" shall mean any mortgage or deed of trust or other such instrument, given voluntarily by a Unit Owner, encumbering the Unit to secure the performance of an obligation or the payment of a debt, and that is required to be released upon performance of the obligation or payment of the debt. The term "**Deed of Trust**" when used in this Declaration is synonymous with the term "**Mortgage**."

Section 2.32. Mortgagee. "**Mortgagee**" shall mean a mortgagee under a Mortgage or a beneficiary under a Deed of Trust, and the successors and assignees of such Mortgagee.

Section 2.33. Mortgagor. "**Mortgagor**" shall mean a Person who mortgages property owned by that Person (i.e., the maker or grantor of a Mortgage) to another. The term "Mortgagor" shall include a

maker or grantor of a Deed of Trust.

Section 2.34. Multi-Family Residential Unit. "**Multi-Family Residential Unit**" shall mean each Unit, within the Community, which is designated for multi-family residential use in a Supplemental Declaration covering the Unit, with the Supplemental Declaration to control in the event of any conflict in designation between the Supplemental Declaration and this Declaration.

Section 2.35. Notice and Hearing. "**Notice and Hearing**" shall mean written notice given to a Unit Owner to inform the Unit Owner of a possible violation of this Declaration.

Section 2.36. Party Walls. "**Party Walls**" shall mean each wall which is built as part of the original construction of a Unit and placed on or about the horizontal or vertical boundary line between two Units. To the extent not inconsistent with the Act, the general rules of law regarding party walls and liability for property damage due to negligence or willful acts or omissions shall apply thereto.

Section 2.37. Person. "**Person**" shall mean a natural person, corporation, partnership, limited liability company, or any other entity.

Section 2.38. Planned Community. "**Planned Community**" shall have the same meaning as set forth in the Act.

Section 2.39. Real Estate. "**Real Estate**" shall mean any of the real property which is now or hereinafter becomes subject to this Declaration, pursuant to the expansion rights reserved in this Declaration, together with all easements, rights, and appurtenances thereto and the Improvements erected thereon.

Section 2.40. Record; Recorded. "**Record**" and "**Recorded**" shall both mean the filing of any document in the real estate records section of the Clerk and Recorder of Delta County, Colorado.

Section 2.41. Related User. "**Related User**" shall mean any person who: (a) resides with an Owner within a Unit; (b) is a guest or invitee of an Owner; or (c) is an occupant, tenant or contract purchaser of a Unit, and any family member, guest, invitee or cohabitant of any such Person.

Section 2.42. Residence. "**Residence**" shall mean a physical building Improvement in the Community on a Lot, or the portion of a physical building Improvement on a Lot designated for separate ownership or occupancy, that may be sold or conveyed without violation of the provisions of Colorado law.

Section 2.43. Residential Unit. "**Residential Unit**" shall mean each Unit, within the Community, which is designated for residential use in a Supplemental Declaration covering the Unit, with the Supplemental Declaration to control in the event of any conflict in designation between the Supplemental Declaration and this Declaration

Section 2.44. Rules and Regulations. "**Rules and Regulations**" shall mean all rules, regulations, procedures and guidelines of the Association, in general, and the Design Review Committee, specifically, as the same may be adopted and amended from time to time by the Executive Board pursuant to the Act, this Declaration and the Bylaws. Rules and Regulations may also mean rules, regulations, procedures and guidelines of each Zone as such are adopted by the Executive Board with the approval of a majority of each Unit Owner whose Unit is located within such Zone.

Section 2.45. Supplemental Declaration. "**Supplemental Declaration**" shall mean a written and Recorded instrument containing covenants, conditions, restrictions, reservations, easements or equitable servitudes, or any combination thereof, which affects any portion, but not all, of the

Community.

Section 2.46. Transferee Declarant. "Transferee Declarant" shall mean a successor or assign of the Declarant who is designated by the Declarant to receive and who specifically assumes and agrees to discharge, certain Development Rights, Special Declarant Rights, Additional Reserved Rights or such other rights and duties granted to the Declarant and specifically set forth in a written assignment executed, acknowledged and recorded pursuant to the Act and this Declaration. All rights and duties of the Declarant may apply equally to a 'Transferee Declarant'.

Section 2.47. Turnover Date. "Turnover Date" shall mean the date on which the Declarant Control Period terminates, which shall be the earlier of:

- (a) the date on which the last Lot within the Community, as expanded or contracted by the addition or deletion of all or any portion of the Real Estate, has been sold or conveyed by the Declarant to a Purchaser;
- (b) the date on which Declarant voluntarily relinquishes such rights.

Section 2.48. Unit; Lot. "Unit" and "Lot" shall both mean a portion of the Community, which is designed for separate ownership, the boundaries of which are shown on the Recorded plat. For purposes of these Declarations, Lot shall have the same definition as the term Unit has under the Act.

Section 2.49. Unit Owner; Lot Owner. "Unit Owner" and "Lot Owner" shall both mean the record title holder, including Declarant, whether one or more persons, of fee simple title to a Unit, including sellers under executory contracts of sale and excluding buyers thereunder. Unit Owner does not include a Person having only a security interest or any other interest in a Unit solely as security for an obligation. The Owner of a Unit developed as a rental building and the owner of a Commercial Unit shall be an "Unit Owner" for purposes of this Declaration, and neither the lessees nor the tenants thereto shall be an "Unit Owner". The Declarant is the initial owner of each and every Unit created and defined by this Declaration.

Section 2.50. Zone. "Zone" shall mean that area in which the four types of Units exist, i.e., the Residential Zone includes all Units designated for Residential Use; the Commercial Zone includes all Units designated for Commercial Use; the Live/Work Zone includes all Units designated for Live/Work Use; and the Multi-Family Residential Zone includes all Units designated for Multi-Family Residential Use.

article 3

description of the Common Interest Community

Section 3.1. Limitations and Restrictions. All real property within the Community shall be held, used, and enjoyed subject to the following limitations and restrictions set forth in this Declaration. The strict application of the following limitations and restrictions in any specific case may be modified or waived in whole or in part by the Executive Board if it determines, in its sole discretion, that the outcome of such strict application would be unreasonably or unduly harsh under the circumstances. Any such modification or waiver must be in adopted by the Executive Board pursuant to written resolution or be expressly contained within the Rules and Regulations expressly adopted by the Board.

Section 3.2. Development of the Common Interest Community; Supplemental Declarations. Declarant may Record Supplemental Declarations which supplement the covenants, conditions and restrictions contained in this Declaration. Upon Recordation of a Supplemental Declaration, the property conveyed thereby shall be subject to all of the covenants, conditions, restrictions, limitations, reservations, exceptions, equitable servitudes and other provisions set forth in this Declaration, except to the extent specifically stated in the Supplemental Declaration.

Section 3.2.1. Any Supplemental Declaration shall:

- (a) Be executed and acknowledged by the Unit Owner or Owners of that portion of the Real Estate covered by the Supplemental Declaration;
- (b) If that portion of the Real Estate is not then owned by Declarant, contain the executed and acknowledged written consent of Declarant until Termination of Declarant Control;
- (c) Contain an adequate legal description of that portion of the Real Estate;
- (d) Contain a reference to this Declaration which shall state its date, its date of Recordation and the Reception Number of the real estate records section of the Clerk and Recorder of Delta County, Colorado where this Declaration is Recorded; and
- (e) Re-designate the land classification (for example: Residential Unit, Commercial Unit, Live/Work Unit or Multi-Family Unit and whether the subject property is or is not Owner Occupied) of that portion of the Real Estate where Developmental Rights or Special Declarant Rights have been exercised.

A deed by which Declarant conveys a parcel of real property or one or more Units to another Person, and any Recorded plat, may constitute a Supplemental Declaration if it meets the foregoing requirements.

Section 3.2.2. A Supplemental Declaration may impose on that portion of Real Estate described therein covenants, conditions, restrictions, limitations, reservations, exceptions, equitable servitudes and other provisions in addition to those set forth in this Declaration, taking into account the unique and particular aspects of the proposed development of the property covered thereby.

Section 3.3. Creation of Units. Units shall be created pursuant to the provisions of the Act and, as provided in this Declaration. Units shall be deemed created by Recording a Supplemental Declaration or plat.

Section 3.4. Title to Units; Identification. The identification number of each Unit shall be shown on the Recorded plat. Every contract for sale, deed, lease, security interest, will or other legal instrument shall legally describe a Unit by its identifying number, followed by the name of the subdivision or planned community. Reference to a "declaration" or "plat" in any instrument shall be deemed to include any supplement(s) or amendment(s) to such declaration or plat without specific reference thereto.

Section 3.5. Unit Boundaries; General. The boundaries of each Unit are as depicted on the Recorded plat for the Real Estate. Each Unit includes the space and Improvements lying within the boundaries described above. Certain Units may include pieces of equipment, such as meter boxes, utility connection structures, storage facilities or storage portions, etc., which are situated in buildings or structures that are detached from the Unit. Such special equipment or storage portions are a part of the Unit, notwithstanding their non-contiguity with the principal portions, unless the same are owned and maintained by a governmental or quasi-governmental agency or entity.

Section 3.6. Unit Maintenance. Except as may otherwise be provided in a Supplemental Declaration, each Unit Owner is responsible, at his or her expense, to beautify and keep neat, attractive, sightly, and in good order such Owner's Unit and any Improvements thereon, and to maintain, repair and replace the same to the extent such duties are not the responsibility of the Association. Each Unit Owner shall maintain his or her unimproved landscape in accordance with applicable federal, state, county and municipal laws and ordinances, and in compliance with this Declaration and the Rules and

Regulations. No Units within the Community shall be permitted to fall into disrepair as such term is defined by either the Association in its Rules and Regulations or by the DRC in its Design Guidelines. Violation of this provision by a Unit Owner shall permit the Association, after Notice and Hearing, to: (a) enter onto the Owner's Unit and either cure the violation or cause compliance with this provision; and (b) to levy and collect a Reimbursement Assessment for the costs and expenses incurred by the Association in so doing. The Association shall not enter into the interior of an Improvement constructed for human occupancy without the consent of the Unit Owner thereof. Such consent shall be unnecessary if the Association, in its sole discretion, determines that an emergency exists that may only be reasonably addressed by entering the interior of such Improvement.

Section 3.7. Maximum Number of Units. The maximum number of Units of the Common Interest Community shall not exceed 125.

article 4

declarant rights and other special declarant rights

Section 4.1. Declarant's Rights Period. Declarant shall have, retain, and reserve certain rights pursuant to the Act and as hereinafter set forth with respect to the Association and the Association Properties from the date that this Declaration is Recorded until the Turnover Date (see Section 2.47) The rights and reservations hereinafter set forth shall be deemed excepted and reserved in each conveyance of property by Declarant to the Association whether or not specifically stated therein and in each deed or other instrument by which any property within the Community is conveyed by Declarant subject to the provisions of this Declaration. The rights, reservations, and easements hereinafter set forth shall be prior and superior to any other provisions of this Declaration and may not, without Declarant's prior express written consent, be modified, amended, rescinded, or affected by any amendment of this Declaration. Declarant's consent to any one such amendment shall not be construed as consent to any other amendment.

Section 4.2. Declarant's Reservation of Development Rights. The Declarant reserves the following Development Rights:

Section 4.2.1. The right by amendment to this Declaration or the Recorded plat to create Common Area in the locations to be identified within the Real Estate.

Section 4.2.2. The right to construct utility lines, pipes, wires, ducts, conduits, and other facilities across any portion of the Real Estate for the purpose of furnishing utility, drainage, and other services to Residences or any Unit and Improvements. Declarant and the Association, by and through the Executive Board, shall have and hereby reserve the right to grant or create or be the beneficiary of temporary or permanent easements located in, on, under, over, and across Units owned by Declarant and Association Properties, for access, utilities, drainage, water, and other purposes incident to development and sale of portions of the Community.

Section 4.2.3. The right to combine two or more Units or divide one Unit for the purpose of combining portions of said divided Unit with adjoining Units, thereby in both cases reducing the total number of Units, and thereby changing the Allocated Interests of all of the Units.

Section 4.2.4. The right to consolidate contiguous Lots that are not in a Completed Sub-Phase by combining them, so long as such consolidation conforms to all regulations.

Section 4.2.5. The Declarant shall have and hereby reserves the right, from the date of the Recording of this Declaration up to the Turnover Date, to contract the Community by de-annexing any Unit owned by Declarant so long as such Unit is not in a Completed Sub-phase and so long as de-annexation would not deprive the Association or the Unit Owners of any established or pledged

easements or rights-of-way. The consent of Unit Owners and Mortgagees shall not be required for any such de-annexation; however, the Executive Board must approve any such de-annexation and may require that Declarant place specific deed restrictions on Unit(s) to be de-annexed in order to: (a) protect and preserve the character of the Association; or (b) protect such rights as may have pledged by Declarant to the Association. Deed restrictions may include, but are not limited to: restrictions on lighting, noise, and use of hazardous materials; Unit Owners' right of access to Conservation Easements, if any; and the Association's right to lease property for the common use of Unit Owners. Once the necessary approval has been obtained, de-annexation from the Association shall be completed by Recording an amendment to this Declaration and/or plat in compliance with the Act.

Section 4.2.6. The right to expand the Community by annexing additional property. Declarant shall have and hereby reserves the right, from the date of the Recording of this Declaration up to and including the **Turnover Date**, to expand the Community. The consent of Unit Owners and Mortgagees shall not be required for any such annexation, and Declarant may proceed with such annexation in its discretion and at its sole option. In accordance with Declarant's Development Rights, each Unit Owner hereby grants to Declarant the right to annex additional real property ("**Development Property**") to the Community and to modify such Unit Owner's right, if any, to the Common Area accordingly, as more particularly set forth in this Section 4. No such annexation shall make or constitute any amendment or modification to this Declaration except as may otherwise be provided herein. The annexation of additional real property to the Community shall be accomplished by the filing for Record by Declarant a supplement or supplements to this Declaration containing a legal description of the land area to be added to the Community (the "**Annexation Supplement**"), together with any supplemental plats applicable thereto. The annexation of Development Property may be accomplished by successive supplements. In the event any real property is annexed to the Community as provided herein, the definitions used in this Declaration shall be automatically expanded to encompass and refer to the Community as expanded. "Community" shall mean the Real Estate plus the Development Property; similarly, "Common Area" and "Units" shall include those areas as described herein as well as those so designated on any Annexation Supplement or supplemental plat relating to the Development Property. References to this Declaration shall mean this Declaration as supplemented by any Annexation Supplement. Every owner of real property in the Development Property shall, by virtue of such ownership and upon recordation of the Annexation Supplement, be a Unit Owner and shall be entitled to the same rights and privileges and subject to the same duties and obligations as all other Unit Owners. The Recording of the Annexation Supplement shall operate automatically to grant, transfer, and convey to all Unit Owners within the Community, and owners of real property in the Development Property, their respective, appurtenant, undivided rights, titles, interests, privileges, duties and obligations in and to both the existing Common Area and any additional common area added to the existing Common Area by virtue of such annexation, if any. Annual assessments for Units within the area annexed to the Community shall commence as of the date of the Recording of the Annexation Supplement and shall be prorated as of such date. Upon Recording of an Annexation Supplement and any other supplemental plat, the additional Units and Common Area shall be subject to the terms and provisions of this Declaration. Declarant shall have the right to annex different portions of the Development Property at different intervals and the right to annex only a portion or none of the Development Property as it, in its sole discretion, deems appropriate. In accordance therewith, and notwithstanding any other provision to the contrary herein, Declarant makes no assurances as to the boundaries or extent of the Community in the event any of the Development Property is annexed to the Community as provided herein.

Section 4.2.7. The right to complete development of property within or outside of the boundaries of the Community; to construct or alter Improvements on any property owned by Declarant within the Community, including temporary buildings; to maintain model homes, temporary buildings, construction trailers, sales trailers or offices for construction or sales purposes, or similar facilities, on any property owned by Declarant within the Community; or to post signs incidental to development, promotion, development, construction of Improvements, marketing, or sales of property within the

boundaries of the Community. Nothing contained in this Declaration shall limit the right of Declarant or require Declarant to obtain approvals: (a) to excavate, cut, fill, or grade any property owned by Declarant or to construct, alter, demolish, or replace any Improvements on any property owned by Declarant ; or (b) to use any structure on any property owned by Declarant as a construction site, model home, or real estate sales office in connection with the sale of any property within the boundaries of the Community. Nothing contained in this Declaration shall require Declarant to seek or obtain the approval of the DRC or of the Association for any such activity or Improvement to Property on any property owned by Declarant. Nothing in this Declaration shall limit or impair the reserved rights of Declarant as elsewhere provided in this Declaration.

Section 4.2.8. The right, but not the obligation, to construct additional Improvements on Association Properties at any time and from time to time in accordance with this Declaration for the improvement and enhancement thereof and for the benefit of the Association and the Unit Owners. As an example, but not to be construed as either a limitation or an obligation, Declarant may construct or cause to be constructed an irrigation water system which may be used and maintained by the Association on its own or in cooperation with other properties adjoining the Community.

Section 4.3. Limitations on Development Rights. The Development Rights reserved in Section 4.1 are limited as follows:

Section 4.3.1. The Development Rights may be exercised at any time, but not later than the Turnover Date, unless they are reinstated or extended by the Association, subject to whatever terms, conditions and limitations the Executive Board may impose on the subsequent exercise of the Development Rights.

Section 4.3.2. All Units and any Common Area created pursuant to the Development Rights will be restricted to use in the same manner and to the same extent as the Common Area created under this Declaration, as initially Recorded.

Section 4.4. Phasing of Development Rights. No assurances are made by the Declarant as to whether the Declarant will exercise its Development Rights or the order in which such Development Rights will be exercised. The exercise of Development Rights as to some portions of the Real Estate will not obligate the Declarant to exercise them as to other portions.

Section 4.5. Special Declarant Rights. The Declarant reserves the following Special Declarant Rights, to the maximum permitted by law, which may be exercised, where applicable, anywhere within the Common Interest Community:

- a.- To complete any Improvements indicated on the Recorded plat.
- b.- To exercise any Development Rights reserved in the Declaration.
- c.- To maintain one (1) management office, signs advertising the Common Interest Community, and model Residences. Declarant shall have the right to determine the number of model Residences and the size and location of the management office and the model Residences. Declarant shall also have the right to relocate the management office and the model Residences from time to time, at the Declarant's sole discretion. After Declarant ceases to be the Owner of a Unit, Declarant shall have the right to move the management office from that Unit to another Declarant-owned Unit.
- d.- To use easements through, over and across the Real Estate for the purpose of making Improvements to and within the Common Interest Community.
- e.- To either directly, or through any Person designated by Declarant, appoint and remove the officers of the Association and the members of the Executive Board during the Declarant Control Period and prior to the Turnover Date. At any time prior to the Turnover Date, Declarant may relinquish the right to appoint and remove such officers and members. Also, at any time prior to the Turnover Date, the

Association may approve an extension of Declarant's ability to appoint and remove no more than a majority of the Executive Board by a vote of the majority of the votes entitled to be cast in person or by proxy, other than by Declarant at a meeting duly convened as required by the Act, applicable Colorado law and the Governing Documents. Such extension of the Declarant Control Period, together with any conditions and limitations, shall be included in an amendment to the Declaration.

Section 4.6. Construction; Declarant's Easement. Declarant reserves the right to perform warranty work, repairs, and construction work in Units, to store materials in secure areas, and to control, and have the right to access to, work and repairs until completion. All work may be performed by Declarant without the consent or approval of the Executive Board. Declarant has an easement through the Real Estate as may be reasonably necessary for the purpose of discharging the Declarant's obligations or exercising Special Declarant Rights, whether arising under the Act or reserved in this Declaration. This easement includes the right to convey access, utility, and drainage easements to utility providers, special districts, the Town of Paonia, Delta County, or the State of Colorado.

Section 4.7. Declarant's Property. The Declarant reserves the right to remove and retain all of its property and equipment used in the sales, management, construction, and maintenance of the Real Estate, whether or not they have become fixtures.

Section 4.8. Declarant 's Approval of Conveyances or Changes in Use. The Association shall not, without first obtaining the written consent of the Executive Board, convey, change, or alter the use of Association Properties, mortgage the Association Properties, or use Association Properties other than solely for the benefit of Declarant or as specifically allowed hereunder.

Section 4.9. Delivery of Property to the Association. Within sixty (60) days after the Unit Owners other than the Declarant elect a majority of the Executive Board members, Declarant shall deliver to the Association all property of the Unit Owners and of the Association held by, or controlled by, Declarant, including but not limited to those items set forth in C.R.S., § 38-33.3-303(9)(a) – (m).

article 5

allocated interests

Section 5.1. Liability for Common Expenses. The percentage liability for Common Expenses allocated to each Unit is based on one share for each Unit within each Completed Sub-phase compared with the total shares allocated to all the Units in the Completed Sub-phase, subject to Declarant's right to combine Units and reduce the total number of Units. Nothing contained herein shall prohibit certain Common Expenses from being apportioned to particular Units under Article 15.

Section 5.2. Votes. Each Member shall have one vote for each Lot owned in the affairs of the Association.

article 6

architectural approval & construction

Section 6.1. Approval of Improvements Required. The approval of the Design Review Committee (DRC) shall be required for any Improvement to Property on any Unit, except where prior approval of Improvements to Property may be waived or certain Improvements to Property may be exempted by the Executive Board in writing or under Design Guidelines issued by the DRC. Requests for information, submission of Application, decisions rendered in consideration of Applications and related communications between the DRC and Applicant shall be In Writing.

Section 6.2. Improvement to Property Defined. "Improvement to Property" requiring approval of the

DRC shall mean and include, without limitation: (a) the construction, installation, erection, or expansion of any building, structure, or other Improvement, including utility facilities, landscaping and fences; (b) the demolition or destruction, by voluntary action, of any building, structure, or other Improvement; (c) the grading, excavation, filling, or similar disturbance to the surface of the land including, without limitation, change of grade, change of ground level, or minor change of drainage pattern; and (d) any change or alteration of any previously approved Improvement to Property, including any change of exterior appearance, color, or texture. The DRC review process shall only cover Improvements proposed for the exterior of the Unit and is in no way intended to extend to the interior of any buildings.

Section 6.3. Membership of Design Review Committee. The DRC shall consist of not less than three and not more than five members, all of whom shall be appointed by the Executive Board. DRC members may be, but need not be, Unit Owners or Executive Board members. DRC members serve at the pleasure of and may be removed at any time by the Executive Board.

Section 6.4. Address of DRC. The address of the DRC shall be as announced or published from time to time by the Association.

Section 6.5. Submission of Plans. Prior to commencement of work to accomplish any proposed Improvement to Property, the Person proposing to make such Improvement to Property ("**Applicant**") shall submit in Writing to the DRC at its address a complete "**Application Package**", as such is more specifically described in the Design Guidelines.

Section 6.6. Criteria for Approval. The DRC shall approve any proposed Improvement to Property if it deems in its reasonable discretion that the Improvement to Property complies with Design Guidelines and will be in harmony with the Community; that the upkeep and maintenance of the proposed Improvement to Property will not become a burden on the Association; and that the proposed Improvement to Property does not affect the drainage plan for the Community. The DRC may condition its approval of any proposed Improvement to Property upon the making of such changes therein as the DRC may deem appropriate.

Section 6.7. Design Guidelines. The DRC shall issue and modify standards or rules ("**Design Guidelines**") relating to the procedures, materials to be submitted, and additional factors that will be taken into consideration in connection with the review of any proposed Improvement to Property. The Design Guidelines shall encourage aesthetically attractive structures, environmentally responsible methods of design and construction, including the use of solar energy, conservation of water and energy, the use of nontoxic building materials, and the minimization of waste during construction. The Design Guidelines may waive the requirement for approval of certain Improvements to Property or exempt certain Improvements to Property from the requirement for approval, if such approval is not reasonably required to carry out the purposes of this Declaration.

Section 6.8. Decision of Committee. Any decision of the DRC shall be made in a timely manner defined by the Design Guidelines, after receipt by the DRC of a complete Application Package and all supplemental materials reasonably requested by the DRC, unless such time period is extended by mutual agreement, or unless delay is caused by any governmental authority having jurisdiction. If the DRC decides not to approve a proposed Improvement to Property, the reasons for such disapproval shall be expressly stated In Writing.

Section 6.9. Failure of Committee to Act on Plans. Any request for approval of a proposed Improvement to Property shall be deemed approved, unless notice of disapproval or a request for additional information or materials is transmitted to the Applicant In Writing by the DRC within thirty days after the date of receipt by the DRC of all required materials, or unless delay is caused by any governmental authority having jurisdiction.

Section 6.10. Completion of Work after Approval. After approval of any proposed Improvement to Property, the proposed Improvement to Property shall be accomplished in complete conformity with the approved Application Package of the proposed Improvement to Property, and any conditions imposed by the DRC. The Design Guidelines will stipulate a **Construction Period**, during which the proposed Improvement to Property must be accomplished by the Applicant. Failure to complete the Improvement to Property within the Construction Period in accordance with the approved Application, and the conditions imposed by the DRC shall constitute noncompliance and all approvals previously granted by the DRC shall be automatically revoked and withdrawn. The foregoing notwithstanding, the DRC shall have discretion to extend the Construction Period.

Section 6.11. Notice of Completion. Upon completion of the Improvement to Property, the Applicant must provide notice In Writing of completion to the DRC.

Section 6.12. Inspection of Work. The DRC or its duly authorized representative shall have the right to inspect any Improvement to Property prior to or during construction, or after completion, provided that the right of inspection shall terminate thirty days after the DRC shall have received In Writing the notice of completion from Applicant.

Section 6.13. Notice of Noncompliance. If, as a result of inspection or otherwise, the DRC finds that any Improvement to Property has been made without obtaining the approval of the DRC or was not made in conformity with the approved Application Package, the DRC shall notify the Applicant In Writing of the noncompliance. The notice shall specify the particular elements of the noncompliance and shall require the Applicant to take such action as may be necessary to remedy the noncompliance. Inaction by the Association or the DRC during construction of any Improvement to Property shall be considered a waiver of their respective rights to declare a noncompliance or to take any action in response to the noncompliance.

Section 6.14. Appeal to Executive Board. The Applicant may appeal any adverse decision rendered by the DRC to the Executive Board by giving notice In Writing of such appeal to the Board and to the DRC within thirty days after receipt of the notice of failure to meet criteria of approval, or of noncompliance by the Applicant. No right of appeal shall exist if the Executive Board is composed solely of DRC members.

Section 6.15. Correction of Noncompliance. If the DRC determines that a noncompliance exists and the Applicant fails to timely make an appeal to the Executive Board, the Applicant shall remedy or remove the same within the time specified on the notice of noncompliance. If, after a notice of noncompliance, the Applicant fails to commence diligently or complete in a timely manner the remedy for such noncompliance, the DRC shall inform the Executive Board of such noncompliance by giving notice In Writing to the Executive Board and to the Applicant. The Executive Board shall hear the Unit Owner in accordance with the provisions of the Bylaws for Notice and Hearing, and the Board shall decide whether or not there has been such noncompliance and, if so, the nature thereof and the estimated cost of correcting or removing the same. If the Applicant does not remedy the noncompliance within such period, the Executive Board may, at its option: (a) Record a notice of noncompliance against the Unit on which the noncompliance exists; (b) enter upon such property and remove the non-complying Improvement to Property; (c) or otherwise remedy the noncompliance. The Applicant shall reimburse the Association, upon prompt demand submitted In Writing, for all expenses incurred therewith. If such expenses are not promptly repaid by the Applicant or Unit Owner to the Association, the Board may levy a Reimbursement Assessment against the Unit Owner for such costs and expenses. The Applicant and Unit Owner shall have no claim for damages or otherwise on account of the Association's entry upon the property and the removal of the non-compliant Improvement to Property. The construction or maintenance of any Improvement to Property without conforming to the requirements of this Section shall be subject to any and all legal

and equitable relief, including the imposition of injunction.

Section 6.16. No Implied Waiver or Estoppel. No action or failure to act by the DRC or by the Executive Board shall constitute a waiver or estoppel with respect to future action by the DRC or the Executive Board with respect to any Improvement to Property. Specifically, the approval of the DRC of any Improvement to Property shall not be deemed a waiver of any right or an estoppel to withhold approval or consent for any similar Improvement to Property or any similar proposals, plans, specifications, or other materials submitted with respect to any other Improvement to Property.

Section 6.17. Committee Power to Grant Variances. The DRC may authorize variances from compliance with any of the provisions of this Declaration or the Design Guidelines, including restrictions upon height, size, floor area, or placement of structures or similar restrictions, when circumstances such as topography, natural obstructions, hardship, aesthetic or environmental consideration may so dictate. Such variances must be evidenced in writing and shall become effective when signed by at least a majority of the DRC members. If any such variance is granted, no violation of the provisions of this Declaration shall be deemed to have occurred with respect to the matter for which the variance was granted. The granting of a variance shall not affect in any way the Lot Owner's obligation to comply with all applicable governmental laws and regulations.

Section 6.18. Meetings of Committee. The DRC shall meet from time to time as necessary to perform its duties. Consent or *Vote In Writing* of a majority of the DRC members shall constitute the action of the DRC.

Section 6.19. Records of Actions. The DRC shall report In Writing to the Executive Board all final actions of the Committee. The Executive Board shall keep a permanent record of such reported actions which will be available to Unit Owners.

Section 6.20. Estoppel Certificates. The Executive Board shall, upon the reasonable request of any interested Person and after confirming any necessary facts with the DRC, furnish a certificate with respect to the approval or disapproval of any Improvement to Property or with respect to whether any Improvement to Property was made in compliance herewith.

Section 6.21. Conflict of Interest. If a conflict of interest exists for a member serving on the DRC with respect to any Application, the DRC member shall recuse himself or herself from participating in any Committee action of such Application. DRC members shall not review and or cast a vote on their own Application, or that of any relative or any other Applicant for which a conflict of interest exists.

Section 6.22 Nonliability of Committee. No liability shall be imposed upon the DRC, any DRC members, any representative of the DRC, the Association, any member of the Executive Board, or Unit Owners for any loss, damage, or injury arising out of or in any way connected with the performance of the duties of the DRC. In reviewing any matter, the DRC shall not be responsible for reviewing, nor shall its approval of an Improvement to Property be deemed approval of the Improvement to Property from the standpoint of safety, whether structural or otherwise, or conformance with building codes or other governmental laws or regulations.

Section 6.23. Construction Period Exception. During the course of actual construction of any approved permitted structure or Improvement to Property, and provided construction is proceeding with due diligence, the DRC shall temporarily suspend the provisions contained in this Declaration as to the property upon which the construction is taking place to the extent necessary to permit such construction, provided that it will not constitute an unreasonable interference with the use and enjoyment of other Units. Temporary structures necessary for construction may be used during the Construction Period. The placement, appearance and maintenance of such temporary structure may be subject to Rules and Regulations of the Association and/or of the applicable Zone.

Section 6.24. Construction Type. No building originally constructed as a Mobile Home dwelling or structure may be moved onto a Unit, except as provided for in Section 6.23.

Section 6.25. Landscape Guidelines. The DRC will include landscape guidelines in its Design Guidelines.

Section 6.26. Restrictions on Sewage Disposal and Grey Water Systems. Any sewage disposal or grey water system installed within the Community shall be subject to applicable laws, rules, and regulations of any governmental authority having jurisdiction.

Section 6.27. The DRC shall have a procedure for sketch-approval of proposed structures. The sketches and other information as supplied by applicant may be as incomplete as applicant chooses. If the DRC grants sketch-approval, this will be binding for the Association. However, the approval is restricted only to the items shown on material as supplied by the applicant. Materials, colors and designs not specified by the applicant have not been approved, and the DRC may at a later time deny approval for applicant's choice for such unspecified items. Sketch-approval is intended specifically for prospective lot-purchasers.

article 7

restrictions on use, alienation, and occupancy

Section 7.1 Improvements to Units. Subject to the Special Declarant Rights reserved under Article 4, the following restrictions on construction of Improvements apply to all Units:

- (a) Zoning. Zoning laws, ordinances, resolutions, rules and regulations are considered to be a part hereof, and no provision of this Declaration shall be valid or be interpreted to violate any present or future zoning laws, ordinances, resolutions, rules and regulations.
- (b) Wells and Mineral Excavation. No portion of the Community, including, without limitation, any area within a Unit, shall be used to explore for or remove any water, soil, hydrocarbons, or other materials of any kind.
- (c) Maintaining of Drainage. There shall be no interference with the established drainage pattern as planned by Declarant for the entire Community.

Section 7.2. Colorado is a "Right to Farm" state pursuant to CRS 35-3.5-101, et seq.

Landowners, residents and visitors must be prepared to accept the activities, sights, sounds, and smells of agricultural operations as a normal and necessary aspect of living in Delta County and the Town of Paonia with a strong rural character and healthy agricultural sector. Those with an urban sensitivity may perceive such activities, sights, sounds, and smells only as inconvenience, eyesore, noise, and odor. However, State law and municipal policy provide that ranching, farming or other agricultural activities and operations within the Town of Paonia and surrounding Delta County shall not be considered to be nuisances so long as operated in conformance with the law and in a non-negligent manner. Therefore, all must be prepared to encounter noises, odors, lights, mud, dust, smoke, chemicals, machinery on public roads, a livestock on public roads, storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides and pesticides, and one or more of which may naturally occur as part of legal and non-negligent agricultural operations.

In addition, all owners of land, whether agricultural business, farm, ranch or residents, have obligations under State Law and municipal regulation with regard to the maintenance of fences,

livestock must be fenced out (open range). Irrigators have the right to maintain irrigation ditches through established easements that transport water for their use and said irrigation ditches are not to be used for the dumping of refuse. Landowners are responsible for controlling of weeds, keeping their pets under control, and maintenance of resources of the property wisely (water, soil, animals, plants, air, and human resources). Residents and landowners are encouraged to learn about these rights and responsibilities and act as good neighbors and citizens of the Town.

Conflicts include, but are not limited to: trespass; harassment of livestock and livestock losses due to free roaming dogs; trespass by livestock, livestock on highways, county, municipal and private roads; leaving gates open; thence maintenance; harvesting transportation of agricultural and silvicultural crops; agricultural and prescribed burning; complaints of noise, dust, aesthetics, and odor resulting from production and processing operations; disposal of dead animals; weed, pets and predator control.

Section 7.3. Restriction on Alienation. The following restrictions on alienation apply to all Units:

- (a) No Time-Sharing Plan. A Unit may not be conveyed pursuant to a time-sharing plan.
- (b) Leases. A Unit may be leased or rented. All leases and rental agreements shall be In Writing and subject to the requirements of the Governing Documents and the Rules and Regulations. All leases of a Unit shall include a provision that the tenant will recognize and attorn to the Association as landlord solely for the purpose of having the power to enforce a violation of the provisions of the Governing Documents and the Rules and Regulations against the tenant; provided, the Association gives the Owner of such leased Unit notice of the Association's intent to cure the violation directly prior to the commencement of an enforcement action.
- (c) Summary Process. The Association will have the right and power to exercise the landlord's rights of summary process against any tenant of a Unit Owner who violates the Rules and Regulations; provided the landlord has received Notice and Hearing and is given reasonable opportunity to cure the violation following the hearing.

Section 7.4. Restriction on Use. The following restrictions on use apply to all Units:

- (a) parking. The Unit Owners and Related Users shall park vehicles on the public road only in the designated parking spaces. Vehicles parked on private property shall not be in a state of disrepair. Other restrictions may be imposed via the Rules & Regulations.
- (b) outside use of water. Water used outside, including but not limited to irrigation or washing of vehicles, shall come only from the HOA's irrigation system. No municipal water shall be used outside for any purpose.

article 8

easements and licenses

Section 8.1. Existing Easements. All easements or licenses to which the Common Interest Community is presently subject are shown on the Recorded plat.

Section 8.2. Granting of Future Easements. The Common Interest Community may be subject to other easements or licenses granted by the Declarant pursuant to its powers under Article 4.

Section 8.3. Easements Reserved and Restrictions on Drainage Easements. Easements and rights of way are reserved on, over, and under the Units shown on the Recorded plat, for construction, maintenance, repair, replacement, and reconstruction of poles, wires, pipes and conduits for lighting, heating, air conditioning, electricity, gas, telephone, drainage and any other public or quasi-public utility service purposes, for sewer and pipes of various kinds, and for any other necessary maintenance or repair.

Section 8.4. Maintenance of Drainage. There shall be no interference with the established drainage pattern over any Unit or other property within the Community, except as approved in writing by the DRC. Approval shall not be granted unless provision is made for adequate alternate drainage. The "established drainage pattern" shall mean the drainage pattern that exists at the time any grading of any property is completed by DRC and shall include any established drainage pattern shown on any plans approved by the Unit Owners. The established drainage pattern may include the drainage pattern: (a) from Association Properties over any Unit; (b) from any Unit over Association Properties; (c) from any property owned by the County or the Town of Paonia or other Persons over any Unit; (d) from any Unit over property owned by the County or the Town of Paonia or other Persons; or (e) from any Unit over another Unit.

Section 8.5. Easement for Emergency Access. There is hereby created a right of access across all portions of the Community for the passage of emergency vehicles and police, fire, and other emergency service workers.

article 9

amendments to declaration

Section 9.1 General. Except in cases of amendments that may be executed by Declarant in the exercise of its Development Rights or by the Association under Article 4 of this Declaration and C.R.S., § 38-33.3-107, or by certain Unit Owners under C.R.S., § 38-33.3-218, and except as otherwise limited, this Declaration and the Recorded plat may be amended only by vote or agreement of at least 67 percent of the Unit Owners. The procedure for amendment must follow the procedures of C.R.S., § 38-33.3-217.

Section 9.2. Required Consent of Declarant to Amendment of Declaration. During the Declarant Control Period and notwithstanding any other provision in this Declaration to the contrary, any proposed amendment or repeal of any provision of this Declaration shall not be effective unless Declarant has given its written consent to such amendment or repeal. The foregoing requirement for consent of Declarant to any amendment or repeal shall terminate on the Turnover Date.

Section 9.3. Recordation of Amendments. Each amendment to the Declaration must be Recorded, and any such amendment is only effective upon Recording.

Section 9.4. Unanimous Consent. Except to the extent expressly permitted or required by other provisions of the Act or this Declaration, an amendment may not create or increase Special Declarant Rights, increase the maximum number of Units, alter the Allocated Interests of a Unit, or increase the restrictions on the uses of a Unit except by unanimous consent of the Unit Owners at an annual meeting or at a special meeting called specifically for such purpose.

Section 9.5. Special Declarant Rights. Provisions in this Declaration creating Special Declarant Rights may not be amended without the consent of Declarant.

article 10

amendments to bylaws

The Bylaws may only be amended by the affirmative vote of at least 67 percent of the Executive Board members following the provision of notice to and the opportunity for comment from all Unit Owners at a meeting duly called for such purpose.

article 11

termination

Termination of the Common Interest Community may be accomplished only in accordance with C.R.S., § 38-33.3-218.

article 12

association properties

Section 12.1. Unit Owners' Rights of Use and Enjoyment Generally. Unless otherwise provided in this Declaration, all Unit Owners may use or enjoy the benefits of the Association Properties as appropriate.

Section 12.2. Right of Association to Regulate Use. The Association, acting through the Executive Board, shall have the power to reasonably regulate use of Association Properties by Unit Owners and the public to further enhance the overall rights of use and enjoyment of all Unit Owners.

Section 12.3 Association Properties. The Association may acquire and dispose of properties as needed for its purposes as defined in the Articles of Incorporation.

Section 12.4. No Partition of Association Properties. No Unit Owner shall have the right to partition or seek partition of the Association Properties or any part thereof.

Section 12.5. Liability of Owners for Damage by Owner. Each Unit Owner shall be liable to the Association for any damage to Association Properties caused by such Owner or Related Users.

Section 12.6. Title to Association Properties on Dissolution of Association. In the event of dissolution of the Association, the Association Properties shall, to the extent permitted by law and reasonably possible, be conveyed or transferred to an appropriate public, governmental or quasi-governmental agency or organization or to a nonprofit corporation, association, trust, or other organization, to be used, in any such event, for the common benefit of Unit Owners for similar purposes for which the particular Association Property was used by the Association. To the extent the foregoing is not possible, the Association Properties shall be sold or disposed of and the proceeds from the sale or disposition shall be distributed to the Unit Owners in proportion to the number of Units owned by such Unit Owners.

Section 12.7. Irrigation Water. Units are provided irrigation water through the Association's irrigation system. The Association shall be responsible for the operation, maintenance and repair of the irrigation system. The DRC shall authorize the size and method of connection for each Lot, and the Executive Board shall allocate the water available on an equitable rotation basis as necessary to provide irrigation water throughout the Community. Unit Owners must comply with any rotational system as established by the Executive Board. Each respective Unit Owner will be responsible for installation of an approved connection to the lateral line located on each Unit coming from the main distribution system, and for his or her own private distribution and other irrigation improvements located on his or her individual Unit. Each Unit Owner has access to irrigation water to irrigate his or her property by means of an irrigation system that shall be constructed, operated, flushed and maintained at his or her own expense. Individual irrigation pumps shall be the responsibility of each Unit Owner. Said irrigation pumps shall be located in a fenced, screened or covered location that is

designed to be complimentary to adjacent landscaping and building improvements. The location of an individual Unit's irrigation improvements is subject to Design Guidelines and the approval of the DRC. Owners of irrigation systems with individual irrigation pumps may be required to install a low pressure shut off to protect the system in case of a loss of water pressure in the main distribution line.

article 13

association operation

Section 13.1. Association. The Association has been formed as a Colorado nonprofit corporation under the Colorado Nonprofit Corporations Act. The Association has been organized prior to the date the first Unit located in the Community will be conveyed to a Purchaser, as that term is defined in the Act. The Association shall have the duties, powers, and rights set forth in the Act, the Colorado Nonprofit Corporations Act, this Declaration and in its Articles of Incorporation and Bylaws. As more specifically set forth hereinafter, the Association shall have an Executive Board to manage its affairs. Subject to Article 13 herein, the Articles of Incorporation and/or the Bylaws, the Executive Board shall be elected by Unit Owners acting in their capacity as Unit Owners within the Association.

Section 13.2. Executive Board. The affairs of the Association shall be managed by an Executive Board. The number, term, and qualifications of the Executive Board members shall be fixed in the Articles of Incorporation and Bylaws. The Executive Board may, by resolution, delegate portions of its authority to officers of the Association, but such delegation of authority shall not relieve the Executive Board of the ultimate responsibility for management of the affairs of the Association. Action by or on behalf of the Association may be taken by the Executive Board or any duly authorized executive committee, officer, agent, or employee without a vote of the Unit Owners, except as otherwise specifically provided in this Declaration.

Section 13.3. Membership in Association. Each Unit Owner or his, her or their duly authorized representative will be a Member of the Riverbank Property Owners Association.

Section 13.4. Voting Rights of Members. Each Member shall have the right to cast one vote for each Lot owned in accordance with the Bylaws, except that, in the election of Executive Board members, each Member shall be entitled to vote for as many persons as there are positions to be filled.

Section 13.5. Declarant's Voting Rights. Notwithstanding the foregoing in Section 13.4, Declarant, in its sole discretion, shall be entitled to select, appoint and or remove Executive Board members in accordance with the Bylaws and with Article 4, until the Turnover Date; provided, however, that not later than sixty (60) days after conveyance of twenty-five percent (25%) of the Units that may be created within the Community by Declarant to Owners other than Declarant, at least one Executive Board member and not less than twenty-five percent (25%) of the Executive Board must be elected by Owners other than Declarant and not later than sixty (60) days after conveyance by Declarant to Owners other than Declarant of fifty percent (50%) of the Units that may be created, at least thirty-three percent (33%) of the members of the Executive Board must be elected by Owners other than Declarant.

Section 13.6. Power to Adopt, Amend or Repeal Rules and Regulations. The Executive Board may adopt, amend, repeal, and enforce Rules and Regulations as may be deemed necessary or desirable with respect to the interpretation and implementation of this Declaration, the operation of the Association, the use and enjoyment of Association Properties, and the use of any other property within the Community, including Units. The Rules and Regulations shall have the same force and effect as if they were set forth in and were part of this Declaration. In the event of conflict between the Rules and Regulations and the provisions of this Declaration, the provisions of this Declaration shall prevail.

Section 13.7. Power to Adopt, Amend or Repeal Rules and Regulations by Zone. The Executive Board may adopt, amend, repeal, and enforce Rules and Regulations as may be deemed necessary or desirable with respect to each of the four defined Zones. Any such Rules and Regulations adopted specifically for each or any of the Zones shall only be adopted by the Board subsequent to the approval of a majority of each Unit Owner whose Unit is located within each such Zone(s).

Section 13.8. Conflict of Interest. The Executive Board may adopt a Conflict of Interest Policy in compliance with the Act and may update it from time to time.

article 14

duties and powers of Association

Section 14.1. General Duties and Powers of Association. The Association has been formed to further the common interests of the Members. The Association, acting through the Executive Board or Persons to whom the Board has delegated such powers, shall have the duties and powers hereinafter set forth and, in general, the power to do anything that may be necessary or desirable to further the common interests of the Members, to maintain, improve, and enhance the common interests of the Members, to maintain, improve, and enhance Association Properties, and to improve and enhance the attractiveness, aesthetics, and desirability of the Community.

Section 14.2. Liability Insurance. The Association shall obtain and keep in full force and effect, to the extent reasonably obtainable, general liability insurance against claims and liabilities arising in connection with the ownership, existence, use, or management of Association and Properties as they may determine or as it is required by § 39-33.3-13 of the Act.

Section 14.3. Duty to Levy and Collect Assessments. The Association may levy and collect Assessments as provided in this Declaration.

Section 14.4. Duty to Keep Association Records. The Association shall keep financial records sufficiently detailed to enable the Association to comply with the Act, including, but not limited to, financial records sufficiently detailed to provide a statement setting forth the amount of any unpaid Assessments currently levied against a Unit Owner.

Section 14.5. Power to Enforce Declaration and Rules and Regulations. The Association shall have the power to enforce the provisions of this Declaration and the Rules and Regulations and shall take such action as the Executive Board deems necessary or desirable to cause compliance by each Unit Owner and each Related User. Without limiting the generality of the foregoing, the Association shall have the power to enforce the provisions of this Declaration and the Rules and Regulations by any one or more of the following means: (a) by entry upon any Unit within the Community after Notice and Hearing (unless a bona fide emergency exists), without liability to the Unit Owner thereof or the Association, for the purpose of enforcement or causing compliance with this Declaration or the Rules and Regulations; (b) by commencing and maintaining actions and lawsuits to restrain and enjoin any breach or threatened breach of the provisions of this Declaration or the Rules and Regulations, by mandatory injunction or otherwise; (c) by commencing and maintaining actions and lawsuits to recover damages for breach of any of the provisions of this Declaration or the Rules and Regulations; (d) by suspension, after Notice and Hearing, of any voting rights of a Unit Owner during and for up to ten days following any breach by such Unit Owner or Related User of this Declaration or the Rules and Regulations, unless the breach is a continuing breach in which case such suspension shall continue for so long as such breach continues; (e) by levying and collecting, after Notice and Hearing, a Reimbursement Assessment against any Unit Owner for breach of this Declaration or the Rules and Regulations by such Unit Owner or Related User; and (f) by levying and collecting uniformly applied fines and penalties, established in advance in the Rules and Regulations of the Association, from any Unit Owner or Related User for breach of this Declaration or the Rules and Regulations by such Unit

Owner or Related User.

Section 14.6. Power to Maintain Landscaping. The Association shall have the power and authority to maintain, repair and replace the landscaping located on irrigation easements, around drainage improvements and detention ponds.

Section 14.7. Power to Maintain Utility and Drainage Facilities. The Community is serviced by certain utility and drainage facilities, including, but not limited to certain ponds and an irrigation water system. In order to insure the continued beneficial use of the utility and drainage facilities, the Association shall have the power to maintain, repair, and replace such facilities as may be reasonably necessary to ensure the continued use of them for the benefit of the Community.

Section 14.8. General Corporate Powers. The Association shall have all of the ordinary powers and rights of a Colorado corporation formed under the Colorado Nonprofit Corporations Act, including, without limitation, entering into partnership and other agreements, subject only to limitations upon such powers as may be set forth in this Declaration or in the Articles of Incorporation or Bylaws. The Association shall also have the power to do any and all lawful things that may be authorized, required, or permitted to be done under this Declaration, the Articles of Incorporation or Bylaws and to perform any and all acts that may be necessary or desirable for, or incidental to, the exercise of any express powers or rights of the Association under this Declaration, the Articles of Incorporation or Bylaws.

Section 14.9. Powers Provided by Law. In addition to the powers provided in this Declaration, the Articles of Incorporation, or Bylaws, the Association shall have full power to take and perform any and all actions that may be lawfully taken by the Association under the Colorado Nonprofit Corporations Act or the Act. The Association may exercise any right or privilege expressly granted to the Association in the Association's Governing Documents, and every other right or privilege reasonably implied from the existence of any right or privilege given to the Association under the Association's Governing Documents or reasonably necessary to effect such right or privilege.

Section 14.10. Managing Agent. The Executive Board may delegate powers to other Persons or to a Managing Agent, provided that:

- (a) The other Persons or Managing Agent maintain fidelity insurance coverage or a bond in an amount not less than fifty thousand dollars or such higher amount as the Executive Board may require;
- (b) The other Persons or Managing Agent maintain all funds and accounts of the Association separate from the funds and accounts of other associations managed by the other Persons or Managing Agent and maintain all reserve accounts of each association so managed separate from operational accounts of the Association; and
- (c) An annual accounting for Association funds and a financial statement be prepared and presented to the Association by the Managing Agent, a public accountant, or a certified public accountant.

article 15

budgets and funds

Section 15.1. Maintenance Funds To Be Established. The Association may establish and maintain the following separate Maintenance Funds: (a) an Administrative Functions Operating Fund; and (b) an Administrative Functions Reserve Fund. The Maintenance Funds may be established as one or more savings or checking accounts at any financial institution in which deposits are insured by an agency of the federal government, each of which accounts shall be held in trust for the Members.

Section 15.2. Establishment of Other Funds. The Association may establish other funds as and when needed. If the Association establishes any additional funds, the Executive Board shall designate an appropriate title for the fund to distinguish it from other funds maintained by the Association.

Section 15.3. Authority for Disbursements. The Executive Board may have the authority to make, or to authorize an agent to make, disbursements of any money in a Maintenance Fund, or other Funds.

Section 15.4. Funding of Reserve Funds. The Executive Board, in budgeting and levying Assessments, shall endeavor, whenever possible, to fund the Administrative Functions Reserve Fund by regularly scheduled payments, included as part of the Common Assessments, rather than by Special Assessments. Money in the Administrative Functions Reserve Fund may be used in the discretion of the Board, from time to time, for any purpose for which a Common or Special Assessment may be used.

Section 15.5. Annual Budget. The Executive Board shall cause to be prepared a Budget for each fiscal year, including a reasonable provision for contingencies and deposits into the Administrative Functions and Reserve Funds. The annual budget shall be sent to each Member not less than twenty days prior to the annual meeting.

Section 15.6. One Unit, One Dollar. The levy against each Unit shall be identical to that against any other Unit. Notwithstanding this general rule, if the Executive Board makes a determination that Common Assessments should be levied at different rates between the Zones, then the levy against each Unit within a Zone shall be identical to that against any other Unit within that Zone, i.e., within the Residential Zone, each Residential Unit shall be levied the same amount; within the Commercial Zone, each Commercial Unit shall be levied the same amount; within the Live/Work Zone, each Live/Work Unit shall be levied the same amount; and within the Multi-Family Residential Zone, each Multi-Family Residential Unit shall be levied the same amount.

Section 15.7. Common Assessments. For each fiscal year, the Association may levy Common Assessments against each Member. Each Member shall be obligated to pay the Common Assessments levied against and allocated to such Member, as hereinafter provided.

Section 15.8. Supplemental Common Assessments for Deficiencies. If the Common Assessments prove inadequate for any reason, including nonpayment of any Owner's Assessments, the Executive Board may, from time to time, levy a Supplemental Common Assessment for any of the Maintenance Funds. Such Supplemental Common Assessment shall be assessed against the Owner of each Lot in the same manner as Common Assessments are originally assessed each year by the Board with respect to the particular Maintenance Fund. Written notice of any change in the amount of any annual Common Assessment shall be sent to every Owner, not less than thirty days prior to the due date for the payment of the Supplemental Assessment.

Section 15.9. Maximum Common Assessment. Except as otherwise provided herein, the Executive Board shall not levy a Common Assessment against Units in any calendar year that is greater than 120 percent of the respective Common Assessment assessed against such Units in the preceding calendar year ("**Maximum Common Assessment**"), except by the vote of two thirds of the Unit Owners present or represented by valid proxy at a regular or duly noticed special meeting of the Unit Owners.

Section 15.10. Approval of Increase in the percentage increase of the Maximum Common Assessment. If the Executive Board, by majority vote, determines that the important and essential functions of the Association will not be properly funded in any one year and subsequent years by the amount of the Maximum Common Assessment, it may call a meeting of Members entitled to vote

requesting approval of a specified increase in the percentage increase of the Maximum Common Assessment for that year and one or more subsequent years. An increase in the percentage increase of the Maximum Common Assessment for any year and all subsequent years shall require the approval of Members representing two-thirds of the entire votes of the Association entitled to vote.

