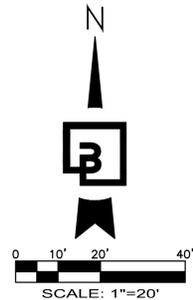
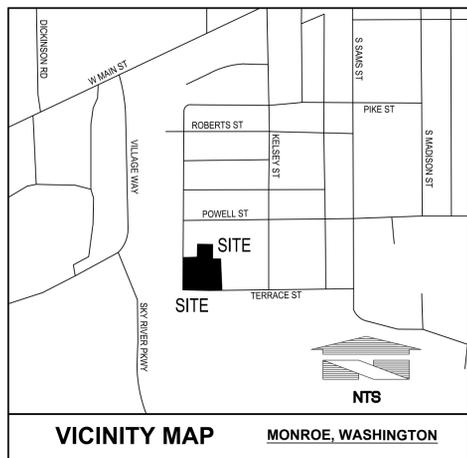


**PRELIMINARY GRADING AND DRAINAGE PLAN
FOR
MILT SMITH TOWNHOMES
PORTION OF SW 1/4 OF THE SE 1/4 OF SECTION 1, TOWNSHIP 27 N, RANGE 06 E, W.M.
CITY OF MONROE, SNOHOMISH COUNTY, WASHINGTON**



DATUM
VERTICAL CONTROL FOR THIS SURVEY IS NAVD88 AS ESTABLISHED BY GPS OBSERVATION UTILIZING THE WASHINGTON STATE REFERENCE NETWORK WITH NGS GEOID 2012B LOADED.

LEGAL DESCRIPTION

PARCEL NO. 005583-009-004-00
LOTS 5 TO 9, BLOCK 3, KELSEY'S ADDITION TO MONROE, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 8 OF PLATS, PAGE 72, RECORDS OF SNOHOMISH COUNTY.
TOGETHER WITH THAT PORTION OF VACATED TERRACE STREET AS WOULD ATTACH BY OPERATION OF LAW AS VACATED UNDER CITY OF MONROE ORDINANCE NO. 253.
TOGETHER WITH THAT PORTION OF VACATED PARK STREET AS WOULD ATTACH BY OPERATION OF LAW AS VACATED UNDER CITY OF MONROE ORDINANCE NO. 253.
TOGETHER WITH THAT PORTION OF VACATED ALLEY IN SAID BLOCK AS WOULD ATTACH BY OPERATION OF LAW AS VACATED UNDER CITY OF MONROE ORDINANCE NO. 253.
SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON

SITE ADDRESS

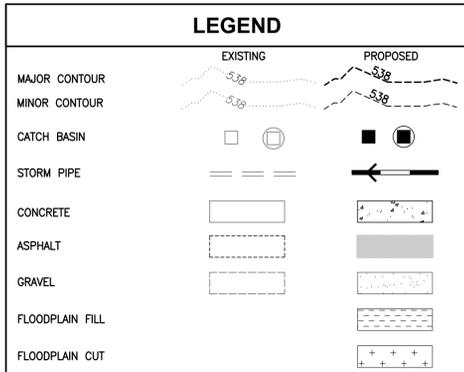
523 PARK ST MONROE, WA 98272

COMPENSATORY STORAGE VOLUME

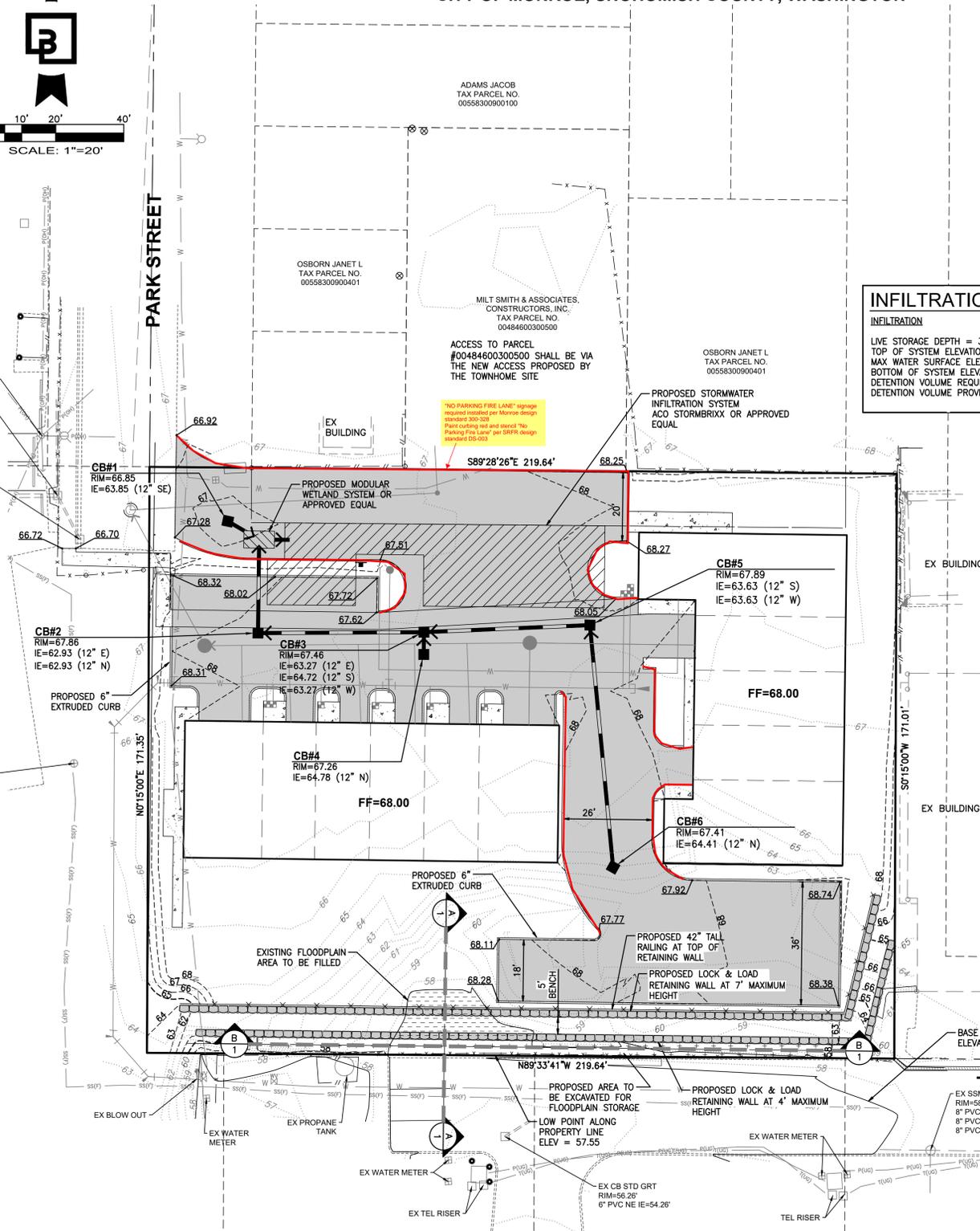
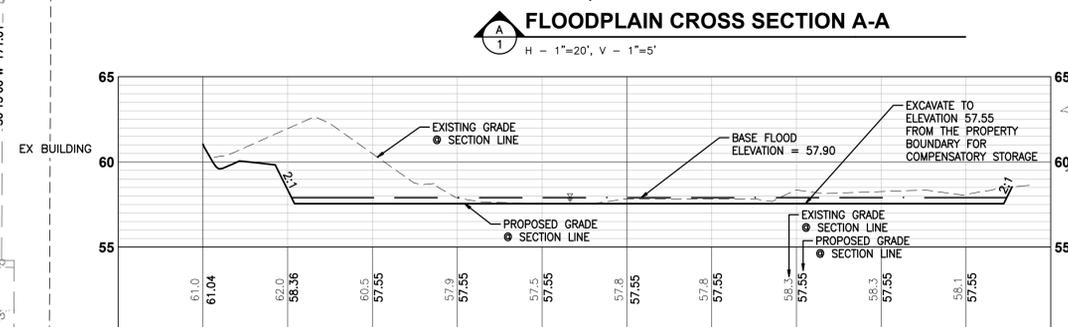
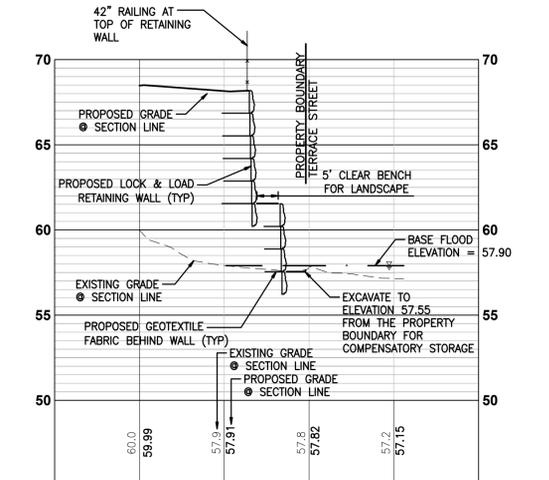
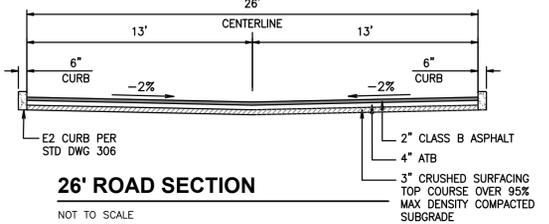
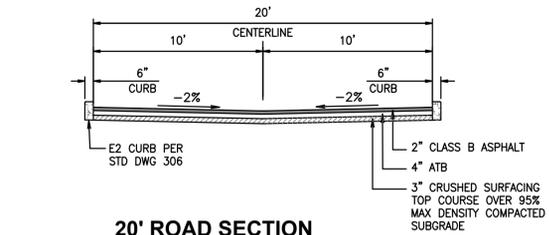
THE PROPOSED GRADING RESULTS IN THE PARTIAL FILLING OF THE EXISTING 100-YEAR FLOODPLAIN. THE BASE FLOOD ELEVATION HAS BEEN ESTABLISHED AT 57.90. THE EXCAVATION SHOWN ON THIS SHEET WILL COMPENSATE FOR THAT FILLED VOLUME. THIS TABLE SHOWS THE FILLED VOLUME AND EXCAVATED VOLUME FOR CONFIRMATION OF ZERO NET LOSS OF STORAGE VOLUME AT SAME ELEVATION IN 0.1 FOOT INCREMENTS.

