

# Final Plat Submittal Checklist

Fees \$6488.00

Date Paid

**Subdivision Name: Harvest Meadows - Phase 1**

- ❖ A Development Review Conference will be held with the applicant and members of the DRC within 21 days of the submission of the application.

**DRC Review Deadline Date:** October 19, 2021

**DRC Meeting Date, Place and Time:** October 20, 2021

- ❖ After the Development Review Conference, the applicant shall provide any additional information requested and make any changes required by the Development Review Committee.

**Corrected Plans and 2<sup>nd</sup> Submittal Items Due by:** November 3, 2021

- ❖ After the revised drawings are submitted to the City, the Development Review Committee will then review the revised drawings. Within 14 days of the 2<sup>nd</sup> submittal, the Development Review Committee will meet to discuss and verify that all changes were made. If additional changes are needed, the comments will be sent back to the developer and another Development Review Conference may be scheduled. Every submittal requires a 14-day review. The subdivision will not be put on a meeting until a clean memo is obtained.
- ❖ The Final Plat application goes before both the Planning Commission and City Council. No Public Hearing is required at this stage.

GRANTSVILLE CITY  
ZONING DEPARTMENT

429 EAST MAIN STREET  
GRANTSVILLE, UTAH 84029  
PHONE (435) 884-3411  
FAX (435) 884-0426

**Final Plat Fees:**

\$2000.00 - Plat Review  
\$125.00 per Lot

(ALL FEES ARE SUBJECT TO CHANGE)

\*\*\*\*\*

**FINAL PLAT APPLICATION**

Date of Application October 5, 2021

Property Location 948 S. QUIRK, GRANTSVILLE

Property Owner(s) GREG DEHAAN, ANDY LEWIS CONSTRUCTION

Owner Phone [REDACTED]

Acting Agent Name CIVIL PROJ-EX

Acting Agent Phone [REDACTED]

Email Address [REDACTED]

Subdivision Name HARVEST MEADOW SUBDIVISION PHASE 1

Number of Acres in Subdivision 7.715

Total Number Lots 10 Lot Sizes 1/2 Acre

Current Zoning of Property R-1-21 Parcel Number 16-015-0-004B, 16-075-0-004A, 01-074-0-0053

Andy Lewis  
Signature of Applicant or Agent



## Grantsville City

429 E Main Street  
Grantsville, UT 84029

### OFFICE USE ONLY

Permit #:

Permit Date:

## Subdivision Review and Engineering Plans

Project Name:

Email Address:

### SUBDIVISION REVIEW AND ENGINEERING BASE - LESS THAN 10 LOTS

• Preliminary Plat Review –Engineer (2 Reviews) **	\$2,250.00	
• Final Plat Review & Recordation –Engineer ( 2 Reviews) **	\$450.00	
• Civil Review Fee -Engineer ( 2 Reviews) **	\$2,938.00	\$2938.00
• Inspection Fee (3% of the Engineers Probable Cost Estimate)	\$TBD	
• Bond Administration Fee	\$300.00	\$ 300.00
• Water Modeling Fee	\$1,500.00	
• Sewer Modeling Fee	\$1,500.00	
	Total Fees Due	\$ 3238.00

### SUBDIVISION REVIEW AND ENGINEERING BASE - 11-50 LOTS

• Preliminary Plat Review –Engineer (2 Reviews) **	\$4,125.00	
• Final Plat Review & Recordation –Engineer ( 2 Reviews) **	\$450.00	
• Civil Review Fee -Engineer ( 2 Reviews) **	\$4,750.00	
• Inspection Fee (3% of the Engineers Probable Cost Estimate)	\$TBD	
• Bond Administration Fee	\$300.00	
• Water Modeling Fee	\$1,500.00	
• Sewer Modeling Fee	\$1,500.00	
	Total Fees Due	\$

### SUBDIVISION REVIEW AND ENGINEERING BASE - 51-100 LOTS

• Preliminary Plat Review –Engineer (2 Reviews) **	\$5,500.00	
• Final Plat Review & Recordation –Engineer ( 2 Reviews) **	\$450.00	
• Civil Review Fee -Engineer ( 2 Reviews) **	\$8,000.00	
• Inspection Fee (3% of the Engineers Probable Cost Estimate)	\$TBD	
• Bond Administration Fee	\$300.00	
• Water Modeling Fee	\$1,500.00	
• Sewer Modeling Fee	\$1,500.00	
	Total Fees Due	\$

### SUBDIVISION REVIEW AND ENGINEERING BASE - 101+ LOTS

• Preliminary Plat Review –Engineer (2 Reviews) **	\$5,500.00	
• Final Plat Review & Recordation –Engineer ( 2 Reviews) **	\$450.00	
• Civil Review Fee -Engineer ( 2 Reviews) **	\$10,625.00	
• Inspection Fee (3% of the Engineers Probable Cost Estimate)	\$TBD	
• Bond Administration Fee	\$300.00	
• Water Modeling Fee	\$1,500.00	
• Sewer Modeling Fee	\$1,500.00	
	Total Fees Due	\$

\*\*If additional reviews are needed after 2 reviews, additional fees will be collected at that time of \$180.00 per hour.



## GRANTSVILLE CITY FINAL PLAT CHECKLIST

**SPECIAL NOTE:** Prior to the final plat being submitted to Grantsville City, the survey of the property must be filed with the Tooele County Surveyor's office and the filing number referenced on the drawings.

