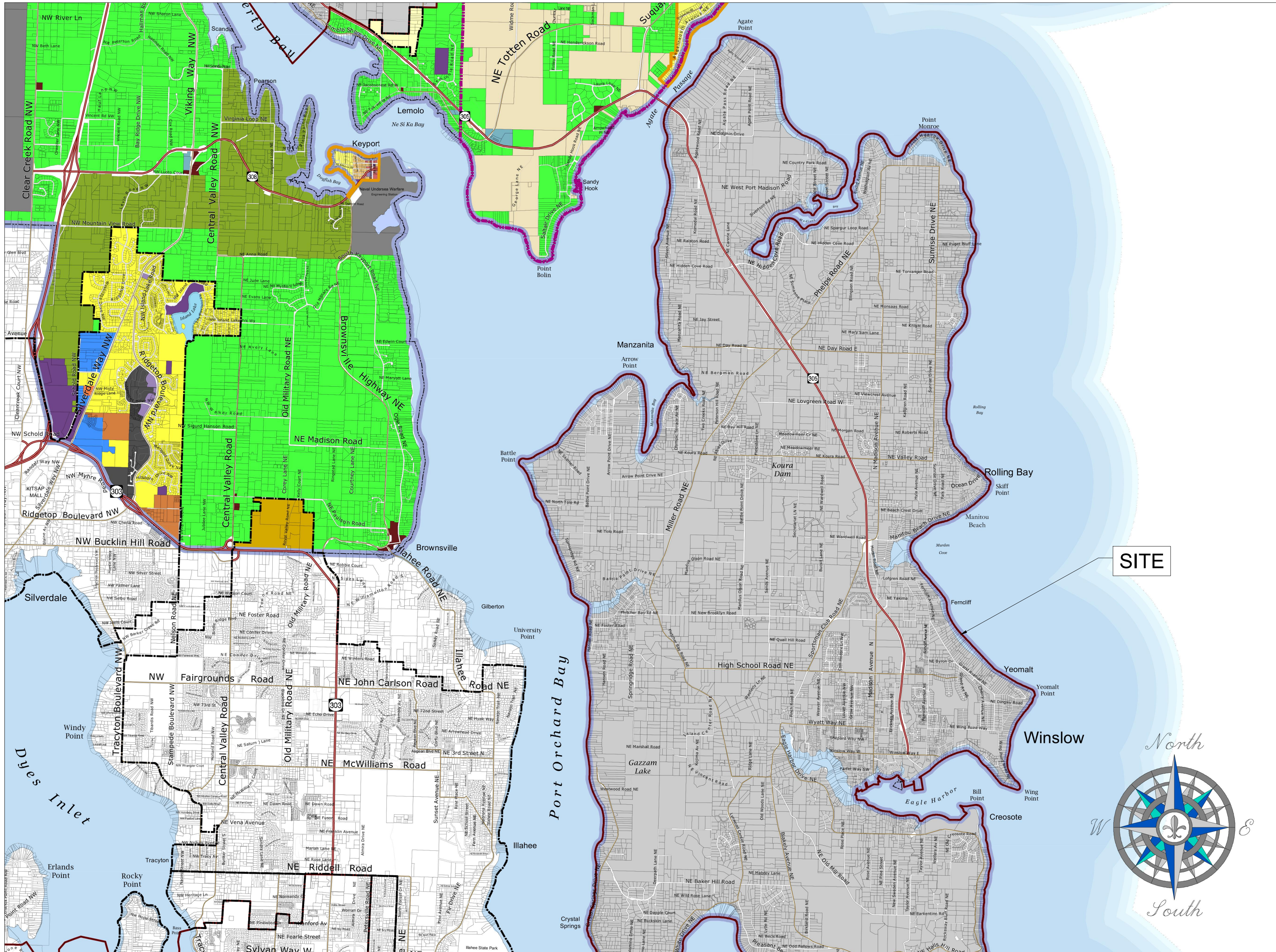


MANLOWE BULKHEAD EMERGENCY REPLACEMENT

KITSAP COUNTY, WASHINGTON

SECTION 23, TOWNSHIP 25 NORTH, RANGE 02 EAST



VICINITY MAP
NOT TO SCALE

SITE ADDRESS
10750 NE BROOMGERRIE ROAD
BAINBRIDGE ISLAND, WA 98110

PARCEL NO. 4199-000-007-0501

OWNER / DEVELOPER
ROBERT & JAYNE MANLOWE
3645 92ND AVENUE SE
MERCER ISLAND, WA 98040

CONTRACTOR
T.B.D.

CIVIL ENGINEER
ELLISPORT ENGINEERING, INC
20501 81ST AVENUE SW
VASHON, WA 98070
(206) 463-5311

BENCHMARK AND DATUM

DATUM IS ASSUMED:
TOPOGRAPHIC AND BOUNDARY INFORMATION IS BASED ON INFORMATION PROVIDED BY KITSAP COUNTY GIS. THE TOPOGRAPHY WAS GENERALLY CONFIRMED IN THE FIELD. CONTENT PROVIDED HEREIN MAY BE DEEMED RELIABLE BUT IS NOT GUARANTEED. THIS IS NOT A SURVEY.
VALUES FOR OHW AND MHHW ARE RELATIVE TO A DATUM OF MLLW = 0.