| EXISTING STORAGE VOLUME ELEV RANGE (FT) | CUT VOLUME (CY) | DEVELOPED STORAGE VOLUME ELEV RANGE (FT) | CUT VOLUME (CY) |
|---|-----------------|--|-----------------|
| 57.50-57.60 | 0.37 | 57.50-57.60 | 1.23 |
| 57.60-57.70 | 1.09 | 57.60-57.70 | 2.50 |
| 57.70-57.80 | 1.80 | 57.70-57.80 | 2.57 |
| 57.80-57.90 | 2.45 | 57.80-57.90 | 2.61 |

| STORAGE VOLUME BENEATH DATUM (CY) | STORAGE VOLUME BENEATH DATUM (CY) |
|-----------------------------------|-----------------------------------|
| 5.71 | 8.91 |



INFILTRATION STORAGE DATA
INFILTRATION
LIVE STORAGE DEPTH = 3.5 FEET
TOP OF SYSTEM ELEVATION = 65.50
MAX WATER SURFACE ELEVATION = 65.00
BOTTOM OF SYSTEM ELEVATION = 61.50
DETENTION VOLUME REQUIRED = 6,720 CF
DETENTION VOLUME PROVIDED = 7,392 CF



SHEET INDEX:
1 OF 2 PRELIMINARY GRADING AND DRAINAGE PLAN
2 OF 2 PRELIMINARY SEWER AND WATER PLANS

ENGINEER/SURVEYOR

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVENUE SOUTH
KENT, WA 98032
PHONE: (425) 251-6222
FAX: (425) 251-8782
CONTACTS: BARRY TALKINGTON P.E./MATTHEW ABBAS, P.L.S.

GEOTECH

GEOTECH CONSULTANTS, INC.
2401 - 10TH AVE. E
SEATTLE, WA 98102
PHONE: (425) 260-1116
CONTACT: MARC MCGINNIS

SERVICES

WATER CITY OF MONROE
SEWER CITY OF MONROE
PUBLIC SCHOOLS MONROE SCHOOL DISTRICT NO.103
FIRE PROTECTION SNOHOMISH COUNTY FIRE DISTRICT #7
ELECTRICITY SNOHOMISH COUNTY P.U.D. #1
NATURAL GAS PUGET SOUND ENERGY SERVICES

OWNER/APPLICANT

MILT SMITH & ASSOCIATES, CONSTRUCTORS, INC.
500 108TH AVE NE, #2400
BELLEVUE, WA 98004
PHONE: (425) 450-1106
CONTACT: JASON SMITH

ARCHITECT/PLANNER

BAYLIS ARCHITECTS
10801 MAIN STREET #110
BELLEVUE, WA 98004
PHONE: (425) 679-5240
CONTACT: ANN WILLIAMSON

Revision

| No. | Date | By | Clkd. | Appr. | TRA | ITRA | TRA | TRA | TRA | TRA | TRA |
|-----|----------|----|-------|-------|-----|------|-----|-----|-----|-----|-----|
| 1 | 19/13/23 | | | | | | | | | | |

TITLE:
PRELIMINARY GRADING AND DRAINAGE PLAN
FOR
MILT SMITH TOWNHOMES

For:
MILT SMITH & ASSOCIATES,
CONSTRUCTORS, INC
500 108TH AVE NE, #2400
BELLEVUE, WA 98004
JASON SMITH (425) 450-1106



Scale:

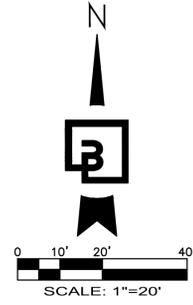
| Designed | TRA | TRA | TRA | TRA | TRA | TRA | TRA |
|----------|---------|-----|-----|-----|-----|-----|-----|
| Drawn | TRA | TRA | TRA | TRA | TRA | TRA | TRA |
| Checked | TRA | TRA | TRA | TRA | TRA | TRA | TRA |
| Approved | BUT | BUT | BUT | BUT | BUT | BUT | BUT |
| Date | 9/14/23 | | | | | | |