Section 15.11. Commencement of Common Assessments. Common Assessments shall commence and be due and payable as the Executive Board deems appropriate. The Common Assessment for the then current calendar year shall be prorated on the basis of the number of days in such calendar year remaining from the date of commencement of such Common Assessments to the end of such calendar year. The obligation to pay Common Assessments shall apply to all Units in Completed Sub-Phases within the Community.

Section 15.12. No Disbursements to Abate Nuisances or Zoning Amendments. Nothing in this Declaration shall be construed to permit the Association to use any Assessments to abate any annoyance or nuisance emanating from outside the physical boundaries of the Community or to dispute any change to the zoning or assessment of any property adjacent to or outside the boundaries of the Community.

Section 15.13. Payment of Assessments. Common Assessments shall be due and payable in advance to the Association by the assessed Unit Owner during the calendar year in one payment, on such a date as the Executive Board may designate in its sole and absolute discretion. Notice of the amount of the Common Assessments shall be given to each Unit Owner no less than thirty days before the due date.

Section 15.14. Failure to Levy Assessment. Failure by the Executive Board to levy an Assessment for any year shall not be deemed a waiver or modification with respect to any of the provisions of this Declaration or a release of the liability of any Unit Owner to pay Assessments, or any installment thereof, for that or any subsequent year. No abatement of the Common Assessments or any other Assessment shall be claimed or allowed for inconvenience or discomfort arising from the making of repairs or Improvements to Association Properties or from any action taken to comply with any law or any determination of the Executive Board or for any other reason.

Section 15.15. Special Assessments for Capital Expenditures. In addition to Common Assessments, the Executive Board may, subject to the provisions of this section, levy Special Assessments for the purpose of raising funds not otherwise provided under the Budget from Common Assessments to construct or reconstruct, repair, or replace capital Improvements upon Association Properties, or to repay any loan or obligation of the Association to enable it to perform the duties and functions authorized in this Declaration. The Executive Board shall not levy Special Assessments without the approval of two thirds of the Members present or represented by valid proxy at a duly noticed meeting of the Members.

Section 15.16. Late Charges and Interest. If any Assessment or Fee or and portion thereof is not paid within thirty days after it is due, the Member obligated to pay the Assessment may be required to pay a reasonable late charge to be determined by the Executive Board. Any Assessment or installment of an Assessment that is not paid within thirty days after the date of any Notice of Default is given shall bear interest from the date of Notice of Default at the highest rate then established by statute in Colorado, but not less than five percent per annum interest, compounded annually. Further recording of claim of lien for any assessment under this article is not required for the lien to be valid.

Section 15.17. Remedies to Enforce Assessments. Each Assessment levied hereunder shall be a separate, distinct, and personal debt and obligation of the Unit Owner or Member against whom the same is assessed. In the event of a default in payment of any Assessment or installment thereof, whether Common, Special, or Reimbursement, the Executive Board may, in addition to any other

remedies provided under this Declaration or by law, enforce such obligation on behalf of the Association by suit or by filing and foreclosure of a lien. Voting rights of the Owner or Member may be suspended during any period of delinquency.

Section 15.18. Lawsuit to Enforce Assessments. The Executive Board may bring a suit at law to enforce any Assessment obligation. Any judgment rendered in such action shall include any late charges, interest, expenses and other costs of enforcement, including reasonable attorneys' fees in the amount the court may adjudge, against the defaulting Owner or Member.

Section 15.19. Lien to Enforce Assessments. Pursuant to and in accordance with the Act, the Association shall have a lien on a Lot for any Assessment levied against that Lot, or fines imposed against its Owner. All fees, charges, late charges, attorneys' fees, fines and interest outstanding from such Owner shall be included in such lien. The lien created hereby and under the Act shall be prior to any homestead rights and shall have the priority attached to such lien under the Act and under Colorado law. The lien shall continue until the amounts secured thereby and all subsequently accruing amounts are fully paid or otherwise satisfied. Unless paid or otherwise satisfied, the lien may be foreclosed in the manner for foreclosure of Mortgages in the state of Colorado or in any other manner provided under Colorado law.

article 16

miscellaneous

Section 16.1. Term of Declaration. Unless amended as herein provided, each provision contained in this Declaration shall continue and remain in full force and effect until the **Turnover Date**, and thereafter shall be automatically extended for successive periods of ten years each unless terminated by the vote, taken by written ballot, of Members holding at least two thirds of the votes of Members entitled to vote at a duly constituted meeting of the Members. In the event this Declaration is terminated, the termination of this Declaration shall be evidenced by a termination agreement ("**Termination Agreement**"), or ratification thereof, executed by the requisite number of Unit Owners. The Termination Agreement shall specify a date after which the Termination Agreement will be void unless Recorded before such date. The Termination Agreement shall be Recorded, and the termination of this Declaration shall be effective upon such Recording.

Section 16.2. Required Consent of Members to Amendment. Subsequent to the Turnover Date, and notwithstanding any other provision in this Declaration to the contrary, any proposed amendment or repeal of any provision of this Declaration shall not be effective unless Members have given their written consent to such amendment or repeal, which consent may be evidenced by the execution by Members of any certificate of amendment or repeal.

Section 16.3. Amendment of Articles and Bylaws. Subject to provisions herein, the Articles of Incorporation and Bylaws may be amended in accordance with the provisions set forth in such instruments or, in the absence of such provisions, in accordance with applicable provisions of the Colorado Nonprofit Corporations Act.

Section 16.4. Priority of First Mortgage. Each First Mortgagee of a Mortgage encumbering a Unit or a Residence who obtains title to such Unit or Residence pursuant to the remedies provided in the Mortgage, by judicial foreclosure or by deed or assignment in lieu of foreclosure, shall take title subject to claims of the Association for unpaid Assessments or charges against such Unit or Residence to the extent provided by the Act.

Section 16.5. Persons Entitled To Enforce Declaration. The Association, acting by authority of the Executive Board shall have the right to enforce any or all of the provisions, covenants, conditions, restrictions, and equitable servitudes contained in this Declaration against any property within the

Community and the Unit Owner thereof. The right of enforcement shall include the right to bring an action for damages and/or appropriate equitable relief, including injunctive relief of any provision of this Declaration.

Section 16.6. Violations of Law. Any violation of any federal, state, municipal, or local law, ordinance, rule, or regulation, pertaining to the ownership, occupation, or use of any property within the Community is hereby declared to be a violation of this Declaration and shall be subject to any and all enforcement procedures set forth in this Declaration.

Section 16.7. Remedies Cumulative. Each remedy provided under this Declaration is cumulative and not exclusive.

Section 16.8. Costs and Attorneys' Fees. In any controversy under this Declaration involving the Association as a party in which the Association is the prevailing party shall be entitled to recover its reasonable costs and expenses in connection therewith, including reasonable attorneys' fees. In any controversy or claim arising under this Declaration which does not include or involve the Association, the prevailing party shall be entitled to recover its reasonable costs and expenses, including reasonable attorney fees.

Section 16.9. Limitation on Liability. The Association, Executive Board, DRC, officer, director, agent, or employee of any of the same shall not be liable to any Person for any action or for any failure to act if the action or failure to act was in good faith and without malice.

Section 16.10. No Representations or Warranties. No representations or warranties of any kind, express or implied, shall be deemed to have been given or made by the Association or its agents or employees in connection with any portion of the Community, or any Improvement thereon, its or their physical condition, zoning, compliance with applicable laws, fitness for intended use, or in connection with the subdivision, sale, operation, maintenance, cost of maintenance, taxes or regulation thereof, unless and except as shall be specifically set forth in writing.

Section 16.11. Governing Law. This Declaration shall be construed and governed under the laws of the State of Colorado.

Section 16.12. Severability. Each of the provisions of this Declaration shall be deemed independent and severable, and the invalidity, unenforceability, partial validity or partial enforceability of the provisions or portion thereof shall not affect the validity or enforceability of any other provision.

Section 16.13. Disclaimer Regarding Safety. The Association hereby disclaims any obligation regarding the security of any persons or property within the Community. Any Unit Owner acknowledges that the Association is only obligated to do those acts specifically required herein, or in the Articles of Incorporation and Bylaws, and are not obligated to do any other acts with respect to the safety or protection of persons or property within the Community.

Section 16.14. Conflicts. In the event of a conflict between the provisions of this Declaration and the Association's Articles of Incorporation or Bylaws, the provisions of this Declaration shall supersede and control.

Section 16.15. Owners' Obligation. It is the responsibility of each Unit Owner to read, understand and abide by all applicable covenants, regulations, laws and ordinances prior to purchasing a Unit and prior to submitting construction plans for consideration by the DRC. Upon resale of a Unit or a Residence, or upon lease of any Unit or Residence, the Unit Owner's deed or instrument transferring title or right shall contain a provision incorporating by reference this Declaration, as well as any applicable supplementary declarations.

Section 16.17. Owners' Obligation for Leases. In the case of a lease of any Unit or Residence, any failure by the tenant to comply with the terms and provisions of applicable covenants or restrictions shall be a default under the lease. All leases shall be in writing, and a copy thereof shall be provided upon request to the Executive Board, which may require use of its approved lease form, or the incorporation of particular provisions. After notice and an opportunity for hearing, the Executive Board may require an Owner to take action to evict any tenant who has violated any provision of this Declaration, the Articles of Incorporation or Bylaws.

In WITNESS WHEREOF, the Declarant has caused this Declaration to be executed this Thursday, May 3rd of 2018.

Old World LLC, represented by Ivo Renkema:

Seen for authentication of the signature of: Ivo Hendrik Renkema
by means of the: drivers licence as shown

to me, with number: 5094 5288
on this day: may 3rd 2018

by me, mr. Elisabeth Catharina van der Laan, substitute
civil-law notary, as representative of

Mr. Sybrand Michiel Renkema, lawyer and Civil Law
Notary at Castricum

the Netherlands. The Civil Law notary denies any opinion whatsoever with regard to the contents or scope of any document added to this authentication





Persoon geïdentificeerd en origineel legitimatiebewijs
gezien conform regels WWFT

datum: *may 3rd 2018*

naam en paraaf medewerker notariskantoor Feikema:

*mr. Elisabeth Catharina van der Laan, Substitute civil-law
notary, as representative of mr. Sijbrand Michiel Feikema
seen for legalisation of the signature of: I.H. Renkema*



*by me, mr. E.C. van der Laan, Substitute civil-law notary, as representative
of mr. Sijbrand Michiel Feikema, civil-law notary at Castricum,
The Netherlands, on this day of: may 3rd. 2018*

[Handwritten signature in blue ink]



VIS

Toetsingsgegevens

Referentie	CMB
Debiteurnummer	101155
Verzenddatum	03-05-2018
Verzendentijd	11:34

Documentgegevens

Document type	Nederlands en buitenlands RIJBEWIJS
Land van uitgifte	Nederland
Documentnummer	5094528862

Resultaat toetsing

Status	het document staat NIET als vermist geregistreerd
--------	--

DEVELOPMENT REVIEW LIST:

Black Hills Energy

Delta Montrose Electric Company

DMEA – Elevate

TDS Telecom

Spectrum

Adjacent Ditch Companies

Delta County

Delta County School District 50

Town of Paonia

CASE SUMMARY COMMENT FORM

(Please return to the Town Clerks Office)

Riverbank Major Subdivision



Comments are accepted at any time but, to be included with the Planning Staff reports that are provided to the Town Council, they must be received by:

March 12, 2021

(Utility providers, please mark the easements you need or want on the sketch and give written comments explaining the easements. If you have no comment, please return this sheet with no comments box checked and contact information included)

1. Would like to make sure the water main is an 8" main.

2. Ask in winter months snow is not piled up in the culdesac.

3. Like the 42' width of main road going into lots.

4. Fire hydrant quantity and placement is good.

NO COMMENT OR CONCERNS:

REVIEWED BY: Fire Dept Officers DEPT: Fire

DATE: 3-8-21

PAONIA RIVERBANK NEIGHBORHOOD

PAONIA, CO 81428
PRELIMINARY ENGINEERING PLAN

ITEM 7

PROJECT INFO:

LOCATION: PAONIA, CO 81428
SITE ADDRESS: 38 871498, -10742212
SITE COORDINATES:
COUNTY: DELTA
TOWNSHIP: PAONIA
PROPERTY INFORMATION:
PARCEL ID#: 381-731-307-003
LEGAL SUMMARY: PAONIA 81428 SUBDIVISION RIVERBANK NEIGHBORHOOD SUB #2 LOT 3 19 817AC V-LOT 3 RIVERBANK NEIGHBORHOOD MINOR SUBDIVISION #2 SEC31 1135 R319 P614 R457748 R-704103 R-70444PLA1

NARRATIVE DESCRIPTION:

EXISTING CONDITIONS:
 THE EXISTING SITE CONSISTS OF ONE PARCEL ZONED R-2. THE MAJORITY OF THE AREA TO BE DEVELOPED IS PASTURED GRASSLAND.

DEVELOPED CONDITIONS:

- THE PROPOSED GROUND DEVELOPMENT CONSISTS OF SUBDIVIDING THE EXISTING PARCEL INTO SIXTEEN LOTS WITH ONE LOT BEING DESIGNATED AS OPEN SPACE FOR THE HOA.
- INFRASTRUCTURE TO BE INSTALLED WILL INCLUDE: (1) ATLANTIC AVENUE, (2) DOMESTIC WATER, (3) SANITARY SEWER, (4) IRRIGATION DITCHES.

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE:

PHASE 1:

INSTALL ROADWAY AND UTILITIES THROUGH LOTS 8 AND 9	
ESTIMATED START DATE OF CONSTRUCTION ACTIVITIES FOR THIS PHASE	TBD
ESTIMATED END DATE OF CONSTRUCTION ACTIVITIES FOR THIS PHASE	TBD

PHASE 2:

INSTALL ROADWAY, UTILITIES TO SERVE REMAINING LOTS, AND INSTALL IRRIGATION DITCHES	
ESTIMATED START DATE OF CONSTRUCTION ACTIVITIES FOR THIS PHASE	TBD
ESTIMATED END DATE OF CONSTRUCTION ACTIVITIES FOR THIS PHASE	TBD

SHEET INDEX:

Sheet Number	Sheet Title
C0.0	TITLE SHEET
C0.1	CIVIL NOTES
C1.0	EXISTING SITE PLAN
C2.0	PROPOSED SITE PLAN
C3.0	GRADING & DRAINAGE
C4.0	ATLANTIC AVENUE PLAN & PROFILE
C5.0	SANITARY SEWER PLAN & PROFILE
C6.0	WATER DISTRIBUTION PLAN
C7.0	UTILITY PLAN
C8.0	CIVIL DETAILS
C8.1	CIVIL DETAILS
C8.2	CIVIL DETAILS
C8.3	CIVIL DETAILS

PROJECT TEAM:

DEVELOPER:
 OLD WORLD, LLC
 BREDERODESTRAAT 14
 1921 HW CASTRICUM
 THE NETHERLANDS

CONTACT: IVO REINEMA
 EMAIL: IVO@CORNBOOK.PUB
 PHONE: 612.720.3116

CIVIL ENGINEER:
 ODISEA, LLC
 6 THIRD STREET
 PAONIA, CO 81428

CONTACT: JEFF RUFFERT
 EMAIL: JEFF@ODISEANET.COM
 PHONE: 970.527.6540

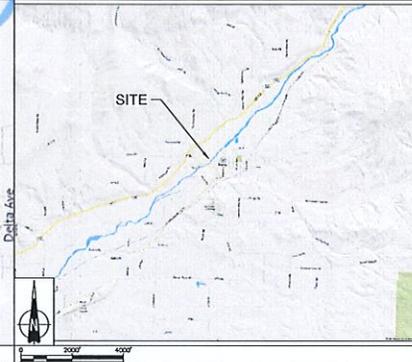
ABBREVIATIONS

AB	AGGREGATE BASE	HCW	HIGH QUALITY WATER
APPROX	APPROXIMATE	IPS	IRON PIPE SET
AVE	AVERAGE	LB	POUNDS
BMP	BEST MANAGEMENT PRACTICE	LF	LINEAR FEET
BSL	BUILDING SETBACK LINE	LP	LIGHT POLE
CL	CENTERLINE	MAX	MAXIMUM
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM
CONC	CONCRETE	NO	NEW
CSP	CORRUGATED STEEL PIPE	OH	OVERHEAD LINE
DB	DEED BOOK	OAE	OR APPROVED EQUAL
DIA	DIAMETER	PL	PROPERTY LINE
DWG	DRAWING	PC	PROFESSIONAL CORPORATION
ECM	EXISTING CONCRETE MONUMENT	PD	PAISE
EG	EXISTING GRADE	PP	POWER POLE
EP	EDGE OF PAVEMENT	R	RADIUS
ELEG	ELECTRICAL	RD	ROAD
ESMT	EASEMENT	RW	RIGHT-OF-WAY
ETW	EDGE OF TRAVELED WAY	RW MON	CONCRETE RIGHT-OF-WAY MONUMENT
EX	EXISTING	SD	STORM DRAIN
FG	FINISHED GRADE	SF	SILT FENCE/SEDIMENT FENCE
FR	FOUND IRON PIPE	SP	SERVICE POLE
FR	FOUND IRON ROD	SPT	SPOT ELEVATION
FL	FLOW LINE	STD	STANDARD
FO	FIBER OPTIC	SS	SANITARY SEWER
FR	FIBER POLYCARBONATE SPOCK	TOP	TOP OF FILE
FS	FINISHED SURFACE	TYP	TYPICAL
FT	FOOT, FEET	UNO	UNLESS NOTED OTHERWISE

VICINITY MAP:



LOCATION MAP:



NO.	DESCRIPTION	DATE	BY

ODISEA, LLC
 6 THIRD STREET
 PAONIA, CO 81428
 PHONE: 970.527.6540
 EMAIL: JEFF@ODISEANET.COM

PAONIA RIVERBANK NEIGHBORHOOD
 PAONIA, CO 81428
 NOT FOR CONSTRUCTION

TITLE SHEET
 C0.0

GENERAL NOTES:

1. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE TOWN FOR AT LEAST 48 HOURS PRIOR TO BEGINNING ANY OF THIS WORK.
2. ALL EROSION CONTROL MEASURES SHALL BE SUBMITTED AND APPROVED TO THE TOWN ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE TOWN FOR AT LEAST 48 HOURS PRIOR TO BEGINNING ANY OF THIS WORK.
3. ALL EROSION CONTROL MEASURES SHALL BE SUBMITTED AND APPROVED TO THE TOWN ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE TOWN FOR AT LEAST 48 HOURS PRIOR TO BEGINNING ANY OF THIS WORK.
4. THE CONTRACTOR SHALL USE AN UNDERGROUND LOCATE SERVICE AT A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION WITH THE RIGHT-OF-WAY TO LOCATE ALL UTILITIES.
5. ALL PAVING REMOVAL SHALL BE SAUCUT AT THE TOWN'S DIRECTION.
6. PAVING SHALL BE SAUCUT AND REMOVED A MINIMUM OF 1' FROM CURB AND GUTTER CONSTRUCTION OR RECONSTRUCTION.
7. THE PROTECTION AND ADJUSTMENT OF ALL UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FAILURE TO CONTACT THE ENGINEER WITH QUESTIONS PRIOR TO THE COMMENCEMENT OF WORK MAY RESULT IN THE CONTRACTOR ASSUMING COMPLETE LIABILITY FOR UTILITIES, PUBLIC OR PRIVATE PROPERTY THAT IS DAMAGED.
8. ALL DISTURBED OBJECTS AND LANDSCAPING ON NEIGHBORING PROPERTIES SHALL BE RETURNED TO THEIR ORIGINAL CONDITION PER APPROVAL OF PROPERTY OWNER AND/OR THE TOWN OF PADMA.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND AVOID ALL TRAFFIC SIGNS AND TRAFFIC SIGNALS AS SHOWN ON THE PLANS OR AS REQUIRED BY THE TOWN.
10. REPORTS OF COMPACTION WITH THE RIGHT-OF-WAY SHALL BE SUBMITTED TO AND ACCEPTED BY THE TOWN ENGINEER PRIOR TO PLACING ANY PAVING.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE TOWN ENGINEER FOR OBSERVATION OF ANY WORK. FAILURE TO CONTACT THE ENGINEER WITH QUESTIONS PRIOR TO THE COMMENCEMENT OF WORK MAY RESULT IN THE CONTRACTOR ASSUMING COMPLETE LIABILITY FOR UTILITIES, PUBLIC OR PRIVATE PROPERTY THAT IS DAMAGED.
12. IN THE EVENT THAT EXISTING STRUCTURES IS DAMAGED BY CONSTRUCTION, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE.
13. PRIOR TO CONSTRUCTION, ALL SURVEY POINTS THAT MAY BE DISTURBED SHALL BE TIED OUT AND A CORNER RECORD OF EACH POINT SHALL BE FILED WITH THE TOWN SURVEYOR AND COUNTY. A COPY OF THE RECORDED CORNER RECORD SHALL BE SUBMITTED TO THE TOWN'S PUBLIC WORKS DIVISION.
14. FOLLOWING THE COMPLETION OF CONSTRUCTION, A CORNER RECORD OF EACH POINT THAT WAS DISTURBED SHALL BE FILED WITH THE TOWN SURVEYOR AND COUNTY. A COPY OF THE RECORDED CORNER RECORD SHALL BE SUBMITTED TO THE TOWN'S PUBLIC WORKS DIVISION PRIOR TO THE RECORDING OF A CERTIFICATE OF COMPLETION OR RELEASE OF BOND.
15. ALL NECESSARY UTILITY CONSTRUCTION WITHIN THE STREET RIGHT-OF-WAY SHALL BE COMPLETED AND APPROVED PRIOR TO PAVING THE DRIVEWAYS.
16. ADJUST ALL STORM DRAIN AND SEWER MANHOLES AND WATER VALVES TO GRADE AFTER PLACING FINAL LIFT OF ASPHALT.
17. NO EXPANSIVE SOIL MAY BE USED WITHIN THE PUBLIC RIGHT-OF-WAY.
18. CONTRACTOR SHALL MAINTAIN FLOWS IN THE EXISTING WATER SYSTEM AT ALL TIMES. SUBMIT A PLAN FOR APPROVAL TO THE TOWN'S PUBLIC WORKS DEPARTMENT 2 WEEKS PRIOR TO THE WORK BEING PERFORMED.
19. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL PROPERTY OWNERS AT LEAST 7 DAYS IN ADVANCE OF ANY UTILITY OUTAGES.
20. PARCELS MAY NOT BE WITHOUT WATER FOR MORE THAN 16 HRS.
21. MAINTAIN FIVE (5) FEET OF COVER FOR ALL WATER LINES.
22. A TEMPORARY TRAFFIC CONTROL PLAN (TCP) IS REQUIRED BEFORE ANY WORK MAY COMMENCE WITHIN THE PUBLIC RIGHT-OF-WAY.
23. IN THE ABSENCE OF GEOLOGICAL RECOMMENDATIONS OR BACKFILL DETAILS, ALL BACKFILL SHALL BE CONTRACTED TO THE QUALITY OF THE MODIFIED PROJECT DENSITY.
24. LOCATIONS OF EXISTING STRUCTURES AND UTILITIES ARE FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH (ELEVATION) OF EXISTING UTILITIES AND OTHER FIELD CONDITIONS IN ACCORDANCE WITH ASCE STANDARD 38-05 QUALITY LEVELS D THROUGH A PRIOR TO CONSTRUCTION.
 - QUALITY LEVEL D (CL 01 D) INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
 - QUALITY LEVEL E (CL 01 E) INFORMATION OBTAINED BY SURVEYING AND FLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D.
 - QUALITY LEVEL B (CL 01 B) INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.
 - QUALITY LEVEL A (CL 01 A) PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT.
25. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE CONSTRUCTION PLANS THAT INCLUDE LOCATION AND SIZING OF LAUNCHING AND RECEIVING FITS, MATERIAL AND EQUIPMENT LAYOUT AND STORAGE AREAS, DETAILS FOR CONNECTIONS TO THE EXISTING PIPING SYSTEM, AND RESTORATION PLANS.
26. A PRE-CONSTRUCTION MEETING IS REQUIRED. THE CONTRACTOR SHALL CONTACT TRAVIS LOBERO, TOWN OF PADMA PUBLIC WORKS DIRECTOR, AT THE TOWN OF PADMA A MINIMUM OF 10 BUSINESS DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO SCHEDULE THE MEETING. (970) 314-1811. tl@EROSIONCONTROL@PADMA.CO
27. STREET CLEANING AND SWEEPING IS INCIDENTAL TO THE WORK.

EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL SUBMIT AN EROSION/SEDIMENT AND POLLUTION CONTROL PLAN FOR APPROVAL PRIOR TO THE COMMENCEMENT OF WORK.
2. APPROVAL OF AN EROSION/SEDIMENT AND POLLUTION CONTROL PLAN (ESPCD) DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTIONS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.)
3. THE IMPLEMENTATION OF AN ESPCD AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPDATING OF ESPCD FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION AND LANDSCAPING IS ESTABLISHED.
4. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THE ESPCD SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
5. THE ESPCD FACILITIES SHOWN ON THE PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND

1. SEDIMENT LOADED WATER DO NOT ENTER THE DRAINAGE SYSTEM ROADWAYS OR VIOLATE APPLICABLE WATER STANDARDS.
2. THE ESPCD FACILITIES SHOWN ON THE PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THOSE ESPCD FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORAGE EVENTS, AND TO ENSURE THAT SEDIMENT AND SEDIMENTATION OF WATERWAYS IS PREVENTED.
3. THE ESPCD FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
4. THE ESPCD FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A WEEK OR WITHIN THE 24 HOURS FOLLOWING A SPECTRA EVENT.
5. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL CLEAR AREAS ARE KEPT CLEAR FOR THE DURATION OF THE PROJECT.

WATER - GENERAL NOTES:

1. AT ALL POINTS OF CONNECTION OF NEW WATER MAINS TO EXISTING MAINS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EDUCATING AND PROVIDING LOCATION OF THE EXISTING LINES PRIOR TO ANY CONSTRUCTION.
2. EXCEPT IN CASE OF AN EMERGENCY, VALVES ON THE TOWN OF PADMA WATER SYSTEM SHALL BE OPERATED BY OR UNDER THE DIRECTION OF THE APPROPRIATE TOWN OF PADMA PERSONNEL. THE CONTRACTOR SHALL GIVE THE TOWN OF PADMA ENGINEERING STAFF 48 HOURS NOTICE TO ARRANGE FOR OPERATING VALVES. BOTH THE CONTRACTOR AND THE APPROPRIATE TOWN OF PADMA PERSONNEL SHALL BE PRESENT WHEN THE VALVES ARE OPERATED.
3. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITHIN LESS THAN ONE AND ONE-HALF (1 1/2) FEET OF VERTICAL SEPARATION, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
4. ALL WATER LINES SHALL HAVE A MINIMUM OF FIVE (5) FEET OF COVER AND BE LOCATED A MINIMUM OF TEN (10) FEET FROM THE SANITARY SEWER.
5. CHANGES IN DIRECTION OF WATERLINE PIPE GREATER THAN ONE DEGREE SHALL REQUIRE FITTINGS AND RISERS. ANNUAL DEFLECTION OF THE JOINTS SHALL NOT BE IN EXCESS OF MANUFACTURER'S RECOMMENDATION OR IN NO CASE MORE THAN ONE DEGREE.
6. WHEN IT IS NECESSARY TO DEPRESS WATER LINES AT UTILITY CROSSINGS, A MINIMUM CLEARANCE OF ONE AND ONE-HALF (1-1/2) FEET SHALL BE MAINTAINED BETWEEN OUTSIDES OF PIPE.
7. DISTANCES FOR WATER LINES ARE THE HORIZONTAL DISTANCES BETWEEN THE CENTERS OF THE FITTINGS. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING DIMENSIONS.
8. ALL WATER LINE VALVES SHALL BE SET ADJACENT TO THE TEE, EXCEPT FOR POINTS THAT FALL IN THE FLOWLINE OF A CONCRETE CROSS-PAN. IN WHICH CASE, THE VALVE SHALL BE LOCATED SO THAT SURFACE DRAINAGE DOES NOT INFILTRATE THE VALVE BOX. VALVE BOXES SHALL BE SET AT AN ELEVATION IN ACCORDANCE WITH TOWN PAVING REQUIREMENTS.
9. ALL WATER MAINS SHALL BE POLY(VINYL CHLORIDE) (PVC) PRESSURE PIPE UNLESS SPECIFIED OTHERWISE. MAXIMUM PVC PIPE SIZES: 8" INCH THROUGH 12" INCH SHALL CONFORM TO ALL REQUIREMENTS OF AWWA STANDARD C600, PRESSURE CLASS 150 (DR14). ALL PVC FITTINGS SHALL HAVE OUTSIDE DIAMETERS EQUIVALENT TO CAST IRON PIPE.
10. FIRE HYDRANT ASSEMBLY INCLUDING THE FIRE HYDRANT, SIX (6) INCH VALVE, AND SIX (6) INCH PIPE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE TOWN OF PADMA STANDARDS AND SPECIFICATIONS.
11. ALL FITTINGS SHALL BE MADE FROM DUCTILE IRON, FURNISHED WITH MECHANICAL JOINT ENDS, AND SHALL HAVE A PRESSURE RATING OF 300 PSI.
12. POLYETHYLENE TEREPHTHALATE (PET) SHALL BE INSTALLED AROUND ALL DUCTILE IRON FITTINGS, FITTINGS, VALVES, FIRE HYDRANT ASSEMBLIES AND RING AND CLAMP. THE PET SHALL HAVE A MINIMUM THICKNESS OF EIGHT (8) MILS, IN ACCORDANCE WITH AWWA STANDARD C-105.
13. ALL WATER LINE PIPE SHALL BE PROVIDED WITH A MINIMUM GAGE SIZE OF 12 SINGLE STRAND INSULATED COPPER WIRE. SPLICES IN TRACER WIRE SHALL BE CAPPED IN WATER PROOF GEL CAP TYPE CONNECTORS SUFFICIENT FOR DIRECT BURRY APPLICATION (MAY BE DRY-GUN CONVALEGE OR EQUAL). WIRE SHALL BE ATTACHED TO TOP OF WATER LINE WITH ONE-INCH WIDE PVC TAPE @ 5 FT INTERVALS ALONG PIPE. TRACER WIRE SHALL EXTEND TO THE SURFACE AND BE COILED IN A LOCATE BOX AT THE BACKSIDE OF EITHER EACH FIRE HYDRANT OR VALVE. UNDER THE SUPERVISION OF TOWN OF PADMA ENGINEERING AND/OR PUBLIC WORKS STAFF, TEST SHALL BE MADE BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION TO INSURE THAT THE TRACER WIRES CARRY A CONTINUOUS CURRENT BETWEEN ALL ACCESS POINTS.
14. WARNING TAPE SHALL BE INSTALLED 12" MINIMUM AND 18" MAXIMUM ABOVE WATER PIPE.
15. BEDDING MATERIAL SHALL CONFORM TO TOWN OF PADMA STANDARDS AND SPECIFICATIONS.
16. VALVES SHALL OPEN COUNTER CLOCKWISE. VALVES 12" INCH AND SMALLER SHALL BE RESILIENT SEAT GATE VALVES. LARGER VALVES SHALL BE BUTTERFLY VALVES.
17. VALVE BOXES SHALL BE RAISED TO ONE-FOURTH (1/4) INCH BELOW GRADE AFTER COMPLETION OF SURFACE PAVING OR FINAL GRADING. VALVE BOXES IN NON-PAVED AREAS SHALL HAVE A CONCRETE COLLAR AROUND THE VALVE BOX IN ACCORDANCE WITH THE DETAILS.
18. SERVICE SADDLES SHALL BE CAST DUCTILE WITH PAINTED STEEL DOOR, STRAP, WITH AN IRON GASKET SEAL ON THE MAIN. GASKETS SHALL BE NEOPRENE. SADDLES SHALL BE ROMAN STYLE 202 NO DIRECT TAPS WILL BE ALLOWED.
19. ALL RESIDENTIAL WATER TAPS SHALL BE THREE QUARTER (3/4) INCH OR AS REQUIRED BY THE CURRENT BUILDING CODE.
20. ALL WATER SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHT OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A BLUE PAINTED 7 x 4 POST.
21. CONCRETE THRUST BLOCKS AND/OR "MEGALUX" MECHANICAL RESTRAINTS ARE REQUIRED AT ALL MECHANICAL FITTINGS. THRUST BLOCKS MAY NOT BE REQUIRED IF PIPE RESTRAINT IS PROVIDED IN ACCORDANCE WITH RESTRAINED PIPE DETAIL.
22. NO WORK SHALL BE BACKFILLED INCLUDING BEDDING MATERIAL ABOVE THE SPRING LINE OF THE PIPE UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FOR BACKFILL BY THE TOWN OF PADMA ENGINEERING AND/OR PUBLIC WORKS STAFF.
23. ONLY ONE CONNECTION TO THE EXISTING WATER DISTRIBUTION SYSTEM SHALL BE MADE UNTIL ALL HYDROSTATIC TESTING, COLORIZATION AND FILLING HAS BEEN COMPLETED.
24. DISSECTION AND HYDROSTATIC TESTING SHALL BE DONE IN THE PRESENCE OF A TOWN OF PADMA ENGINEERING AND/OR PUBLIC WORKS STAFF. CONTACT THE TOWN OF PADMA DEPARTMENT OF PUBLIC WORKS, FORTY-EIGHT (48) HOURS PRIOR TO DISSECTION AND/OR TESTING.
25. DISSECTION AND FILLING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLORADO DEPARTMENT OF HEALTH AND THE PROCEDURE SET FORTH IN AWWA C601, "STANDARD FOR DISSECTING WATER MAINS". THE COLORATION OF THE WATER LINE SHALL BE PERFORMED PRIOR TO THE HYDROSTATIC TESTING. ALL VALVES, FIRE HYDRANTS AND OTHER APPURTENANCES SHALL BE OPERATED WHILE PIPELINES IS FILLED WITH THE COLORATING AGENT TO INSURE THAT HIGH CHLORINE CONTACT IS MADE WITH ALL INTERNAL SURFACES.

26. ALL WATER LINES SHALL BE HYDROSTATIC TESTED. PRESSURE AND LEAKAGE TESTS SHALL BE CONDUCTED ACCORDING TO THE APPLICABLE SECTIONS OF AWWA STANDARD C600. A MINIMUM PRESSURE OF ONE HUNDRED AND FIFTY (150) POUNDS PER SQUARE (PSI) ON THE LOW POINT OF THE SECTION BEING TESTED FOR THE DURATION OF TWO (2) HOURS. THE MAXIMUM DEPTH OF LINE TO BE TESTED SHALL BE ONE THOUSAND (1000) FEET. ALL JOINTS IN CONNECTIONS ARE TO BE WATER TIGHT WITHIN TOLERANCES ALLOWED BY THE SPECIFICATIONS IN AWWA C600.05. ANY LEAKS THAT IS DISCOVERED BY OBSERVATION OR TESTS SHALL BE LOCATED AND MADE WATER TIGHT BY THE CONTRACTOR. PRESSURE AND LEAKAGE TESTS SHALL NOT BE CONDUCTED UNTIL THE LINE HAS PASSED ALL REQUIREMENTS FOR CONSTRUCTION.
27. RENTAL ACCEPTANCE OF THE NEW WATER LINES ARE CONTINGENT UPON RECEIVING COPIES OF:
 - 27.1. WATER TRENCH COMPACTION TEST RESULTS
 - 27.2. HYDRO STATIC TESTING OF 100% OF THE SYSTEM
 - 27.3. HEALTH DEPARTMENT TESTS (COLORS AND/OR CLEAR WATER AS REQUIRED)
28. ALL METER FITS AND CURB STOPS SHALL BE PROTECTED AT THE TIME OF INSTALLATION WITH A MINIMUM OF THREE (3) FEET AND ORANGE SAFETY FENCING. THE POST AND SAFETY FENCE SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL THE LANDSCAPING IS INSTALLED.
29. ALL WATER VALVES SHALL BE WATER TIGHT. CONTRACTOR SHALL SEAL VALVES TO ENSURE SURFACE WATER DOES NOT INFILTRATE THE VALVE. VALVE FITTINGS SHALL BE PLACED TO ENSURE THAT SURFACE WATER DOES NOT FLOW INTO THE VALVE.

SANITARY SEWER - GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING SEWERS TO BE CONNECTED TO PRIOR TO CONSTRUCTION STAKING.
2. CONNECTION TO EXISTING TOWN OF PADMA LINES WILL BE PERMITTED UPON INITIAL ACCEPTANCE OF THE NEW SANITARY SEWER SYSTEM. EXISTING PIPE AT THE POINT OF CONNECTION SHALL NOT BE BROKEN OUT UNTIL THE NEW SYSTEM IS ACCEPTED. IF CONNECTION TO AN EXISTING MANHOLE, THE NEW LINE SHALL BE PLUGGED OFF, THE NEW SYSTEM IS ACCEPTED.
3. MINIMUM VERTICAL SEPARATIONS BETWEEN ALL UTILITY PIPES SHALL BE EIGHTEN (18) INCHES. IF VERTICAL SEPARATIONS ARE LESS THAN EIGHTEEN (18) INCHES, THE UTILITY PIPES SHALL BE REINFORCED AND PROTECTED AS REQUIRED BY CURRENT TOWN STANDARD SPECIFICATIONS.
4. WATER AND SANITARY SEWER LINES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. WHEN A TEN (10) FOOT SEPARATION IS NOT PROVIDED OR WHEN SEWER LINES CROSS WATER LINES WITHIN LESS THAN ONE AND ONE-HALF (1 1/2) FEET OF VERTICAL SEPARATION, SEWER LINE JOINTS SHALL BE CONCRETE ENCASED. FOR PERPENDICULAR CROSSINGS, ENCASED JOINTS SHALL EXTEND TEN (10) FEET, PERPENDICULAR TO THE WATER LINE IN BOTH DIRECTIONS.
5. ALL SANITARY SEWER SERVICES AND WATER SERVICES ARE TO BE TEN (10) FEET APART.
6. SERVICE LATERALS SHALL EXTEND FIVE (5) FEET BEYOND RIGHT OF WAY OR UTILITY EASEMENTS, WHICHEVER IS GREATER. THE ENDS SHALL BE MARKED BY A GREEN PAINTED NOD 2 x 4 POST.
7. THE LENGTH OF SANITARY SEWER LINE IS THE HORIZONTAL DISTANCE BETWEEN CENTER OF MANHOLE TO CENTER OF MANHOLE. THEREFORE, THE DISTANCES INDICATED ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND MANHOLE DIMENSIONS.
8. SERVICE LINE CONNECTIONS TO OPEN END MANHOLES ARE NOT PERMITTED. SERVICE LINE CONNECTIONS TO HUB AND BUSH MANHOLES ARE PERMITTED, ONLY WITH THE APPROVAL OF THE TOWN MAY SERVICE CONNECTIONS BE ALLOWED IMMEDIATELY ABOVE OR BELOW A MANHOLE. MINIMUM SERVICE LINE SLOPE: 1 INCH=24".
9. ALL FOUR (4) THROUGH FIFTEEN (15) INCH SANITARY SEWER PIPE SHALL BE POLY(VINYL CHLORIDE) (PVC) SERVICE PIPE AND FITTINGS. ANY SANITARY SEWER HAVING A DEPTH IN EXCESS OF FIFTEEN (15) FEET SHALL BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT.
10. BEDDING MATERIAL SHALL CONFORM TO TOWN OF PADMA STANDARDS AND SPECIFICATIONS.
11. ALL SEWER LINE PIPE SHALL BE PROVIDED WITH A MINIMUM GAGE SIZE OF 12 SINGLE STRAND INSULATED COPPER WIRE. SPLICES IN TRACER WIRE SHALL BE CAPPED IN WATER PROOF GEL CAP TYPE CONNECTORS SUFFICIENT FOR DIRECT BURRY APPLICATION (MAY BE DRY-GUN CONVALEGE OR EQUAL). WIRE SHALL BE ATTACHED TO TOP OF WATER LINE WITH ONE-INCH WIDE PVC TAPE @ 5 FT INTERVALS ALONG PIPE. TRACER WIRE SHALL EXTEND TO THE SURFACE AND BE COILED IN A LOCATE BOX AT THE BACKSIDE OF EITHER EACH FIRE HYDRANT OR VALVE. UNDER THE SUPERVISION OF TOWN OF PADMA ENGINEERING AND/OR PUBLIC WORKS STAFF, TEST SHALL BE MADE BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION TO INSURE THAT THE TRACER WIRES CARRY A CONTINUOUS CURRENT BETWEEN ALL ACCESS POINTS.
12. WARNING TAPE SHALL BE INSTALLED 12" MINIMUM AND 18" MAXIMUM ABOVE SEWER PIPE.
13. PRECAST CONCRETE MANHOLE SECTIONS SHALL BE IN ACCORDANCE WITH ASTM A48. MANHOLE STEPS SHALL BE ENRY-COATED CAST IRON, ALUMINUM ALLOY, PLASTIC OR OTHER APPROVED CORROSION-RESISTANT METAL. CAST IRON RING AND COVER SHALL CONFORM TO ASTM A-48.
14. MANHOLES SHALL BE A MINIMUM FOUR (4) FOOT DIAMETER AND CONSTRUCTED PER THE STANDARDS AND SPECIFICATIONS.
15. THE CONTRACTOR SHALL TAKE CARE TO PROPERLY SHAPE ALL MANHOLE INVERTS AND BENCHES IN ACCORDANCE WITH THE TOWN OF PADMA STANDARDS AND SPECIFICATIONS, TO PROMOTE SMOOTH FLOW THROUGH THE MANHOLE. INVERTS OF LINES INTERSECTING AT 90 DEGREES AND AT HIGHLY DIVERGENT OR FLAT SLOPES ARE ESPECIALLY CRITICAL. MANHOLE INVERTS SHALL BE CONSTRUCTED WITH A SMOOTH TROWEL FINISH, AND BENCH FINISHED WITH A LIGHT BROOMED, NON-SKID FINISH.
16. SEWER TEES AND/OR WYES SHALL BE STAKED BY A SURVEY CREW. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER AS-CONSTRUCTED LOCATION OF TEES AND WYES. ALL SERVICE LINES ARE FOUR (4) INCH UNLESS OTHERWISE NOTED.
17. THE CONTRACTOR, AT THE OWNERS EXPENSE, WILL MAKE ALL SEWER SERVICE TAPS.
18. PRIOR TO BACKFILL THE TOWN OF PADMA ENGINEERING AND/OR PUBLIC WORKS STAFF SHALL INSPECT ALL SANITARY SEWER MAINS AND SERVICE EXTENSIONS.
19. MANHOLE RIMS SHALL BE SET AT AN ELEVATION RELATIVE TO THE PAVEMENT, IN ACCORDANCE WITH THE TOWN OF PADMA STANDARDS. WHETHER THE MANHOLE AT A JUNCTION OR LAPPED JOINTS. A MINIMUM OF FOUR (4) INCH AND A MAXIMUM OF FOUR (4) INCH CONCRETE RINGS SHALL BE USED TO ADJUST THE RIM ELEVATION TO FINAL GRADE. THE MAXIMUM ACCEPTABLE VERTICAL ADJUSTMENT UTILIZING CONCRETE RINGS IS EIGHTEEN (18) INCHES.
20. RENTAL ACCEPTANCE OF THE NEW SANITARY SEWER MAINS IS CONTINGENT UPON COMPLETION OF ITEMS LISTED IN THE TOWN'S STANDARDS AND SPECIFICATIONS.

ACCEPTANCE TESTING:

1. TESTING OF WATER LINES, SERVICES AND APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AWWA AND THE APPLICABLE STANDARD SPECIFICATIONS OF THE TOWN.
2. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM HYDROSTATIC TESTS ON ALL WATER MAINS, LATERALS, AND EASES AND SERVICE LINES IN ACCORDANCE WITH AWWA SPECIFICATIONS 600.
3. PRIOR TO MAKING THE TEST, THE CONTRACTOR SHALL ADVISE THE TOWN OF THE TIME AND PLACE OF THE TEST SO THAT ADEQUATE INSPECTION CAN BE PROVIDED.
4. PRIOR TO PERFORMING OF THE TEST, THE PIPELINE SHALL BE COMPLETELY FILLED WITH WATER FOR A PERIOD OF TWENTY-FOUR (24) HOURS.
5. THE TEST SHALL BE CONDUCTED IN THE PRESENCE OF THE TOWN OR ITS AUTHORIZED REPRESENTATIVE.

6. THE TESTING OF THE LINES SHALL BE DONE WITHOUT BEING CONNECTED TO EXISTING LINES UNLESS APPROVED BY THE TOWN.
7. TESTING OF SEWER LINES AND SERVICES, MANHOLES AND APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE PORTIONS OF THE STANDARD SPECIFICATIONS OF THE TOWN REGARDING LAMPING, IN- AND EXHAUSTION AND PRESSURE TESTS.
8. SANITARY SEWER LINES SHALL BE TESTED USING LOW-PRESSURE AIR TEST.
9. SANITARY SEWER MANHOLES SHALL BE TESTED FOR LEAKAGE.
10. ALL LINES SHALL BE LAMPED FROM MANHOLE TO MANHOLE.

DATE	DESCRIPTION

DATE	DESCRIPTION



PAONIA RIVERBANK NEIGHBORHOOD
 PAONIA, CO 81428
NOT FOR CONSTRUCTION

CIVIL NOTES
C0.1



- PROJECT LEGEND**
- PROPERTY LINE
 - - - - - RIGHT OF WAY
 - - - - - ROADWAY CENTERLINE
 - - - - - FENCELINE
 - - - - - BOUNDARY SETBACK
 - 100YR FLOODPLAIN
 - EXISTING P WATER MAIN
 - EXISTING P SANITARY SEWER MAIN
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - EXISTING TREE OR TREE LINE
 - EXISTING SAND CREATION
 - EXISTING FUEL INFRANT
 - EXISTING WATER VALVE
 - EXISTING WATER TAP STUB OUT
 - EXISTING SANITARY SEWER MANHOLE
 - EXISTING SANITARY SEWER TAP STUB OUT
 - SURVEY SET 5" P REBAR WITH P CAP
 - SURVEY FLOOD 5" P REBAR WITH P CAP
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - PD --- PROPOSED UNDERGROUND FIBER OPTIC
 - UOT --- PROPOSED UNDERGROUND TELEPHONE
 - GAS --- PROPOSED UNDERGROUND GAS
 - UGE --- PROPOSED UNDERGROUND ELECTRIC
 - P --- PROPOSED P WATER MAIN
 - P --- PROPOSED P SANITARY SEWER MAIN
 - P --- PROPOSED FUEL INFRANT
 - P --- PROPOSED WATER VALVE
 - P --- PROPOSED WATER METER
 - P --- PROPOSED SANITARY SEWER MANHOLE
 - P --- PROPOSED WATER SERVICE



NO.	DATE	DESCRIPTION

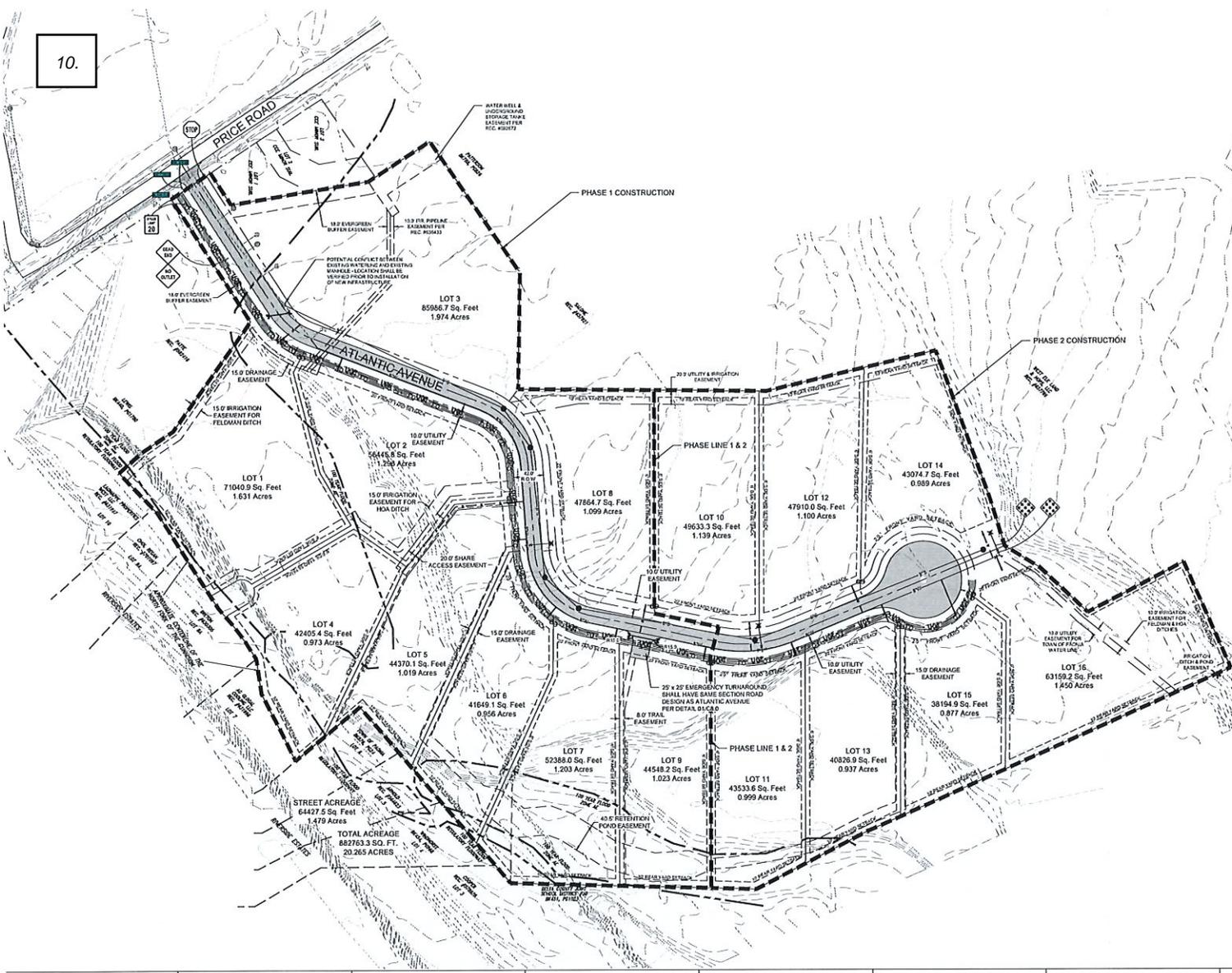
DRAWN BY: []
 CHECKED BY: []
 DATE: []
 PROJECT NO.: []
 FILE NAME: []
 PLOT SCALE: 1" = 40'
 PLOT DATE: JANUARY 11, 2011

ODISEPA
 OCEANIC DESIGN & ENGINEERING
 10000 W. 10TH AVENUE, SUITE 100
 DENVER, CO 80202

PACONIA RIVERBANK NEIGHBORHOOD
 PACONIA, CO 81428
NOT FOR CONSTRUCTION

EXISTING SITE PLAN
C1.0





PROJECT LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- ROADWAY CENTERLINE
- EASEMENT
- BUILDING SETBACK
- 100-YR FLOODPLAIN
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREES OR TREELINE
- DRAINAGE BASIN DELINEATION
- EXISTING FIRE MAIN/GRANT
- EXISTING WATER VALVE
- EXISTING WATER TAP SET/OUT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER TAP SET/OUT
- SURVEY SET 5" BEAR WITH 1" CAP
- SURVEY FOUND 5" BEAR WITH 1" CAP
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED UNDERGROUND FIBER OPTIC
- PROPOSED UNDERGROUND TELEPHONE
- PROPOSED UNDERGROUND GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER MAIN
- PROPOSED FIRE MAIN/GRANT
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED WATER SERVICE

NOTES

1. BUILDING WITHIN FLOODPLAIN

1.1. THE LOWER FLOOR OF THE STRUCTURE SHALL BE ELEVATED TO MEET OR EXCEED THE BASE FLOOD FLOODING WITH A MINIMUM EXISTENCE OF FREEBOARD IN ORDER TO COMPLY WITH THE 100-YR FLOODPLAIN.

