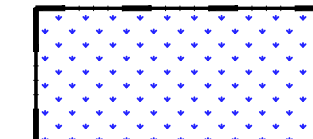

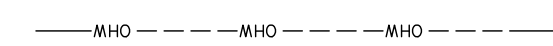


WETLAND LEGEND

-  EXISTING WETLAND
-  DITCH
-  STREAM

**Attachment F
Wetlands / Buffers / Mitigation**



220 West Champion Street, Suite 200
Bellingham, WA 98225
t: 360.650.1428
f: 360.650.1401

REV.	DATE	DESCRIPTION

CLIENT: **QUEEN MOUNTAIN HOMES LLC**
4638 CELIA WAY UNIT 202
BELLINGHAM, WA, 98226
CALL BEFORE YOU DIG
FOR BURIED UTILITY LOCATIONS
1-800-424-5555

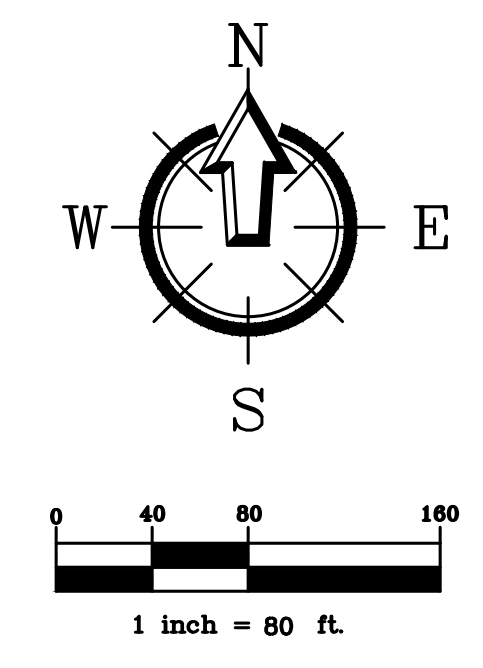
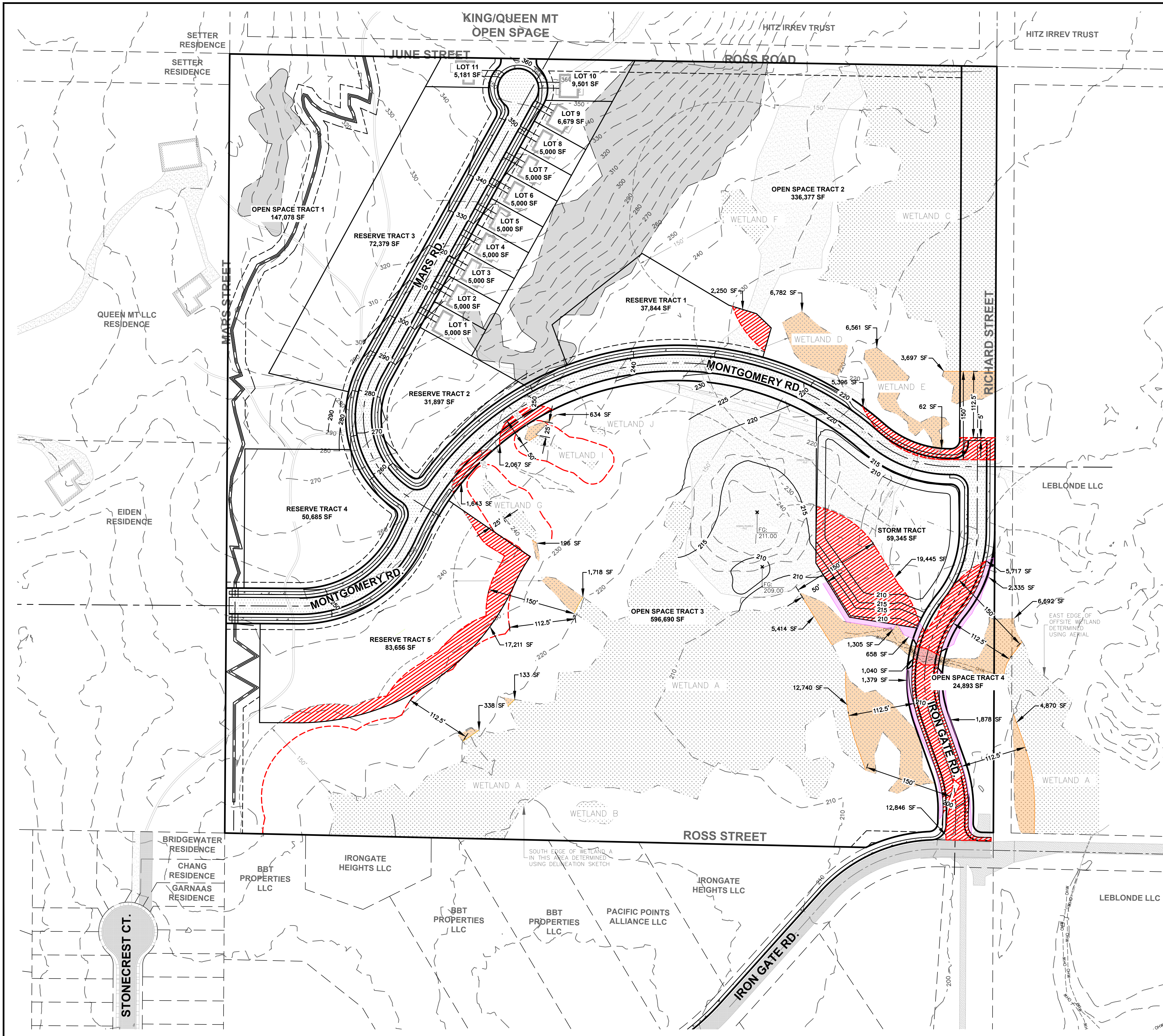
PROJECT LOCATION: **PLAT OF QUEEN MOUNTAIN**
4175 IRONGATE ROAD
BELLINGHAM, WA 98226
DRAWING #: 18271SP4.DWG
DESIGNED BY: NSP
DRAWN BY: NSP
CHECKED BY: HAF