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

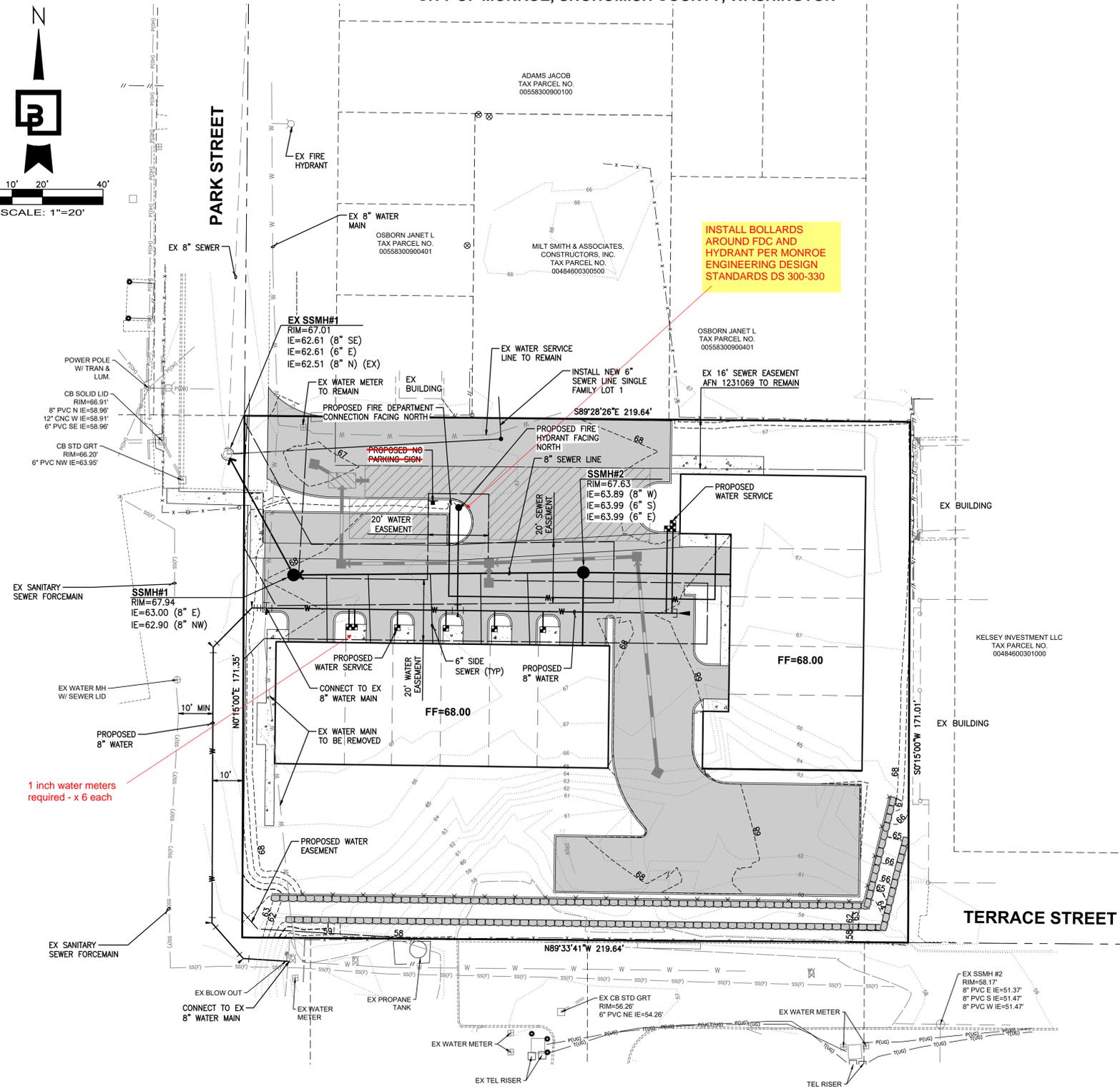


Job Number
22104
Sheet
1 of **2**

PRELIMINARY SEWER AND WATER PLANS
FOR
MILT SMITH TOWNHOMES
PORTION OF SW 1/4 OF THE SE 1/4 OF SECTION 1, TOWNSHIP 27 N, RANGE 06 E, W.M.
CITY OF MONROE, SNOHOMISH COUNTY, WASHINGTON



| LEGEND | | |
|---------------|----------|--|
| EXISTING | PROPOSED | |
| MAJOR CONTOUR | | |
| MINOR CONTOUR | | |
| CATCH BASIN | | |
| STORM PIPE | | |
| WATER | | |
| SEWER | | |
| CONCRETE | | |
| ASPHALT | | |
| GRAVEL | | |



