



2707 Colby Avenue, Suite 900, Everett, WA 98201 | P 425.252.7700

To: Matt Nienhuis
Linda Ritter

From: Kurt Ahrensfeld
Brian Caferro
Jason Walker
Karla Boughton
Cindy Flood
Scott Dobner
Rahmi Kutsal

Date: December 20, 2022

Re: Harbor Grove Submittal Review Comments

Cc: Brian Wirt Matthew Geiger Andrew Galuska Sarah Kress

Dear Matt and Linda;

We have finished reviewing the Harbor Grove submittal package per your request, following are our review comments for your information, review, and distribution to the applicant.

These plans were reviewed for general compliance with the stormwater codes, grading, site, and overall site design. The review was not an exhaustive review of spot elevations/grading, utilities coordination, other design elements or design documents.

Please note that the redlines are attached at the end of this memorandum for plan sheets that had comments, below comments for all disciplines should be reviewed together with the attached redlines of plans and reports. Not to make the submittal even larger than it already is, I have removed the sheets with no comments on them and left only sheets with redlines on multiple discipline plan sets and reports.

Please also note that only a cursory review of The Revised Critical Area Reconnaissance Report for 9110 53rd Avenue West; Parcel 00611600015900 was performed and to confirm with the Department of Ecology.

Documents Reviewed:

- Civil Plan Set for Harbor Grove, prepared by The Blueline Group, dated 8/9/22.
- Storm Drainage Report for Harbor Grove, prepared by The Blueline Group, Date: May 3rd, 2022 and Revision Date: August 9th, 2022.
- Geotechnical Engineering Study for "Daffron Property", prepared by Earth Solutions NW, LLC, dated July 30, 2021 and Updated July 28, 2022.
- Groundwater Elevation Evaluation for "Proposed Development", prepared by Cobalt Geosciences, dated March 14, 2022.
- Stormwater Pollution Prevention Plan (SWPPP) for Harbor Grove, prepared by The Blueline Group, dated 08/09/2022.
- Revised Critical Area Reconnaissance Report for Sea Pac Homes, prepared by Wetland Resources, dated December 9, 2021.

General:

There are several different referrals to this project on different report such as; "Harbor Grove", "Daffron Property", and "Proposed Development". This should be reconciled and the next submittal should have the one exact name on all plans and report in the submittal package.

Plans - Please review the below comments together with the redlines at the end of this memorandum:

General

1. Provide Street Name for TRACT 998 on all applicable sheets.

Sheet 2 of 21

1. GENERAL NOTES 3: Provide Project Surveyor's Name and Phone Number.
2. GENERAL NOTES 4: Change "IS RESPONSIBLE" to "SHALL BE RESPONSIBLE" and Provide Project Engineer's Name and Phone Number.

Sheet 3 of 21

1. EX 8" CI WATER Note: Change "CONTRACTOR TO POTHOLE" to "SHALL POTHOLE".

Sheet 5 of 21

1. Provide a trench restoration detail for the trench cut needed to install the new storm drain system.
2. Add CB protection inserts to the existing CBs along 92nd St SW where pipe trench work will be occurring.
3. Show CB protection inserts for the proposed catch basin locations, the ones that will have a grated lid.
4. Include check dams along the interceptor swales.
5. EX 8" CI WATER Note: Change "CONTRACTOR TO POTHOLE" to "SHALL POTHOLE".
6. PERMANENT STORM Note: Change "TO BE" to "SHALL BE INSTALLED".

Sheet 6 of 21

1. Fill in surveyor's name and phone number at the end of Site Grading and Construction SWPPP Note #1.
2. Change all suggestion and recommendation language of "SHOULD", "MUST", etc. to "SHALL", see the attached Sheet 6 at the end of this memorandum for all the related redlines.

Sheet 9 of 21

1. There is a wall at southeast and south of hammerhead and access to Lot 7 up to 10' high, there must be a fence on top of this wall for public safety.

Sheet 10 of 21

1. The 10' private drainage easement should be called out as a 10' private sanitary sewer easement.
2. Revise the placement of the French Drain with Perf Pipe leader line.
3. EXISTING UTILITIES Note: Change "CONTRACTOR TO VERIFY" to "SHALL VERIFY"

Sheet 11 of 21

1. It is acknowledged that the applicant has bypassed the existing detention vault on 92nd. However, the existing conveyance system that you are connecting to does not currently see these flows from the project site. Therefore, this system will see an increase in runoff flows and the applicant will need to provide a quantitative analysis of the existing system up to its discharge point on the west side of Hargreaves Pl to make sure the system has capacity to handle the increase in flows.

2. The existing pipe on 92nd St needs to be upsized to at least a 12" pipe. You cannot go from a 12" pipe and then downsize to an 8" pipe.
3. Provide detail. Dimension of the pad, type of rock used, thickness of pad and any geosynthetic material used for separation.
4. Provide details for cleanouts when located in paved areas and when located in landscaped areas.
5. Vault footing drain is set at 392.5. The IE of the drainpipe heading to CB 4 will need to be lowered.
6. Show location of wall footing connections.
7. French Drain detail is not on this sheet, update reference.
8. Raise the IE of these pipes entering the vault as high as you can to limit the amount of backwater in the system. For sure bring the IE up above the top of dead storage elevation so that there will not be permanent standing water in the pipe.
9. This note does not apply to CB 1.
10. Provide a yard drain detail.
11. Where does the underdrain system for this rain garden connect to?
12. How does the existing storm drain intake pipe interact with the rain garden? If it is located at the bottom then it no longer functions as a rain garden, but as a swale. Refine design as needed to accommodate a rain garden design.
13. Per Mukilteo Development Standards 3.6.3.1 catch basins shall be spaced no greater than 150 feet. The civil plans show 271' of pipe between catch basins CB 1 and CB 1A on 92nd St SW. Please add another type 1 catch basin within this segment.
14. EX 8" CI WATER Note: Change "CONTRACTOR TO POTHOLE" to "SHALL POTHOLE".
15. There is a wall at southeast and south of hammerhead and access to Lot 7 up to 10' high, there must be a fence on top of this wall for public safety.

Sheet 12 of 21

1. Existing 8" pipe on 92nd St needs to be upsized to at least a 12" pipe.
2. Based on the conveyance design it looks like CB 7 can be made shallower.

Sheet 13 of 21

1. Specify type of lid and call out that steps should be provided at each of the 24" access openings.
2. Show the footing drain connection to the pipe heading to CB 4.
3. Conflict here between vault footing drain and vault outlet pipe.
4. Call out steps with the other 5'x10' access.

Sheet 14 of 21

1. Drainage report states that the 2014 manual is being used for this project. Confirm which should be used by date full application is made.
2. The sump at the bottom of the vault should be a 54" sump.
3. The vault footing drain is shown in conflict with the 12" outlet pipe.
4. Per calcs the upper orifice should be 1-1/8".

Sheet 15 of 21

1. Applicant shall address the concerns expressed in the September 27, 2022 letter from Rugosa Ridge Homeowner's Association.

2. CB 9 detail shows “inlet from CB 9”. This should be “inlet from CB 10” from the pump structure.
3. Please address how the pump system is accessed for inspection and maintenance, and clearly note ownership/operation/maintenance responsibilities on this sheet.
4. Specify how the pump line can be serviced, repaired, or replaced under the walls when it becomes necessary.

Sheet 21 of 21

1. The rain garden detail has no information about a liner or underdrain system. Update detail to include this information.

Storm Drainage Report:**Cover Sheet:**

1. Include project address and parcel number, applicant's phone number, and Engineer's phone number.

Page 1.2

1. Need to state somewhere in the report whether groundwater wells and septic systems are on-site or within 100 feet of the site.
2. If permit application was deemed complete prior to June 30, then the applicant can use the 2014 manual. Otherwise the 2019 manual needs to be used. 2014 and 2019 are both referred to throughout this report. This inconsistency needs to be corrected.

Page 2.1

1. Shouldn't the basin be the Smuggler's Gulch basin or the Puget Sound basin instead of the Snohomish River basin?
2. A wet vault is a basic treatment BMP. Revise design to include an approved enhanced treatment BMP. Smugglers Gulch Creek is a stream identified on Mukilteo Critical Areas Maps and as defined under local critical areas ordinance. A segment of this watercourse is identified as Type F (Fish use potential) near the marine shoreline. Stormwater from the project has been designed to discharge into this watercourse. Therefore, in comparison to Ecology manual section V-3.4, it is understood that this action would meet applicable criteria for “Discharge directly to fresh waters or conveyance systems tributary to fresh waters designated for aquatic life use or that have an existing aquatic life use”.

Figure I-3.1 and Table I-3.1

1. Update Manual version if necessary.

Page 3.1

1. Use Possession Sound or Puget Sound Watershed instead of Snohomish River Basin.
2. Use Smuggler's Gulch sub-basin instead of Everett Drainage sub-basin.

Page 3.2

1. Smuggler's Gulch basin instead of Snohomish River Basin.
2. There is no discussion about the condition that the existing drainage system is in. Please add this discussion for each downstream route.

Page 3.3:

1. Smuggler's Gulch basin instead of Snohomish River Basin.

Page 3.5

1. Photos 1, 2 and 3 do not show up on the Downstream Exhibit, please revise.

Page 4.9

1. Enhanced treatment is required.

Page 4.11

1. Where on the plans is BMP T5.13 enforced? Include a detail showing this soil depth section.

Page 8.1

1. Include pump maintenance.

Stormwater Pollution Prevention Plan (SWPPP):

Cover Sheet

1. Delete 'w' in the address line.

Page 23

1. Per the submittal, there is a rain garden proposed to be installed, which is LID BMP that will need to be protected.

Page 25

1. Discharge points are not called out on the site map. Please add.

Planning Review Comments:

Our Harbor Grove submittal package review was conducted for compliance with Planning Department comments provided in the City's February 17, 2022, letter to The Blueline Group.

Preliminary Plat Map (Sheet 1) Site Data

1. Number of lots proposed is 7.
2. The project's zoning district is RD 12.5, with a minimum lot size of 12,500 square feet. Lot averaging is not applicable. Sheet 1 of the Civil Drawings includes the lot sizes within each lot boundary. Lot 3 is shown as 12,415 square feet, below the minimum lot size. See Table 1 highlight for Lot 3 below. Also note that Lot 4 is at 12,501 square feet. Adjustment to Lot 3's lot size is necessary to meet minimum lot size. Attention to maintaining Lot 4's lot size is necessary as well as the modifications to Lot 3 might impact Lot 4.

MMC 17.20.015 Table 1
Lot dimensions submitted for review:

Lot	Size	Setback Lot Line	Lot Line	Corner Lot Line	Minimum Average Depth
1	12,620	67	42	166	
2	12,677	67	67		189
3	12,415	73	73		168
4	12,501	75	67		165
5	12,515	73	60		165
6	12,939	74	39		165
7	15,213	60	60		209

3. Lot 6 appears not to meet the minimum lot dimensional standards.
4. Tract 999 does not meet the definition of open space. The applicant is proposing deeding 1,812 square feet to neighbor. It is unclear from the drawings the boundary of Tract 999 to be deeded; however, it appears to follow an existing driveway. City should review this to determine the proposed deeding is acceptable.
5. It appears that there is an existing storm drainage line and catch basin within the above-mentioned area and a new line from the existing catch basin to a new one in center of new street. An easement may be necessary for the new storm line in this area if it will eventually not be part of the plat.

SEPA Checklist Revisions (to be reviewed by City Staff)

Section A, Background, Question 11

1. Revise the project description as the minimum lot size for this proposal is 12,500 square feet.

Section B, Environmental Elements, Question 8(L)

1. Revise the response as this property is not eligible for transfer of density.

Section B, Recreational Use, Question 12(B)

1. Revise as it should be "recreational" not "residential."

Landscaping Sheets LS-01, LS-02, and DT-02:

1. Tree Plan is acceptable - root management zones indicated on sheet TR-01.
2. TR-02 has listing of trees and arborist observed tree condition text.
3. Separate Arborist Report not included in submittal but information on TR-02 has tree information.
4. Tree retention meets 15.16.050C1. Table on TR-01 indicates 23 significant trees required and retained.

Survey Review Comments:

A title report was not provided, City requires easements to be shown and labeled with the recording number, a title report should be submitted to review and confirm the easements.

Please see the attached survey redlines by ESM, attached at the end of this memorandum.

1. City of Mukilteo file number should be added to each sheet of the plans.

**CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010**

2. A recent Title Report (Subdivision Guarantee) should be submitted to City for review and cross-check.
3. The legal description on Sheet 1 does not appear to be correct.
4. Easements cannot be verified without a Title Report. Easements were highlighted as checked, but they have only been checked to other surveys of record or other sheets within the plan set.
5. There is a need for an easement at the NW corner of the site, there is currently a gap between the plat boundary and the existing offsite easement.
6. Several easements are noted as "to be relinquished". City will need to determine what proof is required to confirm that relinquishments have been accomplished.
7. Storm related easements needs to be labeled on storm sheets.

Geotechnical Review Comments:

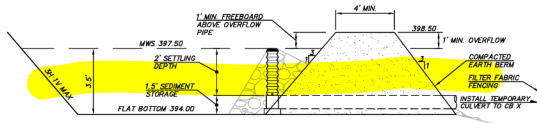
Please see the Geotechnical review comments by Terracon, dated November 14, 2022, attached at the end of this memorandum.

Please let us know if you have any questions.

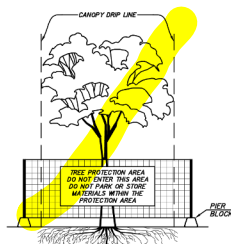
Sincerely,



Rahmi Kutsal



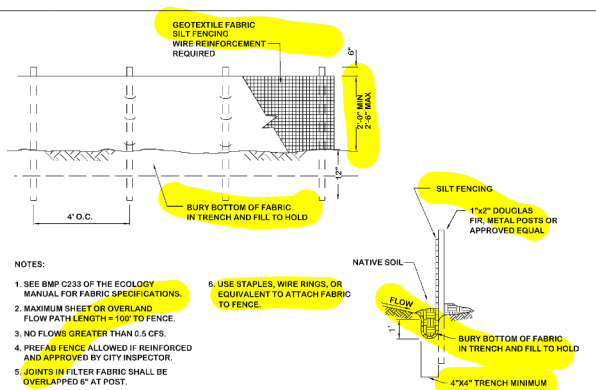
TEMPORARY SEDIMENT TRAP



NOTES:

- NOTES:
1. THE TREE PROTECTION FENCES AROUND EACH TREE OR GROUP OF TREES TO BE RETAINED, PLACE FOUR TO SIX-FOOT HIGH TEMPORARY CHAIN LINK OR POLYETHYLENE LAMINAR FENCING FIVE FEET (IF POSSIBLE) UNDER THE DRAIN LINES OF THE TREE OR GROUP OF TREES. INSTALL THE FENCING USING PRE-BLOCKS ONLY. AVOID DRIVING STAKES OR STAKES INTO MAJOR ROOTS.
2. INSTALL TREE PROTECTION FENCES PRIOR TO BEGINNING CONSTRUCTION.
- WORK WITHIN THE PROTECTION FENCING SHOULD BE DONE MANUALLY. DO NOT DRIVE OR CONSTRUCT EQUIPMENT INTO THE PROTECTION AREAS WITHIN THE TREE PROTECTION FENCES. NO ALLOW VEHICLES PARKING OR EQUIPMENT STORAGE. CEMENT TRUCKS MUST NOT BE ALLOWED TO DISCHARGE WASTE OR WASH OUT MATERIAL FROM TRUCKS WITHIN THE PROTECTION AREAS.
- THE AREA WITHIN THE TREE PROTECTION FENCING SHOULD BE MAINTAINED WITH WOOD CHIPS, HOG FUEL, OR SIMILAR MATERIALS TO A DEPTH OF 8 TO 10 INCHES. MAINTAIN ADEQUATE MOISTURE TO PREVENT DRYING OF THE SOIL. CONSTRUCTION AND REMAIN UNTIL THE FENCING IS TAKEN DOWN.
- THE PROTECTION FENCING SHOULD BE CLEARLY MARKED AS "TREE PROTECTION AREAS" WITH FOUR-INCH OR GREATER LETTERS.

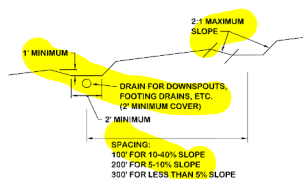
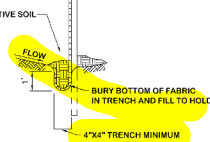
TREE PROTECTION FENCE



NOTES:

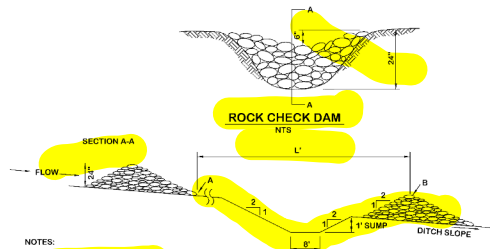
1. SEE BMP C233 OF THE ECOLOGY MANUAL FOR FABRIC SPECIFICATIONS.
2. MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH = 100' TO FENCE.
3. NO FLOWS GREATER THAN 0.5 CFS.
4. PREFAB FENCE ALLOWED IF REINFORCED AND APPROVED BY CITY INSPECTOR.
5. JOINTS IN FILTER FABRIC SHALL BE OVERLAPPED 6" AT POST.
6. USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO FENCE.

SILT FENCE DETAIL



MAINTENANCE STANDARDS:

1. DAMAGE RESULTING FROM RUNOFF OR CONSTRUCTION ACTIVITY SHALL BE REPAIRED IMMEDIATELY
2. IF THE FACILITIES DO NOT REGULARLY RETAIN STORM RUNOFF, THE CAPACITY AND/OR FREQUENCY OF THE DIKES/ SWALES SHALL BE INCREASED **shall**
3. MAINTENANCE TO BE PERFORMED BY PROPERTY OWNER
4. INSPECT DIVERSION DIKES AND INTERCEPTOR SWALES ONCE A WEEK AFTER EVERY RAINFALL



NOTES:

1. THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.
2. CONSTRUCT ROCK DAMS FROM ROCK LARGE ENOUGH TO STAY IN PLACE GIVEN EXPECTED FLOW. PLACE ROCK BY HAND OR MECHANICAL MEANS

SITE GRADING AND CONSTRUCTION SWPPP NOTES

- [illegible]

TEMPORARY SEEDING GENERAL NOTES

1. USE SEEDING THROUGHOUT THE PROJECT ON DISTURBED AREAS THAT HAVE REACHED FINAL GRADE OR THAT WILL REMAIN UNWORKED FOR MORE THAN 30 DAYS
2. THE OPTIMUM SEEDING WINDOW IS APRIL 1 THROUGH JUNE 30 AND SEPTEMBER 1 THROUGH OCTOBER 1
3. BETWEEN OCTOBER 1 AND MARCH 30 SEEDING REQUIRE: COVER OF MALCH WITH STRAW OR AN EROSION CONTROL BLANKET UNTIL 75 PERCENT GRASS COVER IS ESTABLISHED
4. REVIEW ALL DISTURBED AREAS IN LATE AUGUST TO EARLY SEPTEMBER AND COMPLETE ALL SEEDING BY THE END OF SEPTEMBER
5. SEEDING IS REQUIRED AT ALL TIMES FOR SEEDING. MALCH CAN BE APPLIED ON TOP OF THE SEED OR SIMULTANEOUSLY BY HYDROSEEDING (SEE ECOLOGY BMP C12 MALCHING FOR SPECIFICATIONS)
6. SEED AND MALCH ALL DISTURBED AREAS NOT OTHERWISE VEGETATED AT FINAL ON SITE STABILIZATION

MAINTENANCE OF SILTATION BARRIERS

1. SILTATION BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED EROSION CONTROL ELEMENTS, ESPECIALLY END-RUNS AND SEDIMENT BUILD-UP. NECESSARY REPAIRS TO BARRIERS SHALL BE ACCOMPLISHED THE SAME DAY.
2. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THE SEDIMENT LEVEL REACHES APPROXIMATELY ONE-HALF THE SILTATION BARRIER HEIGHT.
3. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE CHECK DAM IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

SEDIMENT TRAP GENERAL NOTES

1. SEDIMENT TRAPS ARE ONLY EFFECTIVE IN REMOVING SEDIMENT DOWN TO ABOUT THE MEDIUM SILT-CLAY FRACTION. SOILS IN MUDFLOWS OFTEN CONTAIN FINE SILT AND MAY NOT BE ADEQUATELY TREATED WITH SEDIMENT PONDS. THEREFORE, EROSION CONTROL PRACTICES SHOULD BE EMPHASIZED AND PROMOTED.
2. THE POND SHALL BE CHECKED AFTER EACH RAIN EVENT, OR WEEKLY, WHEVER NECESSARY IS NEEDER TO INSURE THAT IF THE WALLS ARE STRUCTURALLY SOUND, THE POND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT AND TO BE CLOSED IMMEDIATELY IF ANY DAMAGE TO THE POND DRAINWAYS OR SLUICES SHALL BE REQUIRED IMMEDIATELY.
3. THE EMERGENCY SPILLWAY SHALL BE CHECKED REGULARLY TO INSURE THAT THE LINING IS WELL ESTABLISHED AND EROSION RESISTANT. THE SILTATION BASIN SHOULD BE CHECKED FOR SEDIMENT CLEANOUT AFTER EACH RAINFALL WHICH PRODUCES RUNOFF.
4. WHEN THE SEDIMENT REACHES THE CLEANOUT LEVEL (TYPICALLY 1-FOOT IN DEPTH), IT SHALL BE REMOVED AND PROPERLY DISPOSED OF OFF-SITE.
5. SECONDARY TREATMENT MAY BE NECESSARY IF THE SEDIMENT POND CANNOT EFFECTIVELY REMOVE THE FINE GRAIN SOILS.

SOURCE CONTROL BMP'S

1. VEHICLE/EQUIPMENT WASHING & STEAM CLEANING (BMP 51.20 – NO WASHING OF VEHICLES ON SITE (BMP 51.10)
2. EMERGENCY SPILL CLEANUP PLANS (BMP 51.80) – NO CHANGE VEHICLE OIL OR OTHER VEHICLE MAINTENANCE ON SITE
3. VEGETATION MANAGEMENT/INTEGRATED PEST MANAGEMENT (BMP 51.80) – CERTIFIED PROFESSIONAL IS TO MANAGE PEST CONTROL
4. MAINTENANCE OF STORM DRAINAGE FACILITIES (BMP 52.00) – CLEAN GRATE, ETC.
5. STREET SWEEPING (BMP 52.020) – KEEP STREETS CLEAN & FREE OF DEBRIS

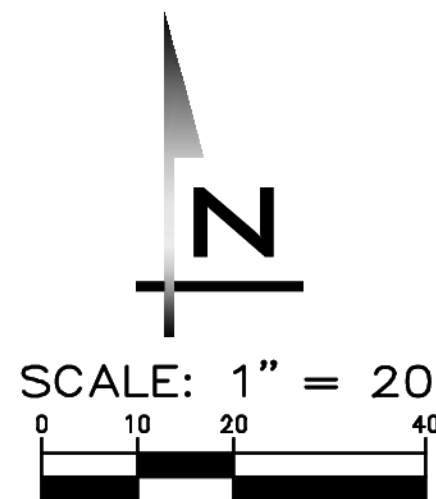
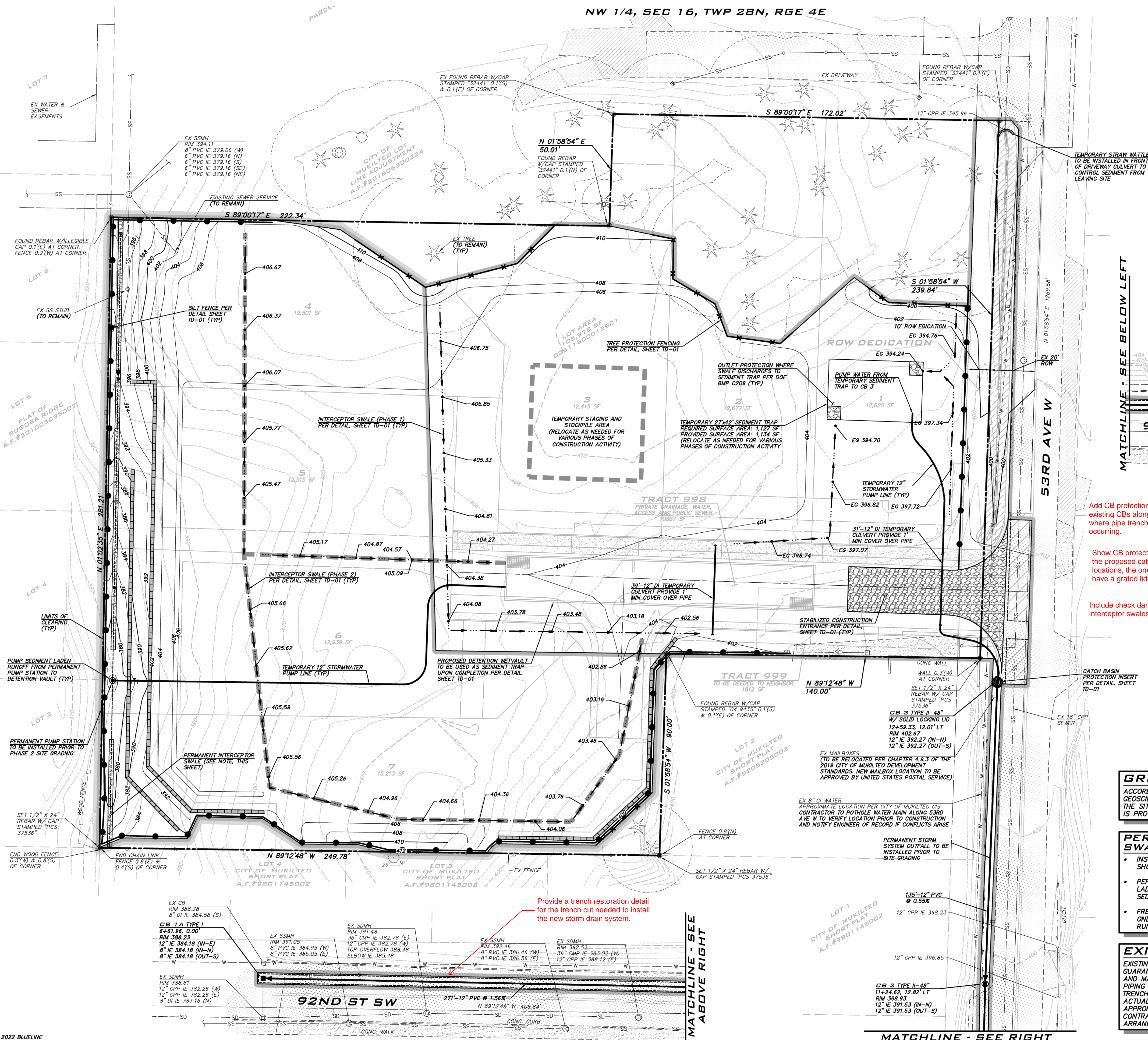
CONSTRUCTION SEQUENCE

1. PRIOR TO CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL SCHEDULE AND ATTEND PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF MOUNTAIN VIEW INSPECTION UNIT AND EROSION CONTROL SPECIALIST.
2. FLAG CLEARING LIMITS AND INSTALL SILT FENCE AS SHOWN.
3. INSTALL ROCK CONSTRUCTION ENTRANCES.
4. INSTALL PERMANENT STORMWATER OUTFALL ALONG 53RD AVE W AND 82ND ST SW.
5. CONSTRUCT TEMPORARY SEDIMENT TRAP AND PERMANENT INTERCEPTOR SINKS (PHASE 1) TO DIRECT SURFACE FLOW TO SEDIMENT TRAP AS SHOWN ON TROP PLAN.
6. CLEAR AND GRUB ROAD AREAS AND STOCKPILE AREAS (PHASE 1 LIMITS OF CLEARING). CONSTRUCT DETENTION VAULT AND USE AS SEDIMENT STORAGE. INSTALL PHASE 2 EROSION CONTROL BMP'S SUCH AS INTERCEPTOR SINKS, ETC. AND DIRECT FLOW TO THE VAULT.
7. INSTALL PERMANENT INTERCEPTOR SWALE RUNNING PARALLEL ALONG WEST PACECO BOUNDARY AND PERMANENT PUMP STATION.
8. CLEAR AND GRUB REMAINING AREAS WITHIN PHASE 2 CLEARING LIMITS Delineated on the TROP PLAN.
9. GRADE AND STABILIZE ROAD AND GRAVEL BASE. COVER EXPOSED SOILS WITH MULCH, HOS FUEL OR HYDROSEED.
10. CONSTRUCT SEWER, WATER AND STORM UTILITIES. INSTALL GAS, POWER, TELEPHONE AND CABLE UTILITIES AS REQUIRED.
11. PLACE AND POUR CURBS AND GUTTERS.
12. PAVE ROADS WITH ATR AND PLACE DETENTION SYSTEM INTO FULL OPERATION.
13. HYDROSEED REMAINING EXPOSED SOILS AND STABILIZE PROJECT.
14. FLUSH STORM DRAINAGE SYSTEM AND REMOVED SEDIMENTATION IN ALL CATCH BASINS AND THE VAULT.
15. STABILIZE ALL DISTURBED AREAS AND REMOVE ALL T.E.S.G. MEASURES.

