

Drainage Notes

1. Before construction or development coordinate all work with the City of Mercer Island (City).
2. All work shall be in conformance with the latest edition of City Standards.
3. The surface water drainage system shall be constructed according to the approved plans, which are on file in with the City. Any deviation from the approved plans will require written approval from the City.
4. A copy of these approved plans must be on the job site whenever construction is in progress.
5. Construction activities are limited to the hours permitted by the City.
6. Datum shall be NAVD 88 unless otherwise approved by the City.
7. Any dewatering system necessary for the construction of stormwater facilities must be submitted to the City for review and approval.
8. All utility trenches in the roadway and roadway subgrade shall be backfilled and compacted to 95 percent density, standard proctor.
9. Open cutting of existing roadways for non-franchised utility or storm drainage work is not allowed unless specifically approved by the City and noted on these approved plans. Any open cut shall be restored in accordance with the City trench restoration standards.
10. All sedimentation/erosion facilities must be in operation prior to clearing and construction, and they must be satisfactorily maintained until construction is completed and the potential for on-site erosion has passed.
11. All trenched pipe and appurtenances shall be laid on a properly prepared foundation in accordance with the current City Standards. This shall include necessary leveling of the trench bottom or the top of the foundation material, as well as placement and compaction of required bedding material, to uniform grade so that the entire length of the pipe will be supported on a uniformly dense, unyielding base.
12. All drainage structures, such as catch basins and manholes shall have solid locking lids.
13. All catch basin grates shall be depressed 0.10 feet below pavement level.
14. All driveway culverts located within City right-of-way shall be of sufficient length to provide a minimum 3:1 slope from the edge of the driveway to the bottom of the ditch. Rock for erosion protection of roadside ditches, where required, shall be of sound quarry rock placed to a depth of one (1) foot and must meet the following specifications: 4 - 8 inch rock / 40 - 70% passing; 2 - 4 inch rock / 30 - 40% passing; and less than 2 inch rock / 10 - 20% passing.
15. All building downspouts and footing drains shall be connected to the storm drainage system, unless approved by the City. An accurately dimensioned, certified as-built drawing of this drainage system will be submitted to the City upon completion.
16. Proof of liability insurance shall be submitted to the City prior to construction permit issuance.
17. Issuance of the building or construction permits by the City does not relieve the owner of the continuing legal obligation and/or liability connected with storm surface water disposition. Further, the City does not accept any obligation for the proper functioning and maintenance of the system provided during construction.
18. The Contractor shall be responsible for providing adequate safeguard, safety devices, protective equipment, flaggers, and any other needed actions to protect the life, health, and safety of the public, and to protect property in connection with the performance of work. Any work within the traveled right-of-way that may interrupt normal traffic flow shall require a traffic control plan approved by the City.

PROJECT NARRATIVE - ONSITE

The project site is the King County parcel 362350-0226, located in the NE quadrant of where the intersection of SE 38th Street and 74th Avenue SE would be. Please see the vicinity map included on drawing C-0 and also in the appendix of the drainage report.

Currently, the project parcel is undeveloped.

According to the King County Assessor's data the Project parcel is 8,800 square feet in area. The topography on the parcel is sloped at an average slope of about 33%. The drainage pattern of the parcel is from the NW to the SE. The drainage characteristic varies from sheetflow to minor shallow channels. There are 18 significant trees varying in diameters from 48" to 12" on this parcel.

The project consists of constructing a residence and a concrete apron at the garage entry. The residence proposed is 1,964 square feet in footprint. The concrete apron is 367 square feet. There would be about 118 square feet of asphalt pavement also. This would leave about 6,351 square feet of pervious area. The finished floor elevation of 116.0' is proposed. Retaining walls up to 10'-11' high will be employed on the NW side to create a footprint for the proposed residence.

Nine significant trees are directly under the proposed residence footprint. Six trees are proposed for preservation. Three trees are close to the proposed residence and would require special efforts if they are to be preserved.

Prior to any work Temporary Erosion and Sedimentation Control (TESC) Best Management Practices (BMP) would be employed. BMPs such as clearing limits, tree protection, construction entrance, silt fences, stabilized access route, plastic covering, dust-control, and matting/mulching would be installed and maintained.

Under the historic forested conditions the parcel is located in drainage basin 20. The drainage from this parcel sheet-flows south down the slope and is received into a drainage channel south of SE 38th Street right of way. The drainage channel flows south ending in Lake Washington within a quarter mile from the parcel.

Under the proposed conditions the surface water from undisturbed area of the parcel will continue to sheet flow in the same way as before the development to the bottom of the slope south of the parcel. The surface water from the impervious areas generated is directed to a detention tank onsite that is discharged at the bottom of the slope south of the parcel.

Since there are no easements available to extend the drains south of the discharge location, the drainage is pointed to the east. This is the same direction the drains were extended in the previous submittals. The outfall is at the east property line of the parcel to promote sheetflow and to mimic natural drainage conditions.

Research on the soils from Web Soils Survey NRCS indicates that the project parcel is underlain with KpD-Kitsap Silty Loam and Silty Clay soils up to a depth of 5. The hydrologic group is C. The infiltration rates for such soils are very limited. Please see the soils map for the site and associated engineering properties included in the appendix.

PROJECT NARRATIVE - OFFSITE

The project site is the right of way for SE 38th Street, from the intersection of SE 38th Street and 73rd Avenue SE to the west property line of the subject parcel. Please see the vicinity map included on drawing C-0 and also in the appendix of the drainage report.

Currently, the street right of way only has a gravel driveway. Please see the topographic survey included in the submittal package. The gravel pavement provides access from 73rd Avenue SE to two parcels located south of SE 38th Street right of way.

The development north of the curb line is 12,171 square feet in area. The topography of the area is flat at the gravel paved area and sloped north of the gravel pavement. The drainage pattern of the parcel is from the North to the South. The drainage characteristic is sheet flow. There are 23 significant trees varying in diameters from 60" to 8" or about this area.

The project consists of constructing a 20' wide asphalt access drive. The access proposed is 7,746 square feet in area. The rest of area is pervious 4,425 square feet. The access elevation varies from 215.5' at the lowest to 228.7' at the highest. Retaining walls up to 8'-9' high will be employed on the north side of the access to widen the flat area to construct the 20' wide access.

Nine significant trees are directly under the proposed access, retaining wall, and the ecology block barrier along the north right of way line. Eleven trees are proposed for preservation. Two trees are close to the proposed access but are on adjacent properties to the south of the access. A 60" diameter is proposed for preservation but would require special guidance from an arborist due to its close proximity to the access.

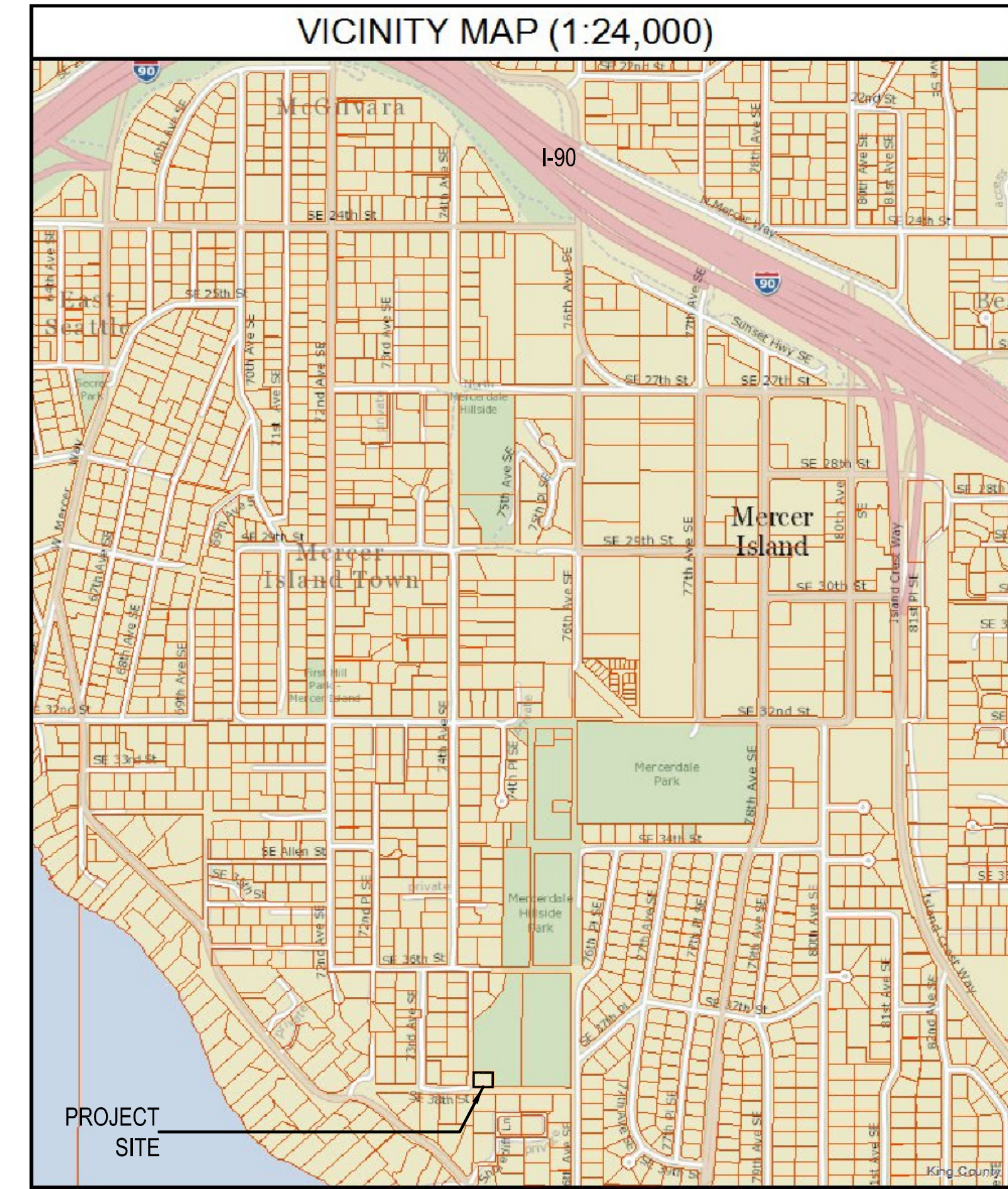
Prior to any work Temporary Erosion and Sedimentation Control (TESC) Best Management Practices (BMP) would be employed. BMPs such as clearing limits, tree protection, construction entrance, silt fences, stabilized access route, plastic covering, dust-control, and matting/mulching would be installed and maintained.