LEGAL DESCRIPTION

THOSE PORTIONS OF LOTS 7B, 8A & 8B IN THE REPLAT OF LOTS 7 THROUGH 10 DINGLEY'S FIRST ADDITION TO YEOMALT POINT AS RECORDED IN VOLUME 3 OF PLATS, PAGE 93, RECORDS OF KITSAP COUNTY, WASHINGTON, SITUATE IN SECTION 23, TOWNSHIP 25 NORTH, RANGE 2 EAST, W.M., LYING NORTHEASTERLY OF THE FOLLOWING DESCRIBED LINE: BEGINNING AT THE MOST WESTERLY CORNER OF SAID LOT 7B; THENCE ALONG THE SOUTHWESTERLY BOUNDARY OF SAID LOT 7B, SOUTH 39°05'10" EAST 19.1 FEET TO AN IRON PIPE; THENCE RUNNING PARALLEL WITH THE NORTHWESTERLY BOUNDARY OF SAID LOT 7B, NORTH 46°49' EAST 126.17 FEET TO AN IRON PIPE AND THE TRUE POINT OF BEGINNING OF THIS DESCRIBED LINE; THENCE NORTH 43°11' WEST 124.4 FEET, MORE OR LESS, TO THE NORTHWESTERLY BOUNDARY OF SAID LOT 8B AND THE TERMINUS. TOGETHER WITH SECOND CLASS TIDELANDS ADJOINING AND SUBJECT TO EXCEPTIONS AND RESERVATIONS EXPRESSED IN DEED FROM THE STATE OF WASHINGTON. TOGETHER WITH AND SUBJECT TO THE EASEMENTS AND WATER RIGHTS SET FORTH IN THAT CERTAIN EASEMENT AND WATER RIGHTS AGREEMENT DATED OCTOBER 3, 1991.

CONTRACTOR NOTE

ALL EXISTING UTILITIES SHOWN ON PLANS ARE TO BE VERIFIED HORIZONTALLY AND VERTICALLY PRIOR TO ANY CONSTRUCTION. ALL EXISTING FEATURES INCLUDING BURIED UTILITIES ARE SHOWN AS INDICATED ON RECORD MAPS AND SURVEY FURNISHED BY OTHERS. WE ASSUME NO LIABILITY FOR THE ACCURACY OF THOSE RECORDS AND SURVEY, FOR THE FINAL LOCATION OF EXISTING UTILITIES IN AREAS CRITICAL TO CONSTRUCTION CONTACT THE UTILITY OWNER/AGENCY.

SHEET INDEX

VICINITY PLAN & PROJECT INFORMATION
SITE PLAN
PROPOSED PLAN & SECTION
SECTIONS
DETAIL & GENERAL NOTES

C1
C2
C3
C4
C5

PRIVATE IMPROVEMENTS

DEVELOPMENT ENGINEER _____ DATE _____

BAINBRIDGE ISLAND ORDINANCE NUMBER(S) _____

THESE ACTIONS MUST BE COMPLETED PRIOR TO BEGINNING CONSTRUCTION:

1. CONTACT THE APPLICANT'S RETAINED ENGINEER TO COORDINATE REQUIRED INSPECTIONS.

2. APPOINT A TRAINED ESC LEAD WHO SHALL BE PROVIDED A COPY OF THE ESC PLAN & INSPECTION SCHEDULE.

3. CONTACT

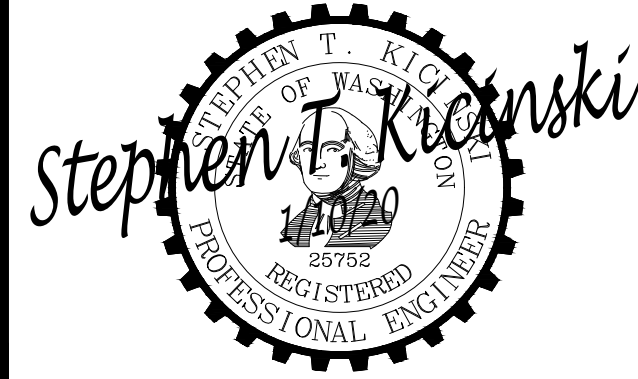
THE AREA INSPECTOR, AT _____, TO COORDINATE THE PRECONSTRUCTION MEETING AND COUNTY INSPECTIONS.

FAILURE TO OBTAIN REQUIRED INSPECTIONS MAY ENDANGER OR DELAY PROJECT APPROVAL.

ALL WORK IN THE PUBLIC RIGHT-OF-WAY REQUIRES A PERMIT FROM THE BAINBRIDGE ISLAND PUBLIC WORKS DEPARTMENT.

General Notes

Firm Name and Address
ELLISPORT ENGINEERING, INC.
20501 81st Ave SW
Vashon, WA 98070
206.463.5311 - phone
206.463.2578 - fax