EXISTING UTILITY NOTE

EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATE PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ARRANGE FOR FIELD LOCATION OF EXISTING UTILITIES BEFORE CONSTRUCTION.

NW 1/4, SEC 16, TWP 28N, RGE 4E

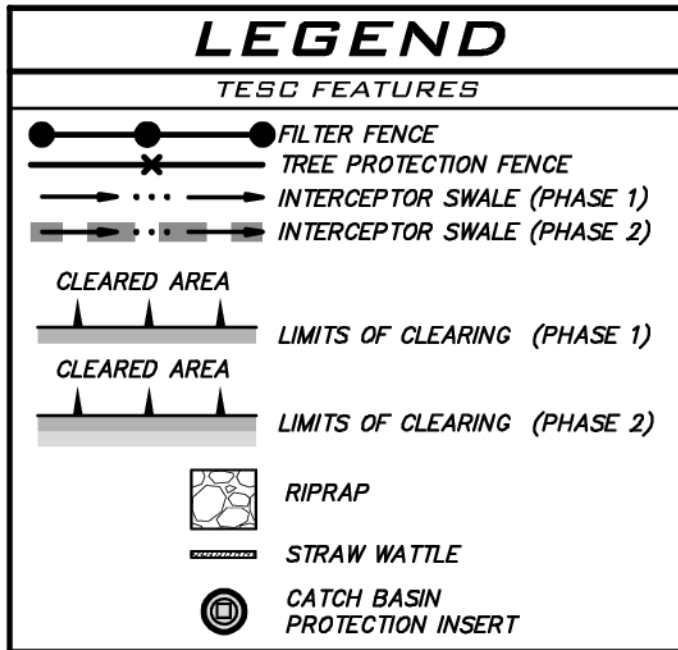


MATCHLINE - SEE BELOW LEFT

Add CB protection inserts to the existing CBs along 92nd St SW where pipe trench work will be occurring.

Show CB protection inserts for the proposed catch basin locations, the ones that will have a grated lid.

Include check dams along the interceptor swales



GROUNDWATER ELEVATION NOTE

ACCORDING TO THE GROUNDWATER ELEVATION EVALUATION BY COBALT GEOSCIENCES, LLC DATED MARCH 14, 2022, THE GROUNDWATER ELEVATION IN THE SITE VICINITY APPEARS TO BE AT 375 FEET. A COPY OF THE EVALUATION IS PROVIDED UNDER SEPARATE COVER.

PERMANENT INTERCEPTOR SWALE NOTE

- INSTALL PERMANENT PUMP STATION AND PERMANENT INTERCEPTOR SWALE AS SHOWN PRIOR TO CLEARING AND GRADING WITHIN PHASE 2 CLEARING LIMITS.
- PERMANENT INTERCEPTOR SWALE SHALL COLLECT AND ROUTE SEDIMENT LADEN RUNOFF TO PUMP STRUCTURE. PUMP STRUCTURE UTILIZED TO SEND SEDIMENT LADEN RUNOFF TO DETENTION VAULT.
- FRENCH DRAIN BENEATH SWALE SHALL NOT BE INSTALLED AND BROUGHT ONLINE UNTIL SITE IMPROVEMENTS ARE COMPLETED, SITE IS STABILIZED, AND RUNOFF IS CLEAR.

EXISTING UTILITY NOTE

EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.



BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

REVISIONS		REVISIONS PER CITY 1ST ROUND COMMENTS	
NO	DATE	BY	LCZ
1	6/9/23		

TESC PLAN

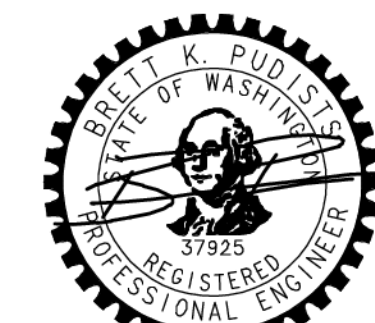
HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY

WASHINGTON



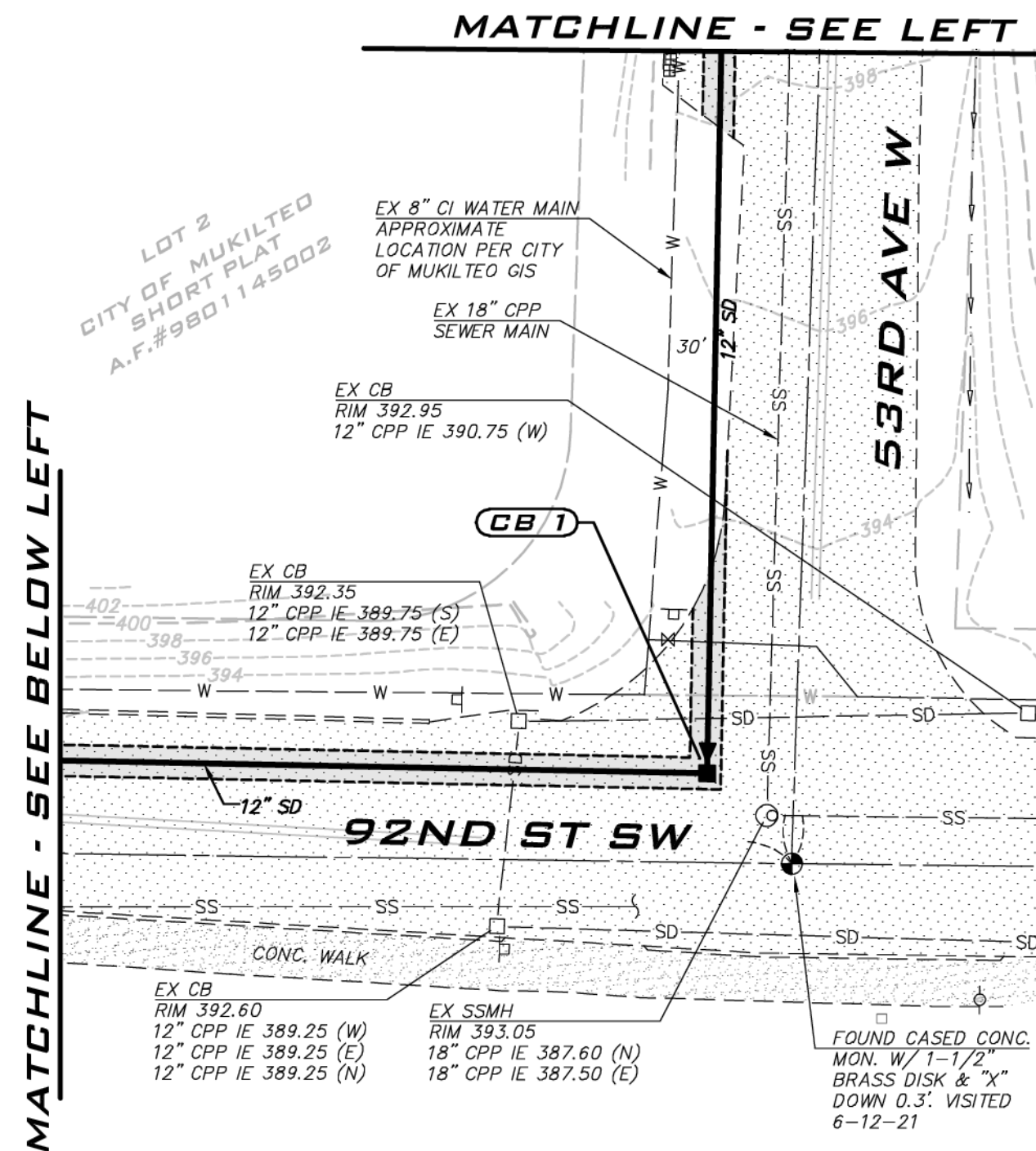
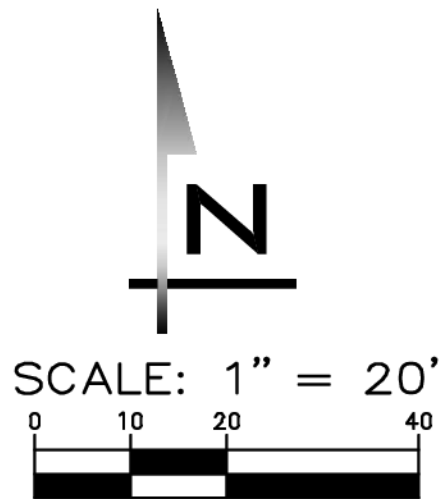
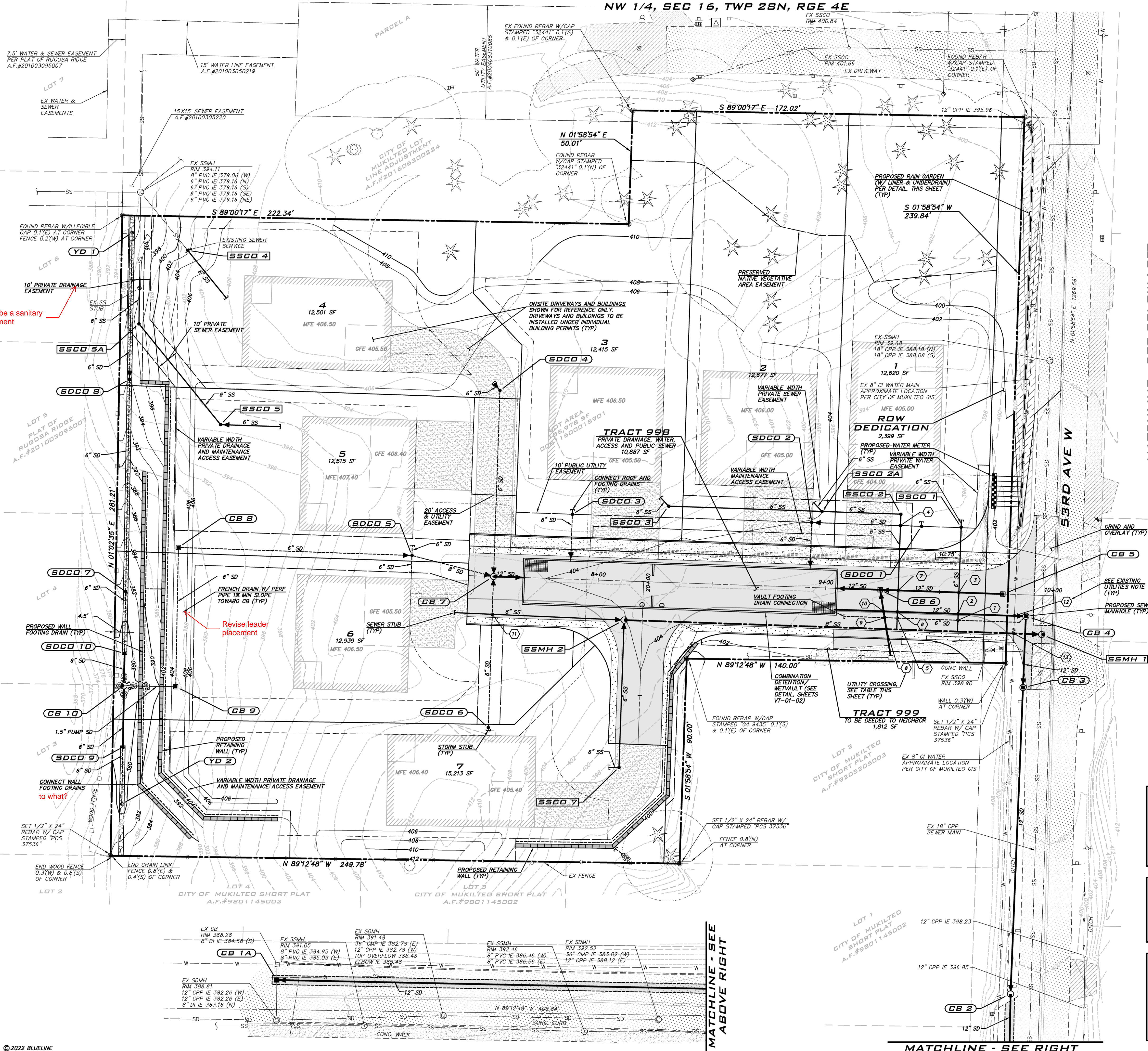
8/9/22

JOB NUMBER:
21-073

SHEET NAME:
TP-01

SHT **5** OF **21**

NW 1/4, SEC 16, TWP 28N, RGE 4E



UTILITY CROSSING TABLE		
NO.	PIPE ELEVATIONS (FT)	CLEARANCE (FT)
1	6" SD IE 395.23	4.07
	6" SS CE 391.16	
	12" SD IE 392.60	
2	6" SS CE 391.46	1.14
	12" SD IE 399.33	
	6" SS CE 392.47	
3	6" SD IE 401.11	6.86
	6" SS CE 395.56	
	6" SD IE 397.21	
4	6" SS CE 391.98	5.23
	12" SD IE 392.75	
	6" SS CE 392.23	
5	12" SD IE 399.08	6.03
	6" SS CE 393.05	
	12" SD IE 399.94	
6	8" SS CE 391.79	8.15
	12" SD IE 399.67	
	6" SD CE 398.12	
7	12" SD IE 399.52	1.55
	12" SD IE 399.78	
	6" SS IE 398.00	
8	6" SD CE 396.46	1.54
	EX 8" WA IE 398.14	
	12" SD CE 393.47	
9	EX 8" WA IE 399.32	4.67
	EX 8" SS CE 389.85	
	8" SS CE 389.85	

CROSSING NOTES

- VERTICAL CLEARANCE FOR CROSSINGS WITH WATER MAINS PER MUKILTEO WATER AND WASTEWATER DISTRICT STANDARDS. MINIMUM 18" OF SEPARATION REQUIRED FOR CROSSINGS WITH WATER AND SANITARY SEWER. REFER TO SEWER AND WATER PLANS PREPARED FOR MUKILTEO WATER AND WASTEWATER DISTRICT (UNDER SEPARATE COVER)
- WHERE VERTICAL CLEARANCE IS LESS THAN 1'. CONTRACTOR SHALL PROVIDE ETHA-FOAM PAD.

EXISTING UTILITIES NOTE

- CONTRACTOR TO VERIFY LOCATION OF EX UTILITIES AT POINT OF CROSSING OR CONNECTION PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF RECORD IF CONFLICTS ARISE.
- CROSSINGS WERE DETERMINED ASSUMING 3' OF COVER OVER EXISTING WATER MAIN.

EXISTING UTILITY NOTE

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BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

REVISIONS		BY		DATE	
1	NO	DATE	BY	LCZ	
1		6/9/23			

COMPOSITE UTILITY PLAN

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

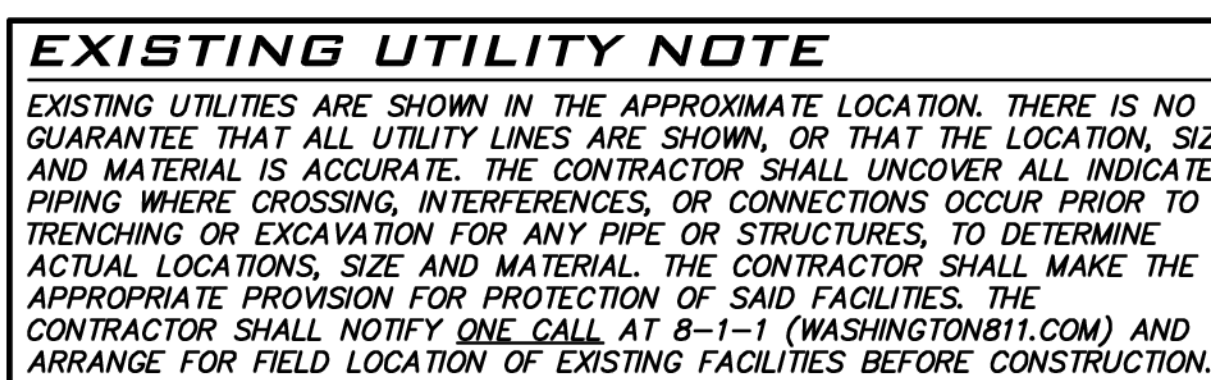
SNOHOMISH COUNTY WASHINGTON

8/9/22

JOB NUMBER:
21-073

SHEET NAME:
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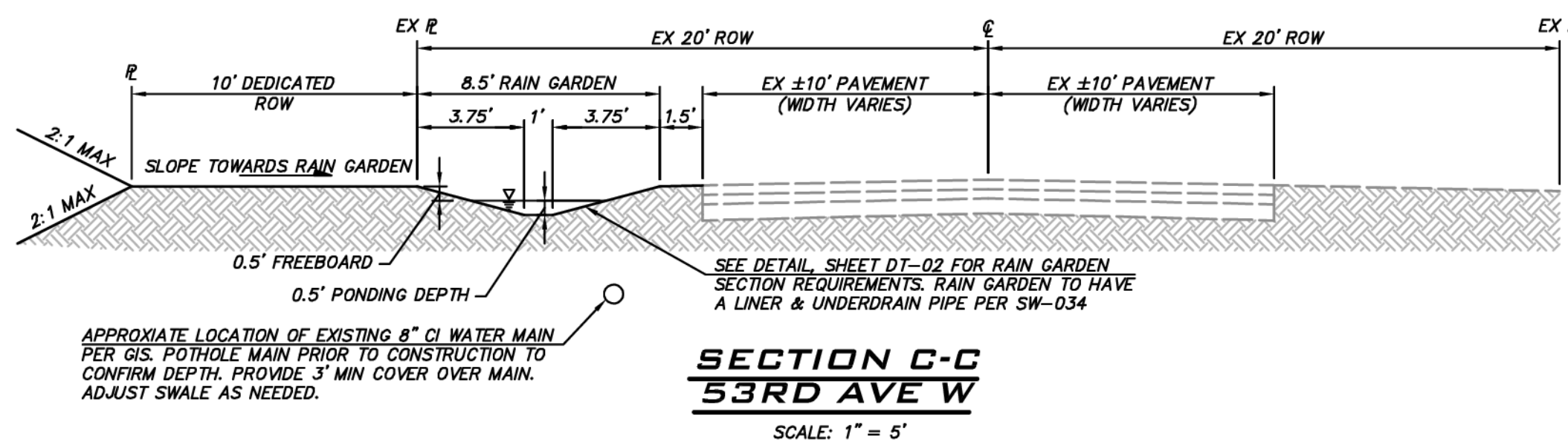
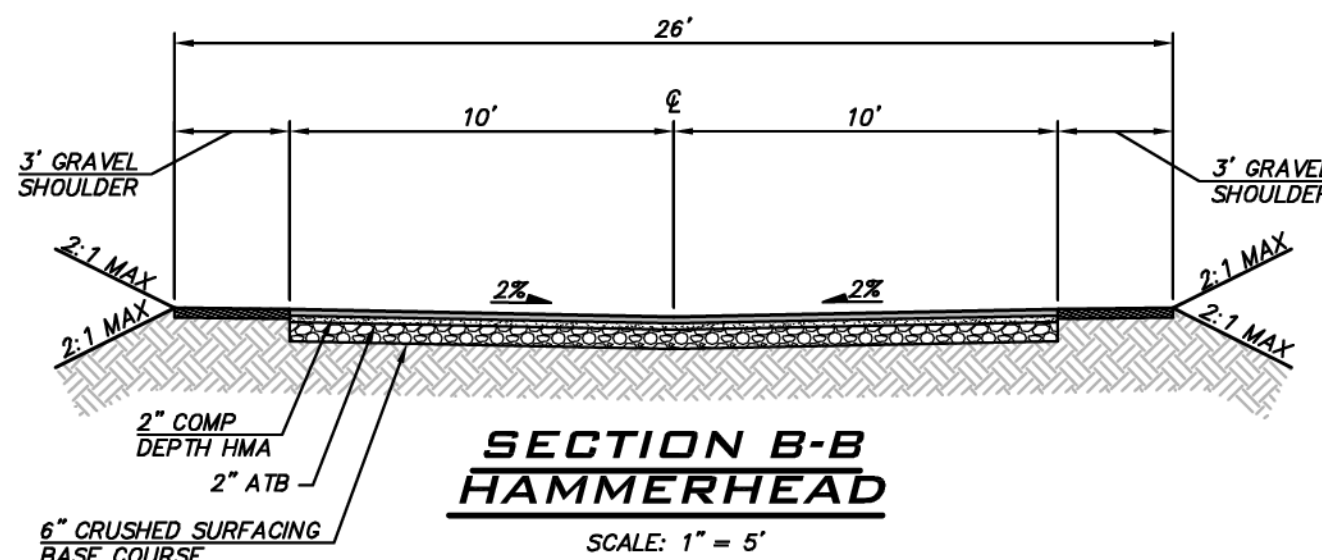
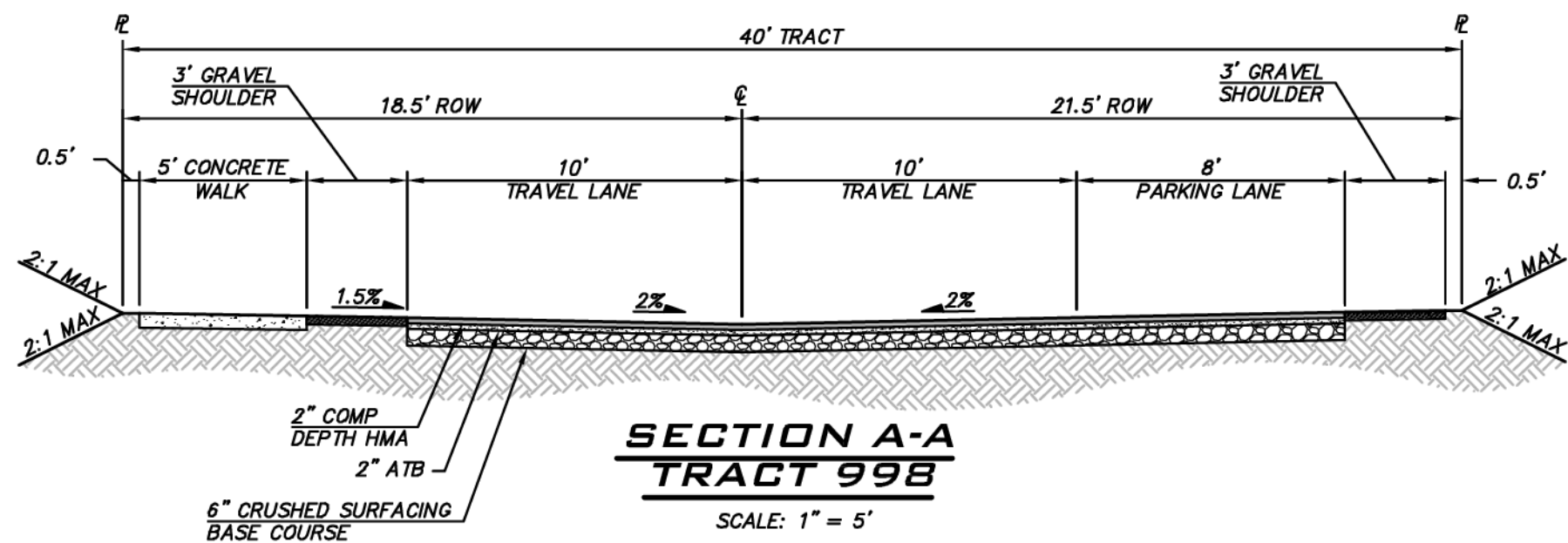
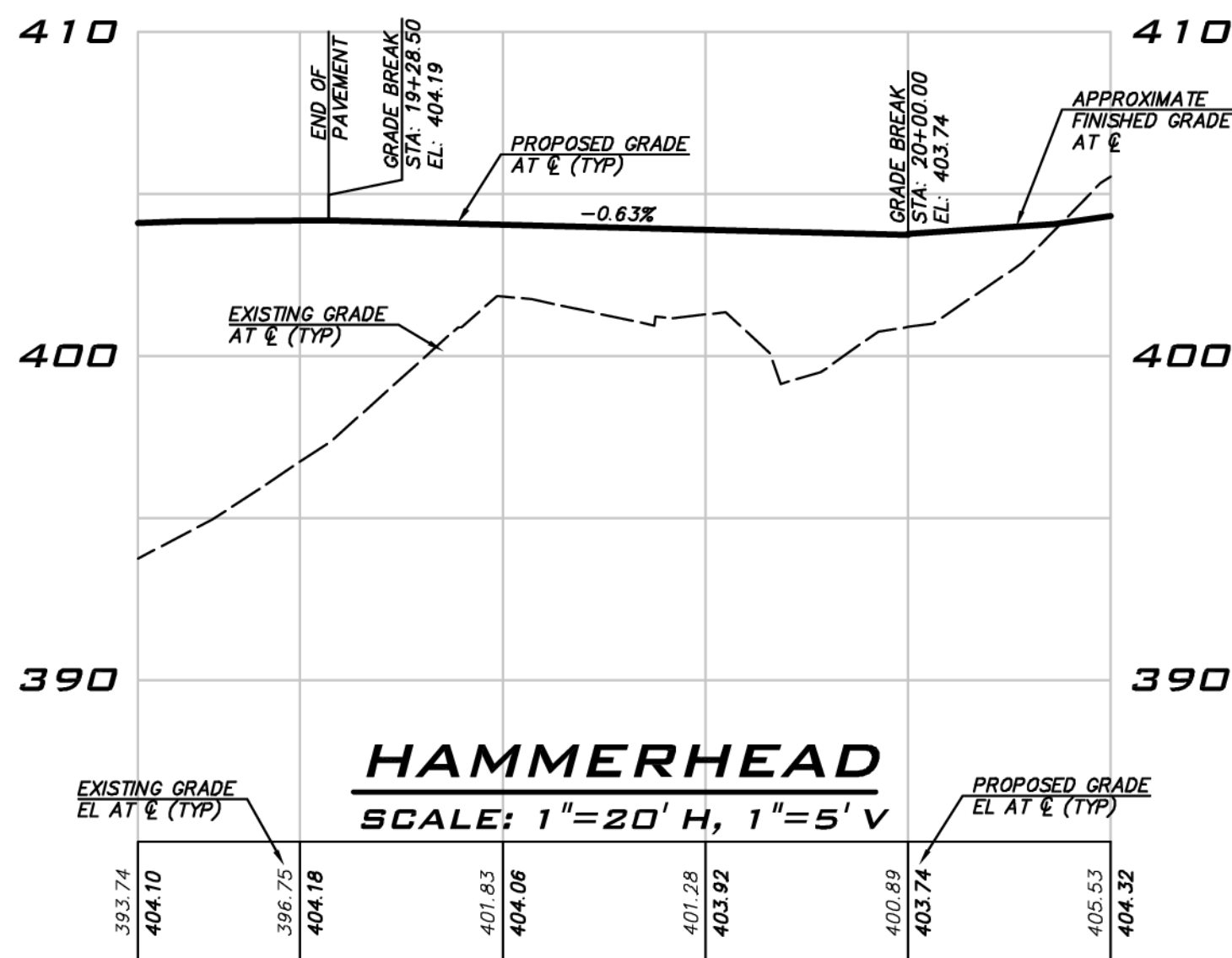
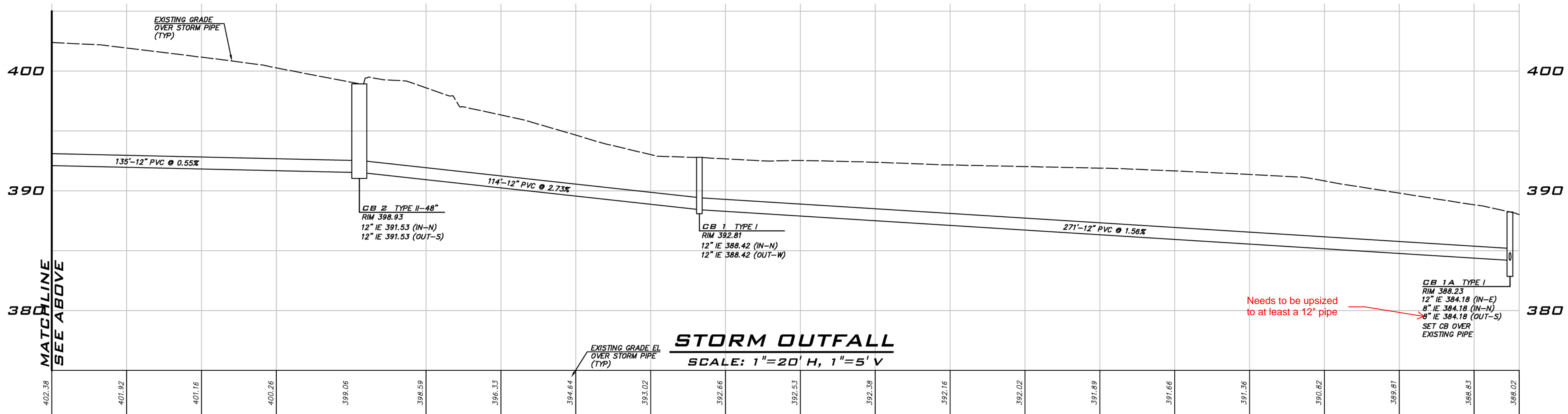
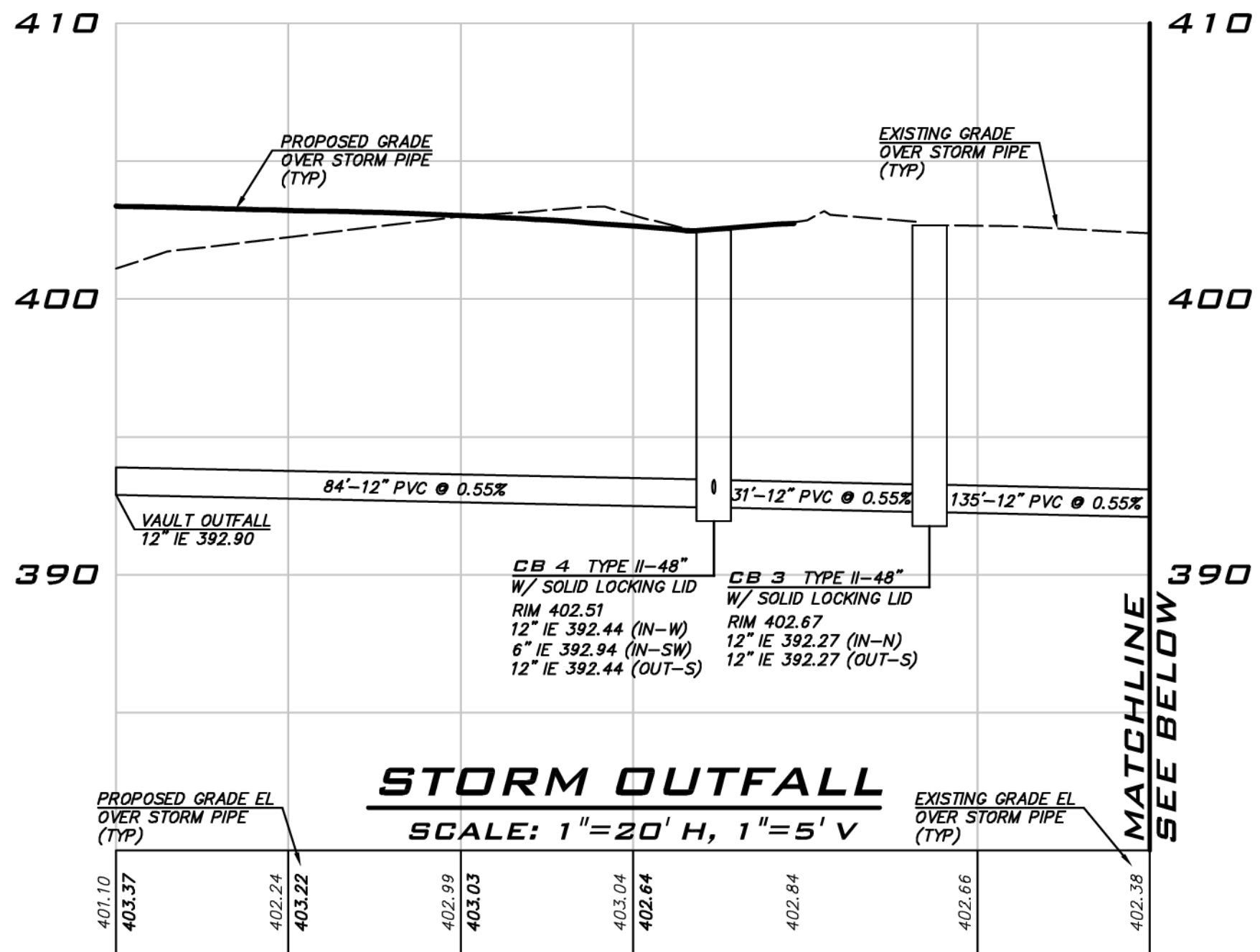
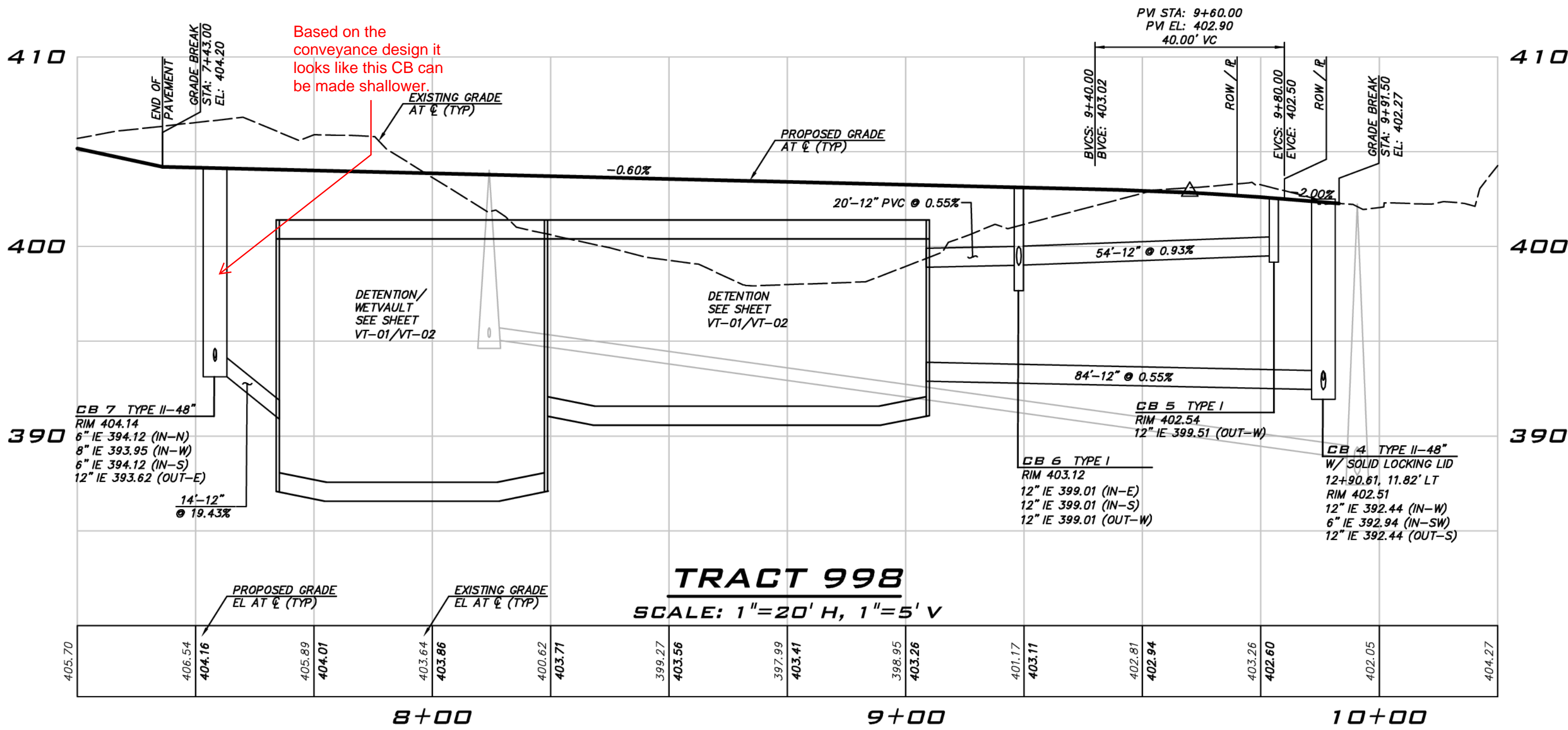
SHT **10** OF **21**