DATE:	APRIL 14, 2020
DESIGNED BY:	ODISSA
DRAWN BY:	ODISSA
CHECKED BY:	ODISSA
SCALE:	AS SHOWN
PROJECT NO.:	20-001
DATE PLOTTED:	APRIL 14, 2020

811 Know what's below. Call before you dig.

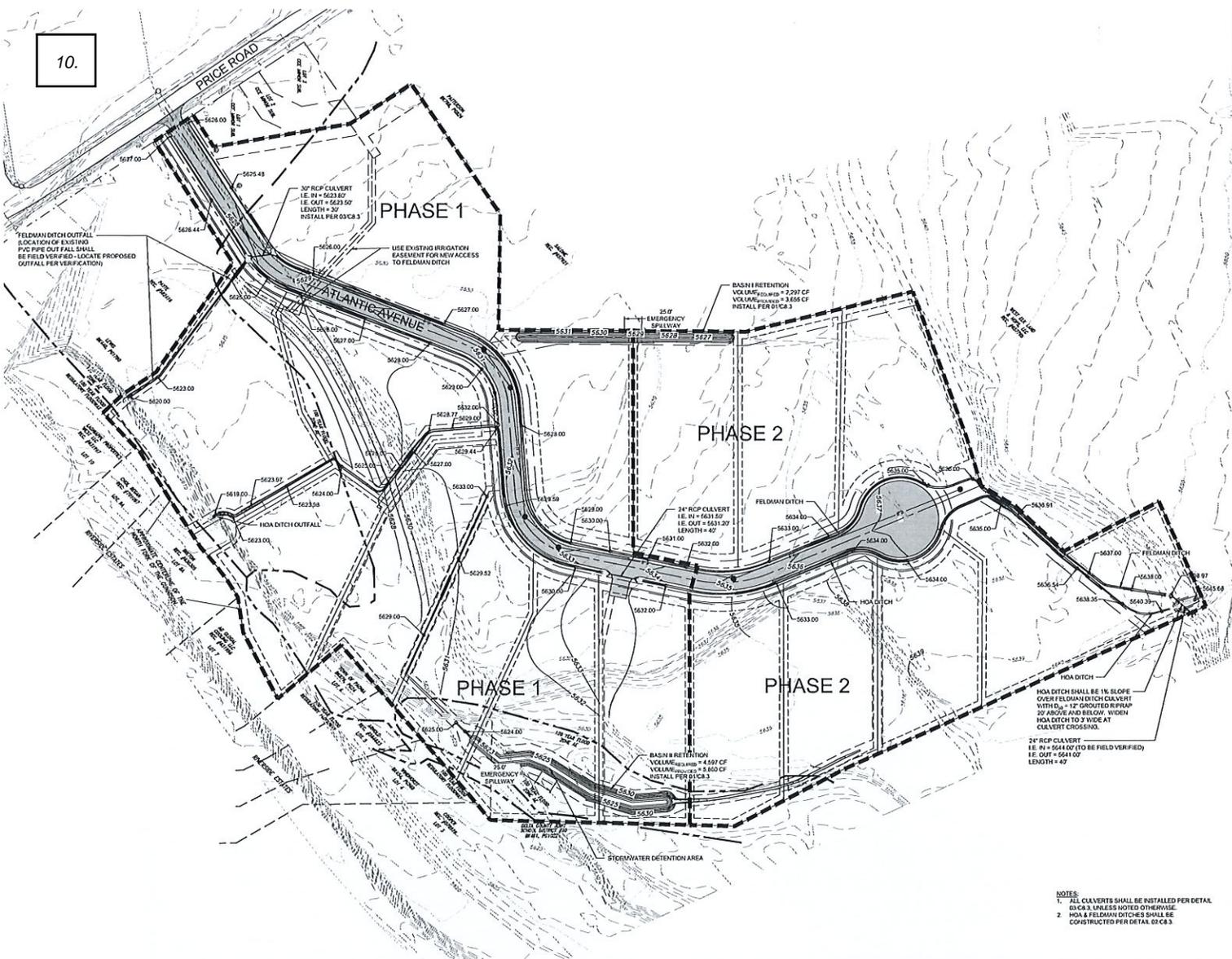
PAONIA RIVERBANK NEIGHBORHOOD

NOT FOR CONSTRUCTION

PAONIA, CO 81428

PROPOSED SITE PLAN

C2.0



PROJECT LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- HOUSING CENTERLINE
- EASEMENT
- BUILDING SETBACK
- 100YR FLOODPLAIN
- EXISTING 8" WATER MAIN
- EXISTING 8" SANITARY SEWER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING SHADY CONTOUR
- EXISTING TREES OR TREESHAE
- EXISTING SAND DEPOSITION
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER TAP STUB OUT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER TAP STUB OUT
- SURVEY 8" RCP PERMANENT C&G
- SURVEY 10" RCP 15' SEPAR WITH 1" C&G
- SURVEY 15" RCP 15' SEPAR WITH 2" C&G
- PROPOSED MAJOR CONTOUR
- PROPOSED UNDERGROUND FIBER OPTIC
- PROPOSED UNDERGROUND TELEPHONE
- PROPOSED UNDERGROUND GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED 8" WATER MAIN
- PROPOSED 8" SANITARY SEWER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED WATER SERVICE



DATE	DESCRIPTION

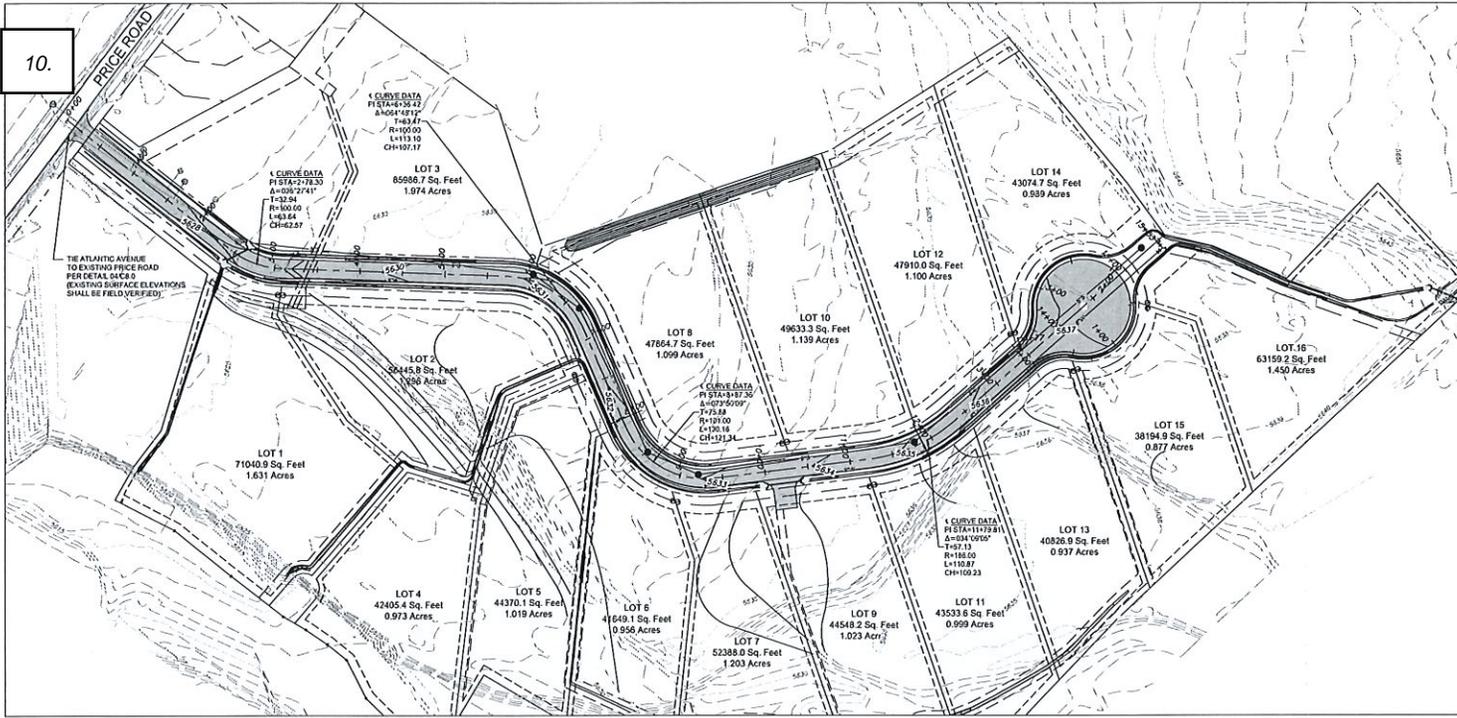
ODJSPA
 OCEAN COUNTY DESIGN & PLANNING
 1000 W. BROADWAY, SUITE 200
 FREEHOLD, NJ 07728
 TEL: 732.439.1234
 FAX: 732.439.1235
 WWW.ODJSPA.COM

PACONIA RIVERBANK NEIGHBORHOOD
 PACONIA, CO 81428
NOT FOR CONSTRUCTION

GRADING & DRAINAGE
C3.0

- NOTES:**
1. ALL CULVERTS SHALL BE INSTALLED PER DETAIL C3.C.3 UNLESS NOTED OTHERWISE.
 2. HOA & FELDMAN DITCHES SHALL BE CONSTRUCTED PER DETAIL C3.C.3.



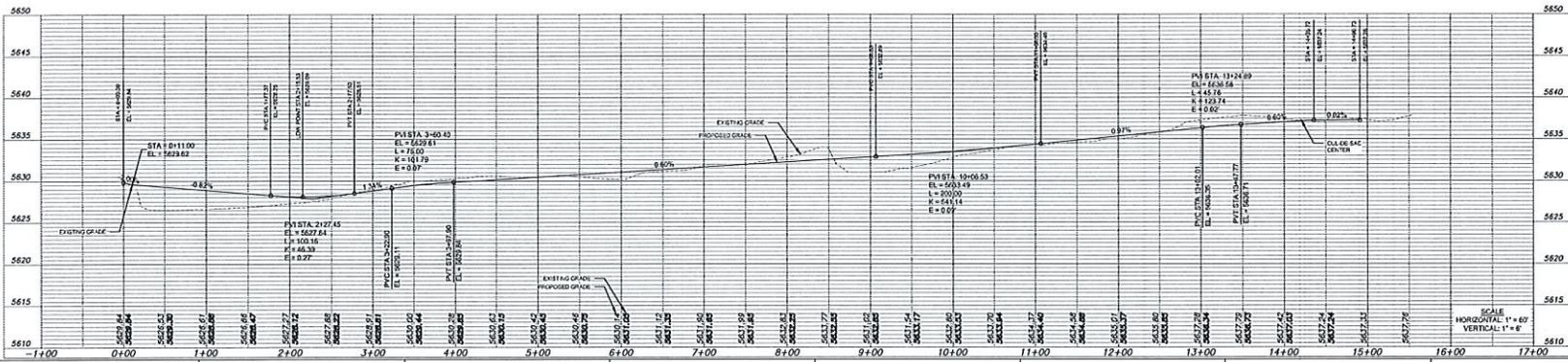


- PROJECT LEGEND**
- PROPERTY LINE
 - RIGHT OF WAY
 - ROADWAY CENTERLINE
 - EASEMENT
 - EASEMENT SETBACK
 - 100% FLOODPLAIN
 - EXISTING WATER MAIN
 - EXISTING SANITARY SEWER MAIN
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - EXISTING TIE-IN OR TIE-IN LINE
 - EASEMENT BOUNDARY
 - EXISTING FIRE MAIN
 - EXISTING WATER VALVE
 - EXISTING WATER TAP STUB OUT
 - EXISTING SANITARY SEWER MANHOLE
 - EXISTING SANITARY SEWER TAP STUB OUT
 - SURVEY SET BY F&B WITH P-CAP
 - SURVEY FOULDS BY F&B WITH P-CAP
 - SURVEY FOULDS BY F&B WITH P-CAP
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - PROPOSED UNDERGROUND FIBER OPTIC
 - PROPOSED UNDERGROUND TELEPHONE
 - PROPOSED UNDERGROUND GAS
 - PROPOSED UNDERGROUND ELECTRIC
 - PROPOSED WATER MAIN
 - PROPOSED SANITARY SEWER MAIN
 - PROPOSED FIRE MAIN
 - PROPOSED WATER VALVE
 - PROPOSED WATER TAP
 - PROPOSED SANITARY SEWER MANHOLE
 - PROPOSED WATER SERVICE

NO.	DATE	DESCRIPTION

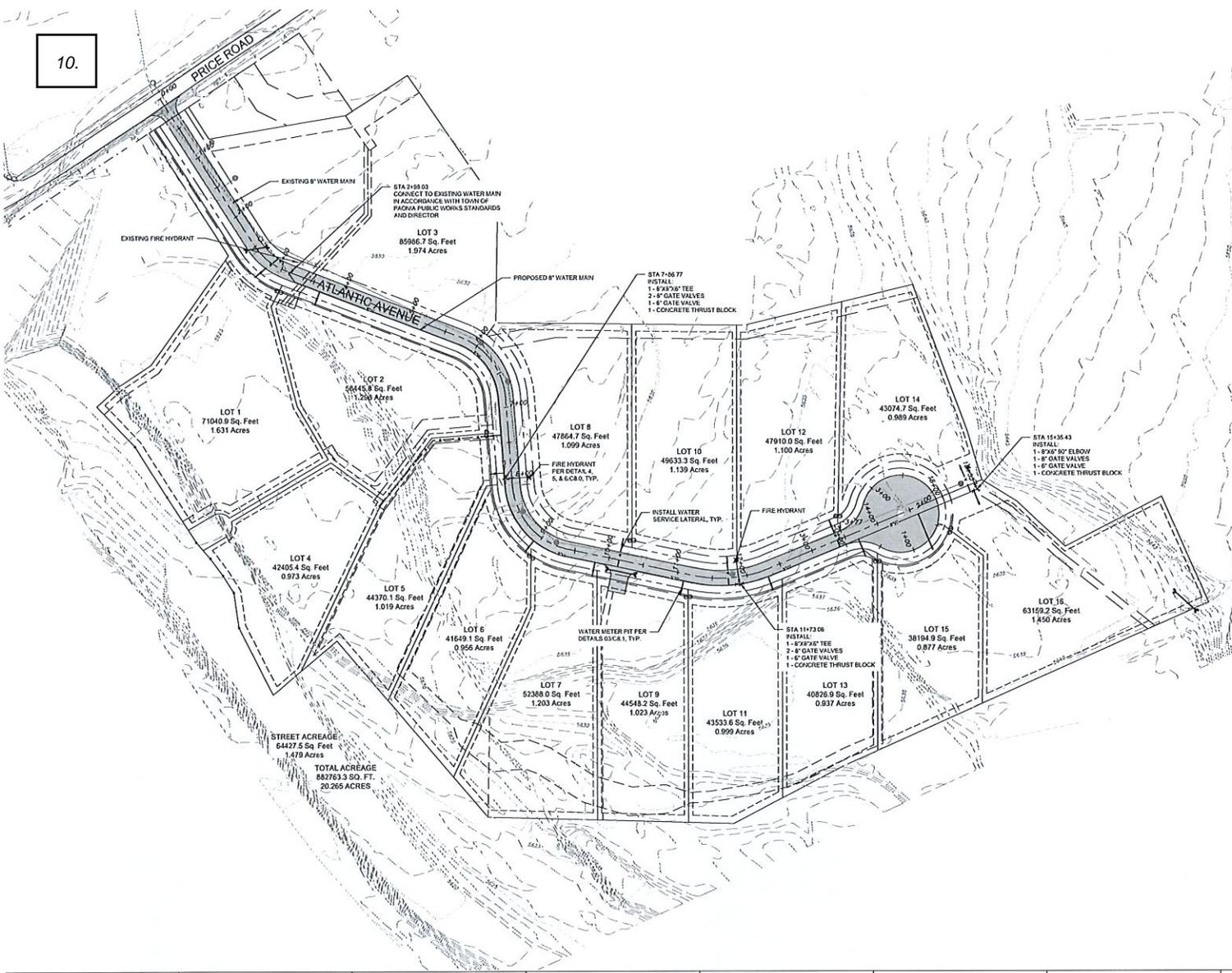
DRAWN BY: []
 CHECKED BY: []
 DATE: []
 PROJECT NO.: []
 SHEET NO.: []
 TOTAL SHEETS: []
 FILE NAME: []
 PLOT SCALE: []
 PLOT DATE: []

ATLANTIC AVENUE
20 MPH DESIGN SPEED (LOCAL)
42' R.O.W. TYPICAL TWO-WAY ROADWAY SECTION (PUBLIC)



PAONIA RIVERBANK NEIGHBORHOOD
PAONIA, CO 81428
NOT FOR CONSTRUCTION

ATLANTIC AVENUE PLAN & PROFILE
C4.0



STREET ACREAGE
64427.5 Sq. Feet
1.479 Acres

TOTAL ACREAGE
882763.3 SQ. FT.
20.265 ACRES

PROJECT LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- ROADWAY CENTERLINE
- EASEMENT
- BUILDING SETBACK
- 100% FLOORPLAN
- EXISTING 8" WATER MAIN
- EXISTING 8" SANITARY SEWER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREES OR TREE LINE
- GRAVAGE SANDS COLLECTOR
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER TAP SUB-OUT
- EXISTING SANITARY SEWER TAP SUB-OUT
- SURVEY POINT PER SURVEY OF CAP
- SURVEY POINT PER SURVEY OF CAP
- SURVEY POINT PER SURVEY OF CAP
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED UNDERGROUND FIBER OPTIC
- PROPOSED UNDERGROUND TELEPHONE
- PROPOSED UNDERGROUND GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED 8" WATER MAIN
- PROPOSED 8" SANITARY SEWER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED WATER SERVICE

NO.	DATE	DESCRIPTION

DESIGNED BY: [Signature]	CHECKED BY: [Signature]
DRAWN BY: [Signature]	DATE: [Date]
SCALE: [Scale]	PROJECT NO.: [Project No.]
DATE: [Date]	DATE: [Date]

ODISPA
 Ocala District of Intermediate Service Providers Association
 1015 N. W. 13th Ave., Ocala, FL 34475
 Phone: 352.349.1234
 Fax: 352.349.1235

PACONIA RIVERBANK NEIGHBORHOOD

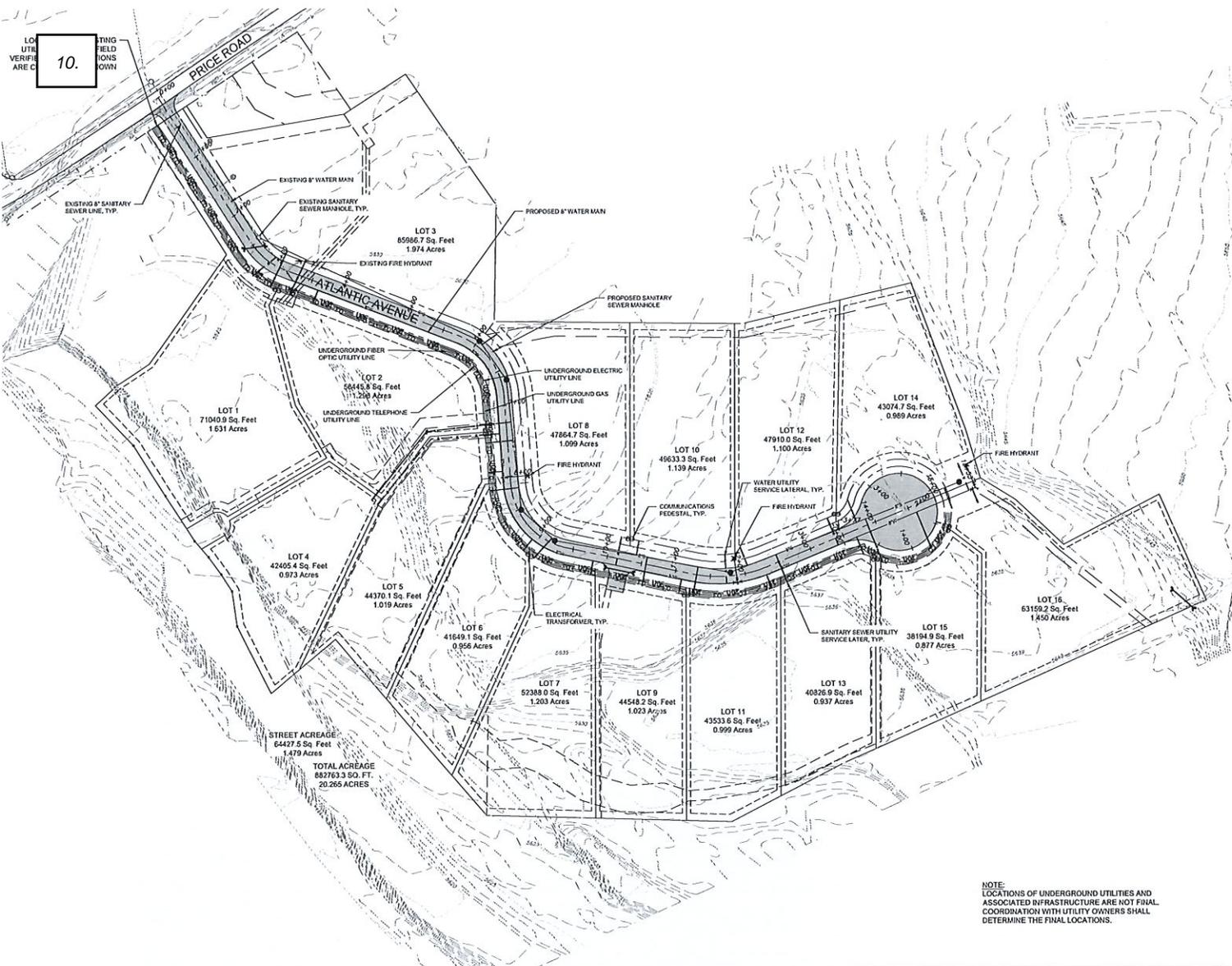
PACONIA, CO 81428

NOT FOR CONSTRUCTION



WATER DISTRIBUTION PLAN

C6.0



PROJECT LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- ROADWAY CENTERLINE
- EASEMENT
- BUILDING FOOTPRINT
- 100-YR FLOODPLAIN
- EXISTING 8" WATER MAIN
- EXISTING 8" SANITARY SEWER MAIN
- EXISTING MAJOR CONTROL
- EXISTING MINOR CONTROL
- EXISTING TREES OR TREES TO BE REMOVED
- DRAINAGE BASIN DELINEATION
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER TAP SET/OUT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SANITARY SEWER TAP SET/OUT
- SURVEY SET OF REBAR WITH 1" CAP
- SURVEY FOUND 8" REBAR WITH 1" CAP
- SURVEY FOUND 8" REBAR WITH 2" CAP
- PROPOSED MAJOR CONTROL
- PROPOSED MINOR CONTROL
- PROPOSED UNDERGROUND FIBER OPTIC
- PROPOSED UNDERGROUND TELEPHONE
- PROPOSED UNDERGROUND GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED 8" WATER MAIN
- PROPOSED 8" SANITARY SEWER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED WATER SERVICE



NO.	DATE	DESCRIPTION

SEARCHED BY: _____

INDEXED BY: _____

DATE: _____

SCALE: _____

PROJECT NO: _____

DATE: _____

FILE NAME: _____

FILE DATE: _____

FILE DATE: _____

ODISA
 ODISA CONSULTING, LLC
 1100 W. 10th Street, Suite 100
 P.O. Box 1000
 Pagan, CO 81428
 (970) 526-1100

PAONIA RIVERBANK NEIGHBORHOOD

PAONIA, CO 81428

NOT FOR CONSTRUCTION

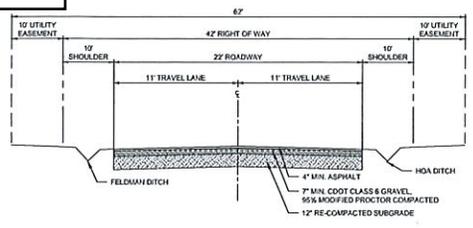
UTILITY PLAN

C7.0

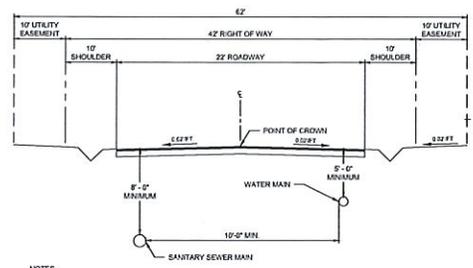
NOTE:
 LOCATIONS OF UNDERGROUND UTILITIES AND ASSOCIATED INFRASTRUCTURE ARE NOT FINAL. COORDINATION WITH UTILITY OWNERS SHALL DETERMINE THE FINAL LOCATIONS.



10.



- NOTES
1. ROADWAY SHALL BE CONSTRUCTION IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.



- NOTES
1. THERE SHALL BE AN 18 INCH VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES WHEN DIRECTLY OVERHEAD.
 2. WATER AND/OR SANITARY SEWER LINES SHALL BE A MINIMUM OF 2 FEET FROM THE EDGE OF THE CURB AND GUTTER.
 3. ENCROACHMENT ONTO TOWN MAINTAINED RIGHT OF WAY SHALL FOLLOW CONDITIONS OF THE APPLICABLE ENCROACHMENT AGREEMENT OR FRANCHISE AGREEMENT.
 4. FOR FIRE HYDRANT LOCATION SEE DETAILS 4, 5, & 6 SHEET C8.0

TABLE 1 - MINIMUM DEPTH TO TOP OF LINE (FEET)

MINIMUM DEPTH TO TOP OF LINE	COMMUNICATIONS	ELECTRIC	GAS	STORM	WATER**	SANITARY
	3	2	2 (2.5 MAX)	2	5	8

--- THESE DEPTHS ARE BASED ON 18 INCH UTILITY STANDARDS. DEVELOPER/CONTRACTOR SHALL CONFIRM DEPTHS WITH UTILITY PROVIDER FOR ANY UPDATES. INCLUDES, BUT NOT LIMITED TO, POTABLE, RAW WATER, PRELUBRICATED RAW WATER AND FUEL GAS WATER.

TABLE 2 - MINIMUM HORIZONTAL SEPARATION FOR PARALLEL UTILITIES (FEET)

UTILITIES	COMMUNICATIONS	ELECTRIC	GAS	STORM	WATER**	SANITARY
COMMUNICATIONS	1	1	3	2	2	2
ELECTRIC	1	1	1	1	DEPTH OF WATER LINE MINUS 4'	DEPTH OF SANITARY LINE MINUS 4'
GAS	2	3	-	2	2	2
STORM	2	2	2	-	10	2
WATER	---	---	2	10	10	10
SANITARY	---	---	2	2	10	-

--- THESE DEPTHS ARE BASED ON 18 INCH UTILITY STANDARDS. DEVELOPER/CONTRACTOR SHALL CONFIRM DEPTHS WITH UTILITY PROVIDER FOR ANY UPDATES. INCLUDES, BUT NOT LIMITED TO, POTABLE, RAW WATER, PRELUBRICATED RAW WATER AND FUEL GAS WATER. **FOR WATER SEPARATION NOT APPLICABLE. REGARDING VERTICAL SEPARATION IS REQUIRED. FOR EXAMPLE, A 30" DIAMETER COMMUNICATIONS LINE CAN BE LOCATED ABOVE A WATER LINE AS LONG AS VERTICAL SEPARATION IS ACHIEVED.

TABLE 3 - MINIMUM VERTICAL SEPARATION AT UTILITY CROSSINGS (FEET)

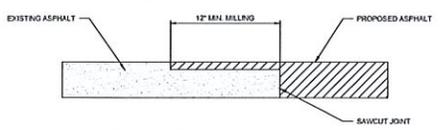
UTILITIES	COMMUNICATIONS	ELECTRIC	GAS	STORM	WATER	SANITARY
COMMUNICATIONS	1	1	1	2	2 ABOVE	2
ELECTRIC	1	1	1	2	2 ABOVE	2
GAS	1	1	1	2	2 ABOVE	2
STORM	2	2	2	2	2 ABOVE	2
WATER	2 BELOW	2 BELOW	2 BELOW	2 BELOW	2	2 ABOVE
SANITARY	2	2	2	2 BELOW	2	2

--- THESE DEPTHS ARE BASED ON 18 INCH UTILITY STANDARDS. DEVELOPER/CONTRACTOR SHALL CONFIRM DEPTHS WITH UTILITY PROVIDER FOR ANY UPDATES. INCLUDES, BUT NOT LIMITED TO, POTABLE, RAW WATER, PRELUBRICATED RAW WATER AND FUEL GAS WATER.

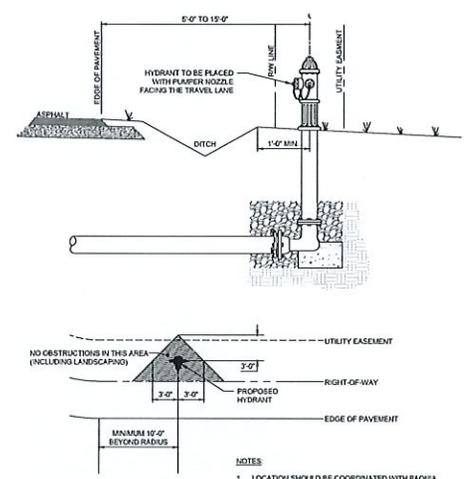
1 TWO-WAY ROAD SECTION (42' R.O.W.)
C8.0 N.T.S.

2 STANDARD UTILITY LOCATIONS IN STREET CROSS-SECTION
C8.0 N.T.S.

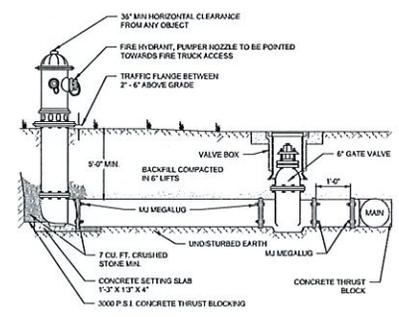
3 MINIMUM UTILITY DEPTHS, HORIZONTAL & VERTICAL SEPARATION
C8.0 N.T.S.



1. THE SAWCUT SHALL BE FULL DEPTH AND 12" MINIMUM FROM EXISTING EDGE OF ASPHALT.
2. THE DEPTH OF MILLING SHALL BE THE SAME AS THE THICKNESS OF THE TOP LIFT OF ASPHALT, 2" MINIMUM.
3. THE WIDTH OF THE MILLING SHALL BE A 12" MINIMUM, BUT CAN BE UP TO THE FULL WIDTH OF THE EXISTING ASPHALT.



- NOTES
1. LOCATION SHOULD BE COORDINATED WITH PAONIA INSIDE THE PAONIA TOWN LIMITS.



- ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.
- NOTES
1. FIRE HYDRANT SHALL BE AS MANUFACTURED MULLER/MODERN CENTERLINE.
 2. BRANCH PIPE SHALL BE PVC IN A C800.
 3. 6" GATE VALVE SHALL BE #1000 C800 2" SQUARE, OPEN CENTERLINE TO CENTERLINE.
 4. MECHANICAL JOINT BOLTS SHALL BE C800 OR STAINLESS STEEL.
 5. FIRE HYDRANTS WILL BE INSTALLED IN THE 4" VERTICAL POSITION.
 6. FIRE HYDRANTS TO BE LOCATED IN ROW OR 10 FOOT EASEMENT ADJACENT TO ROW.
 7. INSTALLATION AND MATERIALS SHALL CONFORM TO TOWN OF PAONIA MUNICIPAL CODE.
 8. TRACER WIRE IS REQUIRED ON ALL NEW WATER PIPE INFRASTRUCTURE PER SUE REGULATIONS. TRACER WIRE SHALL BE NO. 12 GAUGE SOLID COPPER.

4 SAW-CUT & MILLING
C8.0 N.T.S.

5 TYPICAL FIRE HYDRANT INSTALLATION LOCATION
C8.0 N.T.S.

6 TYPICAL FIRE HYDRANT INSTALLATION
C8.0 N.T.S.

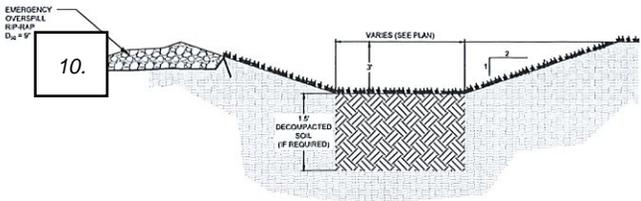
NO.	DATE	DESCRIPTION

DATE: 04/14/2025	BY: [Signature]
PROJECT: [Project Name]	SCALE: [Scale]
FILE NAME: [File Name]	PLOT DATE: 04/14/2025

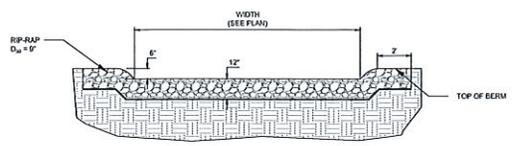
ODISEA
CONSULTING & PROJECTS
1015 S. 10th Street, Suite 100
Paonia, CO 81428
Tel: 970.261.1111

PAONIA RIVERBANK NEIGHBORHOOD
PAONIA, CO 81428
NOT FOR CONSTRUCTION

CIVIL DETAILS
C8.0



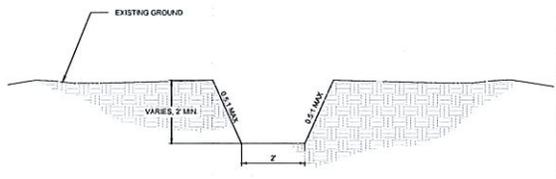
CROSS-SECTION



EMERGENCY OVERSPILL RIP-RAP SECTION

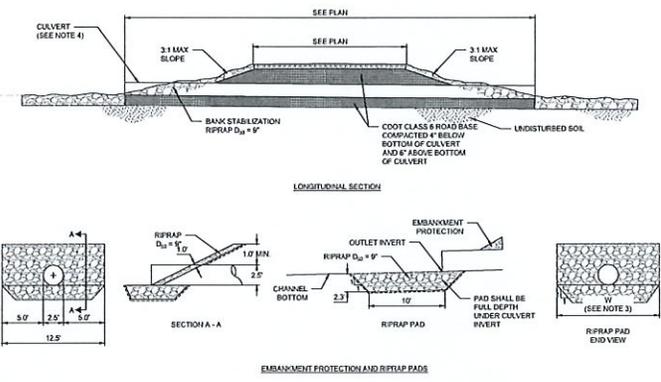
MAINTENANCE

- FIRST YEAR AFTER PLANTING**
- ADEQUATE WATER IS CRITICAL TO PLANT SURVIVAL AND TEMPORARY IRRIGATION MAY BE NEEDED UNLESS RAINFALL IS ADEQUATE UNTIL PLANTS MATUR
 - INSPECT AFTER SIGNIFICANT RAIN EVENTS (E.G. >0.5 INCH) AS NEEDED
 - PRUNE AND WEED TO MAINTAIN APPEARANCE
 - REMOVE TRASH AND DEBRIS
 - NOW FILTER STRIPGRASS CHANNEL
 - REPLACE VEGETATION WHENEVER THE PERCENT COVER OF ACCEPTABLE VEGETATION FALLS BELOW 90 PERCENT OR PROJECT SPECIFIC PERFORMANCE REQUIREMENTS ARE NOT MET. IF VEGETATION SUFFERS FOR NO APPARENT REASON, CONSULT WITH HORTICULTURIST AND/OR TEST SOIL AS NEEDED
 - REPAIR ANY STRUCTURAL DAMAGE TO CHECK DAMS OR THE IN TO DOWNSTREAM CHANNEL
- ANNUALLY**
- INSPECT INFLOW AND PRETREATMENT SYSTEMS FOR CLOGGING (OFF-LINE SYSTEMS) AND REMOVE ANY SEDIMENT
 - INSPECT FILTER STRIPGRASS CHANNEL FOR EROSION OR GULLYING. SOO AS NECESSARY, HERBACEOUS VEGETATION, TREES AND SHRUBS SHOULD BE INSPECTED TO EVALUATE THEIR HEALTH AND REPLANTED AS APPROPRIATE TO MEET PROJECT GOALS
 - REMOVE ANY DEAD OR SEVERELY DISEASED VEGETATION
- ANNUALLY IN FALL**
- INSPECT AND REMOVE ANY SEDIMENT AND DEBRIS BUILDUP IN PRETREATMENT AREAS
 - INSPECT INFLOW POINTS AND INFILTRATION SURFACE FOR BUILDUP OF ROAD SAND ASSOCIATED WITH SPRING MELT PERIOD. REMOVE AS NECESSARY TO MAINTAIN INFILTRATION RATES AND VOLUME CAPACITY. AND REPLANT AREAS THAT HAVE BEEN IMPACTED BY SAND/SALT BUILD UP
 - CHECK STRUCTURAL STABILITY OF CHECK DAMS
- ANNUALLY IN SPRING**
- CUT BACK AND REMOVE PREVIOUS YEAR'S PLANT MATERIAL AND REMOVE ACCUMULATED LEAVES IF NEEDED (OR CONDUCT CONTROLLED BURN WHERE APPROPRIATE)

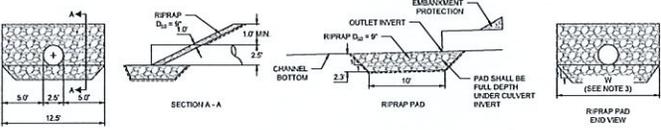


2 TYPICAL IRRIGATION DITCH SECTION

1 STORMWATER RETENTION



LONGITUDINAL SECTION



EMBANKMENT PROTECTION AND RIP-RAP PADS

NOTES

1. FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVERCUT TO A MINIMUM OF 6" AND REFILLED WITH AGGREGATE MATERIAL AS DIRECTED BY THE GEOTECHNICAL ENGINEER
2. BEDDING AND BACKFILL MATERIALS IN THE PIPE ZONE SHALL BE COMPACTED AS SPECIFIED BY THE GEOTECHNICAL ENGINEER PRIOR TO BACKFILLING THE REMAINDER OF THE TRENCH.
3. TOP WIDTH (W) EQUALS 5 TIMES THE PIPE DIAMETER OR THE WIDTH OF THE EMBANKMENT SLOPE PROTECTION, WHICHEVER IS GREATER
4. SEE PLAN FOR CULVERT MATERIAL AND SIZE

3 CULVERT INSTALLATION

DATE	BY

DESIGNED BY:	DATE:
CHECKED BY:	
APPROVED BY:	
PROJECT NAME:	
PROJECT DATE:	



PAONIA RIVERBANK NEIGHBORHOOD
PAONIA, CO 81428
NOT FOR CONSTRUCTION

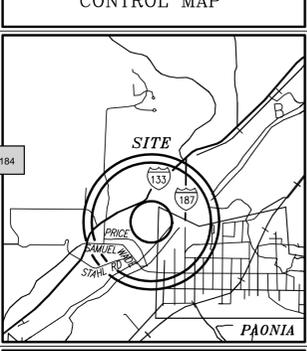
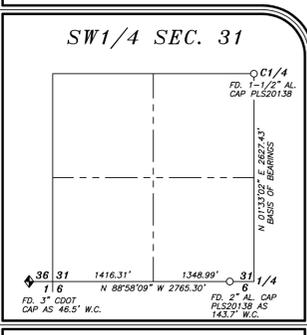
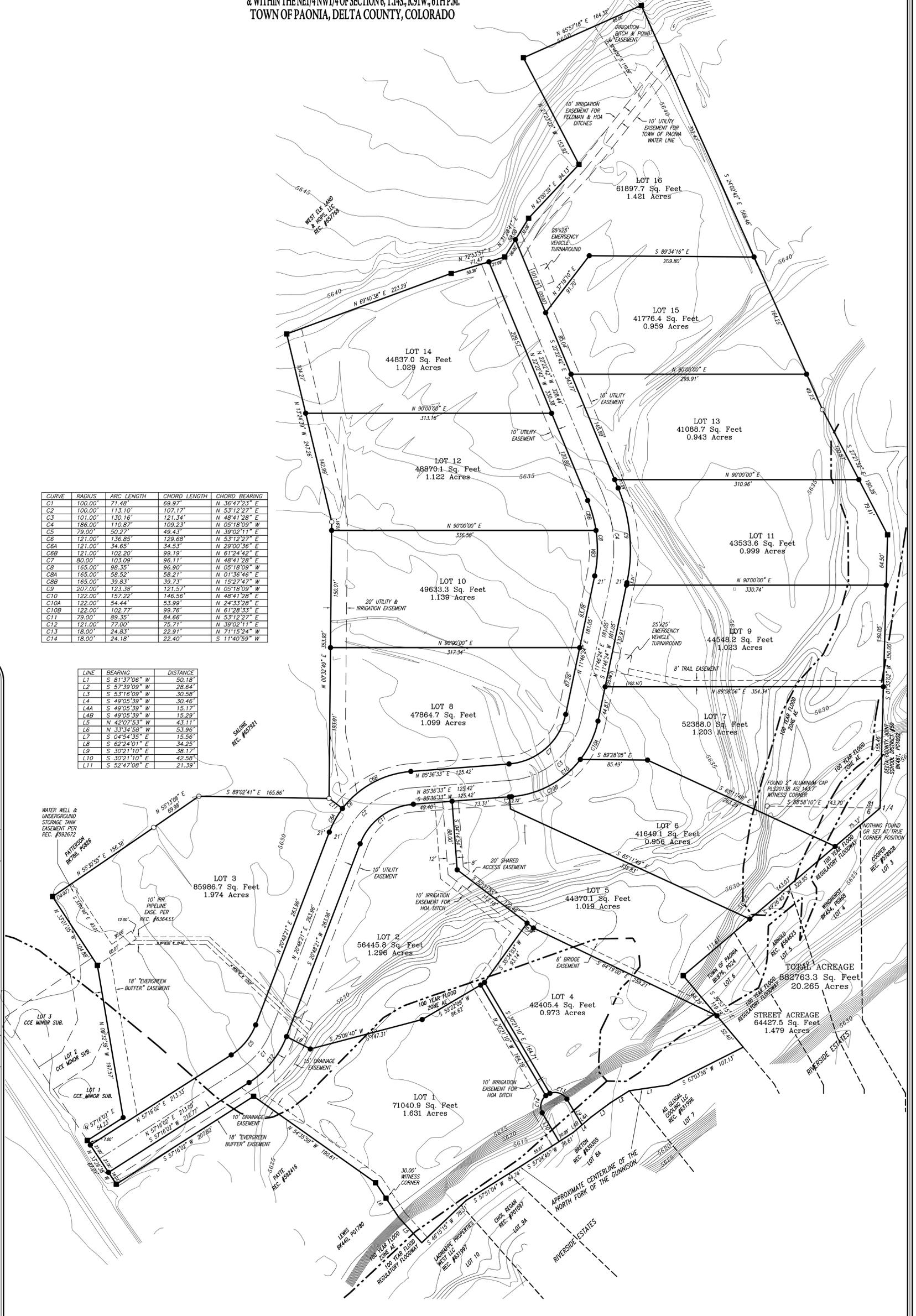
CIVIL DETAILS
C8.3

PRELIMINARY PLAT OF RIVERBANK NEIGHBORHOOD SUBDIVISION

A RE-SUBDIVISION OF LOTS 1, 2 & 3 OF RIVERBANK MINOR SUBDIVISION #2
WITHIN THE E1/2 SW1/4 OF SECTION 31, T.13S., R.91W., 6TH P.M.
& WITHIN THE NE1/4 NW1/4 OF SECTION 6, T.14S., R.91W., 6TH P.M.
TOWN OF PAONIA, DELTA COUNTY, COLORADO

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	100.00'	71.48'	69.97'	N 36°47'23" E
C2	100.00'	113.10'	107.17'	N 53°12'27" E
C3	101.00'	130.16'	121.34'	N 48°41'28" E
C4	186.00'	110.87'	109.23'	N 05°18'09" W
C5	79.00'	50.27'	49.43'	N 39°02'11" E
C6	121.00'	136.85'	129.68'	N 53°12'27" E
C6A	121.00'	34.65'	34.53'	N 29°00'36" E
C6B	121.00'	102.20'	99.19'	N 61°24'42" E
C7	80.00'	103.09'	96.11'	N 48°41'28" E
C8	165.00'	98.35'	96.90'	N 05°18'09" W
C8A	165.00'	58.52'	58.21'	N 01°36'46" E
C8B	165.00'	39.83'	39.73'	N 15°27'47" W
C9	207.00'	123.38'	121.57'	N 05°18'09" W
C10	122.00'	157.22'	146.56'	N 48°41'28" E
C10A	122.00'	54.44'	53.89'	N 24°33'28" E
C10B	122.00'	102.77'	99.76'	N 61°28'33" E
C11	79.00'	89.35'	84.66'	N 53°12'27" E
C12	121.00'	77.00'	75.71'	N 39°02'11" E
C13	18.00'	24.83'	22.91'	N 71°15'24" W
C14	18.00'	24.16'	22.40'	N 11°40'59" W

LINE	BEARING	DISTANCE
L1	S 81°37'06" W	50.18'
L2	S 57°39'09" W	28.64'
L3	S 53°16'09" W	30.58'
L4	S 49°05'39" W	30.46'
L4A	S 49°05'39" W	15.17'
L4B	S 49°05'39" W	15.29'
L5	N 42°07'53" W	43.11'
L6	N 33°34'58" W	53.96'
L7	S 04°54'53" E	15.56'
L8	S 62°24'01" E	34.25'
L9	S 30°21'10" E	38.17'
L10	S 30°21'10" E	42.58'
L11	S 52°47'08" E	21.39'



- ### TYPICAL LEGEND
- Set mag nail in asphalt
 - Set 5/8" rebar with 2" aluminum cap PLS38255
 - Set 5/8" rebar with 2" aluminum cap PLS38255 as Witness Corner
 - Found 3/4" rebar with 3-1/4" aluminum cap PLS25972
 - Upgraded found monument to 3/4" rebar with 3-1/4" aluminum cap PLS38255
 - ◆ GLO/BLM/BuRec/USFS
 - Found 5/8" rebar with 1-1/2" aluminum cap PLS12786 or as noted
 - Found 5/8" rebar with 2" aluminum cap PLS25972
 - Fencelines
 - E Electric (overhead)
 - UE Electric (underground)
 - Water line
 - Easement
 - Street Phase Line
 - Building Setback Line (10' Front, 4' Side)
 - Irrigation ditch
 - 100 Year Flood Zone FIRM 08029-C0501-D

BASIS OF BEARINGS:
N 01°33'02"E FROM THE 1/4 CORNER COMMON TO SECTIONS 31 AND 6 TO THE C1/4 CORNER OF SECTION 31
GEODETIC NORTH
GPS OBSERVATION

SCALE 1"=60 U.S. SURVEY FEET

SURVEYOR'S CERTIFICATE
I, Kris Crawford, hereby certify that this plat was prepared under my direct supervision and that said survey and plat conform to the requirements of the Colorado Revised Statutes, and all applicable Town of Paonia regulations.

Kris Crawford PLS 38255 Date

WILMORE & COMPANY
PROFESSIONAL LAND SURVEYING, INC.

406 Grand Avenue 970.527-4200 PHONE
P.O. Box 1652 970.527-4202 FAX
Paonia, Colorado 81428 www.wilmorelandsurveying.com

Defining Boundaries EMAIL kris@wilmorelandsurveying.com

FIELD CREW:	
KC	
DRAFTER:	
KC	
CHECKED BY:	
RAW	

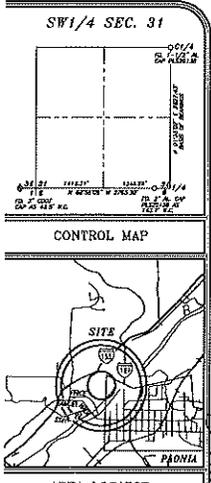
RIVERBANK NEIGHBORHOOD SUBDIVISION
A RE-SUBDIVISION OF LOTS 1, 2 & 3 OF RIVERBANK MINOR SUBDIVISION #2
WITHIN THE E1/2 SW1/4 OF SECTION 31, T.13S., R.91W., 6TH P.M.
& WITHIN THE NE1/4 NW1/4 OF SECTION 6, T.14S., R.91W., 6TH P.M.
TOWN OF PAONIA, DELTA COUNTY, COLORADO

J20157 26 AUGUST 2020 SHEET 1 OF 2

**PRELIMINARY PLAT OF
RIVERBANK NEIGHBORHOOD SUBDIVISION**
A RE-SUBDIVISION OF LOTS 1, 2 & 3 OF RIVERBANK MINOR SUBDIVISION #2
WITHIN THE E1/4 SW1/4 OF SECTION 31, T.14S, R.91W, 6TH P.M.
& WITHIN THE E1/4 NW1/4 OF SECTION 6, T.14S, R.91W, 6TH P.M.
TOWN OF PAONIA, DELTA COUNTY, COLORADO

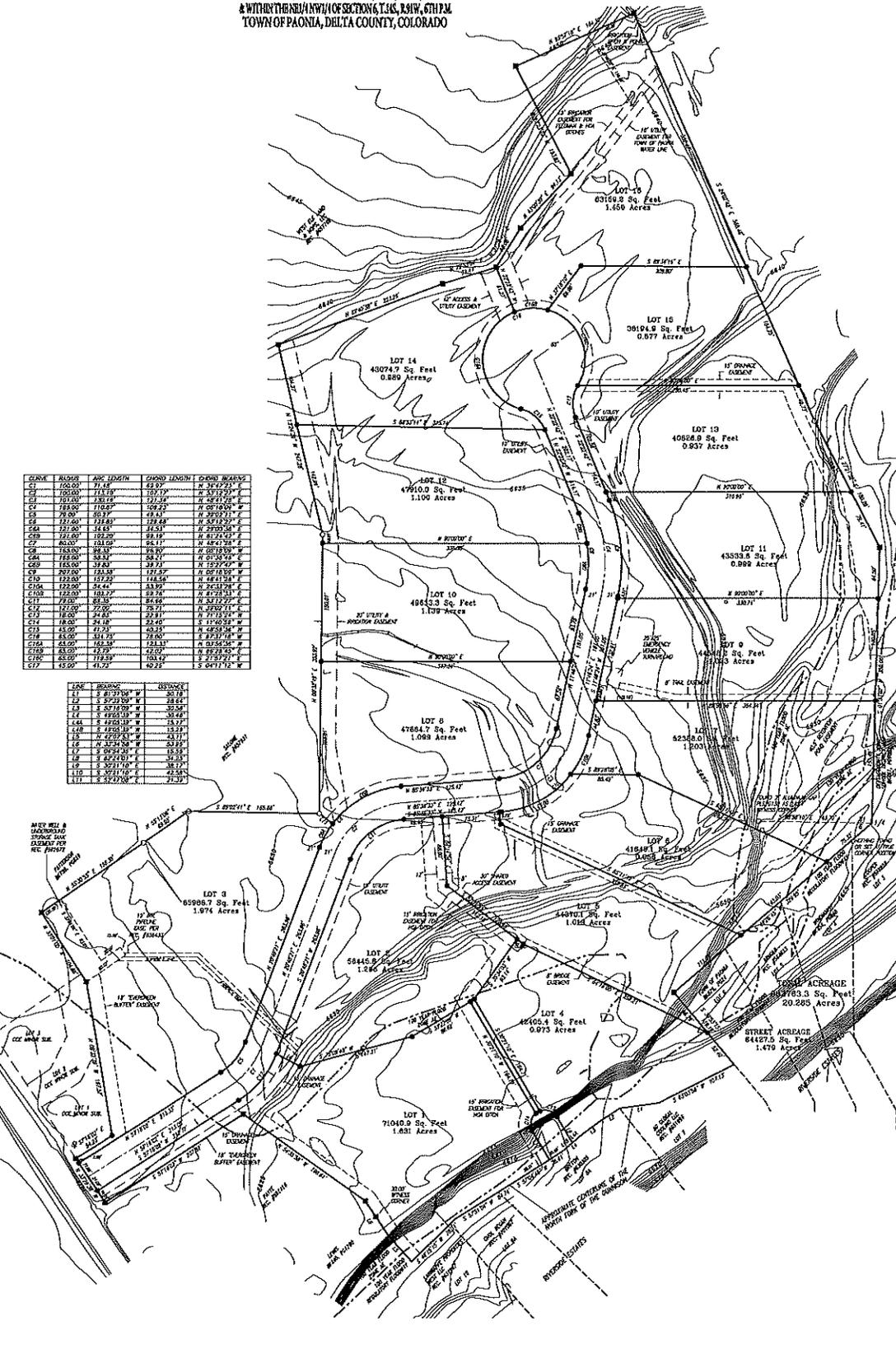
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	100.00	37.14	62.99	N 34°23'31" E
C2	100.00	74.28	125.98	N 53°47'02" E
C3	100.00	111.42	177.97	N 68°10'33" E
C4	100.00	148.56	229.96	N 77°34'04" E
C5	28.90	10.37	19.13	N 32°02'21" E
C6	111.42	134.83	178.88	N 53°47'02" E
C7	121.50	14.48	14.51	N 27°00'00" E
C8	21.00	10.10	18.17	N 42°21'30" E
C9	100.00	101.02	161.11	N 62°45'00" E
C10	165.00	88.34	148.71	N 50°10'00" E
C11	165.00	176.68	297.42	N 60°20'00" E
C12	165.00	265.02	397.13	N 57°30'00" W
C13	202.00	134.83	178.88	N 53°47'02" E
C14	122.50	127.22	178.50	N 48°13'00" E
C15	122.50	254.44	357.00	N 54°26'00" E
C16	122.50	103.72	187.54	N 47°38'00" E
C17	122.50	207.44	375.08	N 54°26'00" E
C18	16.00	24.88	27.81	N 71°02'00" E
C19	16.00	49.76	55.62	N 71°02'00" E
C20	43.00	17.73	18.25	N 43°00'00" E
C21	43.00	35.46	36.50	N 43°00'00" E
C22	43.00	142.30	121.37	N 20°50'00" E
C23	85.00	14.77	15.00	N 88°48'00" E
C24	85.00	29.54	30.00	N 88°48'00" E
C25	85.00	118.39	103.74	S 27°57'00" E
C26	45.00	41.72	40.22	S 64°17'00" E

LINE	BEARING	DISTANCE
L1	S 87°37'00" W	28.74
L2	S 22°32'00" W	18.17
L3	S 57°18'00" W	20.50
L4	S 18°15'00" W	18.17
L5	S 42°00'00" W	18.17
L6	N 27°00'00" E	14.51
L7	N 42°21'30" E	18.17
L8	N 62°45'00" E	161.11
L9	N 68°10'33" E	177.97
L10	N 77°34'04" E	229.96
L11	N 88°48'00" E	30.00
L12	S 27°57'00" E	103.74
L13	S 64°17'00" E	40.22



- TYPICAL LEGEND**
- Set mag nail in asphalt
 - Set 3/8" rebar with 2" aluminum cap P1426245
 - Set 3/8" rebar with 2" aluminum cap P1426246 or Witness Cap
 - Found 3/4" rebar with 3-1/4" aluminum cap P1426378
 - Overlaid (found monument) 3/4" rebar with 3-1/4" aluminum cap P1426378
 - 3/4" dia./30-day/125%
 - Found 5/8" rebar with 1-1/2" aluminum cap P1426245 or 14 30-day
 - Found 3/8" rebar with 2" aluminum cap P1426378
 - Faceplate
 - Electric (overhead)
 - Electric (underground)
 - Water line
 - Sanitary
 - Street Phase Line
 - Building Setback Line (1/4" Final, 1/2" Bldg)
 - Irregularity Mark
 - 100 Year Flood Zone FROM 0001-0001-D

BASIS OF BEARINGS:
N61°33'02"E FROM THE 1/4 CORNER COMMON TO SECTIONS 31 AND 6 TO THE C1/4 CORNER OF SECTION 31
GEOIDETIC NORTH
GPS OBSERVATION
SCALE 1"=60 U.S. SURVEY FEET
120



SURVEYOR'S CERTIFICATE
I, ROY CRONKLE, hereby certify that this plat was prepared under my direct supervision and that said survey and plat conform to the requirements of the Colorado Revised Statutes, and of applicable form of Record regulations.