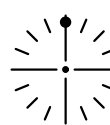
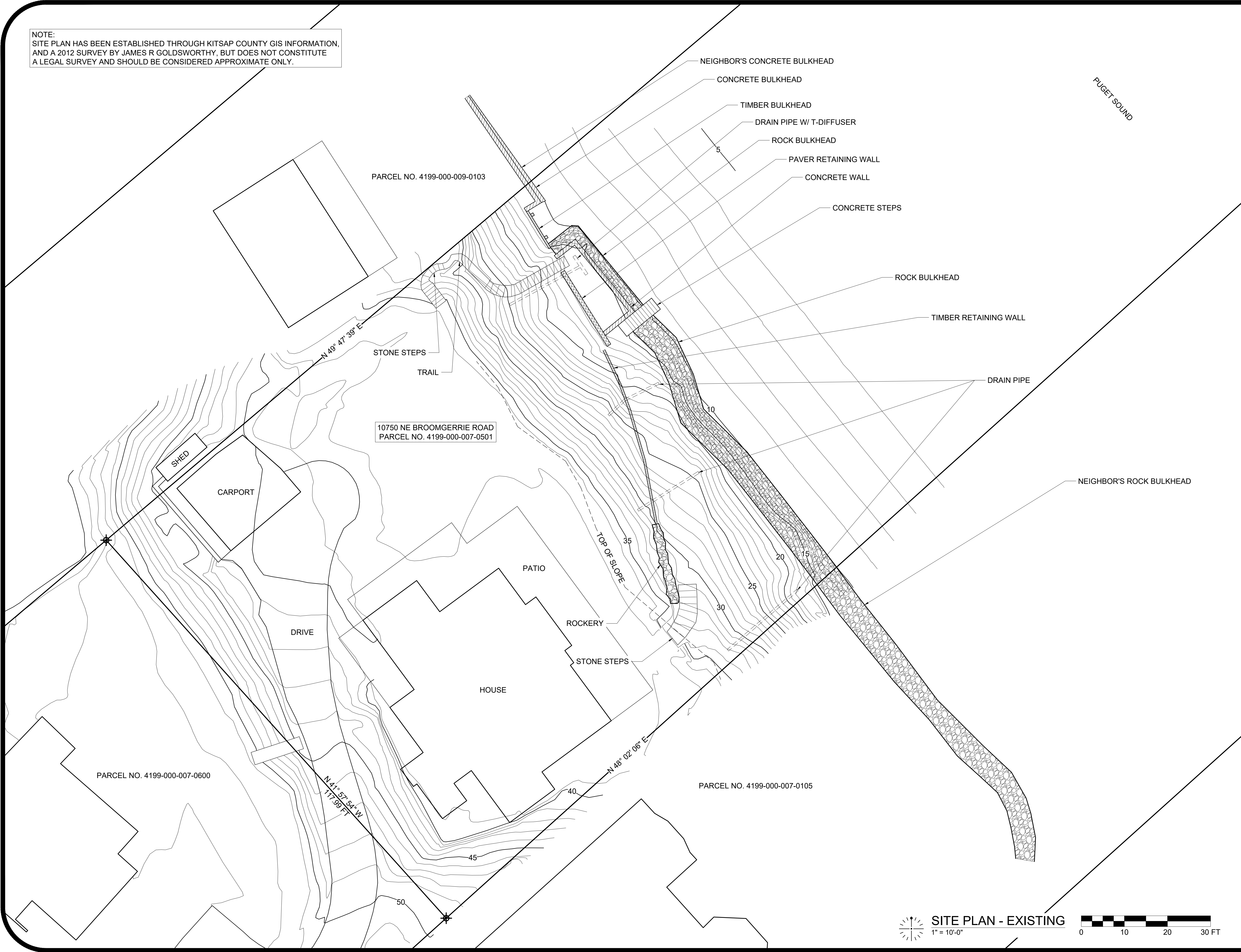


Project Name and Address
MANLOWE BULKHEAD REPLACEMENT
10750 NE Broomgerrie Road
Bainbridge, WA 98110

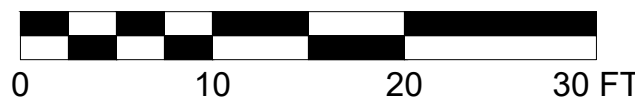
Project
MANLOWE
Date
10 JAN 2020
Drafter
DSD
Engineer
STK

Sheet
C1

NOTE:
SITE PLAN HAS BEEN ESTABLISHED THROUGH KITSAP COUNTY GIS INFORMATION,
AND A 2012 SURVEY BY JAMES R GOLDSWORTHY, BUT DOES NOT CONSTITUTE
A LEGAL SURVEY AND SHOULD BE CONSIDERED APPROXIMATE ONLY.



SITE PLAN - EXISTING
1" = 10'-0"