24-53
Aug 08, 2022 - 5:33pm - User: lzanotti
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NW 1/4, SEC 16, TWP 28N, RGE 4E



GROUNDWATER ELEVATION NOTE

ACCORDING TO THE GROUNDWATER ELEVATION EVALUATION BY COBALT GEOSCIENCES, LLC DATED MARCH 14, 2022, THE GROUNDWATER ELEVATION IN THE SITE VICINITY APPEARS TO BE AT 375 FEET. A COPY OF THE EVALUATION IS PROVIDED UNDER SEPARATE COVER.

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LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	REVISIONS
1	8/9/21	LCZ	REVISIONS PER CITY IST ROUND COMMENTS

ROAD & STORM PROFILES

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY

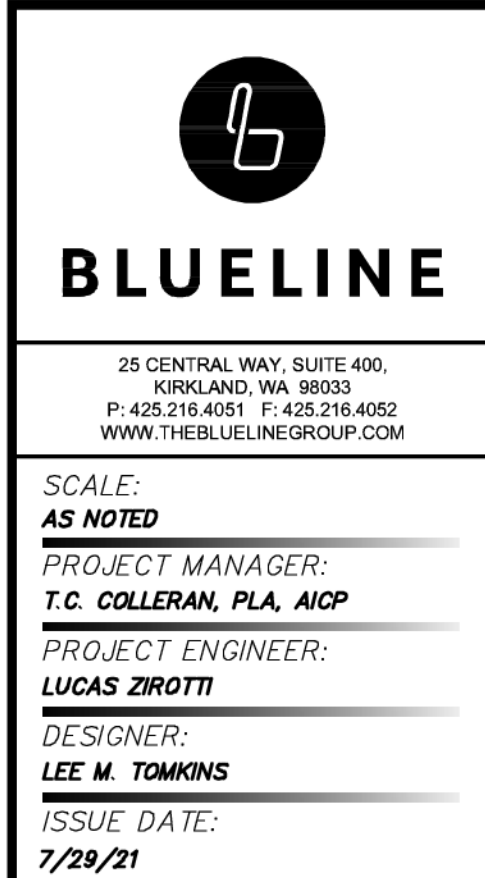
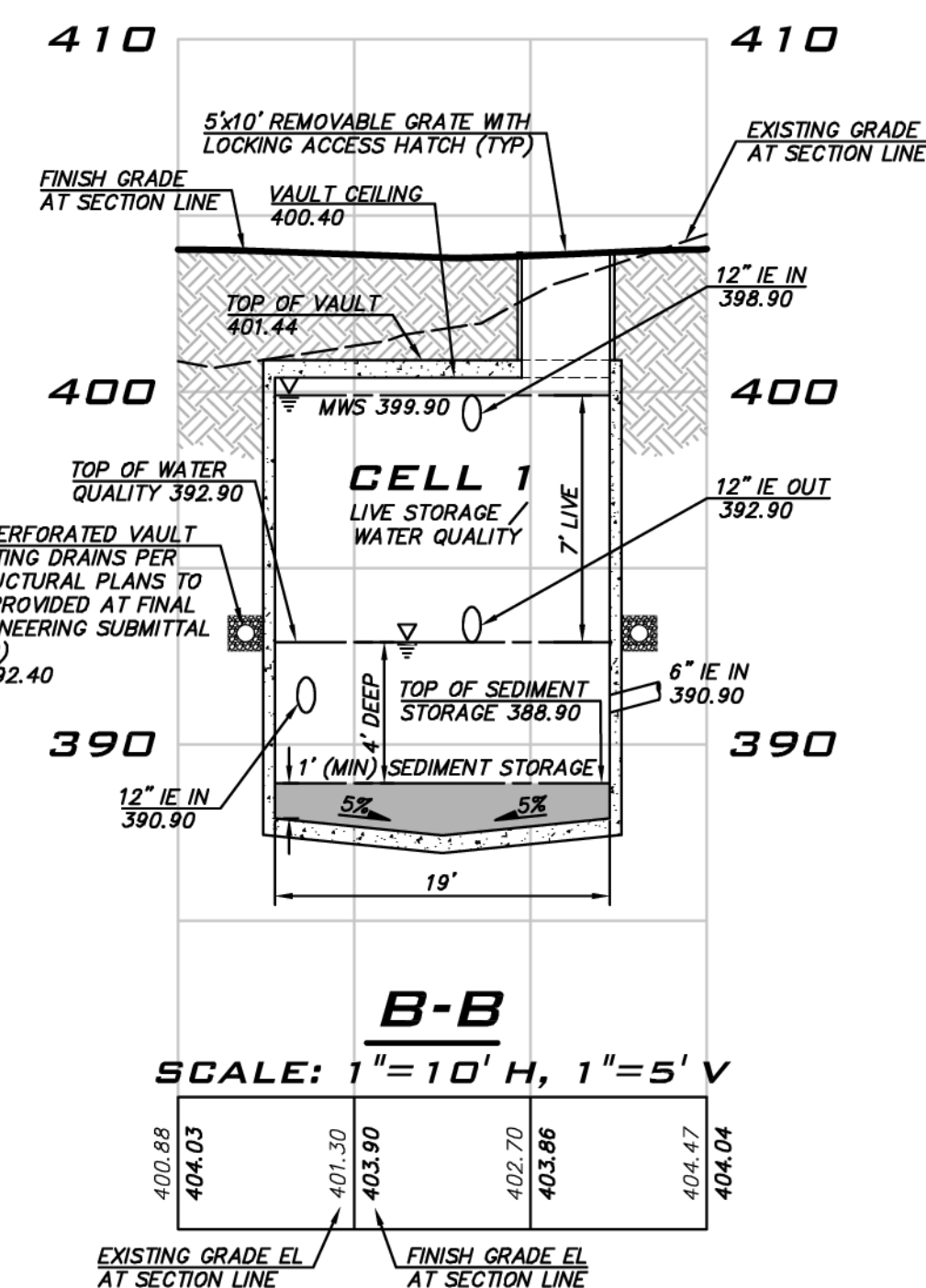
WASHINGTON

8/9/22

JOB NUMBER:
21-073

SHEET NAME:
RP-01

SHT **12** OF **21**

[illegible]

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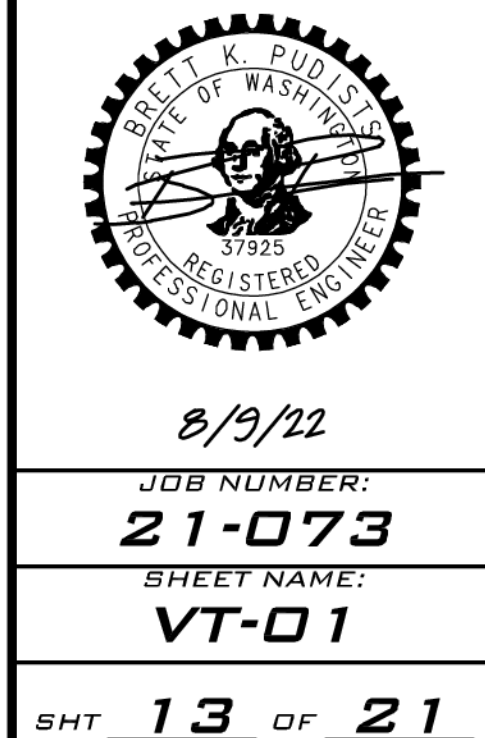
<i>VAULT VOLUMES</i>			
	<i>REQ'D</i>	<i>PROVIDED</i>	<i>ASBUILT</i>
<i>LIVE</i>	<i>17,080</i>	<i>18,088</i>	<i>XX,XXX</i>
<i>DEAD</i>	<i>3,946</i>	<i>4,256</i>	<i>X,XXX</i>

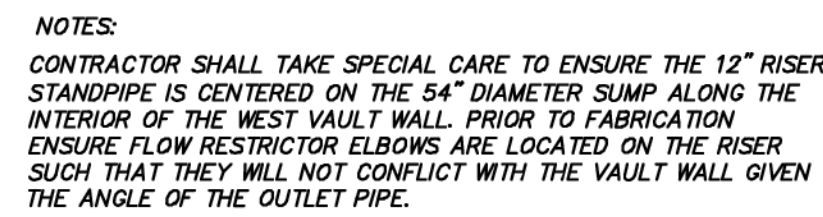
VAULT INFO	
FG OVER VAULT:	403.40 (MIN)
	404.30 (MAX)
MAX WATER SURFACE:	399.90
BOTTOM OF LIVE:	392.90
BOTTOM OF DEAD:	388.90

VAULT PLANS & SECTIONS

HARBOR GROVE
CIVIL PLANS

9110 53RD AVE W
SNOHOMISH COUNTY WASHINGTON



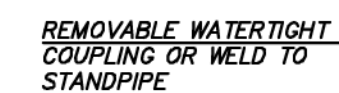


1. DIMENSIONS DEPICTING OVERALL SIZE OF VAULT ARE FOR REFERENCE ONLY. SEE STRUCTURAL PLANS FOR TOTAL LENGTH, WIDTH, HEIGHT AND WALL THICKNESS DESIGN, AS WELL AS LOCATIONS FOR ALL MAINTENANCE ACCESS POINTS AND PROPOSED PENETRATIONS
2. JOINTS AND PENETRATIONS IN VAULT AND LID TO BE WATER TIGHT. PROVIDE WATERSTOPS IN CAST-IN PLACE JOINTS
3. ALL WATERSTOPS TO BE INSTALLED PER PLAN AND SPECIFICATION AND TO BE INSPECTED BY CITY
4. PIPES SEALED WITH GROUT
5. VENTILATION PIPES (MIN 12 INCH DIAMETER) PROVIDED AT CORNERS. VENT PIPE SHALL BE SCHEDULED 40 PVC OR BETTER AND SHALL HAVE LOCKING DUCTILE IRON RINGS AND LIDS
6. WALL DRAINS TO BE CONSTRUCTED OF A MINIMUM 6-INCH PERFORATED PVC PIPE SURROUNDED BY 6" MIN THICK WASHED ROCK (ALL SIDES) UNLESS OTHERWISE NOTED BY STRUCTURAL ENGINEER. DRAINAGE DRAINS AT WALL BASE SHALL INCLUDE CLEANOUT AT ALL CORNERS, AND SHALL GRAVITY FLOW TO DISCHARGE POINT. NO ONE-WAY VALVES ALLOWED. DRAINS TO BE INSTALLED AT ELEVATION SHOWN. CONNECT PERFORATED DRAIN TO A 6" SOLID W/ODD AT 20' MAX. SLOPE DIRECTED TO DOWNSTREAM CATCH BASIN. INSTALL CLEANOUT AT BENDS TOTALING 90' AND AT 100' MAX O.C.
7. ACCESS OPENINGS TO HAVE OSHA CONFINED SPACE WARNING
8. PIPE SIZES AND SLOPES: PER PLANS
9. FINISHED GRADE OVER VAULT TO BE PER PLAN
10. VAULT EXCAVATION TO BE FENCED AND SECURED BY CONTRACTOR. SAFETY FENCING, SHORING, EXCAVATION SAFETY, AND OTHER SAFETY ITEMS ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL ACCESS TO HAVE SECURE COVERING DURING CONSTRUCTION.
11. ALL STORMWATER FACILITIES, CATCH BASINS, AND CONVEYANCE SHALL BE CLEANED FOR CITY INSPECTION PRIOR TO THE PLAT AND ALSO FOR CITY INSPECTION PRIOR TO PERFORMANCE AND MAINTENANCE BOND RELEASE
12. THE CONTRACTOR AND HIS SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSION AND ELEVATIONS SHOWN ON THESE DRAWINGS WITH THE CURRENT PERMITTED SET OF STRUCTURAL DRAWINGS. ALL SHALL NOTIFY BOTH THE STRUCTURAL & CIVIL ENGINEERS IN WRITING OF ALL DISCREPANCIES BETWEEN THE CIVIL DRAWINGS AND THESE DRAWINGS TO CONSTRUCTION.
13. CONCRETE FINISH TO BE SMOOTH WITH NO FINIS, VOIDS, ROCK POCKETS, OR OTHER IRREGULARITIES
14. CONE SNAP TIES ARE REQUIRED FOR FORMWORK AND EPOXY GROUT SEALED AT ALL INTERIOR AND EXTERIOR SURFACES. NO AT TIES ALLOWED
15. PER THE 2019 MINNAPARC, ALL VAULTS SHALL BE DESIGNED FOR H 20 LOADING
16. MINIMUM AND MAXIMUM GRADES OVER VAULT AS SHOWN. FOOTING DRAIN ELEVATIONS ARE PROVIDED FOR REFERENCE.



1. SHEAR GATE SHALL BE:
A. CAST IRON BODY AND GATE, OLYMPIC FDY, STD., OR
EQUAL.
B. ALUMINUM, DRAINAGE SPECIALTIES (SAVANNA, GA) STD.,
OR EQUAL.
2. GATE SHALL BE 8" DIAMETER UNLESS OTHERWISE SPECIFIED.
3. GATE SHALL BE JOINED TO TEE SECTION BY BOLTING
(THROUGH FLANGE), WELDING, OR OTHER SECURE MEANS.
4. LIFT ROD: AS SPECIFIED BY MANUFACTURER WITH HANDLE
EXTENDED TO WITHIN ONE FOOT OF COVER AND ADJUSTABLE
HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.

NOT TO SCALE



NOT TO SCALE

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HARBOR GROVE
CIVIL PLANS

9110 53RD AVE W

WASHINGTON
SNOHOMISH COUNTY

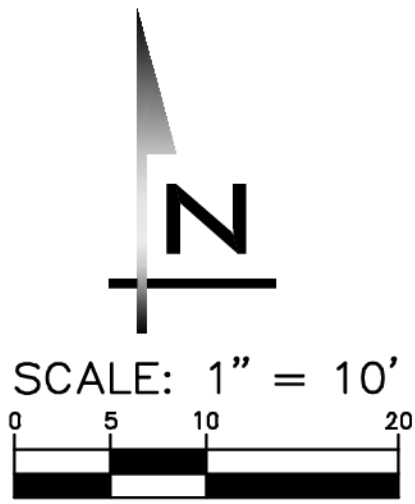
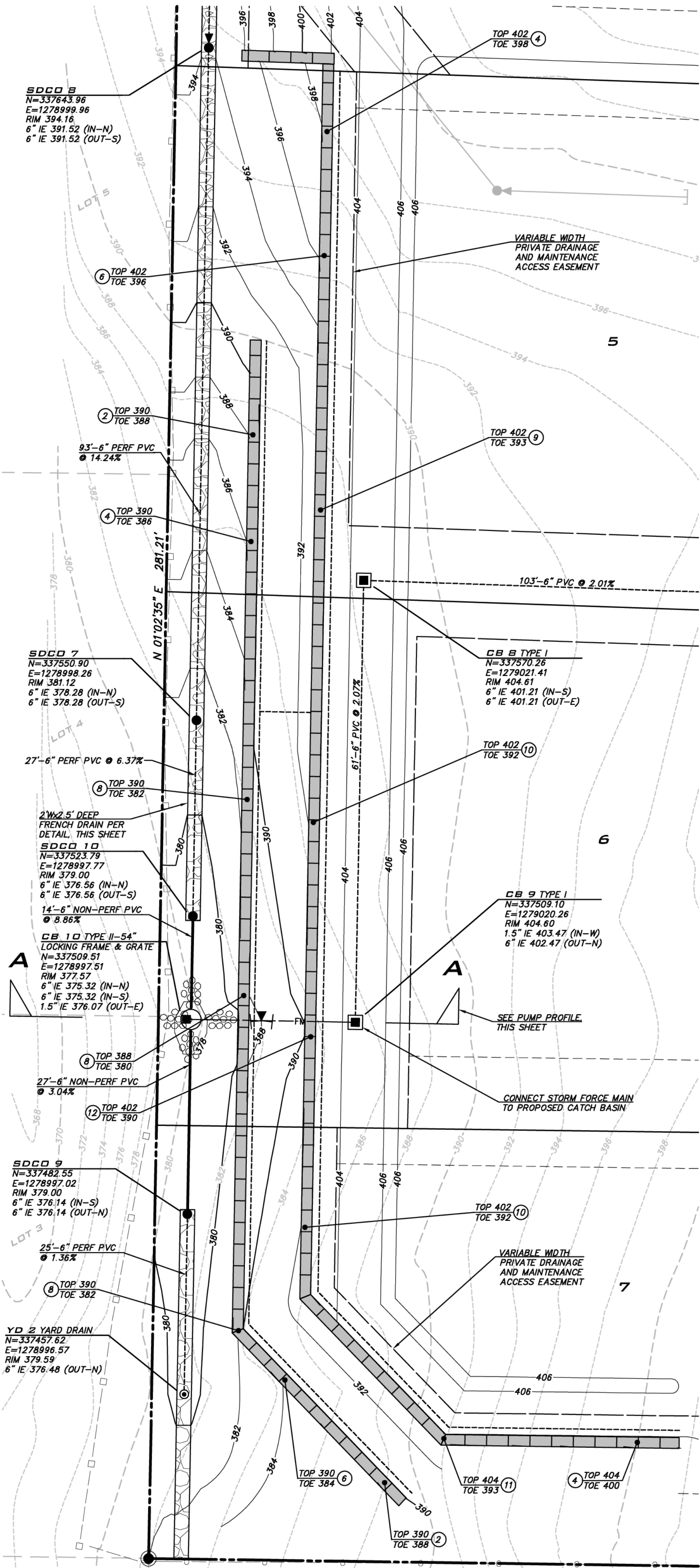
8/9/22