INSTALL BOLLARDS AROUND FDC AND HYDRANT PER MONROE ENGINEERING DESIGN STANDARDS DS 300-330

1 inch water meters required - x 6 each

| No. | Date | By | Clk. | Appr. | Revision |
|-----|---------|-----|------|-------|---------------------------|
| 1 | 9/13/23 | TRA | TRA | BUT | REVISED PER CITY COMMENTS |

Title: **PRELIMINARY SEWER AND WATER PLANS FOR MILT SMITH TOWNHOMES**

For: **MILT SMITH & ASSOCIATES, CONSTRUCTORS, INC**
500 108TH AVE NE, #2400
BELLEVUE, WA 98004
JASON SMITH (425) 450-1106



| | | |
|----------|------------|----------|
| Scale: | Horizontal | Vertical |
| | 1"=20' | N/A |
| Designed | TRA | |
| Drawn | TRA | |
| Checked | TRA | |
| Approved | BUT | |
| Date | 9/14/23 | |

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com



FIRE FLOW TEST REPORT

Test Date:

Location:

Observation Hydrant Pressures

| | | |
|-----------------|----|-----|
| Static (before) | 72 | PSI |
| During | 58 | PSI |
| Static (after) | 72 | PSI |

Number of hydrants flowed in test:

| Flow Hydrant(s) | Outlet | Coef. | Pressure (PSI) | Flow | Hydrant Notes |
|-----------------|--------|-------|----------------|----------|---------------|
| Hydrant 1 | 2.5 | 0.9 | 55 | 1245 GPM | |
| Hydrant 2 | 2.5 | 0.9 | 45 | 1126 GPM | |
| | | | | 0 | |
| | | | | 0 | |
| Total | | | | 2371 GPM | |

Desired Residual Pressure
20 PSI

Flow available at desired residual Pressure
4816 GPM

Prepared by: Scott B with Josh, Jose, and Jake

Date: 12/8/2022

Qr flow available at desired residual pressure
3386 Qf flow during test
60 hr pressure drop to desired residual pressure
33 hf pressure drop during test

Formula to calculate discharge at specified residual pressure.
(hr and hf are raised to the power of 0.54)

$$Q_r = Q_f \times \frac{h_r^{0.54}}{h_f^{0.54}}$$

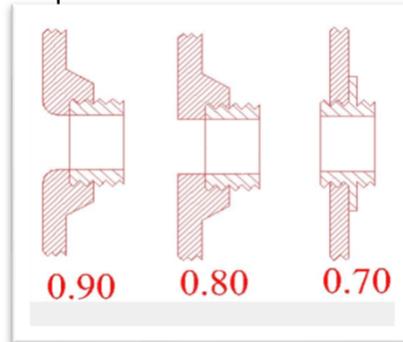
$$Q_r = 4676.179$$

2-1/2" Fitting

| Coefficient | Formula |
|-------------|-------------------|
| 0.9 | $Q=167.79p^{1/2}$ |
| 0.8 | $Q=149.15p^{1/2}$ |
| 0.7 | $Q=130.51p^{1/2}$ |

Pressure (p)

| Coefficient | 2.5" Flow GPM |
|-------------|--------------------|
| 0.9 | 530.5985686 |
| 0.8 | 471.653713 |
| 0.7 | 412.7088574 |



4" Fitting

| Coefficient | Formula |
|-------------|-------------------|
| 0.9 | $Q=429.55p^{1/2}$ |
| 0.8 | $Q=381.82p^{1/2}$ |
| 0.7 | $Q=334.10p^{1/2}$ |

Pressure (p)

| Coefficient | 4" Flow GPM |
|-------------|--------------------|
| 0.9 | 1358.356369 |
| 0.8 | 1207.420856 |
| 0.7 | 1056.516966 |