NOTE: According to Colorado law, any lot or parcel based upon a defect in this survey must be commensurate with the area shown on this plat. No adjustment in the area of any parcel based upon this defect in this survey shall be commensurate more than ten percent from the area shown on this certification hereon.

<p>WILMORE & COMPANY PROFESSIONAL LAND SURVEYING, INC. 408 Grand Avenue P.O. Box 1632 Paonia, Colorado 81428 www.wilmoreandcompany.com Defting Boundaries EMAIL: rcr@wilmoreandcompany.com</p>	<p>FIELD CLERK KC SUSAN RAY KC SUSAN RAY RAW</p>	<p>RIVERBANK NEIGHBORHOOD SUBDIVISION A RE-SUBDIVISION OF LOTS 1, 2 & 3 OF RIVERBANK MINOR SUBDIVISION #2 WITHIN THE E1/4 SW1/4 OF SECTION 31, T.14S, R.91W, 6TH P.M. & WITHIN THE E1/4 NW1/4 OF SECTION 6, T.14S, R.91W, 6TH P.M. TOWN OF PAONIA, DELTA COUNTY, COLORADO</p>
	<p>120157</p>	<p>5 JANUARY 2021</p>
	<p>120157</p>	<p>SHEET 1 OF 2</p>
	<p>SCALE 1"=60 U.S. SURVEY FEET</p>	

Subdivision Improvements Agreement

between

the Town of Paonia, Colorado

and

Old World LLC

version 7.0 ("*low density design*")

1. PARTIES: The parties to this Development Improvements Agreement ("the Agreement" or "Agreement") are Old World (Building & Restoration) LLC ("*The Developer*") and the Town of Paonia, Colorado ("the Town" or "Town").

For valuable consideration, the receipt and adequacy of which is acknowledged, the parties agree as follows:

2. EFFECTIVE DATE: The Effective Date of the Agreement shall be the date of recordation of the final plat for the Riverbank Neighborhood Subdivision.

RECITALS

The Developer seeks permission to develop Lot 1 of the Riverbank Minor Subdivision, as recorded March 21st, 2012 under Reception Number 657278 on ("*the Property*" or "*Property*") within the *Town* to be known as Riverbank Neighborhood PUD, which property is more particularly described on the approved Final Plat, incorporated by this reference and recorded as set forth below. *The Developer* shall be the developer of three phases (A up to and including C), which is the subject of a duly approved Final Plat ("the Plat") recorded on DATE, with reception-number NUMBER of the real property records of the Delta County Clerk and Recorder, and the subject of specific Engineering Plans.

The *Town* seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements on the Property, in phases, and limiting the harmful effects of substandard developments. The purpose of this Agreement is to protect the *Town* from the cost of completing necessary improvements itself and is not executed for the benefit of materialmen, laborers, or others providing the work, services or material to *The Developer* and/or the Property or for the benefit of the owners, purchasers or users of the Property. The mutual promises, covenants, and obligations contained in this Agreement are authorized by state law, the Colorado Constitution and the *Town's* land development ordinances.

DEVELOPER'S OBLIGATION

3. IMPROVEMENTS: *The Developer* will design, construct and install, at its own expense, those on-site and off-site improvements for water, sewer and roads that are specified by Engineering Plans¹, separately for each phase, attached and incorporated by this reference ("the Improvements" or "Improvements"). *The Developer* agrees to pay the *Town* for inspection services performed by or for the *Town*. The hourly rate of "in-house"

¹ Engineering Plans are part of the subdivision application.

Town inspection services is the *Town's* actual costs for the inspection, not to exceed \$45.⁰⁰ per hour. The scope of this project is such that the *Town* may have to engage independent consultant(s) to adequately provide inspection services. The *Town* shall propose such an independent consultant, and the developer shall have a right of refusal. *The Developer* shall pay the consultant's actual charges to the *Town*, including, but not limited to, those for inspections by the *Town Engineer*. *The Developer's* obligation to complete a phase is and will be independent of any obligations of the *Town* contained herein.

Notwithstanding anything to the contrary contained in this Agreement and the Project Plans, Developer shall have no obligation to develop all or any portion of the Project.

4. SECURITY: The work will be performed at the furthest extensions of the *Towns'* infrastructure, at locations inaccessible to the public. No bonding is required from the *Developer*.

In lieu of a bond, *Developer* will, before commencing work on a phase, place funds in an separate account; and show proof to the *Town*. These funds will be sufficient for payment of improvements for water, sewer and roads as listed a Development Cost Estimate.

5. STANDARDS: The *Developer* must construct the Improvements on *The Property* according to the standards and specifications set forth in the recorded Final Plat and/or the Engineering Plans. These improvement are summed up as:

- sanitary sewer main line,
- water main line,
- road,
- road signage,
- streetlights (3).

The *Developer* must also construct the improvements specified in exhibit B, "other improvements".

All disturbed areas in the project must be successfully revegetated with permanent grasses and/or landscaping or areas that will be re-graded in the future may be revegetated with native drought tolerant grasses. Successful revegetation is determined by a 70% success rate of the grasses. Temporary irrigation systems must be used until vegetation is established and can survive without supplemental irrigation. Disturbed areas should be revegetated within 60 days of surface disturbance. Topsoil storage piles must not remain for periods longer than 180 days and must be revegetated with grasses to prevent fugitive dust. Soil stockpiles proposed to remain for periods longer than 180 days must be specifically approved by the *Town's* Board of Trustees for a defined period of time. All disturbed areas, soil stockpiles and revegetated areas must be maintained in a predominately weed free condition.

6.WARRANTY: *The Developer* warrants that each of the Improvements will be free from defects for a period of twelve (12) months from the date of Initial Acceptance by the *Town*.

7. COMMENCEMENT: Before commencing work on any new phase(s), the developer will apply with the *Town* for an administrative review by the *town's* Design Review Committee.

- Developer will post the property notifying meeting with the Design Review Committee.
- The property will be posted with a sign to be at least 2 foot by 2 foot (2' x2').
- The property will be posted at least 15 days prior to said meeting.

- The *town's* Design Review Committee must grant permission if the Developer has fulfilled all obligations stemming from this Development Improvements Agreement for all previously commenced phases.

8. COMPLETION: For each phase separately, *The Developer* must complete the Improvements of this phase within 12 (twelve) months after they have commenced (the "Completion Period").

9. COMPLIANCE WITH LAW: *The Developer* must comply with all applicable federal, state and local laws, ordinances and regulations in effect at the Effective Date. When the *Town* is mandated by a higher authority and it is necessary to protect the public health or safety, *The Developer* shall be subject to laws, ordinances and regulations that become effective after the Effective Date.

10. NOTICE OF DEFECT: Subject to Section 5 above, the Engineer for *The Developer* must provide timely notice to the contractor, the issuer of security and the *Town* Engineer whenever inspection reveals, or the said Engineer otherwise has knowledge, that an improvement does not conform to *Town* standards or any specifications approved in the Final Plat or Engineering Plans or is otherwise defective. *The Developer* will have thirty (30) days from the issuance of such notice to correct the defect. The *Town* may grant reasonable extensions.

11. ACCEPTANCE OF IMPROVEMENTS:

After completion by *The Developer*, the *Town* will inspect the Improvements. Unless the inspection reveals defects, this entails an Initial Acceptance of the Improvements by the *Town*.

Initial Acceptance of any Improvements does not constitute a waiver by the *Town* of any rights it may have on account of any defect in or failure of the Improvement.

The Improvements must be warranted by *The Developer* for 12 months following the date of Initial Acceptance by the *Town*, pursuant to applicable ordinances and/or regulations. *The Developer* must perform and pay all costs of repairs or maintenance of any defects existing or occurring during the warranty period, including reimbursing the *Town* for any expenses it incurs as a result of any such defect.

The warranty by *The Developer* terminates twelve months after Initial Acceptance. The *Town's* Final Acceptance of Improvements will not be given or obtained until *The Developer* presents a document or documents, for the benefit of the *Town*, showing that *The Developer* owns the Improvements in fee simple, or as accepted by the *Town*, and that there are no liens, encumbrances or other restrictions, other than those that have been accepted by the *Town*, on the Improvements.

12. ZONING Developer does not propose changes to the zoning. The property has been annexed as R-2 residential zoning. New lots will maintain this R-2 zoning.

13. EVENTS OF DEFAULT: The following conditions, occurrences or actions will constitute a default by *The Developer* during the Completion Period:

- a. *The Developer's* failure to complete each portion of the Improvements in conformance with the time schedule provided in paragraph number seven (7), above;
- b. *The Developer's* failure to demonstrate reasonable intent to correct defective construction of any Improvement within the applicable correction period;

- c. *The Developer's* insolvency, the appointment of a receiver for *The Developer* or the declaration of bankruptcy of *The Developer*; in such event the *Town* may immediately declare a default, after notification to *The Developer*;
- d. Upon notification to the *Town*, by any lender with a lien on the property, of a default on an obligation; the *Town* may immediately declare a default, after notification to *The Developer*;
- e. Any foreclosure of any lien against the Property or a portion of the Property or assignment or conveyance of the Property in lieu of foreclosure; the *Town* may immediately declare a default, after notification to *The Developer*.

The *Town* may not declare a default until written notice has been sent to *The Developer* at the address on file with the *Town*. Notice is and shall be deemed effective five (5) calendar days after mailing thereof by first class United States mail, postage prepaid.

14. MEASURE OF DAMAGES: The measure of damages for breach of this Agreement by *The Developer* will be the reasonable cost of satisfactorily completing the Improvements for any phase then under development, plus reasonable *Town* administrative expenses. Administrative expenses may include, but are not limited to, contracting costs, collection costs and the value of planning, engineering, legal and administrative staff time devoted to the collection completion of the Improvements. There can be no damages for phases which are not yet being developed,

15. WATER & SEWER TAPS: For each lot, the water and sewer tap will be payable by the lot owner when the (residential) building permit is applied for.

The water and sewer taps for two lots of the Riverbank Neighborhood minor subdivision #2 have already been purchased. These taps transfer to lots 1 and 2 of the low density design.

16. INDEMNIFICATION: When contracting work at the Property, *The Developer* will oblige its contractor(s) to indemnify and hold the *Town*, its officers, employees, agents and assigns harmless from and against all claims, costs and liabilities of every kind and nature, for injury or damage received or sustained by any person or entity in connection with, or on account of the performance or non-performance of work at the Property.

The Developer further agrees to aid and defend the *Town* in the event that the *Town* is named as a defendant in an action concerning the performance of work pursuant to this Agreement except where such suit is brought by *The Developer* against the *Town*. *The Developer* is not an agent or employee of the *Town*.

17. NO WAIVER: No waiver of any provision of this Agreement by either party will be deemed or constitute a waiver of any other provision, nor will it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by both parties; nor will the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. A party's failure to exercise any right under this Agreement will not constitute the approval of any wrongful act by the other party or the acceptance of any Improvement.

18. AMENDMENT OR MODIFICATION: The parties to this Agreement may amend or modify the Agreement only by written instrument executed on behalf of the *Town* by the Town Manager or his designee and by *The Developer* or his authorized officer. Such amendment or modification will be properly notarized before it may be deemed effective.

19. ATTORNEY FEES: Should either party be required to resort to litigation to enforce the terms of this Agreement, the prevailing party, plaintiff or defendant, will be entitled to costs, including reasonable attorney's fees and expert witness fees, from the opposing party. If relief is awarded to both parties, the attorney's fees may be equitably divided between the parties by the decision maker.

20. VESTED RIGHTS: The rights identified herein or as may hereafter be acquired by operation of any state or local vested property rights law shall constitute vested property rights under this Agreement and shall not be taken by the Town without just compensation. These rights include the following:

(i) No Downzoning. The maximum number of residential dwelling units and acres for residential use, and the total gross acres for non-residential uses, as set forth in the Project Plans, as such plans may be amended from time to time, are hereby vested.

(ii) Uses, Densities and Locations. The right to develop the Property in accordance with the uses, densities, and general locations set forth in the Project Plans, as such may be amended from time to time, is hereby vested.

(iii) Site Development Standards. The right to develop the Property in accordance with the design standards, development standards, and terms and conditions set forth in the Project Plans, as such may be amended from time to time, is hereby vested.

(iv) Timing of Development. The right to commence and complete development of the Property at such time, in such order, and at such rate as Developer deems appropriate in its sole discretion, is hereby vested.

(v) Subsequent Approvals. The right to receive all *Town* approvals necessary for development of the Project provided that subsequent final plat submittals or applications for other approvals comply with this Agreement and the Project Plans as the same may be amended, is hereby vested.

21. INTEGRATION: This Agreement, together with the recorded Final Plat, Engineering Plans, exhibits and attachments hereto, constitutes the entire agreement between the parties regarding completion and installation of the improvements and no statement(s), promise(s) or inducement(s) that is/are not contained in this Agreement will be binding on the parties.

22. THIRD PARTY RIGHTS: Except for the person or entity which posts the security and respective successors and assigns of the parties formally approved by the parties, in writing, no person or entity who or which is not a party to this Agreement will have any right of action under this Agreement.

23. TIME: For the purpose of computing the Completion Periods, and time periods for *Town* action, such times in which war, civil disasters, or acts of God occur or exist will not be included if such times prevent *The Developer* or the *Town* from performing its obligations under the Agreement.

24. SEVERABILITY. If any part, term, or provision of this Agreement is held by a court or courts of competent jurisdiction to be illegal or otherwise unenforceable, such illegality or unenforceability will not affect the validity of any other part, term, or provision and the rights of the parties will be construed as if the part, term, or provision was never part of the Agreement.

25. BENEFITS: The Property may be transferred, to the full extent of the total interest therein of *The Developer*, but the benefits and obligations of this Agreement are personal to *The Developer* and may not be assigned without the express written approval of the *Town*. Such approval may not be unreasonably withheld, but any unapproved assignment is void. Notwithstanding the foregoing, the burdens of this Agreement are

personal obligations of *The Developer* and also will be binding on the heirs, successors and assigns of *The Developer* and shall be a covenant(s) running with the Property. The *Town* will expressly release *The Developer* from its guarantee or obligations if the *Town* accepts new security from any developer or lender who obtains the Property, however, no other act of the *Town*, except its executed written release, will constitute a release of *The Developer* from liability under this Agreement. When the Improvements are completed and Finally Approved by the *Town*, the *Town* agrees to state the same in writing, with appropriate acknowledgments. The *Town* will sign a release only after all warranty periods, as extended by litigation, repair or alteration work, have expired.

26. NOTICE: Any notice required or permitted by this Agreement will be sent per surface and electronic mail. Such a notice will be deemed effective five (5) business days after deposit with the United States Postal Service, first class, postage prepaid and addressed as follows:

If to Developer: Old World (Building & Restoration) LLC,
 Brederodestraat 14
 1901HW Castricum
 The Netherlands
 e-mail: *ivo@openbook.pub*

If to *Town*: Town of Paonia,
 P.O. Box 460
 Paonia, CO 81428
 e-mail: *townofpaonia@tds.net*

27. RECORDATION: *The Developer* will pay for all costs to record this Agreement or a Memorandum thereof in the Clerk and Recorder's Office of Delta County, Colorado.

28. IMMUNITY: Nothing contained in this Agreement constitutes a waiver of the *Town's* sovereign or other immunity under any applicable law.

29. PERSONAL JURISDICTION AND VENUE: Personal jurisdiction and venue for any action commenced by either party to this Agreement whether arising out of or relating to the Agreement, letter of credit, improvements disbursements agreement or any action to collect security will be deemed to be proper only if such action is commenced in Delta County, Colorado. Parties expressly waive their right to bring such action in or to remove such action to any other court whether state or federal, expect possibly for appeal.

30. CONDITIONS OF ACCEPTANCE: the *Town* shall have no responsibility or liability with respect to any street, or other improvement(s), notwithstanding the use of the same by the public, unless the street or other improvements have been Initially Accepted by the *Town*.

31. PHASED DEVELOPMENT: The Improvements are to be constructed and the Property developed in phases, as shown by the Final Plat (See Attachment A: Plat Notes) and Engineering Plans. The Improvements in a phase must be extended to or into the adjoining phase, pursuant to the terms and conditions of the Final Plat and Engineering Plans.

The development is phased as follows:

table A: phasing		
phase	lots	public space, assignable to the <i>Town</i>
A	1, 2	n/a
B	3 - 9	trail easement to highschool flood-zone & Atlantic Avenue up to lot 9
C	10 - 16	easement for main water-line to the highschool. Atlantic Avenue up to lot 16

After Initial Acceptance of any phase, but prior to opening to the public, The Developer must assign the corresponding public space to the *Town*; as defined in above Table A. The Developer must provide written evidence that the title to the public space are free and clear from all liens and encumbrances, except those items and encumbrances which may be approved in writing by the *Town*.

Assignable public space may be encumbered by: (a prescriptive easement for) the Feldman & HOA Ditch, irrigation lines, storm drainage lines, other utilities, roads.

32. Prior to requesting Final Acceptance of any street, storm, drainage facility, utility installation or other required improvement(s), *The Developer* must: (i) furnish to the *Town* engineer as-built drawings in reproducible form, one (1) set of blue-line, stamped and sealed by a professional engineer, the same in computer-file form and copies of results of all construction control tests required by *Town* specification; (ii) provide written evidence to the *Town* that the title to the lands underlying or within which the improvements are constructed are free and clear from all liens and encumbrances, except those items and encumbrances which may be approved in writing by the *Town*.

signature page:

Town of Paonia, Colorado

Review Copy

_____ Date

ATTEST

_____ Date

Town Clerk

11.

Old World LLC,
represented by Ivo Renkema :

Date

[Handwritten signature in blue ink]

Exhibit A: Plat Notes:

1. This subdivision is subject to the Declaration of Covenants, Conditions and Restrictions for RIVERBANK NEIGHBORHOOD recorded in the office of the Delta County Clerk and Recorder on July 27th, 2018.
2. Plot of RIVERBANK NEIGHBORHOOD P.U.D. phases:
 - 2.A phase A shall be Lots 1 & 2.
 - 2.B phase B shall be Lots 3, 4, 5, 6, 7, 8 & 9
 - 2.C phase C shall be Lots 10, 11, 12, 13, 14, 15 & 16.
3. Phases may be developed in any order determined by the landowner, and any phase may be developed at any time regardless of whether any other phase has been completed.
4. As phases are developed, the owner must make available to each lot, water lines, sewer lines, electric power and telephone to the lot lines shown on the plat. Each lot purchaser will be responsible for extending underground utilities from said lot line.
5. Development of phases shall be at the sole discretion of the landowner. The undeveloped phases and parcels may be fenced to separate developed lots from undeveloped land used for agricultural purposes.
6. This plat constitutes a development agreement within the meaning of C.R.S. 24-68-104. This plat confers vested property rights which shall have a duration of fifteen years after the recordation of this plat.
7. All public land donation and open space requirements have been met by the developer.
8. The owner reserves to itself, its successors and assigns, the right to use any and all right-of-ways, easements and roads as may be necessary to develop any property within or outside of the subdivision.
9. In case of default by the owner, The Town of Paonia will have the right to complete Improvements itself or it may contract with a third party for completion. The Town, its successors, assigns, agents, contractors and employees, enjoy a non-exclusive right and easement to enter the Property for the purposes of constructing, re-constructing, maintaining and repairing such Improvements.
10. Colorado is a "Right to Farm" state pursuant to CRS 35-3.5-101, et seq. Landowners, residents and visitors must be prepared to accept the activities, sights, sounds, and smells of agricultural operations as a normal and necessary aspect of living in Delta County and the Town of Paonia with a strong rural character and healthy agricultural sector. Those with an urban sensitivity may perceive such activities, sights, sounds, and smells only as inconvenience, eyesore, noise, and odor. However, State law and municipal policy provide that ranching, farming or other agricultural activities and operations within the Town of Paonia and surrounding Delta County shall not be considered to be nuisances so long as operated in

conformance with the law and in a non-negligent manner. Therefore, all must be prepared to encounter noises, odors, lights, mud, dust, smoke, chemicals, machinery on public roads, a livestock on public roads, storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides and pesticides, and one or more of which may naturally occur as part of legal and non-negligent agricultural operations.

In addition, all owners of land, whether agricultural business, farm, ranch or residents, have obligations under State Law and municipal regulation with regard to the maintenance of fences, livestock must be fenced out (open range). Irrigators have the right to maintain irrigation ditches through established easements that transport water for their use and said irrigation ditches are not to be used for the dumping of refuse. Landowners are responsible for controlling of weeds, keeping their pets under control, and maintenance of resources of the property wisely (water, soil, animals, plants, air, and human resources). Residents and landowners are encouraged to learn about these rights and responsibilities and act as good neighbors and citizens of the Town.

Conflicts include, but are not limited to: trespass; harassment of livestock and livestock losses due to free roaming dogs; trespass by livestock, livestock on highways, county, municipal and private roads; leaving gates open; thence maintenance; harvesting transportation of agricultural and silvicultural crops; agricultural and prescribed burning; complaints of noise, dust, aesthetics, and odor resulting from production and processing operations; disposal of dead animals; weed, pets and predator control.

11. Each purchaser of a lot in this subdivision shall be aware that the Riverbank Neighborhood is adjacent to a Foundry and the owners of the lots shall not challenge the currently existing legal use of Foundry operations.

Exhibit B: Other Improvements:

- A. Until all phases have been developed, the developer blocks vehicular access at the dead-end of roads with MUTCD type II road barricades.
- B. The developer furnishes and installs three five (3) street-lights. The light fixtures and poles shall be available through DMEA, Paonia public works or another supplier to provide for prompt replacement in the event of failure or damage.
- C. The open space will be landscaped by the developer. An "evergreen buffer" between the open space and existing Price Road lots will be planted by the developer. These evergreens will then be maintained/irrigated by the HOA.
- D. The developer must construct an above-ground irrigation system to serve each lot with irrigation water from the Farmers and/or Feldman Ditch.

11.

Remit Payment To:

The Title Company of Delta County, LLC
 721 Main Street, Suite 6
 Delta, Colorado 81416

INVOICE

Billed To:
 Ivo Renkema

Invoice Date: October 5, 2020
Please Pay Before:
Our File Number: 32009035
Your Reference Number:

Property:
 TBD
 Paonia, CO 81428

Brief Legal:

DESCRIPTION	AMOUNT
Informastional Commitment	550.00
Prior Work Credit	-250.00
Invoice Total Amount Due	\$ 300.00

The Title Company of Delta
 Telephone number 970-874-9557
 Fax number 970-874-9566
 email: titlecodelta@aol.com
 Copies sent to:

Randy @ Wilmore & Company

Bob Lario

Ivo@openbook.pub

COMMITMENT FOR TITLE INSURANCE

FIDELITY NATIONAL TITLE INSURANCE COMPANY

FIDELITY NATIONAL TITLE INSURANCE COMPANY, a Florida company ("Company"), for a valuable consideration, hereby commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the Proposed Insured named in Schedule A, as owner or mortgagee of the estate or interest covered hereby in the land described or referred to in Schedule A, upon payment of the premiums and charges therefore; all subject to the provisions of Schedule A and B and to the Conditions and Stipulations hereof.

This Commitment shall be effective only when the identity of the Proposed Insured and the amount of the policy or policies committed for have been inserted in Schedule A hereof by the Company, either at the time of the issuance of this Commitment or by subsequent endorsement.

This Commitment is preliminary to the issuance of such policy or policies of title insurance and all liability and obligations hereunder shall cease and terminate within six (6) months after the effective date hereof or when the policy or policies committed for shall issue, whichever first occurs, provided that the failure to issue such policy or policies is not the fault of the Company. This Commitment shall not be valid or binding until countersigned by an authorized officer or agent.

IN WITNESS WHEREOF, FIDELITY NATIONAL TITLE INSURANCE COMPANY has caused its corporate name and seal to be hereunto affixed and these presents to be signed in facsimile under authority of its by-laws on the date shown in Schedule A.

By: Robin S. Black
Authorized Officer or Agent

Robin S. Black
The Title Co Of Delta County
721 Main St Ste 6
Delta, CO 81416-1854
Tel: 970-874-9557
Fax: 970-874-9566



FIDELITY NATIONAL TITLE INSURANCE COMPANY

By: Raymond W. Pink

President

Attest: [Signature]

Secretary



CONDITIONS AND STIPULATIONS

1. The term "mortgage", when used herein, shall include deed of trust, trust deed, or other security instrument
2. If the proposed Insured has or acquires actual knowledge of any defect, lien, encumbrance, adverse claim or other matter affecting the estate or interest or mortgage thereon covered by this Commitment other than those shown in Schedule B hereof, and shall fail to disclose such knowledge to the Company in writing, the Company shall be relieved from liability for any loss or damage resulting from any act of reliance hereon to the extent the Company is prejudiced by failure to so disclose such knowledge. If the proposed Insured shall disclose such knowledge to the Company, or if the Company otherwise acquires actual knowledge of any such defect, lien encumbrance, adverse claim or other matter, the Company at its option may amend Schedule B of this Commitment accordingly, but such amendment shall not relieve the Company from liability previously incurred pursuant to paragraph 3 of these Conditions and Stipulations.
3. Liability of the Company under this Commitment shall be only to the named proposed Insured and such parties included under the definition of Insured in the form of policy or policies committed for and only for actual loss incurred in reliance hereon in undertaking in good faith (a) to comply with the requirements hereof, or (b) to eliminate exceptions shown in Schedule B, or (c) to acquire or create the estate or interest or mortgage thereon covered by this Commitment. In no event shall such liability exceed the amount stated in Schedule A for the policy or policies committed for and such liability is subject to the insuring provisions, the Conditions and Stipulations, and Exclusions from Coverage of the form of policy or policies committed for in favor of the proposed Insured which are hereby incorporated by reference and are made a part of this Commitment except as expressly modified herein.
4. Any action or actions or rights of action that the proposed Insured may have or may bring against the Company arising out of the status of the title to the estate or interest or the status of the mortgage thereon covered by this Commitment must be based on and are subject to the provisions of this Commitment.



Fidelity National Title Insurance Company

Commitment Number: 32009035

SCHEDULE A

1. Commitment Date: September 30, 2020 at 08:00 AM
2. Policy (or Policies) to be issued: Policy Amount
 - (a) Owner's Policy (ALTA Own.Policy(06/17/06))
Proposed Insured:
To Be Determined
 - (b) Loan Policy
Proposed Insured:
3. Fee Simple interest in the land described in this Commitment is owned, at the Commitment Date, by:
Old World, LLC, a Colorado Limited Liability Company
4. The land referred to in the Commitment is described as follows:
Lots 1, 2 and 3 Riverbank Neighborhood Minor Subdivision #2 as recorded July, 27, 2018 under Reception Number 704944.

Delta County, State of Colorado.

Fidelity National Title Insurance Company

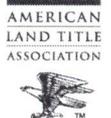
By:



The Title Company of Delta County, LLC

Copyright 2006-2009 American Land Title Association. All rights reserved.

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.



Fidelity National Title Insurance Company

Commitment Number: 32009035

**SCHEDULE B - SECTION I
REQUIREMENTS**

The following requirements must be met:

1. Payment of taxes and assessments now a lien due and payable.
2. NONE
3. NOTICE: Due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

Copyright 2006-2009 American Land Title Association. All rights reserved.

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.



Template File defaultCDF.pft

Fidelity National Title Insurance Company

Commitment Number: 32009035

**SCHEDULE B - SECTION II
EXCEPTIONS**

Any policy we issue will have the following exceptions unless they are taken care of to our satisfaction.

1. Right or claims of parties in possession not shown by the public records.
2. Easements, or claims of easements, not shown by the public records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts, which a correct survey and inspection of the premises would disclose, and which are not shown by the public records.
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
5. Defects, liens, encumbrances, adverse claims or other matters, if any, created, first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed insured acquires of record for value the estate or interest or mortgage thereon covered by this Commitment.
6. All taxes and assessments now a lien due or payable.
7. The Owner's Policy to be issued, if any, shall contain the following items in addition to the ones set forth above:
 - (1) The Deed of Trust, if any, required under Schedule B.-Section 1, Item (b).
 - (2) Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing issuance thereof; water rights, claims or title to water.
 - (3) Any and all unpaid taxes, assessments and unredeemed tax sales.
8. Reservations as contained in United States Patent recorded April 13, 1891 in Book 16 at Page 71, said reservations being as follows: Right of the proprietor of a vein or lode to extract and remove his ore therefrom should the same be found to penetrate or intersect said premises. Right of way for ditches and canals constructed by the authority of the United States.
9. Any and all liens, burdens, obligations, easements and rights of way arising from or created by membership in, applications to or contracts with the Feldman Ditch Company, Western Paonia Domestic Water Company, Pitkin Mesa Domestic Water Company and Town of Paonia.
10. Stipulations, restrictions, conditions, provisions and easements as shown by plat of Survey, recorded November 25, 1981 in Book 497 at Page 942, and as corrected in document recorded December 2, 1981 in Book 498 at Page 76.
11. Any rights, interest or easements in favor of the riparian owners, the State of Colorado, the United States of America, or the general Public, which exist, have existed, or are claimed to exist in and over the waters and present and past bet and banks of The North Fork of the Gunnison River.
12. Any question, dispute or adverse claims as to any loss or gain of land as a result of any change in the river bed location by other than natural causes, or alteration through accretion, reliction, erosion or avulsion of the center thread, bank, channel or flow of waters in the North Fork of the Gunnison River lying within subject land; and any question as to the location of such center thread, bed, bank or channel as a legal description monument or marker for purposes of describing or locating subject lands.

Copyright 2006-2009 American Land Title Association. All rights reserved.

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.



Template File defaultCDF.pft

Commitment Number: 32009035

NOTE: There are no documents in the land records of the office of the Clerk and Recorder of Delta County, accurately locating past or present location(s) of the center thread, bank, bed or channel of the above River or indicating any alterations of the same as from time to time may have occurred.

13. Right for the uninterrupted flow of the North Fork of the Gunnison River as it may affect subject property.
14. Terms, conditions, stipulations, obligations, easements and restrictions as may be contained by Plat of Flager/CCE Addition recorded July 5, 2005 at Reception Number 593121, and by Ordinance No. 2005-04 recorded November 18, 2005 at Reception Number 597816, and by Resolution No. 2010-R-051 recorded September 7, 2010 at Reception Number 645215.
15. Terms, conditions, stipulations, obligations and restrictions as contained Utility Easement recorded September 8, 2009 at Reception Number 628651.
16. Stipulations, restrictions, conditions, provisions and easements as shown by plat of RiverSide Estates & Riverbank Neighborhood, recorded November 18, 2008 at Reception Number 630302
17. Stipulations, restrictions, conditions, provisions and easements as shown by plat of Riverbank Neighborhood Boundary adjustment, recorded December 9, 2008 at Reception Number 630675.
18. Stipulations, restrictions, conditions, provisions and easements as shown by plat of River Side Estates boundary adj, recorded February 10, 2009 at Reception Number 631993.
19. Stipulations, restrictions, conditions, provisions and easements as shown by plat of Riverbank Neighborhood/Zimmerman bdy adj, recorded February 10, 2009 at Reception Number 631999.
20. Terms, conditions, obligations and stipulations as contained in Irrigation Pipeline Easement recorded July 24, 2009 at Reception Number 636443.
21. Terms, conditions, obligations and stipulations as contained in Irrigation Pipeline Easement recorded December 1, 2009 at Reception Number 639382.
22. Stipulations, restrictions, conditions, provisions and easements as shown by plat of Riverbank Neighborhood Minor Subdivision, recorded March 21, 2012 at Reception Number 657178.
23. Any portion of subject property lying within the right of way of County Roads.
24. Stipulations, restrictions, conditions, provisions and easements as shown by plat of Riverbank Neighborhood Minor Sub #2, recorded July 27, 2018 under Reception Number 704944.
25. Declaration of Covenants and Restrictions, which do not contain reversionary clauses imposed upon the within described property, as set forth in instrument recorded July 27, 2018 under Reception Number 704943, but omitting any covenant, condition or restriction, if any, based on race, color, religion, sex, handicap, familial status, or national origin unless and only to the extent that the covenant, condition or restriction (a) is exempt under Title 42 of the United States Code, or (b) relates to handicap, but does not discriminate against handicapped persons.

Copyright 2006-2009 American Land Title Association. All rights reserved.

The use of this Form is restricted to ALTA licensees and ALTA members in good standing as of the date of use. All other uses are prohibited. Reprinted under license from the American Land Title Association.



Template File defaultCDF.pft

CHICAGO TITLE INSURANCE COMPANY
COMMONWEALTH LAND TITLE INSURANCE COMPANY
FIDELITY NATIONAL TITLE INSURANCE COMPANY

NOTICE OF AVAILABILITY OF CLOSING PROTECTION COVERAGE

TO: _____ DATE: _____

Address or legal description of property which is the subject of this transaction:

If you are involved in a real estate transaction in which one or more policies of title insurance will be issued, you are also entitled to Closing Protection Letter. If a Loan Policy of title insurance insuring the title to the property you are buying is being issued to your mortgage lender and that lender has requested a Closing Protection Letter, you automatically receive the benefit of the Closing Protection Letter issued to the lender. If you are the seller, the Closing Protection Letter issued to the purchaser's lender does not provide the benefit of its terms to you. If the transaction in which you are involved is a cash transaction and no lender is involved, no Closing Protection Letter is being issued unless you specifically request it.

A Closing Protection Letter offers reimbursement for loss in connection with misappropriation of closing funds and noncompliance with written closing instructions. A Closing Protection Letter may be issued to protect you. The charge for this coverage is \$25.00 per letter issued in connection with a real estate closing in which one or more of the Company's title insurance policies are being issued.

You may obtain a Closing Protection Letter if you request it at this time.

If you are uncertain as to whether you should obtain a Closing Protection Letter, you are urged to seek independent advice.

THE TITLE COMPANY OF DELTA COUNTY, LLC

By: _____
Authorized Agent

____ I/We do request a Closing Protection Letter
____ I/We do not request a Closing Protection Letter

DATE: _____

NOTE: All parties in cash transactions must make an election above and sign. Otherwise, only the seller(s) must sign

DISCLOSURE STATEMENT

- Pursuant to Section 38-35-125 of Colorado Revised Statutes and Colorado Division of Insurance Regulation 8-1-2 (Section 5), if the parties to the subject transaction request us to provide escrow-settlement and disbursement services to facilitate the closing of the transaction, then all funds submitted for disbursement must be available for immediate withdrawal.
- Colorado Division of Insurance Regulation 8-1-2, Section 5, Paragraph H, requires that "Every title insurance company shall be responsible to the proposed insured(s) subject to the terms and conditions of the title insurance commitment, other than the effective date of the title insurance commitment, for all matters which appear of record prior to the time of recording whenever the title insurance company, or its agent, conducts the closing and settlement service that is in conjunction with its issuance of an owners policy of title insurance and is responsible for the recording and filing of legal documents resulting from the transaction which was closed". Provided that XXXXXXXXX Company conducts the closing of the insured transaction and is responsible for recording the legal documents from the transaction, exception No. 5 in Schedule B-2 will not appear in the Owner's Title Policy and Lender's Title Policy when issued.
- Colorado Division of Insurance Regulation 8-1-2, Paragraph M of Section 5, requires that prospective insured(s) of a single family residence be notified in writing that the standard exception from coverage for unfiled Mechanics or Materialmans Liens may or may not be deleted upon the satisfaction of the requirement(s) pertinent to the transaction. These requirements will be addressed upon receipt of a written request to provide said coverage, or if the Purchase and Sale Agreement/Contract is provided to the Company then the necessary requirements will be reflected on the commitment.
- Colorado Division of Insurance Regulation 8-1-3, Paragraph C. 11.f. of Section 5 - requires a title insurance company to make the following notice to the consumer: "A closing protection letter is available to be issued to lenders, buyers and sellers"
- If the sales price of the subject property exceeds \$100,000.00 the seller shall be required to comply with the Disclosure of Withholding Provisions of C.R.S. 39-22-604.5 (Nonresident Withholding).
- Section 39-14-102 of Colorado Revised Statutes requires that a Real Property Transfer Declaration accompany any conveyance document presented for recordation in the State of Colorado. Said Declaration shall be completed and signed by either the grantor or grantee.

- Recording statutes contained in Section 30-10-406(3)(a) of the Colorado Revised Statutes require that all documents received for recording or filing in the clerk and recorder's office shall contain a top margin of at least one inch and a left, right, and bottom margin of at least one-half of an inch. The clerk and recorder may refuse to record or file a document that does not conform to requirements of this paragraph.
- Section 38-35-109 (2) of the Colorado Revised Statutes, 1973, requires that a notation of the purchasers legal address, (not necessarily the same as the property address) be included on the face of the deed to be recorded.
- Regulations of County Clerk and Recorder's offices require that all documents submitted for recording must contain a return address on the front page of every document being recorded.
- Pursuant to Section 10-11-122 of the Colorado Revised Statutes, 1987 the Company is required to disclose the following information:
 - The subject property may be located in a special taxing district.
 - A Certificate of Taxes Due listing each taxing jurisdiction shall be obtained from the County Treasurer or the County Treasurer's authorized agent.
 - Information regarding special districts and the boundaries of such districts may be obtained from the Board of County Commissioners, the County Clerk and Recorder or the County Assessor.
- Pursuant to Section 10-11-123 of the Colorado Revised Statutes, when it is determined that a mineral estate has been severed from the surface estate, the Company is required to disclose the following information: that there is recorded evidence that a mineral estate has been severed, leased, or otherwise conveyed from the surface estate and that there is a substantial likelihood that a third party holds some or all interest in oil, gas, other minerals, or geothermal energy in the property; and that such mineral estate may include the right to enter and use the property without the surface owner's permission.

Note: Notwithstanding anything to the contrary in this Commitment, if the policy to be issued is other than an ALTA Owner's Policy (6/17/06), the policy may not contain an arbitration clause, or the terms of the arbitration clause may be different from those set forth in this Commitment. If the policy does contain an arbitration clause, and the Amount of Insurance is less than the amount, if any, set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.

FIDELITY NATIONAL FINANCIAL PRIVACY NOTICE

Effective January 1, 2020

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, “FNF,” “our,” or “we”) respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary’s website and this Privacy Notice does not apply.

Collection of Personal Information

FNF may collect the following categories of Personal Information:

- contact information (e.g., name, address, phone number, email address);
- demographic information (e.g., date of birth, gender, marital status);
- identity information (e.g. Social Security Number, driver’s license, passport, or other government ID number);
- financial account information (e.g. loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Collection of Browsing Information

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an “FNF Website”) from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a “cookie” may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer’s hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to “Do Not Track” features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

Use of Personal Information

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and others' products and services, jointly or independently.

When Information Is Disclosed

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;
- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law. We do share Personal Information among affiliates (other companies owned by FNF) to directly market to you. Please see "Choices with Your Information" to learn how to restrict that sharing.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Security of Your Information

We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

Choices With Your Information

If you do not want FNF to share your information among our affiliates to directly market to you, you may send an "opt out" request by email, phone, or physical mail as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the "California Privacy" link on our website (<https://fnf.com/pages/californiaprivacy.aspx>) or call (888) 413-1748.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.

For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

or Vermont Residents: We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children

The FNF Websites are not intended or designed to attract persons under the age of eighteen (18). We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users

FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans

Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes; Use of Comments or Feedback

By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice's effective date will show the last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice. We may use comments or feedback that you submit to us in any manner without notice or compensation to you.

Accessing and Correcting Information; Contact Us

If you have questions, would like to correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, send your requests to privacy@fnf.com, by phone to (888) 934-3354, or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue,
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

Drainage Report

**Riverbank Neighborhood
Paonia, Colorado**

PREPARED BY:
Odisea LLC
6 Third St.
Paonia, CO 81428
(970) 527-9540

Prepared by: Jeff Ruppert, P.E.



Reviewed by: Lucille Hunter, P.E.

A handwritten signature in cursive script, appearing to read "Lucille Hunter".



Od·i·sea \äð-ə-see\ n: designing your vision

**PHYSICAL: 6 3rd STREET
MAILING: p.o. Box 1809
Paonia, CO 81428
(970) 527-9540
www.odiseanet.com**

I. Introduction

Project Description

This drainage study is prepared for the proposed Riverbank Neighborhood residential subdivision accessed from Price Road in the Town of Paonia, Colorado. This report is the basis for the Drainage Plan part of the re-plat at the subject project.

The project consists of a 16-lot, low-density residential subdivision that lies on the north side of the North Fork of the Gunnison River, across the river to the north from Downtown Paonia. One of the proposed lots will be dedicated as open space.

There are no proposed changes to land use (Zone District R-2), general topography, soil type, or general drainage patterns. A combination of public infrastructure and private stormwater requirements will address the post-developed drainage conditions and water quality.

Description of Property

The property slopes down to the south toward the river from elevation 5645' MSL down to the top of bank at approximately 5620' MSL. Paonia High School is located to the east of the property with undeveloped land between the school sports fields and the project. To the north and west is rural/agriculture private property. The property has been grazed for many years and is 60% grassland with various tree stands, mostly along the river corridor.

The Feldman Ditch bisects the property from the northeast corner to the southwest corner where it exits and continues on to serve a handful of downstream properties. Riverbank Neighborhood controls 19 shares of the Feldman ditch water. The Feldman Ditch will be re-routed through the property and improved as part of the proposed development.

Additionally, a drainage path has been established with an easement, for Farmers Ditch water to enter the property at the northeast corner. Riverbank Neighborhood controls 1 share of Farmers Ditch water. This water currently flows during overflow times when the adjacent hops farm has excess water. This easement and drainage path will be used to deliver water from the Farmers Ditch to the project. Since the Farmers Ditch water is actually Riverbank Neighborhoods share, this source of water will only serve the home owners. It will be maintained and administered by the Homeowners Association, and therefore is referenced as the HOA ditch. Water in the HOA ditch not utilized by the residents of Riverbank will outfall into the river on the southern boundary of the property between Lots 1 and 4.

Soils data for this property shows varying clay and sandy clay underlain by cobble, which is common for areas in the North Fork Valley adjacent to the river. Groundwater is 5 to 8 feet deep and varies seasonally with local irrigation activities.

Drainage from offsite is primarily from the adjacent hops farm uphill, which is approximately 3.1 acres.

II. Drainage Basins

Existing Basin Description

The site is located on the north side of the North Fork of the Gunnison River and south of Highway 133 and a hops farm. It is isolated from any upper drainage areas above Highway 133, therefore it is within its own watershed with the hops farm.

On-site there are three distinct existing basins delineated by a combination of elevated areas and the Feldman ditch, as shown in Figure 1. They are defined as follows:

ID	Contributing Area (acres)	Runoff Coeff (C)	Soil Type	Length (ft)	Slope (%)
Basin I	11.3	0.25	B	1088	2.2
Basin II	7.6	0.25	B	871	1.0
Basin III	4.5	0.25	B	517	0.97

The lower part of the project is located in Flood Zone AE, and there is a small lower portion within the 100-year floodway as shown on FIRM 08097CO203C

III. Drainage Design Criteria

Regulations

Storm drainage analysis and design criteria have been designed in compliance with the Town of Paonia Municipal Code in force at the time of this report.

Hydrologic and Hydraulic Criteria

According to the Town Municipal Code the post-development stormwater flows must not exceed the predevelopment flows for the 10-year storm. Flow rates have been designed to meet or be below the pre-development levels, and detention has been sized using the 25-year storm.

The rational method has been used utilizing TR-55 methodology for time of concentration. Coefficients used in the analysis of existing and proposed conditions are as follows:

Existing Conditions (unimproved grassland partially grazed)

Runoff Coefficient, C 0.25
 Sheet Flow Mannings n 0.30

Proposed Conditions (low density residential development)

Runoff Coefficient, C 0.4
 Sheet Flow Mannings n 0.15

Open channel Mannings n 0.022

Hydraulic calculations for swales and roadside irrigation ditches were performed using Hydraflow Express and are in the Appendix.

Figure 1
**RIVERBANK NEIGHBORHOOD
EXISTING DRAINAGE BASIN MAP**

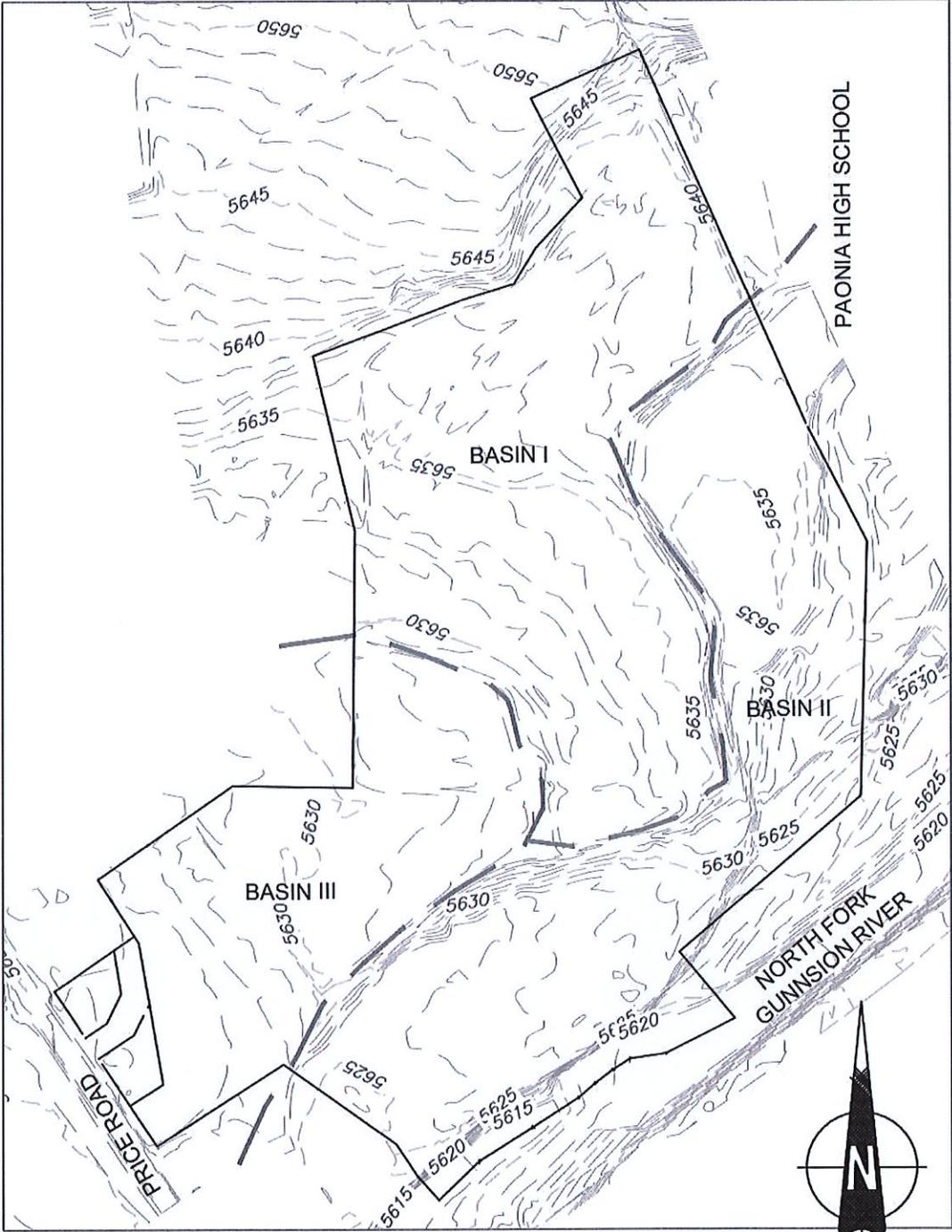
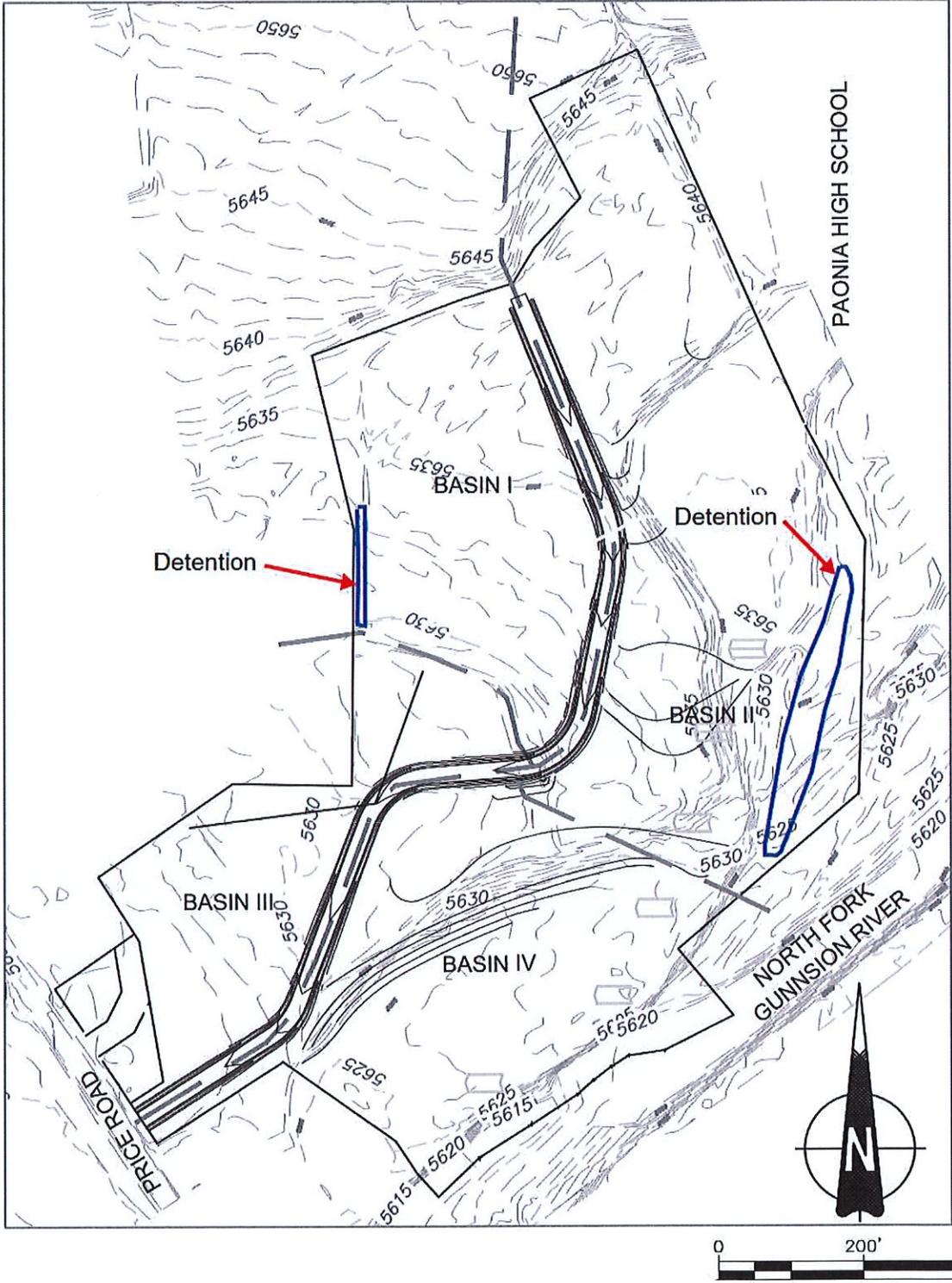


Figure 2
**RIVERBANK NEIGHBORHOOD
PROPOSED DRAINAGE BASIN MAP**



IV. Drainage Analysis and Design

Proposed Grading and Drainage Scheme

Minimal grading is proposed for this project. The proposed road through the center of the site (Atlantic Avenue) is 22 wide asphalt with no curb and gutter and is at or near existing grade. The two ditches are aligned on either side of the road through the subdivision for ease of access. The existing Feldman ditch will be graded over to allow sheet flow across the property along natural flow paths. Natural flow paths direct very little water from outside the road right of way into the roadside irrigation ditches.