SHEET CONTENTS: **EXISTING WETLANDS**



JOB #: 18271
DATE: 8-25-2023

SHEET: **W1**



WETLAND LEGEND

- WETLAND DIRECT IMPACT
1,102 SF
- WETLAND INDIRECT IMPACT
49,775 SF
- BUFFER DIRECT IMPACT
66,575 SF
- TEMPORARY IMPACT
7,555 SF

**Attachment F
Wetlands / Mitigation**



220 West Champion Street, Suite 200
Bellingham, WA 98225
t: 360.650.1498
f: 360.650.1401

REV.	DATE	DESCRIPTION

CLIENT: **QUEEN MOUNTAIN HOMES LLC**
4638 CELIA WAY UNIT 202
BELLINGHAM, WA, 98226
CALL BEFORE YOU DIG
FOR BURIED UTILITY LOCATIONS
1-800-424-5555

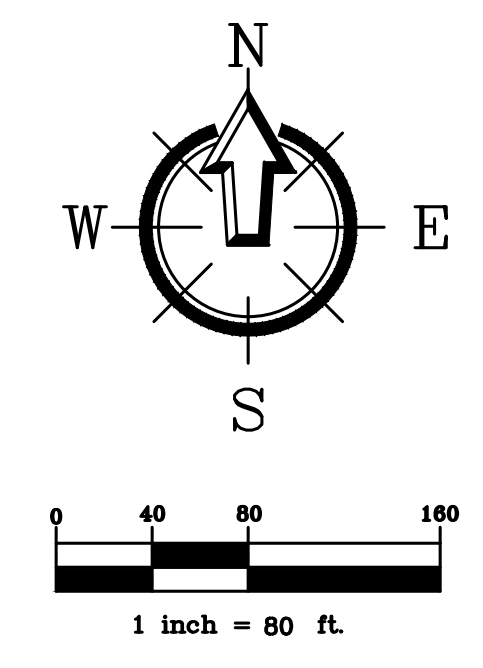
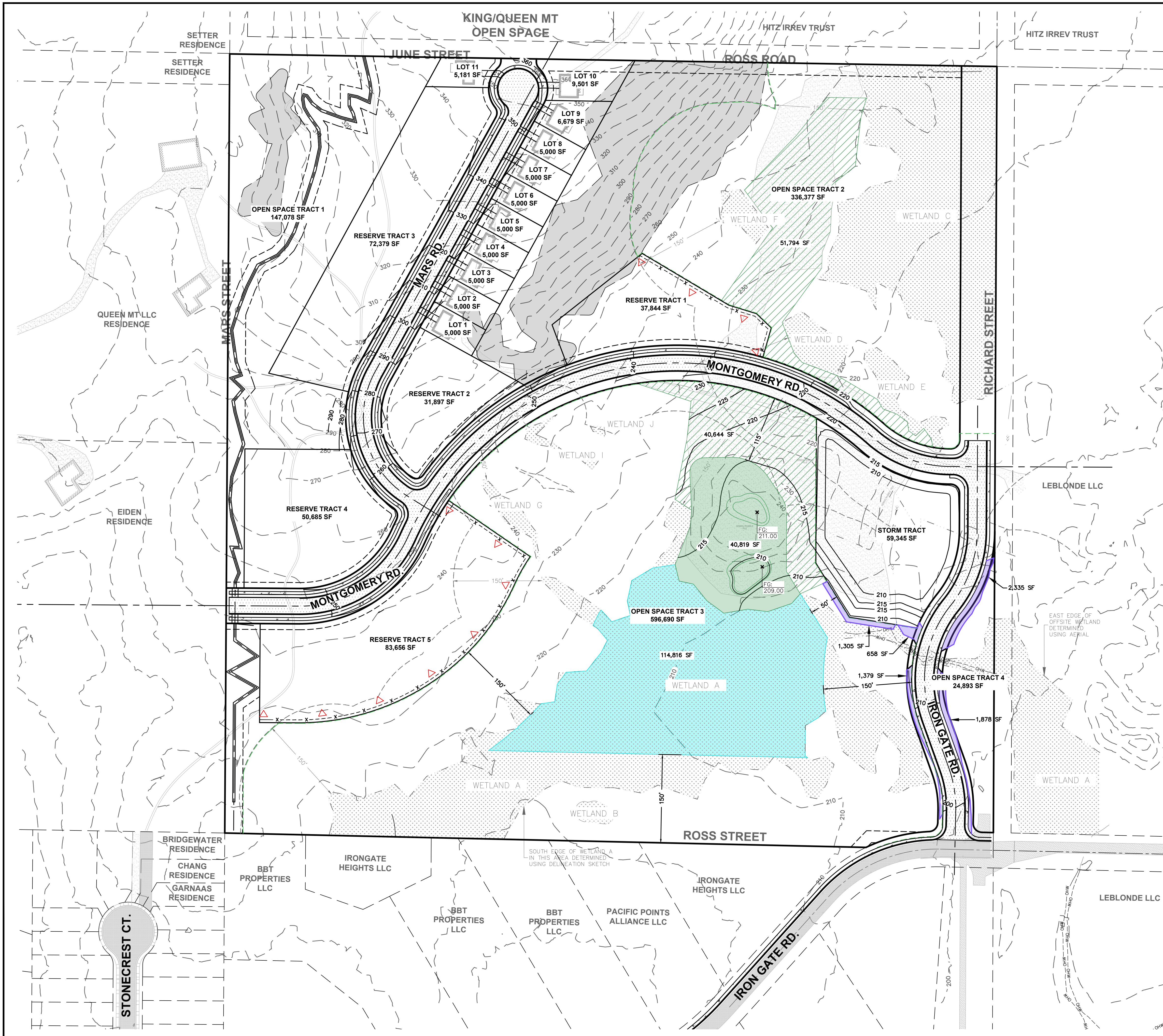
PROJECT LOCATION: **PLAT OF QUEEN MOUNTAIN**
4175 IRONGATE ROAD
BELLINGHAM, WA 98226
DRAWN BY: NSP
CHECKED BY: HAF
DESIGNED BY: NSP