Under the historic forested conditions the development area is located in drainage basin 20. The drainage from this parcel sheet-flows south down the slope and is received into a drainage channel south of SE 38th Street right of way. The drainage channel flows south ending in Lake Washington within a quarter mile from the parcel.

Under the proposed conditions the surface water from undisturbed development area will continue to sheet flow in the same way as before the development to the access drive. The surface water from the impervious areas generated is directed to a detention tank in the right of way that is discharged at the bottom of the slope south of the project parcel.

Since there are no easements available to extend the drains south of the discharge location, the drainage is pointed to the east. This is the same direction the drains were extended in the previous submittals. The outfall is at the east property line of the parcel to promote sheetflow and to mimic natural drainage conditions.

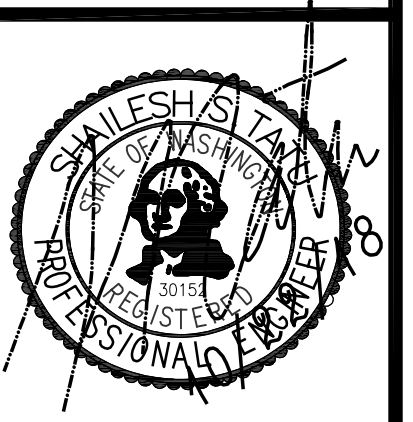
Research on the soils from Web Soils Survey NRCS indicates that the project parcel is underlain with KpD-Kitsap Silty Loam and Silty Clay soils up to a depth of 5. The hydrologic group is C. The infiltration rates for such soils are very limited. Please see the soils map for the site and associated engineering properties included in the appendix.



SHEET INDEX

- C-0 Cover Sheet**
- C-1 Temporary Erosion / Sedimentation Control Plan**
- C-1.1 Temporary Erosion / Sedimentation Control Details**
- C-2 Paving and Grading Plan & Profile**
- C-2.1 Paving and Grading Details**
- C-3 Utilities Plan & Profile**
- C-3.1 Drainage Standard Detail**

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PROJECT INFORMATION
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 PARCEL NO.: 362350-0226
 SE 38TH ST AND 74TH AVE SE
 MERCER ISLAND, WA 98032

OWNER INFORMATION
HARRIS KLEIN
 PARCEL NO.: 362350-0226
 SE 38TH ST AND 74TH AVE SE
 MERCER ISLAND, WA 98032

NOTES SHEET

DRAWING INFO
 ENGINEER: S. TATU, PE
 DRAWN BY: ST
 SCALE: AS SHOWN
 DATE: OCTOBER 2018

C - 0
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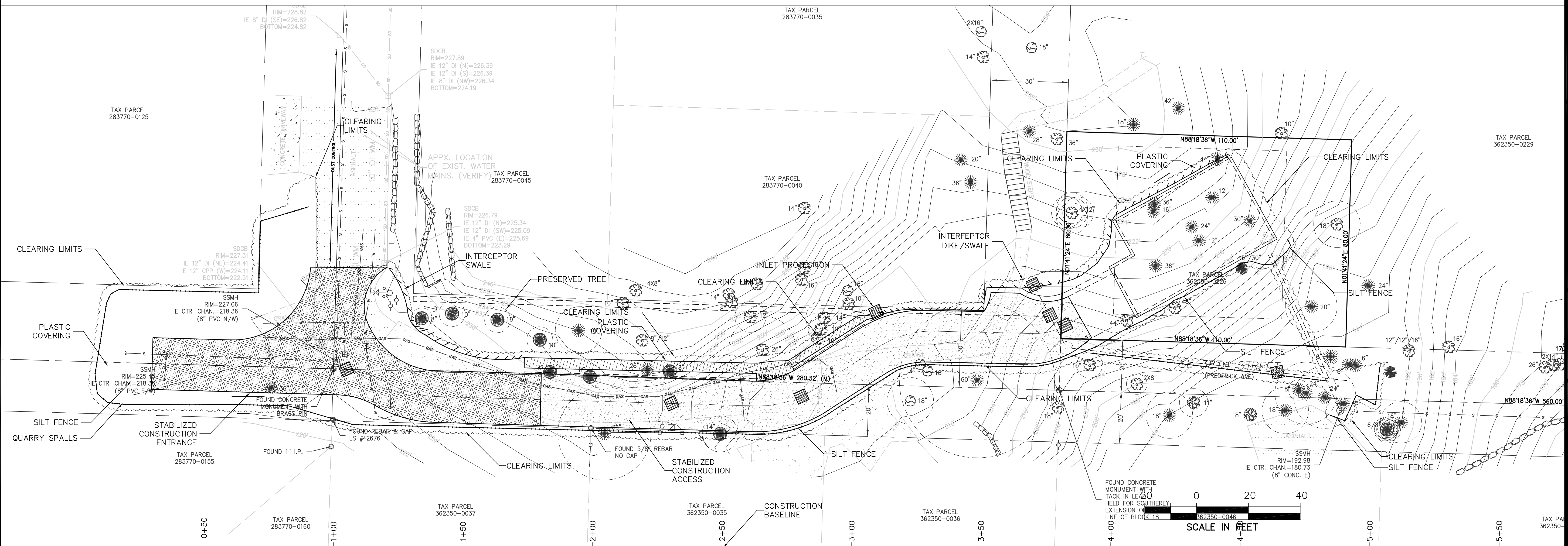


EROSION AND SEDIMENT CONTROL RECOMMENDED CONSTRUCTION SEQUENCE

1. Pre-construction meeting.
2. Post sign with name and phone number of ESC supervisor (may be consolidated with the required notice of construction sign).
3. Flag or fence clearing limits.
4. Install catch basin protection if required.
5. Grade and install construction entrance(s).
6. Install perimeter protection (silt fence, brush barrier, etc.).
7. Grade and stabilize construction roads.
8. Construct surface water controls (interceptor dikes, pipe slope drains, etc.) simultaneously with clearing and grading for project development.
9. Maintain erosion control measures in accordance with City Standards and manufacturer's recommendations.
10. Relocate erosion control measures or install new measures so that as site conditions change the erosion and sediment control is always in accordance with the City's Erosion and Sediment Control Standards.
11. Cover all areas that will be unworked for more than seven days during the dry season or two days during the wet season with straw, wood fiber mulch, compost, plastic sheeting or equivalent.
12. Stabilize all areas that reach final grade within seven days.
13. Seed or sod any areas to remain unworked for more than 30 days.
14. Upon completion of the project, all disturbed areas must be stabilized and BMPs removed if appropriate.

Erosion Control Notes

1. Approval of this erosion/sedimentation control (ESC) plan does not constitute an approval of permanent road or drainage design (e.g. size and location of roads, pipes, restrictors, channels, retention facilities, utilities).
2. The implementation of these ESC plans and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the applicant/contractor until all construction is completed and approved and vegetation/landscaping is established.
3. The boundaries of the clearing limits shown on this plan shall be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing limits shall be permitted. The flagging shall be maintained by the applicant/contractor for the duration of construction.
4. The ESC facilities shown on this plan must be constructed in conjunction with all clearing and grading activities, and in such a manner as to insure that sediment and sediment laden water do not enter the drainage system, roadways, or violate applicable water standards.
5. The ESC facilities shown on this plan are the minimum requirements for anticipated site conditions. During the construction period, these ESC facilities shall be upgraded as needed for unexpected storm events and to ensure that sediment and sediment-laden water do not leave the site.
6. The ESC facilities shall be inspected daily by the applicant/contractor and maintained as necessary to ensure their continued functioning.
7. The ESC facilities on inactive sites shall be inspected and maintained a minimum of once a month or within the 48 hours following a major storm event.
8. At no time shall more than one foot of sediment be allowed to accumulate within a trapped catch basin. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment laden water into the downstream system.
9. Stabilized construction entrances shall be installed at the beginning of construction and maintained for the duration of the project. Additional measures may be required to insure that all paved areas are kept clean for the duration of the project.



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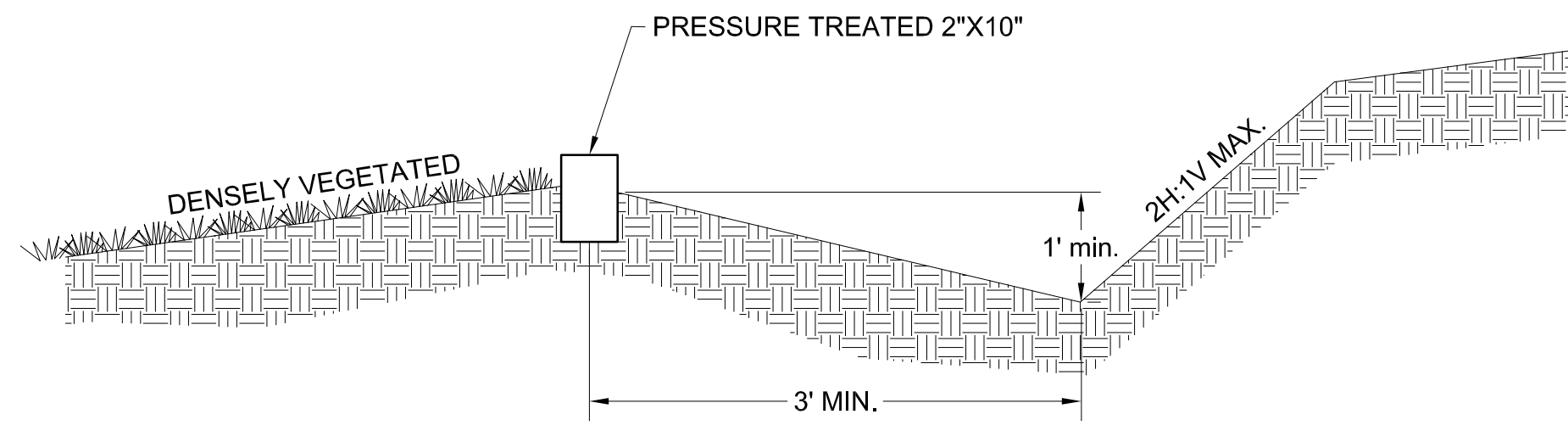
PROJECT INFORMATION
KLEIN RESIDENCE
 PARCEL NO.: 362350-0226
 SE 38TH ST AND 79TH AVE SE
 MERCER ISLAND, WA 98032

OWNER INFORMATION
HARRIS KLEIN
 PARCEL NO.: 362350-0226
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 MERCER ISLAND, WA 98032