General Notes

No.	Revision/Issue	Date

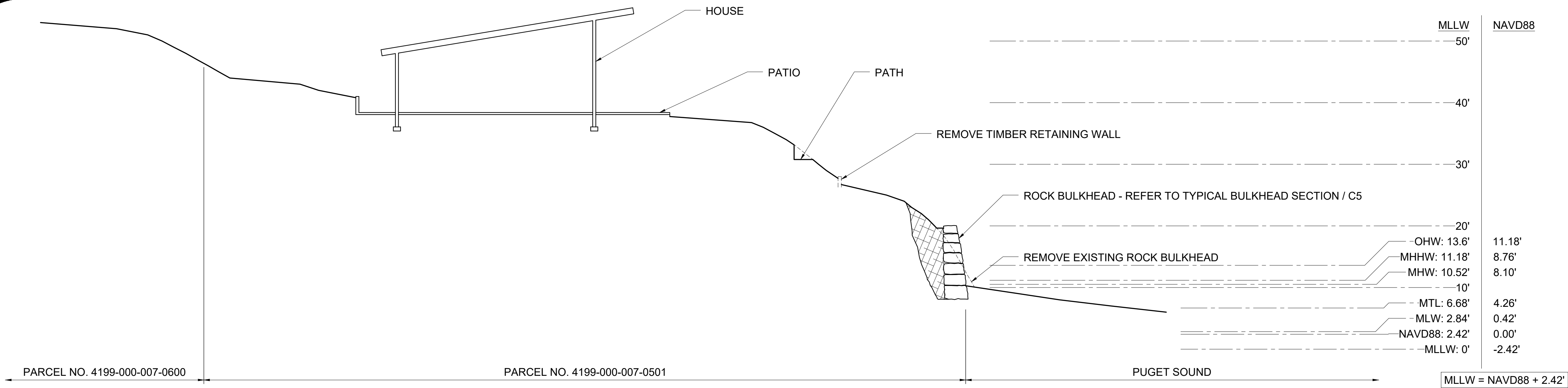
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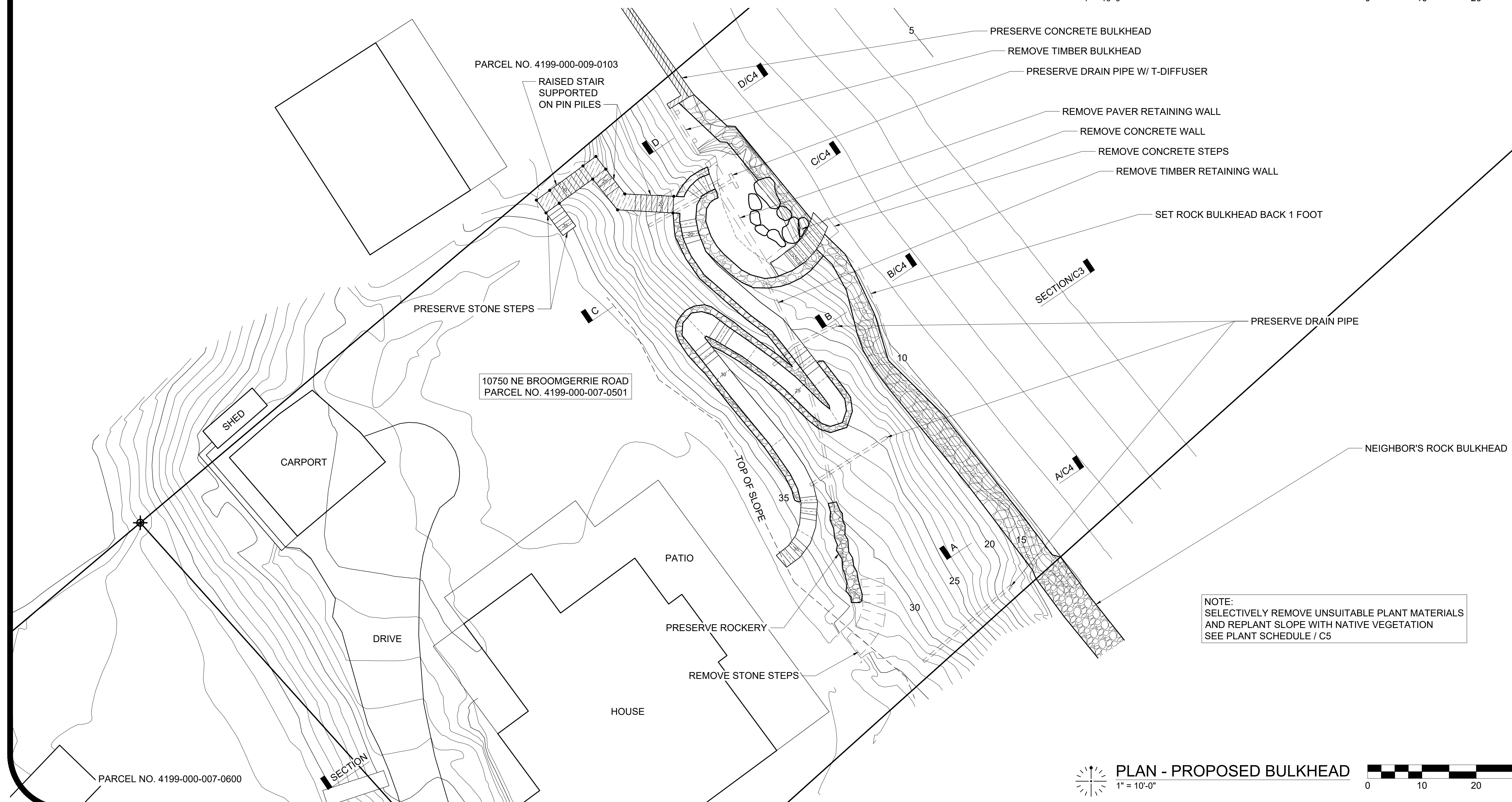
Project
MANLOWE
Date
10 JAN 2020
Drafter
DSD
Engineer
STK

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C2



SECTION - PROPOSED BULKHEAD

1" = 10'-0"