SHEET CONTENTS: **WETLAND IMPACTS**



JOB #: 18271
DATE: 8-25-2023

SHEET: **W2**



WETLAND LEGEND

- WETLAND CREATION
40,819 SF
- WETLAND PRESERVATION
114,816 SF
- BUFFER ENHANCEMENT
92,430 SF
- RESTORATION
7,555 SF

- PROPOSED BUFFER
- SPLIT-RAIL FENCE B
W4
- CRITICAL AREA SIGN A
W4

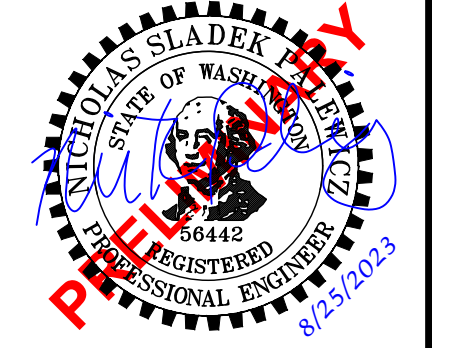


REV.	DATE	DESCRIPTION

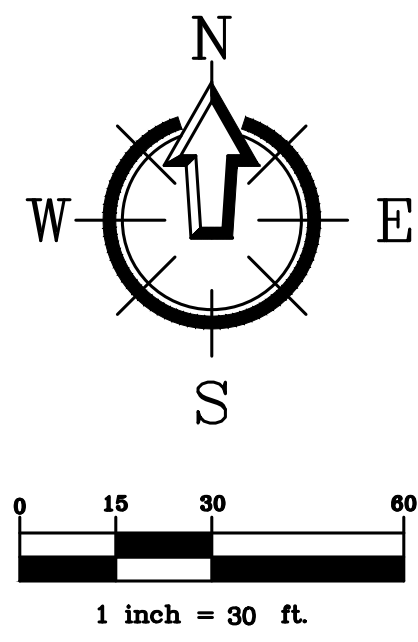
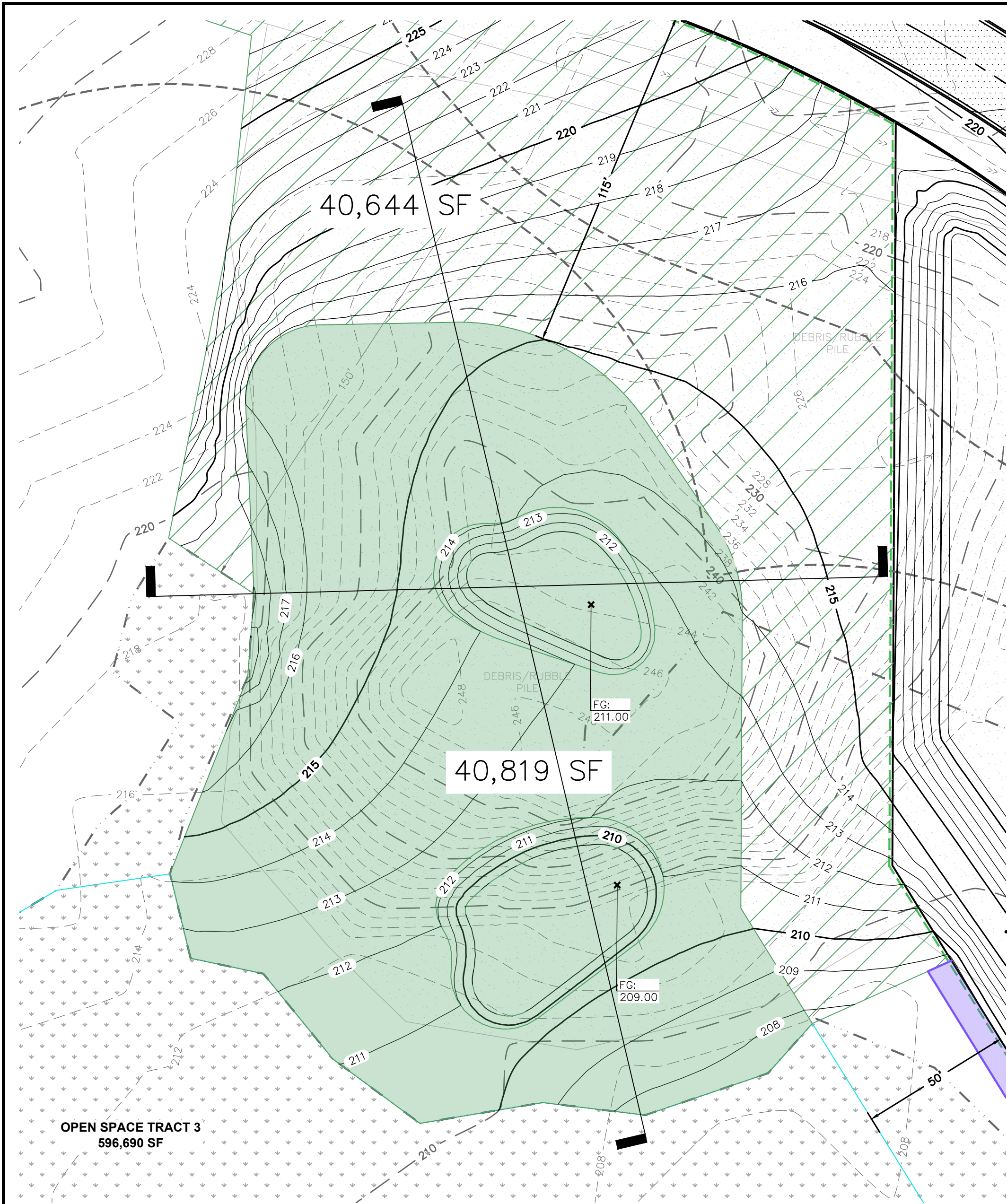
CLIENT:
QUEEN MOUNTAIN HOMES LLC
4638 CELIA WAY UNIT 202
BELLINGHAM WA, 98226
CALL BEFORE YOU DIG
FOR BURIED UTILITY LOCATIONS
1-800-424-5555