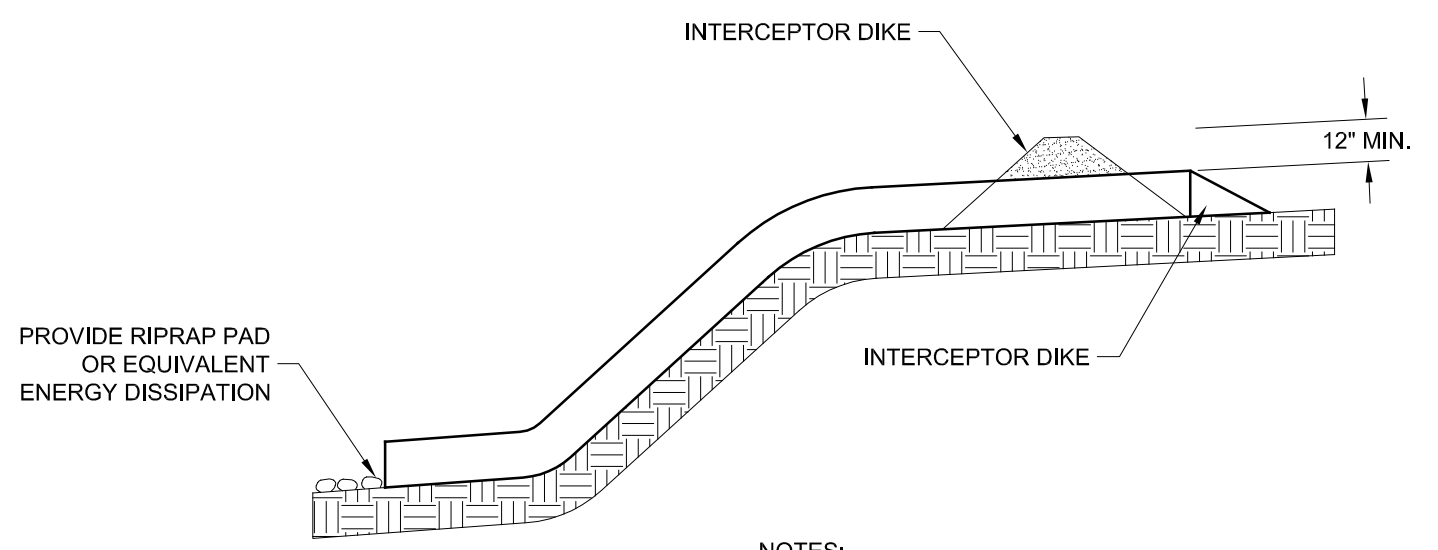
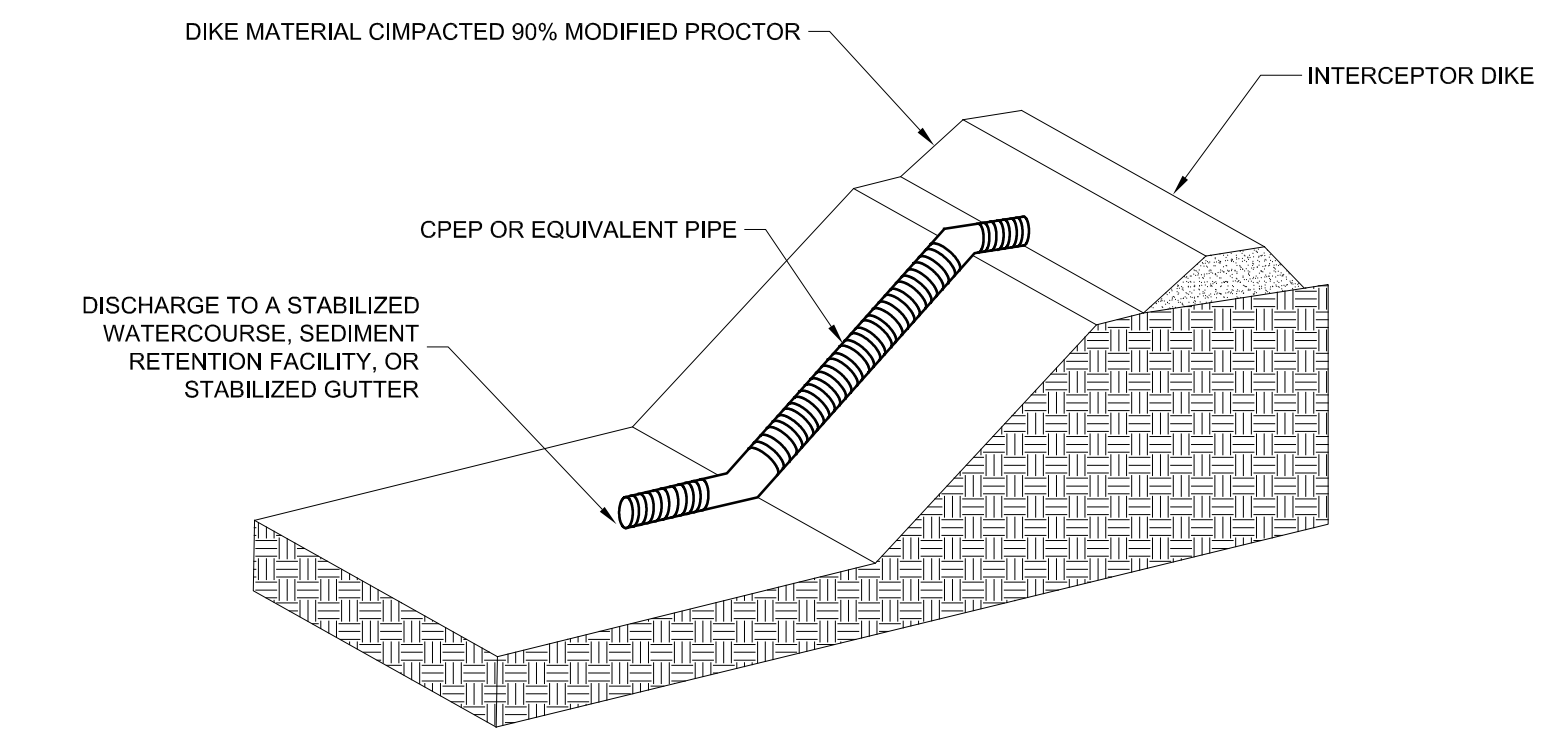
CLEARING & TESC