Detention to control volume and flow rates off the site is placed at the southeastern corner and northwestern boundary of the site near the river in the AE Flood Zone. It has been determined that the Time of Concentration of the North Fork of the Gunnison watershed is approximately 10 hours according to StreamStats. The time of concentration for this site is approximately one hour, which means the detention basin will perform its role hours prior to a 100-year storm rising to the AE Flood Zone, outside of the 100-year floodway. Therefore, the detention facility is expected to perform its role up to and during a 25-year rainfall event.

Proposed Basin Description

The proposed drainage configuration is still defined by four basins, which are shaped differently due to the small amount of grading through the existing Feldman Ditch and the addition of a paved road. The proposed basins are broken down as follows and as shown in Figure 2.

ID	Contributing Area (acres)	Runoff Coeff (C)	Soil Type	Length (ft)	Slope (%)
Basin I	5.5	0.4	B	951	2.2
Basin II	8.8	0.4	B	997	1.8
Basin III	3.1	0.25	B	452	1.0
Basin IV	5.3	0.4	B	410	1.1

Basin III will be mostly open space and therefore will use the same pre-development runoff coefficient of 0.25.

Existing and Proposed Hydrology

Based on the criteria and basin descriptions shown above, the following hydrological characteristics were determined.

Existing Hydrology

ID	Q ₁₀ (cfs)	V ₂₅ (cf)
Basin I	1.9	10,111
Basin II	1.0	7,055
Basin III	0.61	4,163
Totals	3.5	21,329

Proposed Hydrology

ID	Q ₁₀ (cfs)	V ₂₅ (cf)
Basin I	0	7,213
Basin II	0	11,652
Basin III	0.7	2,657
Basin IV	1.9	7,193
Totals	2.6	28,715

The calculations and reports for the data above are in the Appendix 1.

Storm Runoff Collection and Outfall

The total historic runoff rate for a 10-year rainfall event is 3.5 cfs. This flow will be matched in the post-development conditions by utilizing controlled detention outfall details.

The required detention storage volume is the difference between the existing and proposed total volumes from the 25-year rainfall event, or 7,386 cf. This volume will be split between two detention areas. The larger detention area of approximately 5,000 cf will be placed on the southeast corner of the property in Basin II, and a second detention area of approximately 2,500 cf place along the northwest boundary in Basin I.

In order to meet the historic flow rate of 3.5 cfs the detention basins have been designed to hold the 25-year volume as described above with no overflow. According to the Town's Municipal Code, detention areas must empty within five (5) days. Assuming a percolation rate of 60 min/inch (very conservative estimate), Water at a depth of ten feet will percolate into the ground. The detention facilities on this project are no deeper than 4 feet.

With no overspill from the 10-year rainfall event from Basins I and II the total runoff from the site will be 2.6 cfs, or 0.9 cfs less than the historic runoff flow rate.

Detention facilities have been designed with emergency spillways capable of passing the 50-year rainfall event.

Basin III and VI will not have detention. Basin III is primarily open space and Basin IV is comprised of three residential lots over 5.3 acres.

Water Quality

The two basins with detention and the open space in Basin III represent 77% of the site area. Most of the initial rainfall that falls on this site will be detained or run over natural, unimproved land, representing a significant amount of water quality treatment.

Irrigation Ditch Design

As noted in previous sections, the two irrigation ditches that serve the site are the Feldman Ditch and the HOA ditch, which is fed by the Farmers Ditch.

Feldman Ditch

According to the Feldman ditch Company President, the ditch takes off approximately 3.0 cfs from the river approximately 1 mile upstream from this site. In order to account for both infiltration and the collection of stormwater during medium-sized rainfall events, the ditch has been sized for a flow rate of 6 cfs.

HOA Ditch

According to data from Riverbank Neighborhood, the volume of water allocated to the property from the Farmers Ditch is 0.15 cfs. The ditch has been sized for a flowrate of 1 cfs to account for a modest amount of stormwater since it is controlled at its outlet from the Farmers Ditch relatively close to the project.

Ditch sizing calculations are included in the Appendix.

-END OF REPORT-

APPENDIX

SUPPORTING DOCUMENTATION



NOAA Atlas 14, Volume 8, Version 2
Location name: Paonia, Colorado, USA*
Latitude: 38.8522°, Longitude: -107.6236°
Elevation: 5576.22 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 & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (
Duration	Average recurrence interval (years)								
	1	2	5	10	25	50	100	200	
5-min	0.133 (0.107-0.170)	0.162 (0.130-0.208)	0.218 (0.175-0.281)	0.271 (0.216-0.352)	0.356 (0.277-0.495)	0.430 (0.324-0.603)	0.511 (0.369-0.737)	0.601 (0.413-0.893)	(0.
10-min	0.194 (0.156-0.249)	0.237 (0.191-0.305)	0.319 (0.256-0.412)	0.397 (0.317-0.516)	0.521 (0.406-0.725)	0.629 (0.474-0.883)	0.748 (0.541-1.08)	0.880 (0.605-1.31)	(0.
15-min	0.237 (0.191-0.304)	0.289 (0.233-0.372)	0.389 (0.312-0.502)	0.485 (0.386-0.629)	0.636 (0.495-0.884)	0.768 (0.578-1.08)	0.913 (0.659-1.32)	1.07 (0.738-1.59)	(0.
30-min	0.293 (0.236-0.376)	0.378 (0.305-0.487)	0.526 (0.421-0.678)	0.654 (0.521-0.849)	0.841 (0.647-1.15)	0.993 (0.742-1.38)	1.15 (0.827-1.64)	1.32 (0.902-1.94)	(1
60-min	0.377 (0.304-0.485)	0.472 (0.380-0.608)	0.633 (0.508-0.817)	0.772 (0.615-1.00)	0.970 (0.744-1.32)	1.13 (0.842-1.56)	1.29 (0.927-1.84)	1.47 (1.00-2.15)	(1
2-hr	0.462 (0.377-0.586)	0.566 (0.461-0.719)	0.740 (0.600-0.943)	0.889 (0.716-1.14)	1.10 (0.852-1.47)	1.26 (0.954-1.72)	1.44 (1.04-2.00)	1.61 (1.11-2.32)	(1
3-hr	0.541 (0.444-0.681)	0.635 (0.520-0.800)	0.795 (0.649-1.00)	0.934 (0.757-1.19)	1.13 (0.888-1.51)	1.30 (0.987-1.75)	1.46 (1.07-2.03)	1.64 (1.15-2.35)	(1
6-hr	0.680 (0.564-0.844)	0.782 (0.648-0.972)	0.954 (0.787-1.19)	1.10 (0.903-1.38)	1.31 (1.04-1.71)	1.48 (1.14-1.95)	1.65 (1.22-2.24)	1.82 (1.29-2.56)	(1
12-hr	0.835 (0.700-1.02)	0.972 (0.815-1.19)	1.20 (1.00-1.47)	1.39 (1.15-1.72)	1.65 (1.32-2.12)	1.86 (1.45-2.42)	2.07 (1.55-2.77)	2.28 (1.63-3.15)	(1
24-hr	1.02 (0.866-1.23)	1.19 (1.01-1.43)	1.46 (1.23-1.77)	1.69 (1.42-2.06)	2.01 (1.63-2.54)	2.26 (1.79-2.90)	2.52 (1.91-3.32)	2.78 (2.01-3.78)	(2
2-day	1.25 (1.07-1.48)	1.42 (1.22-1.69)	1.71 (1.46-2.05)	1.96 (1.67-2.36)	2.31 (1.90-2.88)	2.59 (2.08-3.28)	2.88 (2.22-3.75)	3.18 (2.34-4.26)	(2
3-day	1.38 (1.20-1.63)	1.59 (1.37-1.87)	1.92 (1.65-2.27)	2.20 (1.88-2.62)	2.59 (2.14-3.19)	2.90 (2.33-3.63)	3.21 (2.49-4.13)	3.52 (2.61-4.67)	(2
4-day	1.49 (1.30-1.75)	1.72 (1.49-2.02)	2.08 (1.80-2.45)	2.39 (2.05-2.83)	2.81 (2.33-3.43)	3.13 (2.53-3.89)	3.46 (2.70-4.41)	3.79 (2.83-4.98)	(3
7-day	1.77 (1.55-2.05)	2.02 (1.77-2.34)	2.42 (2.11-2.81)	2.75 (2.39-3.22)	3.21 (2.69-3.87)	3.56 (2.91-4.37)	3.92 (3.09-4.93)	4.28 (3.23-5.55)	(3
10-day	2.01 (1.77-2.31)	2.27 (2.00-2.61)	2.69 (2.36-3.10)	3.04 (2.65-3.53)	3.52 (2.97-4.22)	3.90 (3.21-4.75)	4.28 (3.40-5.34)	4.66 (3.54-6.00)	(3
20-day	2.68 (2.39-3.03)	2.99 (2.67-3.40)	3.51 (3.12-3.99)	3.93 (3.48-4.50)	4.51 (3.85-5.31)	4.96 (4.14-5.93)	5.40 (4.35-6.63)	5.85 (4.51-7.39)	(4
30-day	3.24 (2.92-3.64)	3.63 (3.26-4.08)	4.25 (3.80-4.79)	4.75 (4.23-5.38)	5.42 (4.66-6.31)	5.93 (4.98-7.01)	6.43 (5.21-7.80)	6.92 (5.38-8.64)	(5
45-day	3.97 (3.60-4.42)	4.46 (4.04-4.97)	5.24 (4.72-5.85)	5.85 (5.25-6.57)	6.65 (5.74-7.64)	7.24 (6.12-8.46)	7.80 (6.37-9.34)	8.33 (6.52-10.3)	(6
60-day	4.61 (4.20-5.10)	5.20 (4.73-5.76)	6.12 (5.55-6.80)	6.83 (6.16-7.62)	7.75 (6.72-8.82)	8.40 (7.13-9.73)	9.01 (7.39-10.7)	9.58 (7.54-11.7)	(7

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 for a given duration and average recurrence interval will be greater than the upper bound (or less than the lower bound) is 5%. Estimates 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.

8/12/2020

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 8, Version 2
Location name: Paonia, Colorado, USA*
Latitude: 38.8522°, Longitude: -107.6236°
Elevation: 5576.22 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 & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in									
Duration	Average recurrence interval (years)								
	1	2	5	10	25	50	100	200	
5-min	1.60 (1.28-2.04)	1.94 (1.56-2.50)	2.62 (2.10-3.37)	3.25 (2.59-4.22)	4.27 (3.32-5.94)	5.16 (3.89-7.24)	6.13 (4.43-8.84)	7.21 (4.96-10.7)	(5.0)
10-min	1.16 (0.936-1.49)	1.42 (1.15-1.83)	1.91 (1.54-2.47)	2.38 (1.90-3.10)	3.13 (2.44-4.35)	3.77 (2.84-5.30)	4.49 (3.25-6.47)	5.28 (3.63-7.84)	(4.0)
15-min	0.948 (0.764-1.22)	1.16 (0.932-1.49)	1.56 (1.25-2.01)	1.94 (1.54-2.52)	2.54 (1.98-3.54)	3.07 (2.31-4.31)	3.65 (2.64-5.26)	4.29 (2.95-6.38)	(3.0)
30-min	0.586	0.756	1.05	1.31	1.68	1.99	2.30	2.64	

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 4

Ex Basin I

Hydrograph type	= Rational	Peak discharge	= 1.921 cfs
Storm frequency	= 10 yrs	Time to peak	= 70 min
Time interval	= 1 min	Hyd. volume	= 8,069 cuft
Drainage area	= 11.300 ac	Runoff coeff.	= 0.25
Intensity	= 0.680 in/hr	Tc by TR55	= 70.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1

223
cfs)

Ex Basin I
Hyd. No. 4 -- 10 Year

Q (cfs)

2.00

2.00

11. Hydrograph Report

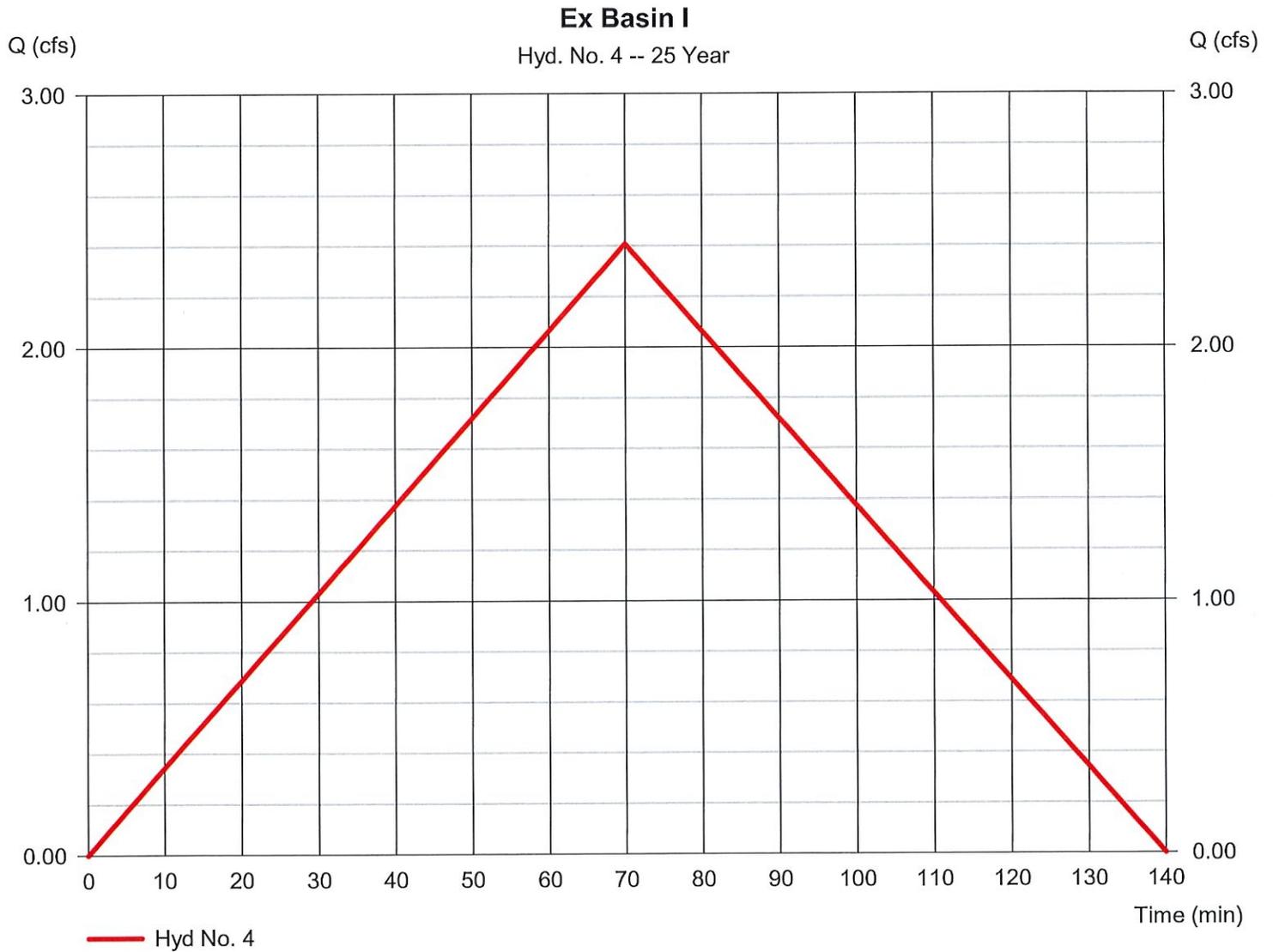
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 4

Ex Basin I

Hydrograph type	= Rational	Peak discharge	= 2.407 cfs
Storm frequency	= 25 yrs	Time to peak	= 70 min
Time interval	= 1 min	Hyd. volume	= 10,111 cuft
Drainage area	= 11.300 ac	Runoff coeff.	= 0.25
Intensity	= 0.852 in/hr	Tc by TR55	= 70.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. R55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 4

Ex Basin I

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.300	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 2.20	0.00	0.00	
Travel Time (min)	= 64.85	+ 0.00	+ 0.00	= 64.85
Shallow Concentrated Flow				
Flow length (ft)	= 788.00	0.00	0.00	
Watercourse slope (%)	= 2.20	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.39	0.00	0.00	
Travel Time (min)	= 5.49	+ 0.00	+ 0.00	= 5.49
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{{0}}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				70.00 min

11. Hydrograph Report

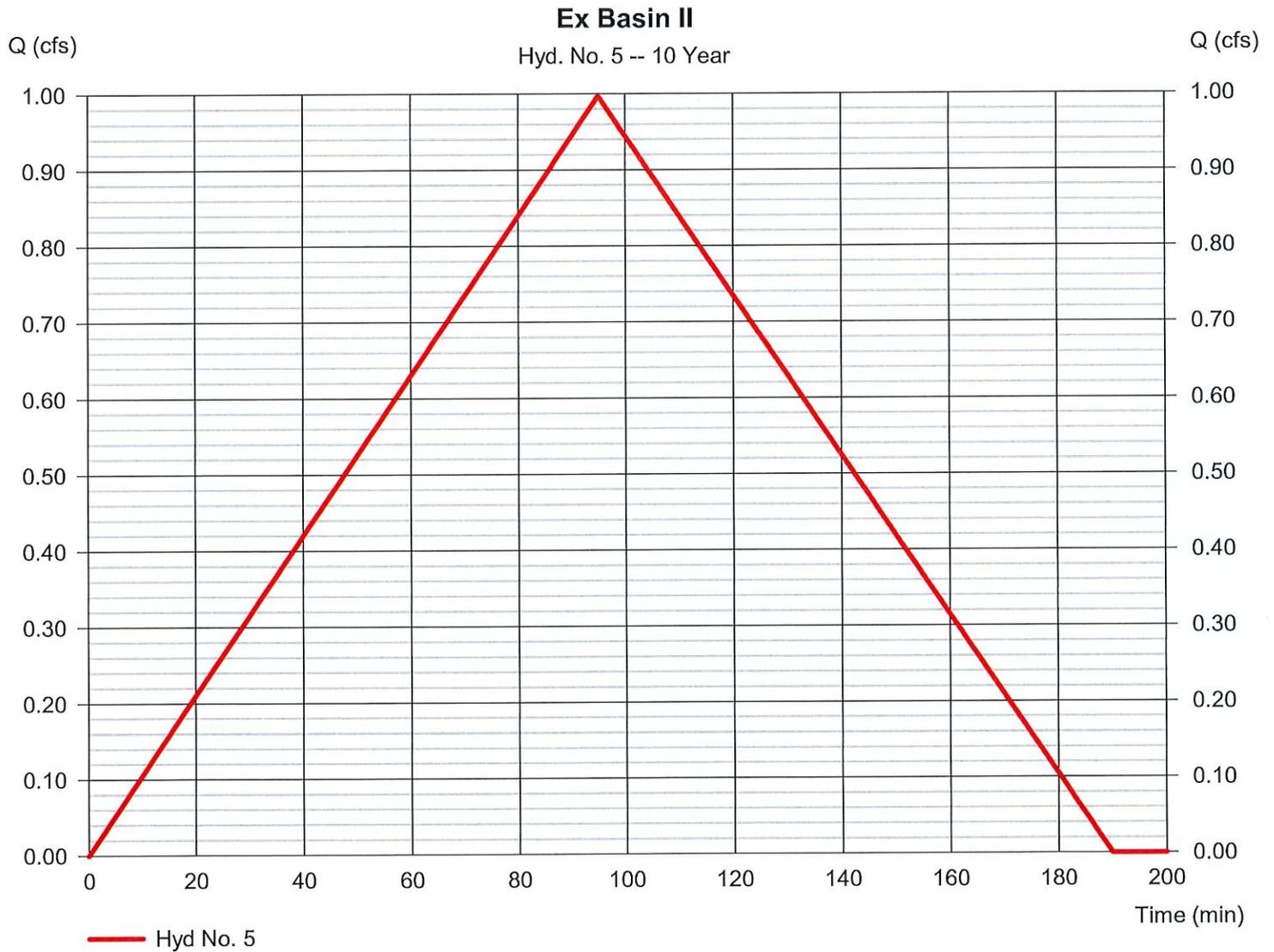
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 5

Ex Basin II

Hydrograph type	= Rational	Peak discharge	= 0.997 cfs
Storm frequency	= 10 yrs	Time to peak	= 95 min
Time interval	= 1 min	Hyd. volume	= 5,685 cuft
Drainage area	= 7.600 ac	Runoff coeff.	= 0.25
Intensity	= 0.525 in/hr	Tc by TR55	= 95.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

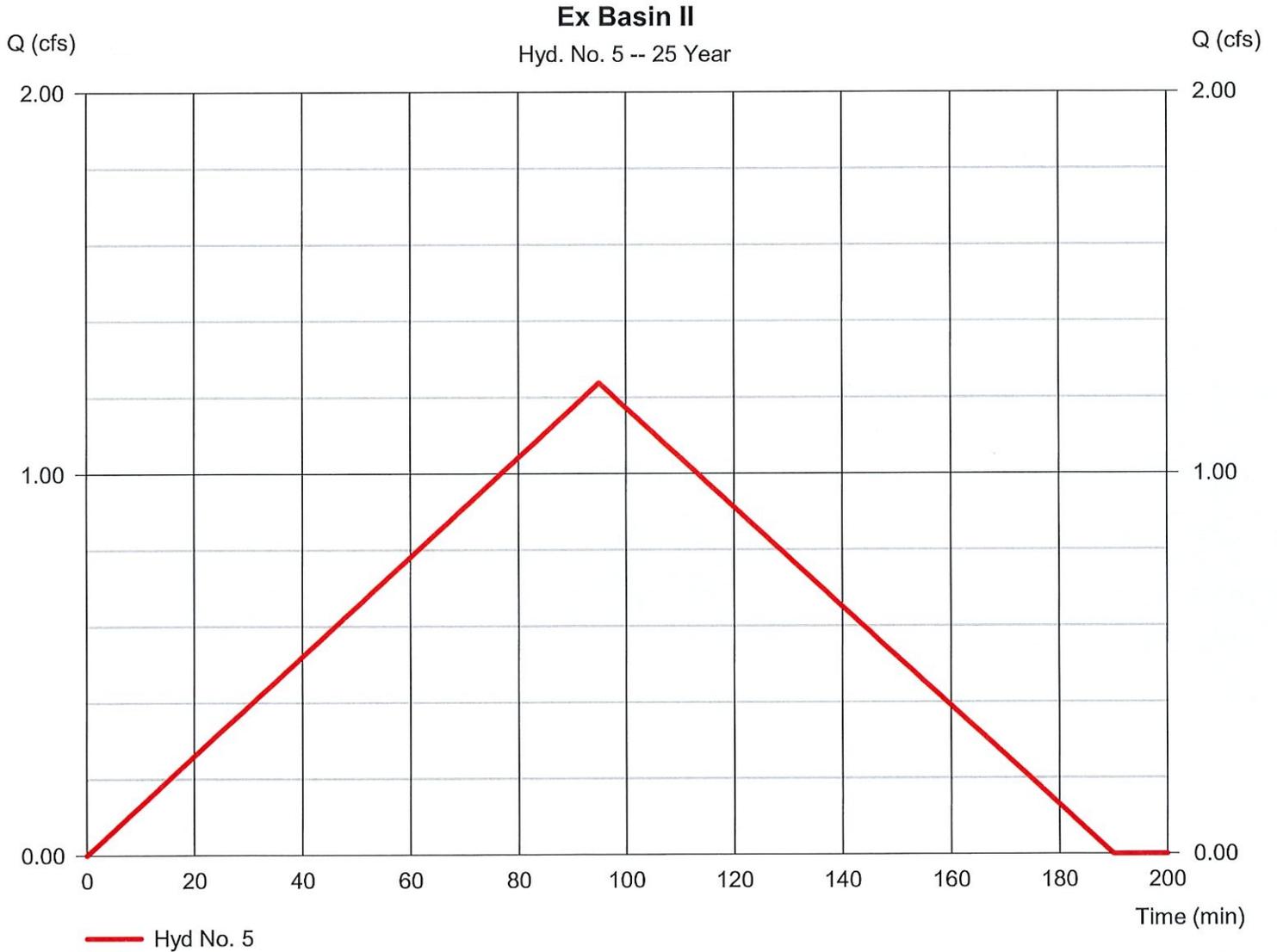
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 5

Ex Basin II

Hydrograph type	= Rational	Peak discharge	= 1.238 cfs
Storm frequency	= 25 yrs	Time to peak	= 95 min
Time interval	= 1 min	Hyd. volume	= 7,055 cuft
Drainage area	= 7.600 ac	Runoff coeff.	= 0.25
Intensity	= 0.651 in/hr	Tc by TR55	= 95.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11.	R55 Tc Worksheet
-----	------------------

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 5

Ex Basin II

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.300	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 88.89	+ 0.00	+ 0.00	= 88.89
Shallow Concentrated Flow				
Flow length (ft)	= 571.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.61	0.00	0.00	
Travel Time (min)	= 5.90	+ 0.00	+ 0.00	= 5.90
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{{0}}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				95.00 min

11. Hydrograph Report

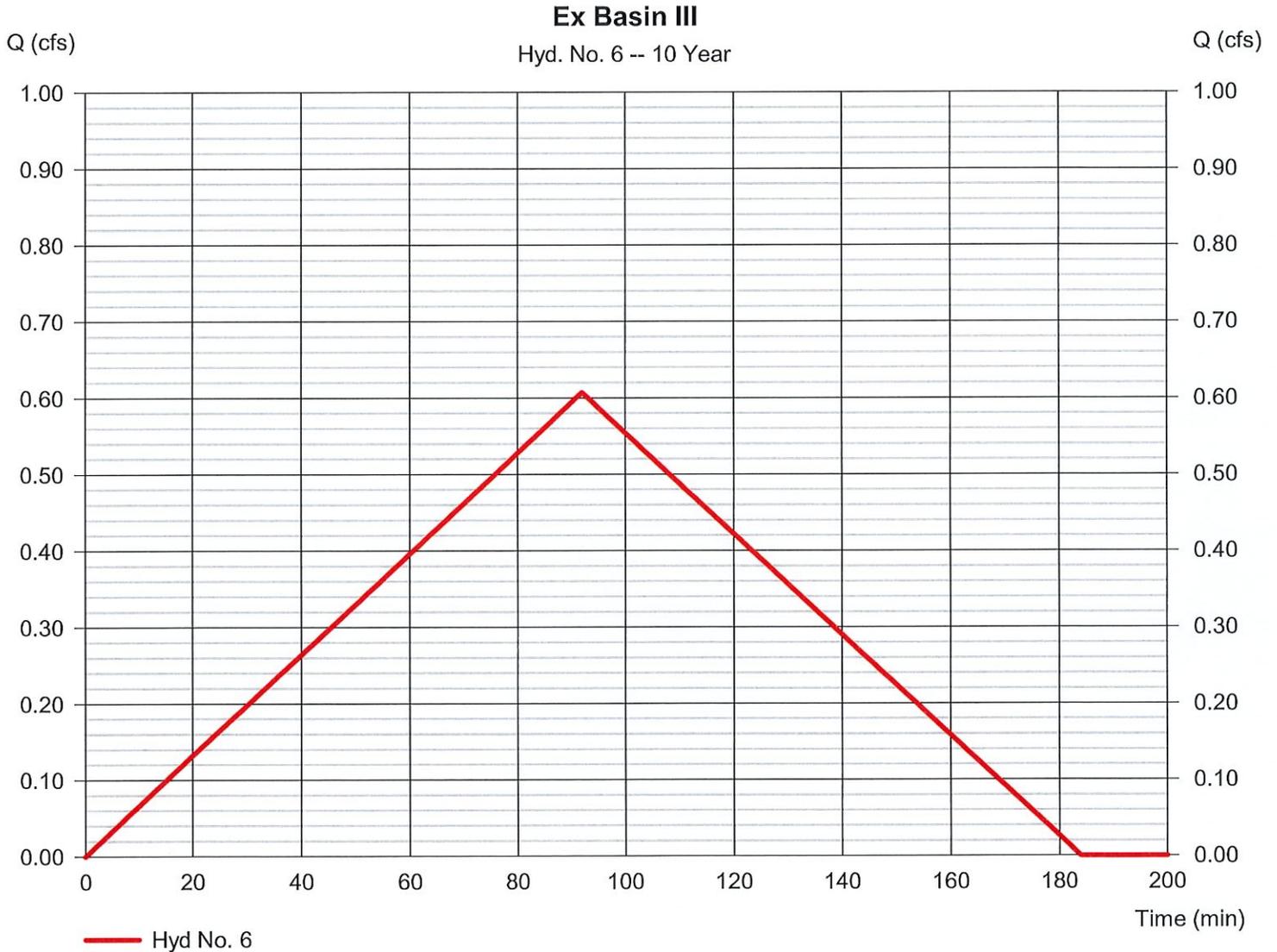
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 6

Ex Basin III

Hydrograph type	= Rational	Peak discharge	= 0.607 cfs
Storm frequency	= 10 yrs	Time to peak	= 92 min
Time interval	= 1 min	Hyd. volume	= 3,351 cuft
Drainage area	= 4.500 ac	Runoff coeff.	= 0.25
Intensity	= 0.540 in/hr	Tc by TR55	= 92.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

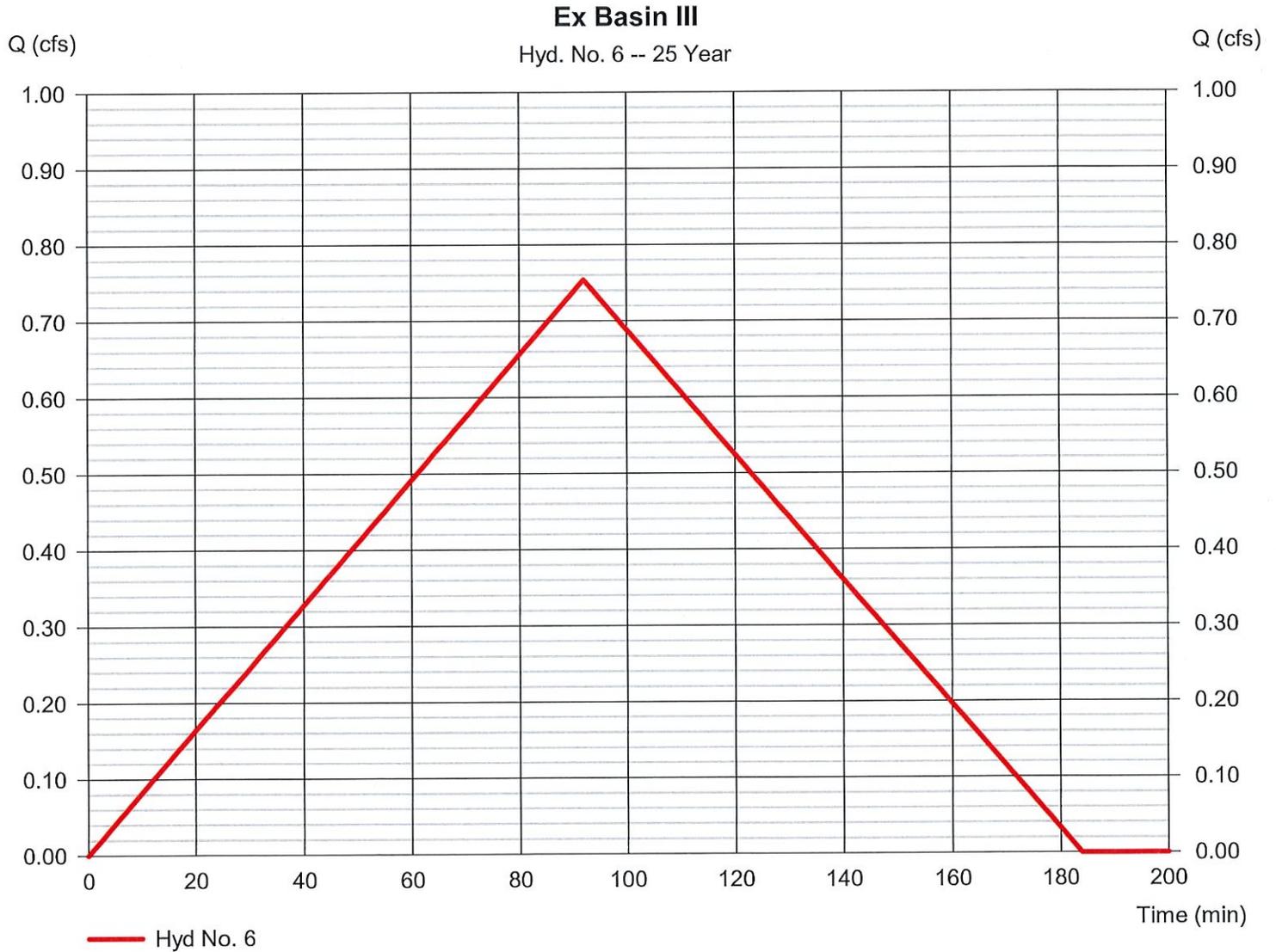
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 6

Ex Basin III

Hydrograph type	= Rational	Peak discharge	= 0.754 cfs
Storm frequency	= 25 yrs	Time to peak	= 92 min
Time interval	= 1 min	Hyd. volume	= 4,163 cuft
Drainage area	= 4.500 ac	Runoff coeff.	= 0.25
Intensity	= 0.670 in/hr	Tc by TR55	= 92.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. **R55 Tc Worksheet**

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 6

Ex Basin III

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.300	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 0.97	0.00	0.00	
Travel Time (min)	= 89.98	+ 0.00	+ 0.00	= 89.98
Shallow Concentrated Flow				
Flow length (ft)	= 217.00	0.00	0.00	
Watercourse slope (%)	= 0.97	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.59	0.00	0.00	
Travel Time (min)	= 2.28	+ 0.00	+ 0.00	= 2.28
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				92.00 min

11. Hydrograph Report

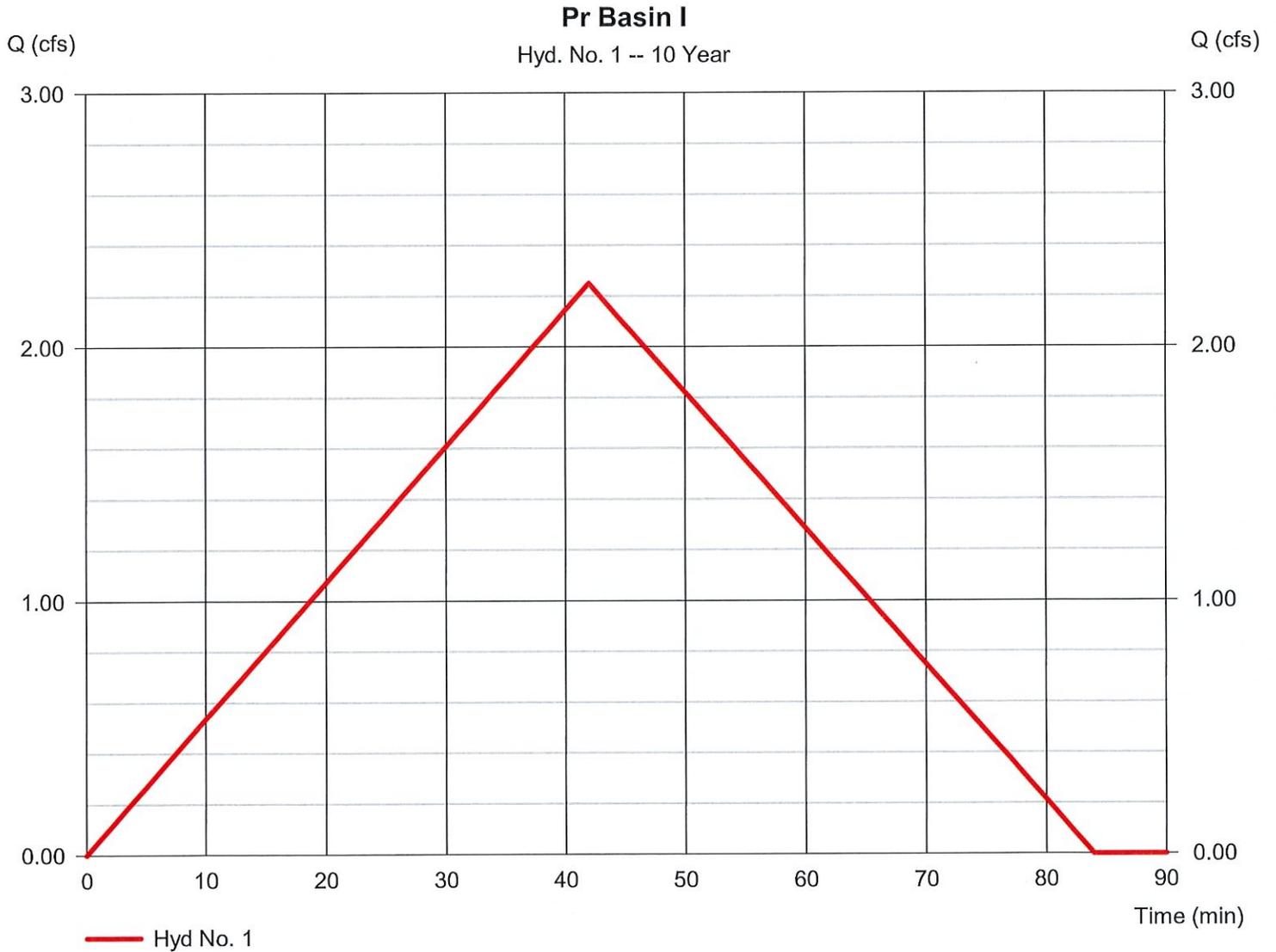
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 1

Pr Basin I

Hydrograph type	= Rational	Peak discharge	= 2.251 cfs
Storm frequency	= 10 yrs	Time to peak	= 42 min
Time interval	= 1 min	Hyd. volume	= 5,671 cuft
Drainage area	= 5.500 ac	Runoff coeff.	= 0.4
Intensity	= 1.023 in/hr	Tc by TR55	= 42.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

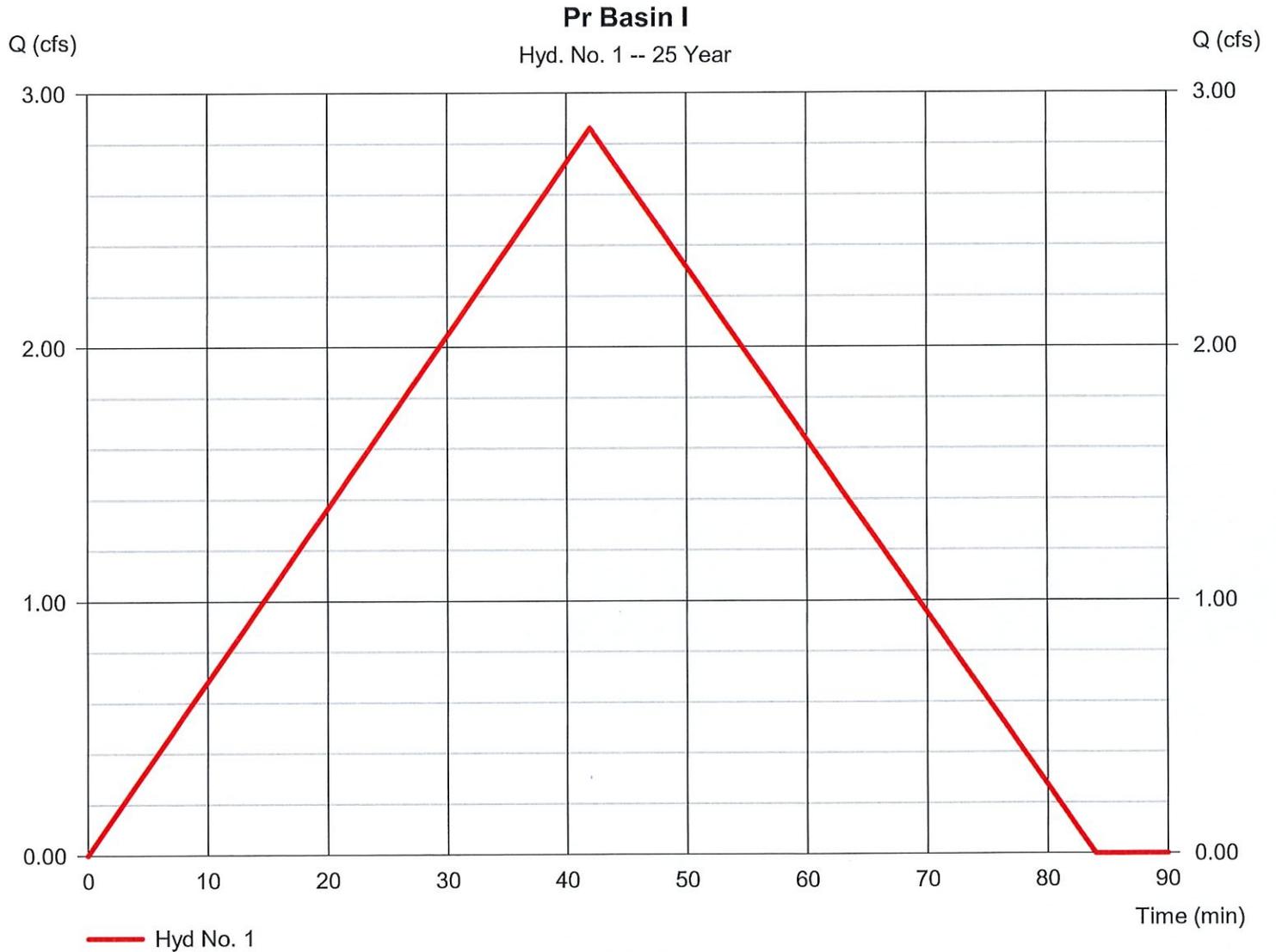
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 1

Pr Basin I

Hydrograph type	= Rational	Peak discharge	= 2.862 cfs
Storm frequency	= 25 yrs	Time to peak	= 42 min
Time interval	= 1 min	Hyd. volume	= 7,213 cuft
Drainage area	= 5.500 ac	Runoff coeff.	= 0.4
Intensity	= 1.301 in/hr	Tc by TR55	= 42.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. R55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 1

Pr Basin I

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 2.20	0.00	0.00	
Travel Time (min)	= 37.25	+ 0.00	+ 0.00	= 37.25
Shallow Concentrated Flow				
Flow length (ft)	= 651.00	0.00	0.00	
Watercourse slope (%)	= 2.20	0.00	0.00	
Surface description	= Unpaved	Unpaved	Unpaved	
Average velocity (ft/s)	=2.39	0.00	0.00	
Travel Time (min)	= 4.53	+ 0.00	+ 0.00	= 4.53
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{{0}}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				42.00 min

11. Hydrograph Report

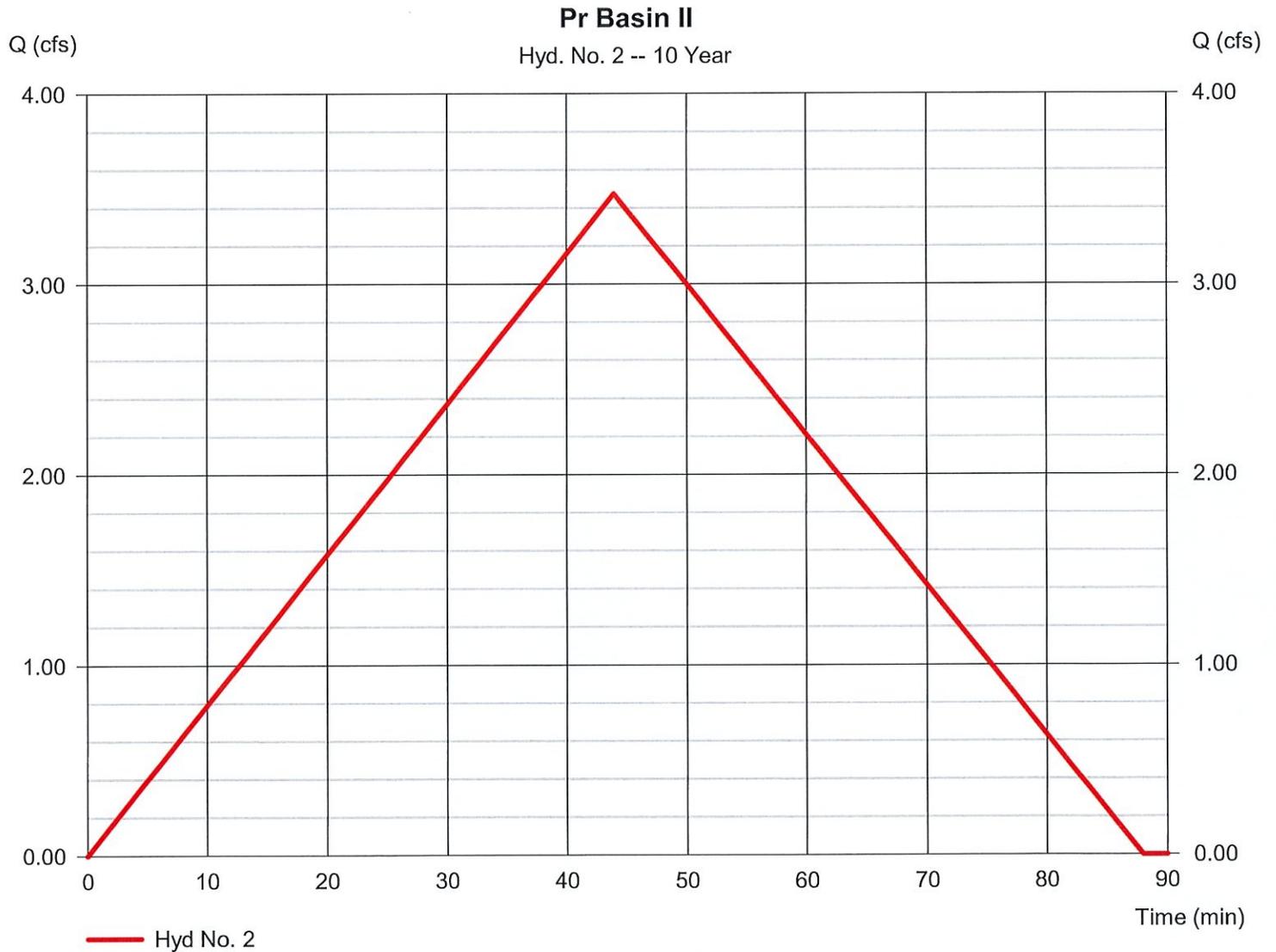
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 2

Pr Basin II

Hydrograph type	= Rational	Peak discharge	= 3.475 cfs
Storm frequency	= 10 yrs	Time to peak	= 44 min
Time interval	= 1 min	Hyd. volume	= 9,173 cuft
Drainage area	= 8.800 ac	Runoff coeff.	= 0.4
Intensity	= 0.987 in/hr	Tc by TR55	= 44.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

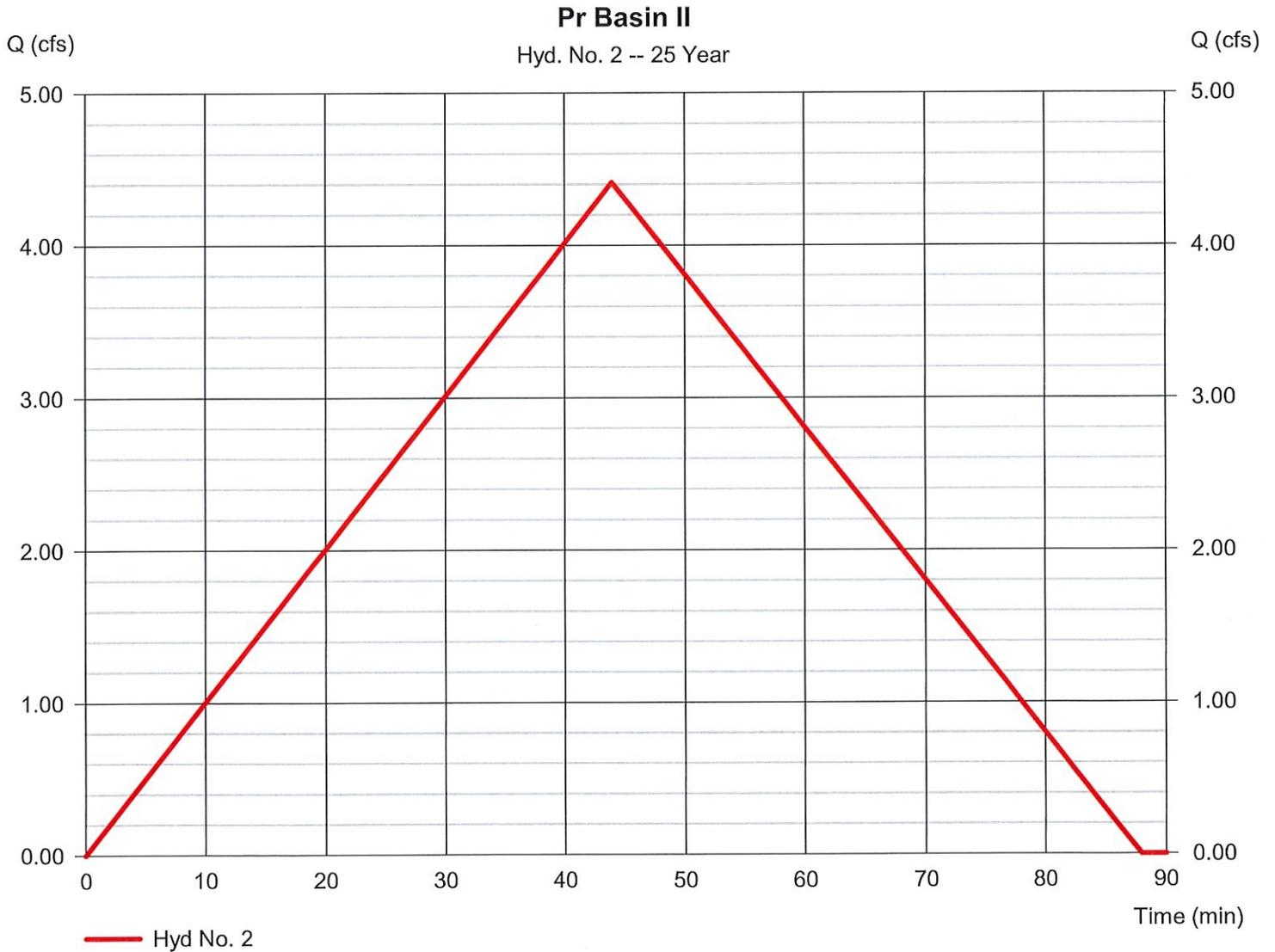
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 2

Pr Basin II

Hydrograph type	= Rational	Peak discharge	= 4.414 cfs
Storm frequency	= 25 yrs	Time to peak	= 44 min
Time interval	= 1 min	Hyd. volume	= 11,652 cuft
Drainage area	= 8.800 ac	Runoff coeff.	= 0.4
Intensity	= 1.254 in/hr	Tc by TR55	= 44.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. R55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 2

Pr Basin II

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 1.80	0.00	0.00	
Travel Time (min)	= 40.36	+ 0.00	+ 0.00	= 40.36
Shallow Concentrated Flow				
Flow length (ft)	= 434.00	0.00	0.00	
Watercourse slope (%)	= 1.80	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=2.16	0.00	0.00	
Travel Time (min)	= 3.34	+ 0.00	+ 0.00	= 3.34
Channel Flow				
X sectional flow area (sqft)	= 3.01	0.00	0.00	
Wetted perimeter (ft)	= 1.10	0.00	0.00	
Channel slope (%)	= 1.80	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=26.16	0.00	0.00	
Flow length (ft)	{{0}}263.0	0.0	0.0	
Travel Time (min)	= 0.17	+ 0.00	+ 0.00	= 0.17
Total Travel Time, Tc				44.00 min