PROJECT LOCATION:
PLAT OF QUEEN MOUNTAIN
4175 IRONGATE ROAD
BELLINGHAM, WA 98226
DRAWN BY: NSP
DESIGNED BY: NSP
CHECKED BY: HAF

SHEET CONTENTS:
WETLAND MITIGATION



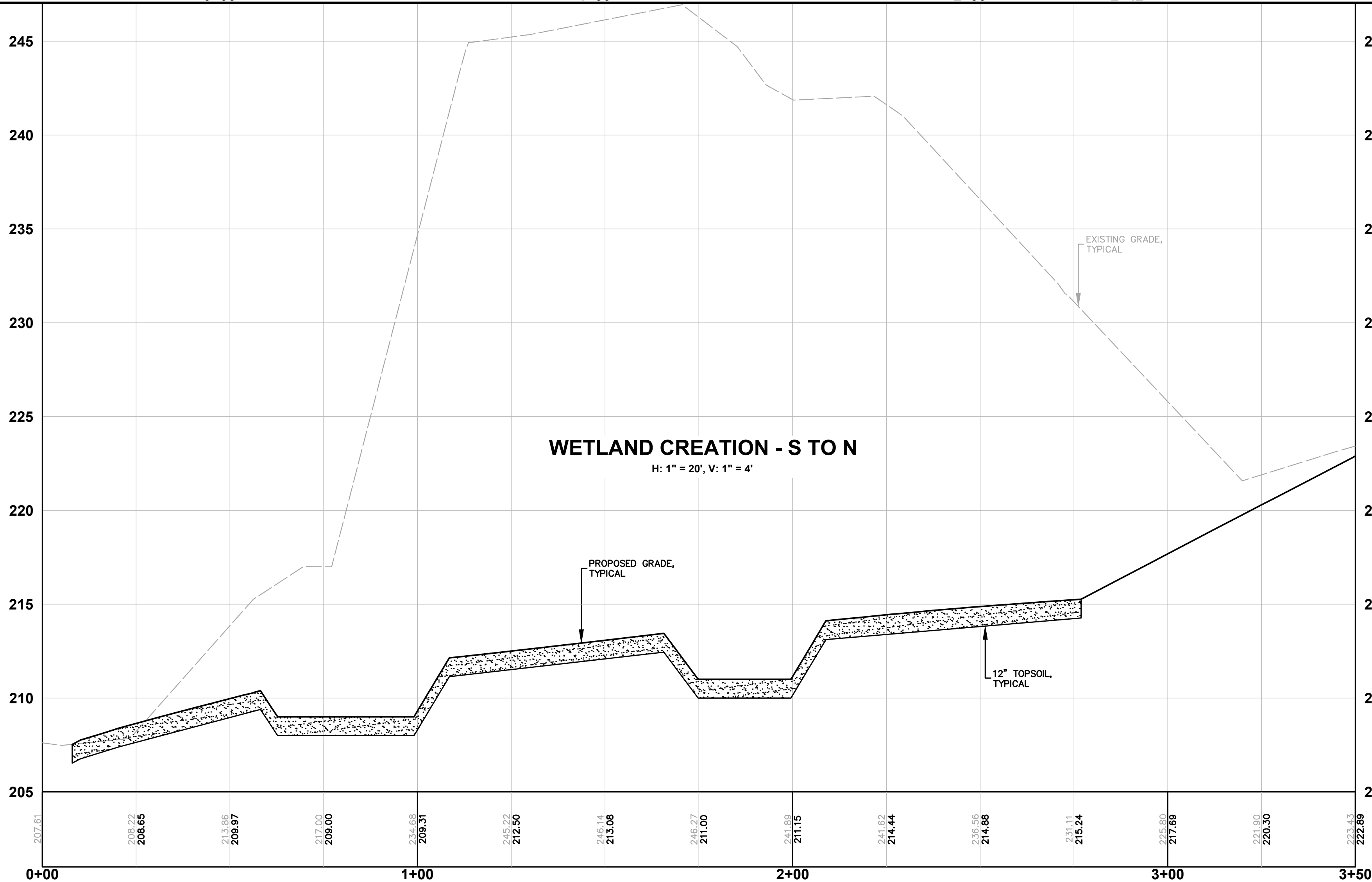
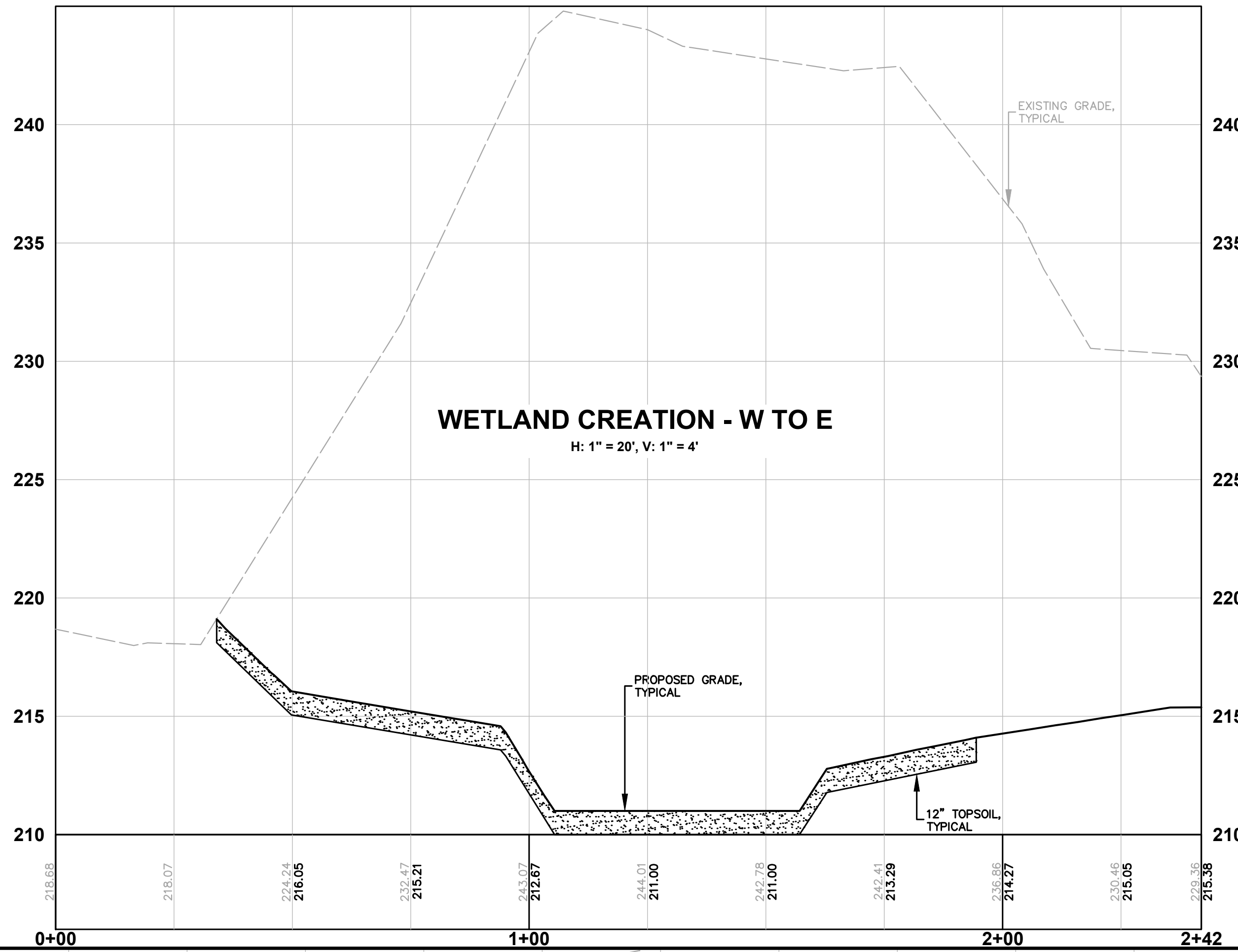
JOB #: 18271
DATE: 8-25-2023
SHEET: **W3**



WETLAND LEGEND

- WETLAND CREATION
40,819 SF
- WETLAND PRESERVATION
114,816 SF
- BUFFER ENHANCEMENT
92,430 SF
- RESTORATION
7,555 SF
- PROPOSED BUFFER

NOTE: OVEREXCAVATE THE FINAL GRADE BY APPROXIMATELY 12 INCHES AND REPLACE WITH TOPSOIL TO REACH FINAL GRADE. ALL EXPOSED SOILS MUST BE STABILIZED. DURING SOIL EXCAVATION, SOILS WILL BE EVALUATED BY THE WETLAND BIOLOGIST. IF NEEDED, CLAY OR SILT SOILS WILL BE IMPORTED AND PLACED 12 TO 16 INCHES BELOW THE FINAL GROUND SURFACE TO RETAIN HYDROLOGY WITHIN THE WETLAND CREATION AREA.