### Required items that must accompany the final plat:

- ☒ BVB The Application form; and \$3250.00
- ☒ BVB A PDF file of the final plat and construction drawings as detailed in section 21.2.8 & 21.2.2.9 (first set of plans are for the DRC Review) (there will be a 14-day review and a meeting within 21 days); and

### After the DRC Meeting These Items Must Be Submitted!

- ☐ \_\_\_\_\_ A PDF and ACAD file of the final plat and construction drawings as detailed in section 21.2.8 & 21.2.2.9 (second set of the revised plans with revisions resulting from the DRC changes); (make sure that the dates on the plans are updated) (there will be a 14-day review and a meeting within 21 days); and
- ☐ \_\_\_\_\_ An original 24" X 36" Mylar of the final plat; without signatures; (turn in within 1 week of City Council Approval);

### Turn these items in with your 1<sup>st</sup> Submittal items.

- ☒ BVB Engineer's Cost Estimate for construction of infrastructure and off-site improvements signed and stamped by a licensed engineer and approved by the City Engineer; and
- ☒ BVB Proof of ownership demonstrated by one copy of a title report and vesting documents of conveyance completed within the previous six months; and
- ☒ BVB Engineering for the proposed water system and a spreadsheet calculation of all culinary and secondary water to be provided for each lot pursuant to Sec. 21.6.12(3); and
- ☒ BVB A valid water conveyance of water rights pursuant to Section 21 .6.12 of this Chapter to service the development and other documentation evidencing the perpetual availability of adequate non-City water for outdoor use. The Developer shall also be required to pay for and Submit to the City an opinion from an independent water rights attorney to be designated or approved by the City, indicating the legal status of the water rights to be conveyed, whether or not the proposed conveyance will meet the requirements of the City ordinances and that the transaction will be effective in conveying the required water and water rights the City. The Developer shall also obtain and pay for a policy of title insurance for the culinary water rights in an amount to be approved by the City and provide a valid deed or certificate to the City for all required secondary water rights. The secondary water rights shall be accompanied with a current letter from the irrigation company that issued the secondary water rights, indicating that the water

rights are valid and that the conveyance to the City will be or is recognized by the irrigation company; The City will allow the culinary and secondary water rights to actually be transferred to the City after the city council has approved the final plat, but the developer shall be required to provide a copy of the proposed deeds or certificates and a commitment for the title insurance prior and letter from the irrigation company prior to final approval.

- ☒ N/A The application fee along with any unpaid fees owed to Grantsville City for development of land, code enforcement or building permits; and
- ☒ N/A <sup>NA</sup> A copy of the State Highway Access permit or railroad crossing permit when a new street will connect to a State highway or will cross a railroad, along with any design requirements as established by the Utah Department of Transportation; and
- ☒ N/A <sup>NA</sup> Copies of proposed protective covenants, trust agreement and homeowner's association articles and by laws; and
- ☐ Deferred after DRC Provide evidence of application for storm water discharge permit with State; and
- ☐ ATBD Provide evidence of Record of Survey number by placing it on the first page of preliminary drawings; and
- ☐ Deferred after DRC Evidence of application (Notice of Intent form) for a Utah Pollutant Discharge Elimination System; and
- ☒ BUB Tax clearance from the Tooele County Assessor indicating that all taxes, interest and penalties owing for the property have been paid; and
- ☒ BUB A statement identifying the proposed method of bonding for required subdivision improvements, including streets, roads, and related facilities, water distribution system, sewage collection system, flood plain protection, storm drainage facilities and such other necessary facilities as may be required by the City; and 21.7

**The infrastructure design and engineering drawings shall include:**

- ☐ BUB Plan, profile and typical cross-section drawings of the roads, bridges, culverts, sewers, and drainage structures;
- ☐ BUB A grading and drainage plan indicated by solid-line contours superimposed on dashed-line contours of existing topography;
- ☐ BUB The general location of trees over six inches in diameter measured at four and one-half feet above the ground, and in the case of heavily-wooded areas, an indication of the outline of the wooded area and location of trees which are to remain;

☐ BUB The bearings, distances and curve data of all perimeter boundary lines shall be indicated outside the boundary line. When the plat is bounded by an irregular shore line or a body of water, the bearings and distances of a closing meander traverse should be given and a notation made that the plat includes all land to the water's edge or otherwise.

☐ 1ST If a plat is revised, a copy of the old plat shall be provided for comparison purposes.

☐ BUB All blocks and lots within each block shall be consecutively numbered. Addresses shall be issued by the city engineer and shall be shown on the plat with the corresponding lot number.

☐ BUB For all curves in the plat, sufficient data shall be given to enable the reestablishment of the curves on the ground. The curve data shall include the radius, central angle, cord bearing and distance, tangent, and arc length.

☐ NA Excepted parcels shall be marked, "Not included in this subdivision."

☐ NA All public lands shall be clearly identified.

☐ TBD All public roads shall be clearly marked as "dedicated public road."

☐ NA All private roads shall be clearly marked as "private road."

☐ TBD All roads shall be identified by names approved by Grantsville City.

☐ BUB All easements shall be designated as such and dimensions given.

☐ BUB All lands within the boundaries of the subdivision shall be accounted for, either as lots

☐ Walkways, roads, open space, or as excepted parcels.

☐ BUB Bearings and dimensions shall be given for all lot lines, except that bearings and lengths need not be given for interior lot lines where the bearings and lengths are the same as those of both end lot lines.

☐ BUB Parcels not contiguous shall not be included in one plat, neither shall more than one plat be made on the same sheet. Contiguous parcels owned by different parties may be embraced in one plat, provided that all owners join in the dedication and acknowledgments.

☐ BUB Lengths shall be shown to hundredths of a foot. Angles and bearings shall be shown to seconds of arc.

☐ BUB Surveys shall tie into the state grid or other permanent marker established by the county surveyor.

☐ BUB The plat shall be labeled "Final Plat."



- ☐ BVB The size and location of proposed sewage systems, culinary water, secondary water, storm drainage, roads, power, gas and other utilities and any man made features and the location and size of existing sewage, culinary water, secondary water, storm drainage, roads, power, gas and other utilities to 200 feet beyond the subdivision;
- ☐ BVB Proposed road layouts in dashed lines for any portion of the property to be developed in a later phase;
- ☐ BVB Water courses and proposed storm water drainage systems including culverts, water areas, delineated wetlands, streams, areas subject to occasional flooding, marshy areas or swamps;
- ☐ BVB Areas within the 100-year flood plain;
- ☐ BVB Separate drawing containing the location of all street signs and traffic control devices required by the City in accordance with the Manual of Uniform Traffic Control Devices;
- ☐ BVB A Signature block that says, "Approved for Construction" with signature lines for the Public Works Director, the City Engineer or Designee on the cover sheet of the construction drawings;
- ☐ \_\_\_\_\_ A design report stamped by an engineer licensed in the State of Utah as may be required by the City Engineer. TBD

All drawings shall be drawn to a scale not less than one inch equals 100 feet, and shall indicate the basis of bearings, true north, the name of the subdivision, township, range, section, and quarter section, and lot numbers of the property. Poorly-drawn or illegible design and engineering drawings shall be cause for denial.