General Notes

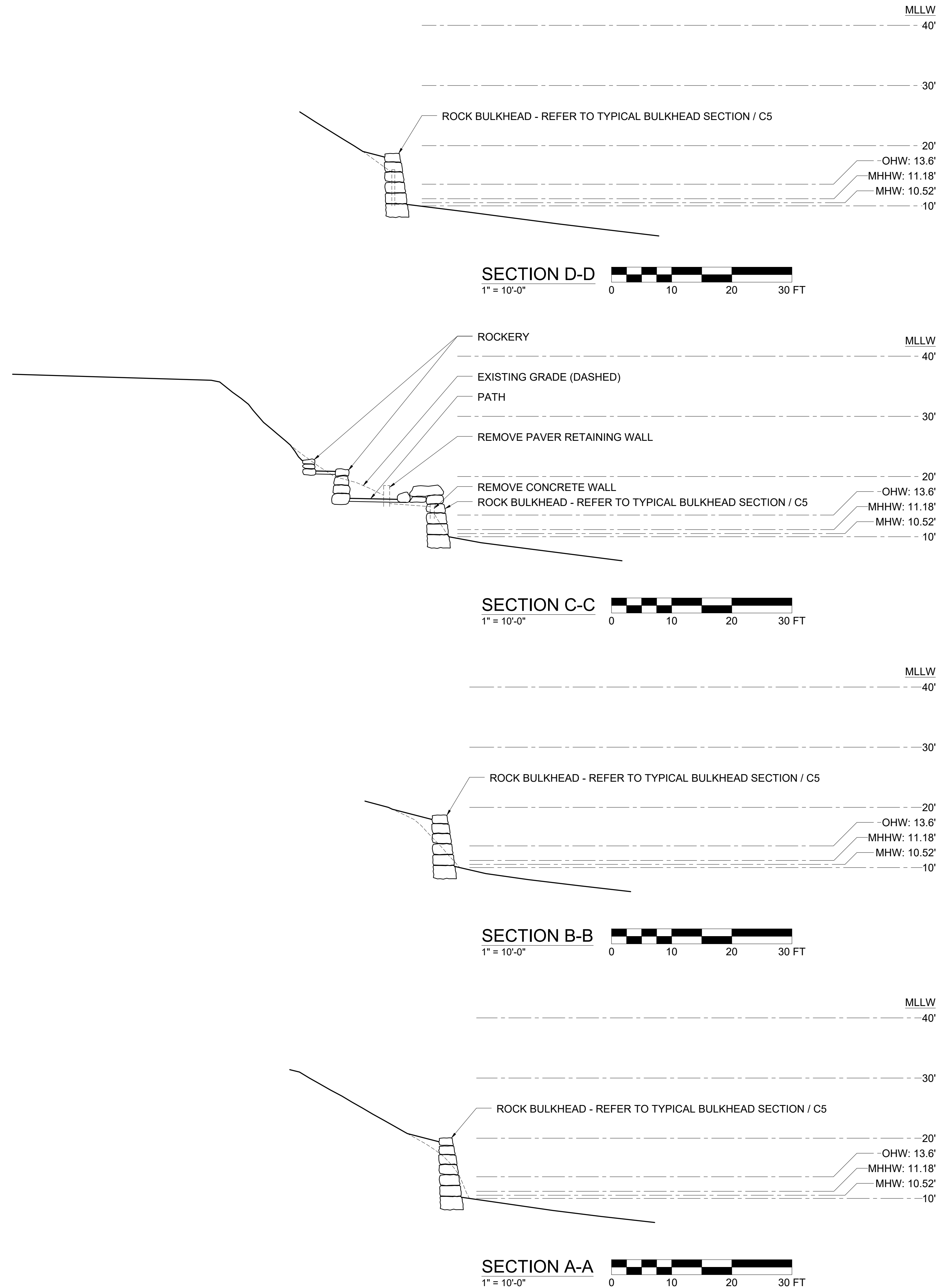
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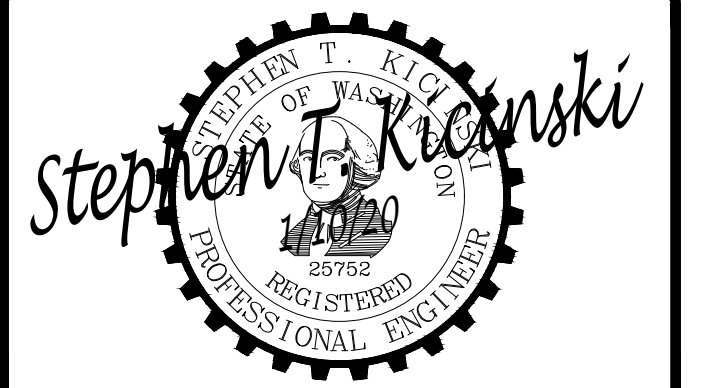
Project MANLOWE	Sheet C3
Date 10 JAN 2020	
Drafter DSD	Engineer STK



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Project MANLOWE	Sheet C4
Date 10 JAN 2020	
Drafter DSD	Engineer STK

PART 1: GENERAL

1. THE CONTRACTOR SHALL OBTAIN AND CONFORM TO ALL LOCAL AND STATE PERMITS REQUIRED TO COMPLETE THE WORK. IF PERMIT REQUIREMENTS CONFLICT WITH THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF RECORD OF ANY CONFLICTS, SO THAT MODIFICATIONS TO THE PLANS CAN BE PROVIDED, AS APPROPRIATE.
2. WORK SHALL INCLUDE FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, AND SUPERVISION FOR CONSTRUCTION OF THE ROCK BULKHEAD IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS, AND IN GENERAL CONFORMANCE WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE DRAWINGS OR AS ESTABLISHED BY THE OWNER OR THE OWNERS' REPRESENTATIVE.
3. THE CONTRACTOR SHALL CONTACT THE ONE-CALL UNDERGROUND UTILITY LOCATION SERVICE AT 1-800-424-5555 TO HAVE ANY AND ALL UTILITIES LOCATED AT LEAST 2 FULL BUSINESS DAYS PRIOR TO BEGINNING SITE EXCAVATION.
4. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CONTRACT DOCUMENTS, NOTES AND THE INTERNATIONAL BUILDING CODE.
5. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE ADJACENT PROPERTIES AND DOWNGRADE AREAS.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION PROCEDURES INCLUDING EXCAVATION OF EXCESS SOIL, PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL SAFETY REGULATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES, AND SHALL CHECK AND VERIFY ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER *IN WRITING* AND SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
8. THE DRAWINGS INDICATE THE TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED, BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED SUBJECT TO REVIEW BY THE STRUCTURAL ENGINEER.
9. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE BUT WITHOUT ANY GUARANTEE OF WARRANTY OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED IN WRITING TO THE STRUCTURAL ENGINEER SO THAT PROPER REVISIONS MAY BE DEVELOPED. MODIFICATIONS OF DETAILS OF CONSTRUCTION SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
10. ANY AND ALL CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION OF THE CONSTRUCTION.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THE WORK.
12. VEGETATION REMOVAL UPSLOPE FOR THE BULKHEAD SHALL BE MINIMIZED. PRESERVE ALL TREES.
13. AT CONSTRUCTION COMPLETION, THE CONTRACTOR SHALL PERFORM FINAL CLEANUP OF THE SITE.
14. THE OWNER OR OWNERS REPRESENTATIVE SHALL WALK THROUGH WITH THE CONTRACTOR WHEN FINAL CLEANUP IS COMPLETE.