BY:	
DESCRIPTION:	
REV:	
DATE:	
CLIENT:	<p>QUEEN MOUNTAIN HOMES LLC 4638 CELIA WAY UNIT 202 BELLINGHAM, WA, 98226 CALL BEFORE YOU DIG FOR BURIED UTILITY LOCATIONS 1-800-424-5555</p>

PROJECT LOCATION:	<p>PLAT OF QUEEN MOUNTAIN 4175 IRONGATE ROAD BELLINGHAM, WA 98226 DRAWN BY: NSP DESIGNED BY: NSP CHECKED BY: HAF</p>
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WETLAND CREATION DETAILS

JOB #:	18271	DATE:	8-25-2023
SHEET:	W4		

Planting List for Wetland Creation Area 40,819 square feet

Scientific Name	Common Name	Size/Condition ¹	Spacing
<i>Populus tremuloides</i>	Quaking aspen	1-2 Gal or bareroot	12 feet
<i>Picea sitchensis</i>	Sitka spruce	1-2 Gal or bareroot	12 feet
<i>Picea sitchensis</i>	Shore pine	1-2 Gal or bareroot	12 feet
<i>Thuja plicata</i>	Western red-cedar	1-2 Gal or bareroot	12 feet
Total Trees = 283 (choose at least 2 or more species)			
<i>Rosa nutkana</i>	Nootka rose	1-2 Gal or bareroot	5 feet
<i>Rubus spectabilis</i>	Salmonberry	1-2 Gal or bareroot	5 feet
<i>Lonicera involucrata</i>	Black twinberry	1-2 Gal or bareroot	5 feet
<i>Salix hookeriana</i>	Hooker willow	1-2 Gal or bareroot	5 feet
<i>Cornus sericea</i>	Red-osier dogwood	1-2 Gal or bareroot	5 feet
<i>Salix lasiandra</i>	Pacific willow	1-2 Gal or bareroot	5 feet
<i>Salix sitchensis</i>	Sitka willow	1-2 Gal or bareroot	5 feet
<i>Physocarpus capitatus</i>	Pacific ninebark	1-2 Gal or bareroot	5 feet
<i>Malus fusca</i>	Western crabapple	1-2 Gal or bareroot	5 feet
Total Shrubs = 1,349 (choose at least 4 or more species)			

¹Bare root plantings should be planted December to March – the dormant period.

Planting List for Buffer Enhancement Area 92,430 square feet

Scientific Name	Common Name	Size/Condition ¹	Spacing
<i>Pseudotsuga menziesii</i>	Douglas fir	1-2 Gal or bareroot	12 feet
<i>Picea sitchensis</i>	Sitka spruce	1-2 Gal or bareroot	12 feet
<i>Abies grandis</i>	Grand fir	1-2 Gal or bareroot	12feet
<i>Prunus emarginata</i>	Bitter cherry	1-2 Gal or bareroot	12 feet
<i>Betula papyifera</i>	Paper birch	1-2 Gal or bareroot	12 feet
<i>Acer macrophyllum</i>	Big-leaf maple	1-2 Gal or bareroot	12 feet
Total Trees = 642 (choose at least 2 or more species)			
<i>Symphoricarpos albus</i>	Snowberry	1-2 Gal or bareroot	5 feet
<i>Acer circinatum</i>	Vine maple	1-2 Gal or bareroot	5 feet
<i>Corylus cornuta</i>	Hazelnut	1-2 Gal or bareroot	5 feet
<i>Ribes sanguineum</i>	Red-flowering currant	1-2 Gal or bareroot	5 feet
<i>Rosa nutkana</i>	Nootka rose	1-2 Gal or bareroot	5 feet
<i>Holodiscus discolor</i>	Oceanspray	1-2 Gal or bareroot	5 feet
<i>Oemleria cerasiformis</i>	Indian plum	1-2 Gal or bareroot	5 feet
<i>Amelanchier alnifolia</i>	Saskatoon	1-2 Gal or bareroot	5 feet
<i>Rubus parviflorus</i>	Thimbleberry	1-2 Gal or bareroot	5 feet
<i>Rhamnus prushiana</i>	Cascara	1-2 Gal or bareroot	5 feet
<i>Rubus spectabilis</i>	Salmonberry	1-2 Gal or bareroot	5 feet
Total Shrubs = 3,055 (choose at least 4 or more species)			

¹Bare root plantings should be planted December to March – the dormant period.