To change any aspect of the design of the off-site improvements, a new set of infrastructure design and engineer drawings shall be submitted for approval. A signed set of drawings shall be on-site at all times during construction. All construction must conform to the approved plans.

### The Following Elements of a Final Plat Application Are Required:

- ☐ BVB The final plat shall be prepared and certification made as to its accuracy by a registered land surveyor who holds a license in accordance with Title 58, Chapter 22, Professional Engineers and Land Surveyors Licensing Act, has completed a survey of the property described on the plat in accordance with Section 17-23-17, has verified all measurements, and monumented any unmarked property corners, and has made reference to the filing number for the Record of Survey map filed with the Tooele County Surveyor's Office. The surveyor making the plat shall bond or provide to the city adequate security to place monuments as represented on the plat upon completion of the subdivision improvements.
- ☐ BVB Every detail of the plat shall be legible. A poorly-drawn or illegible plat shall be cause for denial.
- ☐ BVB A traverse shall not have an error of closure greater than one part in 10,000.

\*The final plat shall conform in all major respects to the approved preliminary design stage plat. When the zoning administrator determines that the application is complete the application shall be placed on the planning commission agenda. A final plat submittal for the first phase shall not be accepted more than six months from date of the preliminary approval, unless proper extensions have been requested and approved, as required.

\*\* Once the final plat is approved, there are five (5) steps that must be taken prior to the Mylar being recorded at the County Recorder's office. They are:

- o Submit Mylar to the City for signatures on the Mylar. Sign Development Agreement.
- o Pay 3% Inspection Fees based on the Approved Engineer's Cost Estimate minus the 10% - 20% Contingency.
- o Pay Land Disturbance Fee and SWPPP Permit Fee.
- o Turn over secondary and culinary water for entire project, or for each phase that's been approved.
- o Complete construction of improvements with acceptance of improvements by City or Bond for improvements.





## Grantsville City

429 E Main Street  
Grantsville City, UT 84029  
Phone: 435.884.3411  
Email: [tdixon@grantsvilleut.gov](mailto:tdixon@grantsvilleut.gov)

Review 1 Date: \_\_\_\_\_

Review 2 Date: \_\_\_\_\_

Review 3 Date: \_\_\_\_\_

### Engineering Review—Site Plan Checklist

*The City will not accept plans for review without this signed checklist.*

Development Name: HARVEST MEADOW SUBDIVISION

The attached document is a list of typical Engineering Department review criteria for subdivisions. Each submittal shall include (1) 24" x 36" plan set and an electronic copy of complete plans signed by the Utah-licensed professional Engineer in responsible charge. The Engineer is responsible for initializing each item on the checklist. Please check with the Engineering Department before assuming that an item is not applicable, unless it is obviously not applicable.

Documents submitted to the Grantsville City Engineering Department shall be organized according to the following general format:

1. ✓ Plat
2. ✓ Cover Sheet
3. ✓ Boundary and Topographical Survey
4. ✓ Overall Site Plan
5. Demolition Plan
6. ✓ Grading and Drainage Plan
7. ✓ Utility Plan
8. ✓ Plan and Profile Sheets ✓
9. ✓ Signing and Striping Plan ✓
10. Landscaping and Irrigation Plan
11. SWPPP Plan
12. Detail Sheets

Upon first submittal for plan review, the applicant must sign the verification on the Engineering Plan Review Checklist indicating he/she has personally inspected the checklist and that all items on the checklist have been initialed by the responsible Engineer. A copy of the checklist must accompany the plans with all subsequent reviews. The City will not accept plans for review without this signed checklist.

In accepting plans for construction, the City of Grantsville assumes that applicants have not made any errors and have complied with all applicable codes and ordinances. If, after acceptance of plans for construction, an error is discovered that some aspect of the accepted drawings does not comply with applicable codes and ordinances, the applicant shall, at his own expense, revise the drawings and modify any infrastructure as necessary to correct the problem.

I understand the conditions stated above and have personally reviewed this submittal and verify that it is complete and that all of the items listed below have been initialed by the responsible Engineer.

Applicants Signature: Andy Lewis Date: 10/5/21

Printed Name: Andy Lewis

## OWNER AND APPLICATION CERTIFICATION

I certify under penalty of perjury that this application and all information submitted as part of this application are true, complete, and accurate to the best of my knowledge. I also certify that I am the owner of the subject property and that the authorized agent noted in this application, has my consent to represent me with respect to this application. Should any of the information or representations submitted in connection with this application be incorrect or untrue, I understand that Grantsville City may rescind any approval, or take any other legal or appropriate action. I also acknowledge that I have reviewed the applicable sections of the Grantsville City Land Code and that items and check-lists contained in this application are basic and minimum requirements only and that other requirements may be imposed that are unique to individual projects or uses. Additionally, I agree to reimburse Grantsville City all amounts incurred by the City in excess of the base fee required by the Consolidated Fee Schedule to review and process this submitted application. I also agree to allow the Staff, Planning Commission, or City Council or appointed agent(s) of the City to enter the subject property to make any necessary inspections thereof.