PART 2: MATERIALS

1. BULKHEAD ROCK SHALL BE NON-WEATHERED, HARD, SOUND, AND DURABLE. ROCK SHALL BE FREE OF SEAMS, CRACKS, AND OTHER DEFECTS THAT REDUCE ITS RESISTANCE TO WEATHER. ROCK SHALL HAVE A MINIMUM DENSITY OF 160 POUNDS PER CUBIC FOOT. THE ROCK TYPE IDENTIFIED BY THE CONTRACTOR SHALL BE APPROVED BY THE OWNER PRIOR TO MOBILIZATION. APPROXIMATE ROCK SIZE IS PRESENTED IN THE TABLE BELOW.
2. QUARRY SPALLS SHALL CONSIST OF 2 TO 6 INCH CRUSHED ROCK THAT CONFORMS TO SECTION 9-13.7(2) OF THE 2018 WSDOT STANDARD SPECIFICATIONS.
3. PERMEABLE BALLAST SHALL CONFORM TO SECTION 9-03.9(2) OF THE 2018 WSDOT STANDARD SPECIFICATIONS.
4. STORMWATER DISPERSION PIPE SHALL CONSIST OF NOMINAL 6-INCH DIAMETER PERFORATED CORRUGATED DOUBLE WALL N-12 HIGH DENSITY POLYETHYLENE (HDPE) PIPE, 6-INCH NOMINAL DIAMETER SDR11 PERFORATED SOLID WALL HDPE PIPE, OR NOMINAL 6-INCH DIAMETER SCHEDULE 40 PVC PIPE. THE PERFORATED DISPERSION PIPE SHALL HAVE A MINIMUM WATER INLET AREA (WIA) OF 1.5 SQUARE INCHES PER LINEAR FOOT OF PIPE. DISPERSION PIPE AND PIPE JOINTS SHALL BE COMPATIBLE WITH REROUTED STORM WATER TIGHTLINE PIPES.
5. GEOTEXTILE FILTER FABRIC SHALL CONSIST OF MIRAfi FW403, OR APPROVED EQUIVALENT.
6. BEACH NOURISHMENT MATERIAL AND PLACEMENT SHALL CONFORM TO WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE PROJECT PERMIT REQUIREMENTS.

PART 3: DESIGN CRITERIA

1. ALLOWABLE BEARING CAPACITY OF 1500 PSF BASED ON THE 2015 INTERNATIONAL BUILDING CODE, UNLESS A SITE-SPECIFIC GEOTECHNICAL ENGINEERING REPORT IS PROVIDED.
2. SITE PLAN TOPOGRAPHY WAS OBTAINED FROM THE KITSAP COUNTY GIS WEBSITE, WHICH USES NAVD88 AS THE VERTICAL DATUM.
3. THE MEAN HIGHER HIGH WATER ELEVATION OF 11.18 FEET AND THE ORDINARY HIGH WATER ELEVATION ESTIMATE OF 13.6 FEET WERE PROVIDED BY WILLIAM REHE, THE PROJECT ENVIRONMENTAL CONSULTANT.

PART 4: EXECUTION

1. VERIFICATION OF EXISTING SITE CONDITIONS
- 1) THE CONTRACTOR SHALL VERIFY ON-SITE GRADES AND CONDITIONS PRIOR TO CONSTRUCTION. THE OWNER AND THE ENGINEER-OF-RECORD SHALL BE IMMEDIATELY NOTIFIED IF ON-SITE CONDITIONS DIFFER FROM THE BULKHEAD DESIGN DRAWINGS.
2. EXCAVATION
- 1) THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES REQUIRED FOR CONSTRUCTION OF THE BULKHEAD, AS SHOWN ON THE DESIGN DRAWINGS.
- 2) THE CONTRACTOR SHALL DIVERT SURFACE WATER AND PROVIDE TEMPORARY DEWATERING AS REQUIRED TO PREPARE THE BULKHEAD'S SUBGRADE SOILS.
- 3) THE CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES, OFF-SITE FEATURES, AND SITE IMPROVEMENTS FROM DAMAGE DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, THE LARGE TREE NEAR THE BULKHEAD. TEMPORARY EXCAVATION STABILITY AND SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 4) THE EXISTING SITE SOILS ALONG THE SHORELINE, PRONE TO WAVE AND TIDAL EROSION WHEN EXPOSED, SHALL BE REMOVED FROM THE SITE UNLESS DISPERSAL OF THE SOIL ON THE BEACH AS NOURISHMENT IS PERMITTED BY THE WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE.
- 5) SITE EXCAVATIONS SHALL BE COMPLETED IN SECTIONS TO REDUCE THE POTENTIAL FOR TEMPORARY SLOPE INSTABILITY. ONE CONSTRUCTION SECTION SHALL BE EQUAL TO THE LENGTH OF BULKHEAD THAT CAN BE EXCAVATED, BACKFILLED, AND CONSTRUCTED IN ONE WORK DAY.