Planting List for Buffer Restoration Area 7,555 square feet

Scientific Name	Common Name	Size/Condition ¹	Spacing
<i>Pseudotsuga menziesii</i>	Douglas fir	1-2 Gal or bareroot	12 feet
<i>Picea sitchensis</i>	Sitka spruce	1-2 Gal or bareroot	12 feet
<i>Abies grandis</i>	Grand fir	1-2 Gal or bareroot	12feet
<i>Prunus emarginata</i>	Bitter cherry	1-2 Gal or bareroot	12 feet
<i>Betula papyifera</i>	Paper birch	1-2 Gal or bareroot	12 feet
<i>Acer macrophyllum</i>	Big-leaf maple	1-2 Gal or bareroot	12 feet
Total Trees = 52 (choose at least 2 or more species)			
<i>Symphoricarpos albus</i>	Snowberry	1-2 Gal or bareroot	5 feet
<i>Acer circinatum</i>	Vine maple	1-2 Gal or bareroot	5 feet
<i>Corylus cornuta</i>	Hazelnut	1-2 Gal or bareroot	5 feet
<i>Ribes sanguineum</i>	Red-flowering currant	1-2 Gal or bareroot	5 feet
<i>Rosa nutkana</i>	Nootka rose	1-2 Gal or bareroot	5 feet
<i>Holodiscus discolor</i>	Oceanspray	1-2 Gal or bareroot	5 feet
<i>Oemleria cerasiformis</i>	Indian plum	1-2 Gal or bareroot	5 feet
<i>Amelanchier alnifolia</i>	Saskatoon	1-2 Gal or bareroot	5 feet
<i>Rubus parviflorus</i>	Thimbleberry	1-2 Gal or bareroot	5 feet
<i>Rhamnus prushiana</i>	Cascara	1-2 Gal or bareroot	5 feet
<i>Rubus spectabilis</i>	Salmonberry	1-2 Gal or bareroot	5 feet
Total Shrubs = 250 (choose at least 4 or more species)			

¹Bare root plantings should be planted December to March – the dormant period.

A PLANTING TABLES

At least two different tree species and four different shrub species shall be chosen from each planting table. All plant materials used at the mitigation site shall be grown in the Puget Sound lowlands. Each plant shall be flagged with bright colored flagging to assist with annual monitoring.

Wetland Creation Methods

The wetland creation area, totaling 40,819 square feet in size will be excavated to achieve a similar final grade as the existing northern portion of Wetland A. This will include the removal of the rubble fill pile over the area.

The side slopes adjacent to the wetland creation area will also be graded (within the buffer), due to the topography of this area, to achieve gentler side slopes (2:1). The wetland creation area shall be over-excavated by one to two feet and backfilled with clay or silt soil fill (if needed) and one foot of topsoil – to achieve the final grades. During soil excavation, soils will be evaluated by the wetland biologist to determine if clay or silt soils are needed. Topsoil from the property may be used from graded areas proposed for development. The entire wetland creation area shall be mulched with three to four inches of wood chip mulch. Native trees and shrubs will then be installed during the appropriate planting season: January/February for bare root, early spring or fall for container plants.

Buffer Enhancement Methods

Approximately 92,430 square feet of the Wetland A and C buffer will be enhanced. This will include the removal of rubble fill over portions of the buffer. Prior to installing native plants, invasive species will be removed from the buffer area. The entire buffer enhancement area shall be sheet mulched to a depth of three to four inches.

Buffer Restoration Methods

Approximately 7,555 square feet of Wetland A buffer will be temporarily disturbed with the construction of the site access road and the stormwater pond. Prior to installing native plants, invasive species will be removed from the buffer area. The entire restoration area shall be sheet mulched to a depth of three to four inches.

Mitigation Implementation Schedule

A general outline and schedule for the implementation of the mitigation is as follows:

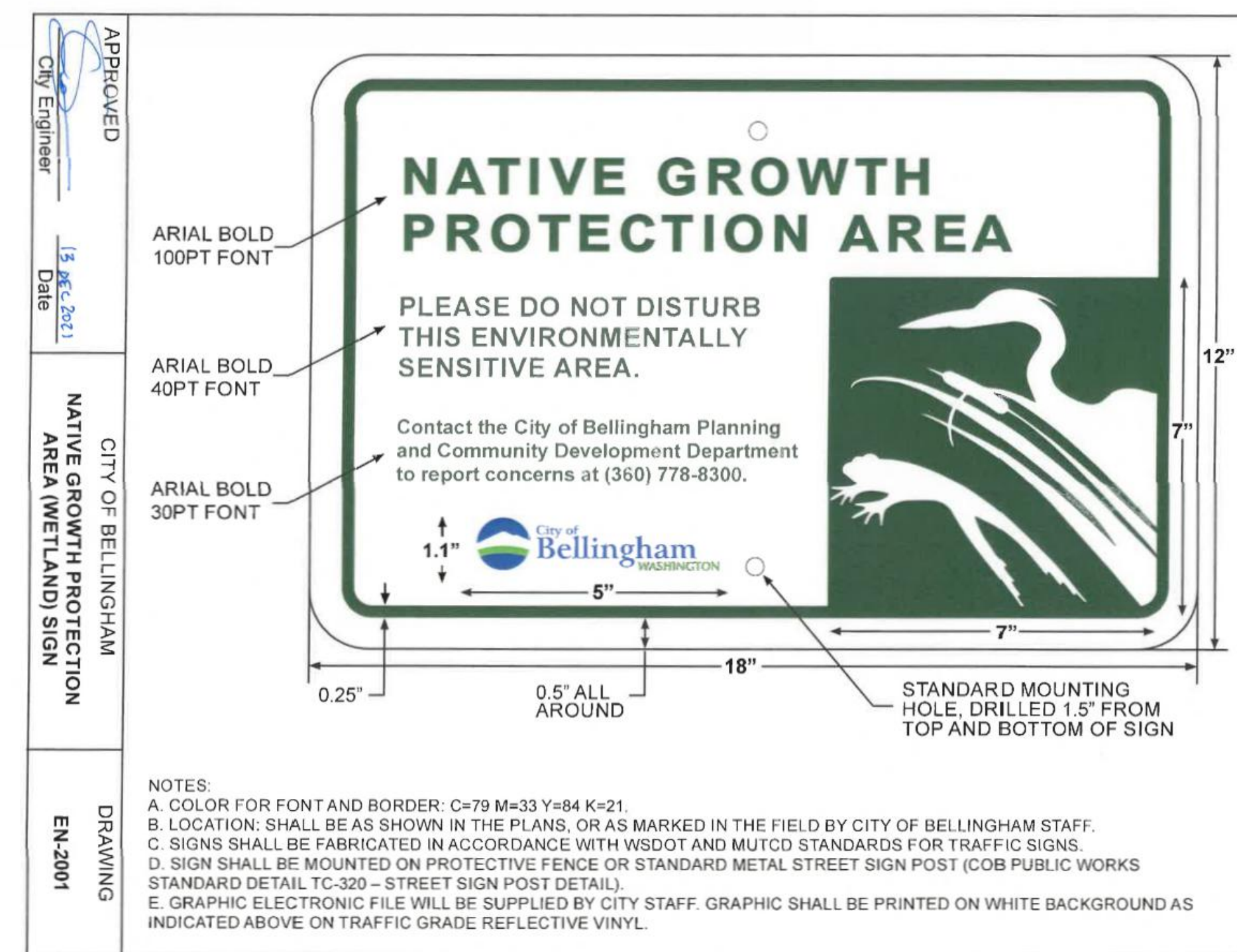
- 1) Pre-construction meeting with City staff, contractor and wetland biologist;
- 2) Identify mitigation work area boundaries with temporary fencing, silt fence, or markers;
- 3) Remove rubble and fill from the mitigation areas;
- 4) Excavate the wetland creation area, with over excavation and placement of clay (as needed) and topsoil to reach the final grade. Wetland biologist must review the excavation prior to spreading the clay (if needed) and topsoil;
- 5) Clear Himalayan blackberry/reed canarygrass and other invasive plant species from buffer enhancement areas;
- 6) Install mulch in the wetland creation area, buffer enhancement area and restoration area;
- 7) Install native trees and shrubs;
- 8) Remove temporary work fencing and/or markers;
- 9) Install split-rail fencing around the development footprint (as shown on the mitigation map); and
- 10) Install critical areas protection signs adjacent to the development footprint, as shown on the mitigation map.