DRAWING INFO
 ENGINEER: S. TATU, PE
 DRAWN BY: ST
 SCALE: AS SHOWN
 DATE: OCTOBER 2018

C - 1
 Page 2 of 7

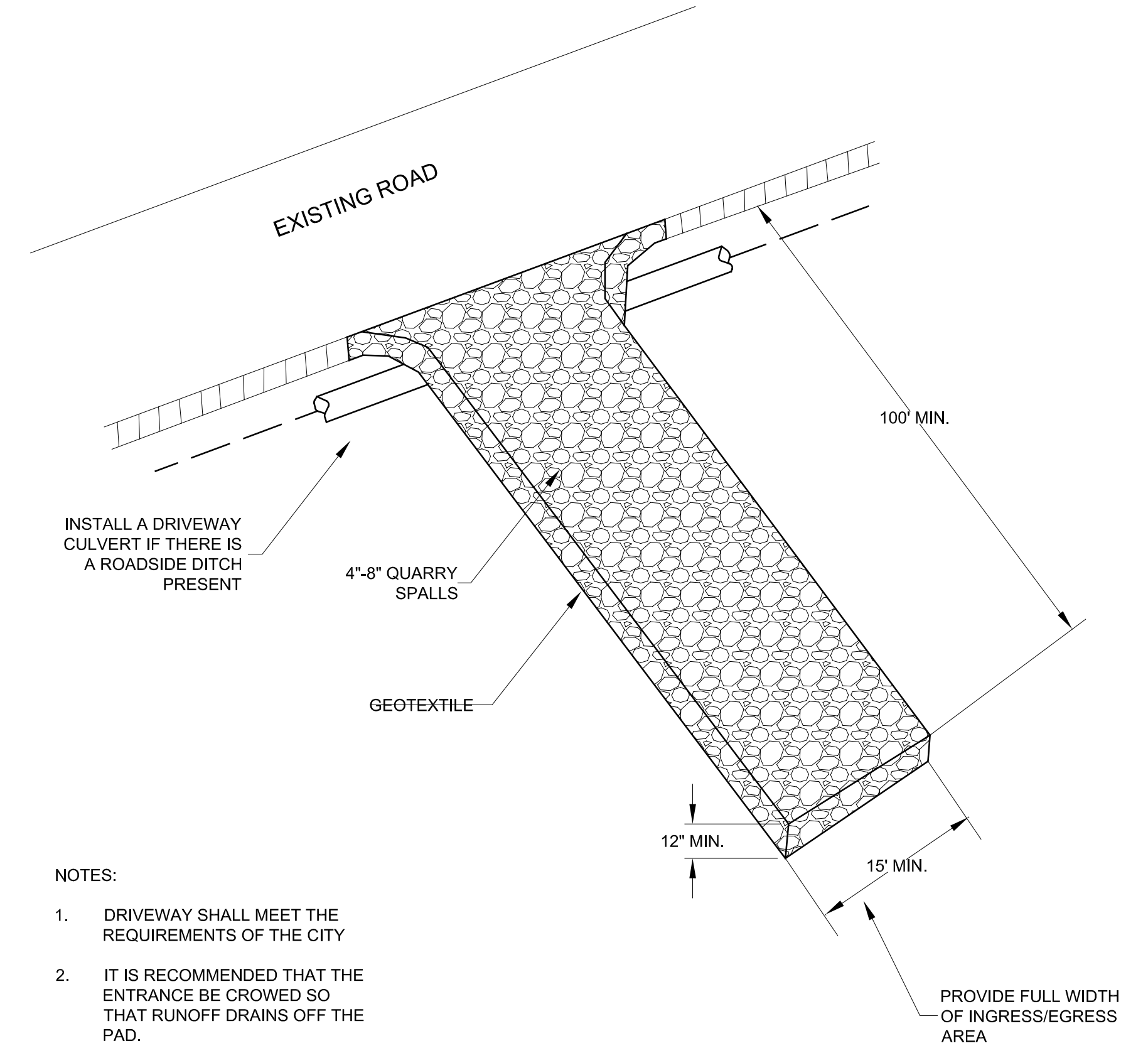


LEVEL SPREADER SECTION



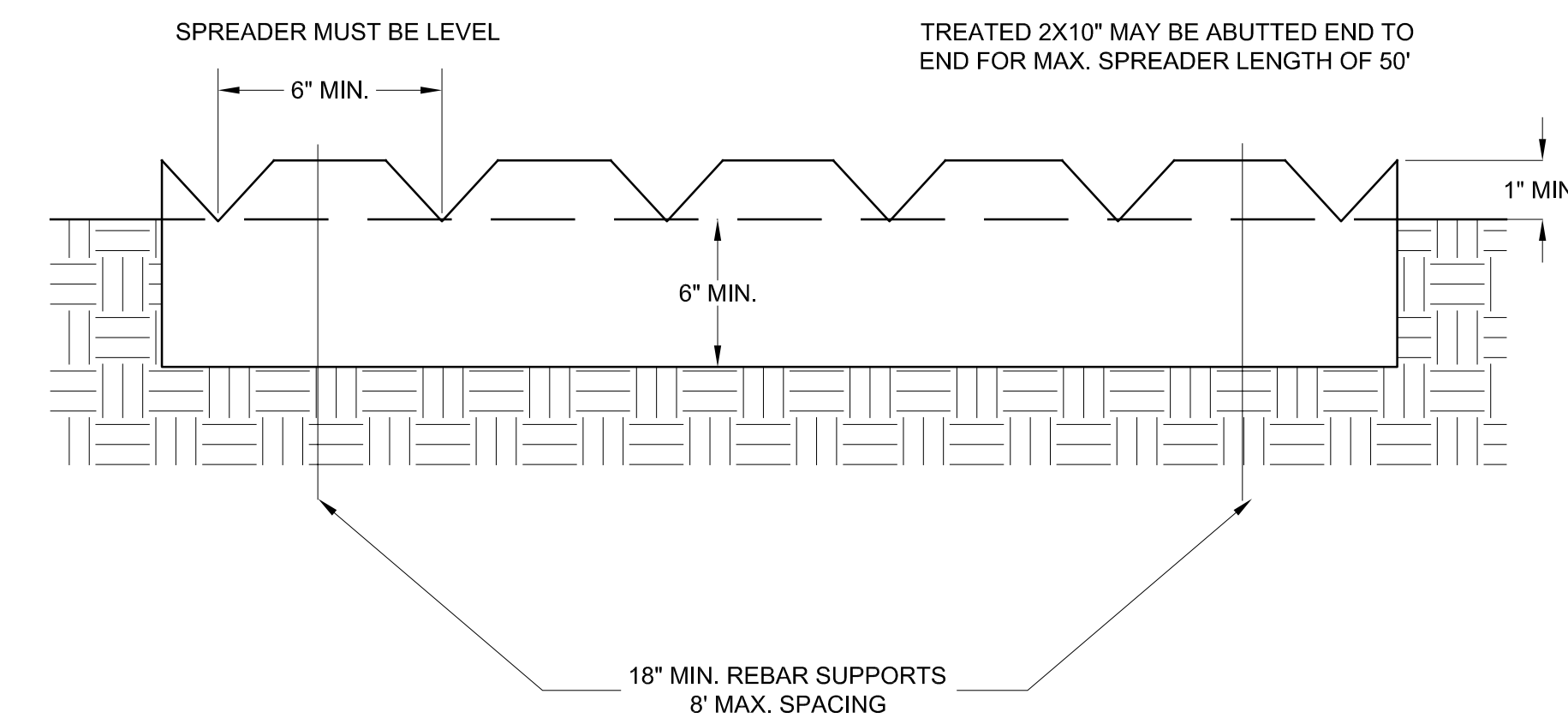
NOTES:
1. INLET AND ALL SECTIONS MUST BE SECURELY FASTENED TOGETHER WITH GASKETED WATERTIGHT FITTINGS.

PIPE SLOPE DRAIN

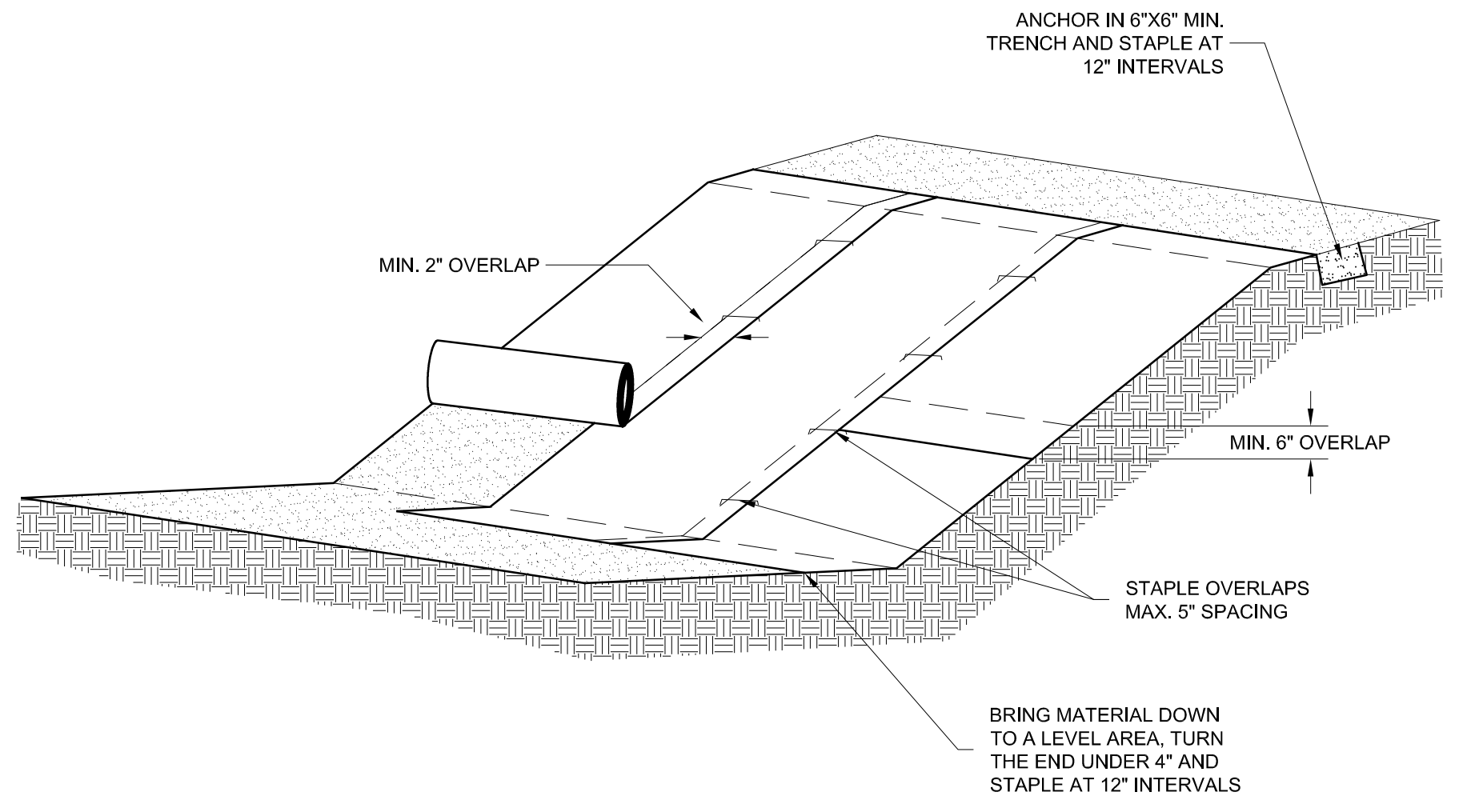


NOTES:
1. DRIVEWAY SHALL MEET THE REQUIREMENTS OF THE CITY
2. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWDED SO THAT RUNOFF DRAINS OFF THE PAD.

STABILIZED CONSTRUCTION ENTRANCE

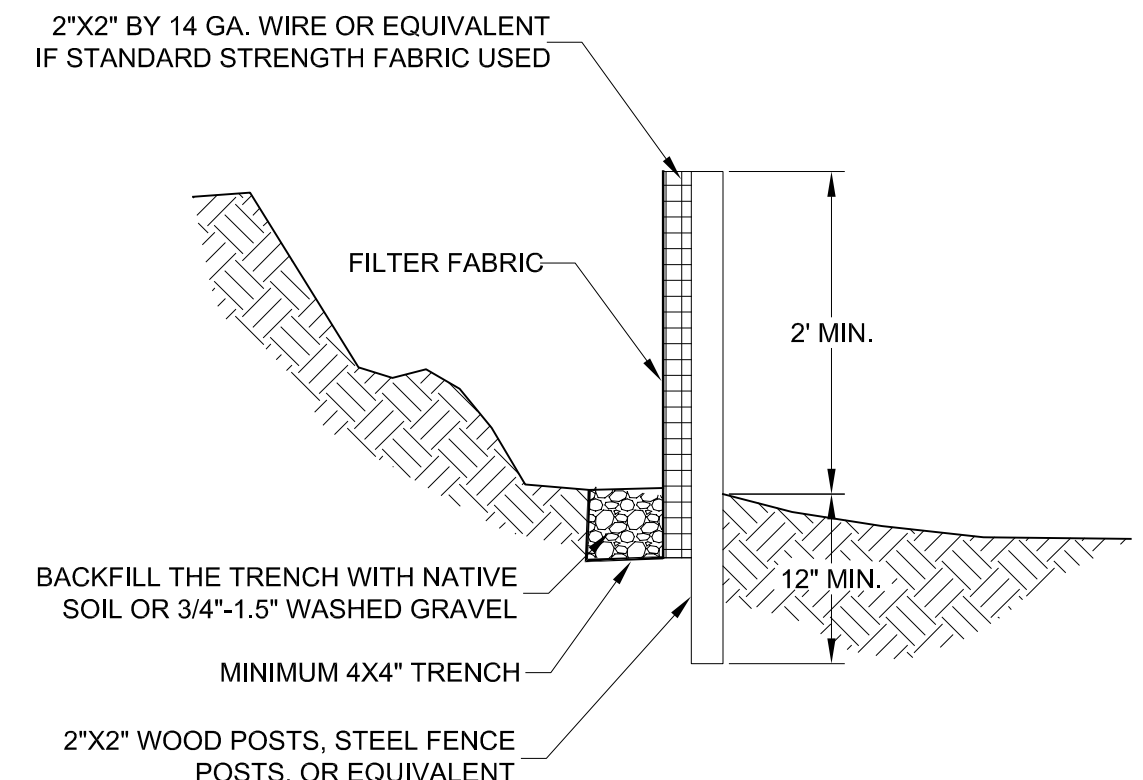
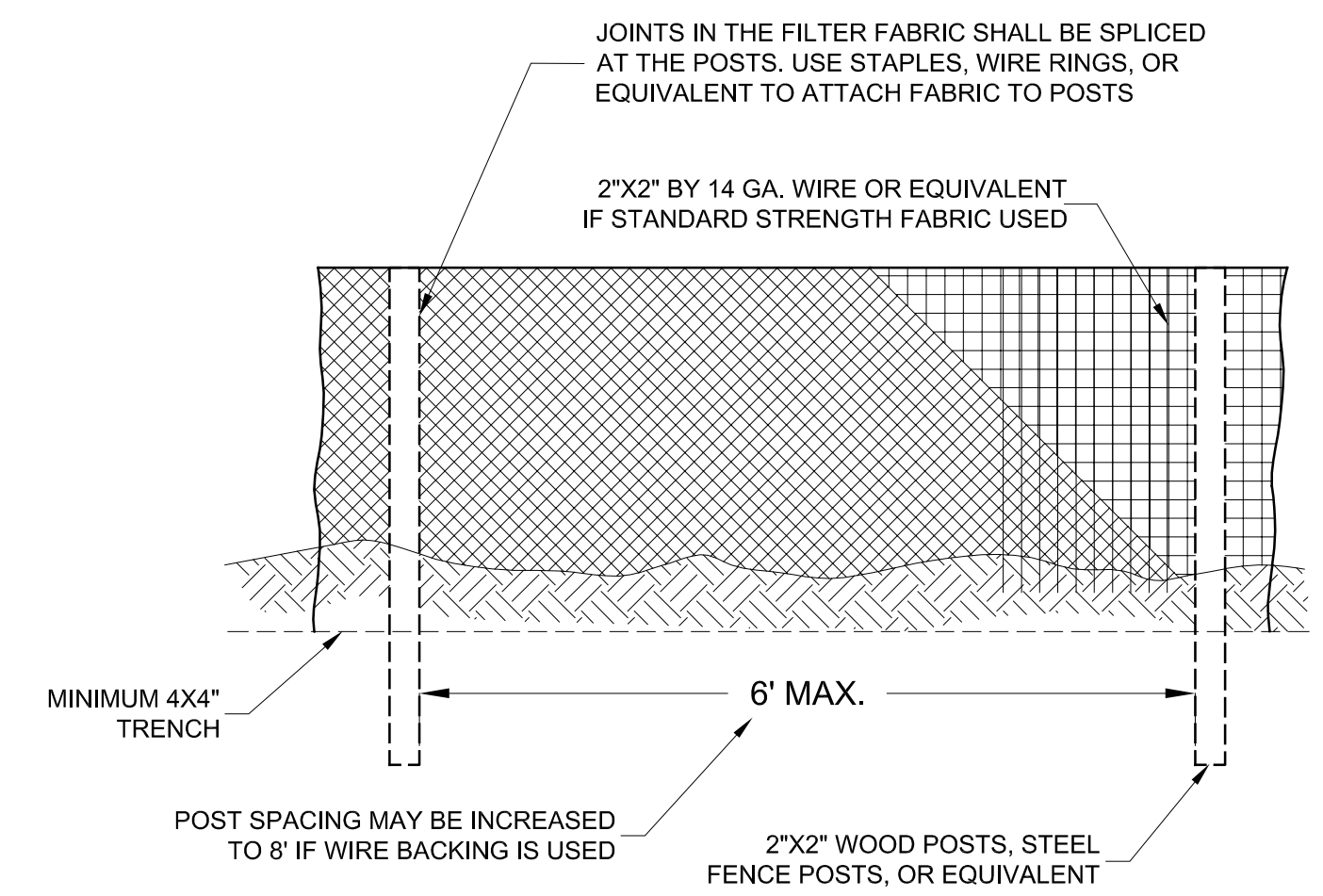