11. Hydrograph Report

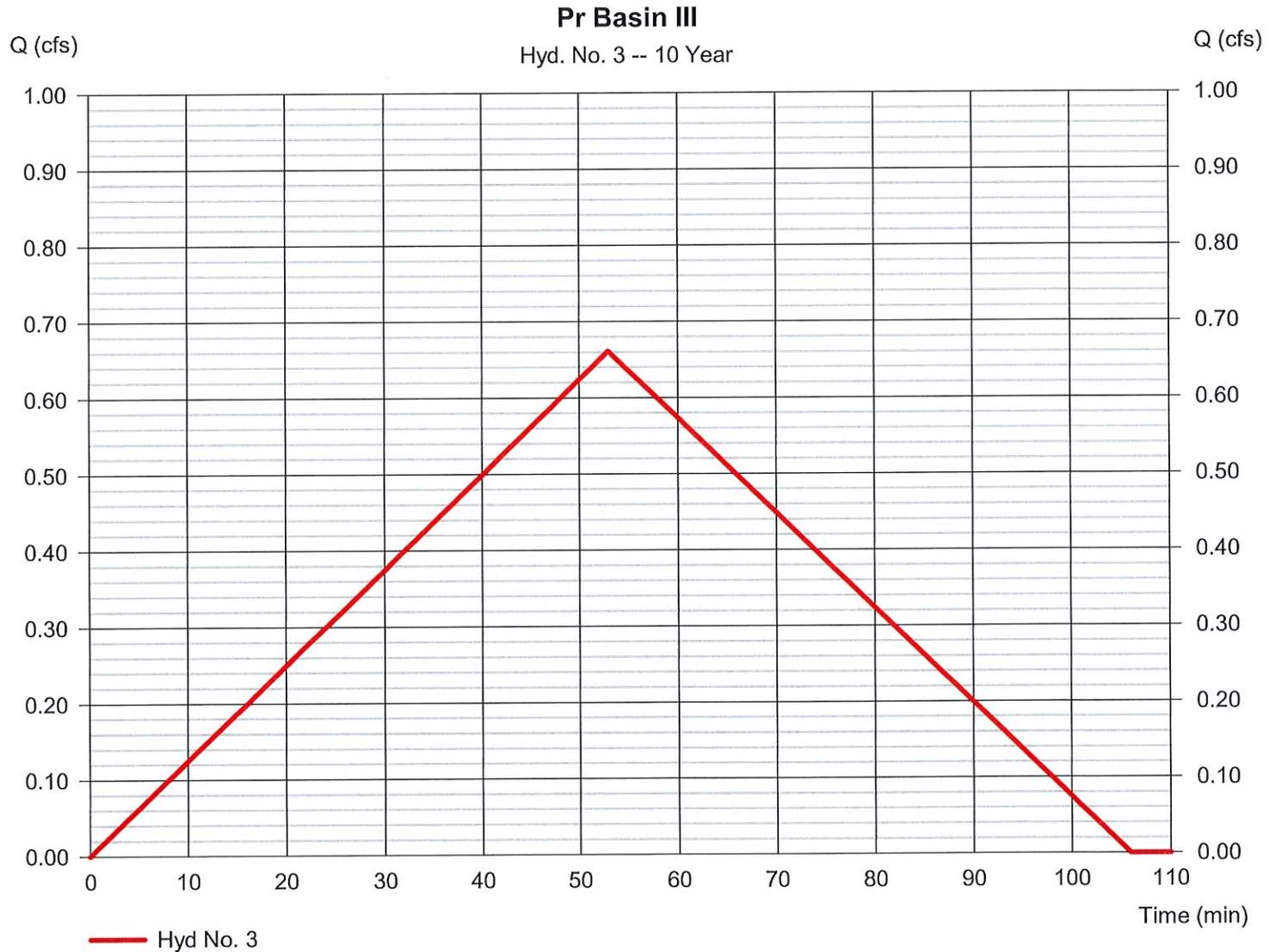
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 3

Pr Basin III

Hydrograph type	= Rational	Peak discharge	= 0.661 cfs
Storm frequency	= 10 yrs	Time to peak	= 53 min
Time interval	= 1 min	Hyd. volume	= 2,103 cuft
Drainage area	= 3.100 ac	Runoff coeff.	= 0.25
Intensity	= 0.853 in/hr	Tc by TR55	= 53.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

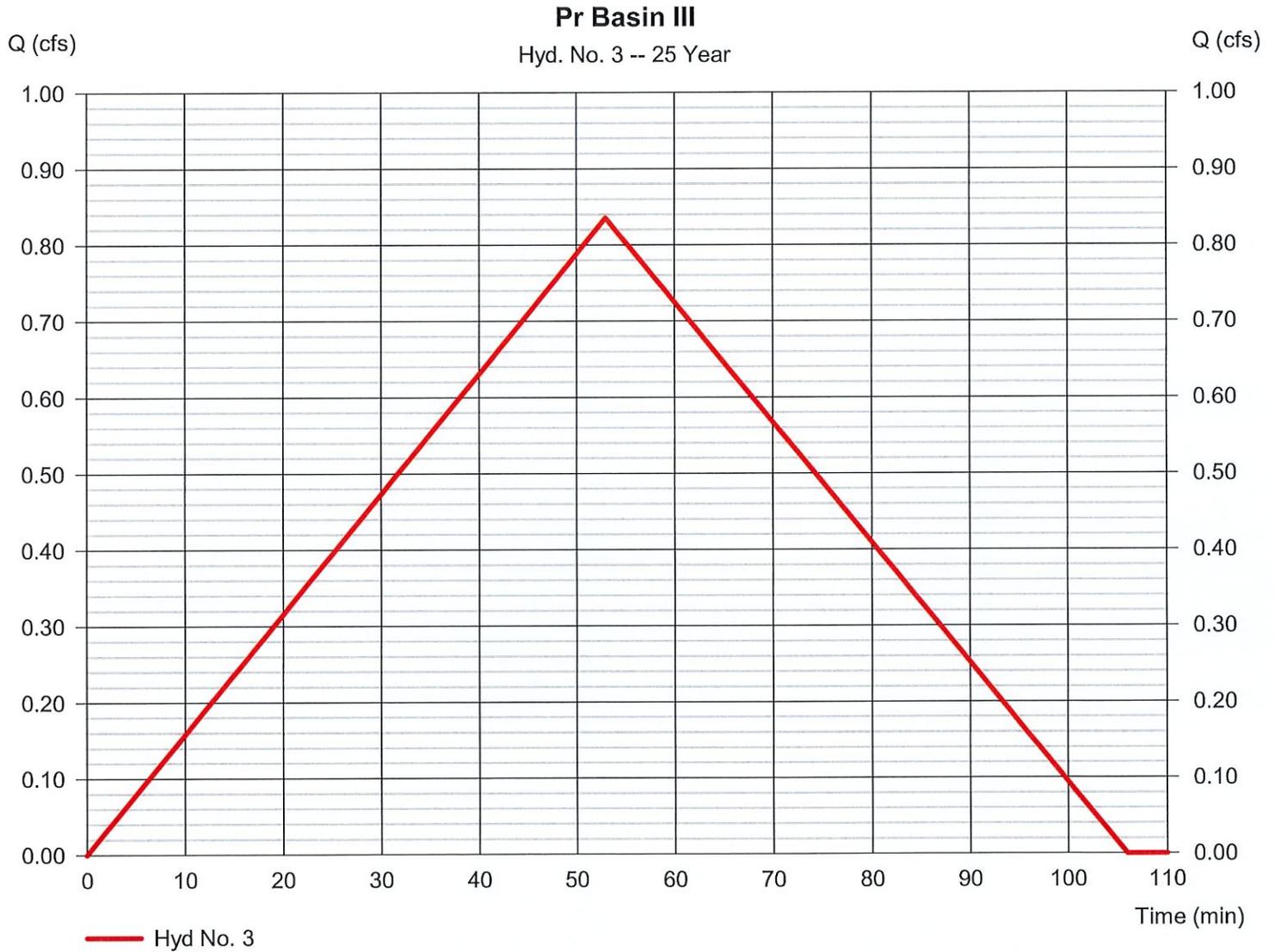
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 3

Pr Basin III

Hydrograph type	= Rational	Peak discharge	= 0.835 cfs
Storm frequency	= 25 yrs	Time to peak	= 53 min
Time interval	= 1 min	Hyd. volume	= 2,657 cuft
Drainage area	= 3.100 ac	Runoff coeff.	= 0.25
Intensity	= 1.078 in/hr	Tc by TR55	= 53.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. R55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 3

Pr Basin III

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 1.00	0.00	0.00	
Travel Time (min)	= 51.06	+ 0.00	+ 0.00	= 51.06
Shallow Concentrated Flow				
Flow length (ft)	= 152.00	0.00	0.00	
Watercourse slope (%)	= 1.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.61	0.00	0.00	
Travel Time (min)	= 1.57	+ 0.00	+ 0.00	= 1.57
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{{0}}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				53.00 min

11. Hydrograph Report

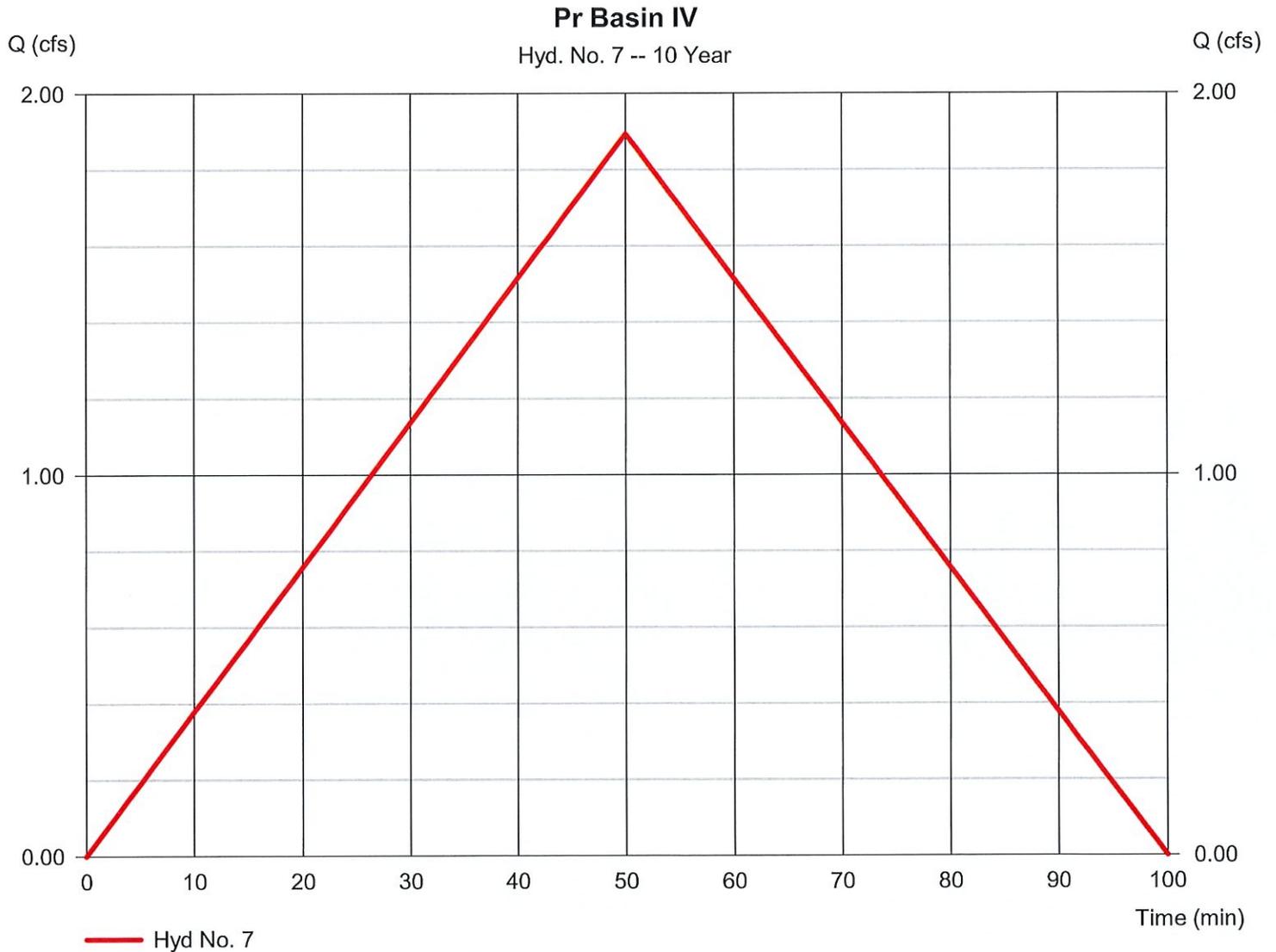
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 7

Pr Basin IV

Hydrograph type	= Rational	Peak discharge	= 1.894 cfs
Storm frequency	= 10 yrs	Time to peak	= 50 min
Time interval	= 1 min	Hyd. volume	= 5,683 cuft
Drainage area	= 5.300 ac	Runoff coeff.	= 0.4
Intensity	= 0.893 in/hr	Tc by TR55	= 50.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. Hydrograph Report

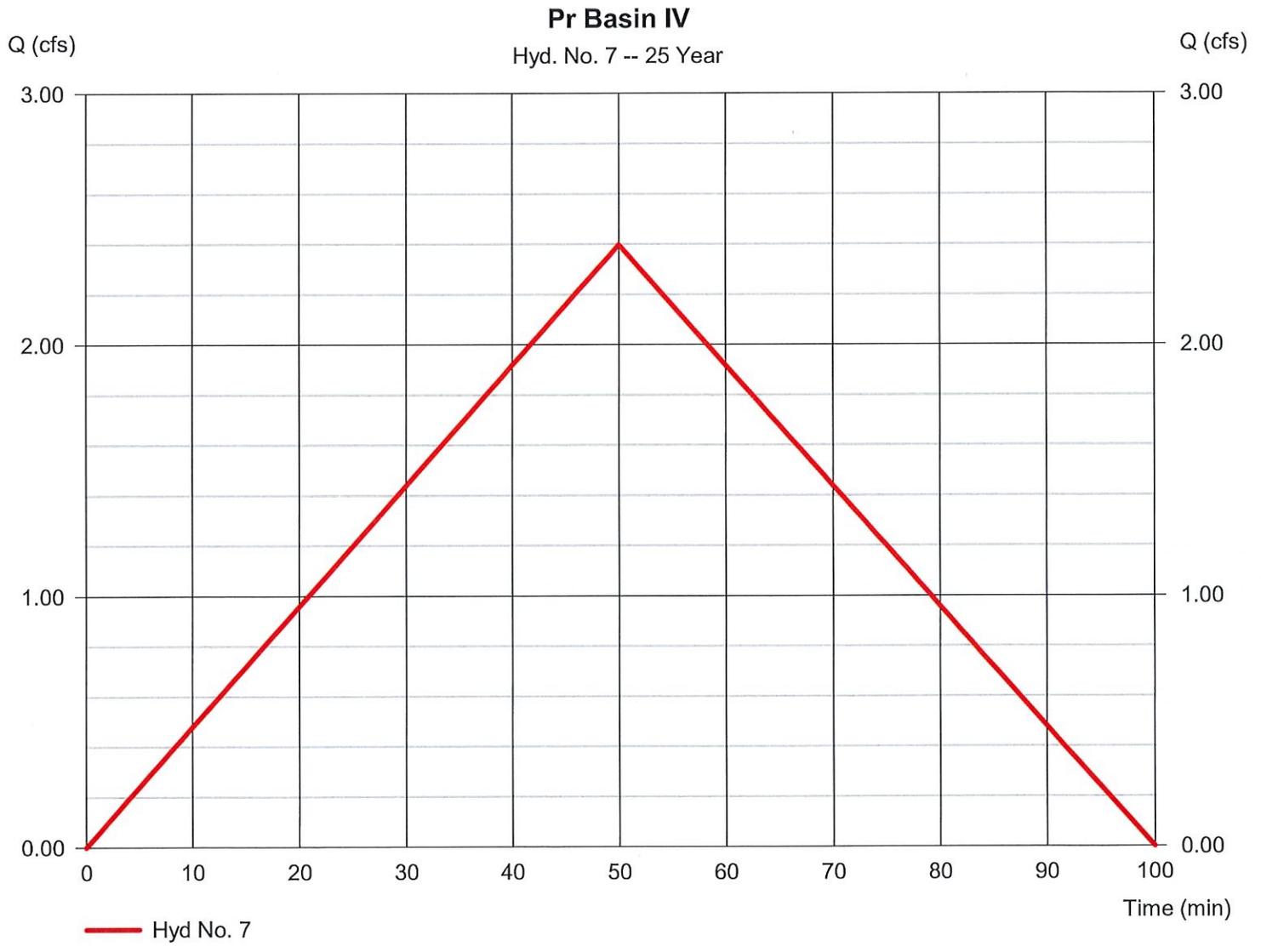
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Thursday, 08 / 13 / 2020

Hyd. No. 7

Pr Basin IV

Hydrograph type	= Rational	Peak discharge	= 2.398 cfs
Storm frequency	= 25 yrs	Time to peak	= 50 min
Time interval	= 1 min	Hyd. volume	= 7,193 cuft
Drainage area	= 5.300 ac	Runoff coeff.	= 0.4
Intensity	= 1.131 in/hr	Tc by TR55	= 50.00 min
IDF Curve	= Paonia.IDF	Asc/Rec limb fact	= 1/1



11. R55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Hyd. No. 7

Pr Basin IV

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.150	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.19	0.00	0.00	
Land slope (%)	= 1.10	0.00	0.00	
Travel Time (min)	= 49.15	+ 0.00	+ 0.00	= 49.15
Shallow Concentrated Flow				
Flow length (ft)	= 110.00	0.00	0.00	
Watercourse slope (%)	= 1.10	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=1.69	0.00	0.00	
Travel Time (min)	= 1.08	+ 0.00	+ 0.00	= 1.08
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	{0}0.0	0.0	0.0	
Travel Time (min)	= 0.00	+ 0.00	+ 0.00	= 0.00
Total Travel Time, Tc				50.00 min

11. Channel Report

Riverbank

Trapezoidal

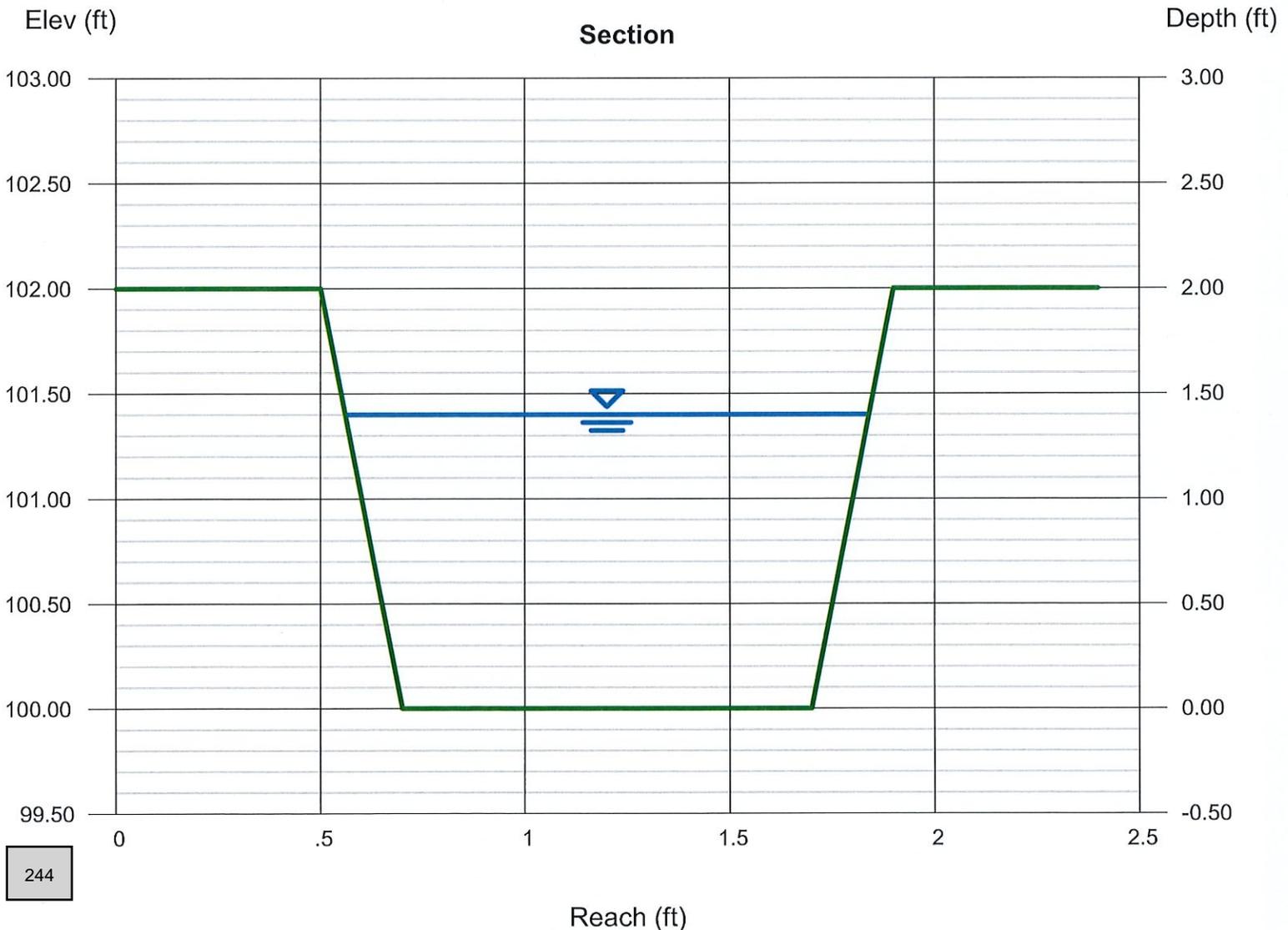
Bottom Width (ft) = 1.00
Side Slopes (z:1) = 0.10, 0.10
Total Depth (ft) = 2.00
Invert Elev (ft) = 100.00
Slope (%) = 1.00
N-Value = 0.022

Highlighted

Depth (ft) = 1.40
Q (cfs) = 6.029
Area (sqft) = 1.60
Velocity (ft/s) = 3.78
Wetted Perim (ft) = 3.81
Crit Depth, Y_c (ft) = 1.01
Top Width (ft) = 1.28
EGL (ft) = 1.62

Calculations

Compute by: Q vs Depth
No. Increments = 10



11. Channel Report

<Name>

Trapezoidal

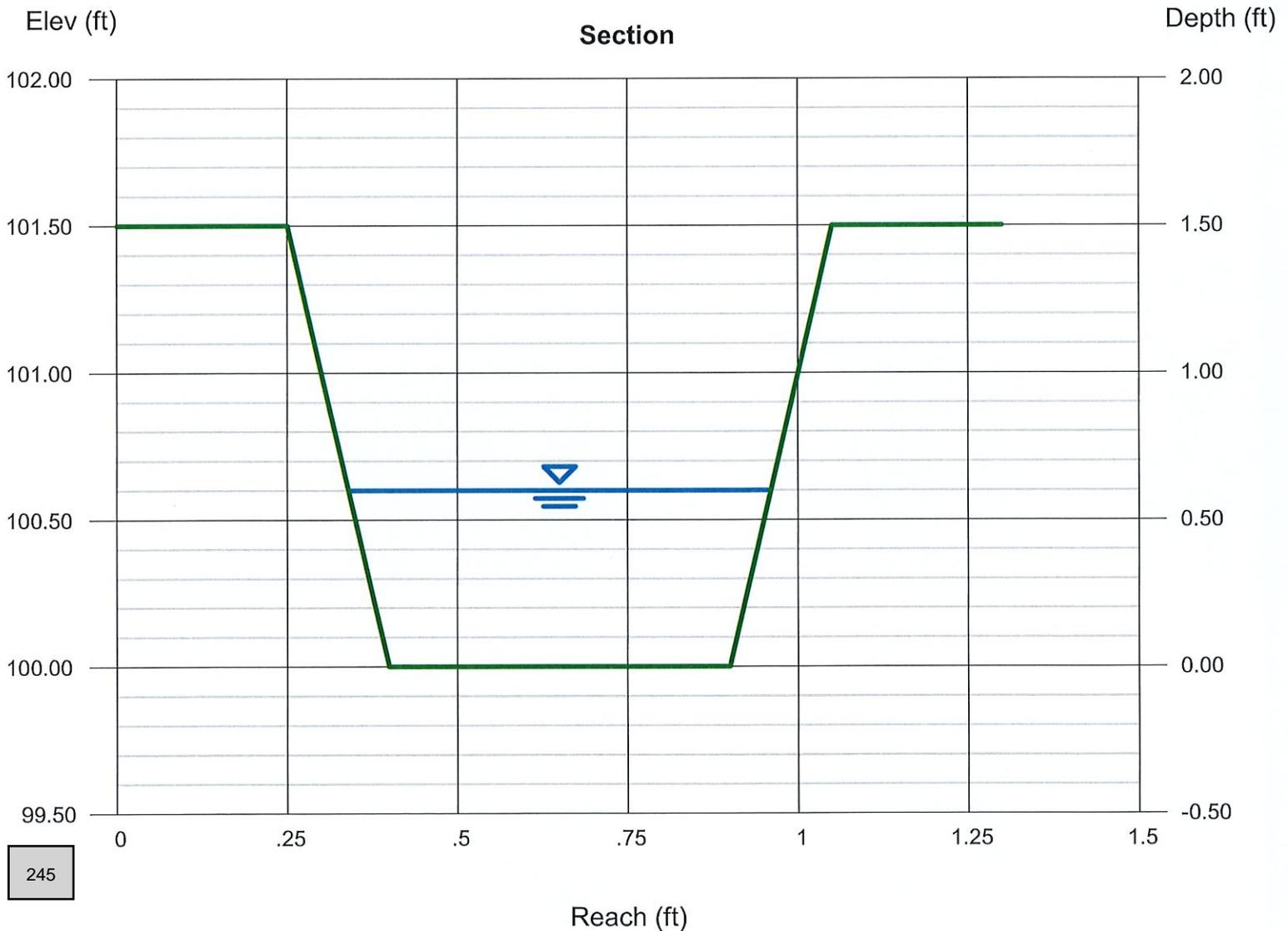
Bottom Width (ft) = 0.50
Side Slopes (z:1) = 0.10, 0.10
Total Depth (ft) = 1.50
Invert Elev (ft) = 100.00
Slope (%) = 1.80
N-Value = 0.022

Highlighted

Depth (ft) = 0.60
Q (cfs) = 1.030
Area (sqft) = 0.34
Velocity (ft/s) = 3.07
Wetted Perim (ft) = 1.71
Crit Depth, Y_c (ft) = 0.50
Top Width (ft) = 0.62
EGL (ft) = 0.75

Calculations

Compute by: Q vs Depth
No. Increments = 10



ENGINEERS CONSTRUCTION ESTIMATE

ITEM 12

 Riverbank Neighborhood
 Paonia, Colorado

CONTRACT ITEM	UNIT	ENTIRE PROJECT		COST PER UNIT	COST
		PLAN	AS CONST.		
Mobilization	LS	1		\$ 3,000.00	\$ 3,000.00
Clearing and Grubbing	LS	1		\$ 3,500.00	\$ 3,500.00
Backfill using site soils	CY	2513		\$ 20.00	\$ 50,260.00
Excavation (Cut)	CY	10323		\$ 15.00	\$ 154,845.00
10" Aggregate Base Course (Class 6)	CY	1107		\$ 30.00	\$ 33,210.00
Hot Mix Asphalt (3" Thick)	CY	335		\$ 45.00	\$ 15,075.00
15" RCP Culverts	LF	111		\$ 35.00	\$ 3,885.00
18" RCP Culverts	LF	32		\$ 40.00	\$ 1,280.00
Concrete Headwalls (irrigation)	EA	6		\$ 250.00	\$ 1,500.00
3-Phase electric line with service terminations	LF	2200		\$ 45.00	\$ 99,000.00
2-inch HDPE gas main	LF	1492		\$ 25.00	\$ 37,300.00
Telephone in joint trench with electric	LF	1552		\$ 5.00	\$ 7,760.00
Fiber Optic Cable	LS	1558		\$ 10.00	\$ 15,580.00
Ground Signs with CDOT breakaway base	LS	1		\$ 2,000.00	\$ 2,000.00
Open Space and Right of Way Landscaping	LS	1		\$ 10,000.00	\$ 10,000.00
Construction Surveying	LS	1		\$ 3,000.00	\$ 3,000.00
Stormwater Management	LS	1		\$ 7,500.00	\$ 7,500.00
8" SDR 35 PVC Sewer Main Pipe	LF	1270		\$ 23.00	\$ 29,210.00
4" SDR 35 PVC Sewer Lateral Pipe	LF	490		\$ 20.00	\$ 9,800.00
8"x4" Service Tap ("Y" connection)	EA	14		\$ 780.00	\$ 10,920.00
4-inch lateral cleanouts	EA	14		\$ 50.00	\$ 700.00
48" Ø Manholes (Less than 10 foot)	EA	3		\$ 5,000.00	\$ 15,000.00
48" Ø Manholes (10 to 15 foot)	EA	2		\$ 5,000.00	\$ 10,000.00
Manhole Testing	EA	5		\$ 200.00	\$ 1,000.00
8-inch DR 14 HDPE pipe and fittings	LF	1,265		\$ 30.00	\$ 37,950.00
8-inch gate valves	EA	4		\$ 1,900.00	\$ 7,600.00
Fire Hydrant with valve	EA	2		\$ 4,000.00	\$ 8,000.00
2-inch blow-off valves	EA	1		\$ 600.00	\$ 600.00
Temporary Flushing Hydrant	EA	1		\$ 400.00	\$ 400.00
Water services meter pit	EA	14		\$ 400.00	\$ 5,600.00
3/4-inch HDPE service pipe	LF	502		\$ 20.00	\$ 10,040.00
6-inch gate valve	EA	2		\$ 1,700.00	\$ 3,400.00
SUBTOTAL					\$ 598,915.00
10% CONTINGENCY					\$ 59,891.50
TOTAL					\$ 658,806.50



July 26, 2019

Mr. Ivo Renkema
Old World, LLC
ivo@openbook.pub

LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

Re: Riverbank
Traffic Impact Analysis
Paonia, CO
LSC #190540

Dear Mr. Renkema:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Riverbank development. As shown on Figure 1, the site is located southeast of State Highway (SH) 133 and north of Samuel Wade Road in Paonia, Colorado.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the short-term and long-term assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include 46 single-family detached homes and 11 townhomes. Access is proposed from a full movement access location on Price Road as shown in the conceptual site plan in Figure 2.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **State Highway (SH) 133** is an east-west, two-lane state highway northwest of the site. It is designated R-A (Regional Highway) by CDOT. The intersections with Clock Road/Fire Mountain Road and Samuel Wade Road are stop-sign controlled. The posted speed limit in the vicinity of the site is 45 mph.

- **Samuel Wade Road** is an east-west, two-lane collector roadway south of the site. The intersection with SH 133 is stop-sign controlled. The posted speed limit in the vicinity of the site is 35 mph.

Existing Traffic Conditions

Figures 3a and 3b show the existing June and July weekday traffic volumes. Figure 3c shows the existing lane geometry and the existing traffic controls in the vicinity of the site. The June weekday peak-hour traffic volumes and average daily traffic volumes are from the attached traffic counts conducted by Counter Measures in June, 2019. The July weekday traffic volumes are based on an adjustment factor of 1.15 based on a review of seasonal traffic volume data throughout western Colorado.

2022 and 2040 Background Traffic

Figures 4a and 5a show the estimated 2022 and 2040 background traffic based on annual growth rate of 0.75 percent based on the CDOT 20-year growth factor of 1.16. Figures 4b and 5b show the estimated 2022 and 2040 background lane geometry and traffic control.

Existing, 2022, and 2040 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for unsignalized intersections.

The intersections in the study area were analyzed to determine the existing, 2022, and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **SH 133/Clock Road/Fire Mountain Road:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.
- **SH 133/Samuel Wade Road:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.
- **Samuel Wade Road/Clock Road:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.
- **Clock Road/Price Road:** All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to do so through 2040.

- **Samuel Wade Road/Price Road:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.

TRIP GENERATION

Table 2 shows the estimated average daily, weekday morning peak-hour, and weekday afternoon peak-hour trip generation potential for the proposed site based on the rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE).

The site is projected to generate about 551 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 10 vehicles would enter and about 33 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 35 vehicles would enter and about 21 vehicles would exit.

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site's proposed land use.

TRIP ASSIGNMENT

Figure 7 shows the estimated site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

2022 AND 2040 TOTAL TRAFFIC

Figure 8a shows the 2022 total traffic which is the sum of the 2022 background traffic volumes (from Figure 4a) and the site-generated traffic volumes (from Figure 7). Figure 8b shows the recommended 2022 lane geometry and traffic control.

Figure 9a shows the 2040 total traffic which is the sum of the 2040 background traffic volumes (from Figure 5a) and the site-generated traffic volumes (from Figure 7). Figure 9b shows the recommended 2040 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in the study area were analyzed as appropriate to determine the 2022 and 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **SH 133/Clock Road/Fire Mountain Road:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.

- **SH 133/Samuel Wade Road:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.
- **Samuel Wade Road/Clock Road:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.
- **Clock Road/Price Road:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2040.
- **Samuel Wade Road/Price Road:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.
- **Price Road/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2040.

SH 133 TURN LANE THRESHOLDS

The *State Highway Access Code* (SHAC) includes thresholds for auxiliary turn lanes at intersections. The Regional Highway (RA) classification combined with the 45 mph posted speed limit has the following requirements for auxiliary turn lanes.

- Right-Turn Deceleration Lane - warranted when peak-hour volume exceeds 25 vph by 2040 and the through/right volume exceeds 150 vph by 2040. An appropriate length is 275 feet plus a 145-foot transition taper.
- Left-Turn Deceleration Lane - warranted when peak-hour volumes exceeds 10 vph by 2040 and the opposing volume exceeds 100 vph by 2040. An appropriate length is 275 feet for deceleration plus vehicle storage and a 145-foot transition taper.
- Right-Turn Acceleration Lane - warranted when peak-hour volume exceeds 50 vph by 2040.

SH 133/Samuel Wade Road

The only turning movement high enough through 2040 to warrant an auxiliary turn lane is the northbound right-turn movement from SH 133 to Samuel Wade Road. There is an existing right-turn lane for this movement that meets the requirement of the SHAC.

SH 133/Clock Road

The westbound left-turn movement from SH 133 to Clock Road is expected to exceed 10 vph with development of the site, but the opposing volume on SH 133 is not expected to exceed 100 vph through 2040 which give CDOT discretion to waive the requirement for a left-turn deceleration lane. The intersection has an offset across SH 133 which is another reason to waive the requirement for this lane to avoid issues with left-turn overlap.

CONCLUSIONS AND RECOMMENDATIONS**Trip Generation**

1. The site is projected to generate about 551 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 10 vehicles would enter and about 33 vehicles would exit the site. During the afternoon peak-hour, about 35 vehicles would enter and about 21 vehicles would exit.

Projected Levels of Service

2. All movements at the unsignalized intersections analyzed are expected to operate at LOS "B" or better through 2040.

Conclusions

3. The impact of the Riverbank development can be accommodated by the existing and proposed roadway network with the following recommendations.

Recommendations

4. The site access approach to Price Road should be stop-sign controlled.
5. The intersection of Samuel Wade Road/Price Road should be improved to provide an intersection angle closer to 90 degrees. This can possibly be achieved by an asphalt overlay of the side street approach and striping a yellow centerline on Price Road approaching the intersection.
6. No new auxiliary turn lanes are recommended on SH 133 based on this analysis.
7. An access permit application and/or design deviation/waiver request may be needed based on CDOT's review.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Riverbank development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 
Christopher S. McGranahan, PE, PTOE
Principal



7-26-19

CSM/wc

- Enclosures: Tables 1 and 2
- Figures 1 - 9b
- Traffic Count Reports
- Level of Service Definitions
- Level of Service Reports

W:\LSC\Projects\2019\190540-RiverbankNeighborhood\Report\Riverbank-072619.wpd

Table 1
Intersection Levels of Service Analysis
Riverbank
Paonia, CO
LSC #190540; July, 2019

Intersection Location	Traffic Control	Existing Traffic		2022 Background Traffic		2022 Total Traffic		2040 Background Traffic		2040 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
<u>SH 133/Clock Road/Fire Mtn. Road</u>	TWSC	A	A	A	A	A	A	A	A	A	A
NEB Approach		A	A	A	A	A	A	A	A	A	A
NB Approach		A	B	A	B	A	B	A	B	A	B
SB Approach		A	A	A	A	A	A	A	A	A	A
SWB Approach		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		9.3	10.2	9.3	10.2	9.3	10.4	9.5	10.3	9.5	10.5
<u>SH 133/Samuel Wade Road</u>	TWSC	A	A	A	A	A	A	A	A	A	A
NB Left/Through		B	B	B	B	B	B	B	B	B	B
EB Approach		B	B	B	B	B	B	B	B	B	B
WB Left/Through		A	A	A	A	A	A	A	A	A	A
WB Right		A	A	A	A	A	A	A	A	A	A
SB Approach		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		10.2	11.6	10.2	11.6	10.3	11.8	10.5	12.2	10.7	12.4
<u>Samuel Wade Road/Clock Road</u>	TWSC	A	A	A	A	A	A	A	A	A	A
EB Left/Through		A	B	A	B	A	B	A	B	A	B
SB Approach		A	B	A	B	A	B	A	B	A	B
Critical Movement Delay		9.8	10.4	9.8	10.5	9.8	10.5	9.9	10.8	9.9	10.9
<u>Clock Road/Price Road</u>	TWSC	A	A	A	A	A	A	A	A	A	A
WB Approach		A	A	A	A	A	A	A	A	A	A
SB Left/Through		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		8.6	8.7	8.6	8.7	8.7	8.8	8.6	8.7	8.7	8.8
<u>Samuel Wade Road//Price Road</u>	TWSC	A	A	A	A	A	A	A	A	A	A
EB Left/Through		A	B	A	B	B	B	A	B	B	B
SB Approach		A	B	A	B	B	B	A	B	B	B
Critical Movement Delay		9.8	10.5	9.9	10.6	10.0	10.4	9.9	10.8	10.0	10.8
<u>Price Road/Site Access</u>	TWSC	--	--	--	--	A	A	--	--	A	A
EB Left/Through		--	--	--	--	A	A	--	--	A	A
SB Approach		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	8.6	8.7	--	--	8.6	8.7

**Table 2
ESTIMATED TRAFFIC GENERATION
Riverbank Update
Paonia, CO
LSC #190540; July, 2019**

Trip Generating Category	Quantity	Trip Generation Rates ⁽¹⁾					Vehicle-Trips Generated					
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour		
		Weekday	In	Out	In	Out	Weekday	In	Out	In	Out	
CURRENTLY PROPOSED LAND USE												
Single-Family Housing ⁽²⁾	46 DU ⁽³⁾	11.06	0.20	0.61	0.66	0.39	509	9	28	30	18	
Townhomes ⁽⁴⁾	11 DU ⁽³⁾	7.32	0.12	0.41	0.47	0.28	42	1	5	5	3	
							Total =	551	10	33	35	21

Notes:

- (1) Source: *Trip Generation*, Institute of Transportation Engineers, 10th Edition, 2017.
- (2) ITE Land Use No. 210 - Single-Family Detached Housing; formula rates were used
- (3) DU = dwelling units
- (4) ITE Land Use No. 220 - Multifamily Housing (Low Rise); formula rates were used for all except daily



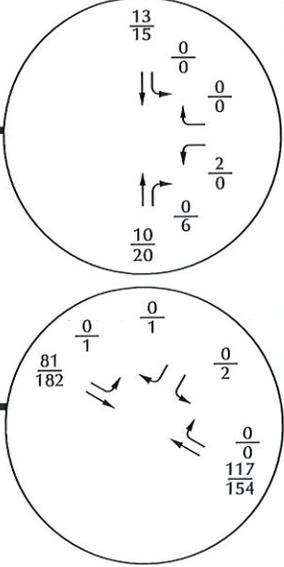
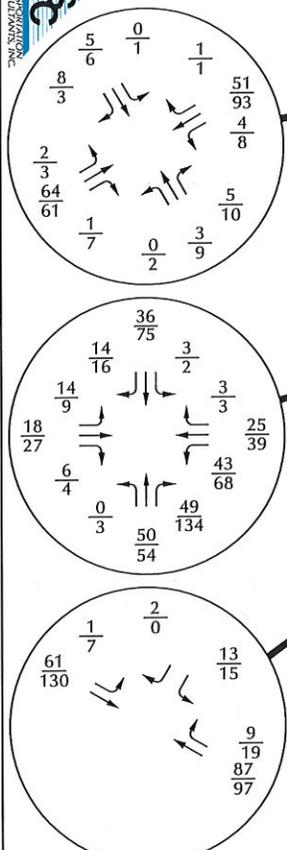


Approximate Scale
Scale: 1" = 400'

Figure 2
Site Plan

Riverbank Update (LSC #190540)



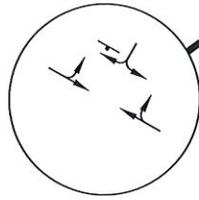
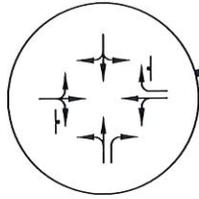
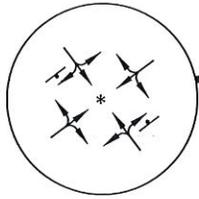


LEGEND:
 (35) = Speed Limit
 26 = AM Peak Hour Traffic
 35 = PM Peak Hour Traffic
 1,000 = Average Daily Traffic

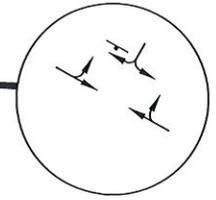
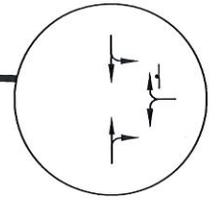
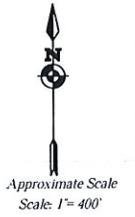
Figure 3a
**Existing
 June Traffic**
 Riverbank Update (LSC #190540)



*There is an offset of 60 feet between the north and south legs.

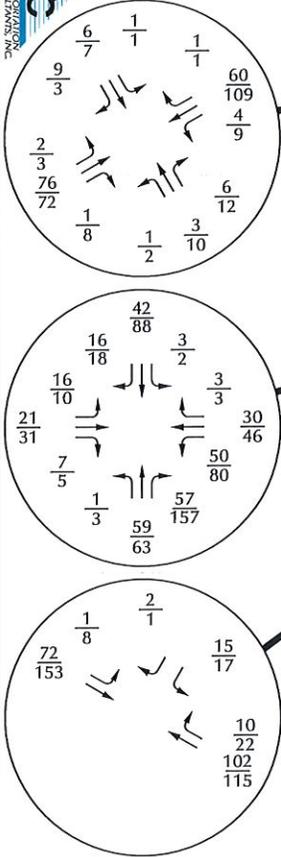


Note: State Highway 133 is classified as Regional Highway (RA) by CDOT.

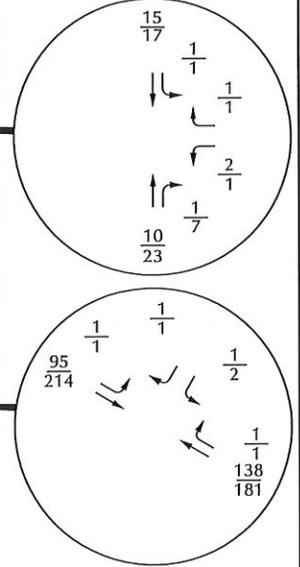


LEGEND:
┆ = Stop Sign

Figure 3c
**Existing Lane
Geometry and Traffic Control**
Riverbank Update (LSC #190540)



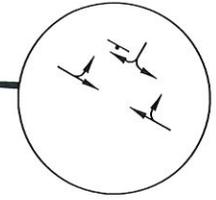
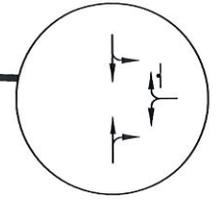
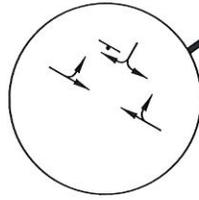
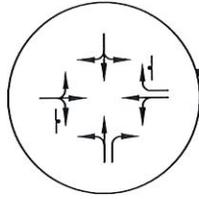
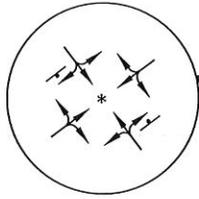
Note: Assumes annual growth rate of about 0.75 percent based on the CDOT 20-year growth factor of 1.16.



LEGEND:

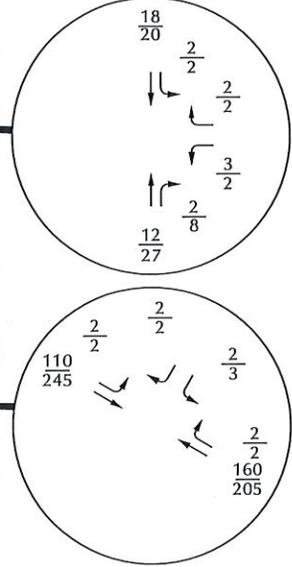
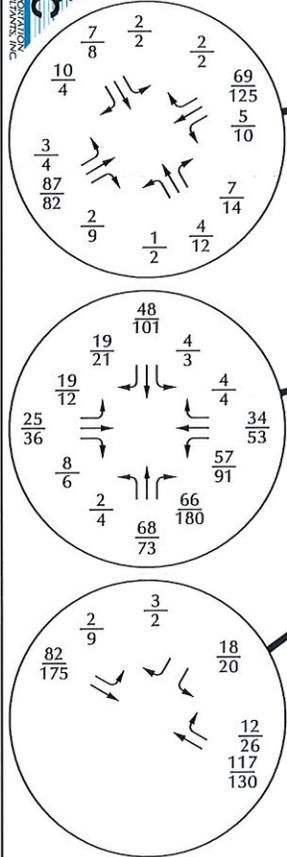
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

Figure 4a
Year 2022
Background Traffic
 Riverbank Update (LSC #190540)



LEGEND:
┆ = Stop Sign

Figure 4b
**Year 2022 Background
Lane Geometry and Traffic Control**
Riverbank Update (LSC #190540)

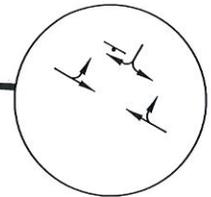
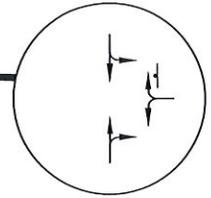
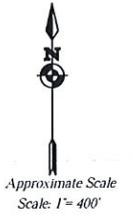
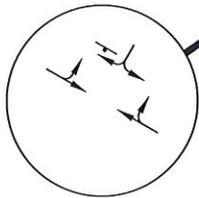
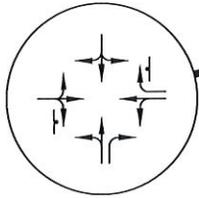
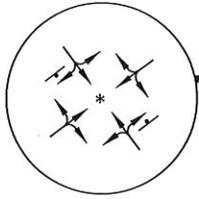


Note: Assumes annual growth rate of about 0.75 percent based on the CDOT 20-year growth factor of 1.16.

LEGEND:

- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

Figure 5a
Year 2040
Background Traffic
 Riverbank Update (LSC #190540)



LEGEND:

⊥ = Stop Sign

Figure 5b

Year 2040 Background Lane Geometry and Traffic Control

Riverbank Update (LSC #190540)

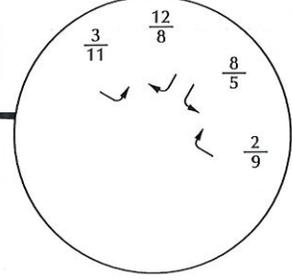
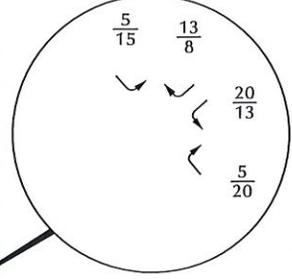
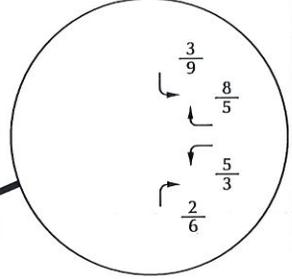
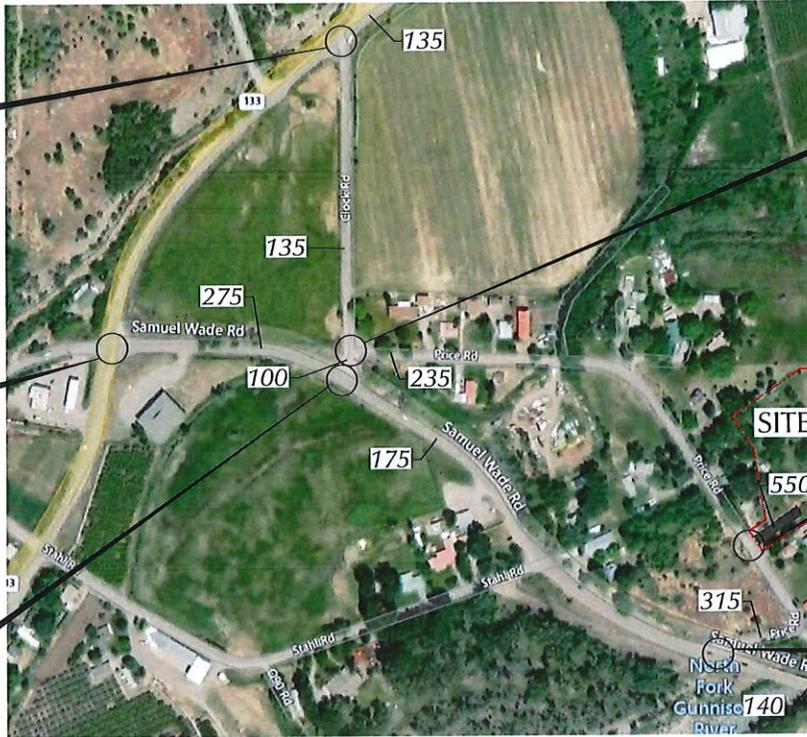
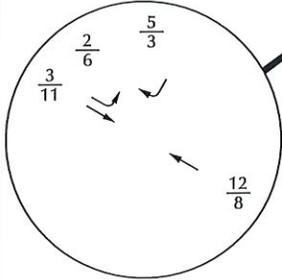
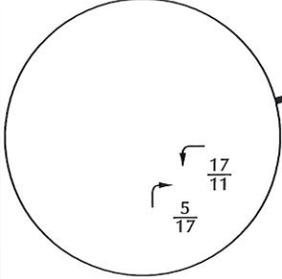
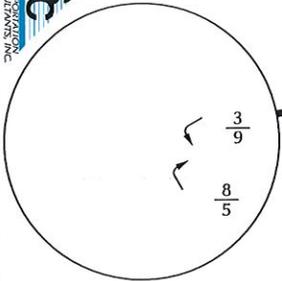



 Approximate Scale
 Scale: 1"=600'

LEGEND:

 = Percent Directional Distribution

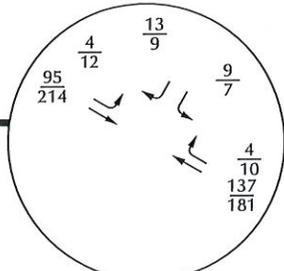
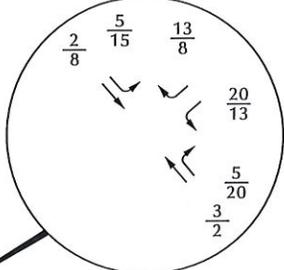
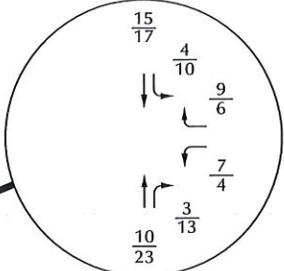
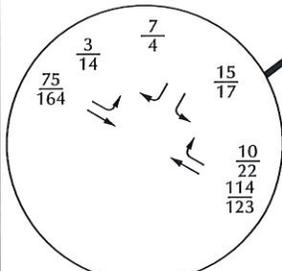
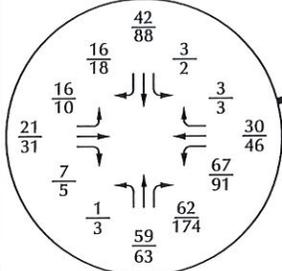
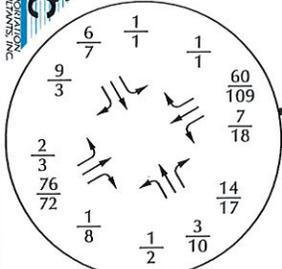
Figure 6
*Directional Distribution
 of Site-Generated Traffic*
 Riverbank Update (LSC #190540)



LEGEND:

- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{35}$ = PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

Figure 7
Assignment of Site-Generated Traffic
 Riverbank Update (LSC #190540)



LEGEND:

- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{35}$ = PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

Figure 8a

Year 2022
Total Traffic

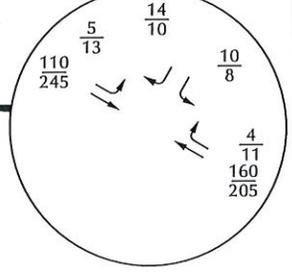
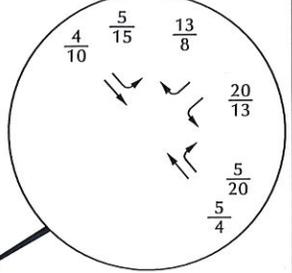
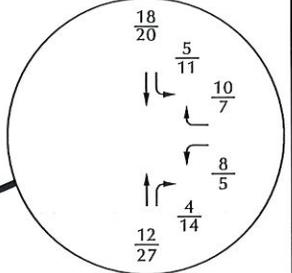
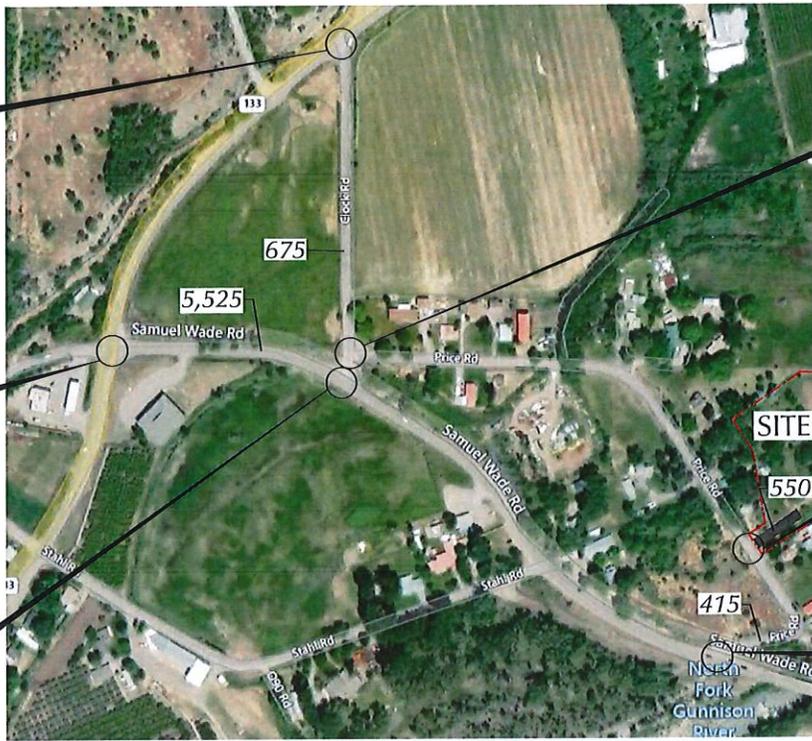
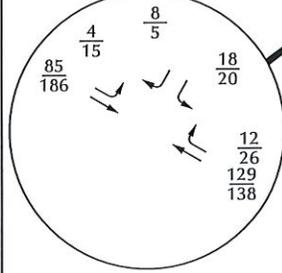
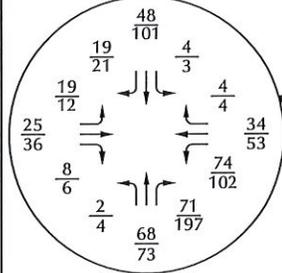
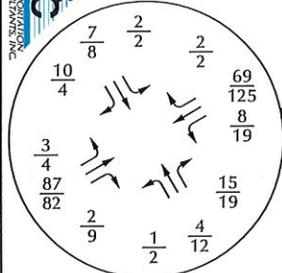
Riverbank Update (LSC #190540)



LEGEND:

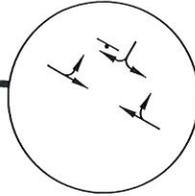
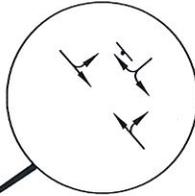
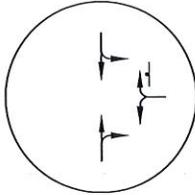
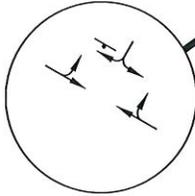
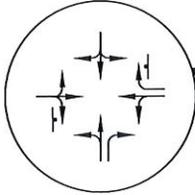
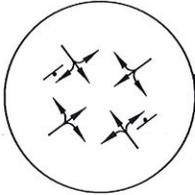
T = Stop Sign

Figure 8b
 Year 2022 Total
 Lane Geometry and Traffic Control
 Riverbank Update (LSC #190540)



LEGEND:
 $\frac{26}{35}$ = AM Peak Hour Traffic
 $\frac{35}{35}$ = PM Peak Hour Traffic
 1,000 = Average Daily Traffic

Figure 9a
Year 2040
Total Traffic
 Riverbank Update (LSC #190540)



LEGEND:
† = Stop Sign

Figure 9b
Year 2040 Total Lane Geometry and Traffic Control
Riverbank Update (LSC #190540)

COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: HWY 133
E/W STREET: FIRE MNT RD / CLOCK RD
CITY: PAONIA
COUNTY: DELTA

File Name : 133FIREMNT
Site Code : 0000026
Start Date : 6/5/2019
Page No : 1

Groups Printed- VEHICLES

Start Time	HWY 133 Southbound				CLOCK RD Westbound				HWY 133 Northbound				FIRE MOUNTAIN RD Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	12	0	0	0	4	0	0	0	15	0	0	0	3	0	0	34
06:45 AM	2	9	0	0	0	0	2	0	0	21	0	0	0	0	2	0	36
Total	2	21	0	0	0	4	2	0	0	36	0	0	0	3	2	0	70
07:00 AM	1	9	0	0	0	0	0	0	0	15	0	0	0	0	2	0	27
07:15 AM	1	18	0	0	0	1	1	0	0	13	0	0	0	1	2	0	37
07:30 AM	2	15	0	0	0	2	3	0	1	15	0	0	0	1	0	0	39
07:45 AM	0	9	1	0	0	0	1	0	1	21	1	0	0	3	4	0	41
Total	4	51	1	0	0	3	5	0	2	64	1	0	0	5	8	0	144
08:00 AM	0	8	0	0	0	0	0	0	1	12	0	0	0	1	1	0	23
08:15 AM	0	12	1	0	0	2	0	0	0	19	0	0	1	1	0	0	36
Total	0	20	1	0	0	2	0	0	1	31	0	0	1	2	1	0	59
04:00 PM	0	18	1	0	1	3	2	0	1	14	0	0	0	3	3	1	47
04:15 PM	2	21	1	0	2	0	2	0	0	15	1	0	1	1	2	0	48
04:30 PM	0	16	0	0	1	0	0	0	6	15	3	0	1	2	1	0	45
04:45 PM	2	30	1	0	3	1	4	0	4	20	3	0	1	0	0	0	69
Total	4	85	3	0	7	4	8	0	11	64	7	0	3	6	6	1	209
05:00 PM	2	28	0	0	1	4	2	0	1	16	1	0	0	0	0	0	55
05:15 PM	0	16	1	0	1	1	3	0	0	12	4	0	0	5	3	0	46
05:30 PM	3	16	0	0	0	2	3	0	1	16	1	0	1	0	0	0	43
05:45 PM	3	33	0	0	0	2	2	0	1	17	1	0	0	1	0	0	60
Total	8	93	1	0	2	9	10	0	3	61	7	0	1	6	3	0	204
Grand Total	18	270	6	0	9	22	25	0	17	256	15	0	5	22	20	1	686
Approch %	6.1	91.8	2.0	0.0	16.1	39.3	44.6	0.0	5.9	88.9	5.2	0.0	10.4	45.8	41.7	2.1	
Total %	2.6	39.4	0.9	0.0	1.3	3.2	3.6	0.0	2.5	37.3	2.2	0.0	0.7	3.2	2.9	0.1	

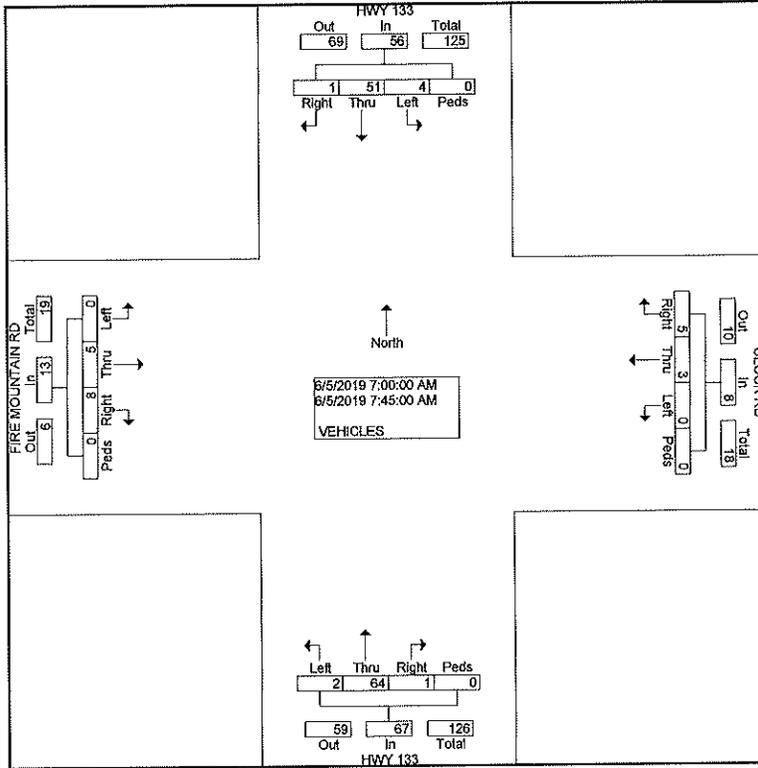
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: HWY 133
E/W STREET: FIRE MNT RD / CLOCK RD
CITY: PAONIA
COUNTY: DELTA

File Name : 133FIREMNT
Site Code : 00000026
Start Date : 6/5/2019
Page No : 2

Start Time	HWY 133 Southbound					CLOCK RD Westbound					HWY 133 Northbound					FIRE MOUNTAIN RD Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	4	51	1	0	56	0	3	5	0	8	2	64	1	0	67	0	5	8	0	13	144
Percent	7.1	91.1	1.8	0.0		0.0	37.5	62.5	0.0		3.0	95.5	1.5	0.0		0.0	38.5	61.5	0.0		
07:45 Volume	0	9	1	0	10	0	0	1	0	1	1	21	1	0	23	0	3	4	0	7	41
Peak Factor	0.878																				
High Int. Volume	07:15 AM					07:30 AM					07:45 AM					07:45 AM					
Peak Factor	1	18	0	0	19	0	2	3	0	5	1	21	1	0	23	0	3	4	0	7	0.46
	0.73					0.40					0.72					0.46					4



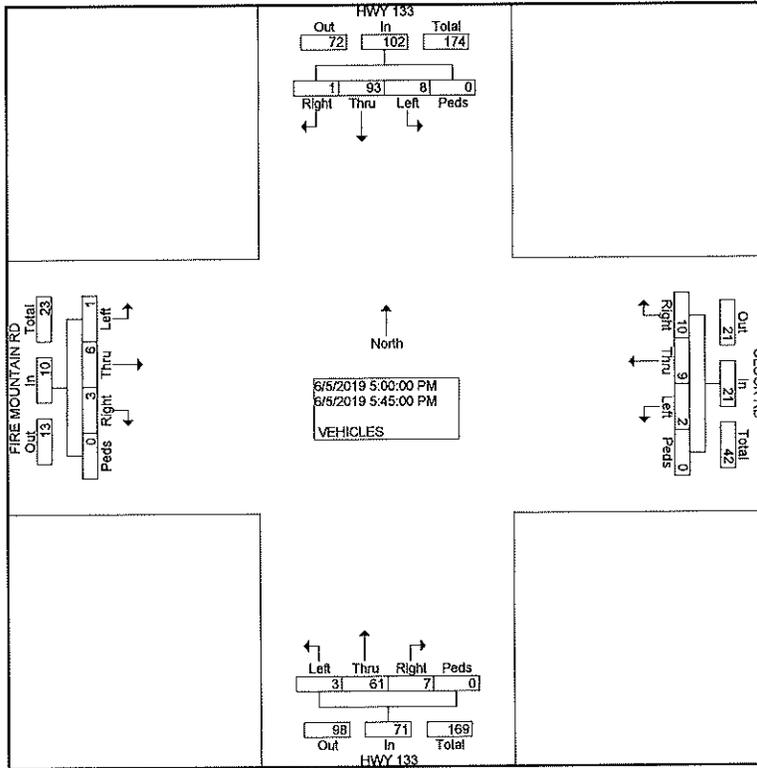
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: HWY 133
E/W STREET: FIRE MNT RD / CLOCK RD
CITY: PAONIA
COUNTY: DELTA

File Name : 133FIREMNT
Site Code : 00000026
Start Date : 6/5/2019
Page No : 2

Start Time	HWY 133 Southbound					CLOCK RD Westbound					HWY 133 Northbound					FIRE MOUNTAIN RD Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	8	93	1	0	102	2	9	10	0	21	3	61	7	0	71	1	6	3	0	10	204
Percent	7.8	91.2	1.0	0.0		9.5	42.9	47.6	0.0		4.2	85.9	9.9	0.0		10.0	60.0	30.0	0.0		
05:45 Volume	3	33	0	0	36	0	2	2	0	4	1	17	1	0	19	0	1	0	0	1	60
Peak Factor																					
High Int. Volume	05:45 PM					05:00 PM					05:45 PM					05:15 PM					
Peak Factor	3	33	0	0	36	1	4	2	0	7	1	17	1	0	19	0	5	3	0	8	0.31
	0.70					0.75					0.93					4					3



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

File Name : 133SAMWADE
Site Code : 00000015
Start Date : 6/5/2019
Page No : 1

N/S STREET: HWY 133
E/W STREET: SAMUEL WADE RD
CITY: PAONIA
COUNTY: DELTA

Groups Printed- VEHICLES

Start Time	HWY 133 Southbound				SAMUEL WADE RD Westbound				HWY 133 Northbound				BETHLEHEM RD Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	0	13	5	0	12	5	2	0	0	8	8	0	5	1	0	0	59
06:45 AM	0	6	3	0	14	9	0	0	1	16	13	0	6	2	0	0	70
Total	0	19	8	0	26	14	2	0	1	24	21	0	11	3	0	0	129
07:00 AM	0	4	3	0	9	7	2	0	0	11	7	0	4	6	2	0	55
07:15 AM	3	14	2	0	11	8	1	0	0	12	11	0	2	1	3	0	68
07:30 AM	3	11	4	0	14	7	0	0	0	12	10	0	5	4	0	0	67
07:45 AM	0	7	5	0	9	3	0	1	0	15	21	0	3	7	1	0	72
Total	3	36	14	0	43	25	3	1	0	50	49	0	14	18	6	0	262
08:00 AM	1	4	0	0	9	1	0	0	0	3	6	0	1	0	1	1	27
08:15 AM	0	6	0	0	4	1	0	0	0	5	5	0	3	1	2	0	27
Total	1	10	0	0	13	2	0	0	0	8	11	0	4	1	3	1	54
04:00 PM	0	14	4	0	18	12	0	0	0	9	33	0	3	3	0	0	96
04:15 PM	2	16	4	0	18	8	1	0	2	13	31	0	1	2	0	0	98
04:30 PM	1	12	1	0	25	13	0	0	0	16	28	0	5	5	0	0	106
04:45 PM	5	17	7	0	6	7	0	1	1	16	29	0	3	4	2	0	98
Total	8	59	16	0	67	40	1	1	3	54	121	0	12	14	2	0	398
05:00 PM	1	18	7	0	22	12	0	0	2	16	38	0	0	6	2	0	124
05:15 PM	0	17	2	0	16	7	1	0	1	12	24	0	1	8	0	0	89
05:30 PM	0	15	2	0	18	10	0	0	0	12	30	0	5	8	1	0	101
05:45 PM	1	25	5	0	12	10	2	0	0	14	42	0	3	5	1	0	120
Total	2	75	16	0	68	39	3	0	3	54	134	0	9	27	4	0	434
Grand Total	14	199	54	0	217	120	9	2	7	190	336	0	50	63	15	1	1277
Approch %	5.2	74.5	20.2	0.0	62.4	34.5	2.6	0.6	1.3	35.6	63.0	0.0	38.8	48.8	11.6	0.8	
Total %	1.1	15.6	4.2	0.0	17.0	9.4	0.7	0.2	0.5	14.9	26.3	0.0	3.9	4.9	1.2	0.1	

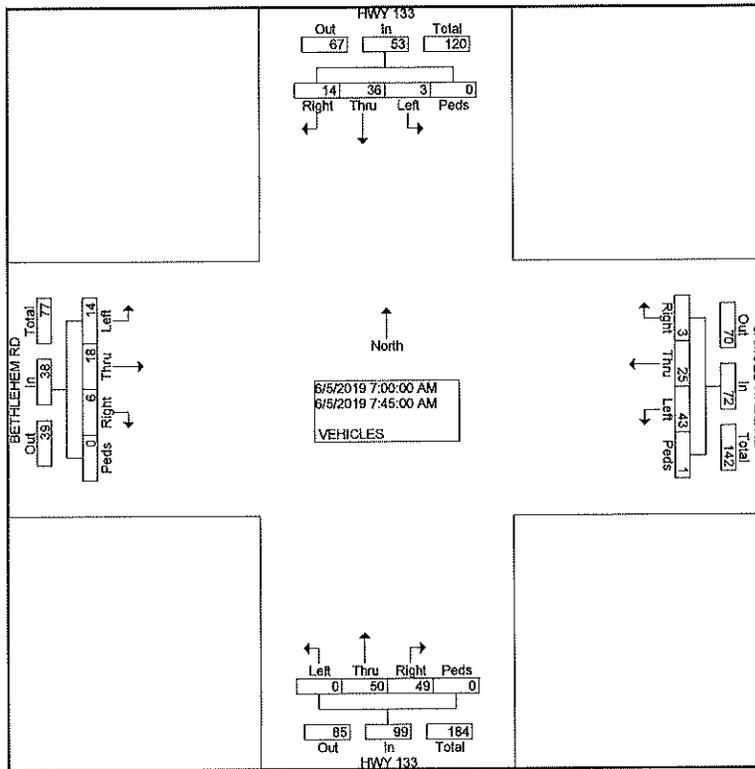
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: HWY 133
E/W STREET: SAMUEL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : 133SAMWADE
Site Code : 00000015
Start Date : 6/5/2019
Page No : 2

Start Time	HWY 133 Southbound					SAMUEL WADE RD Westbound					HWY 133 Northbound					BETHLEHEM RD Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	3	36	14	0	53	43	25	3	1	72	0	50	49	0	99	14	18	6	0	38	262
Percent	5.7	67.9	26.4	0.0		59.7	34.7	4.2	1.4		0.0	50.5	49.5	0.0		36.8	47.4	15.8	0.0		
07:45 Volume	0	7	5	0	12	9	3	0	1	13	0	15	21	0	36	3	7	1	0	11	72
Peak Factor																					
High Int. Volume	07:15 AM					07:30 AM					07:45 AM					07:00 AM					
Peak Factor	3	14	2	0	19	14	7	0	0	21	0	15	21	0	36	4	6	2	0	12	0.910
	0.69					0.85					0.68					0.79					
	7					7					8					2					

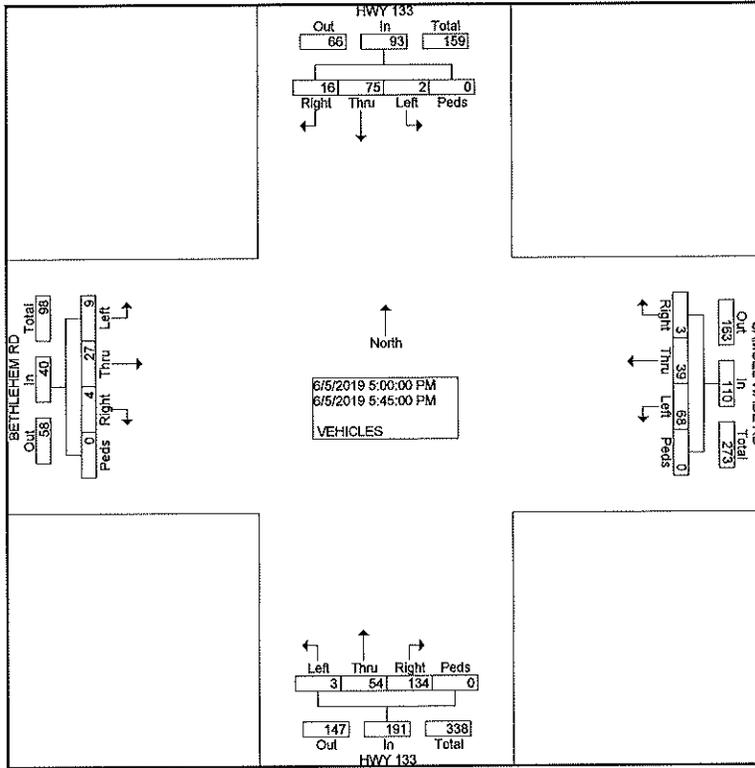


COUNTER MEASURES INC.
 1889 YORK STREET
 DENVER, COLORADO
 303-333-7409

N/S STREET: HWY 133
 E/W STREET: SAMUEL WADE RD
 CITY: PAONIA
 COUNTY: DELTA

File Name : 133SAMWADE
 Site Code : 00000015
 Start Date : 6/5/2019
 Page No : 2

Start Time	HWY 133 Southbound					SAMUEL WADE RD Westbound					HWY 133 Northbound					BETHLEHEM RD Eastbound					Int. Total
	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	2	75	16	0	93	68	39	3	0	110	3	54	134	0	191	9	27	4	0	40	434
Percent	2.2	80.6	17.2	0.0		61.8	35.5	2.7	0.0		1.6	28.3	70.2	0.0		22.5	67.5	10.0	0.0		
05:00 Volume	1	18	7	0	26	22	12	0	0	34	2	16	38	0	56	0	6	2	0	8	124
Peak Factor																					
High Int. Volume	05:45 PM					05:00 PM					05:00 PM					05:30 PM					
Peak Factor	1	25	5	0	0.75	22	12	0	0	0.80	2	16	38	0	0.85	5	8	1	0	0.71	4



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: PRICE RD
CITY: PAONIA
COUNTY: DELTA

File Name : CLOCKRDPRICERD
Site Code : 00000017
Start Date : 6/6/2019
Page No : 1

Groups Printed- VEHICLES

Start Time	CLOCK RD Southbound				PRICE RD Westbound				CLOCK RD Northbound				PRICE RD Eastbound				Int. Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	2	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	5
06:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	0	0	2	0	0	0	0	1	1	0	0	0	0	0	0	7
07:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
07:15 AM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5
07:30 AM	0	4	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	8
07:45 AM	0	5	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	10
Total	0	13	0	0	2	0	0	0	0	10	0	0	0	0	0	0	0	25
08:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
08:15 AM	0	4	0	0	1	0	1	0	0	2	0	0	0	0	0	0	0	8
Total	0	5	0	0	1	0	1	0	0	3	0	0	0	0	0	0	0	10
04:00 PM	0	6	0	0	1	0	0	0	0	6	0	0	0	0	0	0	0	13
04:15 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	3
04:30 PM	0	8	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	13
04:45 PM	0	4	0	0	1	0	0	0	0	6	1	0	0	0	0	0	0	12
Total	0	18	0	0	2	0	0	0	0	18	3	0	0	0	0	0	0	41
05:00 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4
05:15 PM	0	4	0	0	0	0	0	0	0	9	3	0	0	0	0	0	0	16
05:30 PM	0	3	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	12
Total	0	15	0	0	0	0	0	0	0	20	6	0	0	0	0	0	0	41
Grand Total	0	54	0	0	7	0	1	0	0	52	10	0	0	0	0	0	0	124
Approch %	0.0	100.0	0.0	0.0	87.5	0.0	12.5	0.0	0.0	83.9	16.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	43.5	0.0	0.0	5.6	0.0	0.8	0.0	0.0	41.9	8.1	0.0	0.0	0.0	0.0	0.0	0.0	

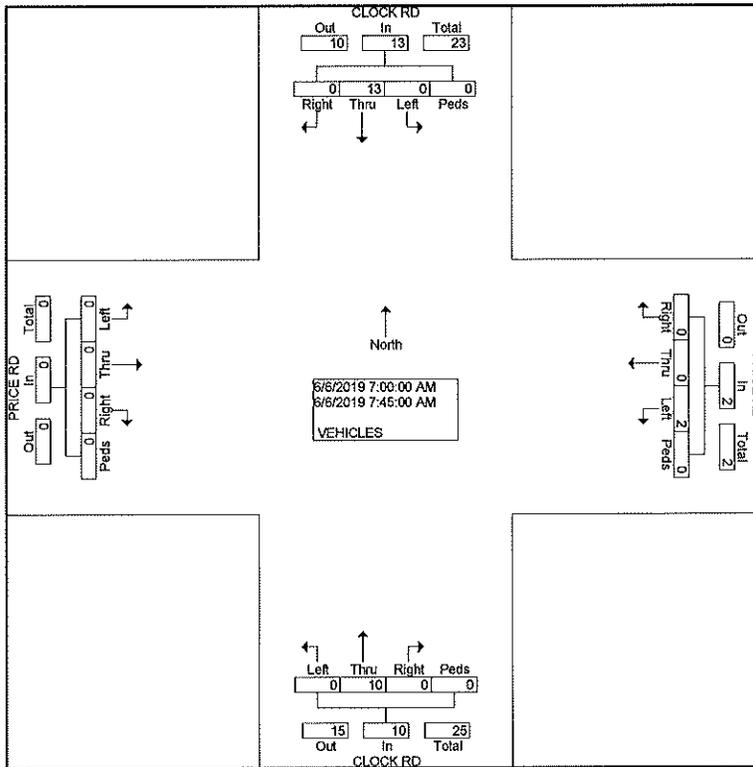
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: PRICE RD
CITY: PAONIA
COUNTY: DELTA

File Name : CLOCKRDPRICERD
Site Code : 0000017
Start Date : 6/6/2019
Page No : 2

Start Time	CLOCK RD Southbound					PRICE RD Westbound					CLOCK RD Northbound					PRICE RD Eastbound					Int. Total
	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	Left	Thru	Rght	Peds	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	0	13	0	0	13	2	0	0	0	2	0	10	0	0	10	0	0	0	0	0	25
Percent	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:45 Volume	0	5	0	0	5	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	10
Peak Factor	0.625																				
High Int. Time	07:45 AM					07:30 AM					07:45 AM										
Volume	0	5	0	0	5	1	0	0	0	1	0	4	0	0	4						
Peak Factor	0.65					0					0.50					0.625					



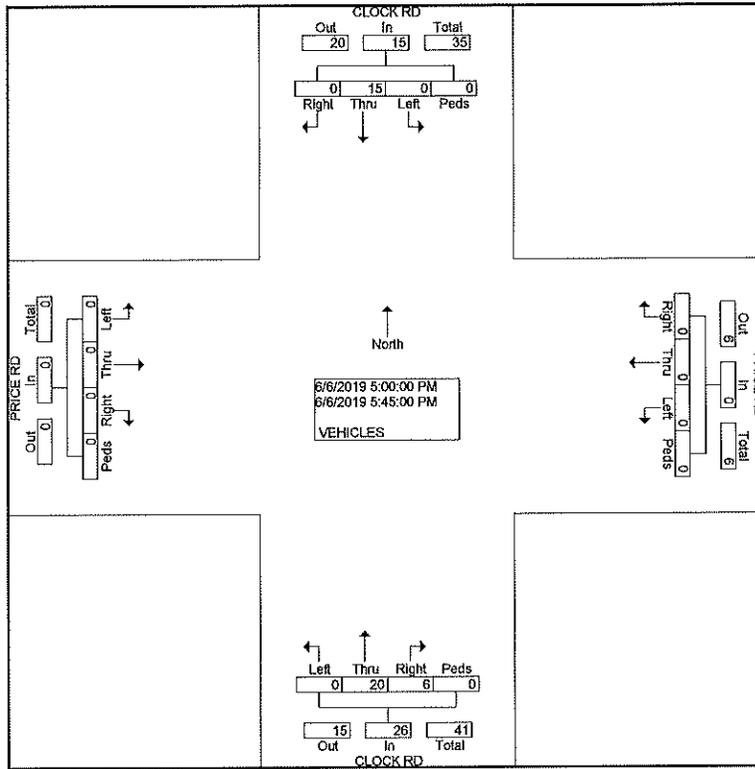
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: PRICE RD
CITY: PAONIA
COUNTY: DELTA

File Name : CLOCKRDPRICERD
Site Code : 00000017
Start Date : 6/6/2019
Page No : 2

Start Time	CLOCK RD Southbound					PRICE RD Westbound					CLOCK RD Northbound					PRICE RD Eastbound					Int. Total	
	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total		
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Intersecti on	05:00 PM																					
Volume	0	15	0	0	15	0	0	0	0	0	0	20	6	0	26	0	0	0	0	0	0	41
Percent	0.0	100	0.0	0.0		0.0	0.0	0.0	0.0		0.0	76.9	23.1	0.0		0.0	0.0	0.0	0.0			
05:15 Volume	0	4	0	0	4	0	0	0	0	0	0	9	3	0	12	0	0	0	0	0	0	16
Peak Factor																						
High Int. Volume	05:45 PM																					
Peak Factor	0	6	0	0	6	0	0	0	0	0	0	9	3	0	12	0	0	0	0	0	0	0.641
	0.625										0.542											



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: SAMUEL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : SAMWADEANDCLOCKRD
Site Code : 00000015
Start Date : 6/6/2019
Page No : 1

Groups Printed- VEHICLES

Start Time	CLOCK RD Southbound				SAMUEL WADE RD Westbound				CLOCK RD Northbound				SAMUEL WADE RD Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
06:30 AM	2	0	1	0	0	10	1	0	0	0	0	0	1	13	0	0	28
06:45 AM	0	0	2	0	0	18	0	0	0	0	0	0	0	10	0	0	30
Total	2	0	3	0	0	28	1	0	0	0	0	0	1	23	0	0	58
07:00 AM	1	0	0	0	0	28	1	0	0	0	0	0	0	6	0	0	36
07:15 AM	3	0	0	0	0	25	2	0	0	0	0	0	0	13	0	0	43
07:30 AM	4	0	1	0	0	13	3	0	0	0	0	0	0	17	0	1	39
07:45 AM	5	0	1	0	0	21	3	0	0	0	0	0	1	25	0	0	56
Total	13	0	2	0	0	87	9	0	0	0	0	0	1	61	0	1	174
08:00 AM	1	0	0	0	0	19	1	0	0	0	0	0	0	16	0	0	37
08:15 AM	4	0	1	0	0	32	2	0	0	0	0	0	0	17	0	1	57
Total	5	0	1	0	0	51	3	0	0	0	0	0	0	33	0	1	94
04:00 PM	6	0	1	0	0	26	4	0	0	0	0	0	2	32	0	0	71
04:15 PM	0	0	0	0	0	39	2	0	0	0	0	0	1	33	0	0	75
04:30 PM	7	0	1	0	0	20	4	0	0	0	0	0	1	33	0	0	66
04:45 PM	3	0	2	0	0	34	6	0	0	0	0	0	1	30	0	0	76
Total	16	0	4	0	0	119	16	0	0	0	0	0	5	128	0	0	288
05:00 PM	2	0	0	0	0	39	2	0	0	0	0	0	0	27	0	0	70
05:15 PM	4	0	0	0	0	20	9	0	0	0	0	0	3	30	0	1	67
05:30 PM	3	0	0	0	0	25	3	0	0	0	0	0	3	39	0	0	73
05:45 PM	6	0	0	0	0	13	5	0	0	0	0	0	1	34	0	0	59
Total	15	0	0	0	0	97	19	0	0	0	0	0	7	130	0	1	269
Grand Total	51	0	10	0	0	382	48	0	0	0	0	0	14	375	0	3	883
Apprch %	83.6	0.0	16.4	0.0	0.0	88.8	11.2	0.0	0.0	0.0	0.0	0.0	3.6	95.7	0.0	0.8	
Total %	5.8	0.0	1.1	0.0	0.0	43.3	5.4	0.0	0.0	0.0	0.0	0.0	1.6	42.5	0.0	0.3	

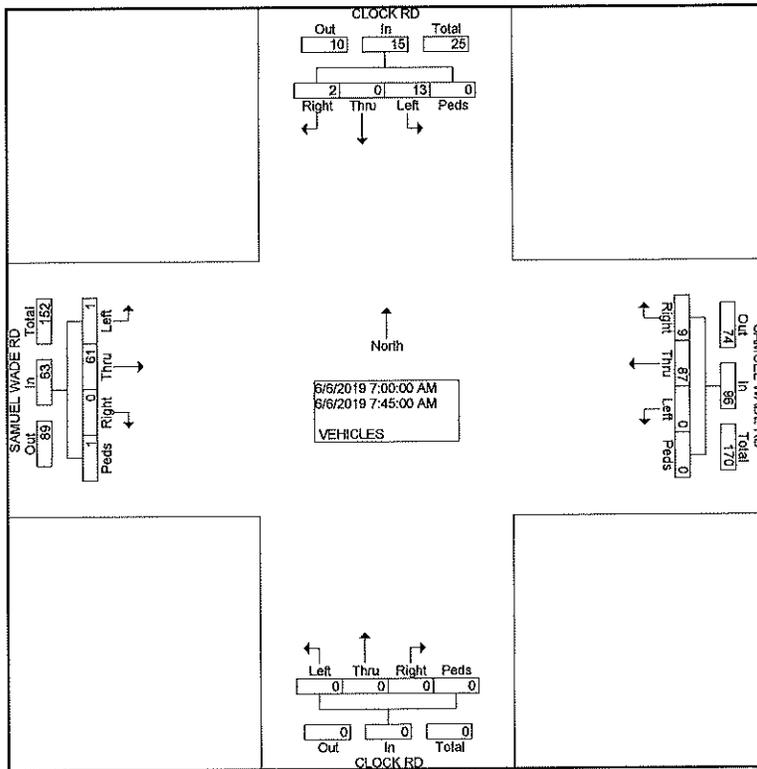
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: SAMUEL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : SAMWADEANDCLOCKRD
Site Code : 00000015
Start Date : 6/6/2019
Page No : 2

Start Time	CLOCK RD Southbound					SAMUEL WADE RD Westbound					CLOCK RD Northbound					SAMUEL WADE RD Eastbound					Int. Total
	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	13	0	2	0	15	0	87	9	0	96	0	0	0	0	0	1	61	0	1	63	174
Percent	86.7	0.0	13.3	0.0		0.0	90.6	9.4	0.0		0.0	0.0	0.0	0.0		1.6	96.8	0.0	1.6		
07:45 Volume	5	0	1	0	6	0	21	3	0	24	0	0	0	0	0	1	25	0	0	26	56
Peak Factor	0.777																				
High Int.	07:45 AM																				
Volume	5	0	1	0	6	0	28	1	0	29	0	0	0	0	0	1	25	0	0	26	6
Peak Factor	0.625					0.828										0.606					



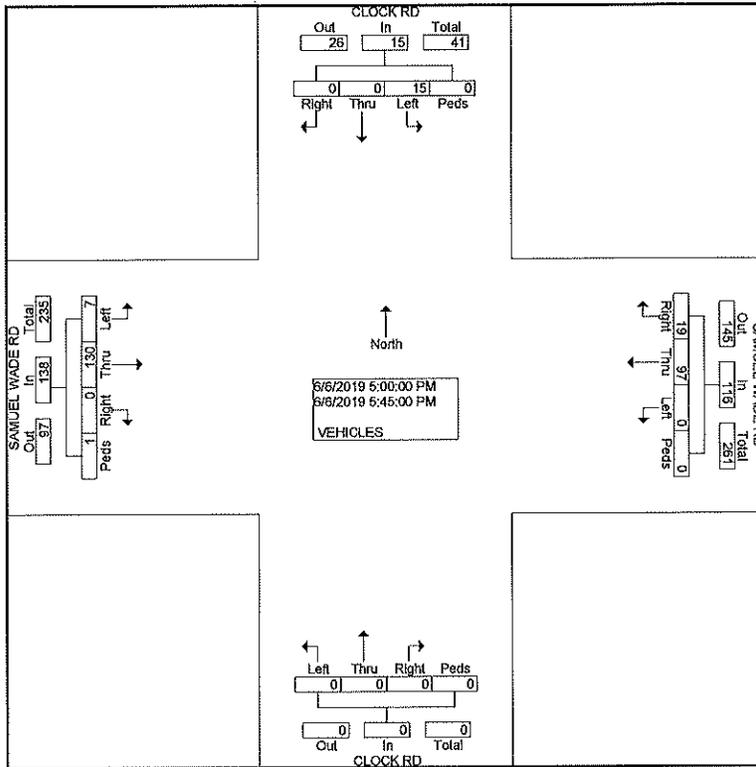
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: CLOCK RD
E/W STREET: SAMUEL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : SAMWADEANDCLOCKRD
Site Code : 00000015
Start Date : 6/6/2019
Page No : 2

Start Time	CLOCK RD Southbound					SAMUEL WADE RD Westbound					CLOCK RD Northbound					SAMUEL WADE RD Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection 05:00 PM																					
Volume	15	0	0	0	15	0	97	19	0	116	0	0	0	0	0	7	130	0	1	138	289
Percent	100	0.0	0.0	0.0		0.0	83.6	16.4	0.0		0.0	0.0	0.0	0.0		5.1	94.2	0.0	0.7		
05:30 Volume	3	0	0	0	3	0	25	3	0	28	0	0	0	0	0	3	39	0	0	42	73
Peak Factor																					0.921
High Int. Volume	05:45 PM					05:00 PM					05:30 PM										
Peak Factor	6	0	0	0	0.62	0	39	2	0	0.70	0	0	0	0	0	3	39	0	0	0.82	1



COUNTER MEASURES INC.
 1889 YORK STREET
 DENVER, COLORADO
 303-333-7409

N/S STREET: PRICE RD
 E/W STREET: SAMUAL WADE RD
 CITY: PAONIA
 COUNTY: DELTA

File Name : PRICESAM
 Site Code : 0000020
 Start Date : 6/6/2019
 Page No : 1

Groups Printed- VEHICLES

Start Time	PRICE RD Southbound				SAMUAL WADE RD Westbound				Northbound				SAMUAL WADE RD Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	16	0	0	0	0	0	0	1	10	0	0	0	0	0	0	27
06:45 AM	0	9	0	0	0	0	0	0	0	23	0	0	0	0	0	0	32
Total	0	25	0	0	0	0	0	0	1	33	0	0	0	0	0	0	59
07:00 AM	0	10	0	0	0	0	0	0	0	31	0	0	0	0	0	0	41
07:15 AM	0	18	0	0	1	0	0	0	0	30	0	0	0	0	0	0	49
07:30 AM	0	0	0	0	0	22	0	0	0	0	0	0	0	17	0	0	39
07:45 AM	0	0	0	0	0	34	0	0	0	0	0	0	0	36	0	0	70
Total	0	28	0	0	1	56	0	0	0	61	0	0	0	53	0	0	199
08:00 AM	0	0	0	0	0	31	0	0	0	0	0	0	0	32	0	0	63
08:15 AM	0	0	0	0	0	39	0	0	0	0	0	0	0	23	0	0	62
Total	0	0	0	0	0	70	0	0	0	0	0	0	0	55	0	0	125
04:00 PM	1	0	0	0	0	46	0	0	0	0	0	0	0	38	0	0	85
04:15 PM	1	0	1	0	0	40	0	0	0	0	0	0	0	48	0	0	90
04:30 PM	1	0	1	0	0	30	2	0	0	0	0	0	0	35	0	0	69
04:45 PM	1	0	1	0	0	32	1	0	0	0	0	0	0	52	0	0	87
Total	4	0	3	0	0	148	3	0	0	0	0	0	0	173	0	0	331
05:00 PM	0	0	0	0	0	51	0	0	0	0	0	0	0	40	0	0	91
05:15 PM	1	0	1	0	0	40	0	0	0	0	0	0	0	42	0	0	84
05:30 PM	1	0	0	0	0	37	0	0	0	0	0	0	1	47	0	0	86
05:45 PM	0	0	0	0	0	26	0	0	0	0	0	0	0	53	0	0	79
Total	2	0	1	0	0	154	0	0	0	0	0	0	1	182	0	0	340
Grand Total	6	53	4	0	1	428	3	0	1	94	0	0	1	463	0	0	1054
Apprch %	9.5	84.1	6.3	0.0	0.2	99.1	0.7	0.0	1.1	98.9	0.0	0.0	0.2	99.8	0.0	0.0	
Total %	0.6	5.0	0.4	0.0	0.1	40.6	0.3	0.0	0.1	8.9	0.0	0.0	0.1	43.9	0.0	0.0	

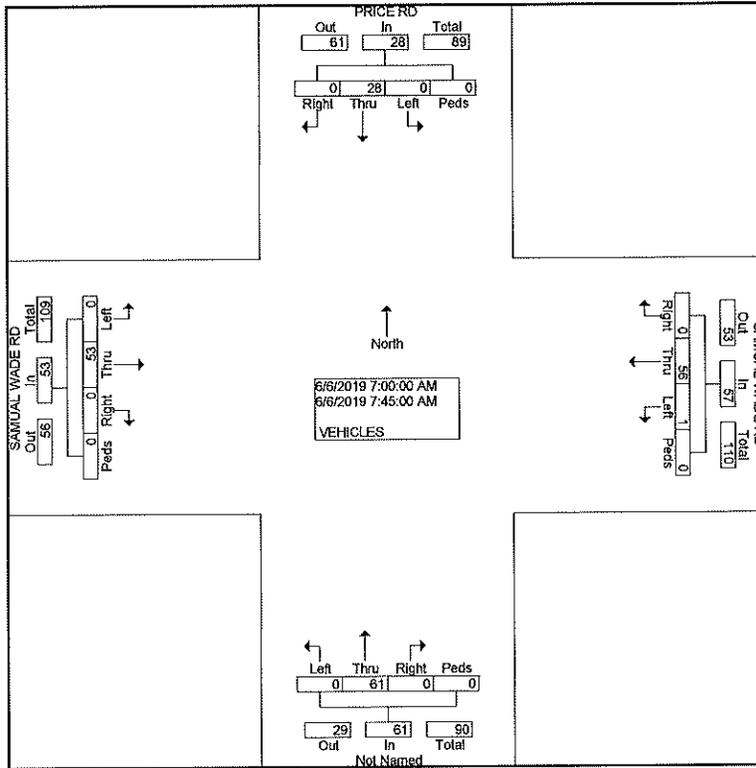
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: PRICE RD
E/W STREET: SAMUAL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : PRICESAM
Site Code : 0000020
Start Date : 6/6/2019
Page No : 2

Start Time	PRICE RD Southbound					SAMUAL WADE RD Westbound					Northbound					SAMUAL WADE RD Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersect on	07:00 AM																				
Volume	0	28	0	0	28	1	56	0	0	57	0	61	0	0	61	0	53	0	0	53	199
Percent	0.0	100.0	0.0	0.0		1.8	98.2	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
07:45 Volume	0	0	0	0	0	0	34	0	0	34	0	0	0	0	0	0	36	0	0	36	70
Peak Factor	0.711																				
High Int.	07:15 AM					07:45 AM					07:00 AM					07:45 AM					
Volume	0	18	0	0	18	0	34	0	0	34	0	31	0	0	31	0	36	0	0	36	
Peak Factor	0.389					0.419					0.492					0.368					



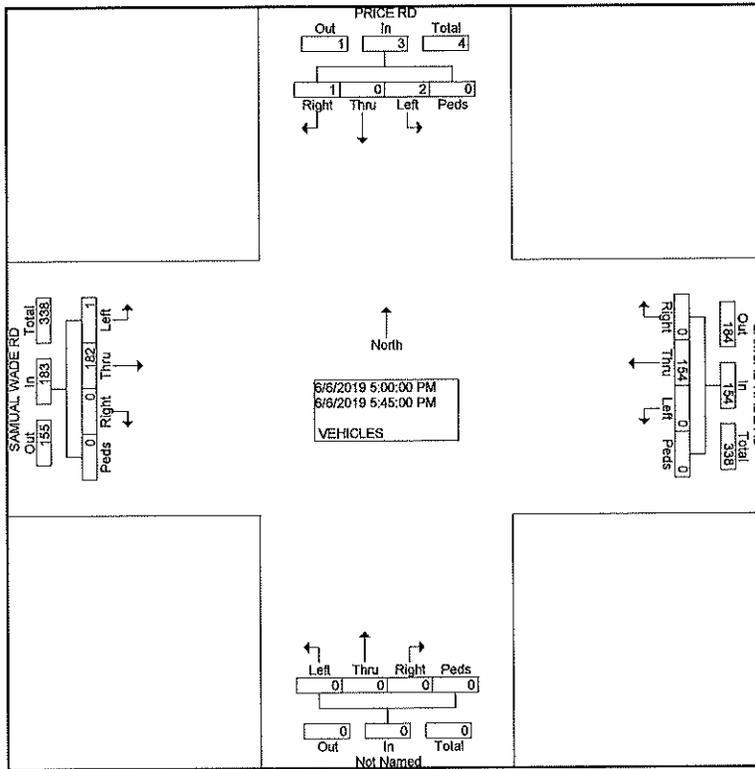
COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO
303-333-7409

N/S STREET: PRICE RD
E/W STREET: SAMUAL WADE RD
CITY: PAONIA
COUNTY: DELTA

File Name : PRICESAM
Site Code : 0000020
Start Date : 6/6/2019
Page No : 2

Start Time	PRICE RD Southbound					SAMUAL WADE RD Westbound					Northbound					SAMUAL WADE RD Eastbound					Int. Total
	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	Left	Thru	Rig	Ped	App. Total	
Peak Hour From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	2	0	1	0	3	0	154	0	0	154	0	0	0	0	0	1	182	0	0	183	340
Percent	66.7	0.0	33.3	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.5	99.5	0.0	0.0		
05:00 Volume	0	0	0	0	0	0	51	0	0	51	0	0	0	0	0	0	40	0	0	40	91
Peak Factor	0.934																				
High Int. Volume	05:15 PM					05:00 PM					05:45 PM										
Peak Factor	1	0	1	0	0.37	0	51	0	0	0.75	0	0	0	0	0	0	53	0	0	0.86	3



COUNTER MEASURES INC.

1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Location: SAMUEL WADE RD W/O CLOCK RD
City: PAONIA
County: DELTA
Direction: EASTBOUND-WESTBOUND

Site Code: 190513
Station ID: 190513

Start Time	06-Jun-19 Thu	EB	WB							Total
12:00 AM		6	0							6
01:00		3	0							3
02:00		5	2							7
03:00		1	3							4
04:00		1	7							8
05:00		9	24							33
06:00		38	55							93
07:00		65	89							154
08:00		101	127							228
09:00		131	104							235
10:00		155	116							271
11:00		152	119							271
12:00 PM		227	125							352
01:00		199	115							314
02:00		197	112							309
03:00		228	128							356
04:00		212	124							336
05:00		172	121							293
06:00		133	89							222
07:00		69	56							125
08:00		80	63							143
09:00		37	40							77
10:00		26	29							55
11:00		13	5							18
Total		2260	1653							3913
Percent		57.8%	42.2%							
AM Peak	-	10:00	08:00	-	-	-	-	-	-	10:00
Vol.	-	155	127	-	-	-	-	-	-	271
PM Peak	-	15:00	15:00	-	-	-	-	-	-	15:00
Vol.	-	228	128	-	-	-	-	-	-	356
Grand Total		2260	1653							3913
Percent		57.8%	42.2%							
ADT		ADT 3,913	AADT 3,913							

COUNTER MEASURES INC.

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Location: PRICE RD E/O SAMUEL WADE RD
 City: PAONIA
 County: DELTA
 Direction: EASTBOUND-WESTBOUND

Site Code: 190508
 Station ID: 190508

Start Time	06-Jun-19 Thu	EB	WB	Total						
12:00 AM		0	0	0						
01:00		0	0	0						
02:00		0	0	0						
03:00		0	1	1						
04:00		0	0	0						
05:00		0	0	0						
06:00		1	0	1						
07:00		0	1	1						
08:00		4	4	8						
09:00		2	2	4						
10:00		6	4	10						
11:00		1	5	6						
12:00 PM		4	3	7						
01:00		2	5	7						
02:00		1	1	2						
03:00		2	2	4						
04:00		3	6	9						
05:00		1	4	5						
06:00		3	2	5						
07:00		2	1	3						
08:00		0	1	1						
09:00		0	0	0						
10:00		0	0	0						
11:00		0	0	0						
Total		32	42	74						
Percent		43.2%	56.8%							
AM Peak	-	10:00	11:00	-	-	-	-	-	-	10:00
Vol.	-	6	5	-	-	-	-	-	-	10
PM Peak	-	12:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	4	6	-	-	-	-	-	-	9
Grand Total		32	42							74
Percent		43.2%	56.8%							
ADT		ADT 74								AADT 74

11.

COUNTER MEASURES INC.

1889 YORK STREET
 DENVER, COLORADO 80206
 303-333-7409

Location: CLOCK RD N/O PRICE RD
 City: PAONIA
 County: DELTA
 Direction: NORTHBOUND-SOUTHBOUND

Site Code: 190509
 Station ID: 190509

Start Time	06-Jun-19 Thu	NB	SB	Total					
12:00 AM		0	0	0					
01:00		0	0	0					
02:00		0	0	0					
03:00		0	0	0					
04:00		1	0	1					
05:00		1	1	2					
06:00		2	3	5					
07:00		7	10	17					
08:00		9	14	23					
09:00		12	12	24					
10:00		23	4	27					
11:00		30	4	34					
12:00 PM		17	20	37					
01:00		12	12	24					
02:00		11	12	23					
03:00		27	22	49					
04:00		26	4	30					
05:00		29	8	37					
06:00		26	0	26					
07:00		16	5	21					
08:00		4	2	6					
09:00		5	3	8					
10:00		4	3	7					
11:00		1	0	1					
Total		263	139	402					
Percent		65.4%	34.6%						
AM Peak	-	11:00	08:00	-	-	-	-	-	11:00
Vol.	-	30	14	-	-	-	-	-	34
PM Peak	-	17:00	15:00	-	-	-	-	-	15:00
Vol.	-	29	22	-	-	-	-	-	49
Grand Total		263	139						402
Percent		65.4%	34.6%						
ADT		ADT 402							AADT 402

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

3. SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	1.7											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	1	3	6	1	6	9	2	74	1	4	59	1
Future Vol, veh/h	1	3	6	1	6	9	2	74	1	4	59	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Free						
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	7	1	7	10	2	84	1	5	67	1

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	175	167	85	172	167	68	68	0	0	85	0	0
Stage 1	89	89	-	78	78	-	-	-	-	-	-	-
Stage 2	86	78	-	94	89	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	788	726	974	791	726	995	1533	-	-	1512	-	-
Stage 1	918	821	-	931	830	-	-	-	-	-	-	-
Stage 2	922	830	-	913	821	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	772	723	974	780	723	995	1533	-	-	1512	-	-
Mov Cap-2 Maneuver	772	723	-	780	723	-	-	-	-	-	-	-
Stage 1	917	820	-	930	828	-	-	-	-	-	-	-
Stage 2	902	828	-	902	820	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.2	9.3	0.2	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1533	-	-	862	859	1512	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.021	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.3	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕ ↕											
Traffic Vol, veh/h	16	21	7	49	29	3	1	58	56	3	41	16
Future Vol, veh/h	16	21	7	49	29	3	1	58	56	3	41	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	23	8	54	32	3	1	64	62	3	45	18

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	175	188	54	142	135	64	63	0	0	126	0	0
Stage 1	60	60	-	66	66	-	-	-	-	-	-	-
Stage 2	115	128	-	76	69	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	788	707	1013	828	756	1000	1540	-	-	1460	-	-
Stage 1	951	845	-	945	840	-	-	-	-	-	-	-
Stage 2	890	790	-	933	837	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	758	705	1013	799	754	1000	1540	-	-	1460	-	-
Mov Cap-2 Maneuver	758	705	-	799	754	-	-	-	-	-	-	-
Stage 1	950	843	-	944	839	-	-	-	-	-	-	-
Stage 2	853	789	-	899	835	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.1	0.1	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	761	782	1000	1460	-	-
HCM Lane V/C Ratio	0.001	-	-	0.064	0.11	0.003	0.002	-	-
HCM Control Delay (s)	7.3	0	-	10.1	10.2	8.6	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0	0	-	-

7: Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	1	70	100	10	15	2
Future Vol, veh/h	1	70	100	10	15	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	90	128	13	19	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	141	0	0	227	135
Stage 1	-	-	-	135	-
Stage 2	-	-	-	92	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	761	914
Stage 1	-	-	-	891	-
Stage 2	-	-	-	932	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1442	-	-	760	914
Mov Cap-2 Maneuver	-	-	-	760	-
Stage 1	-	-	-	890	-
Stage 2	-	-	-	932	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	775
HCM Lane V/C Ratio	0.001	-	-	-	0.028
HCM Control Delay (s)	7.5	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	T	T	T	T	T
Traffic Vol, veh/h	2	1	10	1	1	15
Future Vol, veh/h	2	1	10	1	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	2	16	2	2	24

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	45	17	0 0 18 0
Stage 1	17	-	- - - -
Stage 2	28	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Pot Cap-1 Maneuver	965	1062	- - 1599 -
Stage 1	1006	-	- - - -
Stage 2	995	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	964	1062	- - 1599 -
Mov Cap-2 Maneuver	964	-	- - - -
Stage 1	1005	-	- - - -
Stage 2	995	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT
Capacity (veh/h)	-	- 995	1599	-
HCM Lane V/C Ratio	-	- 0.005	0.001	-
HCM Control Delay (s)	-	- 8.6	7.3	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	1	93	135	1	1	1
Future Vol, veh/h	1	93	135	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	131	190	1	1	1

Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	191	0	-	0	324	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1383	-	-	-	670	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1383	-	-	-	669	851
Mov Cap-2 Maneuver	-	-	-	-	669	-
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1383	-	-	-	749
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.6	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.9											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SVL	SVT	SWR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	2	10	12	1	7	3	3	70	8	9	107	1
Future Vol, veh/h	2	10	12	1	7	3	3	70	8	9	107	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	12	14	1	8	4	4	82	9	11	126	1

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	250	244	87	257	248	127	127	0	0	91	0	0
Stage 1	95	95	-	149	149	-	-	-	-	-	-	-
Stage 2	155	149	-	108	99	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	703	658	971	696	655	923	1459	-	-	1504	-	-
Stage 1	912	816	-	854	774	-	-	-	-	-	-	-
Stage 2	847	774	-	897	813	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	688	651	971	671	648	923	1459	-	-	1504	-	-
Mov Cap-2 Maneuver	688	651	-	671	648	-	-	-	-	-	-	-
Stage 1	909	814	-	851	768	-	-	-	-	-	-	-
Stage 2	828	768	-	869	811	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.8	10.2	0.3	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SVL	SVT	SWR
Capacity (veh/h)	1459	-	-	784	708	1504	-	-
HCM Lane V/C Ratio	0.002	-	-	0.036	0.018	0.007	-	-
HCM Control Delay (s)	7.5	0	-	9.8	10.2	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	10	31	5	78	45	3	3	62	154	2	86	18
Future Vol, veh/h	10	31	5	78	45	3	3	62	154	2	86	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	35	6	89	51	3	3	70	175	2	98	20

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	303	363	108	209	198	70	118	0	0	245	0	0
Stage 1	112	112	-	76	76	-	-	-	-	-	-	-
Stage 2	191	251	-	133	122	-	-	-	-	-	-	-
Critical Hwky	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hwky Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hwky Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hwky	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	649	565	946	748	698	993	1470	-	-	1321	-	-
Stage 1	893	803	-	933	832	-	-	-	-	-	-	-
Stage 2	811	699	-	870	795	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	609	563	946	706	695	993	1470	-	-	1321	-	-
Mov Cap-2 Maneuver	609	563	-	706	695	-	-	-	-	-	-	-
Stage 1	891	801	-	931	830	-	-	-	-	-	-	-
Stage 2	757	698	-	825	793	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	11.3	0.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1470	-	-	599	702	993	1321	-	-
HCM Lane V/C Ratio	0.002	-	-	0.087	0.199	0.003	0.002	-	-
HCM Control Delay (s)	7.5	0	-	11.6	11.4	8.6	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.7	0	0	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	8	150	112	22	17	1
Future Vol, veh/h	8	150	112	22	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	163	122	24	18	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	146	0	0	315	134
Stage 1	-	-	-	134	-
Stage 2	-	-	-	181	-
Critical Hwly	4.12	-	-	6.42	6.22
Critical Hwly Stg 1	-	-	-	5.42	-
Critical Hwly Stg 2	-	-	-	5.42	-
Follow-up Hwly	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1436	-	-	678	915
Stage 1	-	-	-	892	-
Stage 2	-	-	-	850	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1436	-	-	673	915
Mov Cap-2 Maneuver	-	-	-	673	-
Stage 1	-	-	-	886	-
Stage 2	-	-	-	850	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1436	-	-	-	683
HCM Lane V/C Ratio	0.006	-	-	-	0.029
HCM Control Delay (s)	7.5	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			4
Traffic Vol, veh/h	1	1	23	7	1	17
Future Vol, veh/h	1	1	23	7	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	36	11	2	27
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	73	42	0	0	47	0
Stage 1	42	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	931	1029	-	-	1560	-
Stage 1	980	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	930	1029	-	-	1560	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		0.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT		
Capacity (veh/h)	-	-	977	1560		
HCM Lane V/C Ratio	-	-	0.003	0.001		
HCM Control Delay (s)	-	-	8.7	7.3		
HCM Lane LOS	-	-	A	A		
HCM 95th %tile Q(veh)	-	-	0	0		

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	1	209	177	1	2	1
Future Vol, veh/h	1	209	177	1	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	225	190	1	2	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	191	0	0	418	191	
Stage 1	-	-	-	191	-	
Stage 2	-	-	-	227	-	
Critical Hdwy	4.12	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	3.518	3.318	
Pot Cap-1 Maneuver	1383	-	-	591	851	
Stage 1	-	-	-	841	-	
Stage 2	-	-	-	811	-	
Platoon blocked, %	-	-	-	-	-	
Mov Cap-1 Maneuver	1383	-	-	590	851	
Mov Cap-2 Maneuver	-	-	-	590	-	
Stage 1	-	-	-	840	-	
Stage 2	-	-	-	811	-	
Approach	EB	WB	SB			
HCM Control Delay, s	0	0	10.5			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1383	-	-	-	657	
HCM Lane V/C Ratio	0.001	-	-	-	0.005	
HCM Control Delay (s)	7.6	0	-	-	10.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	

3: SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	1.7											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	6	1	6	9	2	76	1	4	60	1
Future Vol, veh/h	1	3	6	1	6	9	2	76	1	4	60	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	7	1	7	10	2	86	1	5	68	1

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	178	170	87	175	170	69	69	0	0	87	0	0
Stage 1	91	91	-	79	79	-	-	-	-	-	-	-
Stage 2	87	79	-	96	91	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	784	723	971	788	723	994	1532	-	-	1509	-	-
Stage 1	916	820	-	930	829	-	-	-	-	-	-	-
Stage 2	921	829	-	911	820	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	768	720	971	777	720	994	1532	-	-	1509	-	-
Mov Cap-2 Maneuver	768	720	-	777	720	-	-	-	-	-	-	-
Stage 1	915	819	-	929	827	-	-	-	-	-	-	-
Stage 2	901	827	-	900	819	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.2	9.3	0.2	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1532	-	-	859	857	1509	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.021	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.3	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	16	21	7	50	30	3	1	59	57	3	42	16
Future Vol, veh/h	16	21	7	50	30	3	1	59	57	3	42	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	23	8	55	33	3	1	65	63	3	46	18
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	178	191	55	144	137	65	64	0	0	128	0	0
Stage 1	61	61	-	67	67	-	-	-	-	-	-	-
Stage 2	117	130	-	77	70	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	784	704	1012	825	754	999	1538	-	-	1458	-	-
Stage 1	950	844	-	943	839	-	-	-	-	-	-	-
Stage 2	888	789	-	932	837	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	753	702	1012	796	752	999	1538	-	-	1458	-	-
Mov Cap-2 Maneuver	753	702	-	796	752	-	-	-	-	-	-	-
Stage 1	949	842	-	942	838	-	-	-	-	-	-	-
Stage 2	849	788	-	898	835	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.1		10.1			0.1			0.4			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1538	-	-	758	779	999	1458	-	-			
HCM Lane V/C Ratio	0.001	-	-	0.064	0.113	0.003	0.002	-	-			
HCM Control Delay (s)	7.3	0	-	10.1	10.2	8.6	7.5	0	-			
HCM Lane LOS	A	A	-	B	B	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0	0	-	-			

7: Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	1	72	102	10	15	2
Future Vol, veh/h	1	72	102	10	15	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	92	131	13	19	3
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	144	0	-	0	232	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	94	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1438	-	-	-	755	910
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	930	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1438	-	-	-	755	910
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	930	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	9.8			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1438	-	-	-	770	
HCM Lane V/C Ratio	0.001	-	-	-	0.028	
HCM Control Delay (s)	7.5	0	-	-	9.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	2	1	10	1	1	15
Future Vol, veh/h	2	1	10	1	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	2	16	2	2	24
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	45	17	0	0	18	0
Stage 1	17	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	965	1062	-	-	1599	-
Stage 1	1006	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	1062	-	-	1599	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	1005	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.6	0		0.5		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT		
Capacity (veh/h)	-	-	995	1599	-	
HCM Lane V/C Ratio	-	-	0.005	0.001	-	
HCM Control Delay (s)	-	-	8.6	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

11: Samuel Wade Road & Price Road

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	1	95	138	1	1	1
Future Vol, veh/h	1	95	138	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None	-	- None	-	- None	-
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	134	194	1	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	195	0	0	331	195
Stage 1	-	-	-	195	-
Stage 2	-	-	-	136	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1378	-	-	664	846
Stage 1	-	-	-	838	-
Stage 2	-	-	-	890	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1378	-	-	663	846
Mov Cap-2 Maneuver	-	-	-	663	-
Stage 1	-	-	-	837	-
Stage 2	-	-	-	890	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1378	-	-	-	743
HCM Lane V/C Ratio	0.001	-	-	-	0.004
HCM Control Delay (s)	7.6	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

3: SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	1.9											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SVL	SVT	SVR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	2	10	12	1	7	3	3	72	8	9	109	1
Future Vol, veh/h	2	10	12	1	7	3	3	72	8	9	109	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	12	14	1	8	4	4	85	9	11	128	1

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	255	249	90	262	253	129	129	0	0	94	0	0
Stage 1	98	98	-	151	151	-	-	-	-	-	-	-
Stage 2	157	151	-	111	102	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	698	654	968	691	650	921	1457	-	-	1500	-	-
Stage 1	908	814	-	851	772	-	-	-	-	-	-	-
Stage 2	845	772	-	894	811	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	683	647	968	666	643	921	1457	-	-	1500	-	-
Mov Cap-2 Maneuver	683	647	-	666	643	-	-	-	-	-	-	-
Stage 1	905	812	-	848	766	-	-	-	-	-	-	-
Stage 2	826	766	-	866	809	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.8	10.2	0.3	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SVL	SVT	SVR
Capacity (veh/h)	1457	-	-	780	703	1500	-	-
HCM Lane V/C Ratio	0.002	-	-	0.036	0.018	0.007	-	-
HCM Control Delay (s)	7.5	0	-	9.8	10.2	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

6. SH 133 & Samuel Wade Road

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	10	31	5	80	46	3	3	63	157	2	88	18
Future Vol, veh/h	10	31	5	80	46	3	3	63	157	2	88	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	35	6	91	52	3	3	72	178	2	100	20

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	309	370	110	213	202	72	120	0	0	250	0	0
Stage 1	114	114	-	78	78	-	-	-	-	-	-	-
Stage 2	195	256	-	135	124	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	643	560	943	744	694	990	1468	-	-	1316	-	-
Stage 1	891	801	-	931	830	-	-	-	-	-	-	-
Stage 2	807	696	-	868	793	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	602	558	943	702	691	990	1468	-	-	1316	-	-
Mov Cap-2 Maneuver	602	558	-	702	691	-	-	-	-	-	-	-
Stage 1	889	799	-	929	828	-	-	-	-	-	-	-
Stage 2	752	695	-	823	791	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	11.4	0.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	594	698	990	1316	-	-
HCM Lane V/C Ratio	0.002	-	-	0.088	0.205	0.003	0.002	-	-
HCM Control Delay (s)	7.5	0	-	11.6	11.5	8.6	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.8	0	0	-	-

7: Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	8	153	115	22	17	1
Future Vol, veh/h	8	153	115	22	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	166	125	24	18	1
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	149	0	-	0	321	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	184	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1432	-	-	-	673	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1432	-	-	-	668	911
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	848	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	10.5			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1432	-	-	-	678	
HCM Lane V/C Ratio	0.006	-	-	-	0.029	
HCM Control Delay (s)	7.5	0	-	-	10.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

TU: Clock Road & Price Road

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	1	1	23	7	1	17
Future Vol, veh/h	1	1	23	7	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	36	11	2	27
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	73	42	0	0	47	0
Stage 1	42	-	-	-	-	-
Stage 2	31	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Followup Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	931	1029	-	-	1560	-
Stage 1	980	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	930	1029	-	-	1560	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	992	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.7	0		0.4		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT		
Capacity (veh/h)	-	-	977	1560	-	
HCM Lane V/C Ratio	-	-	0.003	0.001	-	
HCM Control Delay (s)	-	-	8.7	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	1	214	181	1	2	1
Future Vol, veh/h	1	214	181	1	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	230	195	1	2	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	196	0	0	428	196
Stage 1	-	-	-	196	-
Stage 2	-	-	-	232	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1377	-	-	584	845
Stage 1	-	-	-	837	-
Stage 2	-	-	-	807	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1377	-	-	583	845
Mov Cap-2 Maneuver	-	-	-	583	-
Stage 1	-	-	-	836	-
Stage 2	-	-	-	807	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1377	-	-	-	650
HCM Lane V/C Ratio	0.001	-	-	-	0.005
HCM Control Delay (s)	7.6	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

3: SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	2.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	1	3	14	1	6	9	2	76	1	7	60	1
Future Vol, veh/h	1	3	14	1	6	9	2	76	1	7	60	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	16	1	7	10	2	86	1	8	68	1

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	184	176	87	185	176	69	69	0	0	87	0	0
Stage 1	91	91	-	85	85	-	-	-	-	-	-	-
Stage 2	93	85	-	100	91	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	777	717	971	776	717	994	1532	-	-	1509	-	-
Stage 1	916	820	-	923	824	-	-	-	-	-	-	-
Stage 2	914	824	-	906	820	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	759	712	971	757	712	994	1532	-	-	1509	-	-
Mov Cap-2 Maneuver	759	712	-	757	712	-	-	-	-	-	-	-
Stage 1	915	819	-	922	819	-	-	-	-	-	-	-
Stage 2	892	819	-	887	819	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.1	9.3	0.2	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NERNBLn1	SBLn1	SWL	SWT	SAR
Capacity (veh/h)	1532	-	-	902	851	1509	-
HCM Lane V/C Ratio	0.001	0	-	0.023	0.021	0.005	-
HCM Control Delay (s)	7.4	0	-	9.1	9.3	7.4	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	16	21	7	67	30	3	1	59	62	3	42	16
Future Vol, veh/h	16	21	7	67	30	3	1	59	62	3	42	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	23	8	74	33	3	1	65	68	3	46	18

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	180	196	55	144	137	65	64	0	0	133	0	0
Stage 1	61	61	-	67	67	-	-	-	-	-	-	-
Stage 2	119	135	-	77	70	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	782	699	1012	825	754	999	1538	-	-	1452	-	-
Stage 1	950	844	-	943	839	-	-	-	-	-	-	-
Stage 2	885	785	-	932	837	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	752	697	1012	796	752	999	1538	-	-	1452	-	-
Mov Cap-2 Maneuver	752	697	-	796	752	-	-	-	-	-	-	-
Stage 1	949	842	-	942	838	-	-	-	-	-	-	-
Stage 2	847	784	-	898	835	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	10.2	0.1	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1538	-	-	754	782	999	1452	-	-
HCM Lane V/C Ratio	0.001	-	-	0.064	0.136	0.003	0.002	-	-
HCM Control Delay (s)	7.3	0	-	10.1	10.3	8.6	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0	0	-	-

7: Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	3	75	114	10	15	7
Future Vol, veh/h	3	75	114	10	15	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	96	146	13	19	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	159	0	-	0	257 153
Stage 1	-	-	-	-	153 -
Stage 2	-	-	-	-	104 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1420	-	-	-	732 893
Stage 1	-	-	-	-	875 -
Stage 2	-	-	-	-	920 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1420	-	-	-	730 893
Mov Cap-2 Maneuver	-	-	-	-	730 -
Stage 1	-	-	-	-	872 -
Stage 2	-	-	-	-	920 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1420	-	-	-	775
HCM Lane V/C Ratio	0.003	-	-	-	0.036
HCM Control Delay (s)	7.5	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	7	9	10	3	4	15
Future Vol, veh/h	7	9	10	3	4	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	14	16	5	6	24

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	55	19	0	0	21	0
Stage 1	19	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	953	1059	-	-	1595	-
Stage 1	1004	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	949	1059	-	-	1595	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1008	1595
HCM Lane V/C Ratio	-	-	0.025	0.004
HCM Control Delay (s)	-	-	8.7	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

TT: Samuel Wade Road & Price Road

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	4	95	137	4	9	13
Future Vol, veh/h	4	95	137	4	9	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	134	193	6	13	18

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	199	0	-	0	342 196
Stage 1	-	-	-	-	196 -
Stage 2	-	-	-	-	146 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Followup Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1373	-	-	-	654 845
Stage 1	-	-	-	-	837 -
Stage 2	-	-	-	-	881 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1373	-	-	-	651 845
Mov Cap-2 Maneuver	-	-	-	-	651 -
Stage 1	-	-	-	-	833 -
Stage 2	-	-	-	-	881 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1373	-	-	-	753
HCM Lane V/C Ratio	0.004	-	-	-	0.041
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	5	2	3	5	20	13
Future Vol, veh/h	5	2	3	5	20	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	2	3	5	22	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	8	0	-	0	18	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1612	-	-	-	1000	1077
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1612	-	-	-	997	1077
Mov Cap-2 Maneuver	-	-	-	-	997	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	1011	-
Approach	EB	WB	SB			
HCM Control Delay, s	5.2	0	8.6			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1612	-	-	-	1027	
HCM Lane V/C Ratio	0.003	-	-	-	0.035	
HCM Control Delay (s)	7.2	0	-	-	8.6	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

3: SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	2.2											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	10	17	1	7	3	3	72	8	18	109	1
Future Vol, veh/h	2	10	17	1	7	3	3	72	8	18	109	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	12	20	1	8	4	4	85	9	21	128	1

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	275	269	90	285	273	129	129	0	0	94	0	0
Stage 1	98	98	-	171	171	-	-	-	-	-	-	-
Stage 2	177	171	-	114	102	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	677	637	968	667	634	921	1457	-	-	1500	-	-
Stage 1	908	814	-	831	757	-	-	-	-	-	-	-
Stage 2	825	757	-	891	811	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	659	626	968	635	623	921	1457	-	-	1500	-	-
Mov Cap-2 Maneuver	659	626	-	635	623	-	-	-	-	-	-	-
Stage 1	905	812	-	829	746	-	-	-	-	-	-	-
Stage 2	801	746	-	857	809	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.7	10.4	0.3	1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1457	-	-	793	685	1500	-	-
HCM Lane V/C Ratio	0.002	-	-	0.043	0.019	0.014	-	-
HCM Control Delay (s)	7.5	0	-	9.7	10.4	7.4	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	10	31	5	91	46	3	3	63	174	2	88	18
Future Vol, veh/h	10	31	5	91	46	3	3	63	174	2	88	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	35	6	103	52	3	3	72	198	2	100	20

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	319	390	110	213	202	72	120	0	0	270	0	0
Stage 1	114	114	-	78	78	-	-	-	-	-	-	-
Stage 2	205	276	-	135	124	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	634	545	943	744	694	990	1468	-	-	1293	-	-
Stage 1	891	801	-	931	830	-	-	-	-	-	-	-
Stage 2	797	682	-	868	793	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	593	543	943	701	691	990	1468	-	-	1293	-	-
Mov Cap-2 Maneuver	593	543	-	701	691	-	-	-	-	-	-	-
Stage 1	889	799	-	929	828	-	-	-	-	-	-	-
Stage 2	743	681	-	823	791	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	11.5	0.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	580	698	990	1293	-	-
HCM Lane V/C Ratio	0.002	-	-	0.09	0.223	0.003	0.002	-	-
HCM Control Delay (s)	7.5	0	-	11.8	11.6	8.6	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.9	0	0	-	-

7: Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	14	164	123	22	17	4
Future Vol, veh/h	14	164	123	22	17	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	178	134	24	18	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	158	0	-	0	354 146
Stage 1	-	-	-	-	146 -
Stage 2	-	-	-	-	208 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Followup Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1422	-	-	-	644 901
Stage 1	-	-	-	-	881 -
Stage 2	-	-	-	-	827 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1422	-	-	-	636 901
Mov Cap-2 Maneuver	-	-	-	-	636 -
Stage 1	-	-	-	-	870 -
Stage 2	-	-	-	-	827 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1422	-	-	-	674
HCM Lane V/C Ratio	0.011	-	-	-	0.034
HCM Control Delay (s)	7.6	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	4	6	23	13	10	17
Future Vol, veh/h	4	6	23	13	10	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	36	20	16	27

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	105	46	0
Stage 1	46	-	-
Stage 2	59	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Followup Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	893	1023	-
Stage 1	976	-	-
Stage 2	964	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	884	1023	-
Mov Cap-2 Maneuver	884	-	-
Stage 1	966	-	-
Stage 2	964	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT
Capacity (veh/h)	-	-	962	1549
HCM Lane V/C Ratio	-	-	0.016	0.01
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

TT: Samuel Wade Road & Price Road

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	12	214	181	10	7	9
Future Vol, veh/h	12	214	181	10	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	230	195	11	8	10
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	206	0	-	0	457	201
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	256	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1365	-	-	-	562	840
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	787	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1365	-	-	-	556	840
Mov Cap-2 Maneuver	-	-	-	-	556	-
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	787	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	10.4			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1365	-	-	-	-	687
HCM Lane V/C Ratio	0.009	-	-	-	-	0.025
HCM Control Delay (s)	7.7	0	-	-	-	10.4
HCM Lane LOS	A	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

15: Price Road & Site Access

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations ↑ ↑ ↑

Traffic Vol, veh/h	15	8	2	20	13	8
Future Vol, veh/h	15	8	2	20	13	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	9	2	22	14	9

Major/Minor	Major1	Major2	Minor2
-------------	--------	--------	--------

Conflicting Flow All	24	0	0	54	13
Stage 1	-	-	-	13	-
Stage 2	-	-	-	41	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1591	-	-	954	1067
Stage 1	-	-	-	1010	-
Stage 2	-	-	-	981	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1591	-	-	944	1067
Mov Cap-2 Maneuver	-	-	-	944	-
Stage 1	-	-	-	1000	-
Stage 2	-	-	-	981	-

Approach	EB	WB	SB
----------	----	----	----

HCM Control Delay, s	4.8	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
-----------------------	-----	-----	-----	-----	-------

Capacity (veh/h)	1591	-	-	-	987
HCM Lane V/C Ratio	0.01	-	-	-	0.023
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

3. SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	1.8											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	1	4	7	2	7	10	3	87	2	5	69	2
Future Vol, veh/h	1	4	7	2	7	10	3	87	2	5	69	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	4	8	2	8	11	3	97	2	6	77	2
Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	204	195	98	200	195	78	79	0	0	99	0	0
Stage 1	104	104	-	90	90	-	-	-	-	-	-	-
Stage 2	100	91	-	110	105	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	754	700	958	759	700	983	1519	-	-	1494	-	-
Stage 1	902	809	-	917	820	-	-	-	-	-	-	-
Stage 2	906	820	-	895	808	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	736	696	958	746	696	983	1519	-	-	1494	-	-
Mov Cap-2 Maneuver	736	696	-	746	696	-	-	-	-	-	-	-
Stage 1	900	807	-	915	817	-	-	-	-	-	-	-
Stage 2	884	817	-	881	806	-	-	-	-	-	-	-
Approach	NB		SB		NE		SW					
HCM Control Delay, s	9.4		9.5		0.2		0.5					
HCM LOS	A		A									
Minor Lane/Major Mvmt	NEL	NET	NERNBLn1	SBLn1	SWL	SWT	SWR					
Capacity (veh/h)	1519	-	-	833	829	1494	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.016	0.025	0.004	-	-				
HCM Control Delay (s)	7.4	0	-	9.4	9.5	7.4	0	-				
HCM Lane LOS	A	A	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

6. SH 133 & Samuel Wade Road

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	19	25	8	57	34	4	2	68	66	4	48	19
Future Vol, veh/h	19	25	8	57	34	4	2	68	66	4	48	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	27	9	62	37	4	2	74	72	4	52	21

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	206	221	63	167	159	74	73	0	0	146	0	0
Stage 1	71	71	-	78	78	-	-	-	-	-	-	-
Stage 2	135	150	-	89	81	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	752	678	1002	797	733	988	1527	-	-	1436	-	-
Stage 1	939	836	-	931	830	-	-	-	-	-	-	-
Stage 2	868	773	-	918	828	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	717	675	1002	764	730	988	1527	-	-	1436	-	-
Mov Cap-2 Maneuver	717	675	-	764	730	-	-	-	-	-	-	-
Stage 1	938	833	-	930	829	-	-	-	-	-	-	-
Stage 2	825	772	-	878	826	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	10.4	0.1	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1527	-	-	727	751	988	1436	-	-
HCM Lane V/C Ratio	0.001	-	-	0.078	0.132	0.004	0.003	-	-
HCM Control Delay (s)	7.4	0	-	10.4	10.5	8.7	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.5	0	0	-	-

7. Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	82	117	12	18	3
Future Vol, veh/h	2	82	117	12	18	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	96	138	14	21	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	152	0	0	245	145
Stage 1	-	-	-	145	-
Stage 2	-	-	-	100	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1429	-	-	743	902
Stage 1	-	-	-	882	-
Stage 2	-	-	-	924	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1429	-	-	742	902
Mov Cap-2 Maneuver	-	-	-	742	-
Stage 1	-	-	-	881	-
Stage 2	-	-	-	924	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1429	-	-	-	761
HCM Lane V/C Ratio	0.002	-	-	-	0.032
HCM Control Delay (s)	7.5	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

TO: Clock Road & Price Road

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	3	2	12	2	2	18
Future Vol, veh/h	3	2	12	2	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	3	15	3	3	23
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	46	17	0	0	18	0
Stage 1	17	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	964	1062	-	-	1599	-
Stage 1	1006	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	962	1062	-	-	1599	-
Mov Cap-2 Maneuver	962	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	8.6	0	0.7			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR/NBLn1	SBL	SBT		
Capacity (veh/h)	-	-	1000	1599	-	
HCM Lane V/C Ratio	-	-	0.006	0.002	-	
HCM Control Delay (s)	-	-	8.6	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	110	160	2	2	2
Future Vol, veh/h	2	110	160	2	2	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	134	195	2	2	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	197	0	-	0	334	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	138	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1376	-	-	-	661	845
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1376	-	-	-	660	845
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	889	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	9.9			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1376	-	-	-	-	741
HCM Lane V/C Ratio	0.002	-	-	-	-	0.007
HCM Control Delay (s)	7.6	0	-	-	-	9.9
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0

S. SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	1.9											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SVR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	2	12	14	2	8	4	4	82	9	10	125	2
Future Vol, veh/h	2	12	14	2	8	4	4	82	9	10	125	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Free						
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	13	16	2	9	4	4	92	10	11	140	2

Major/Minor	Minor1		Minor2		Major1		Major2				
Conflicting Flow All	275	269	97	283	273	141	142	0	102	0	0
Stage 1	105	105	-	163	163	-	-	-	-	-	-
Stage 2	170	164	-	120	110	-	-	-	-	-	-
Critical Hwly	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-
Critical Hwly Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Critical Hwly Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-
Follow-up Hwly	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-
Pot Cap-1 Maneuver	677	637	959	669	634	907	1441	-	-	1490	-
Stage 1	901	808	-	839	763	-	-	-	-	-	-
Stage 2	832	762	-	884	804	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	661	630	959	642	627	907	1441	-	-	1490	-
Mov Cap-2 Maneuver	661	630	-	642	627	-	-	-	-	-	-
Stage 1	898	806	-	836	757	-	-	-	-	-	-
Stage 2	812	756	-	852	802	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.9	10.3	0.3	0.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NERNBLn1	SBLn1	SWL	SWT	SVR
Capacity (veh/h)	1441	-	-	764	690	1490	-
HCM Lane V/C Ratio	0.003	-	-	0.041	0.023	0.008	-
HCM Control Delay (s)	7.5	0	-	9.9	10.3	7.4	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

6. SH 133 & Samuel Wade Road

Intersection												
Intr Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕		↕	↕		↕	↕		
Traffic Vol, veh/h	12	36	6	91	53	4	4	73	180	3	101	21
Future Vol, veh/h	12	36	6	91	53	4	4	73	180	3	101	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	40	7	101	59	4	4	81	200	3	112	23
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	351	419	124	242	230	81	135	0	0	281	0	0
Stage 1	130	130	-	89	89	-	-	-	-	-	-	-
Stage 2	221	289	-	153	141	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	604	525	927	712	670	979	1449	-	-	1282	-	-
Stage 1	874	789	-	918	821	-	-	-	-	-	-	-
Stage 2	781	673	-	849	780	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	558	522	927	662	666	979	1449	-	-	1282	-	-
Mov Cap-2 Maneuver	558	522	-	662	666	-	-	-	-	-	-	-
Stage 1	871	787	-	915	819	-	-	-	-	-	-	-
Stage 2	719	671	-	798	778	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.2		12		0.1		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBREBLn1	WBLn1	WBLn2	SBL	SBT	SBR				
Capacity (veh/h)	1449	-	-	557	663	979	1282	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.108	0.241	0.005	0.003	-	-			
HCM Control Delay (s)	7.5	0	-	12.2	12.1	8.7	7.8	0	-			
HCM Lane LOS	A	A	-	B	B	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.4	0.9	0	0	-	-			

Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	9	175	130	26	20	2
Future Vol, veh/h	9	175	130	26	20	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	190	141	28	22	2

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	169	0	-	0	365 155
Stage 1	-	-	-	-	155 -
Stage 2	-	-	-	-	210 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1409	-	-	-	635 891
Stage 1	-	-	-	-	873 -
Stage 2	-	-	-	-	825 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1409	-	-	-	630 891
Mov Cap-2 Maneuver	-	-	-	-	630 -
Stage 1	-	-	-	-	866 -
Stage 2	-	-	-	-	825 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1409	-	-	-	647
HCM Lane V/C Ratio	0.007	-	-	-	0.037
HCM Control Delay (s)	7.6	0	-	-	10.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	2	2	27	8	2	20
Future Vol, veh/h	2	2	27	8	2	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	3	35	10	3	26

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	72	40	0	0	45
Stage 1	40	-	-	-	-
Stage 2	32	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	932	1031	-	-	1563
Stage 1	982	-	-	-	-
Stage 2	991	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	930	1031	-	-	1563
Mov Cap-2 Maneuver	930	-	-	-	-
Stage 1	980	-	-	-	-
Stage 2	991	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT
Capacity (veh/h)	-	-	978	1563
HCM Lane V/C Ratio	-	-	0.005	0.002
HCM Control Delay (s)	-	-	8.7	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	2	245	205	2	3	2
Future Vol, veh/h	2	245	205	2	3	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	263	220	2	3	2
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	222	0	-	0	488	221
Stage 1	-	-	-	-	221	-
Stage 2	-	-	-	-	267	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1347	-	-	-	539	819
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	778	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1347	-	-	-	538	819
Mov Cap-2 Maneuver	-	-	-	-	538	-
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	778	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.1	0	10.8			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1347	-	-	-	-	624
HCM Lane V/C Ratio	0.002	-	-	-	-	0.009
HCM Control Delay (s)	7.7	0	-	-	-	10.8
HCM Lane LOS	A	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0

SH 133 & Clock Road/Fire Mountain Road

Intersection												
Int Delay, s/veh	2.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	4	15	2	7	10	3	87	2	8	69	2
Future Vol, veh/h	1	4	15	2	7	10	3	87	2	8	69	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	4	17	2	8	11	3	97	2	9	77	2

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	210	201	98	211	201	78	79	0	0	99	0	0
Stage 1	104	104	-	96	96	-	-	-	-	-	-	-
Stage 2	106	97	-	115	105	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	747	695	958	746	695	983	1519	-	-	1494	-	-
Stage 1	902	809	-	911	815	-	-	-	-	-	-	-
Stage 2	900	815	-	890	808	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	728	689	958	725	689	983	1519	-	-	1494	-	-
Mov Cap-2 Maneuver	728	689	-	725	689	-	-	-	-	-	-	-
Stage 1	900	807	-	909	810	-	-	-	-	-	-	-
Stage 2	876	810	-	868	806	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.2	9.5	0.2	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NEL	NET	NER	NBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1519	-	-	876	823	1494	-	-
HCM Lane V/C Ratio	0.002	-	-	0.025	0.026	0.006	-	-
HCM Control Delay (s)	7.4	0	-	9.2	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕		↕		↕		↕	↕	
Traffic Vol, veh/h	19	25	8	74	34	4	2	68	71	4	48	19
Future Vol, veh/h	19	25	8	74	34	4	2	68	71	4	48	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	27	9	80	37	4	2	74	77	4	52	21
Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	208	226	63	167	159	74	73	0	0	151	0	0
Stage 1	71	71	-	78	78	-	-	-	-	-	-	-
Stage 2	137	155	-	89	81	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	749	673	1002	797	733	988	1527	-	-	1430	-	-
Stage 1	939	836	-	931	830	-	-	-	-	-	-	-
Stage 2	866	769	-	918	828	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	715	670	1002	764	730	988	1527	-	-	1430	-	-
Mov Cap-2 Maneuver	715	670	-	764	730	-	-	-	-	-	-	-
Stage 1	938	833	-	930	829	-	-	-	-	-	-	-
Stage 2	823	768	-	878	826	-	-	-	-	-	-	-
Approach	EB		WB			NB		SB				
HCM Control Delay, s	10.4		10.6			0.1		0.4				
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1527	-	-	724	753	988	1430	-	-			
HCM Lane V/C Ratio	0.001	-	-	0.078	0.156	0.004	0.003	-	-			
HCM Control Delay (s)	7.4	0	-	10.4	10.7	8.7	7.5	0	-			
HCM Lane LOS	A	A	-	B	B	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0	0	-	-			

Samuel Wade Road & Clock Road

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	4	85	129	12	18	8
Future Vol, veh/h	4	85	129	12	18	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	100	152	14	21	9
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	166	0	-	0	269	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1412	-	-	-	720	886
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1412	-	-	-	717	886
Mov Cap-2 Maneuver	-	-	-	-	717	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	915	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1412	-	-	-	-	762
HCM Lane V/C Ratio	0.003	-	-	-	-	0.04
HCM Control Delay (s)	7.6	0	-	-	-	9.9
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	8	10	12	4	5	18
Future Vol, veh/h	8	10	12	4	5	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	13	15	5	6	23

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	53	18	0	0	20
Stage 1	18	-	-	-	-
Stage 2	35	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	955	1061	-	-	1596
Stage 1	1005	-	-	-	-
Stage 2	987	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	951	1061	-	-	1596
Mov Cap-2 Maneuver	951	-	-	-	-
Stage 1	1005	-	-	-	-
Stage 2	983	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT
Capacity (veh/h)	-	- 1009	1596	-
HCM Lane V/C Ratio	-	- 0.023	0.004	-
HCM Control Delay (s)	-	- 8.7	7.3	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Intersection
 Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	5	110	160	4	10	14
Future Vol, veh/h	5	110	160	4	10	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	134	195	5	12	17

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	200	0	-	0	344 198
Stage 1	-	-	-	-	198 -
Stage 2	-	-	-	-	146 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1372	-	-	-	652 843
Stage 1	-	-	-	-	835 -
Stage 2	-	-	-	-	881 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1372	-	-	-	649 843
Mov Cap-2 Maneuver	-	-	-	-	649 -
Stage 1	-	-	-	-	831 -
Stage 2	-	-	-	-	881 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1372	-	-	-	750
HCM Lane V/C Ratio	0.004	-	-	-	0.039
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	5	4	5	5	20	13
Future Vol, veh/h	5	4	5	5	20	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	5	5	22	14
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	10	0	-	0	22	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1610	-	-	-	995	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1610	-	-	-	992	1074
Mov Cap-2 Maneuver	-	-	-	-	992	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	1009	-
Approach	EB	WB		SB		
HCM Control Delay, s	4	0		8.6		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1610	-	-	-	-	1023
HCM Lane V/C Ratio	0.003	-	-	-	-	0.035
HCM Control Delay (s)	7.2	0	-	-	-	8.6
HCM Lane LOS	A	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection												
Int Delay, s/veh	2.3											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	12	19	2	8	4	4	82	9	19	125	2
Future Vol, veh/h	2	12	19	2	8	4	4	82	9	19	125	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	13	21	2	9	4	4	92	10	21	140	2

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	295	289	97	305	293	141	142	0	0	102	0	0
Stage 1	105	105	-	183	183	-	-	-	-	-	-	-
Stage 2	190	184	-	122	110	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	657	621	959	647	618	907	1441	-	-	1490	-	-
Stage 1	901	808	-	819	748	-	-	-	-	-	-	-
Stage 2	812	747	-	882	804	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	637	610	959	613	607	907	1441	-	-	1490	-	-
Mov Cap-2 Maneuver	637	610	-	613	607	-	-	-	-	-	-	-
Stage 1	898	806	-	817	737	-	-	-	-	-	-	-
Stage 2	786	736	-	845	802	-	-	-	-	-	-	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	9.9	10.5	0.3	1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NEL	NET	NERNBLn1	SBLn1	SWL	SWT	SWR
Capacity (veh/h)	1441	-	-	774	671	1490	-
HCM Lane V/C Ratio	0.003	-	-	0.048	0.023	0.014	-
HCM Control Delay (s)	7.5	0	-	9.9	10.5	7.5	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-

Intersection												
Init Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕		↕	
Traffic Vol, veh/h	12	36	6	102	53	4	4	73	197	3	101	21
Future Vol, veh/h	12	36	6	102	53	4	4	73	197	3	101	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	50	-	-	270	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	40	7	113	59	4	4	81	219	3	112	23
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	360	438	124	242	230	81	135	0	0	300	0	0
Stage 1	130	130	-	89	89	-	-	-	-	-	-	-
Stage 2	230	308	-	153	141	-	-	-	-	-	-	-
Critical Hwly	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hwly Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hwly Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hwly	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	596	512	927	712	670	979	1449	-	-	1261	-	-
Stage 1	874	789	-	918	821	-	-	-	-	-	-	-
Stage 2	773	660	-	849	780	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	551	509	927	661	666	979	1449	-	-	1261	-	-
Mov Cap-2 Maneuver	551	509	-	661	666	-	-	-	-	-	-	-
Stage 1	871	787	-	915	819	-	-	-	-	-	-	-
Stage 2	712	658	-	798	778	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	12.4		12.2			0.1			0.2			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1449	-	-	546	663	979	1261	-	-			
HCM Lane V/C Ratio	0.003	-	-	0.11	0.26	0.005	0.003	-	-			
HCM Control Delay (s)	7.5	0	-	12.4	12.3	8.7	7.9	0	-			
HCM Lane LOS	A	A	-	B	B	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.4	1	0	0	-	-			

Samuel Wade Road & Clock Road

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	15	186	138	26	20	5
Future Vol, veh/h	15	186	138	26	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	202	150	28	22	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	178	0	0	398	164
Stage 1	-	-	-	164	-
Stage 2	-	-	-	234	-
Critical Hwly	4.12	-	-	6.42	6.22
Critical Hwly Stg 1	-	-	-	5.42	-
Critical Hwly Stg 2	-	-	-	5.42	-
Follow-up Hwly	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1398	-	-	607	881
Stage 1	-	-	-	865	-
Stage 2	-	-	-	805	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1398	-	-	599	881
Mov Cap-2 Maneuver	-	-	-	599	-
Stage 1	-	-	-	854	-
Stage 2	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1398	-	-	-	640
HCM Lane V/C Ratio	0.012	-	-	-	0.042
HCM Control Delay (s)	7.6	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			A
Traffic Vol, veh/h	5	7	27	14	11	20
Future Vol, veh/h	5	7	27	14	11	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	9	35	18	14	26
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	98	44	0	0	53	0
Stage 1	44	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hwly	6.42	6.22	-	-	4.12	-
Critical Hwly Stg 1	5.42	-	-	-	-	-
Critical Hwly Stg 2	5.42	-	-	-	-	-
Follow-up Hwly	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	901	1026	-	-	1553	-
Stage 1	978	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	893	1026	-	-	1553	-
Mov Cap-2 Maneuver	893	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		2.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBR/WBLn1	SBL	SBT		
Capacity (veh/h)	-	-	966	1553	-	
HCM Lane V/C Ratio	-	-	0.016	0.009	-	
HCM Control Delay (s)	-	-	8.8	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	13	245	205	11	8	10
Future Vol, veh/h	13	245	205	11	8	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	263	220	12	9	11
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	232	0	-	0	517	226
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2,218	-	-	-	3,518	3,318
Pot Cap-1 Maneuver	1336	-	-	-	518	813
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1336	-	-	-	512	813
Mov Cap-2 Maneuver	-	-	-	-	512	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	759	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.4	0	10.8			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	1336	-	-	-	-	645
HCM Lane V/C Ratio	0.01	-	-	-	-	0.03
HCM Control Delay (s)	7.7	0	-	-	-	10.8
HCM Lane LOS	A	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	↓
Traffic Vol, veh/h	15	10	4	20	13	8
Future Vol, veh/h	15	10	4	20	13	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	11	4	22	14	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	26	0	0	58	15
Stage 1	-	-	-	15	-
Stage 2	-	-	-	43	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1588	-	-	949	1065
Stage 1	-	-	-	1008	-
Stage 2	-	-	-	979	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1588	-	-	940	1065
Mov Cap-2 Maneuver	-	-	-	940	-
Stage 1	-	-	-	998	-
Stage 2	-	-	-	979	-

Approach	EB	WB	SB
HCM Control Delay, s	4.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	1588	-	-	-	984	-
HCM Lane V/C Ratio	0.01	-	-	-	0.023	-
HCM Control Delay (s)	7.3	0	-	-	8.7	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	-

Property Record Card

DELTA COUNTY Delta County Assessor

OLD WORLD LLC
BREDERODESTRAAT 14
1901 HW CASTRICUM
THE NETHERLANDS

Account: R024701
Tax Area: BR- - BR-
Acres: 0.203

Parcel: 318731307001
Situs Address:
PAONIA, 81428

Value Summary

Value By:	Market	Override
Land (1)	\$40,000	N/A
Total	\$40,000	\$40,000

Legal Description

PAONIA 81428 Subdivision: RIVERBANK NEIGHBORHOOD SUB #2 Lot: 1 TOTAL 0.203 +/- LOT 1 RIVERBANK NEIGHBORHOOD MINOR SUBDIVISION #2 SEC31 T13S R91W 6PM R-657768 R-704943 R-704944PLAT



Public Remarks

Entry Date	Model	Remark
08/28/2018		DEACTIVATED R23689. CREATED NEW. R24701 / R24702 / R24703
08/29/2018		9/05/2018 SITE INSPECTION FOR SPLIT- REMOVED XTRA FEATURES-NO AG USE-TAKEN OUT OF AG FOR 2019-JT
09/11/2018		AG PACKET MAILED OUT. JW
09/19/2018		UPDATE VALUE TAB FOR SPLIT LAND ALLOCATED FOR 2018 FULL VALUE FOR 2019 8534/19.266=442.957 442.957X..203=89.92 442.957X.186=82.39 442.957X18.877=8361.69

Land Occurrence 1

LVal	510453 - PAO UNDER 1 ACRE	Abstract Code	0510 - 0510 - vacant- less than 1 ac
Lot Front	0	Lot Depth	0
Adj 1	100	Adj 2	100
Adj 3	100	Adj 4	100
Neighborhood	41001 - PAONIA	Road	0 - N/A
TOPO	0 - N/A	Utilities	0 - N/A
Appr Dist	3 - PAONIA - JODY	Subdivision	40001 - PAONIA OTHER
Use Code	0510	Review Date	201808 - Aug-18

Property Record Card

DELTA COUNTY Delta County Assessor

Land Occurrence 1

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
LT	1			1
Total	1.00			1.00
	Value	Rate	Rate	Rate
	\$40,000	40,000.00		40,000.00

Abstract Summary

Code	Classification	Actual Value	Taxable Value	Actual Override	Taxable Override
0510	0510 - vacant- less than 1 ac	\$40,000	\$11,600	NA	NA
Total		\$40,000	\$11,600	NA	NA

Property Record Card

DELTA COUNTY Delta County Assessor

OLD WORLD LLC
BREDERODESTRAAT 14
1901 HW CASTRICUM
NETHERLANDS

Account: R024702
Tax Area: BR- - - BR-
Acres: 0.186

Parcel: 318731307002
Situs Address:
PAONIA, 81428

Value Summary

Value By:	Market	Override
Land (1)	\$40,000	N/A
Extra Features (1)	\$909	N/A
Extra Features (2)	\$1,913	N/A
Extra Features (3)	\$100	N/A
Extra Features (4)	\$0	N/A
Total	\$42,922	\$42,922

Legal Description

PAONIA 81428 Subdivision: RIVERBANK NEIGHBORHOOD SUB #2 Lot: 2 TOTAL 0.186 +/- LOT 2 RIVERBANK NEIGHBORHOOD MINOR SUBDIVISION #2 SEC31 T13S R91W 6PM R-657768 R-704943 R-704944PLAT



Public Remarks

Entry Date	Model	Remark
08/28/2018		DEACTIVATED R23689. CREATED NEW R247010/ R24702 / R24703.
08/29/2018		9/05/2018 SITE VISIT TO CHECK FOR SPLIT-NO AG USE-TAKE OUT FOR 2019-JT
09/11/2018		AG PACKET MAILED OUT. JW
09/19/2018		UPDATE VALUE TAB FOR SPLIT LAND ALLOCATED FOR 2018 FULL VALUE FOR 2019 8534/19.266=442.957 442.957X..203=89.92 442.957X.186=82.39 442.957X18.877=8361.69

Land Occurrence 1

LVal	510453 - PAO UNDER 1 ACRE	Abstract Code	0510 - 0510 - vacant- less than 1 ac
Lot Front	0	Lot Depth	0
Adj 1	100	Adj 2	100
Adj 3	100	Adj 4	100
Neighborhood	41001 - PAONIA	Road	0 - N/A

Property Record Card

DELTA COUNTY Delta County Assessor

Land Occurrence 1

TOPO	0 - N/A	Utilities	0 - N/A
Appr Dist	3 - PAONIA - JODY	Subdivision	40001 - PAONIA OTHER
Use Code	0510	Review Date	201808 - Aug-18

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
LT	1			1
Total	1.00			1.00
	Value	Rate	Rate	Rate
	\$40,000	40,000.00		40,000.00

Extra Features Occurrence 1

CODE	41500 - EQUIPMENT SHED D LOW	Abstract Code	0600 - NON-RESIDENTIAL STRUCTURES
DEPR23	1950 - DEPR23	DIM1	19
DIM2	30	Neighborhood	41001 - PAONIA
ECONAREA	3 - ECONAREA-UNPLATTED	Review Date	Nov-06

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
UT - UT	570			570
Total	570.00			570.00
	Value	Rate	Rate	Rate
	\$909	1.59		1.59

Extra Features Occurrence 2

CODE	41500 - EQUIPMENT SHED D LOW	Abstract Code	0600 - NON-RESIDENTIAL STRUCTURES
DEPR23	1950 - DEPR23	DIM1	20
DIM2	60	Neighborhood	41001 - PAONIA
ECONAREA	3 - ECONAREA-UNPLATTED	Review Date	Nov-06

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
UT - UT	1,200			1,200
Total	1,200.00			1,200.00
	Value	Rate	Rate	Rate
	\$1,913	1.59		1.59

Extra Features Occurrence 3

CODE	41900 - UTILITY GRAIN STORAGE S LOW	Abstract Code	0600 - NON-RESIDENTIAL STRUCTURES
DEPR00	1980 - DEPR00	DIM1	0
DIM2	0	Neighborhood	41001 - PAONIA
ECONAREA	3 - ECONAREA-UNPLATTED	Review Date	Nov-06

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
UT - UT	1			1
Total	1.00			1.00
	Value	Rate	Rate	Rate
	\$100	100.00		100.00

Extra Features Occurrence 4

CODE	15400 - SHED INVENTORY 10 X 10 OR LESS	Abstract Code	0600 - NON-RESIDENTIAL STRUCTURES
------	--	---------------	-----------------------------------

Property Record Card

DELTA COUNTY Delta County Assessor

Extra Features Occurrence 4

DEPR00	1980 - DEPR00	DIM1	10
DIM2	10	Neighborhood	41001 - PAONIA
ECONAREA	3 - ECONAREA-UNPLATTED	Review Date	Nov-06

SubArea	ADJUSTED	HEATED	PRIME	ACTUAL
UT - UT	1			1
Total	1.00			1.00
	Value	Rate	Rate	Rate
	\$0			

Abstract Summary

Code	Classification	Actual Value	Taxable Value	Actual Override	Taxable Override
0510	0510 - vacant- less than 1 ac	\$40,000	\$11,600	NA	NA
0600	0600 - minor structures	\$2,922	\$847	NA	NA
Total		\$42,922	\$12,447	NA	NA

Property Record Card

DELTA COUNTY Delta County Assessor

OLD WORLD LLC

BREDERODESTRAAT 14
1901 HW CASTRICUM
THE NETHERLANDS
THE NETHERLANDS

Account: R024703

Tax Area: BR- - - BR-
Acres: 19.877

Parcel: 318731307003

Situs Address:
PAONIA, 81428

Value Summary

Value By:	Market	Override
Land (1)	\$1,978	N/A
Land (2)	\$7,300	N/A
Total	\$9,278	\$9,278

Legal Description

PAONIA 81428 Subdivision: RIVERBANK NEIGHBORHOOD SUB #2 Lot: 3 TOTAL 19.877AC +/- LOT 3 RIVERBANK NEIGHBORHOOD MINOR SUBDIVISION #2 SEC31 T13S R91W 6PM R-657768 R-704943 R-704944PLAT

**Public Remarks**

Entry Date	Model	Remark
08/28/2018		DEACTIVATED R23689. CREATED NEW R24701 / R24702 / R24703.
08/29/2018		9/5/2018 SITE VISIT TO CHECK SPLIT-AG USE?- NEED TO CHECK-JT
09/11/2018		AG PACKET MAILED OUT. JW
09/19/2018		UPDATE VALUE TAB FOR SPLIT LAND ALLOCATED FOR 2018 FULL VALUE FOR 2019 8534/19.266=442.957 442.957X.203=89.92 442.957X.186=82.39 442.957X18.877=8361.69

Land Occurrence 1

LVal	417600 - IV 345 AC	Abstract Code	4176 - 4176 - irrigated IV, areas 3, 4, & 5
Lot Front	0	Lot Depth	0
Adj 1	100	Adj 2	100
Adj 3	100	Adj 4	100
Neighborhood	41001 - PAONIA	Road	0 - N/A
TOPO	0 - N/A	Utilities	0 - N/A
Appr Dist	3 - PAONIA - JODY	Ag Subdivision	40001 - PAONIA OTHER

Property Record Card

DELTA COUNTY Delta County Assessor

Land Occurrence 1

Use Code	4000	Review Date	201809 - Sep-18		
SubArea		ADJUSTED	HEATED	PRIME	ACTUAL
AC		4			4
Total		4.00			4.00
	Value	Rate	Rate	Rate	Rate
	\$1,978	494.50			494.50

Land Occurrence 2

LVal	437100 - MEAD V 345 AC	Abstract Code	4371 - 4371 - meadow hay, areas 3, 4, & 5		
Lot Front	0	Lot Depth	0		
Adj 1	100	Adj 2	100		
Adj 3	100	Adj 4	100		
Neighborhood	41001 - PAONIA	Road	0 - N/A		
TOPO	0 - N/A	Utilities	0 - N/A		
Appr Dist	3 - PAONIA - JODY	Ag Subdivision	40001 - PAONIA OTHER		
Use Code	4000	Review Date	201809 - Sep-18		
SubArea		ADJUSTED	HEATED	PRIME	ACTUAL
AC		15.877			15.877
Total		15.877			15.877
	Value	Rate	Rate	Rate	Rate
	\$7,300	459.70			459.70

Abstract Summary

Code	Classification	Actual Value	Taxable Value	Actual Override	Taxable Override
4176	4176 - irrigated IV, areas 3, 4, & 5	\$1,978	\$574	NA	NA
4371	4371 - meadow hay, areas 3, 4, & 5	\$7,300	\$2,117	NA	NA
Total		\$9,278	\$2,691	NA	NA