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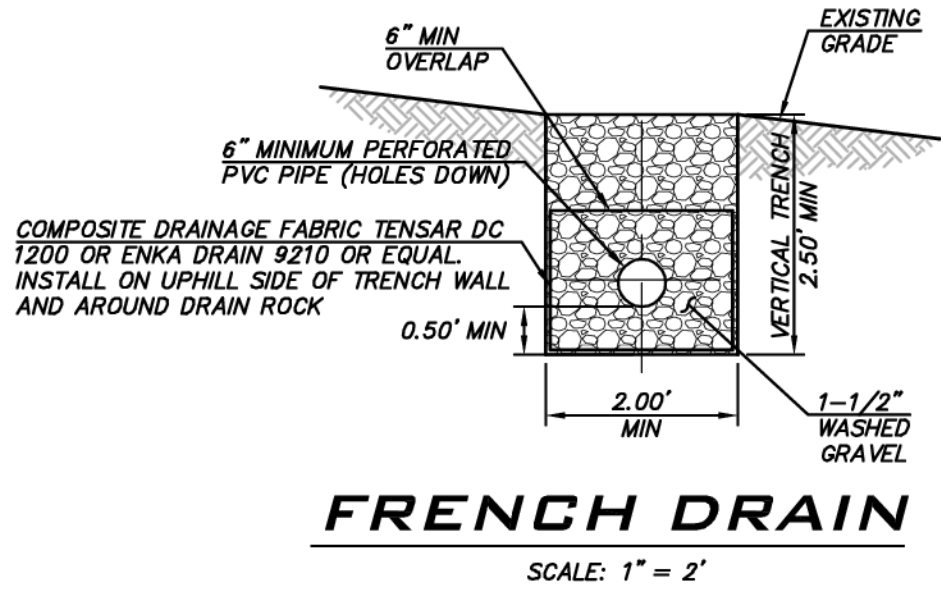
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SHT 14 OF 21

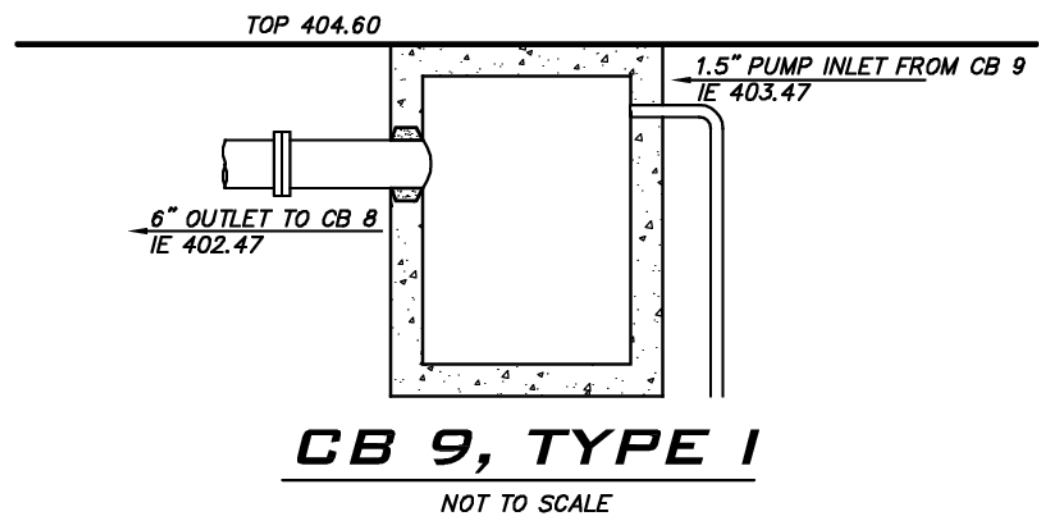
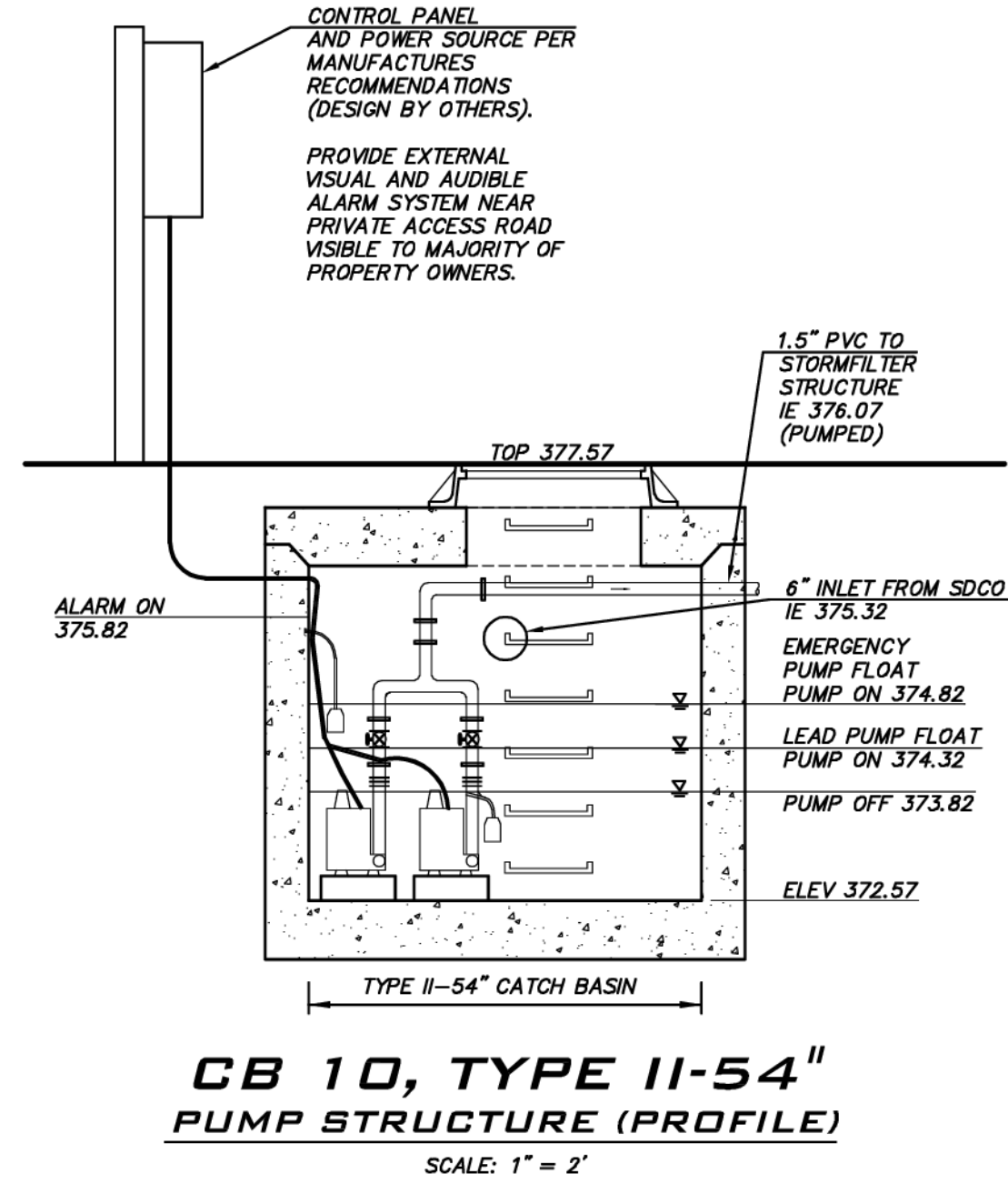
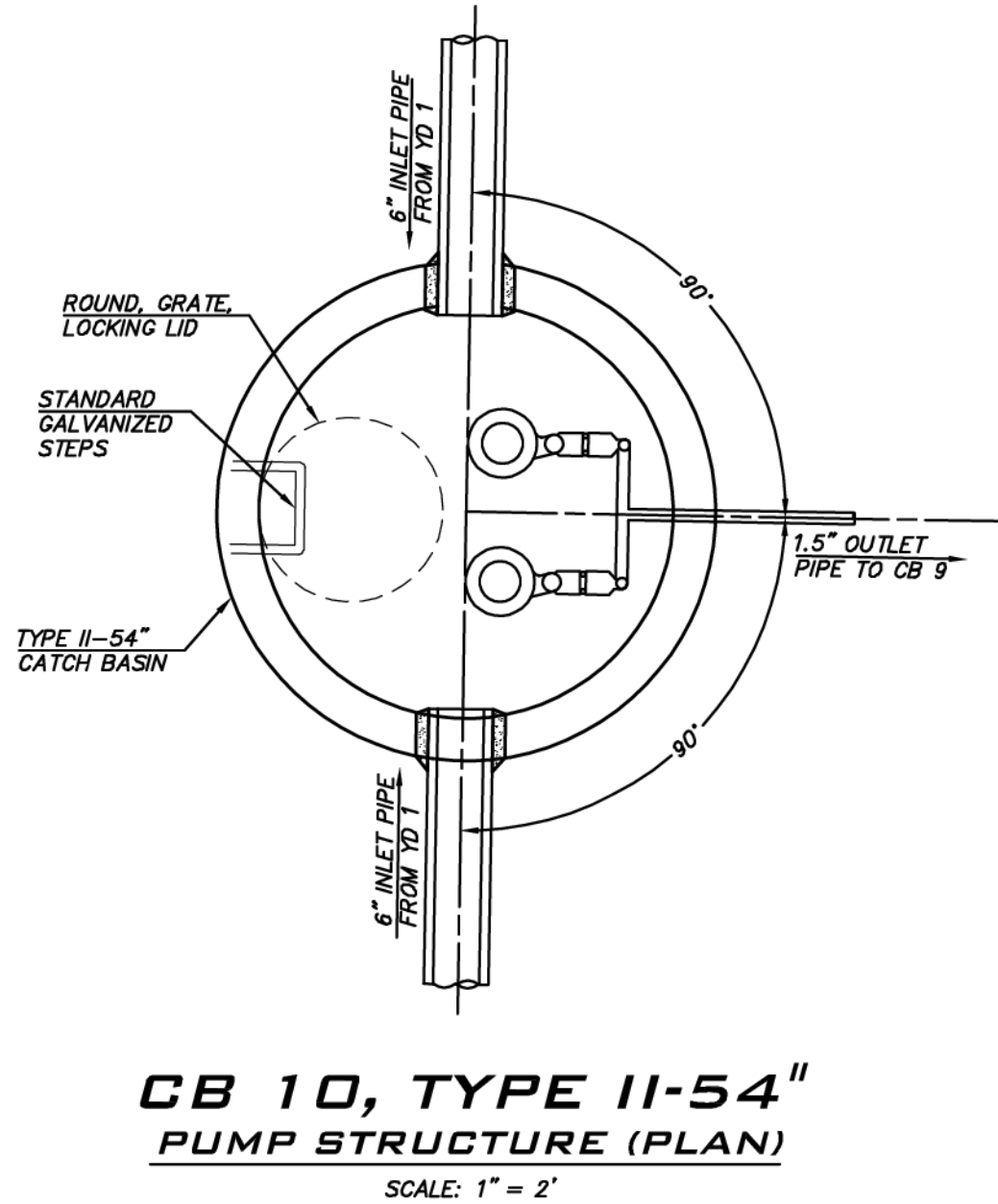
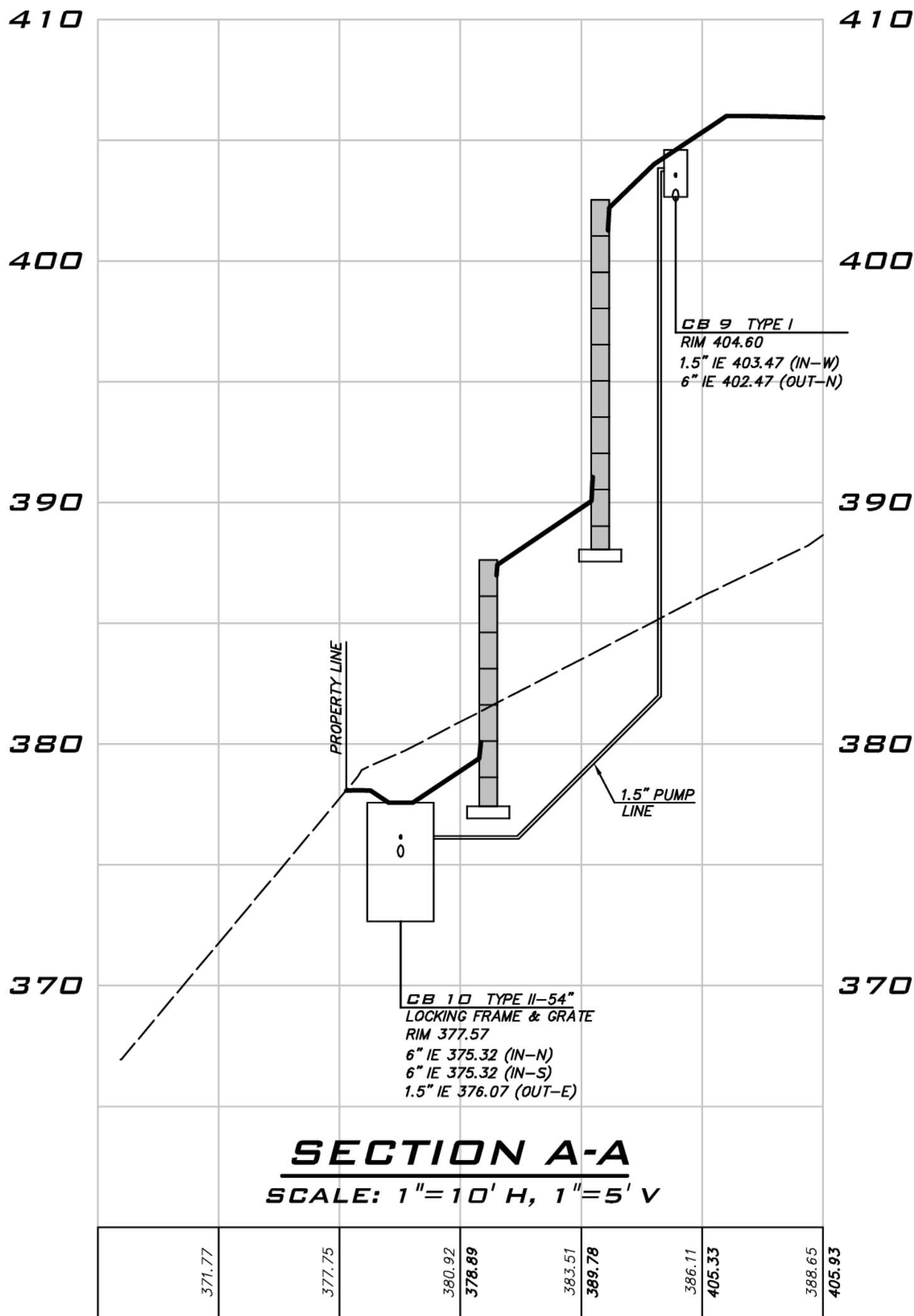


PUMP SPECIFICATIONS & NOTES

- THIS PUMP STATION DETAIL IS FOR SCHEMATIC PURPOSES ONLY AND TO OUTLINE THE BASIC PERFORMANCE REQUIREMENTS FOR THE SYSTEM. THE CONTRACTOR SHALL FOLLOW THE INSTALLATION REQUIREMENTS SPECIFIED BY THE PUMP MANUFACTURER. A REPRESENTATIVE OF THE PUMP MANUFACTURER SHALL BE ON-SITE TO INSPECT THE INSTALLATION OF THE SYSTEM.
- DUPLEX SUBMERSIBLE PUMP STATION REQUIREMENTS:
SUGGESTED PUMP: ZOELLER 152 DEWATERING SUBMERSIBLE PUMP
TOTAL HEAD = 27.37 FT
FLOW= 23.7 GPM / PUMP (0.063 CFS / PUMP)
PROVIDE ADJUSTABLE FLOW RESTRICTION VALVES ON DISCHARGE LINE
PUMPS SHALL BE RATED CONTINUOUS DUTY, SINGLE PHASED, 115V
2" NPT DISCHARGE LINE
INSTALL PUMPS ON DISCONNECT RAIL SYSTEM
PROVIDE ON, OFF AND ALARM FLOAT SWITCHES
ALTERNATING DUPLEX PUMP SYSTEM CONTROL PANEL TO BE INSTALLED BY QUALIFIED ELECTRICIAN PER NATIONAL ELECTRICAL CODE
SECURE/LOCKABLE OUTDOOR DUPLEX CONTROL PANEL WITH BATTERY BACKUP ALARM
PUMPS SHALL ALTERNATE WITH ONLY ONE PUMP ON AT A TIME (NO TWO PUMP ON CONDITION) WITH MAXIMUM RUN TIME OF 30 MINUTES PER PUMP



Applicant shall address the concerns expressed in the September 27, 2022 letter from Rugosa Ridge Homeowner's Association.



GROUNDWATER ELEVATION NOTE

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PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	LCZ	REVISIONS	REVISIONS PER CITY IST ROUND COMMENTS
1	6/9/23				

PUMP STATION DETAILS

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY

WASHINGTON

8/9/22

JOB NUMBER:
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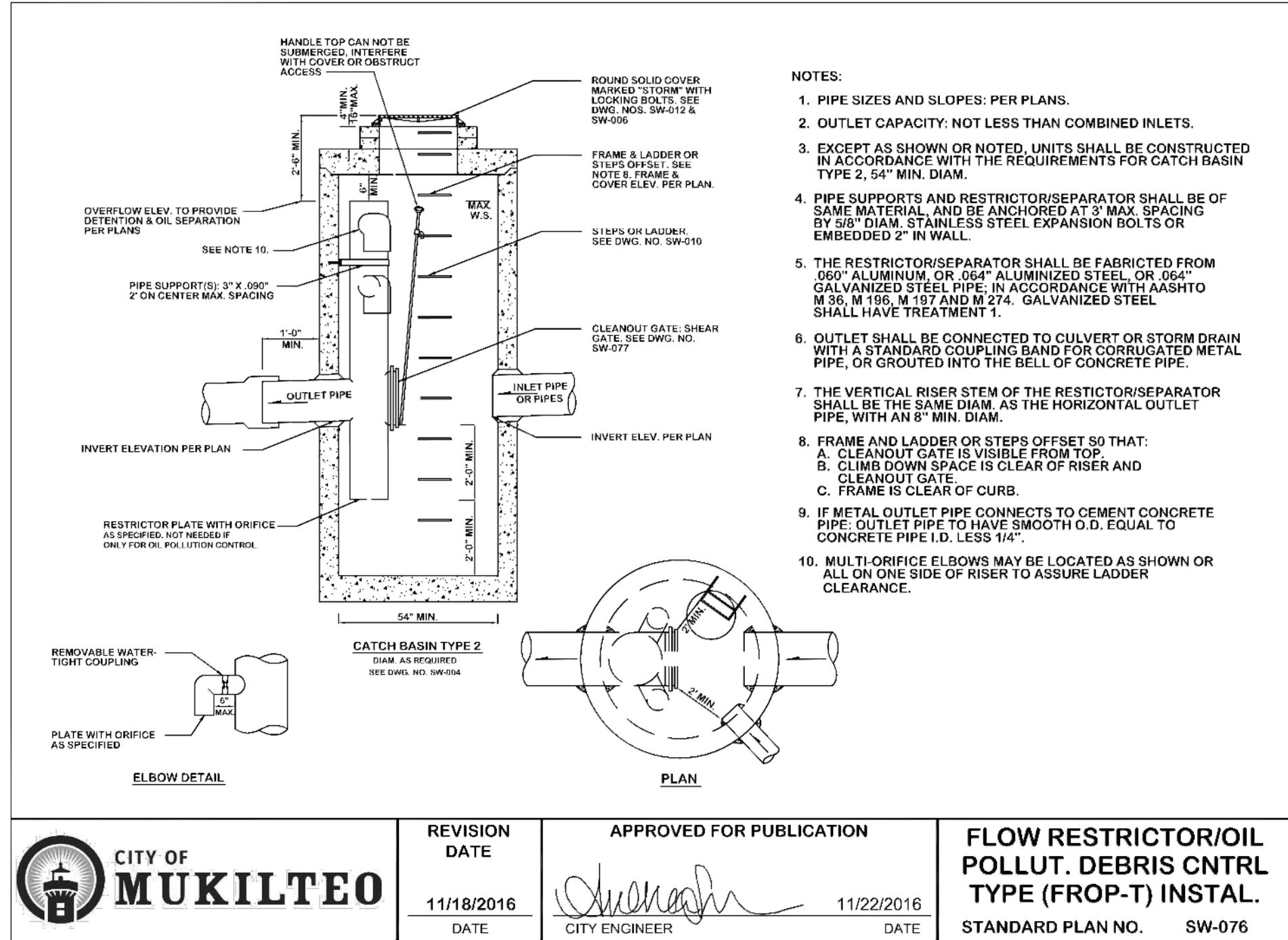
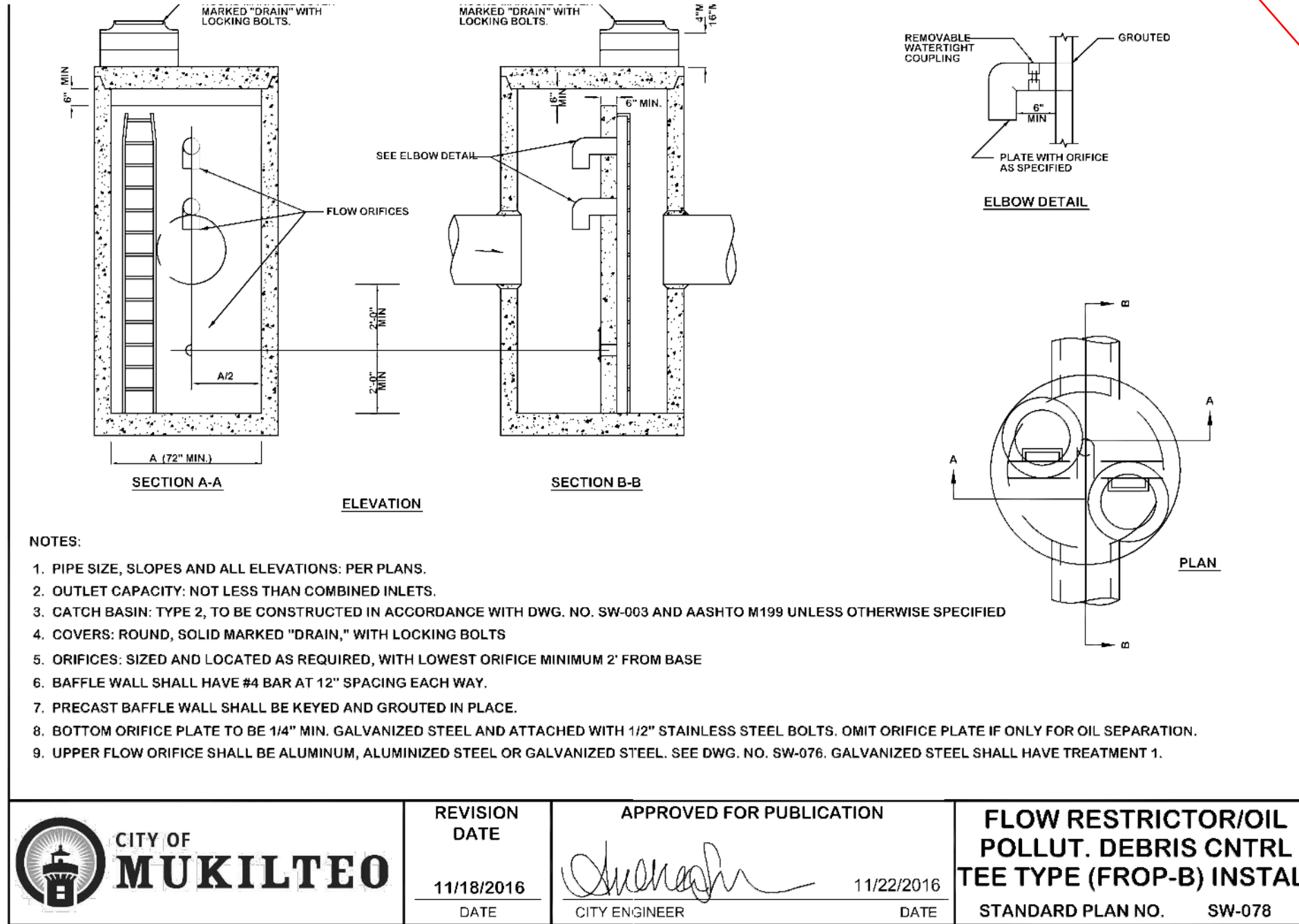
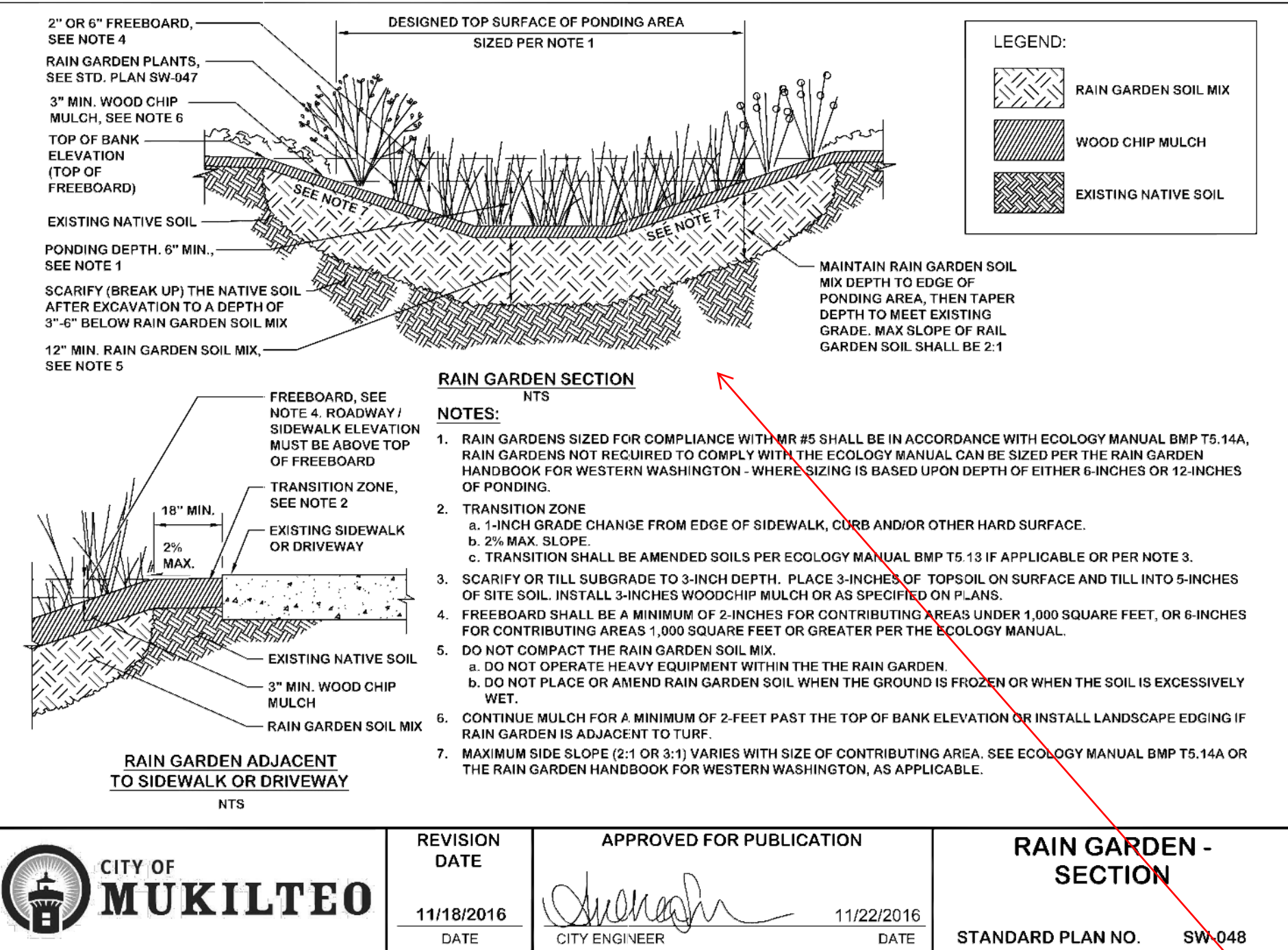
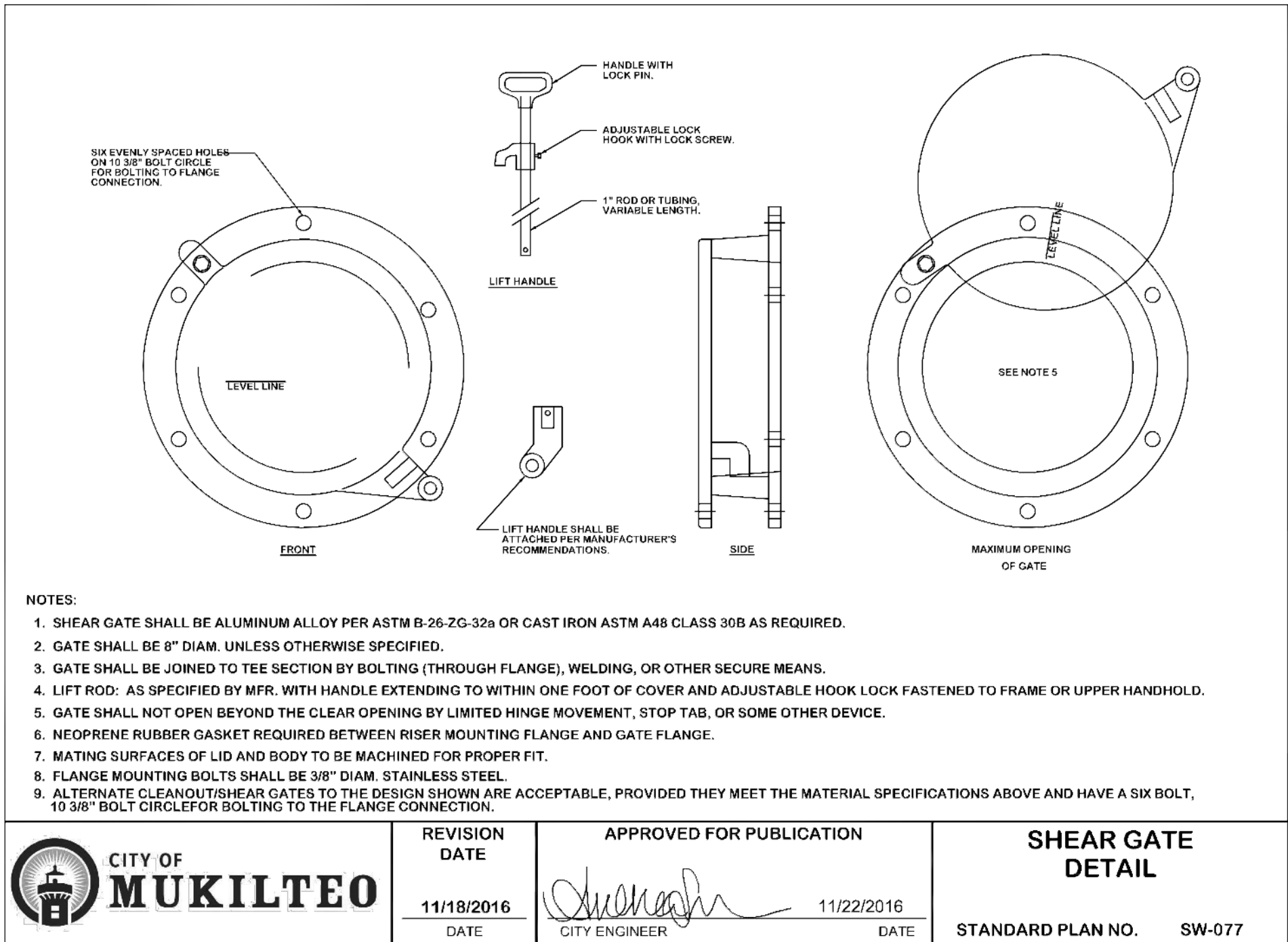
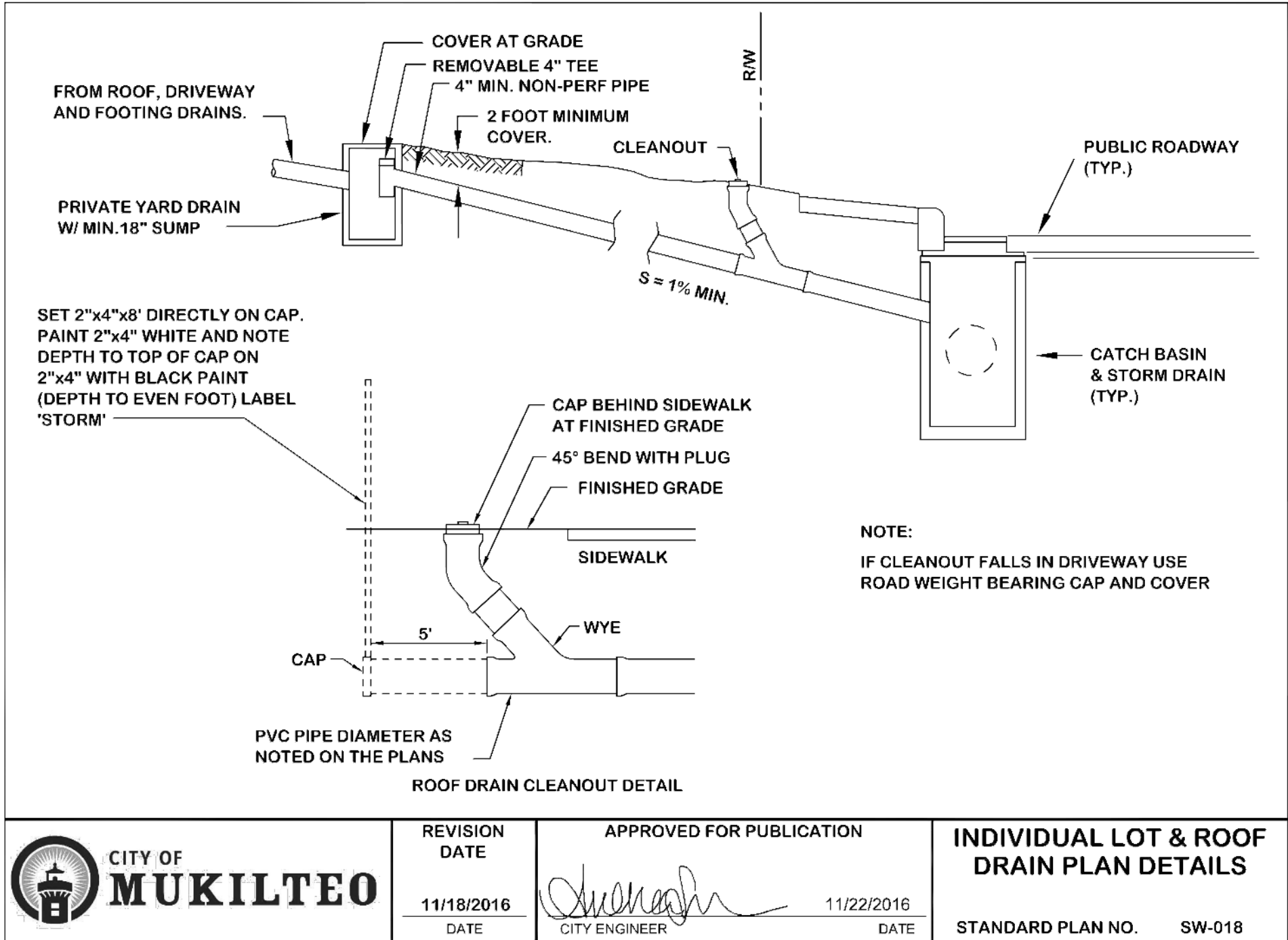
SHEET NAME:
PS-01

SHT **15** OF **21**

24-33
Aug 08, 2022 - 5:36pm - User: lrcatti
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NW 1/4, SEC 16, TWP 28N, RGE 4E



This detail has no
information about a
liner or underdrain
system. Update
detail to include this
information.

BLUELINE

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DESIGNER:
LEE M. TOMKINS
ISSUE DATE:
7/29/21

NO	DATE	BY	LCZ	REVISIONS PER CITY IST STANDARDS	COMMENTS
1	8/9/22				

STANDARD DETAILS

HARBOR GROVE
CIVIL PLANS
9110 53RD AVE W
SNOHOMISH COUNTY

WASHINGTON

8/9/22
JOB NUMBER:
21-073
SHEET NAME:
DT-02
SHT **21** OF **21**

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BLUELINE



Received 8/12/22

Harbor Grove

Mukilteo, Washington

Date: May 3rd, 2022

Revision Date: August 9th, 2022

Include project address and
parcel number

Include applicant's
phone number

Storm Drainage Report

Prepared for
Sea-Pac Homes
120 SW Everett Mall Way Suite 100
Everett, WA 98204

BlueLine Job No. 21-073
Prepared by: Olivia Westmoreland
Reviewed by: Lucas Zirotti, EIT
Jeremy Epley, PE

Include Engineer's
phone number



08/10/2022

The proposed improvements for this project are greater than 5,000 sf of new impervious area, thus the project, per the Department of Ecology's 2012 Stormwater Management Manual for Western Washington as amended in 2014 (DOE Manual), is categorized as a Large Project and required to meet Minimum Requirements 1 – 9 as detailed in Chapter 2 of the DOE Manual. The project was designed to satisfy the requirements of the DOE Manual as adopted by the City of Mukilteo and the 2019 City of Mukilteo Development Standards (COM Development Standards).

Need to state somewhere in the report whether or not groundwater wells and septic systems are on-site or within 100 feet of the site.

If permit application was deemed complete prior to June 30, then the applicant can use the 2014 manual. Otherwise the 2019 manual needs to be used. 2014 and 2019 are both referred to throughout this report. This inconsistency needs to be corrected.



Section 2 Minimum Requirements

The project will comply with Minimum Requirements 1 – 9 of the DOE Manual as adopted by the City of Mukilteo and COM Development Standards, determined by the DOE Flow Chart included at the end of this section. Minimum requirements are listed and met as detailed below.

MINIMUM REQUIREMENT #1: PREPARATION OF STORMWATER SITE PLANS

All projects meeting the thresholds in Section I-3.3 of the DOE Manual shall prepare a stormwater Site Plan for City review. Refer to the Final Engineering Submittal included under separate cover for detailed information about the proposed stormwater design.

MINIMUM REQUIREMENT #2: CONSTRUCTION STORMWATER POLLUTION PREVENTION (SWPPP)

See Section 5. A Construction SWPPP is provided under separate cover.

MINIMUM REQUIREMENT #3: SOURCE CONTROL OF POLLUTION

All known, available and reasonable source control BMPs must be applied to all projects. Source control BMPs will be selected, designed, and maintained in accordance with the COM Development Standards and the DOE Manual.

MINIMUM REQUIREMENT #4: PRESERVATION OF NATURAL DRAINAGE SYSTEMS AND OUTFALLS

See Sections 3 and 4. In the existing condition, site drainage ultimately flows west through the storm system within the Plat of Rugosa Ridge and outfalls to Smuggler's Gulch Creek. The developed drainage will be designed to match existing site discharge location. The existing and developed drainage path are both part of the Snohomish River basin.

Shouldn't this be the Smuggler's Gulch basin or the Puget Sound basin?

MINIMUM REQUIREMENT #5: ON-SITE STORMWATER MANAGEMENT

See Section 4. The project will comply with the Low Impact Development Performance Standards, per Table I-3.1 of the DOE Manual included at the end of this section. The project is required to evaluate the BMPs in the order listed in List #2 for each surface presented in the list and utilize the first BMP considered feasible. The site is proposing to collect onsite runoff and route it to a combined wetvault/detention vault to meet water quality and flow control requirements.

MINIMUM REQUIREMENT #6: RUNOFF TREATMENT

See Section 4. The project will provide Enhanced Water Quality Treatment Requirements as defined by Section 2.5.6 of the DOE Manual. Water quality requirements will be met by utilizing a wetvault.

MINIMUM REQUIREMENT #7: FLOW CONTROL

See Section 4. The project will meet Flow Control Requirements as stated in Section 2.5.7 of the DOE Manual. Flow control requirements will be met through the use of a detention vault.

A wetvault is a basic treatment BMP. Revise design to include an approved enhanced treatment BMP. Smugglers Gulch Creek is a stream identified on Mukilteo Critical Areas Maps and as defined under local critical areas ordinance. A segment of this watercourse is identified as Type F (Fish use potential) near the marine shoreline. Stormwater from the project has been designed to discharge in to this watercourse. Therefore, in comparison to Ecology manual section V-3.4, it is understood that this action would meet applicable criteria for "Discharge directly to fresh waters or conveyance systems tributary to fresh waters designated for aquatic life use or that have an existing aquatic life use".

Figure I-3.1: Flow Chart for Determining Requirements for New Development

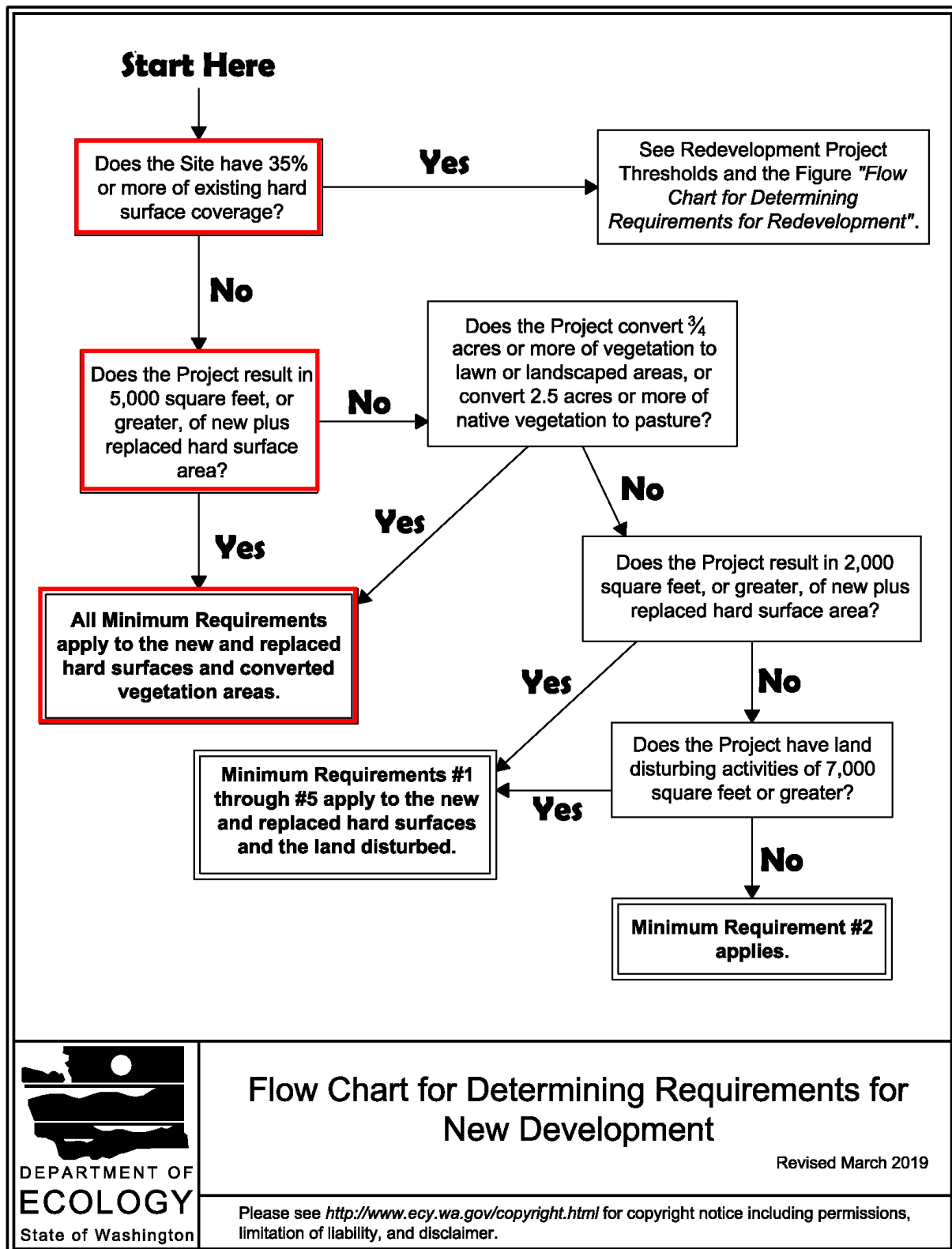


Table I-3.1: Minimum Requirement #5 Compliance Options for Projects Triggering Minimum Requirements #1 - #9

Project Location and Parcel Size	Minimum Requirement #5 Compliance Options
Projects inside the UGA, on any size parcel	<ul style="list-style-type: none"> Use the LID BMPs from List #2 for all surfaces within each type of surface in List #2; or Use any Flow Control BMPs desired to achieve the LID Performance Standard, and apply BMP T5.13: Post-Construction Soil Quality and Depth.
Projects outside the UGA, on a parcel smaller than 5 acres	
Projects outside the UGA, on a parcel 5 acres or larger	Use any Flow Control BMPs desired to achieve the LID Performance Standard, and apply BMP T5.13: Post-Construction Soil Quality and Depth .
<p>Note: This text refers to the Urban Growth Area (UGA) as designated under the Growth Management Act (GMA) (Chapter 36.70A RCW) of the State of Washington. If the project is located in a county that is not subject to planning under the GMA, the city limits shall be used instead.</p>	

Flow Control Exempt Projects

Projects qualifying as Flow Control exempt in accordance with the [TDA Exemption](#) in [I-3.4.7 MR7: Flow Control](#) shall either:

- Use the LID BMPs from List #3 for all surfaces within each type of surface in List #3; or
- Use any Flow Control BMP(s) desired to achieve the LID Performance Standard, and apply [BMP T5.13: Post-Construction Soil Quality and Depth](#).

If the project has multiple TDAs, all TDAs must be Flow Control exempt per the [TDA Exemption](#) in [I-3.4.7 MR7: Flow Control](#) for the project to use the options listed here.



The text in this box originates from one or more of the following Permits:
Appendix 1 of the Phase I / Phase II Municipal Stormwater Permits
Construction Stormwater General Permit

Update manual
version if necessary.



Section 3 Offsite Analysis



An offsite analysis was conducted on June 4th, 2021, a sunny day with temperatures around 56°F, to observe the downstream flow path of the site.

TASK 1: DEFINE AND MAP THE STUDY AREA

The project is comprised of one parcel (#00611600015901). See Section 4 of this report for the *Existing Conditions Exhibit* and the *Developed Conditions Exhibit*. A Photo Exhibit and Downstream Path Exhibit are provided at the end of this section that show the study area boundaries and the observed stormwater runoff flow path from the site.

TASK 2: RESOURCE REVIEW

The best available resource information was reviewed for existing or potential problems. The following is a summary of the findings from the information used in preparing this report.

- Per the Geotechnical Report provided by Earth Solutions NW, LLC., dated July 28, 2022, soils are dense to very dense silty sand, consistent with glacial till soil classification.
 - The groundwater elevation per the Groundwater Elevation Evaluation prepared by Cobalt Geosciences, LLC is at an elevation of 375 feet.
 - The site does not contain wetlands (City of Mukilteo Critical Areas Map).
 - The site is not located in an Erosion Hazard Area (Snohomish County GIS).
 - The site is not located in a Fish and Wildlife Habitat Conservation Area (City of Mukilteo Critical Areas Map).
 - The site is not located in a 100-year flood plain or a FEMA floodway (City of Mukilteo Critical Areas Map).
 - The site is not located in a Landslide Hazard Area (City of Mukilteo Critical Areas Map).
 - The site is located in a Seismic Hazard Area Site Class C (Snohomish County GIS).
 - The site is located in the ~~Everett Drainage~~ sub-basin which is located in the ~~Snohomish River Basin~~ (Snohomish County GIS).
- Possession Sound Watershed**

Smuggler's Gulch


Per email coordination with the City of Mukilteo, there are ongoing drainage complaints concerning Parcel No. 00925600000500, 00925600000600, and 00925600000700. These drainage complaints are located along the frontage basin downstream drainage path. The project is proposing to collect the majority of onsite runoff and route it south bypassing the area of concern. A small portion of area bypassing the proposed detention/wetvault will be tributary to the frontage downstream drainage path. When comparing the existing and the developed conditions, there will be a net decrease in the 100-year peak flow tributary to the frontage system. As such, the project will not impact the existing drainage issues along the frontage downstream drainage path and will not need to provide a quantitative capacity assessment of the existing



conveyance system. Refer to Section 4 of this report for a peak flow analysis between the existing and developed condition tributary to the frontage downstream path.

TASK 3: FIELD INSPECTION:

A field inspection was conducted for the project at 9110 53rd Ave W on June 4th, 2021. The weather was sunny with temperatures around 56°F. See below for detailed descriptions of the onsite and upstream basins. Task 4 of this section contains a detailed description of the downstream drainage path as well as a *Downstream Path Exhibit*.

Onsite Basin

The site contains an existing single-family residence, garage structure, driveway, and associated residential landscaping, including rockery and fencing. The site is bound to the north, west, and south by single-family residences. The site is bound to the east by 53rd Ave W. The site is located in the ~~Snohomish River~~ **Smuggler's Gulch** drainage basin and onsite runoff is ultimately tributary to the Puget Sound. See *Existing Conditions Exhibit* provided in Section 4.1 of this report.

Per the Geotechnical Report provided by Earth Solutions NW, LLC., dated July 28, 2022, soils are dense to very dense silty sand, consistent with glacial till soil classification.

The site consists of an east and west subbasin, where their downstream paths combine within a quarter mile. Runoff from the site generally sheet flows east and west from the natural ridge onsite located in the center portion of the site. Runoff travelling both east and west sheet flows across existing topography and vegetated landcover before entering conveyance systems on the respective property edges.

Upstream Area

In the existing condition, surface runoff from majority of adjacent properties sheet flow away from the site. It appears that Parcel 00611600015902 outfalls to the subject property and will be collected and routed to the detention vault in the developed condition.

TASK 4: DRAINAGE SYSTEM DESCRIPTION

The downstream drainage path was investigated approximately ¼ mile downstream from the site. Refer to the *Downstream Drainage Exhibit* for the path and photo locations referred to in this section.

Existing Downstream Drainage Path

East Subbasin (Frontage Basin)

In the existing condition, portions of runoff from the subject site frontage along 53rd Ave W are collected via drainage swales and routed north along the west side of 53rd Ave W. Flows enter a driveway culvert near the northeast corner of the subject parcel and daylight to a drainage swale that continues north before entering a culvert that directs water to a storm drain manhole. Water continues traveling west within the existing tightlined storm system and outfalls to Smuggler's Gulch Creek. Flows continue west and south up to the quarter-mile downstream location. In the developed condition, runoff from the frontage will maintain the existing frontage natural discharge location. There are multiple downstream drainage complaints along this downstream path. The project will be reducing the 100-year peak flow tributary to this existing system and will therefore not negatively impact these drainage concerns.

There is no discussion about the condition that the existing drainage system is in. Please add this discussion for each downstream route.



West Subbasin (Onsite Basin)

The majority of the existing onsite runoff sheet flows west across vegetated landcover (*Photo W.1 – 3*). Runoff travelling west continues across Parcel No. 01116500000600, Parcel No. 01116500000500, Parcel No. 01116500000400, and Parcel No. 01116500000300 before entering a catch basin on the east side of Hargreaves Pl (*Photo 4 – 5*). Flow continues west through the existing tightlined storm system, travelling underneath Hargreaves Pl. Flow travels to the west side of Hargreaves Pl, discharging to heavily vegetated understory on the west side of Hargreaves Pl (*Photo W.6 – 7*). Runoff combines with Smuggler's Gulch creek, where it continues west to the quarter-mile downstream location (*Photo W.8*).

*Developed Downstream Drainage Path**Onsite Basin*

In the developed condition, the project proposes to collect majority of onsite runoff via roof drains/yard drains/french drains, route runoff to an onsite detention vault, and outfall to the existing system within 92nd St SW. Flows will continue to travel west along the south side of 92nd St SW via the existing tightlined storm system (*Photo 1*). Runoff is conveyed north, crossing 92nd St SW and travelling along the west side of Hargreaves Pl (*Photo 2*) before eventually discharging to vegetated understory (*Photo 3*). Runoff combines with Smuggler's Gulch Creek and travels west to the quarter-mile downstream location.

The existing east subbasin, existing west subbasin, and developed basin downstream paths discharge west of Hargreaves Pl and converge at Smuggler's Gulch Creek within a quarter mile downstream of the site, thus, result in one threshold discharge area. The downstream paths are part of the Snohomish River basin and are eventually tributary to Puget Sound.

Smuggler's Gulch



DEVELOPED CONDITIONS

The project will create 7 single-family lots with residential landscaping, a combination detention/wetvault, and associated utilities. The site will provide an open space tract and a private utility/access tract. The project will dedicate 0.05 acres along the eastern property boundary as right-of-way. Refer to the Developed Conditions Exhibit included on the following page. Refer to the Downstream Drainage Exhibit included in Section 3 of this report.

The majority of runoff from the developed basin will be routed to an onsite detention/wetvault via a network of catch basins/pipes and outfall to the existing storm conveyance system within the intersection of 53rd Ave W and 92nd St SW. The site is subject to one threshold discharge area as the proposed downstream drainage paths combine within a quarter-mile. Refer to the Downstream Drainage Exhibit included in Section 3 of this report.

Flow control will be achieved by an onsite detention facility located in Tract 998. Treatment for Basic water quality is proposed through dead storage within the detention vault.

The developed drainage basin consists of the parcel, post dedication (2.38 acres), minus approximately 0.19 acres of undisturbed/protected area, plus an additional 0.12 acres of frontage area, for a total basin of 2.31 acres. Approximately 0.12 acres of targeted area cannot physically be routed to the proposed detention system and will therefore be considered bypass. The detention facility has been designed to accommodate a maximum impervious hard surface coverage of 32% for each lot. Private Utility and Access Tract (Tract 998) is assumed to be 95% impervious and Open Space Tract (Tract 999) is assumed to contain 0.02 acres of impervious. A maximum impervious coverage per zoning, percentage of 55%, is assumed for the upstream area within 00611600015902.

All landscaped and open areas will have compost amended soils per BMP T5.13. Areas meeting BMP T5.13 design guidelines may be entered into WWHM as "Pasture" rather than "Lawn" per Volume V, BMP T5.13 of the DOE Manual.

Refer to the developed conditions areas, WWHM Flood printouts, and the *Developed Conditions Exhibit* included on the following pages and Appendix A.

Enhanced treatment is required because the project is tributary to fresh waters that have an existing aquatic life use (Smuggler's Gulch Creek) - Ecology Manual Volume V Chapter 2 pg 779.

This needs to be clearly depicted on the plans. Currently the plans do not show the detail for this BMP.



4.5 WATER QUALITY ANALYSIS AND DESIGN

Enhanced treatment is required.

The project will provide basic water quality treatment. The project will provide treatment for the majority of the parcel, post dedication, via a combined detention/wetvault. The water quality design storm volume shall be equal to the simulated daily volume that represents the upper limit of the range of daily volumes that accounts for 91% of the entire runoff volume over a multi-decade period of record. The dead storage volume provided will be equal to or greater than the required volume, in addition to 1' of sediment storage.

Per the WWHM 2012 printout below, the required volume for the dead storage for the developed site is equal to 0.0906 ac-ft (3,946 CF). The dead storage will be provided below the outlet elevation within the vault. Dead storage will be 4 feet deep. The total dead storage volume is provided in the detention vault, having dimensions of 56'L x 19'W x 4' Deep cell which provides 4,256 CF, exceeding the minimum required. Refer to the sheet VT-01 provided on the following page for Vault Details.

The screenshot displays the 'Analysis' software window. The 'Water Quality' section is active, showing results for 'On-Line BMP' and 'Off-Line BMP'. The 'On-Line BMP' results include a 24-hour volume of 0.0906 ac-ft and a standard flow rate of 0.1174 cfs. The 'Off-Line BMP' results show a standard flow rate of 0.0663 cfs. Below these results, there are tabs for 'Stream Protection Duration', 'LID Duration', 'Flow Frequency', 'Water Quality', and 'Hydrograph'. The 'Water Quality' tab is selected. At the bottom, there is a list of datasets, with '701 Inflow to POC 1 Mitigated' selected. The 'Flood Frequency Method' is set to 'Log Pearson Type III 17B'.

Water Quality	On-Line BMP	Off-Line BMP
24 hour Volume (ac-ft)	0.0906	
Standard Flow Rate (cfs)	0.1174	0.0663

Stream Protection Duration | LID Duration | Flow Frequency | **Water Quality** | Hydrograph

Wetland Input Volumes | LID Report | Recharge Duration | Recharge Predeveloped | Recharge Mitigated

Analyze datasets | Compact WDM | Delete Selected | Monthly FF

1 PUYALLUP DAILY EVAP W/JENSEN-HAIS
 2 Everett
 501 POC 1 Predeveloped flow
701 Inflow to POC 1 Mitigated
 801 POC 1 Mitigated flow
 901 COPY Mitigated
 1000 Vault 1 ALL OUTLETS Mitigated
 1001 Vault 1 STAGE Mitigated

All Datasets | Flow | Stage | Precip | Evap | POC 1

Flood Frequency Method
☒ Log Pearson Type III 17B
☐ Weibull
☐ Cunnane
☐ Gringorten



4.5 LID FEASIBILITY ANALYSIS

The City of Mukilteo adopted the Department of Ecology's 2012 Stormwater Management Manual for Western Washington as amended in 2014. The project requires LID to be evaluated per Figure I-2.5.1: Flow Chart for Determining LID MR #5 Requirements found in the DOE Manual. A copy of the flow chart is provided on the following pages. Development on any parcel inside the UGA must meet the Low Impact Development Performance Standard and BMP T5.13 or List #2.

See below for a feasibility evaluation of each BMP from List #2.

LAWN AND LANDSCAPED AREAS:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Chapter 5 of Volume V of the DOE Manual.

Post-Construction Soil Quality and Depth in accordance with BMP T5.13 is feasible and will be used for all disturbed lawn and landscaped areas.

Where on the plans is this enforced? Make sure to include a detail showing this soil depth section.

ROOFS:

1. Full Dispersion in accordance with BMP T5.30 in Chapter 5 of Volume V of the DOE Manual, or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Section 3.1.1 of Volume III of the DOE Manual.

The site is bound to the north, west, and south by single-family residences, and to the east by 53rd Ave W, so there are no viable 100-ft flow paths through native vegetation to disperse all impervious areas. Therefore, full dispersion in accordance with BMP T5.3 is not feasible. Downspout full infiltration systems are infeasible as site soils are considered unsuitable for infiltration per the Geotechnical Report provided by Earth Solutions NW, LLC., dated July 28, 2022. See Section 6 for the full geotechnical report.

2. Bioretention (See Chapter 7 of Volume V of the DOE Manual) facilities that have a minimum horizontally projected surface area below the overflow which is at least 5% of the of the total surface area draining to it.

Bioretention is infeasible as the till soils encountered onsite are not conducive to infiltration per the Geotechnical Report provided by Earth Solutions NW, LLC., dated July 28, 2022. See Section 6 for the full geotechnical report. As such, implementation of bioretention will not be provided.

3. Downspout Dispersion Systems in accordance with BMP T5.10B in Section 3.1.2 of Volume III of the DOE Manual.

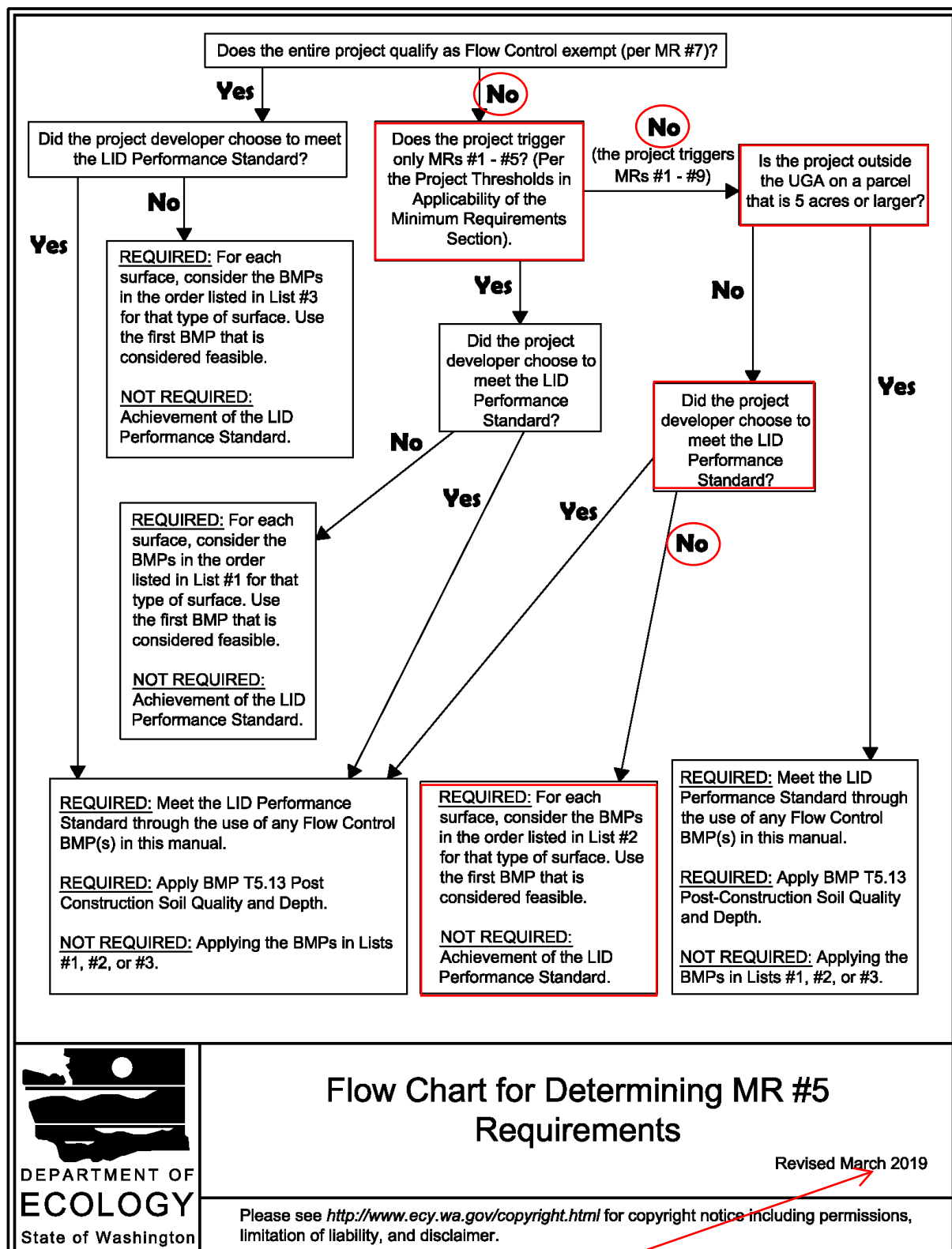
Basin dispersion will be evaluated at building permit to accurately assess the vegetated flow paths as lot structures are conceptual and subject to change.

4. Perforated Stub-out Connections in accordance with BMP T5.10C in Section 3.1.3 of Volume III of the DOE Manual.

The till soils encountered onsite are not conducive to infiltration. BMP T5.10C is infeasible due to an insufficient infiltration rate.

OTHER HARD SURFACES:



Figure I-3.3: Flow Chart for Determining MR #5 Requirements

Use the 2014 manual version



Figure III-B.3: Western Washington Isopluvial 100-year, 24 hour



Construction Stormwater General Permit

Stormwater Pollution Prevention Plan (SWPPP)

for
Harbor Grove

9110 53rd ~~Avenue~~ W Mukilteo, WA 98275

Prepared for:
The Washington State Department of Ecology
Northwest Regional Office

SWPPP Preparation Date
08/09/2022

Permittee / Owner	Developer	Operator / Contractor
Sea-Pac Homes	Sea-Pac Homes	TBD

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD	TBD	TBD

SWPPP Prepared By

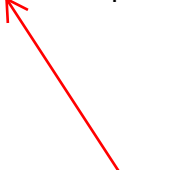
Name	Organization	Contact Phone Number
Olivia Westmoreland	The Blueline Group	425-250-7236

Project Construction Dates

Activity / Phase	Start Date	End Date
Clearing / Start	2022	2024

2.1.13 Element 13: Protect Low Impact Development (LID) BMPs

With the exception of BMP T5.13, this project does not implement any LID BMPs listed in Appendix 1 of the Phase II Western Washington Municipal Stormwater Permit. There will be no LID BMPs implemented that require protection during construction.



There is a rain garden proposed, which is LID BMP that will need to be protected.

4 Monitoring and Sampling Requirements

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

See form in Appendix D

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this template.

4.1 Site Inspection

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

Discharge points are not called out on the site map. Please add.

4.2 Stormwater Quality Sampling

4.2.1 Turbidity Sampling

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

<input type="checkbox"/>	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
<input checked="" type="checkbox"/>	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU or the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

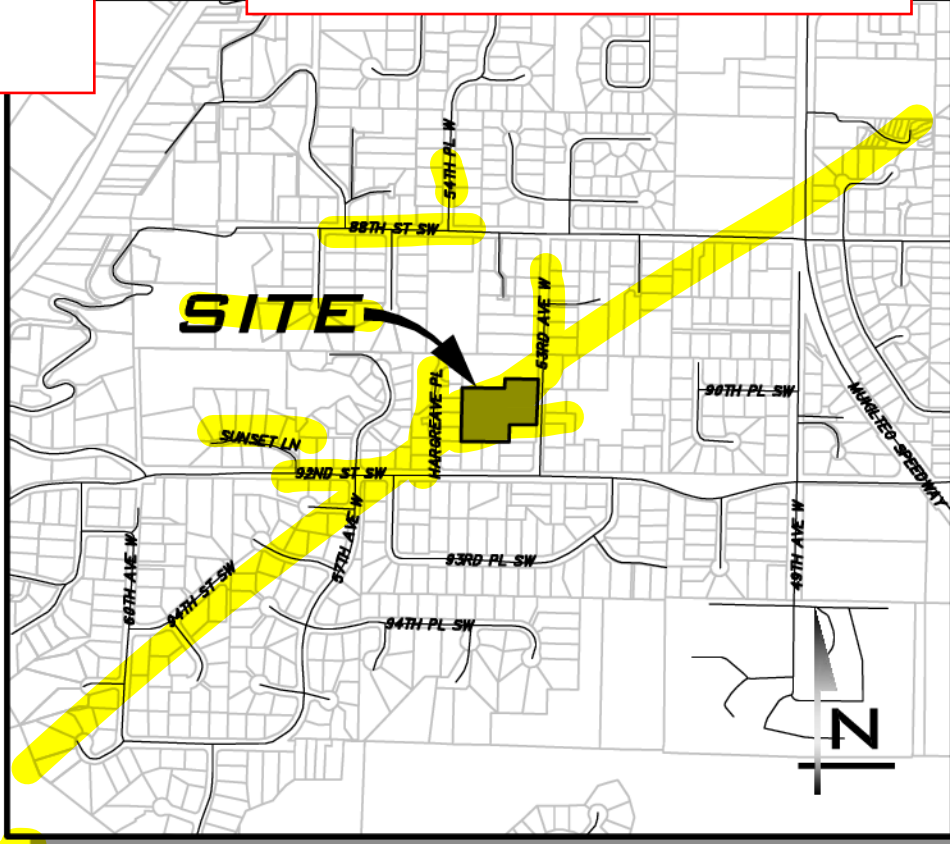
NW 1/4, SEC 16, TWP 28N, RGE 4E

HARBOR GROVE

CIVIL PLANS

NO TITLE PROVIDED. EASEMENTS CHECKED TO OTHER RECORDED SURVEYS.

CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010



VICINITY MAP

NOT TO SCALE

PROJECT TEAM

OWNER/APPLICANT

SEA-PAC HOME
120 SW EVERETT MALL WAY, STE 100
EVERETT, WA 98204
(425) 628-5353
CONTACT: NATE PERKL

CIVIL ENGINEER

THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 250-7224
CONTACT: TC COLLERAN, AICP, PLA

GEOTECHNICAL ENGINEER

EARTH SOLUTIONS NW LLC
15365 NE 90TH ST, SUITE 100
REDMOND, WA 98052
(425) 449-4704
CONTACT: HENRY WRIGHT, PE

SURVEYOR

PACIFIC COAST SURVEYS, INC.
PO BOX 13619
MILL CREEK, WA 98082
(425) 512-7099
CONTACT: DARREN RIDDLE, PLS

LANDSCAPE ARCHITECT

THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 250-7230
CONTACT: TC COLLERAN, AICP, PLA

UTILITY PURVEYORS

WATER SUPPLY: MUKILTEO WATER AND WASTEWATER DISTRICT
SANITARY SEWER: MUKILTEO WATER AND WASTEWATER DISTRICT
FIRE DISTRICT: MUKILTEO FIRE DISTRICT
SCHOOL DISTRICT: MUKILTEO SCHOOL DISTRICT NO 6

SITE DATA

SITE ADDRESS: 9110 53RD AVE W
MUKILTEO, WA 98275
TAX ACCOUNT NUMBER: 00611600015901
EXISTING ZONING: RD-12.5
GROSS SITE AREA: 2.43 ACRES (105,978 SF)
NEW SITE AREA: 2.38 ACRES (103,587 SF)
NUMBER OF LOTS PROPOSED: 7
MINIMUM LOT SIZE (REQUIRED): 12,500 SF
MAXIMUM LOT WIDTH: 60 FEET

Legal description should be checked to a title report (subdivision guarantee) to confirm it is an insurable legal description. The number "LLA2016-004" is not referenced on the actual BLA document which is recorded under 201606300224 or on the record of survey representing the BLA which is recorded under the number stated below. Also, Parcel B includes portions of Lots 159 and 166 AND portions of Lot 1 of that short plat recorded under Recording No. 9205205003.

LEGAL DESCRIPTION

PARCEL B OF CITY OF MUKILTEO LOT LINE ADJUSTMENT NO. LLA2016-004, RECORDED UNDER RECORDING NO. 201606300224, BEING A PORTION OF LOTS 159 AND 166, WEST & WHEELER'S SEA VIEW 5 ACRE TRACTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 7 OF PLATS, PAGES 12 AND 13, RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

SITUATE IN CITY OF MUKILTEO, COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

VERTICAL DATUM

ORIGINATING BENCHMARK:

FOUND CASED CONC. MON. ON CENTERLINE, 53RD AVE W

VERTICAL DATUM: NAVD 88

ELEVATION: 395.82' (PER GPS OBSERVATIONS)

SURVEY REFERENCES

(R1) CITY OF MUKILTEO SP - A.F.#9205200691

(R2) CITY OF MUKILTEO ROS - A.F.#201606300224

EQUIPMENT & PROCEDURES

METHOD OF SURVEY:

SURVEY PERFORMED BY FIELD TRAVERSE

INSTRUMENTATION:

LEICA TS15 ROBOTIC ELECTRONIC TOTAL STATION

PRECISION:

MEETS OR EXCEEDS STATE STANDARDS WAC 332-130-090

BASIS OF BEARING:

THE MONUMENTED CENTERLINE OF 53RD AVE. W., AS THE BEARING OF N 01°58'54" E.

EXISTING UTILITY NOTE

EXISTING UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSINGS, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.



Received 8/12/22

IMPERVIOUS AREA CALCULATIONS

ASSUMED IMPERVIOUS FOR EACH LOT:

LOT 1: 4,038 SF
LOT 2: 4,057 SF
LOT 3: 3,973 SF
LOT 4: 4,000 SF
LOT 5: 4,005 SF
LOT 6: 4,140 SF
LOT 7: 4,868 SF

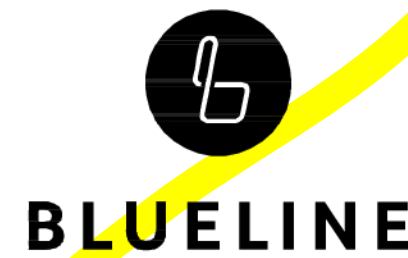
TOTAL NEW LOT IMPERVIOUS = 29,081 SF

HARD SURFACE AREA SUMMARY TABLE

	PGHS (SF)	NPGHS (SF)	TOTAL (SF)
EXISTING	4,222	1513	5735
REMOVED	760	515	1275
REPLACED	2870	998	3868
NEW	12201	19631	31832
NEW + REPLACED	15071	20629	35700
TOTAL HARD SURFACES	15663	20629	36292

SHEET INDEX

1	CV-01	COVER SHEET
2	GN-01	GENERAL NOTES & LEGEND
3	EC-01	EXISTING CONDITIONS & DEMO PLAN
4	SP-01	PRELIMINARY PLAT
5	TP-01	TESC PLAN
6	TD-01	TESC NOTES & DETAILS
7	TD-02	TESC NOTES & DETAILS
8	HC-01	HORIZONTAL CONTROL PLAN
9	GP-01	GRADING PLAN
10	CU-01	COMPOSITE UTILITY PLAN
11	RS-01	ROAD & STORM PLAN
12	RP-01	ROAD & STORM PROFILES
13	VT-01	VAULT PLANS & SECTIONS
14	VT-02	VAULT DETAILS & NOTES
15	PS-01	PUMP STATION DETAILS
16	TR-01	TREE RETENTION PLANS
17	TR-02	TREE RETENTION DETAILS
18	LS-01	LANDSCAPE PLANS
19	LS-02	LANDSCAPE DETAILS
20	DT-01	STANDARD DETAILS
21	DT-02	STANDARD DETAILS



25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:

T.C. COLLERAN, PLA, AICP

PROJECT ENGINEER:

LUCAS ZIROTTI

DESIGNER:

LEE M. TOMKINS

ISSUE DATE:

7/29/21

REVISIONS

BY

DATE

NO

1

6/9/23

REVISIONS PER CITY IST ROUND COMMENTS

BY

DATE

NO

1

6/9/23

REVISIONS PER CITY IST ROUND COMMENTS

BY

DATE

NO

1

6/9/23

REVISIONS PER CITY IST ROUND COMMENTS

BY

DATE

NO

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REVISIONS PER CITY IST ROUND COMMENTS

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6/9/23

REVISIONS PER CITY IST ROUND COMMENTS

BY

DATE

NO

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6/9/23

REVISIONS PER CITY IST ROUND COMMENTS

BY

DATE

NO

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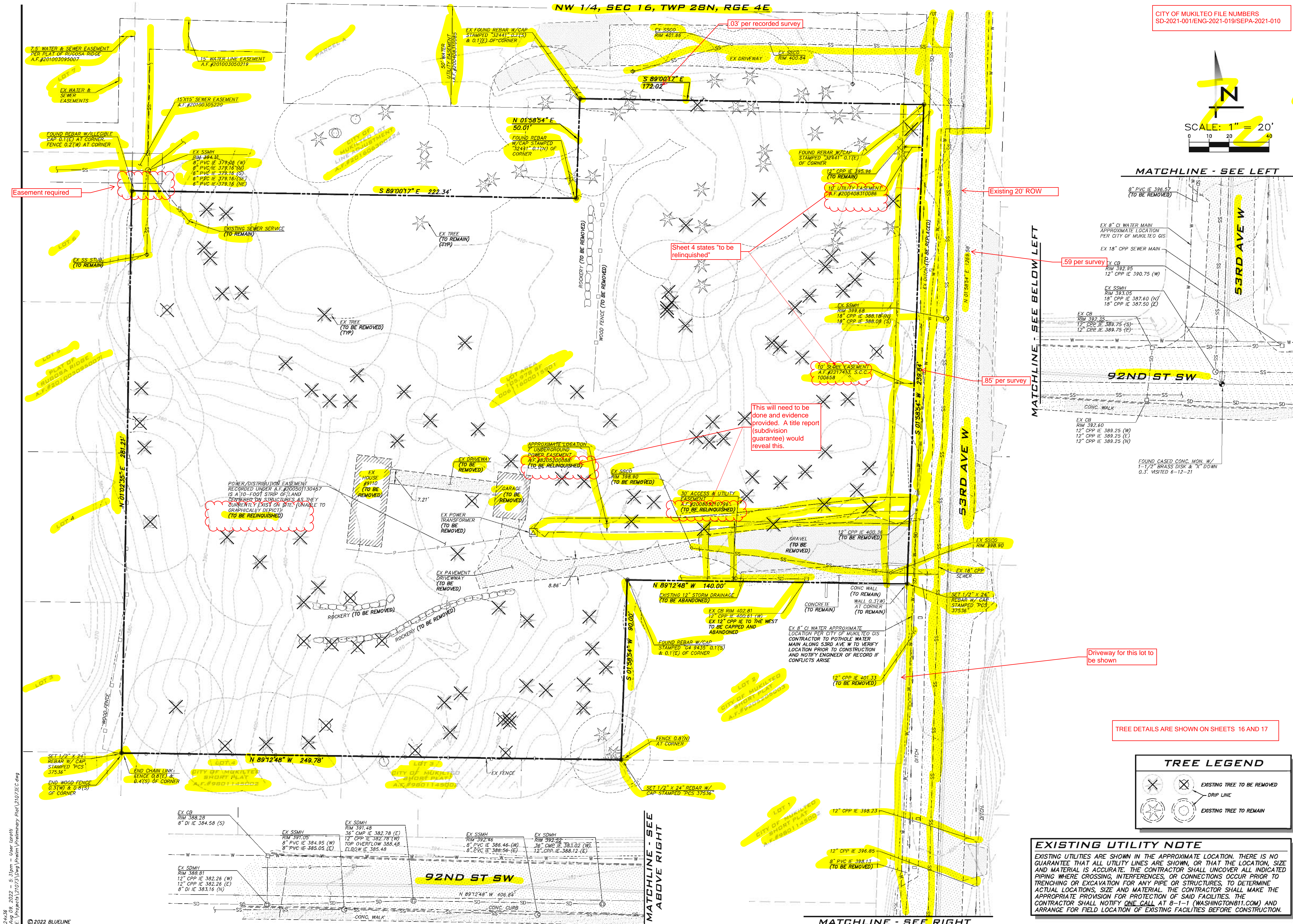
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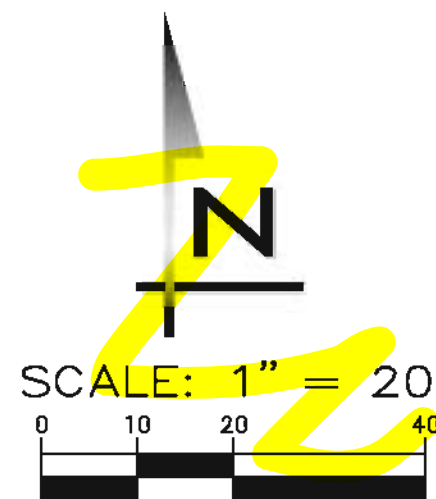
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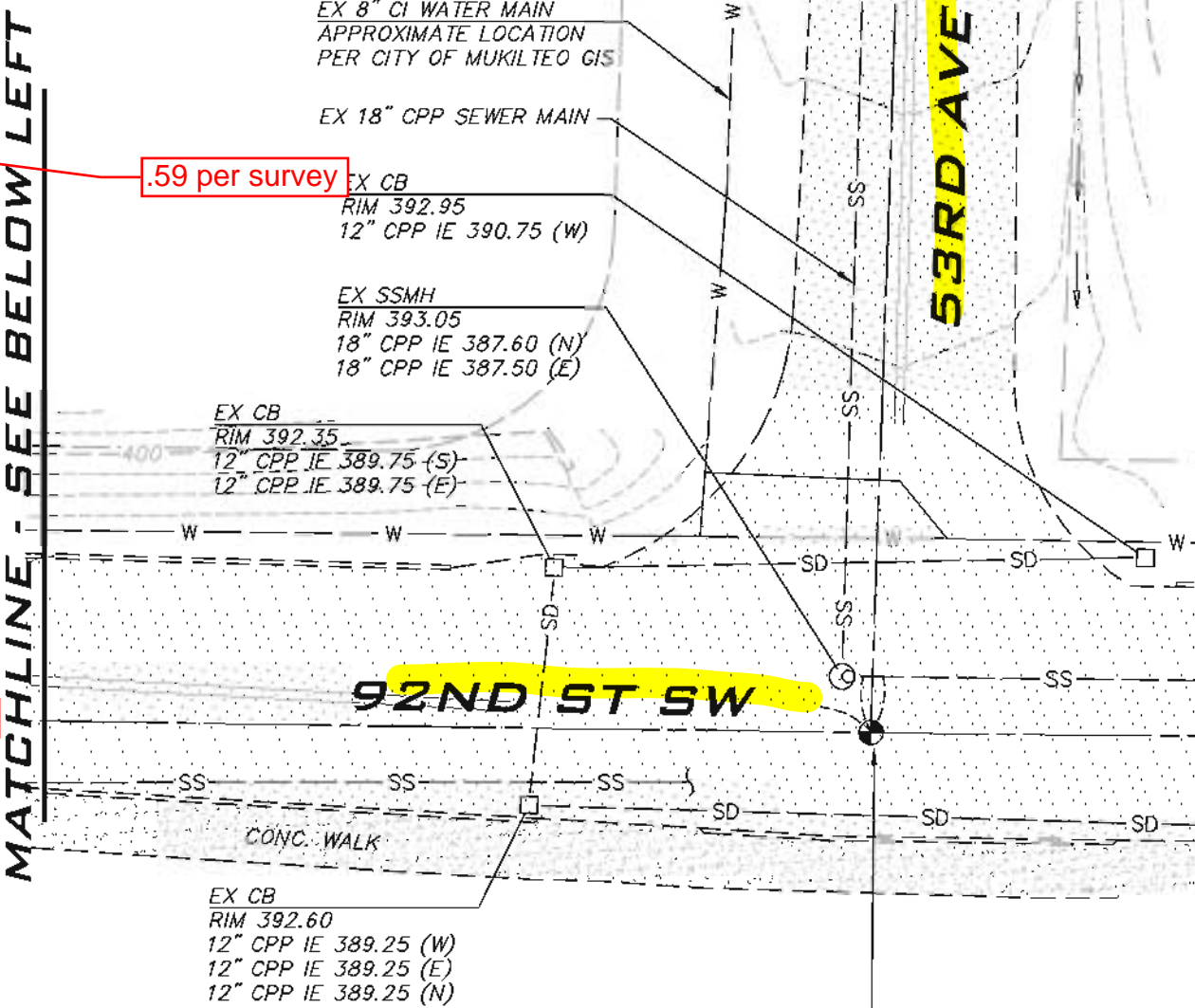


CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010



MATCHLINE - SEE LEFT

MATCHLINE - SEE BELOW LEFT



TREE DETAILS ARE SHOWN ON SHEETS 16 AND 17

BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLIERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIOTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	LCZ	REVISIONS PER CITY IST ROUND COMMENTS
1	6/9/23			

EXISTING CONDITIONS & DEMO PLAN

HARBOR GROVE CIVIL PLANS

9110 53RD AVE W

SNODHOMISH COUNTY WASHINGTON

8/9/22

JOB NUMBER:
21-073

SHEET NAME:
EC-01

SHT **3** OF **21**

SCALE:
AS NOTEDPROJECT MANAGER:
T.C. COLLERAN, PLA, AICPPROJECT ENGINEER:
LUCAS ZIROTTIDESIGNER:
LEE M. TOMKINSISSUE DATE:
7/29/21

REVISIONS

BY
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OF

21

WASHINGTON

SNODHOMISH COUNTY

9110 53RD AVE W

CIVIL PLANS

HARBOR GROVE

PRELIMINARY PLAT

**DRAINAGE FACILITY
MAINTENANCE NOTE**

I, THE OWNER AND CONTRACT PURCHASERS OF THE LANDS HEREIN PLATTED (GRANTOR), AGREE THAT THE OBLIGATIONS OF GRANTOR SHALL INURE TO THE BENEFIT OF AND BE BINDING UPON THE HEIRS, SUCCESSORS, AND ASSIGNS. GRANTOR AGREES THAT THIS COVENANT TOUCHES AND CONCERNS THE LAND DESCRIBED HEREIN AND SHALL RUN WITH THE LAND.

GRANTOR BY EXECUTION OF THIS COVENANT ACKNOWLEDGES THAT THE BENEFITS OF THIS COVENANT INURE TO GRANTOR, DOWNSTREAM PROPERTY OWNERS, AND THE GENERAL PUBLIC, AND THAT THE CITY OF MUKILTEO (CITY) AS THIRD-PARTY BENEFICIARY OF THIS COVENANT HAS THE RIGHT, BUT NOT THE OBLIGATION, TO ENFORCE THIS COVENANT ON BEHALF OF DOWNSTREAM PROPERTY OWNERS AND THE GENERAL PUBLIC. CITY REQUIRES THIS COVENANT TO PROTECT PRIVATE AND PUBLIC PROPERTY, PRIVATE AND PUBLIC DRAINAGE INFRASTRUCTURE, AND NATURAL RESOURCES OF DOWNSTREAM PROPERTY OWNERS AND THE GENERAL PUBLIC.

GRANTOR, IN CONSIDERATION OF THE APPROVAL OF THIS SUBDIVISION, HEREBY COVENANTS TO PERFORM REGULAR MAINTENANCE UPON THE DRAINAGE FACILITIES INSTALLED, OR TO BE INSTALLED, UPON GRANTOR'S PROPERTY. REGULAR MAINTENANCE SHALL INCLUDE, AT A MINIMUM, ANNUAL INSPECTION OF THE STORMWATER DRAINAGE SYSTEM, AS APPLICABLE, THE SYSTEM SHALL INCLUDE THE STORMWATER CONVEYANCE SYSTEM PIPES, DITCHES, SWALES, AND CATCH BASINS; STORMWATER FLOW REGULATION SYSTEM DETENTION PONDS, VAULTS, PIPES, RETENTION PONDS, FLOW REGULATION AND CONTROL STRUCTURES; INFILTRATION SYSTEMS AND WATER QUALITY CONTROL SYSTEM.

THE SCOPE OF THIS COVENANT AND RIGHT OF ENTRY SHALL BE ADEQUATE TO PROVIDE FOR THE ACCESS, INSPECTION, AND MAINTENANCE OF THE STORMWATER DRAINAGE SYSTEM, AND SHALL BE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. CITY SHALL HAVE THE PERPETUAL RIGHT OF ENTRY ACROSS ADJACENT LANDS OF THE GRANTOR FOR PURPOSES OF INSPECTING, AUDITING, OR CONDUCTING REQUIRED MAINTENANCE OF THE DRAINAGE FACILITY.

2. IF CITY INSPECTION DETERMINES THAT MAINTENANCE IS NOT BEING PERFORMED, CITY SHALL ENDEAVOR TO PROVIDE GRANTOR REASONABLE ADVANCE NOTIFICATION OF THE NEED TO PERFORM THE MAINTENANCE AND A REASONABLE OPPORTUNITY FOR GRANTOR TO PERFORM IT. IN THE EVENT THAT GRANTOR FAILS TO COMPLETE THE REQUIRED MAINTENANCE WITHIN A REASONABLE TIME PERIOD, CITY SHALL HAVE THE RIGHT TO PERFORM OR CONTRACT WITH OTHERS TO PERFORM IT AT THE SOLE EXPENSE OF THE GRANTOR. IF CITY IN ITS SOLE DISCRETION DETERMINES THAT AN IMMINENT OR PRESENT DANGER EXISTS, REQUIRED MAINTENANCE AND/OR REPAIR MAY BEGIN IMMEDIATELY AT GRANTOR'S EXPENSE WITHOUT PRIOR NOTICE TO GRANTOR. IN SUCH EVENT, CITY SHALL PROVIDE GRANTOR WITH A WRITTEN STATEMENT AND ACCOUNTING OF ALL WORK PERFORMED AND THE FEES, CHARGES, AND EXPENSES INCURRED IN MAKING SUCH REPAIRS. GRANTOR SHALL AGREE TO REIMBURSE CITY OR PAY CITY'S VENDORS DIRECTLY FOR ALL REASONABLE FEES, CHARGES, AND EXPENSES IDENTIFIED IN CITY'S STATEMENT.

3. IF CITY INSPECTION DETERMINES THAT MAINTENANCE IS NOT BEING PERFORMED, CITY MAY REMOVE ANY OBSTRUCTIONS AND/OR INTERFERENCES WITH THE SOLE OPINION OF COUNTY IMPAIR THE OPERATION OF THE DRAINAGE FACILITY OR THE MAINTENANCE THEREOF. GRANTOR AGREES TO HOLD CITY, ITS OFFICERS, EMPLOYEES, AND AGENTS HARMLESS FROM ANY AND ALL CLAIMS, ACTIONS, SUITS, LIABILITY, LOSS, EXPENSES, DAMAGES AND JUDGMENTS OF ANY NATURE WHATSOEVER, INCLUDING COSTS AND ATTORNEY'S FEES, INCURRED BY THE REMOVAL OF VEGETATION OR PHYSICAL INTERFERENCE FROM THE DRAINAGE FACILITY.

4. WHEN EXERCISING THE MAINTENANCE PROVISIONS OF THE COVENANT, IN THE EVENT OF NONPAYMENT, CITY MAY BRING SUIT TO RECOVER SUCH COSTS, INCLUDING ATTORNEY'S FEES, AND UPON OBTAINING A JUDGMENT, SUCH AMOUNT SHALL BECOME A LIEN AGAINST THE PROPERTY OF GRANTOR AS PROVIDED IN RCW 4.56.190.

5. GRANTOR COVENANTS THAT ALL OF THE OWNERS, CONTRACT PURCHASERS AND LIEN HOLDERS OF THE PROPERTY DESCRIBED HEREIN HAVE SIGNED THE DEDICATION AND/OR DECLARATION OF THIS SUBDIVISION, THAT THEY HAVE THE RIGHT TO GRANT THIS COVENANT ON THE PROPERTY, AND THAT THE TITLE TO THE PROPERTY IS FREE AND CLEAR OF ANY ENCUMBRANCES WHICH WOULD INTERFERE WITH THE ABILITY TO GRANT THIS COVENANT.

DRAFT EASEMENT LANGUAGE

SUBJECT TO A PRIVATE WATER EASEMENT FOR THE PURPOSES SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PRIVATE SEWER EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PUBLIC MAINTENANCE ACCESS EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PRIVATE ACCESS & UTILITY EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PRIVATE DRAINAGE AND MAINTENANCE ACCESS EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PRIVATE EXISTING DRIVEWAY EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A PUBLIC UNDERGROUND AND/OR OVERHEAD ELECTRIC TRANSMISSION AND/OR DISTRIBUTION SYSTEM EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

SUBJECT TO A NATIVE GROWTH PROTECTION EASEMENT FOR THE PURPOSE SHOWN THEREIN AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT RECORDED UNDER SNOHOMISH COUNTY AUDITOR'S FILE NUMBER _____ (SHOWN ON MAP).

EXISTING UTILITY NOTE

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8/9/22

JOB NUMBER:

21-073

SHEET NAME:

SP-01

SHT

4

OF

21

WASHINGTON

SNODHOMISH COUNTY

9110 53RD AVE W

CIVIL PLANS

HARBOR GROVE

PRELIMINARY PLAT

WASHINGTON

SNODHOMISH COUNTY

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HARBOR GROVE

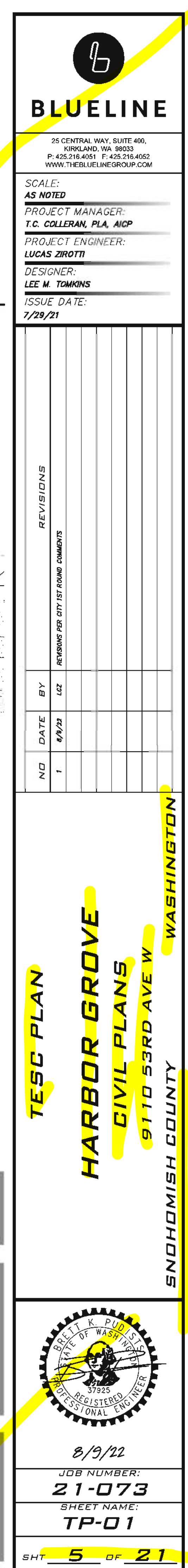
PRELIMINARY PLAT

WASHINGTON

SNODHOMISH COUNTY

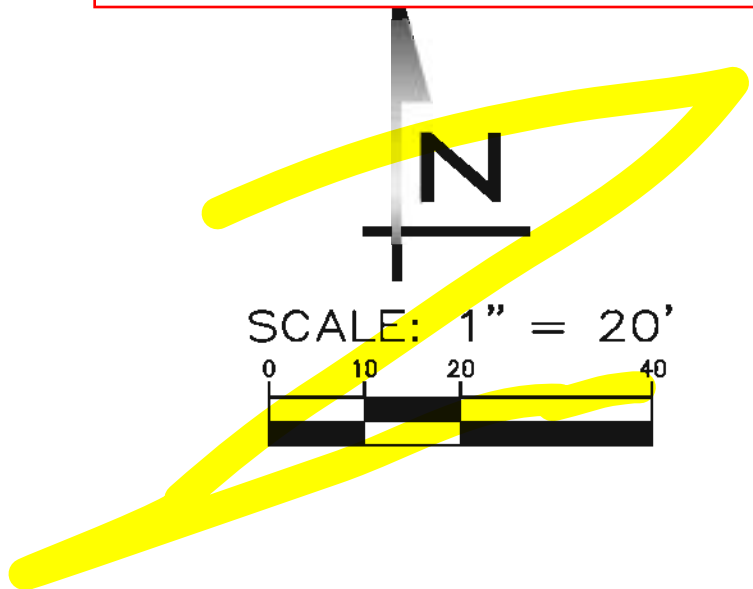
9110 53RD AVE W

CIVIL PLANS





CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010



BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLIERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	REVISIONS
1	6/9/23	LCZ	REVIEWS PER CITY IST-RD COMMENTS

HORIZONTAL CONTROL PLAN

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY WASHINGTON

EXISTING UTILITY NOTE

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8/9/22

JOB NUMBER:
21-073

SHEET NAME:
HC-01

SHT **8** OF **21**



25 CENTRAL WAY, SUITE 400,
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PROJECT ENGINEER:
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DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

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GRADING PLAN

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W



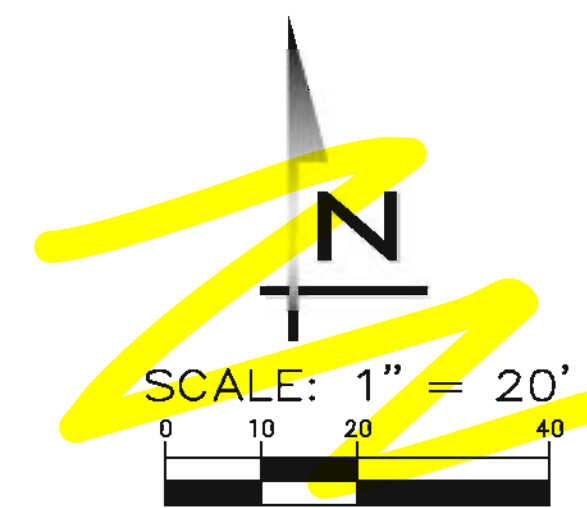
8/9/22

JOB NUMBER:

21-073

SHEET NAME:
CD-01

SHT 9 OF 21



INTERCEPTOR SWALE
W/ FRENCH DRAIN

GRADING QUANTITIES

CUT: 4,446 CY (INCLUDING 1,051 CY FROM VAULT EXCAVATION)
FILL: 9,873 CY

QUANTITIES ARE APPROXIMATE AND SHALL NOT BE USED FOR CONTRACTUAL PURPOSES.

GROUNDWATER ELEVATION NOTE

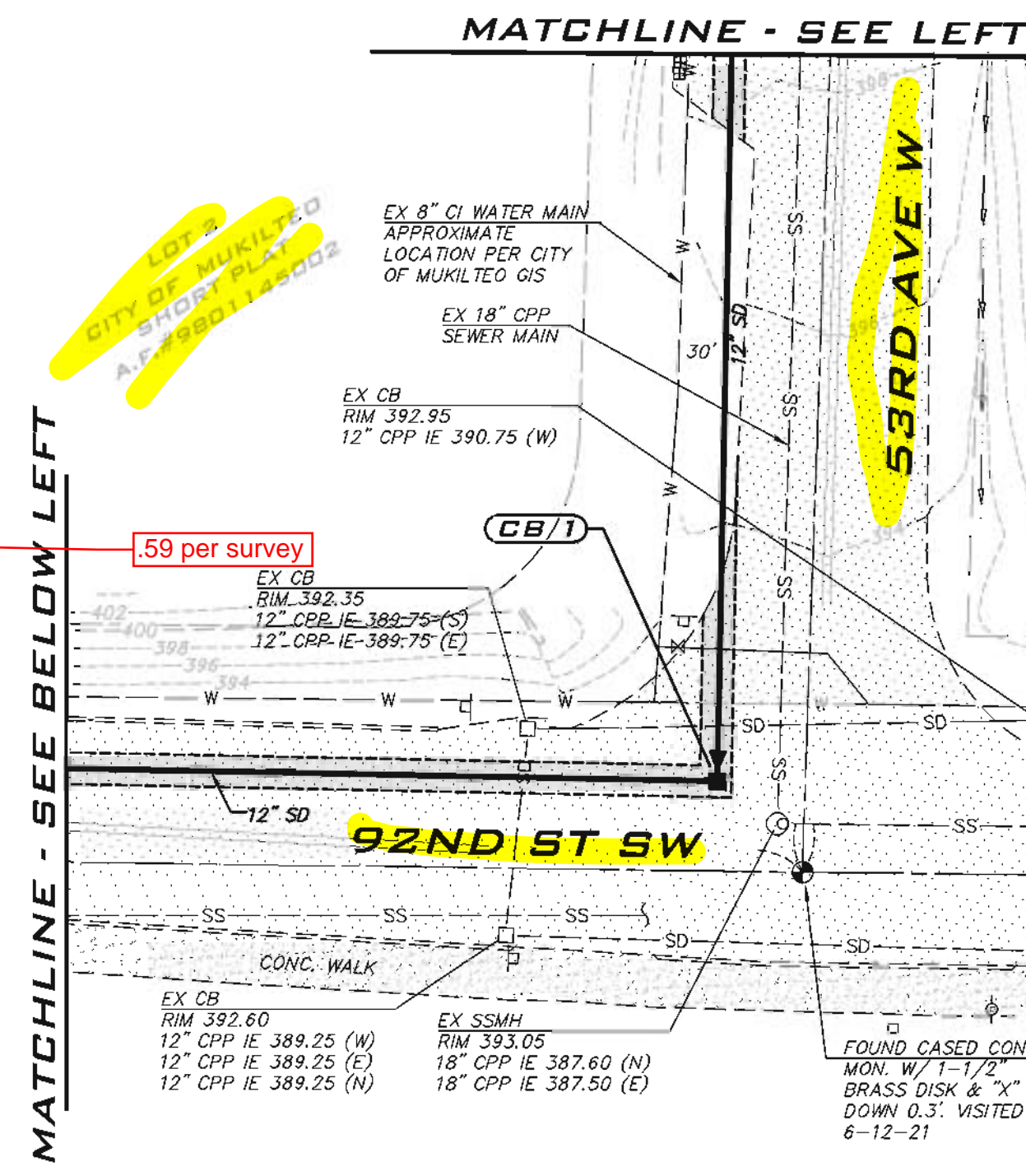
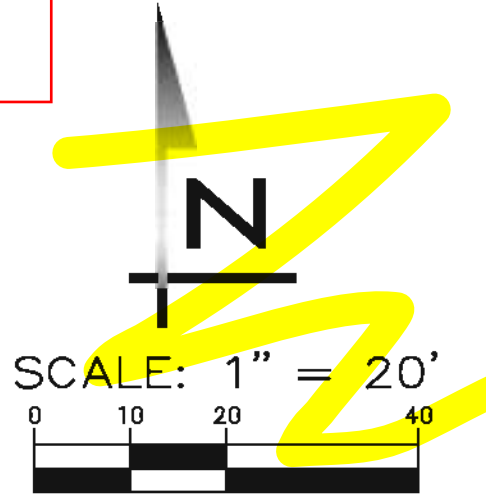
ACCORDING TO THE GROUNDWATER ELEVATION EVALUATION BY COBALT GEOSCIENCES, LLC DATED MARCH 14, 2022, THE GROUNDWATER ELEVATION IN THE SITE VICINITY APPEARS TO BE AT 375 FEET. A COPY OF THE EVALUATION IS PROVIDED UNDER SEPARATE COVER.

EXISTING UTILITY NOTE

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CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010



UTILITY CROSSING TABLE			
NO.	PIPE ELEVATIONS (FT)	CLEARANCE (FT)	
1	6" SD IE 395.23	4.07	
	6" SS CE 391.16		
2	12" SD IE 392.60	1.14	
	6" SS CE 391.46		
3	12" SD IE 399.33	6.86	
	6" SS CE 392.47		
4	6" SD IE 401.11	5.55	
	6" SS CE 395.56		
5	6" SD IE 397.21	5.23	
	6" SS CE 391.98		
6	12" SD IE 392.75	0.52	
	6" SS CE 392.23		
7	12" SD IE 399.08	6.03	
	6" SS CE 393.05		
8	12" SD IE 399.94	8.15	
	8" SS CE 391.79		
9	12" SD IE 399.67	1.55	
	6" SD CE 398.12		
10	12" SD IE 399.52	5.74	
	12" SD CE 393.78		
11	6" SD IE 398.00	1.54	
	6" SD CE 396.46		
12	EX 8" WA IE 398.14	4.67	
	12" SD CE 393.47		
13	EX 8" WA IE 399.32	9.47	
	8" SS CE 389.85		

- CROSSING NOTES**
- VERTICAL CLEARANCE FOR CROSSINGS WITH WATER MAINS PER MUKILTEO WATER AND WASTEWATER DISTRICT STANDARDS. MINIMUM 18" OF SEPARATION REQUIRED FOR CROSSINGS WITH WATER AND SANITARY SEWER. REFER TO SEWER AND WATER PLANS PREPARED FOR MUKILTEO WATER AND WASTEWATER DISTRICT (UNDER SEPARATE COVER)
 - WHERE VERTICAL CLEARANCE IS LESS THAN 1'. CONTRACTOR SHALL PROVIDE ETHA-FOAM PAD.

- EXISTING UTILITIES NOTE**
- CONTRACTOR TO VERIFY LOCATION OF EX UTILITIES AT POINT OF CROSSING OR CONNECTION PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF RECORD IF CONFLICTS ARISE.
 - CROSSINGS WERE DETERMINED ASSUMING 3' OF COVER OVER EXISTING WATER MAIN.

EXISTING UTILITY NOTE

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DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

REVISIONS			
NO	DATE	BY	LCZ
1	6/9/23		

REVISIONS PER CITY 1ST ROUND COMMENTS

COMPOSITE UTILITY PLAN

HARBOR GROVE CIVIL PLANS

9110 53RD AVE W

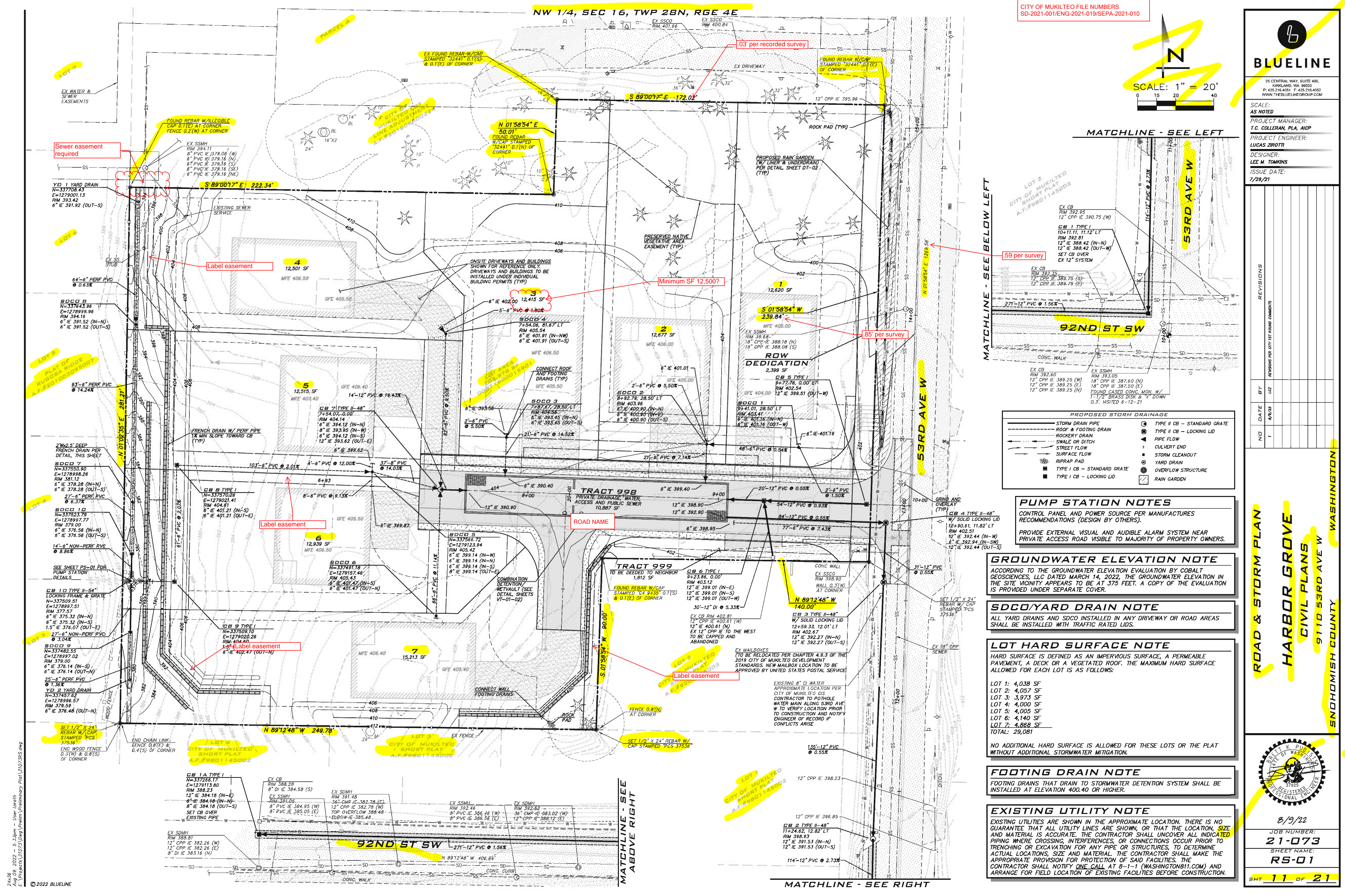
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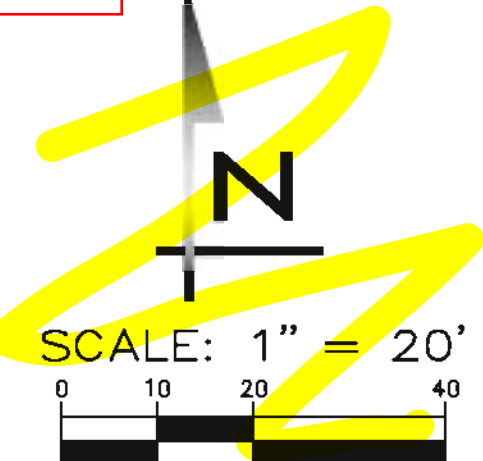
JOB NUMBER:
21-073

SHEET NAME:
CU-01

SHT 10 OF 21



CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010



BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLIERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	LCZ	REVISIONS PER CITY 1ST ROUND COMMENTS
1	6/9/21			

ROAD & STORM PLAN

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY

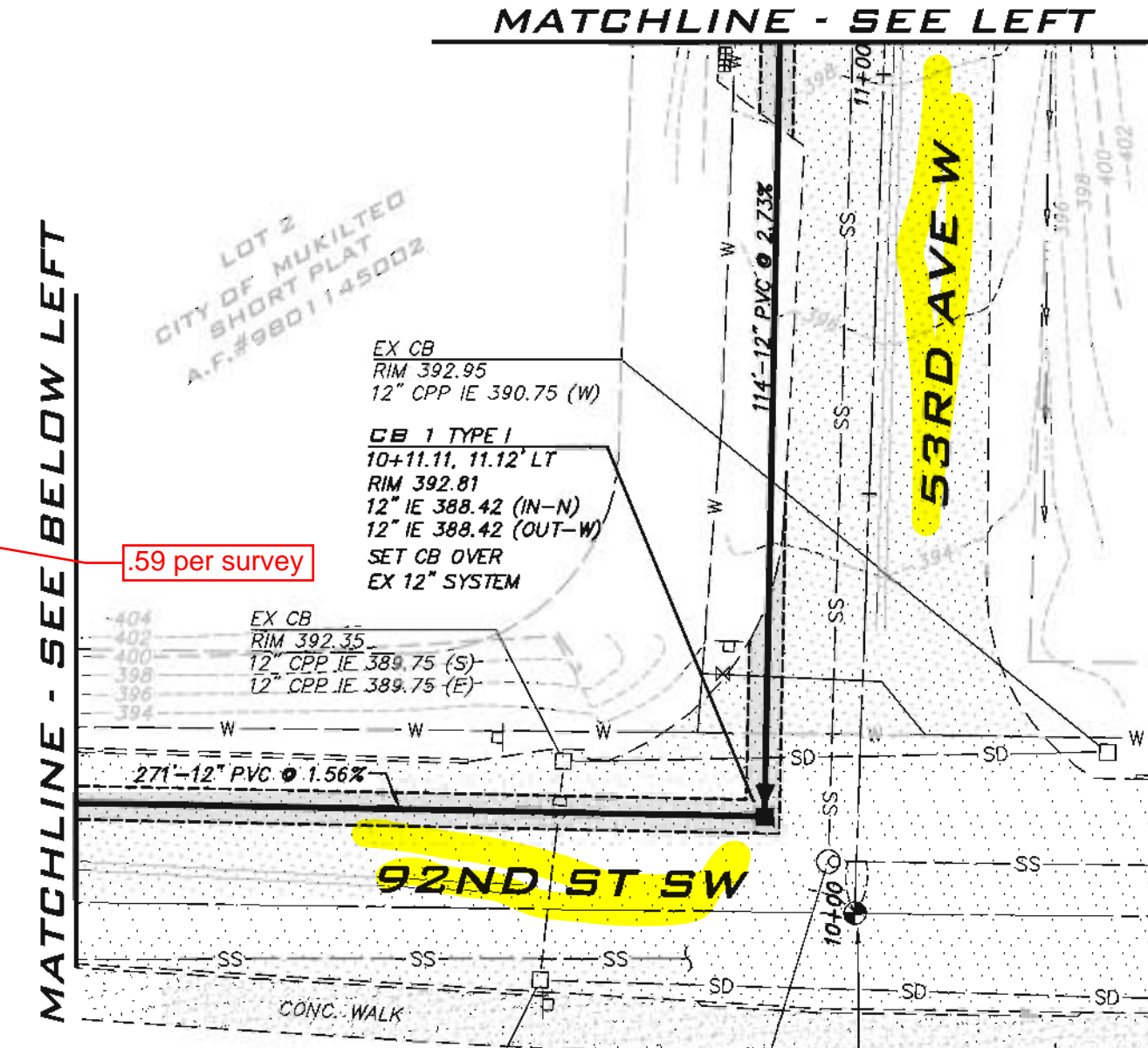
WASHINGTON

8/9/22

JOB NUMBER:
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SHT **11** OF **21**



- PROPOSED STORM DRAINAGE**
- STORM DRAIN PIPE
 - ROOF & FOOTING DRAIN
 - ROCKERY DRAIN
 - SWALE OR DITCH
 - STREET FLOW
 - SURFACE FLOW
 - RIPRAP PAD
 - TYPE I CB - STANDARD GRATE
 - TYPE I CB - LOCKING LID
 - TYPE II CB - STANDARD GRATE
 - TYPE II CB - LOCKING LID
 - PIPE FLOW
 - CULVERT END
 - STORM CLEANOUT
 - YARD DRAIN
 - OVERFLOW STRUCTURE
 - RAIN GARDEN

PUMP STATION NOTES

CONTROL PANEL AND POWER SOURCE PER MANUFACTURER'S RECOMMENDATIONS (DESIGN BY OTHERS).