Property Owner's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Applicant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Applicant Submitted	REQUIRED SUBMITTALS	City Use Only
Provide initials		Accepted Date
BVB	Storm drainage calculations in a separate report. This report shall include pipe systems, surface routes, and detention ponds. It shall also include a discussion about low impact development best management practices that were considered and implemented for the purpose of infiltrating, evapotranspiring, or harvesting and using storm water from the site to protect water quality. If no best management practices were implemented, explain the reasons preventing their use. This report shall be stamped and certified by a Utah-licensed professional Engineer, with the following language: "I hereby certify that this report for the onsite drainage of this development was prepared by me (or under my direct supervision) in accordance with the provisions of the City of Grantsville's Standard Specifications and Drawings, and was designed to comply with the provisions thereof, I understand that the City assumes no responsibility or liability whatsoever for this report."	
DEF	Long Term Storm Water Management Plan using the Utah Storm Water Advisory Committee template.	
	AutoCAD file of Grading Plan. <i>DEFERRED</i>	
BVB	Trip Generation Memo (Less than 100 ADT). Traffic Impact Study (for projects generating more than 100 ADT. Include PM Peak Trips.)	
BVB	Geotechnical report, including minimum pavement section based on a calculated CBR value.	
NA	Army Corps Requirements, if needed.	
BVB	Record of Survey per UCLS Standards, AND topographical map including all other relevant information or the existing recorded plan from the County Recorder's Office.	
NA	UDOT Permit or vehicular access or storm drain connection to SR 138 or SR 112.	
NA	Stream Alteration Permit from Utah Division of Water Rights if impacting a natural drainage channel.	
NA	Irrigation master plan of gravity conveyances before and after development on a dedicated sheet. The irrigation master plan shall include the following text, "The Developer agrees and certifies with signature and date that the Developer: (1) understands how the existing gravity irrigation system ("system") functions on, through, or in the vicinity of the Project; (2) understands how development of the Project will affect the system and stakeholders; (3) takes full responsibility for changes to the system; (4) understands that the City assumes no responsibility or liability for changes made to the system; and (5) agrees to release, indemnify, hold harmless, and defend the City against any and all claims, actions, or lawsuits with respect to Developers' development activity or alteration of the system."	
NA	Permit from the canal company if impacting a canal.	
BVB	Construction plans signed and stamped by the responsible Engineer.	
NA	Pothole data for storm drain crossings in existing roadways.	
TBD	Necessary easement and covenant documents. <i>NO Covenants.</i>	
NA	Water Supply and Flow Analysis for buildings that are under the direction of the State Fire Marshall's Office and buildings that require sprinkling.	
NA	The general location of trees over 6" diameter, measured at 4.5' above ground. In the case of heavily wooded area, an indication of the outline of the wooded area and location of trees which are to remain.	

Note: The following is not intended to be a comprehensive list of items. The City may require more information based on site specific conditions.



Applicant Submitted	ALL SHEETS MUST CONTAIN	City Use Only
Provide initials		Accepted Date
BVB	Project Name.	
BVB	Drawing Number and title.	
BVB	"Call Before You Dig" logo.	
BVB	North Arrow and drawing scale.	
BVB	Abbreviations and Legend.	
BVB	All text, features, and linework must be of a size which is legible when printed on standard 11X17 sized paper.	
BVB	References to specific Standard Plans as applicable.	
BVB	Pre-Construction Meeting date with signature block.	
	All construction plans must say "For Construction".	
	<b>COVER SHEET</b>	
BVB	Stamped, signed and dated by a Utah –licensed Professional Engineer.	
	Project Name.	
	Sheet Index for all sheets.	
	Vicinity Map with North Arrow.	
	Data table for Overall project and for each phase that lists in Sq.ft., Acres, and percent of total of 1)Total Area, 2) Total Impervious Area, 3) Total Lot Building Area or Building Pad Area, 4)Total Landscape Area, 5) Total ROW area, 6)Total Number of Lots.	
BVB	Legend	
BVB	Contact Information for the project team and other key contacts.	
BVB	City Engineer signature block that states "approved for construction".	
BVB	Public Works Director signature block that states "approved for construction".	
BVB	City Council approval date.	
	<b>SITE PLAN</b>	
	Street Names and widths.	
BVB	Subdivision lots with lot numbers.	
BVB	Roadway centerline alignment with stationing and right-of-way widths.	
	A note stating, "A right-of-way encroachment permit must be obtained from the City of Grantsville prior to doing any work in the existing right-of-way on any state roads.	
BVB	Proposed roadways connect to adjacent development existing/approved roadways.	

	Data table (broken up by phase if applicable) with quantities of each roadway improvement. (pavement (sqft), untreated base course (sqft), granular borrow (sqft), curb, gutter (ft), sidewalk (ft), drive approach (each), ADA ramps (each), monuments (each), etc.)	
BVB	Residential and/or Commercial Driveway approaches per APWA 225 and locations.	
BVB	Fire Hydrant Locations.	
BVB	Roadway Improvements: (curb, gutter, sidewalk, drive approach, ADA ramps, monuments.)	
✓	Phasing of project, including the location of temporary turn-arounds at phase boundaries.	
BVB	Overall Site Plan uses callouts and is on 1 sheet. No matchlines (if possible).	

Applicant Submitted	EXISTING TOPOGRAPHY/DEMOLITION PLAN	City Use Only
Provide Initials		Accepted Date
SA MAP	Existing Topography.	
	All existing features in and adjacent to project.	
	Plans for removal or relocation of existing infrastructure as needed.	
	Areas classified as sensitive lands, including 100 year old flood plains, natural drainages, and slopes greater than 30%.	
	Existing easements or the encumbered areas.	
	Street Names.	

	UTILITY PLAN	
	Data table (broken up by phase if applicable) with quantities of sewer improvements totaled by type and size including pipes, structures, fittings, and materials.	
	Data table (broken up by phase if applicable) with quantities of each drinking and secondary water improvement totaled by type and size including pipes, structures, fittings, and materials.	
	A note stating, "A right-of-way encroachment permit must be obtained by Grantsville City prior to doing any work in the existing right-of-way, on any state roads.	
BVB	Survey monuments provided at all intersections, centers of cul-de-sacs and points of center line curvature where necessary to maintain line of sight	
BVB	Utility locations (i.e. manholes) don't conflict with survey monuments.	
BVB	Sanitary sewer/Storm Drain systems showing pipe alignment, sizes, manholes, and laterals.	
BVB	Sewer and storm drain systems to the next manhole beyond subdivision boundary.	
BVB	Drinking and secondary water systems showing type and size of pipes, valves (gate or butterfly), and fittings (bends, crosses, tees, reducers).	
	Locations of meters and laterals for all open space areas.	
BVB	Locations of all fire hydrants.	
BVB	Existing utilities (in gray scale) and plans for relocations as necessary.	
BVB	Points of connections to existing structures and pipe lines labeled.	
	Existing and proposed easements as required by City standards. TBD	
BVB	Locations of existing and proposed power poles.	
BVB	Locations of existing and proposed streetlights shown.	
	Street Names. PENDING COUNTY/CITY Address.	
BVB	Overall Utility Plan uses callouts and is on 1 sheet (no matchlines).	

Applicant Submitted	PLAN AND PROFILE SHEETS	City Use Only
Provide initials		Accepted Date
BUD	Vicinity Map.	
	Phase boundaries and identification of what will be completed with each phase.	
	Typical road sections per Grantsville City Standards.	
	1:30 max. horizontal scale. 1:10 max, vertical scale.	
	Label street names.	
	Vertical curves for grade changes of 1% or greater.	
	Vertical alignment of street typing into existing improvements.	
	Matching centerline crowns for lower intersecting streets.	
	Maximum 5 percent slope through intersections and 60 feet beyond.	
	Pavement section per geotech report, or not less than City standard.	
	Locations of any utility conflicts.	
	Storm drain pipe size, type, length and slope between manholes, with hydraulic grade line shown.	
	Storm drain structures with rim, invert in, and invert out elevations.	
	Minimum 15" RCP within City ROW for Storm Drain lines.	
	Catch basins provided at all intersections.	
	Sewer pipe size, type, length, and slope between manholes.	
	Minimum sewer slopes per City specifications.	
	Sewer manhole sizes with rim, invert in, and invert out elevations.	
	Location and complete details of sewage lift stations and other structures.	
	Drinking and irrigation systems with callouts for pipe size, type, and DR-18 for PVC.	
N	Locations of fire hydrants.	
	Callout locations, sizes, types of all fittings (tee, cross, 45 bend, reducers, etc.)	
	Air vacuum relief valves and blow off valves in both plan and profile views.	
	Locations of waterline looping due to utility conflicts.	



Applicant Submitted	GRADING AND DRAINAGE PLAN	City Use Only
Provide initials		Accepted Date
BVB	Stamped and certified by a Utah-licensed Professional Engineer, with the following language: "I hereby certify that this design for the onsite drainage of this development was prepared by me (or under my direct supervision) in accordance with the provisions of Grantsville City's Standard Specifications and Drawings, and was designated to comply with the provisions thereof. I understand that the City assumes no responsibility or liability whatsoever for this design."	
	Data table, broken up by phase if applicable, with cut/fill (cubic yards) quantities and import/export (cubic yards) quantities.	
	Date table (broken up by phase, if applicable, with quantities of each storm drain improvement totaled by type and size including pipes and structures.	
BVB	A conspicuous note stating, "Accepted Construction Drawing OR a Grading Permit must be obtained from Grantsville City prior to disturbing any vegetation or moving any soil. Contact the City Engineer at 435-884-4661."	
	A note stating, "A right-of-way encroachment permit must be obtained from Grantsville City prior to doing any work in the existing right-of-way, or on any state roads."	
BVB	Existing contour lines (in gray scale) at one-foot intervals.	
	Proposed contour lines at one-foot intervals.	
	Benchmark elevation relative to an identified section corner.	
	Storm drain system showing pipe, sizes, manholes, combination boxes and catch basins, with all elevations (rim and invert) and structure sizes, with hydraulic grade line shown on plan and profile sheet.	
	Detail sheet showing detention pond(s) (including cross-sections), sized orifice design, spillway, and overland 100 year flood route called out.	
	Lot grading arrows.	
	Spot elevations where necessary including curb returns.	
	Locations of any utility conflicts.	
	2% maximum slope in all directions in ADA parking areas.	
	ADA accessible route from commercial building to the public ROW.	
	Minimum 15" pipe for all public drainage systems (RCP under pavement).	
	Catch basins provided at all intersections. Locate catch basins on lot lines where possible.	
	Separate detail sheets showing detention ponds (including cross-sections), sized orifice design, spillways, etc.	
	Cul-de-sacs graded to drain away from the bulb with max 4% in any direction.	
	2% maximum longitudinal slope along curb returns in front of ADA ramp.	
	Location and type (details) of storm water treatment systems. In details provide product information showing the treatment device complies with the City's treatment standards.	
	Callout points of connection to existing system.	
	Slope arrows and labels along gutters, swales, cut/fill slopes, parking areas, and lots.	
	Access road to all structures outside of the ROW (12' min width, 15% max slope).	
	Storm drain line extended to property lines terminated with a manhole.	
	100 year flood overland route clearly shown terminating at the storm water facility (usually the street).	
	Overland runoff route for stormwater at all sag points.	
	Minimum slopes on storm drains per HEC 22.	
	Street Names.	
	Overall Grading & Drainage Plan uses callouts and is on 1 sheet (no matchlines).	

Applicant Submitted	STRIPING AND SIGNAGE PLAN	City Use Only
Provide initials		Accepted Date
	Street Names. <i>NEED ADDRESSES</i>	
<i>BVB</i>	City Standard details for signage and striping.	
<i>[Signature]</i>	Callout type, size, and station/offset of each sign with reference to the corresponding MUTCD sign code.	
	Callout station/offset of all pavement markings and messages at (begin, end PC, PT, and radius points).	
	Call out pavement marking type and size [4" solid white line, 4" broken white line, 4" dotted white line (for within intersections only), 4" dotted yellow line (for within intersections only), 8" dotted white line (for land drops), 8" solid white line, 4" double solid yellow line, 4" solid and broken yellow line, 4" solid yellow line].	
	Call out pavement marking taper rates relative to roadway alignment (i.e. 15:0:1 taper rate).	
	Taper rates shall be calculated by following the latest MUTCD Section.	
	Traffic calming on street segments longer than 1000' without a minimum 45 degree turn.	
<i>[Signature]</i>	Phase boundaries and identification of what will be completed with each phase.	
<i>NORIE</i>	LANDSCAPING AND IRRIGATION PLAN	
	Detailed landscaping plans with designations for all areas and what surface treatments they shall receive.	
	Locations and details of all planting (if applicable).	
	Irrigation design layout and details.	
	Point of connection the same as in Civil plans.	
	DETAIL SHEETS	
<i>BVB</i>	All applicable Sewer City standard details.	
<i>[Signature]</i>	All applicable Drinking Water City standard details.	
	All applicable Irrigation City standard details.	
	All applicable Storm Drain City standard details.	
	All applicable street light City standard details.	
	Project-specific details as applicable.	

Proposed water use by Lot

Harvest Meadows Phase 1 Approx. 948 South Quirk St.			Indoor Use	Outdoor Use
Lot Number	Lot size (sq ft)	Lot Size (Acre)	(0.45 Ac-ft/ residence)	1 GIC share Lots < 0.64 Ac
<u>Phase 1</u>				
1	23,048	0.53	0.45 Ac-ft	1 shares
2	23,176	0.53	0.45 Ac-ft	1 shares
3	23,108	0.53	0.45 Ac-ft	1 shares
4	23,040	0.53	0.45 Ac-ft	1 shares
5	22,841	0.52	0.45 Ac-ft	1 shares
6	22,847	0.52	0.45 Ac-ft	1 shares
7	23,046	0.53	0.45 Ac-ft	1 shares
8	23,112	0.53	0.45 Ac-ft	1 shares
9	23,117	0.53	0.45 Ac-ft	1 shares
10	23,048	0.53	0.45 Ac-ft	1 shares
Phase 1 Total	230,383	5.29	4.50 Ac-ft	10.00 shares
Phase 1 Average	23,038			

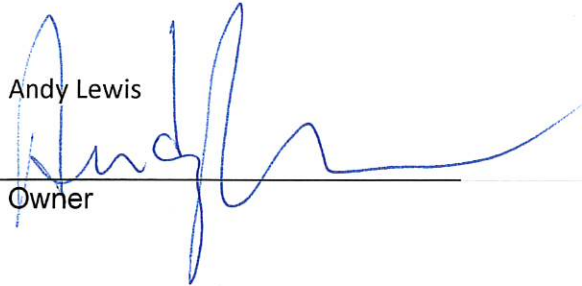


Subdivision Method of Bonding Statement

For the proposed Harvest Meadows Subdivision Phase 1 the method of bonding is to install the approved infrastructure improvements and to provide a 1 year Maintenance Guarantee per 21.7.3 of the Grantsville City Land Use Ordinances.

Andy Lewis

Owner

A handwritten signature in blue ink, appearing to read 'Andy Lewis', is written over a horizontal line. The signature is stylized with a large initial 'A' and a long, sweeping tail that extends to the right.

3/25/2021

**CIVIL PROJ-EX****ENGINEERS \* PLANNERS**

PROJECT UNDERSTANDING

**PROJECT EXECUTION**

PROJECT SUCCESS

**DRAINAGE CALCULATION SHEET**

**PROJECT NAME:** Harvest Meadows Subdivision  
**PROJECT NO.** 19-45020

**PREPARED FOR:** Grantsville City  
**PREPARED BY:** Barry Bunderson, PE  
**DATE:** 3/25/2021

**NOTES:** Assume AMC type II storm and type C soil group. Soil: Medburn fine sandy loam, saline, 2 to 4 percent slopes. Retention Volumes per NRCS (SCS) rainfall-runoff relationship. Rainfall data from NOAA Atlas 14, Volume 1, Version 5, Latitude: 40.571185°, Longitude: -112.460471°. Runoff curve numbers (CN) per TR-55 Table 2-2 (a to c).

Retention Volumes by SCS Method					
	Area (sq.ft.)	Pre development run off "CN"	Post development run off "CN"	Pre development Storage "S"	Post development Storage "S"
Harvest Meadows Sub	2766002	71	81	4.08	2.35
24 Hour Rain fall depths					
	2yr	10 yr	25 yr	50 yr	100 yr
	1.21	1.65	1.91	2.11	2.31
Pre Development Runoff Volumes Cu. Ft.					
	2yr	10 yr	25 yr	50 yr	100 yr
Harvest Meadows Sub	7955	32532	53194	71671	92130
Post Development Runoff Volumes Cu. Ft.					
	2yr	10 yr	25 yr	50 yr	100 yr
Harvest Meadows Sub	40990	91143	126379	155675	186577
Required Retention Volumes - Cu. Ft.					
	2yr	10 yr	25 yr	50 yr	100 yr
Harvest Meadows Sub	33035	58611	73185	84004	94448
Total volume	33035	58611	73185	84004	94448

Computed By bvB  
Checked By \_\_\_\_\_  
Page 1 of 1

Route  
Section  
County

TOELE

8/2/2021 3:25 PM





NOAA Atlas 14, Volume 1, Version 5  
Location name: Grantsville, Utah, USA\*  
Latitude: 40.5712°, Longitude: -112.459°  
Elevation: 4468.66 ft\*\*  
\* source: ESRI Maps  
\*\* source: USGS



### POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

### PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.44 (1.26-1.63)	1.82 (1.63-2.09)	2.53 (2.24-2.88)	3.17 (2.78-3.59)	4.15 (3.58-4.74)	5.03 (4.22-5.78)	6.07 (4.98-7.07)	7.26 (5.76-8.59)	9.14 (6.91-11.0)	10.8 (7.88-13.3)
10-min	1.09 (0.960-1.24)	1.39 (1.24-1.59)	1.92 (1.70-2.19)	2.41 (2.12-2.73)	3.16 (2.72-3.61)	3.83 (3.22-4.40)	4.62 (3.79-5.38)	5.53 (4.38-6.54)	6.95 (5.26-8.38)	8.25 (6.00-10.1)
15-min	0.904 (0.796-1.02)	1.15 (1.02-1.32)	1.59 (1.41-1.81)	1.99 (1.75-2.26)	2.61 (2.25-2.98)	3.16 (2.66-3.64)	3.82 (3.13-4.44)	4.57 (3.62-5.40)	5.75 (4.34-6.92)	6.82 (4.96-8.36)
30-min	0.608 (0.534-0.690)	0.774 (0.690-0.886)	1.07 (0.950-1.22)	1.34 (1.18-1.52)	1.76 (1.52-2.00)	2.13 (1.79-2.45)	2.57 (2.11-2.99)	3.08 (2.44-3.64)	3.87 (2.92-4.66)	4.59 (3.34-5.63)
60-min	0.376 (0.331-0.427)	0.479 (0.427-0.548)	0.662 (0.588-0.754)	0.829 (0.729-0.941)	1.09 (0.938-1.24)	1.32 (1.11-1.52)	1.59 (1.30-1.85)	1.90 (1.51-2.25)	2.40 (1.81-2.89)	2.84 (2.07-3.48)
2-hr	0.225 (0.205-0.251)	0.285 (0.258-0.320)	0.375 (0.341-0.420)	0.456 (0.410-0.510)	0.588 (0.517-0.658)	0.706 (0.606-0.796)	0.840 (0.702-0.960)	0.998 (0.808-1.16)	1.25 (0.959-1.49)	1.47 (1.09-1.79)
3-hr	0.171 (0.158-0.189)	0.212 (0.194-0.235)	0.271 (0.250-0.299)	0.322 (0.293-0.355)	0.405 (0.361-0.445)	0.476 (0.416-0.536)	0.563 (0.481-0.646)	0.666 (0.554-0.781)	0.836 (0.662-1.00)	0.991 (0.751-1.20)
6-hr	0.108 (0.100-0.117)	0.134 (0.124-0.144)	0.163 (0.152-0.176)	0.190 (0.176-0.205)	0.229 (0.209-0.246)	0.260 (0.234-0.282)	0.296 (0.263-0.325)	0.344 (0.298-0.395)	0.426 (0.358-0.507)	0.499 (0.408-0.610)
12-hr	0.067 (0.063-0.072)	0.082 (0.077-0.089)	0.100 (0.094-0.108)	0.114 (0.106-0.123)	0.134 (0.124-0.146)	0.150 (0.138-0.164)	0.167 (0.151-0.184)	0.186 (0.165-0.207)	0.222 (0.192-0.253)	0.253 (0.214-0.306)
24-hr	0.041 (0.038-0.044)	0.051 (0.047-0.055)	0.061 (0.056-0.066)	0.069 (0.064-0.075)	0.080 (0.074-0.087)	0.088 (0.081-0.096)	0.097 (0.089-0.105)	0.105 (0.096-0.114)	0.117 (0.106-0.128)	0.128 (0.112-0.155)
2-day	0.022 (0.021-0.024)	0.027 (0.025-0.029)	0.033 (0.030-0.035)	0.037 (0.034-0.040)	0.043 (0.040-0.046)	0.047 (0.044-0.051)	0.052 (0.048-0.056)	0.057 (0.052-0.061)	0.063 (0.057-0.068)	0.068 (0.061-0.078)
3-day	0.016 (0.015-0.017)	0.019 (0.018-0.021)	0.023 (0.022-0.025)	0.026 (0.025-0.028)	0.031 (0.029-0.033)	0.034 (0.032-0.037)	0.038 (0.035-0.041)	0.041 (0.038-0.045)	0.046 (0.042-0.050)	0.050 (0.045-0.056)
4-day	0.013 (0.012-0.014)	0.015 (0.014-0.017)	0.018 (0.017-0.020)	0.021 (0.020-0.023)	0.025 (0.023-0.027)	0.028 (0.025-0.030)	0.030 (0.028-0.033)	0.033 (0.031-0.036)	0.037 (0.034-0.041)	0.041 (0.036-0.044)
7-day	0.008 (0.008-0.009)	0.010 (0.009-0.011)	0.012 (0.011-0.013)	0.014 (0.013-0.015)	0.016 (0.015-0.017)	0.018 (0.016-0.019)	0.019 (0.018-0.021)	0.021 (0.019-0.022)	0.023 (0.021-0.025)	0.025 (0.022-0.027)
10-day	0.006 (0.006-0.007)	0.008 (0.007-0.008)	0.009 (0.009-0.010)	0.011 (0.010-0.011)	0.012 (0.011-0.013)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.015 (0.014-0.017)	0.017 (0.016-0.018)	0.018 (0.016-0.019)
20-day	0.004 (0.004-0.004)	0.005 (0.005-0.005)	0.006 (0.006-0.006)	0.007 (0.006-0.007)	0.008 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.008-0.009)	0.009 (0.009-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.011)
30-day	0.003 (0.003-0.003)	0.004 (0.004-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.006)	0.007 (0.006-0.007)	0.007 (0.007-0.008)	0.008 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.008-0.009)
45-day	0.003 (0.002-0.003)	0.003 (0.003-0.003)	0.004 (0.004-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.005)	0.005 (0.005-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.006)	0.006 (0.006-0.007)	0.006 (0.006-0.007)
60-day	0.002 (0.002-0.003)	0.003 (0.003-0.003)	0.003 (0.003-0.004)	0.004 (0.004-0.004)	0.004 (0.004-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.005)	0.005 (0.005-0.005)	0.005 (0.005-0.006)	0.006 (0.005-0.006)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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PF graphical





NOAA Atlas 14, Volume 1, Version 5  
Location name: Grantsville, Utah, USA\*  
Latitude: 40.5712°, Longitude: -112.459°  
Elevation: 4468.66 ft\*\*  
\* source: ESRI Maps  
\*\* source: USGS



### POINT PRECIPITATION FREQUENCY ESTIMATES

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NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

### PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.120 (0.105-0.136)	0.152 (0.136-0.174)	0.211 (0.187-0.240)	0.264 (0.232-0.299)	0.346 (0.298-0.395)	0.419 (0.352-0.482)	0.506 (0.415-0.589)	0.605 (0.480-0.716)	0.762 (0.576-0.917)	0.904 (0.657-1.11)
10-min	0.182 (0.160-0.207)	0.232 (0.207-0.265)	0.320 (0.284-0.365)	0.401 (0.353-0.455)	0.527 (0.454-0.601)	0.638 (0.536-0.733)	0.770 (0.631-0.896)	0.922 (0.730-1.09)	1.16 (0.876-1.40)	1.38 (1.00-1.69)
15-min	0.226 (0.199-0.256)	0.287 (0.256-0.329)	0.397 (0.352-0.452)	0.497 (0.438-0.565)	0.653 (0.563-0.745)	0.791 (0.665-0.909)	0.955 (0.783-1.11)	1.14 (0.905-1.35)	1.44 (1.09-1.73)	1.71 (1.24-2.09)
30-min	0.304 (0.267-0.345)	0.387 (0.345-0.443)	0.535 (0.475-0.609)	0.670 (0.589-0.760)	0.879 (0.758-1.00)	1.07 (0.895-1.22)	1.29 (1.05-1.50)	1.54 (1.22-1.82)	1.94 (1.46-2.33)	2.30 (1.67-2.82)
60-min	0.376 (0.331-0.427)	0.479 (0.427-0.548)	0.662 (0.588-0.754)	0.829 (0.729-0.941)	1.09 (0.938-1.24)	1.32 (1.11-1.52)	1.59 (1.30-1.85)	1.90 (1.51-2.25)	2.40 (1.81-2.89)	2.84 (2.07-3.48)
2-hr	0.450 (0.410-0.502)	0.570 (0.517-0.639)	0.750 (0.682-0.839)	0.913 (0.821-1.02)	1.18 (1.03-1.32)	1.41 (1.21-1.59)	1.68 (1.40-1.92)	2.00 (1.62-2.32)	2.50 (1.92-2.97)	2.95 (2.17-3.58)
3-hr	0.514 (0.474-0.567)	0.636 (0.584-0.705)	0.815 (0.750-0.899)	0.968 (0.881-1.07)	1.22 (1.09-1.34)	1.43 (1.25-1.61)	1.69 (1.44-1.94)	2.00 (1.67-2.35)	2.51 (1.99-3.00)	2.98 (2.26-3.62)
6-hr	0.646 (0.601-0.699)	0.801 (0.745-0.862)	0.978 (0.911-1.05)	1.14 (1.06-1.23)	1.37 (1.25-1.48)	1.56 (1.40-1.69)	1.77 (1.57-1.95)	2.06 (1.78-2.37)	2.55 (2.14-3.03)	2.99 (2.44-3.65)
12-hr	0.808 (0.757-0.869)	0.992 (0.928-1.07)	1.20 (1.13-1.30)	1.38 (1.28-1.48)	1.62 (1.50-1.75)	1.81 (1.66-1.98)	2.02 (1.82-2.22)	2.24 (1.98-2.49)	2.68 (2.32-3.04)	3.04 (2.58-3.69)
24-hr	0.988 (0.916-1.07)	1.22 (1.13-1.31)	1.46 (1.36-1.58)	1.66 (1.54-1.79)	1.92 (1.77-2.08)	2.12 (1.95-2.30)	2.33 (2.14-2.51)	2.53 (2.31-2.74)	2.80 (2.53-3.07)	3.07 (2.70-3.73)
2-day	1.06 (0.986-1.15)	1.30 (1.21-1.41)	1.56 (1.45-1.68)	1.77 (1.65-1.91)	2.06 (1.91-2.22)	2.28 (2.11-2.46)	2.50 (2.31-2.70)	2.73 (2.50-2.95)	3.02 (2.75-3.28)	3.25 (2.94-3.76)
3-day	1.13 (1.05-1.23)	1.39 (1.29-1.50)	1.67 (1.55-1.80)	1.90 (1.77-2.04)	2.22 (2.06-2.38)	2.46 (2.27-2.65)	2.71 (2.50-2.92)	2.97 (2.71-3.20)	3.31 (3.00-3.59)	3.57 (3.22-4.00)
4-day	1.20 (1.12-1.30)	1.48 (1.38-1.60)	1.77 (1.65-1.91)	2.02 (1.89-2.18)	2.37 (2.20-2.55)	2.64 (2.44-2.84)	2.92 (2.69-3.15)	3.21 (2.93-3.46)	3.60 (3.25-3.90)	3.90 (3.50-4.25)
7-day	1.38 (1.29-1.49)	1.70 (1.58-1.83)	2.03 (1.89-2.19)	2.30 (2.15-2.48)	2.67 (2.48-2.87)	2.95 (2.73-3.16)	3.23 (2.98-3.47)	3.51 (3.22-3.77)	3.87 (3.53-4.18)	4.14 (3.76-4.48)
10-day	1.53 (1.43-1.65)	1.88 (1.75-2.02)	2.23 (2.09-2.39)	2.52 (2.36-2.69)	2.90 (2.71-3.09)	3.17 (2.96-3.39)	3.45 (3.21-3.68)	3.72 (3.45-3.98)	4.05 (3.74-4.35)	4.30 (3.95-4.62)
20-day	1.95 (1.82-2.09)	2.39 (2.23-2.56)	2.84 (2.66-3.03)	3.18 (2.98-3.39)	3.61 (3.38-3.84)	3.92 (3.67-4.17)	4.22 (3.94-4.49)	4.49 (4.19-4.80)	4.83 (4.49-5.16)	5.06 (4.70-5.42)
30-day	2.33 (2.18-2.48)	2.85 (2.67-3.04)	3.39 (3.18-3.60)	3.80 (3.57-4.04)	4.34 (4.07-4.60)	4.73 (4.43-5.02)	5.12 (4.77-5.44)	5.49 (5.10-5.84)	5.95 (5.50-6.35)	6.27 (5.78-6.71)
45-day	2.86 (2.68-3.05)	3.50 (3.29-3.74)	4.11 (3.87-4.38)	4.58 (4.31-4.86)	5.16 (4.87-5.48)	5.58 (5.26-5.91)	5.96 (5.62-6.32)	6.30 (5.94-6.68)	6.69 (6.31-7.10)	6.93 (6.54-7.36)
60-day	3.39 (3.18-3.62)	4.14 (3.89-4.43)	4.87 (4.58-5.19)	5.42 (5.09-5.76)	6.10 (5.73-6.47)	6.58 (6.17-6.98)	7.02 (6.58-7.45)	7.42 (6.94-7.88)	7.88 (7.36-8.38)	8.15 (7.63-8.69)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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