LEVEL SPREADER DETAIL



NOTES:
1. SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR BETTER SOIL CONTACT.
2. STAPLING PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS.
3. DO NOT STRETCH BLANKETS/MATTINGS TIGHT - ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES.
4. FOR SLOPES LESS THAN 3H:1V, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS.
5. IF THERE IS BERM AT THE TOP OF THE SLOPE, ANCHOR UPSLOPE OF THE BERM.
6. LIME, FERTILIZE, AND SEED BEFORE INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.

SLOPE INSTALLATION



SILT FENCE

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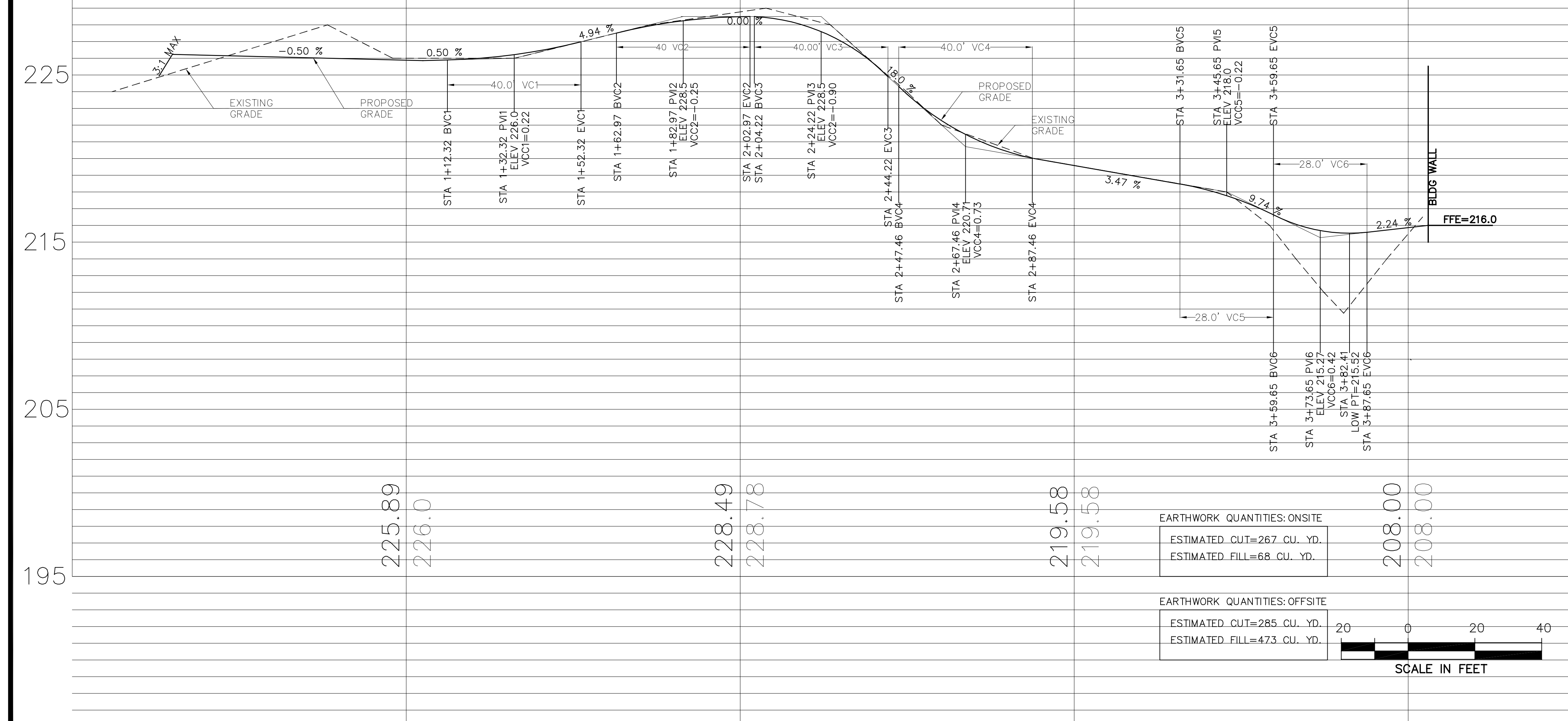
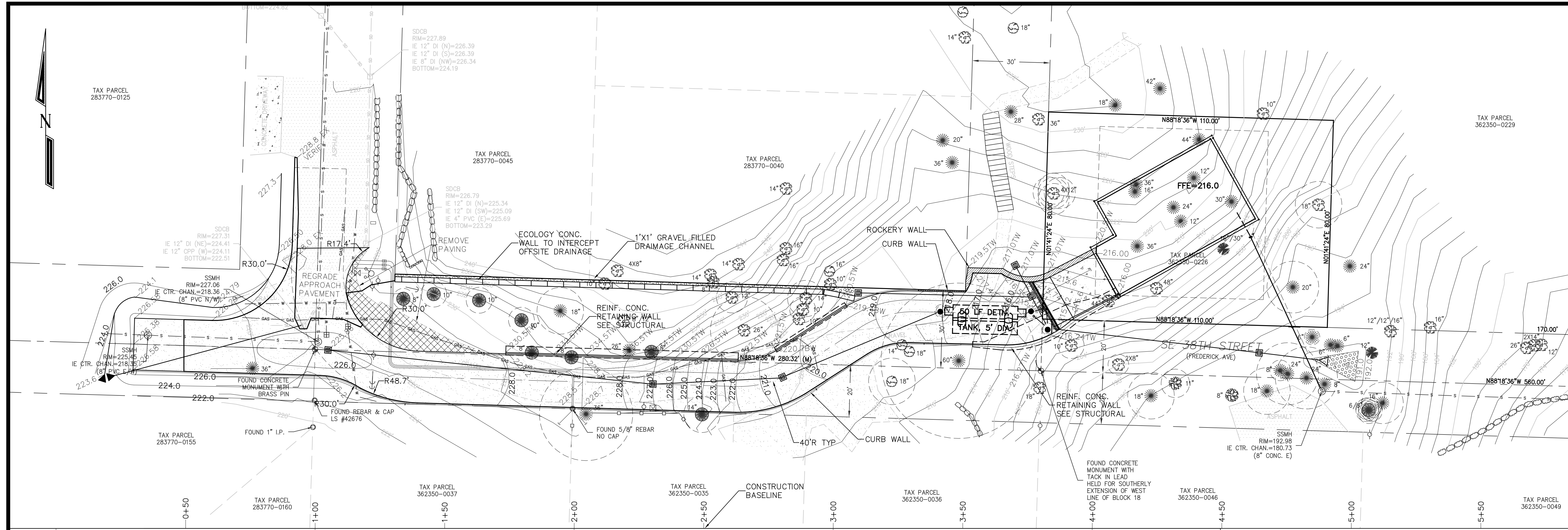


PROJECT INFORMATION
KLEIN RESIDENCE
PARCEL NO: 362350-0226
SE 38TH ST AND 47TH AVE SE
MERCER ISLAND, WA 98032

OWNER INFORMATION
HARRIS KLEIN
PARCEL NO: 362350-0226
SE 38TH ST AND 47TH AVE SE
MERCER ISLAND, WA 98032

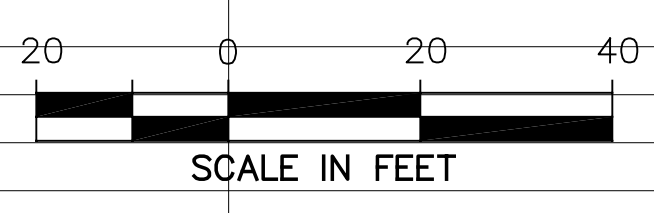
TESC DETAILS

DRAWING INFO
ENGINEER: S. TATU, PE
DRAWN BY: ST
SCALE: AS SHOWN
DATE: OCTOBER 2018



EARTHWORK QUANTITIES: ONSITE
 ESTIMATED CUT=267 CU. YD.
 ESTIMATED FILL=68 CU. YD.

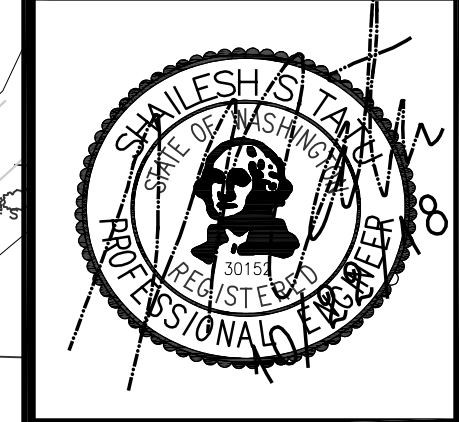
EARTHWORK QUANTITIES: OFFSITE
 ESTIMATED CUT=285 CU. YD.
 ESTIMATED FILL=473 CU. YD.



| Onsite Drainage Areas Summary (Square Feet) | |
|---|------|
| Site area | 8800 |
| Total Development Area | 8800 |
| Existing Conditions | |
| Bldg Roof | |
| Paving | |
| Total impervious area | |
| Total pervious area | 8800 |
| Proposed Conditions | |
| Building Roof | 1964 |
| Concrete Pavement | 367 |
| Asphalt Pavement | 118 |
| Landscape | 6351 |
| Total Hardscape area | 2449 |
| Total pervious area | 6351 |
| New/Replaced Impervious area | 2449 |
| New/Replaced water Quality area | 485 |

| Offsite Drainage Areas Summary (Square Feet) | |
|--|-------|
| Site area | 12171 |
| Total Development Area | 12171 |
| Existing Conditions | |
| Bldg Roof | |
| Asphalt Pavement Remove | 87 |
| Gravel Paving Remove/Replace | 3204 |
| Total impervious area | 3291 |
| Total pervious area | 8880 |
| Proposed Conditions | |
| Building Roof | |
| Concrete Pavement | 7746 |
| Asphalt Pavement | 4425 |
| Landscape | 7746 |
| Total Hardscape area | 7746 |
| Total pervious area | 4425 |
| New/Replaced Impervious area | 7746 |
| New/Replaced water Quality area | 7746 |

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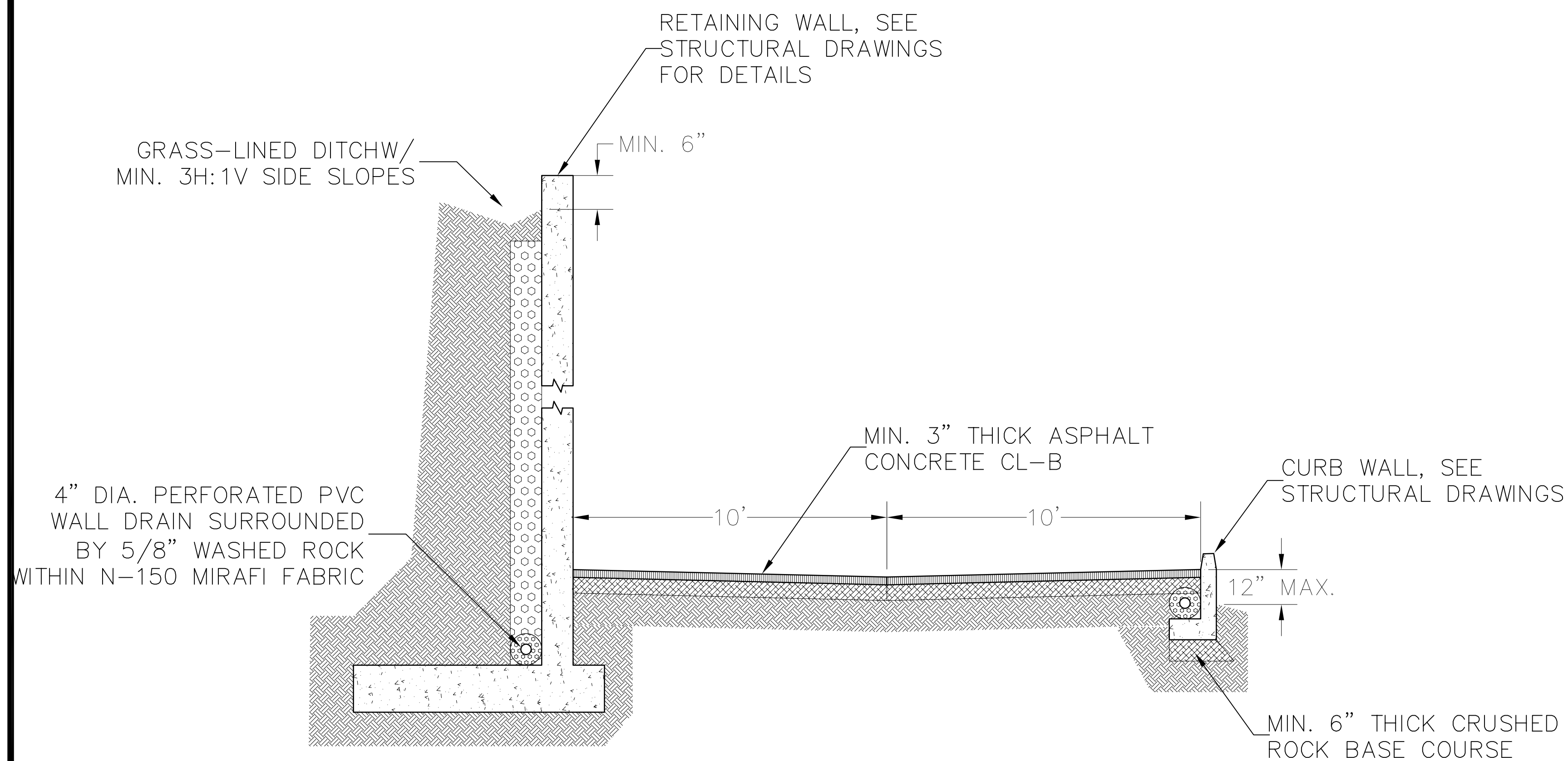


PROJECT INFORMATION
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 PARCEL NO.: 362350-0226
 SE 38TH STREET AND 74TH AVE SE
 MERCER ISLAND, WA 98032

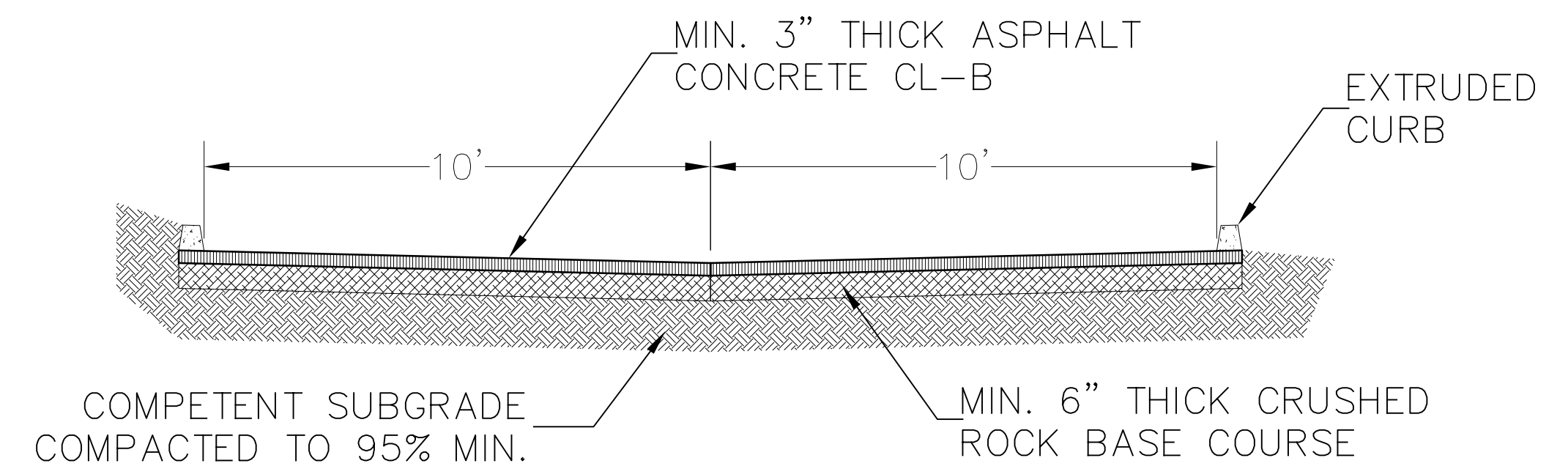
OWNER INFORMATION
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 MERCER ISLAND, WA 98032

PAVING AND GRADING PLAN & PROFILE

DRAWING INFO
 ENGINEER: S. TATU, PE
 DRAWN BY: ST
 SCALE: AS SHOWN
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RETAINING WALL & CURB WALL
WHERE APPLICABLE



ACCESS DRIVEWAY SECTION



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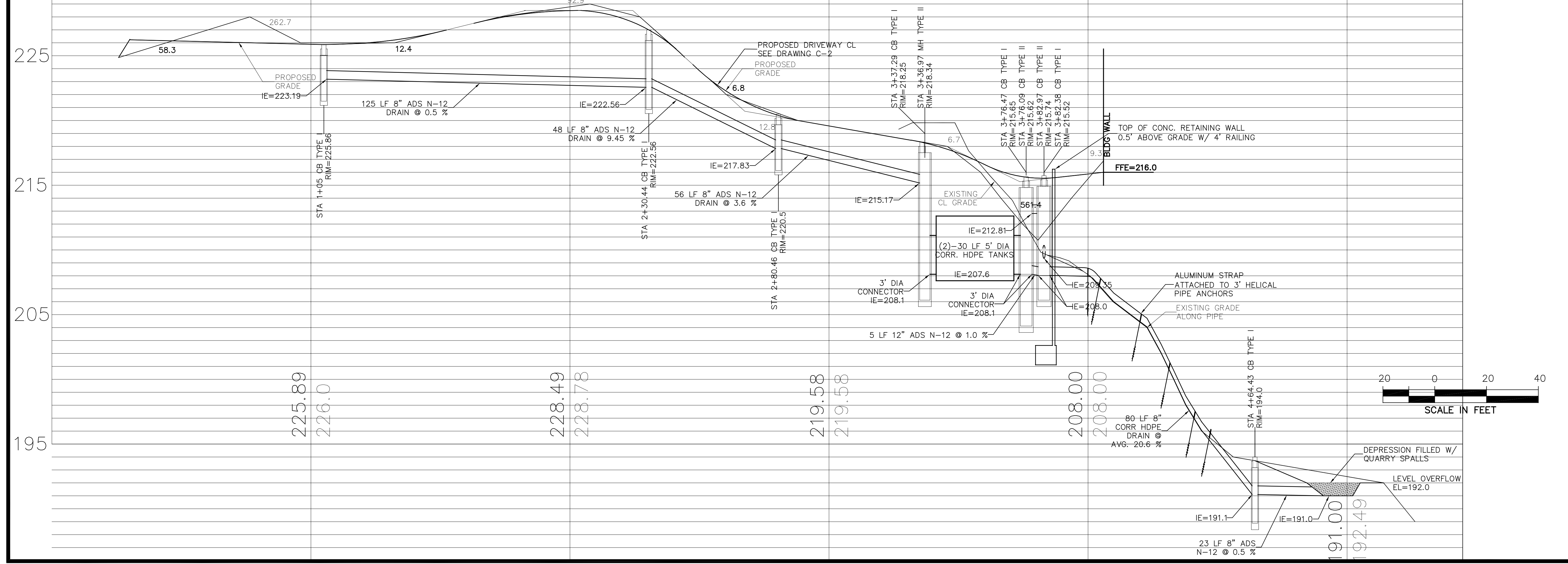
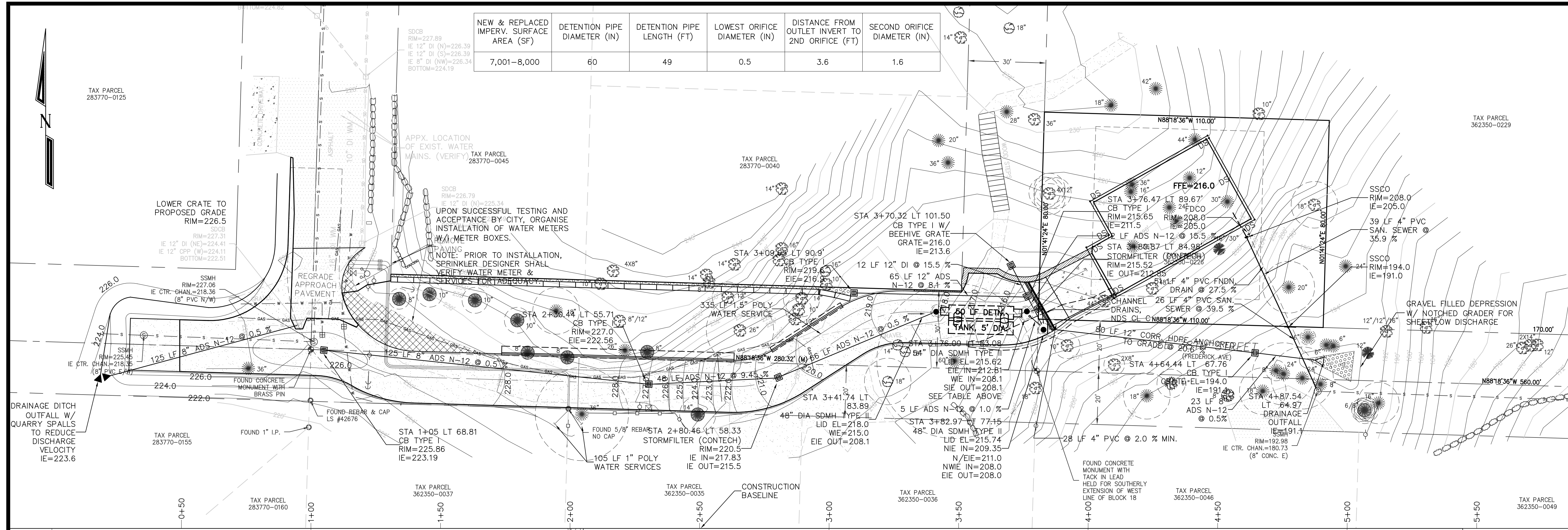
OWNER INFORMATION
HARRIS KLEIN
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**PAV/GRD
 DETAILS**

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C - 2.1

| NEW & REPLACED IMPERV. SURFACE AREA (SF) | DETENTION PIPE DIAMETER (IN) | DETENTION PIPE LENGTH (FT) | LOWEST ORIFICE DIAMETER (IN) | DISTANCE FROM OUTLET INVERT TO 2ND ORIFICE (FT) | SECOND ORIFICE DIAMETER (IN) |
|--|------------------------------|----------------------------|------------------------------|---|------------------------------|
| 7,001-8,000 | 60 | 49 | 0.5 | 3.6 | 1.6 |



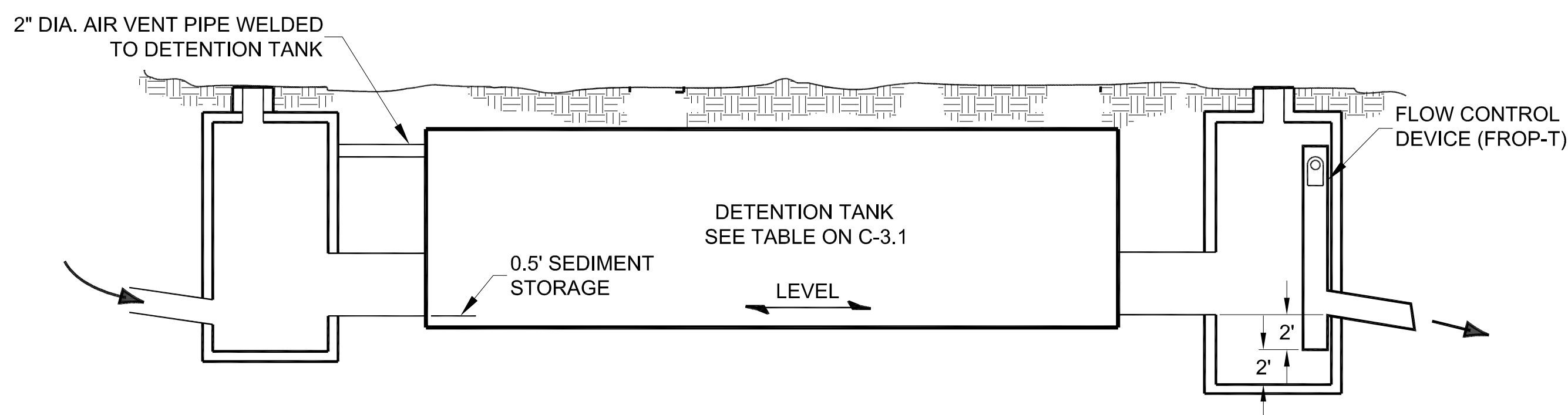
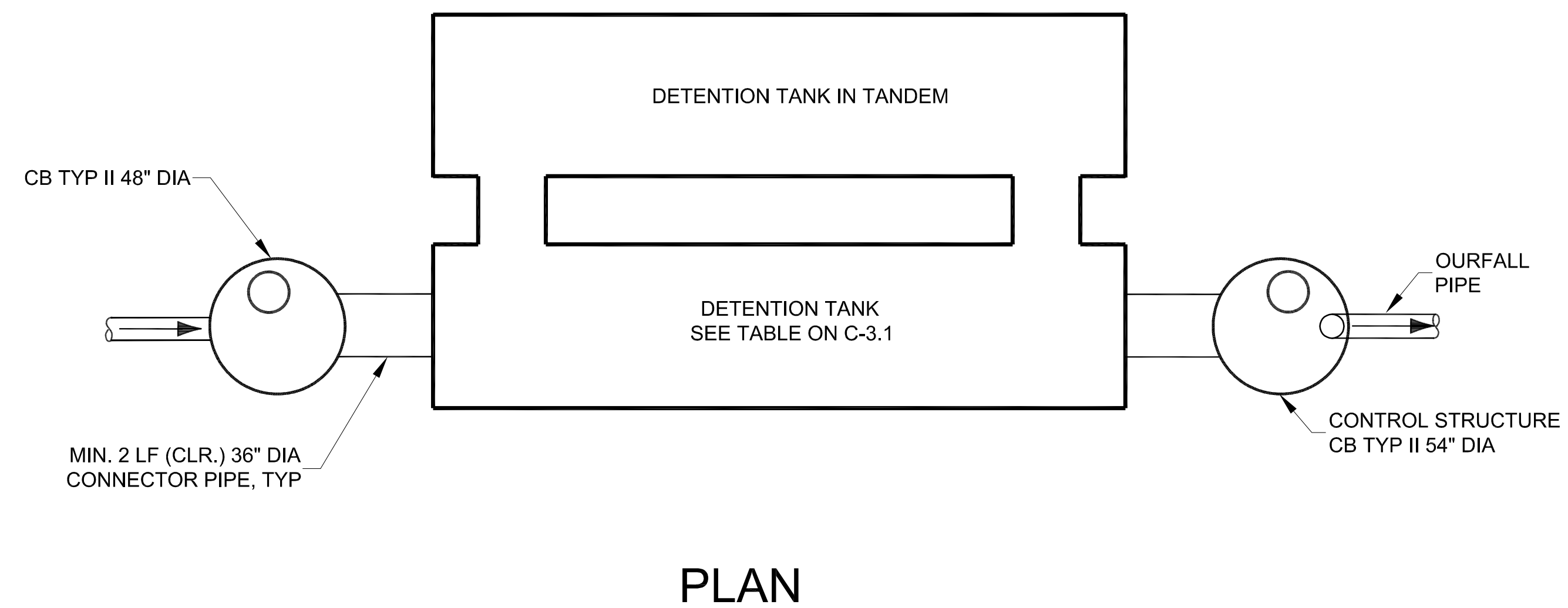
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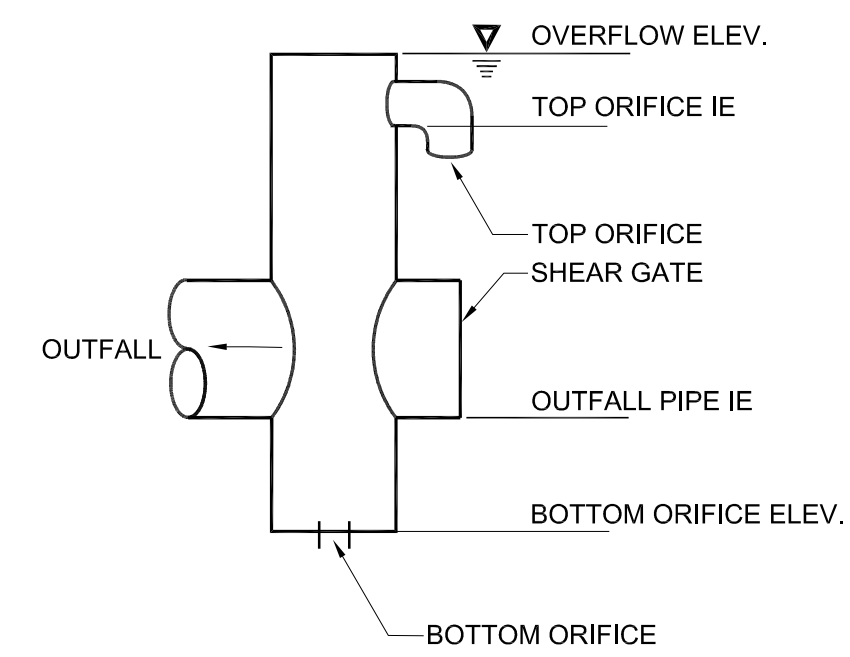
UTILITIES PLAN & PROFILE

DRAWING INFO
 ENGINEER: S. TATU, PE
 DRAWN BY: ST
 SCALE: AS SHOWN
 DATE: OCTOBER 2018



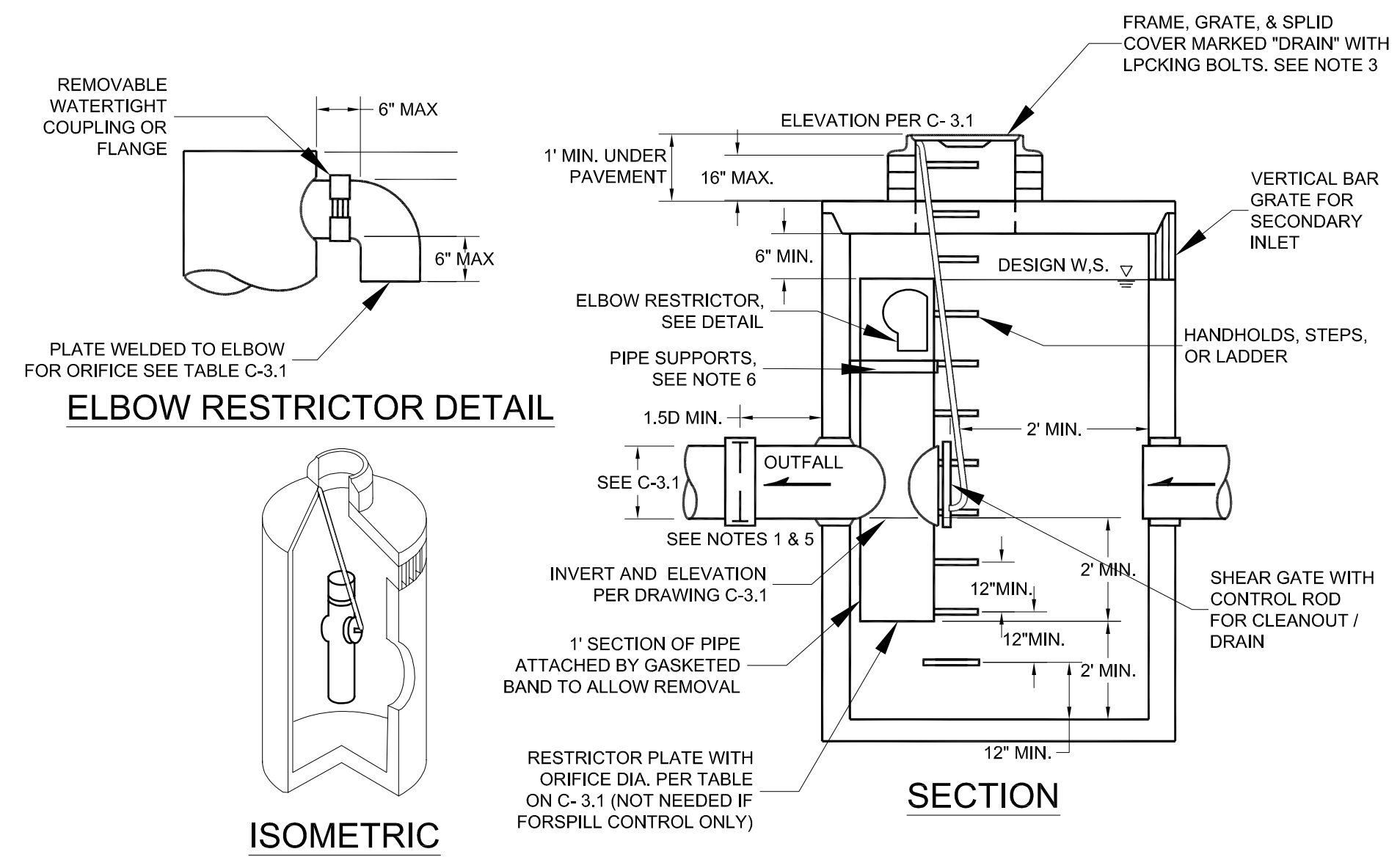
NOTE; ALL METAL PARTS CORROSION RESISTANT.
STEEL PARTS GALVANIZED AND ASPHALT COATED
(TREATMENT TYPE 1 OR BETTER)

DETENTION TANK, TYP



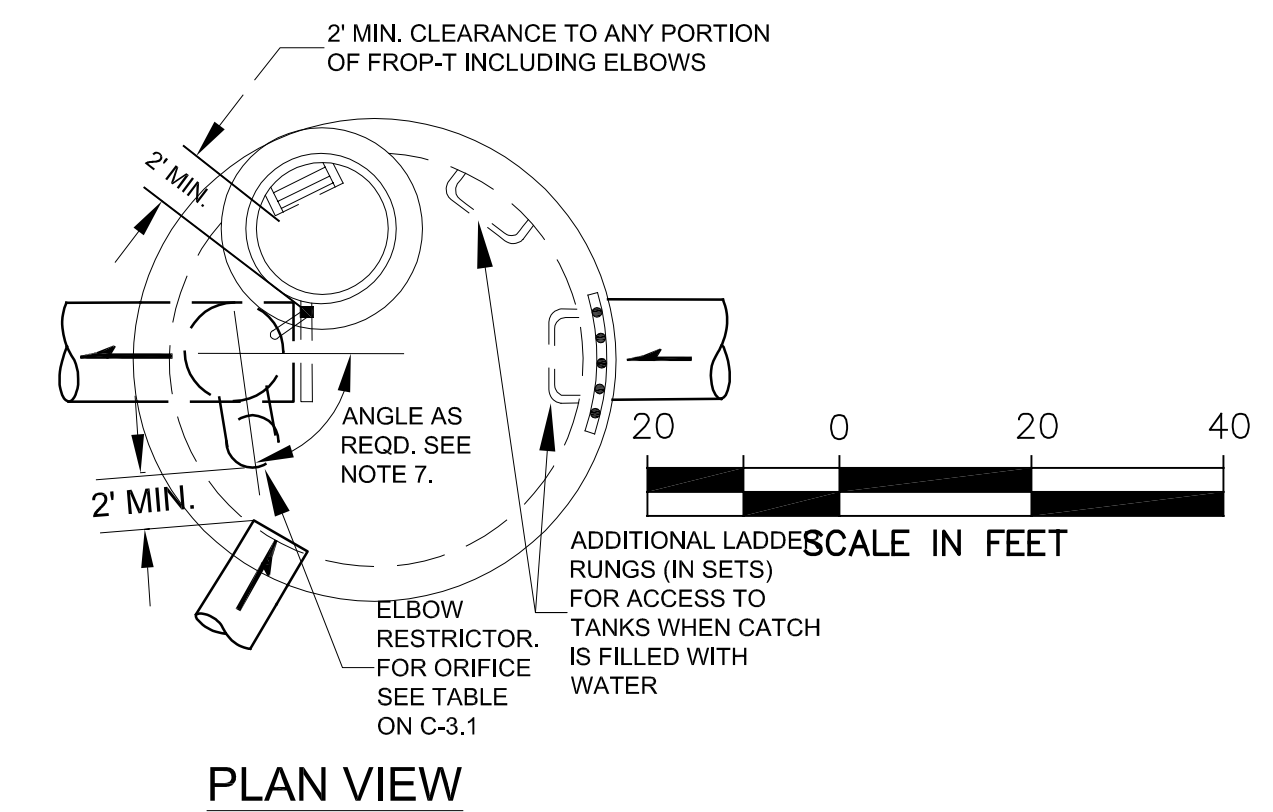
NOTE: SEE TABLE ON C-2

FLOW CONTROL DEVICE



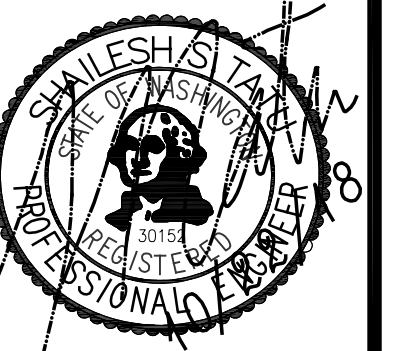
NOTES

1. USE A MINIMUM OF 54" DIAMETER CATCH BASIN TYPE II.
2. OUTLET CAPACITY: 100-yr DEVELOPED PEAK FLOW
3. METAL PARTS: CORROSION RESISTANT. NON-GALVANIZED PARTS PREFERRED, GALVANIZED PARTS TO HAVE ASPHALT TREATMENT 1.
4. FRAME AND LADDER OR STEPS OFFSET SO:
 - A. CLEANOUT GATE IS VISIBLE FROM TOP.
 - B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE.
 - C. FRAME IS CLEAR OF CURB.
5. IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE: OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4".
6. PROVIDE AT LEAST ONE 3" x 0.90 INCHES SUPPORT BRACKET ANCHORED TO CONCRETE WALL. (MAXIMUM 3'-0" VERTICAL SPACING)
7. LOCATE ELBOW RESTRICTOR(S) AS NECESSARY TO PROVIDE MINIMUM CLEARANCE AS SHOWN.
8. LOCATE ADDITIONAL LADDER RUNGS IN STRUCTURES USED AS ACCESS TO TANKS OR VAULTS TO ALLOW ACCESS WHEN CATCH BASIN IS FILLED WITH WATER.



CONTROL STRUCTURE

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PROJECT INFORMATION
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MERCER ISLAND, WA 98032

OWNER INFORMATION
HARRIS KLEIN
PARCEL NO: 362330-0226
SE 38TH ST AND 74TH AVE SE
MERCER ISLAND, WA 98032

DRAINAGE DETAILS

DRAWING INFO
ENGINEER: S. TATU, PE
DRAWN BY: ST
SCALE: AS SHOWN
DATE: OCTOBER 2018

C - 3.1