PROVIDE EXTERNAL VISUAL AND AUDIBLE ALARM SYSTEM NEAR PRIVATE ACCESS ROAD VISIBLE TO MAJORITY OF PROPERTY OWNERS.

GROUNDWATER ELEVATION NOTE

ACCORDING TO THE GROUNDWATER ELEVATION EVALUATION BY COBALT GEOSCIENCES, LLC DATED MARCH 14, 2022, THE GROUNDWATER ELEVATION IN THE SITE VICINITY APPEARS TO BE AT 375 FEET. A COPY OF THE EVALUATION IS PROVIDED UNDER SEPARATE COVER.

SDCO/YARD DRAIN NOTE

ALL YARD DRAINS AND SDCO INSTALLED IN ANY DRIVEWAY OR ROAD AREAS SHALL BE INSTALLED WITH TRAFFIC RATED LIDS.

LOT HARD SURFACE NOTE

HARD SURFACE IS DEFINED AS AN IMPERVIOUS SURFACE, A PERMEABLE PAVEMENT, A DECK OR A VEGETATED ROOF. THE MAXIMUM HARD SURFACE ALLOWED FOR EACH LOT IS AS FOLLOWS:

LOT 1: 4,038 SF
LOT 2: 4,057 SF
LOT 3: 3,973 SF
LOT 4: 4,000 SF
LOT 5: 4,005 SF
LOT 6: 4,140 SF
LOT 7: 4,868 SF
TOTAL: 29,081

NO ADDITIONAL HARD SURFACE IS ALLOWED FOR THESE LOTS OR THE PLAT WITHOUT ADDITIONAL STORMWATER MITIGATION.

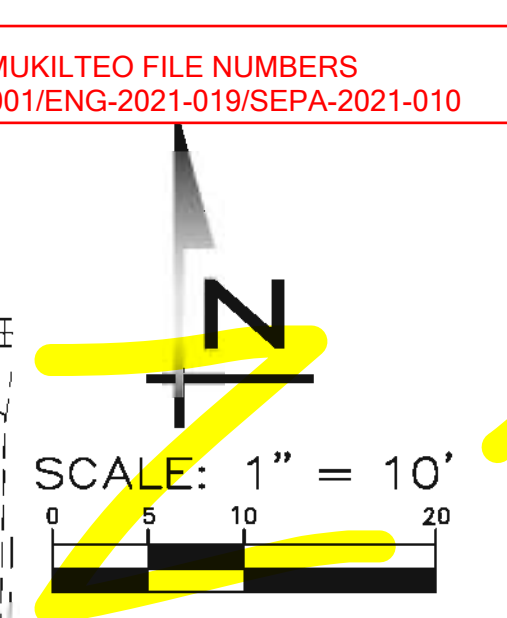
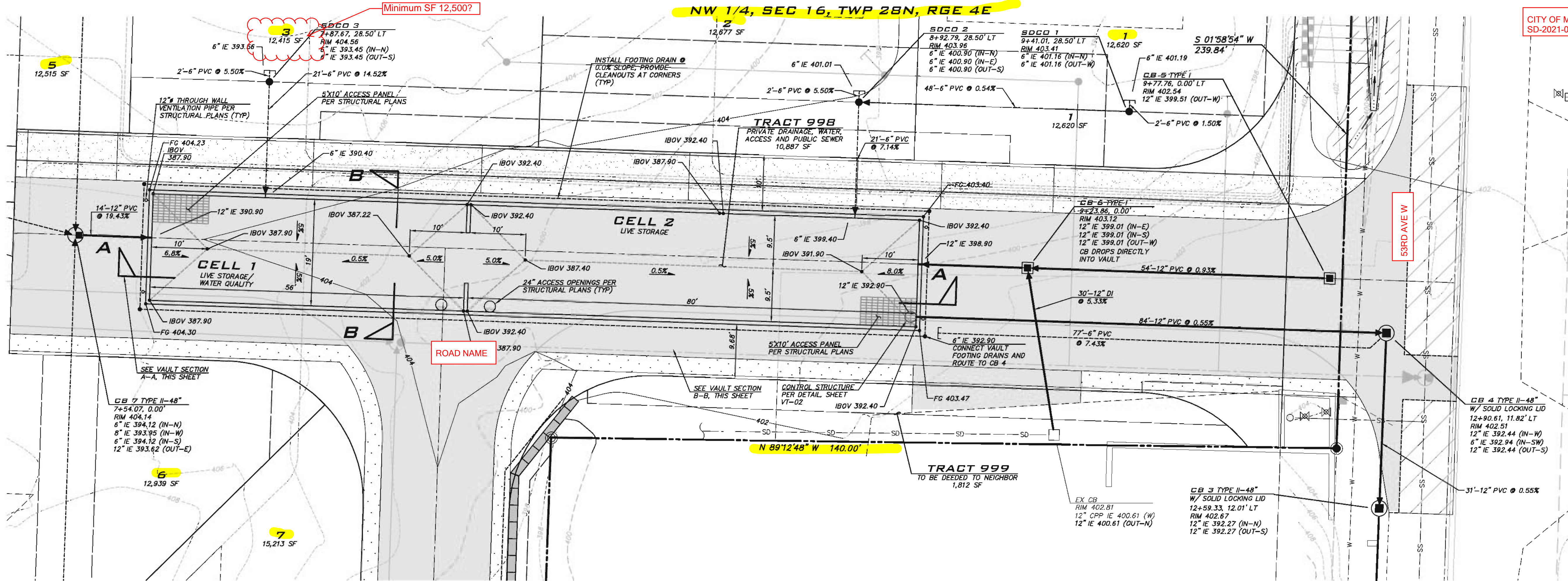
FOOTING DRAIN NOTE

FOOTING DRAINS THAT DRAIN TO STORMWATER DETENTION SYSTEM SHALL BE INSTALLED AT ELEVATION 400.40 OR HIGHER.

EXISTING UTILITY NOTE

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BLUELINE

25 CENTRAL WAY, SUITE 400,
KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
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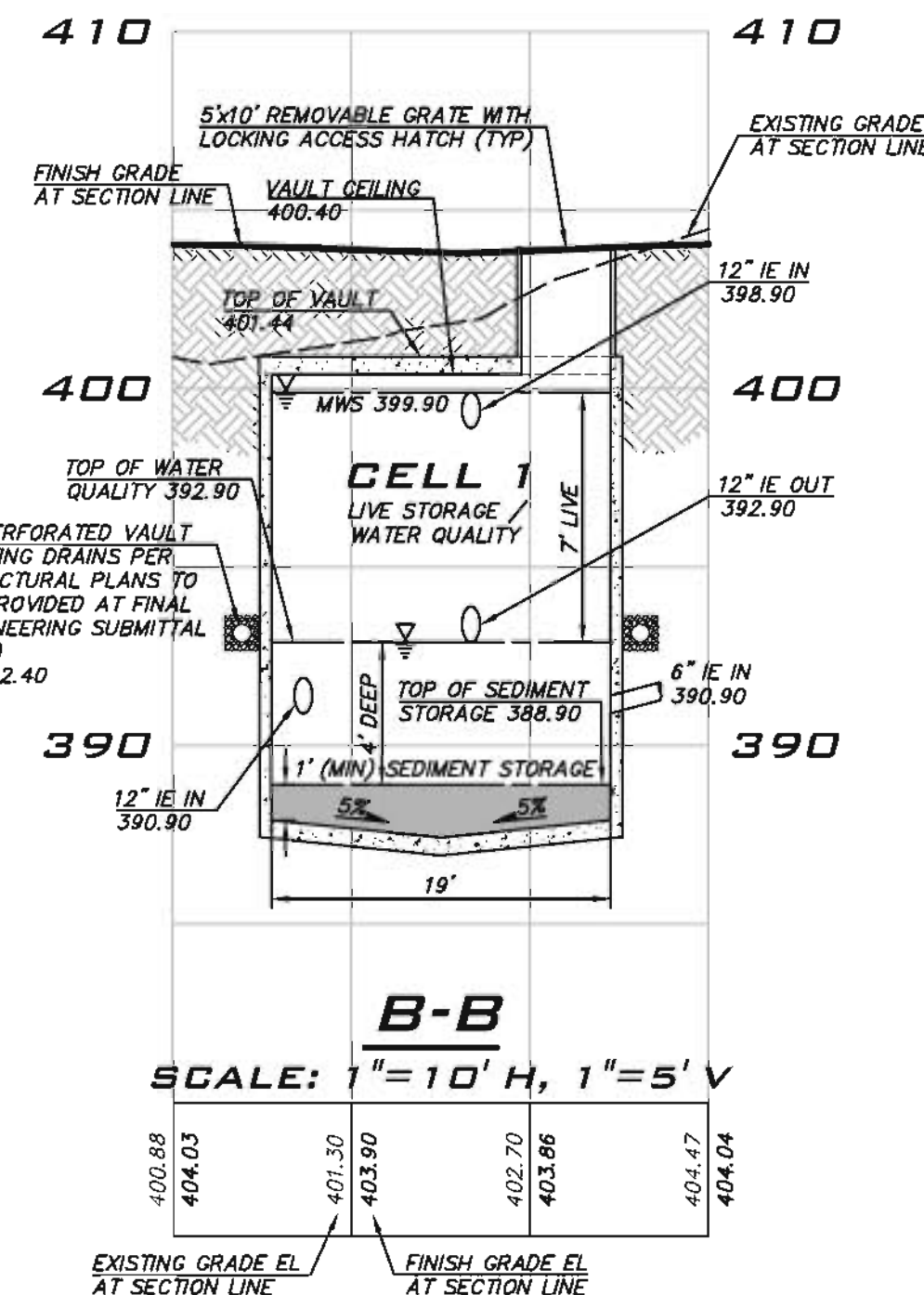
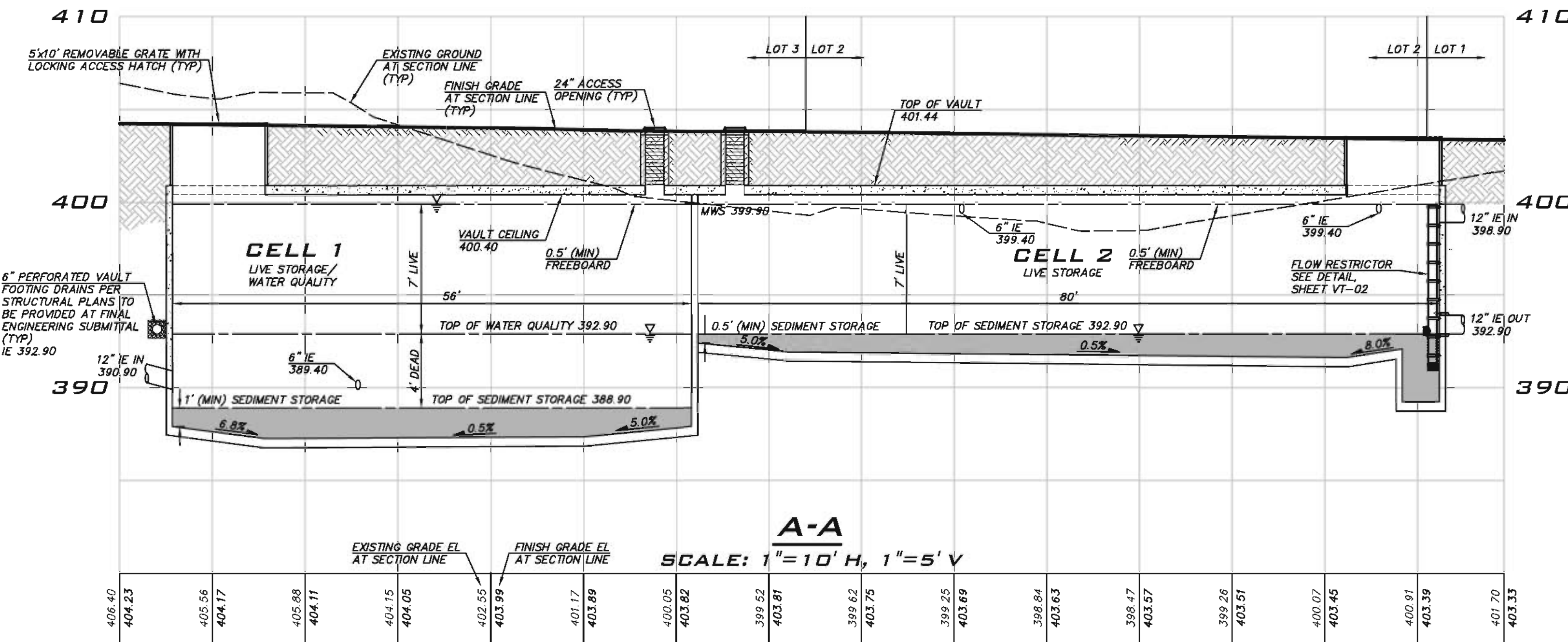
PROJECT MANAGER:
T.C. COLLERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIROTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21

NO	DATE	BY	LCZ	REVISIONS
1	6/9/23			REVISIONS PER CITY IST/ROAD COMMENTS



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VAULT INFO

FG OVER VAULT: 403.40 (MIN)
404.30 (MAX)
MAX WATER SURFACE: 399.90
BOTTOM OF LIVE: 392.90
BOTTOM OF DEAD: 388.90

	REQ'D	PROVIDED	ASBUILT
LIVE	17,080	18,088	XX,XXX
DEAD	3,946	4,256	X,XXX

VAULT PLANS & SECTIONS

HARBOR GROVE

CIVIL PLANS

9110 53RD AVE W

SNOHOMISH COUNTY WASHINGTON

8/9/22

JOB NUMBER:
21-073

SHEET NAME:
VT-01

SHT **13** OF **21**



NOT TO SCALE

TREE PROTECTION DETAIL
NOT TO SCALE

TREE LEGEND

ELEVATION AT NORTHEAST CORNER = 400
ELEVATION AT SOUTHWEST CORNER = 382
DISTANCE BETWEEN TWO POINTS = 492'
AVERAGE SLOPE = $18/492 = 4\%$ AVERAGE GRADE

SUMMARY OF ON-SITE TREE RETENTION

EXISTING UTILITIES SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE NEAREST COMPANY TO THE PROJECT AWARE OF ANY UTILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

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NW 1/4, SEC 16, TWP 28N, RGE 4E

CITY OF MUKILTEO FILE NUMBERS
SD-2021-001/ENG-2021-019/SEPA-2021-010

BLUELINE

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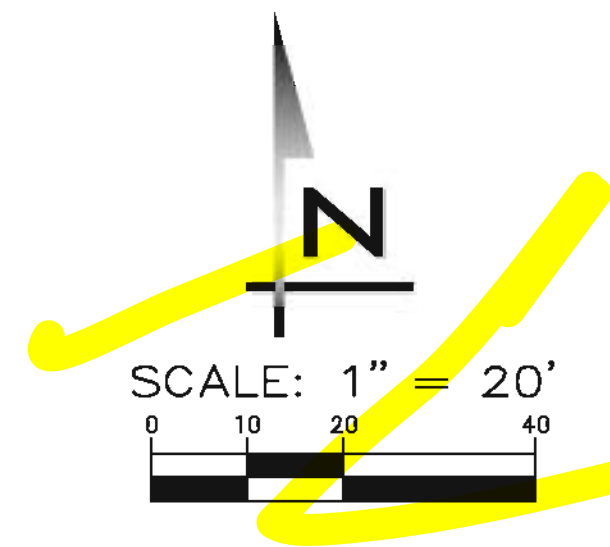
SCALE:
AS NOTED

PROJECT MANAGER:
T.C. COLLIERAN, PLA, AICP

PROJECT ENGINEER:
LUCAS ZIOTTI

DESIGNER:
LEE M. TOMKINS

ISSUE DATE:
7/29/21



PLANT SCHEDULE

TREES	QTY	BOTANICAL / COMMON NAME
	3	ACER CIRCINATUM VINE MAPLE
	9	ACER RUBRUM 'FRANKSRED' TM RED SUNSET MAPLE
	4	CERODIPHYLLUM JAPONICUM KATSURA TREE
REPLACEMENT TREES	QTY	BOTANICAL / COMMON NAME
	4	THUJA PLICATA 'EXCELSA' WESTERN RED CEDAR
SHRUBS	QTY	BOTANICAL / COMMON NAME
	42	CORNUS SERICEA 'ARTIC FIRE' ARTIC FIRE DOGWOOD
	9	LONICERA INVOLUCRATA TWINBERRY
	20	LONICERA NITIDA 'BAGGESEN'S GOLD' BOXLEAF HONEYSUCKLE
	55	PANICUM VIRGATUM 'NORTHWIND' NORTHWIND SWITCH GRASS
	20	RHUS AROMATICA 'GRO-LOW' GRO-LOW FRAGRANT SUMAC
	36	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY
	48	VACCINIUM OVATUM EVERGREEN HUCKLEBERRY
GROUND COVERS	QTY	BOTANICAL / COMMON NAME
	4,692	COTONEASTER DAMMERI 'CORAL BEAUTY' CORAL BEAUTY COTONEASTER

RAIN GARDEN

	RAIN GARDEN PLANTS PER SW-04Z	2,494 SF
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LANDSCAPE PLANS
HARBOR GROVE
CIVIL PLANS
9110 53RD AVE W
SNOHOMISH COUNTY WASHINGTON

STATE OF WASHINGTON
THOMAS P. COLLIERAN
No. 1487 EXP. 8/1/24
LICENSED LANDSCAPE ARCHITECT

9/30/21

JOB NUMBER:
21-073

SHEET NAME:
LS-01

SHT 18 OF 21

November 14, 2022



Perteet, Inc.
PO Box 908
Snoqualmie, Washington 98065

Attn: Mr. Rahmi Kutsal, P.E.
P: 425-888-5825
E: rahmi.kutsal@perteet.com

Re: **Engineering Submittal Review**
Mukilteo Harbor Grove
Mukilteo, WA.
81225205

Project Description

The project site is comprised of a single parcel measuring 2.43 acres and is generally rectangular in shape. The site is located at 12313 Cyrus Way, Mukilteo, Washington. The site development proposal by The Blueline Group (Blueline) calls for the construction of seven residential homes with asphalt paved roadways and concrete driveways and sidewalks. The development will be serviced by municipal sanitary sewer, storm and water services with access of Cyrus Way. A stormwater vault will manage stormwater runoff below the proposed tract roadway. Retaining walls will be constructed along the south and west edges of the site and range in height between 2 and 10 feet in height. The site is bordered to the north, south and west by existing residential neighborhoods and to the east by 53rd Avenue West.

Review Documents

- Civil Plans: *Harbor Grove Civil Plans*; 21 sheets; dated August 9, 2022; prepared by The Blueline Group (Blueline)
- Drainage Report: *Storm Drainage Report*; prepared for Sea-Pac Homes, 120 SW Everett Mall Way Suite 100, Everett Washington 98204; dated August 10, 2022; prepared by Blueline.
- Geotechnical Report: *Geotechnical Engineering Study*; Daffron Property, 9110 53rd Avenue West; Mukilteo, Washington; dated July 30, 2021, and updated July 28, 2022; prepared by Earth Solutions Northwest, LLC. (ESN); prepared for Sea-Pac Homes.
- Groundwater Report: *Groundwater Elevation Evaluation*; Proposed Development; 9110 53rd Avenue West; Mukilteo Washington; Dated March 14, 2022; Prepared by Cobalt Geosciences; Prepared for Blueline.
- Stormwater Pollution Prevention Plan: *Construction Stormwater General Permit*; *Stormwater Pollution Prevention Plan*; for Harbor Grove; 9110 53rd Avenue West; Mukilteo, Washington 98275;

prepared for The Washington State Department of Ecology Northwest Regional Office; dated August 9, 2022.

- Comment Response Letter: Harbor Grove-First Review SD-2021-001/ENG-2021-019/SEPA-2021-010; Prepared for Linda Ritter, City of Mukilteo; Prepared by Blueline.

Review Comments

The following paragraphs summarize our review comments regarding geotechnical items contained in the afore mentioned submittal documents. It should be noted that our scope of work did not include a check of engineering calculations or a review of non-geotechnical issues, nor does our review purport to verify the accuracy of the documents.

1. **Proposed Layout:** According to Blueline's civil plans, the new development will consist of 7 residential lots with an asphalt paved tract road extending off 53rd Avenue West. Retaining walls up to 10-feet in height will be constructed along the south and west edges of the project. Concrete sidewalks will be constructed along the edges of the roadway with a stormwater detention vault constructed below the roadway. Frontage improvements and other off-site improvements will be completed at the site entrance in 53rd Avenue West and along 92nd Street SW.
2. **Site Exploration:** ESN's geotechnical report indicates that they explored site conditions by excavating 8 test pits to depths ranging between 4 and 13 feet using a track mounted excavator. Soil samples from the test pits were collected to characterize the soils encountered in their explorations. Cobalt explored the site conditions as part of their groundwater elevation evaluation by excavating 2 test pits to a depth of 14 feet below grade in the area of Lots #6 and #7.
3. **Soil Conditions:** ESN's report indicates that the majority of the site is mantled by about 8 to 12 inches of topsoil and approximately 2 feet of fill at Test Pit (TP) 2 in the southwest portion of the site. These soils were underlain by medium dense to very dense silty sand which was interpreted to be glacial till. ESN's report indicated that the till was weathered and medium dense near the ground surface. In TP 6, ESN encountered soil that generally consisted of medium dense to dense well graded gravel with silt and sand. Cobalt's report supported ESN's interpretations.
4. **Temporary Erosion and Sedimentation Control:** According to Blueline's civil plans and Stormwater Pollution Prevention Plan (SWPPP), stormwater runoff will be directed to a temporary sediment trap located on Lot #1 in the northeastern portion of the site for Phase1 using diversion ditches with check dams. In Phase 2, stormwater runoff will be directed to the proposed detention vault. A temporary stockpile area is designated in the central portion of the site. Silt fence will be installed along all down gradient property lines with tree protection fencing along the northern property line. A construction entrance measuring approximately 100-feet long and consisting of 4 to 8-inch quarry spalls will extend on-site from 53rd Avenue West. Details for the planned BMPs are provided.
5. **Utilities:** Blueline's civil plans indicate that new sewer, storm and water services will be installed. The utilities will be installed at relatively gentle gradients with the exception of a force main storm pipe

managing the stormwater runoff from the retaining wall drains and interceptor drain along the west edge of the site. According to the plans the 1.5-inch diameter force main will become vertical from the back of the upper wall to a Type 1 catch basin. According to Blueline's civil plans, stormwater runoff will be directed to an underground detention vault beneath the proposed tract road before being routed to the city's municipal stormwater system located in 53rd Avenue West.

6. **Groundwater Conditions:** According to ESN's report, they did not observe any groundwater seepage at the time of their explorations. Cobalt's report indicated that the groundwater table is likely located at 375 feet below anticipated site grades with perched water in some areas before infiltrating.
7. **Existing Grades:** Blueline's civil plans indicate that existing grades across the site range in elevation from 410 feet in the central portion of the site and then sloping moderately to steeply to the west and south to a low elevation of 380 near the southwest corner.
8. **Structural Fill:** ESN's geotechnical report states that structural fill should be placed in 12-inch thick loose lifts and should be compacted to 95% of modified proctor and that utility trench backfill should be placed and compacted in accordance with the governing jurisdiction. ESN also notes that some fill may be compacted to 90% if approved by ESN.
9. **Geologic Hazards:** ESN's report provided comments related to potential geologic hazards including landslide and seismic hazards. ESN stated that the steep slopes on-site do not meet the criteria for steep slopes and therefore is not considered a risk. ESN also stated that the risk of liquefaction was low and provided an opportunity for the structural engineer and owner to discuss impacts to structural design based on seismic loading per the 2018 International Building Code (IBC). Based on ESN's geotechnical findings, we generally concur with their conclusions and recommendations related to geologic hazards.
10. **Retaining Walls:** ESN's geotechnical report provides recommendations for retaining walls and Blueline's civil plans indicate that a two-tiered retaining wall system will be constructed near the western property line and a single retaining wall will be constructed near the southern property line. However, there were no details for the construction of the retaining walls provided on the plans. According to the comment response letter from the previous city review, this omission was noted by the city and Blueline's response indicated that they are in the process of consulting with ESN to provide the necessary details.
11. **Seismic Design:** ESN's geotechnical report recommends a seismic site class of C per the 2018 International Building Code.
12. **Stormwater Vault Design:** ESN's geotechnical report recognizes that stormwater will likely be managed using a detention vault and provides recommendations for its' design including the need for a foundation drain to relieve hydrostatic pressure and the need to design for hydrostatic pressure if the foundation drain is not able to be installed at the base of the wall. Blueline's civil plans indicate the use of an underground detention vault that does include a foundation drain which extends to the east to an approved discharge location. ESN recommends a bearing capacity of 5,000 pounds per square foot for the vault.

13. **General Geotechnical Designs:** ESN's geotechnical report provides basic recommendations for items such as stripping, site preparation, structural fill, excavations, drainage, floor support, pavement, and temporary and permanent slopes. We generally concur with ESN's recommendations.
14. **Foundation Support:** ESN's geotechnical report states that the foundations can be supported on traditional spread footings on undisturbed native soil or at least 12 inches of structural fill and recommends a bearing capacity of 2,500 pounds per square foot.

Recommendations

- A. **Utilities:** Per Comment 5, Blueline's civil plans indicate that a 1.5-inch diameter force main pipe will direct stormwater from the wall drains and interceptor drain along the west edge of the site to a Type 1 catch basin with the final run of pipe extending vertically from the base of the upper wall approximately 15 feet to the catch basin. We recommend evaluating whether an energy dissipation device or system should be provided for the force main inlet. Blueline's civil plans also indicate that the force main pipe will extend beneath the retaining walls within approximately 2 feet of the lower wall foundation and 8 feet of the upper wall foundation. We recommend that the force main pipe be installed inside of ductile iron sleeves beneath the wall to protect the pipe from the load of the walls and to provide access to the pipe in the event that maintenance is required.
- B. **Existing grades:** Per Comment 7, Blueline's civil plans indicate that structural fill will be placed in the area of existing moderate to steep slopes. We recommend that any fill placed on slopes exceeding 20% be placed in horizontal lifts on benches cut into the slopes and that details outlining the benching requirements be included on the grading sheets.
- C. **Structural Fill:** Per Comment 8, ESN's report provides guidance on structural fill placement and compaction as well as comments regarding utility trench backfill. General note 11 on Sheet 2 of Blueline's civil plans states that **"trench backfill of new utilities and storm drainage facilities shall be compacted to G% maximum density (modified proctor) under roadways and G0% maximum density (modified proctor) off roadways"**. We recommend that the appropriate compaction percentages be provided in accordance with the governing jurisdiction(s).

Sincerely,

Terracon Consultants, Inc.



Scott M. Dobner
Project Geologist, L. G., CESCL