3. BULKHEAD AND ROCKERY CONSTRUCTION

- 1) THE BULKHEAD SHALL BE FOUNDED ON FIRM AND UNYIELDING NATIVE SOILS.
- 2) THE BULKHEAD FACE BATTER SHALL BE 6 VERTICAL TO 1 HORIZONTAL, OR FLATTER.
- 3) ROCK SIZE SHALL DECREASE IN SIZE FROM THE BOTTOM OF THE BULKHEAD TO THE TOP OF THE BULKHEAD AT A UNIFORM RATE. ROCK AT THE TOP OF THE WALL SHALL BE A MINIMUM FOUR-MAN SIZE OR LARGER. THE BOTTOM ROCK SHALL BE SIX-MAN ROCK.
- 4) EMBEDMENT OF THE LOWEST COURSE OF ROCK SHALL BE A MINIMUM OF 24 INCHES INTO FIRM SOILS UNDERLAYING LOOSE BEACH SAND.
- 5) THE LONG DIMENSION OF THE ROCK SHALL EXTEND PERPENDICULAR TO THE ROCK FACE.
- 6) ROCKS SHALL BE PLACED TO AVOID CONTINUOUS JOINT PLANES IN VERTICAL OR LATERAL DIRECTIONS. EACH ROCK SHALL BEAR ON TWO OR MORE ROCKS BELOW IT, WITH GOOD FLAT-TO-FLAT ROCK CONTACT.
- 7) QUARRY SPALL BACKFILL BEHIND THE BULKHEAD SHALL BE PLACED BEHIND EACH COURSE AND TAMPED TO PROVIDE A STABLE CONDITION PRIOR TO PLACING ROCKS FOR THE NEXT SUCCESSIVE COURSE.
- 8) GEOTEXTILE FABRIC SHALL COVER THE BOTTOM OF THE WALL EXCAVATION, EXTEND UP THE CUT FACE, AND COVER THE TOP OF THE QUARRY SPALL BACKFILL. GEOTEXTILE FABRIC JOINTS SHALL OVERLAP AT LEAST 18 INCHES.
- 9) ROCK WALLS ARE PRIMARILY EROSION CONTROL STRUCTURES. NATIVE MATERIALS MUST BE STABLE AND FREE STANDING IN CUT FACE.
4. QUALITY CONTROL
- 1) WE RECOMMEND THAT THE OWNER RETAIN THE ENGINEER-OF-RECORD TO PERFORM PERIODIC OBSERVATIONS DURING CONSTRUCTION.
- 2) THE ABOVE FIELD OBSERVATIONS DO NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO MEET THE MORE STRINGENT OF THE DESIGN DRAWINGS, PERMIT REQUIREMENTS, OR OTHER MANUFACTURER'S REQUIREMENTS.

PART 5: SPECIAL DESIGN PROVISIONS

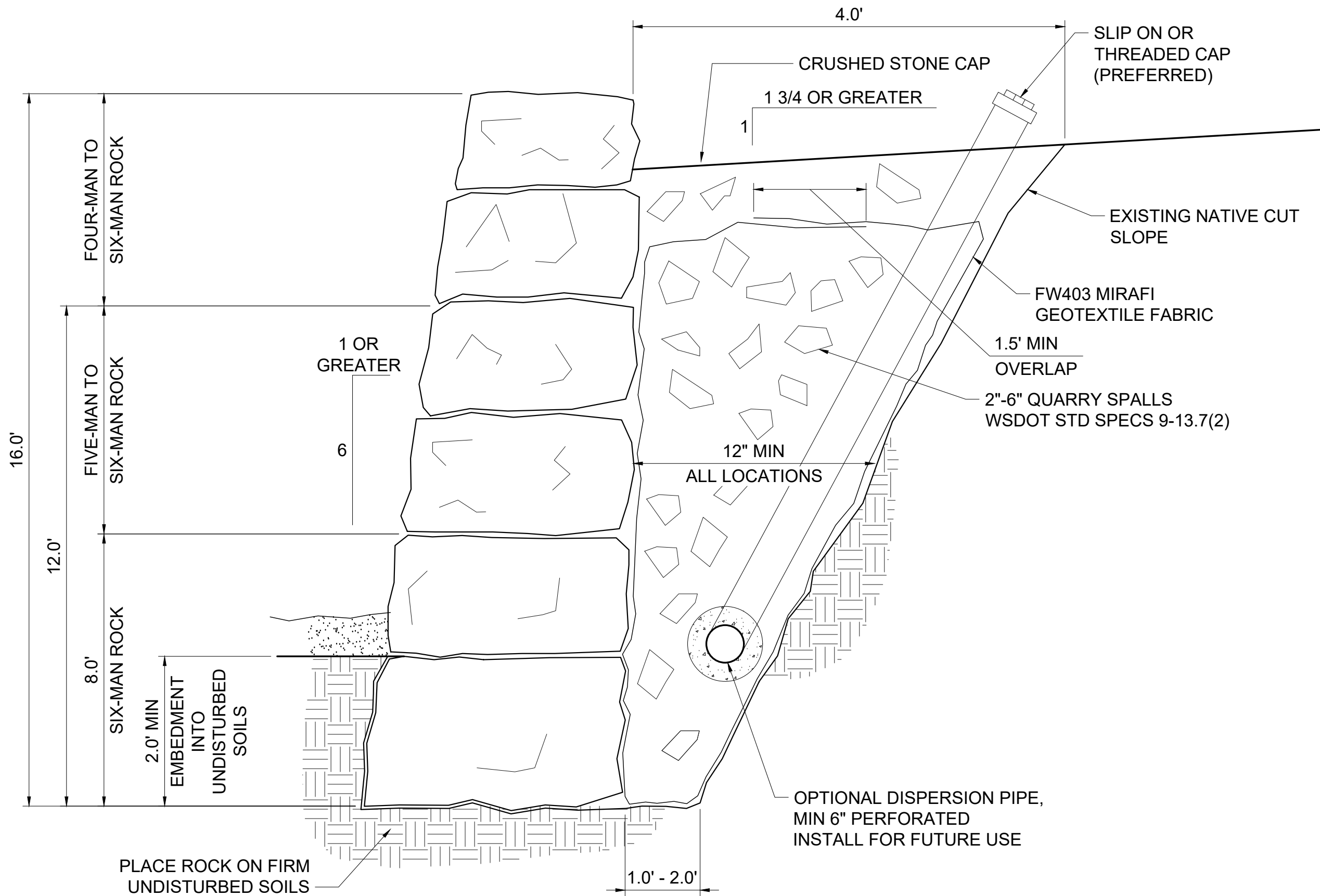
1. THE BULKHEAD SHALL BE COMPLETED IN GENERAL ACCORDANCE WITH THESE PLANS AND THE CURRENT EDITION OF THE ASSOCIATED ROCKERY CONTRACTORS (ARC) STANDARD ROCK WALL CONSTRUCTION GUIDELINES.
2. IF SITE CONDITIONS OR DESIGN PARAMETERS ARE DIFFERENT THAN WHAT HAS BEEN PRESENTED HEREIN, THE OWNER AND ENGINEER-OF-RECORD SHALL BE NOTIFIED IMMEDIATELY.
3. ANY REVISIONS TO DESIGN PARAMETERS OR PROPOSED BULKHEAD GEOMETRY MAY REQUIRE DESIGN MODIFICATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROXIMATE ROCK SIZES		
ROCK SIZE	AVERAGE DIMENSION (IN)	ROCK WEIGHT (LBS)
TWO-MAN	18-28	200-700
THREE-MAN	28-36	700-2,000
FOUR-MAN	36-48	2,000-4,000
FIVE-MAN	48-54	4,000-6,000
SIX-MAN	54-60	6,000-8,000

PLANT CANDIDATE LIST*

SCIENTIFIC NAME	COMMON NAME
TREES	
ACER GLABRUM VAR. DOUGLASII	DOUGLAS MAPLE
ARBUTUS MEZIESII	PACIFIC MADRONE
PINUS CONTORTA VAR. CONTORTA	SHOREPINE
SHRUBS	
AMELANCHIER ALNIFOLIA	SERVICEBERRY
CORYLUS CORNUTA	BEAKED HAZELNUT
GAULTHERIA SHALLON	SALAL
HOLODISCUS DISCOLOR	OCEANSPRAY
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE
ROSA GYMNOCARPA	BALDHIP ROSE
ROSA NUTKANA	NOOTKA ROSE
RIBES SANGUINEUM	RED-FLOWERING CURRANT
SYMPHORICARPOS ALBUS	SNOWBERRY
GRASSES & GROUNDCOVERS	
AMERICA MARITIMA	SEA PINK
ASTER SUBSPICATUS	DOUGLAS ASTER
DECHAMPsia CESPITOSA	TUFTED HAIRGRASS
ELYMUS MOLLIS	AMERICAN DUNEGRASS
FRAGARIA CHILOENSIS	COASTAL STRAWBERRY
MAHONIA NERVOSA	LOW OREGON GRAPE
POLYSTICHUM MUNITUM	SWORD FERN
POTENTILLA ANSERINE VAR. PACIFICA	SILVERWEED

* PLANTS LISTED MAY BE INCLUDED, BUT NOT LIMITED TO.

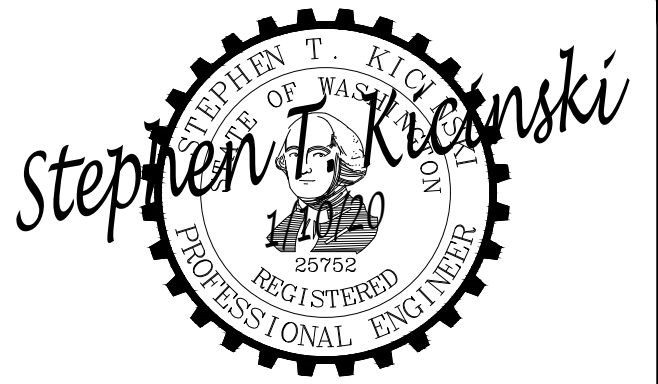


TYPICAL BULKHEAD SECTION
NOT TO SCALE

General Notes

No.	Revision/Issue	Date

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