Steps one through six will be completed concurrent with construction of the proposed project.

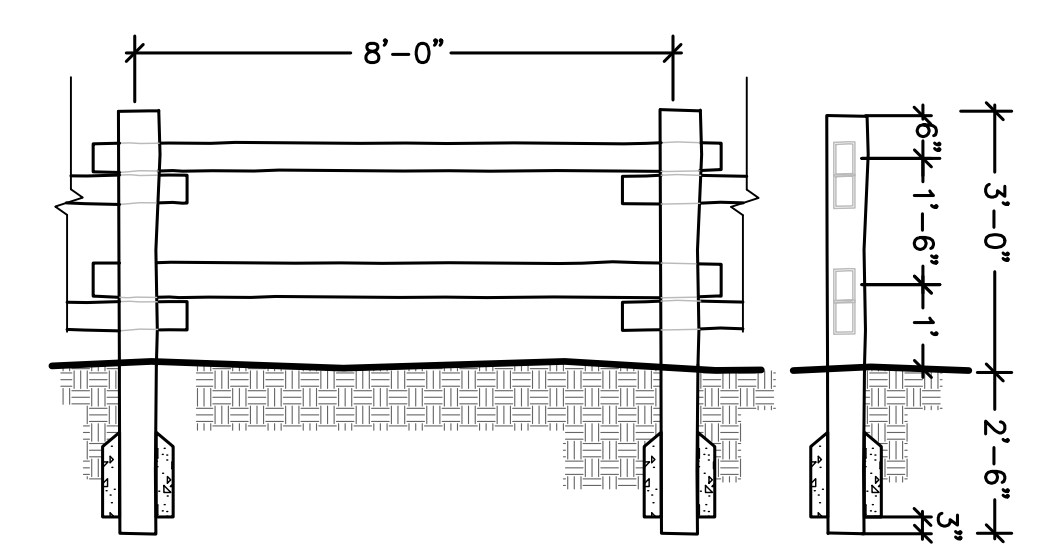
Plant installation, step seven, should occur in the winter (if bare root plants are used), early spring or fall (if container plants are used). The remaining steps, eight to ten, would occur concurrently or after planting.

Once installed an as-built letter/documentation should be submitted to the City and Corps for review and approval. Maintenance of the mitigation areas will occur on an annual basis for the ten year monitoring program and monitoring reports will be submitted to the City and Corps for review and approval.

B PLANTING NOTES



C NGPA (WETLAND) SIGN



D SPLIT RAIL FENCE



220 West Champion Street, Suite 200
Bellingham, WA 98225
t: 360.650.1458
f: 360.650.1401
FREELAND & ASSOCIATES

BY:	
DESCRIPTION:	
REV:	
DATE:	

CLIENT:
QUEEN MOUNTAIN HOMES LLC
4638 CELIA WAY UNIT 202
BELLINGHAM, WA, 98226
CALL BEFORE YOU DIG
FOR BURIED UTILITY LOCATIONS
1-800-424-5655

PROJECT LOCATION:
PLAT OF QUEEN MOUNTAIN
4175 IRONGATE ROAD
BELLINGHAM, WA 98226
DRAWING #: 18271SP4.DWG
DESIGNED BY: NSP
CHECKED BY: HAF

SHEET CONTENTS:
WETLAND PROJECT DETAILS



JOB #: 18271
DATE: 8-25-2023
SHEET: